Debt Relief Effectiveness and Institution Building

Andrea F. Presbitero
Università Politecnica delle Marche, Department of Economics
MoFiR
CeMaFiR

MoFiR working paper n° 15

February 2009

Debt Relief Effectiveness and Institution Building

Andrea F. Presbitero *

4th December 2008

Abstract

The history of debt relief is now particularly long, the associated costs are soaring and the outcomes are at least uncertain. This paper reviews and provides new evidence on the effects of recent debt relief programs on different macroeconomic indicators in developing countries, focusing on the Highly Indebted Poor Countries. Besides, the relationship between debt relief and institutional change is investigated to assess whether donors are moving towards and *ex-post* governance conditionality. Results show that debt relief is only weakly associated with subsequent improvements in economic performance but it is correlated with increasing domestic debt in HIPCs, undermining the positive achievements in reducing external debt service. Finally, there is evidence that donors are moving towards a more sensible allocation of debt forgiveness, rewarding countries with better policies and institutions.

Keywords: HIPC, Debt Relief, Institutions.

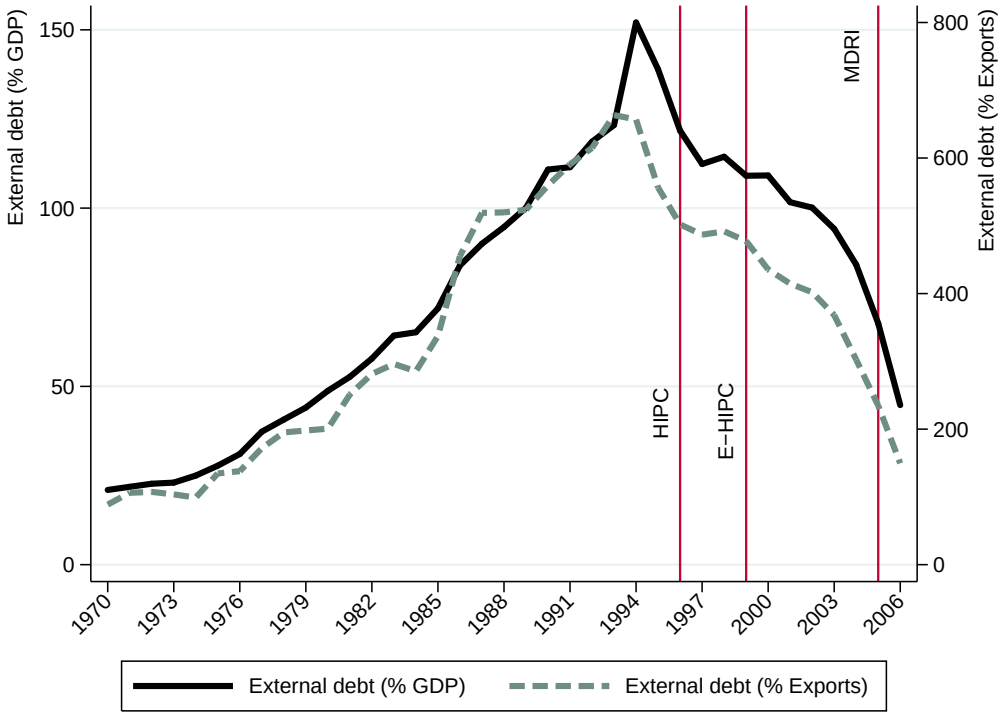
JEL Classification: C33, F34, H63, O11

1 Introduction

The current debt crisis in the Highly Indebted Poor Countries (HIPC) is a long lasting phenomenon started in the seventies and due to increasing bilateral loans and concessional lending, to the lack of macroeconomic adjustments and structural reforms in poor countries, and to a number of exogenous domestic and international shocks that hindered economic growth in HIPCs. As a result of these adverse scenario, these countries started accumulating external debt in the seventies and, more intensively, in the following decade, reaching extreme ratios of debt over GDP and exports by mid-nineties (Figure 1). At the beginning of the seventies HIPCs had, on average, a level of external debt equal to total exports and to around a fourth

*Department of Economics – Università Politecnica delle Marche (Italy), Money and Finance Research group (MoFiR) and Centre for Macroeconomic and Finance Research (CeMaFiR). E-mail: a.presbitero@univpm.it; personal webpage: www.dea.unian.it/presbitero/. The author thanks M. Arnone for very useful discussions and suggestions and A. Kraay for the provision of data on debt relief. The usual disclaimers apply.

Figure 1: External Debt in HIPCs



Source: World Development Indicators 2008 (World Bank, 2008).

of gross domestic product. By the end of the eighties, the stock of debt became equal to the annual GDP and to more than five times exports, notwithstanding the extensive use of non-concessional flow reschedulings granted by the the informal group of official creditor (Paris Club). The increasing external debt was seen as unsustainable and determined a number of debt relief initiatives that were introduced during the late 1980s and the 1990s (Toronto, London, Naples and Lyon terms), according to which bilateral donors agreed on rescheduling on concessional terms (see Daseking and Powell, 1999, for a detailed discussion of the history of debt relief). Nevertheless, the stock of external debt kept growing and, at its peak, the level of external debt in the whole sample of HIPCs reached 152 per cent of GDP (in 1994) and 663 per cent of exports (in 1993). Thereafter, it started a steep decline in debt ratios, especially in the last five years. Thanks to the Highly Indebted Poor Country Initiative launched by the World Bank and the International Monetary Fund in 1996 and enhanced in 1999, the average external debt to GDP ratio at 45 per cent and the ratio over exports at 150 per cent, the threshold which was identified as the sustainable level of debt under the HIPC Initiative. Finally, in 2005, donors pledged to cancel the whole debt held by the International Development Association of the World Bank, the International Monetary Fund, the African Development Fund and the Inter-American Development Bank of the countries that have reached the completion point under the Enhanced Heavily Indebted Poor Countries (HIPC) Initiative.

Notwithstanding this recent decline in debt ratios, the evidence on the effectiveness of debt relief in enhancing economic growth and reducing poverty is broadly

inconclusive. Depetris Chauvin and Kraay (2005) show that the $100 billion in debt relief granted by donors to low-income countries between 1989 and 2003 had a very limited effect on public spending, investment and growth in recipient countries.

Generally, the applied development literature focused on the consequences of external debt on the real economies, firstly following the Latin-American debt crisis of the eighties, and than being reinvigorated by the Highly Indebted Poor Countries Initiative coordinated by the World Bank and the International Monetary Fund in 1996.

The theoretical framework is based on the debt overhang hypothesis (Krugman, 1988; Sachs, 1989), which predicts that higher debt is detrimental to economic growth since it discourages investments. In presence of debt overhang, excess debt acts as a distortionary tax, given that agents assume that a share of future output will be used to repay creditors and therefore decrease or postpone investment, hindering economic growth. However, this situation is not likely to be the case in the current debt crisis, given that HIPCs receive net positive resource inflows and borrow from official creditors (World Bank's IDA and IMF's PRGF) which are neither profit maximizers nor risk neutral, so that they are not scared off by the excessive stock of existing debt and keep on lending at a high degree of concessionality. Koeda (2008) adapts the debt overhang argument to the specific experience of low-income countries developing a simple model in which the interest rate on loans depends on debtor country's income being below or above an income cutoff. Being trapped in a debt overhang is a function of the initial stock of debt and of country's total factor productivity, with highly indebted countries having a strong incentive to accumulate concessional debt and allocate resources to consumption rather than investment, stagnating below the cutoff so that they could keep on borrowing at a concessional rate, becoming aid dependent. One implication of this model is that debt relief has to be a one-time treatment in order to be effective in helping countries to achieve growth. If this is not the case, debtors still have the incentive to stagnate around the cutoff because they anticipate that they will receive future debt relief according to the same eligibility criteria.

The empirical validation of the presence of debt overhang in poor countries is ambiguous. Some earlier paper identified a non-linear relationship between external debt and growth (the so-called Debt Laffer curve), supporting debt reduction policies (Elbadawi, Ndulu and Ndung'u, 1997; Pattillo, Poirson and Ricci, 2002; Clements, Bhattacharya and Nguyen, 2003). More recent studies only partially confirm the debt overhang effect, since there is evidence of a sort of debt irrelevance zone beyond a debt threshold (Cordella, Ricci and Ruiz-Arranz, 2005) and also of a spurious relationship driven by country-specific factors jointly determining low growth rates and high debts (Imbs and Ranciere, 2005). In particular, institutional factors drive the debt-growth relationship and debt overhang is effective exclusively in countries with sound institutions (Presbitero, 2008). Moreover, these studies identifies the direct effect of large debt on economic growth, generally disentangling between its impact on capital accumulation and total factor productivity (Pattillo, Poirson and Ricci, 2004). Other possible consequences on the economy, such as social and health expenditures, and attractiveness to foreign investors are generally not considered.

The crowding out of investment due to debt service payments represent a second channel through which large debts could impinge on economic growth. The empirical literature on this effect is not conclusive. According to some authors

(Pattillo, Poirson and Ricci, 2002; Cordella, Ricci and Ruiz-Arranz, 2005), debt service is not detrimental for economic growth, given that HIPCs actually receive positive inflows of resources. By contrast, others (Cohen, 1993; Chowdhury, 2004; Hansen, 2004; Loxley and Sackey, 2008) corroborate the adverse impact of debt service obligations, even if its impact might be limited to investment (Presbitero, 2006) and its magnitude on GDP growth is small (Clements, Bhattacharya and Nguyen, 2003).

Hence, according to the existing evidence, there might be a positive effect of debt relief on subsequent economic growth rates, at least in countries with good institutions. Nevertheless, the theoretical arguments are not so straightforward and debt relief does not necessarily imply an improvement in recipients' economic and social indicators. The rationale of a poor performance of debt relief has to do with debt relief being an alternative source, but not a perfect substitute, of foreign aid.

On the one hand, debt relief, similarly to foreign aid, generate a state of aid dependence in debtor countries, which could undermine institutional quality by weakening and distorting political accountability, encouraging corruption, fomenting conflict over control of aid funds, siphoning off scarce talent from the bureaucracy, and alleviating pressures to reform inefficient policies and institutions (Knack, 2001; Moss, Pettersson and van de Walle, 2006; Wood, 2008)[1].

On the other hand, differently from foreign aid, debt relief does not consists in a direct inflow of resources but in a reduction of the fiscal expenditures through a decline in debt service payments. This could reduce the negative effects of foreign aid due to the exchange rate overvaluation (Rajan and Subramanian, 2005) and to rent-seeking behaviors which could generate a sort of *aid curse* similar to the *natural resource curse* (Djankov, Montalvo and Reynal-Querol, 2008).

Besides, debt relief does not necessarily provide additional resources to recipient countries: when debt cancelation concerns debts that were not being serviced, it does not free resources with respect to a situation without debt relief. Even when debt service payments actually decrease, debt relief has a minimal impact on HIPCs' net resource transfers, which are largely driven by net lending and grants (Arslanalp and Henry, 2006), consistent with the literature which does not find a robust evidence of the crowding out effect.

A further reason why debt relief could be ineffective is that it is not considered as a positive signal of countries undertaking structural reforms and changing their policies according to debt reduction initiatives. On the contrary, it seems that investors interpreted debt relief as a signal for countries that, given their large external debt, are likely to have a high (and stable over time) discount rate against the future: this would mean that governments will keep on overborrowing and trading off consumption today versus consumption tomorrow, heavily taxing the private sector and discouraging investors (Easterly, 2002).

Finally, it is reasonable to assume that debt relief would become more effective with time, since governments and International Financial Institutions approach to

[1]Contrary to this point, Kanbur (2000) argues that debt relief could actually reduce aid dependence especially because of the less energy, time and human capital wasted in debt rescheduling and negotiations with donors to keep a resource inflows large enough to repay debt obligations. Nevertheless, HIPC debt relief is not a sort of *arm's length lending*, given the number of conditions to be met under the HIPC Initiative. Besides, even if time and effort committed by public officials to debt management could be redeployed in more productive areas after debt relief, such benefits would not become evident for many years (Moss, 2006).

debt relief is driven by *learning by doing*, as testified by the incremental improvements in the HIPC Initiative (i.e. from the original to the enhanced HIPC and finally to the MDRI) and in the debt sustainability framework (Group, 2006).

Therefore, debt relief effectiveness could be undermined by its limited impact on government budget, its negative signalling effect and by worsening institutional quality. The first point should be the most effective one, given that a significant share of debt relief concerns debt which were not likely to be serviced anyway. The second explanation is consistent with the former, given that investors would have probably already discounted the write-off of the debt actually forgiven and, therefore, they are not likely to change their strategies because of a formal debt relief announcement. Finally, the last point is the most critical: firstly, one should validate the link between debt relief and institutional quality and, only after that, one could investigate whether worsening institutions are another element undermining debt relief effectiveness. Only if these two hypothesis are confirmed one could argue that the larger is debt relief's share in government revenues, the lower the incentives to invest in effective public institutions.

With respect to the last point, there is a vast literature on aid allocation showing how foreign aid mainly responds to political incentives (Alesina and Dollar, 2000), even if recent trends go in the direction of increasing selectivity in terms of democracy and rule of law (Dollar and Levin, 2006). By contrast, the choice of granting debt relief received a limited attention, even if some authors look at the determinants of debt relief in order to assess what drives donors' behavior (Neumayer, 2002; Freytag and Pehnelt, 2008). One contribution of the paper aims at filling this gap estimating a two-stage model of debt relief to identify how different factors affect the likelihood of receiving debt relief and the amount of debt actually forgiven. With respect to the literature, this paper contributes updating the analysis of Neumayer (2002) still controlling also for recipients' needs and explicitly focusing on HIPCs, in order to test whether HIPC relief is targeting countries more in need and better governed. Moreover, we measure the policy and institutional framework using (amongst other indicators) the overall CPIA score, on which the World Bank lending policies are based. This represents an advantage in the sense that we can better identify by the *ex-post* evaluation of creditors' behavior whether donors moved towards consistent lending policies, rewarding countries with better policies and sounder institutions and eventually improving debt relief effectiveness.

Once assessed how debt relief is allocated by donors, we focus on its effectiveness. A recent strand of literature explicitly addresses the outcomes of actual debt relief on growth and investment (Depetris Chauvin and Kraay, 2005; Johansson, 2008), on credit availability to the private sector (Harrabi, Bousrih and Mohammed, 2007) and on social services expenditures (Dessy and Vencatachellum, 2007), finding a mixed evidence. The main contribution of this paper is to build on this literature providing further evidence of the consequences of debt forgiveness on different macroeconomic indicators and on institutional quality[2], focusing on a sample of developing countries and also explicitly on HIPCs, and trying to disentangle possible heterogeneous effects according to the country-specific institutional framework, given that a certain level of institutional quality is required in order to benefit from

[2]Also in this case, the overall CPIA score represents an advantage to evaluate whether debt relief is actually pushing recipient governments to improve their institutions. Given that debt relief programs and lending criteria are based on these indicators, we expect debtors to improve their policy and institutional framework according to the aspects included in the CPIA score.

debt relief (Asiedu, 2003). In particular, with respect to Depetris Chauvin and Kraay (2005), who represent the benchmark for this analysis, the paper extends their analysis looking at the outcomes following debt relief granted at the beginning of the new millennium. This is of particular interest because those were the years during which debt relief increased substantially as a result of the HIPC Initiative and also because it allows for testing whether International Financial Institutions are learning by previous debt relief and improving its effectiveness over time.

We acknowledge that this represents a tentative evaluation of debt relief effectiveness and that more time and data is certainly required to better establish whether HIPC relief were able to achieve its targets in terms of poverty reduction and sustained economic growth, without determining any other side-effect. In particular, the 100 per cent debt cancelation granted by the MDRI could be more effective than traditional debt relief in helping countries escaping a situation of aid dependence (Koeda, 2008). Nevertheless, given the relevance of this issue for policy makers, we believe that the more data and analysis available at any time, the more informed could be the decision-making.

The paper proceeds as follows: Section 2 presents the results of the debt relief programs in terms of debt service reduction and poverty reduction expenditures and reviews the relevant literature on debt relief effectiveness. Section 3 is about the data used in the empirical analysis and on their sources. Section 4 looks firstly at the determinants of debt relief (Section 4.1) and, then, at the effects of debt relief on different macroeconomic and institutional variables (Section 4.2). Finally, Section 5 concludes.

2 The Effects of Debt Relief in Poor Countries

2.1 Debt relief delivered ...

According to the statistics published by the IMF and the World Bank, at September 2008 the committed debt relief under the HIPC Initiative amounted to 68 billions of US dollars in nominal terms, of which 45 billions delivered to the 23 post-completion point countries and 23 billions to the 10 interim HIPCs. The MDRI added other 43 billions in assistance for the 23 post-completion point countries, so that, in sum, HIPC and MDRI assistance amounts to USD 112 billions (International Development Association and International Monetary Fund, 2008, Table 4). One the one hand, this is a large quantity of money which deserves a careful scrutiny about its effectiveness in fostering poverty reduction in recipient countries. On the other hand, expectations on the results of debt relief should be realistic. To put these figures in perspective, one should consider that the estimated total cost of supporting the Millennium Development Goals (MDG) financing gap in all countries is around $121 billion in 2006, raising to $189 billion in 2015 (UN Millennium Project, 2005), while official development assistance (ODA) was equal to USD 103.7 billion in 2007 (95 billion without considering debt relief) (OECD, 2008).

In particular, at country level, the UN Millennium Project estimates that Uganda needs USD 33 billion to meet the MDGs over the period 2005-2015, which amounts, on average, to 90 dollars per capita and to the 26 per cent of GDP per year. Of this sum, 17 billions (13.7% of GDP) have to be financed through external budget

support. The costs of funding the MDGs represent a similar share of GDP also in Ghana (26.3%) and Tanzania (27.7%) where the external budget support should be equal, respectively, to 15.6 and 16.6 per cent of GDP Sachs et al. (2004). By contrast, at September 2008, these countries received debt relief under the HIPC and MDRI programs only for a small share of their expected expenditures[3].

2.2 . . . and some results

This section discusses the effects of debt forgiveness in poor countries. Firstly, we inspect the official data to see whether debt relief actually freed up resources in the budget balance and whether these money was targeted to increasing pro-poor spending (subsection 2.2.1). However, more resources and more expenditures on poverty reduction are not a sufficient conditions for granting poverty reduction and, more generally, improvements in the economic performance. Hence, in subsection 2.2.2 we review the most relevant literature on debt relief effectiveness, focusing on its consequences on social spending and economic performance.

2.2.1 More resources

A first result of debt relief is the relaxing of budget balance, with HIPC countries reducing the share of debt service over GDP (and revenues). According to official World Bank data, from 1999 to 2007, debt service in the 33 post-decision point HIPCs decreases from 22 to 8 per cent of revenues and from 3.9 to 1.5 per cent of GDP. This trend is projected to continue in the next years when the ratio of debt service over GDP is going to be below one per cent (Figure 2).

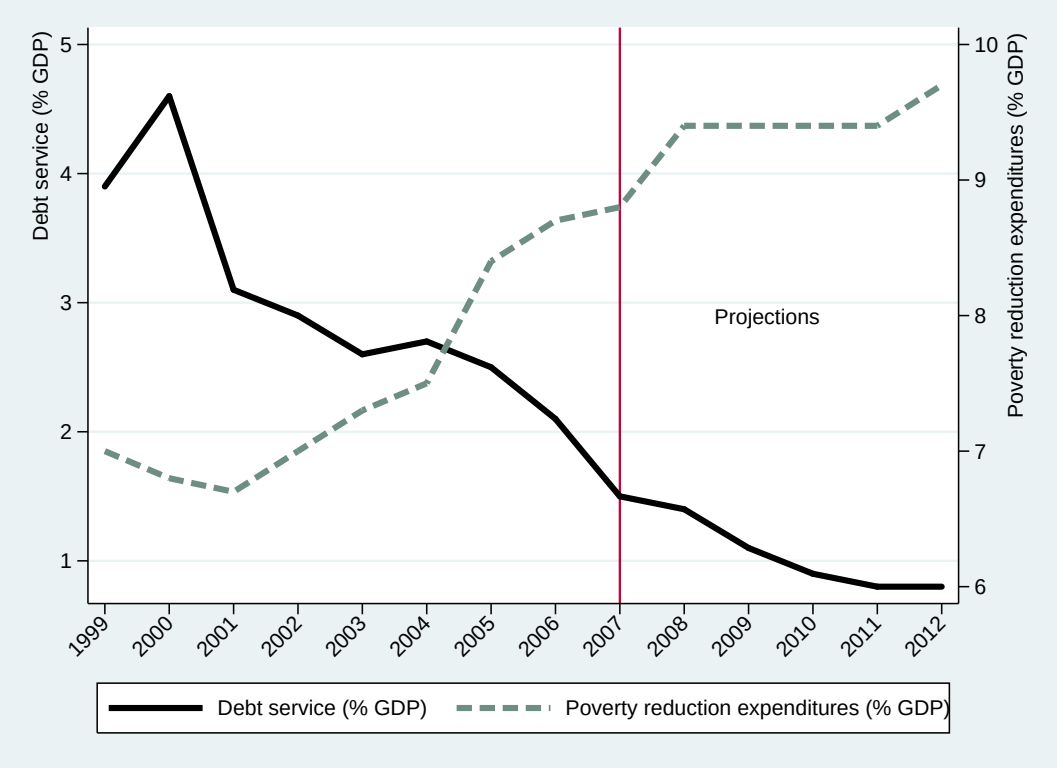
Given the design of the HIPC Initiative, which strengthens the links between debt relief and poverty-reduction efforts, the savings from debt service payments should pay for increases in poverty reduction expenditures. In fact, poverty reduction expenditures have increased from 34.7 per cent of government revenues in 1999 to 50 per cent in 2005 and they are projected to raise above this threshold in the next years. As a share of GDP, pro-poor spending is estimated to pass form 7 per cent in 1999 to almost 10 per cent in 2012 (Figure 2).

Notwithstanding this positive aggregate picture, the situation at country level is more heterogeneous, with countries that still face harsh financing constraints and have limited poverty-reducing expenditures, as showed by Figure 3. In particular, in the Republic of Congo and Guinea-Bissau more than 8% of GDP had to be allocated to service external debt in 2007. The situation is also critical in the Gambia, where debt service was 4.1% of GDP and in Guinea, Bolivia and Sao Tome and Principe, where expenditures for debt service were above two per cent of GDP. Moreover, notwithstanding an average reduction in debt service payments after decision point, the variability across countries increased substantially (the coefficient of variation increased from 0.64 at decision point to 1.35 in 2007).

The opposite happened with respect to pro-poor spending, which, apart from increasing on average, became more equally diffused across countries (the coefficient

[3]In particular, debt relief for Ghana, Tanzania and Uganda totaled respectively USD 7.4, 6.8 and 5.5 billion (International Development Association and International Monetary Fund, 2008). Moreover, over the period 1988-2003, those countries received, on average per year, debt relief in present value terms (our calculation based on data by Depetris Chauvin and Kraay, 2005), ranging from 1.1 to 6.4 dollars per capita and from 0.3 to 2.9 of their GDP.

Figure 2: Debt Service and Poverty Reduction Expenditures in HIPCs



Source: International Development Association and International Monetary Fund (2008, Table 1). Data refers to the 33 post-decision point HIPCs. The ratios for 2007 are preliminary, while from 2008 onwards are projections.

of variation decreased from 0.65 at decision point to 0.45 in 2007). Nevertheless, even in this case, there are some countries which are left behind, such as Sierra Leone, Guinea, the Democratic Republic of Congo, Benin and Guinea-Bissau which allocate less than five per cent of GDP on poverty reduction spending.

In sum, while the progress in debt service reduction, even if at different pace, are common to almost all countries (with the exception of Guinea-Bissau), five countries experienced a reduction in the share of GDP allocated to poverty reduction expenditures.

Finally, data on poverty reduction expenditures provide a first descriptive evidence of the importance of the policy and institutional framework in recipient countries in order to reap the benefit of debt relief (Asiedu, 2003). Countries with better policies were more able, on average, to target resources freed up by debt relief to poverty reduction spending and there is a positive correlation between the change in pro-poor spending between decision point and 2007 and the initial quality of the policy and institutional framework, measured by the overall CPIA score (Figure 4)[4]. .

[4]See Section 3 for detailed information on the data used.

Figure 3: Debt Service and Poverty Reduction Expenditures in selected HIPCs

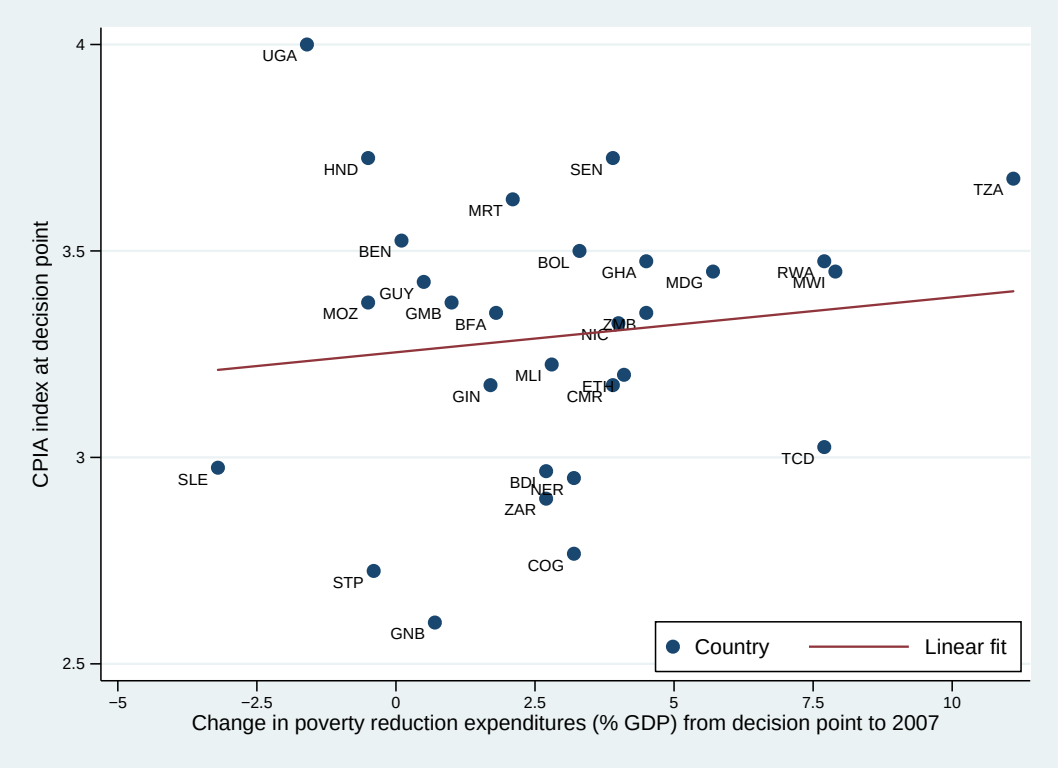
Source: Our calculations from data drawn from different *Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) - Status of Implementation*, published by the World Bank and the IMF. Data refers to the 30 post-decision point HIPCs (Afghanistan, Central African Republic and Liberia are excluded because they reached decision point in 2007 and 2008 (Liberia)). Haiti has missing data on poverty reduction expenditures.

2.2.2 The outcomes

The first contribution which directly assesses the impact of debt relief on growth, investment and public spending is provided by Depetris Chauvin and Kraay (2005), who construct two alternative measures of the total amount of debt relief (in present value) over the period 1989-2003, one based on debtor- and the other on creditor-reported data. As stated by the authors themselves, their results on 62 low-income countries are rather disappointing, given that they found a very limited evidence supporting a positive impact on public and social (health and education) spending, investment and growth rates. Furthermore, there is only a weak evidence of additionality of debt relief with countries receiving more debt relief experiencing subsequent decline in aid inflows. Finally, there is a positive association between reduction in debt and future increases in policy and institutional indexes, even if it is driven by few outliers. While Depetris Chauvin and Kraay rely on a difference-in-difference estimator to assess the impact of debt relief on a number of possible outcomes, Johansson (2008) uses a dynamic panel model to estimate a growth and an investment equation, confirming the ineffectiveness of debt relief in enhancing investment and growth.

Building on the Depetris Chauvin and Kraay' paper, other authors have investigated the effectiveness of debt relief, focusing on African countries. Dessy and

Figure 4: Poverty Reduction Expenditures and Institutional Quality in HIPCs



Source: Our calculations from data drawn from different *Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) - Status of Implementation*, published by the World Bank and the IMF. Data refers to the 29 post-decision point HIPCs (Afghanistan, Central African Republic, Liberia and Haiti are excluded because they reached decision point in 2007 and 2008 or they lack data).

Vencatachellum (2007) analyze the relationship between debt relief and social expenditures[5] in Africa, finding that debt reduction is associated with an increase in the the share of country's expenditures allocated either to public education or health in countries which have improved their institutions. In a recent paper, Crespo Cuaresma and Vincelette (2008) look at education outcomes in countries that reached the decision and completion points under the HIPC Initiative finding mixed evidence. Comparing HIPC countries at different stage of the Initiative, the authors find that drop out rates decrease after a country graduates from completion point, while they do not find any significant increase in educational expenditures.

A further channel through which debt relief could benefit recipient countries could be the relaxing of financing constraints for local firms. In fact, large external debt is detrimental for private sector lending because of higher interest rates and high risk premium associated with debt overhang. Furthermore, government could recur to internal financing to serve external debt obligations, leading to the crowding out of private sector investment because of the preference of the banking system towards government securitized debt. The latter point is confirmed by the

[5]More generally, Lora and Olivera (2007) looks at the relationship between external debt and social expenditures. Their results on a panel of 50 developing countries show that higher total public debt is associated with a reduction in social expenditures, while debt service payments has a limited effect.

analysis of Arnone and Presbitero (2007) who show how domestic debt is rising in many HIPCs as an unintended consequence of the Initiative and find that the investor base is very concentrated, with the banking sector being the main holder of government securities (the banking systems held around 60% of government securities in 2002 in a sample of HIPCs). The real effect of a rising domestic debt on private sector lending is supported by Christensen (2005), who documents that, in a sample of African countries, a rising domestic debt reduces banking credit to the private sector. Hence, Harrabi, Bousrih and Mohammed (2007) test the hypothesis that debt relief, creating fiscal space and limiting increasing in the interest rates, could enhance credit to the private sector. The authors look at the experience of 52 African countries over the period 1988-2004 and find that debt relief actually alleviates government pressure on domestic financial markets. Moreover, in the long term, debt relief reduces the crowding out effect only when associated with good institutional quality.

3 Data

We build a dataset covering 62 developing (low and lower-middle income) countries over the period 1988-2007 merging macroeconomic data drawn from the World Development Indicators (World Bank, 2008) with other datasets for debt relief, external and domestic debt, and institutional indicators[6].

The historical series on the Net Present Value (NPV) of Public and Public-Guaranteed external debt is an internal dataset of The World Bank constructed by Dikhanov (2004). From these data, a measure of external debt burden is constructed scaling the NPV of external debt over GDP ($EXTERNAL\_DEBT$)[7]. Data on domestic debt (scaled by GDP, $DomD$) comes from the dataset built by Abbas (2007), on the basis of the IFS monetary surveys, for 93 low income countries spanning the period 1974-2004[8].

Data on debt relief comes from the dataset developed by Depetris Chauvin and Kraay (2005). These authors estimate the net change in the net present value of the stock of debt outstanding due to debt relief. With respect to the traditional data on the nominal amount of debt forgiven, this measure has the double advantage of considering adequately the changes in external debt due to reschedulings and the actual variation in the net present value of debt due to cancelation of concessional debt. Moreover, Depetris Chauvin and Kraay build two alternative measures of debt relief, one based on debtor-reported data and the other on creditor-reported

[6]The country coverage is based on the 1988 World Bank income classification, in order to avoid sample selection problems, and varies according to different exercises because of data availability. The list of countries, together with their regional and income classification, is reported in Table 8 in Appendix A

[7]Alternatively, the ratio of external debt over exports could be more informative on a country's capacity to generate enough foreign currency to meet its debt obligations. However, in this paper we need a measure of debt burden and the ratio of external debt over GDP is a good proxy and suffer less form the volatility of the denominator. Moreover, as shown in Figure 1, the two indicators provide similar pictures.

[8]More formally, Abbas (2007, p.18) define the public sector domestic debt as *gross securitised claims on the central government (excluding the stock of treasury securities issued by the central bank) plus all securities issued by the central bank and appearing on the liabilities side of its balance sheet.* The author also reports the series of domestic debt scaled by GDP and commercial bank deposits.

data[9]. Given the high correlation between the two measures (0.66) and the underestimation of the creditor-based measure of debt relief, since it includes only the major creditors, throughout the paper we present results obtained with the debtor-based measure of debt relief, scaled by the initial stock of the net present value of external debt ($DEBT\_RELIEF$)[10].

The quality of policies and institutions is measured by the Country Policy and Institutional Assessments (CPIA) indicator, which is developed by the World Bank, reflecting the its staff professional judgment, based on country knowledge, policy dialogue, and relevant public available indicators (for more information, see International Development Association, 2007)[11]. Moreover, we also measure institutional quality using the World Governance Indicators developed by the World Bank, which have the advantage of being available also for 2007[12] and cover different aspect of governance which could affect and be affected in a different way debt forgiveness: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption (Kaufmann, Kraay and Mastruzzi, 2008).

4 Results

This section firstly looks at the determinants of debt relief (subsection 4.1). The aims are to (1) identify the variables affecting the donors' choice to granting debt relief and the amount of debt actually forgiven and (2) assess whether donors are moving towards an increasing selectivity based on institutional quality. Then, we present the empirical evidence on the effects of debt relief on different macroeconomic indicators (subsection 4.2). Given that we are interested in any change in the effectiveness of debt relief or in donors' behavior in both the exercises the analysis focuses on different sub-periods, apart from looking at the whole time period.

4.1 The Determinants of Debt Relief

It is generally argued that debt forgiveness should act as an incentive to recipient countries to improve their institutions and to undergo adjustments leading to better policies. Traditional conditionality is based on an *ex-ante* commitment by debtor governments, but it suffers from a number of shortcomings, since the imperfect monitoring by donors creates an incentive for moral hazard behavior by recipient governments. Moreover, a large number of conditions attached to aid disbursements or to debt relief is perceived as intrusive in national sovereignty and it is likely to reduce the country ownership of reform programmes (Drazen, 2002). The standard policy conditionality is concerned about making government accountable to donors

[9]See the Appendix of the Depetris Chauvin and Kraay (2005)'s paper for further detail on the construction of these two measures.

[10]For robustness, we have repeated all the exercises with the creditor-based measure. Results are available from the author on request.

[11]This data are now fully disclosed and published in the World Development Indicators World Bank (2008) starting from 2005, but the historical dataset is confidential. The dataset used in the paper covers the period from 1987 to 2006

[12]This gives one year more of time to evaluate debt relief effectiveness, even if at the cost reducing the sample period from 1996 onwards.

and, in this way, it undermines the accountability of the government to the society. Donors could reinforce the accountability of the government to their citizens following an alternative strategy rewarding *ex-post* the countries that meet criteria of attained level of governance and that demonstrated to be able to achieve significant improvements in their policies and institutional framework (the governance conditionality proposed by Collier, 2007).

Given the large cost of debt relief it is worth analyzing the behavior of donors in order to assess whether they were able to allocate resources to virtuous countries, adopting the *ex-post* governance conditionality, at least in the last years. To do so, we look at the determinants of debt relief, building on a literature which generally found that, in the past, debt forgiveness was not granted to countries with good governance (Neumayer, 2002), even if, since 2000, debt relief programs seem to be influenced by recipients' institutional quality (Freytag and Pehnelt, 2008). In particular, Neumayer (2002) find that debt forgiveness is mainly driven by countries' need. Estimating a two-stage model and using a number of governance indicators, the author shows that, in a cross-section of 85 developing countries, there is only a statistical (but modest) association between the degree of voice and accountability and regulatory burden of recipient governments and the amount of debt forgiven over the period 1989-1998. Using more recent data for 123 developing countries from 1990 to 2004, Freytag and Pehnelt (2008) point out a change in donors' behavior, which passed from being driven by "political rationality" in the nineties to be shaped by "economical rationality" in the new millennium. Specifically, the change in the rule of law and in government effectiveness are positively associated with the amount of debt relief in 2000-2004, while institutional and policy variables do not appear to influence the probability of being eligible for debt forgiveness, as found also by Neumayer (2002).

4.1.1 Descriptive Evidence

Amongst the possible determinants of debt relief it is worth assessing the impact of the institutional framework. The data available allows for inspecting the relationship between the probability of receiving debt relief in three different periods (1992-1995, 1996-1999 and 2000-2003) and the quality of policies and institutions in the previous period. The univariate analysis suggests a selective behavior by donors, which seem to target debt relief to countries with better institutions. Table 1 points out a significant difference in the overall CPIA score between countries which received debt relief and those which not in all periods except from debt relief granted between 1996 and 1999.

A similar indication can be drawn also from the inspection of the relationship between debt relief and past institutions, limited to countries which actually had a share of their external debt forgiven (Figure 5). Interestingly, the lack of any statistical correlation between debt relief and past institutions is a result of a completely opposite pattern over time. In fact, in both samples there is a negative correlation between the logarithm of debt relief and the past level of the overall CPIA score in the first period. However, this relationship becomes positive starting from 1996, suggesting that the HIPC Initiative was probably successful in influencing donors towards a lending strategy aimed at rewarding countries with better institutions and policies.

Table 1: Debt Relief and Institutions

Periods (t)	No debt relief		Debt relief		t-test
	$CPIA_{t-1}$	Obs.	$CPIA_{t-1}$	Obs.	(p-value)
1992-1995	2.78	17	3.28	38	0.04
1996-1999	2.98	20	3.16	41	0.22
2000-2003	2.93	19	3.24	42	0.07
Total	2.90	56	3.22	121	0.01

Notes: The table reports the average values of the overall CPIA score in the period t-1 for countries which received or not debt relief at time t. The last column report the p-values for the one-tailed test of the null hypothesis that the values of the CPIA scores in countries which received debt relief are higher than in countries without debt relief.

4.1.2 Multivariate Analysis

Using the dataset described in Section 3 it is possible to identify which are the factors determining the choice of granting debt relief and also affecting the amount of debt forgiven. The decision of granting debt relief could be thought as a two-step process, in which the first step consists in selecting the eligible countries and the second one concerns the amount of external debt actually forgiven. Hence, the whole process could be modeled using the two-step estimator developed by Heckman (1979). Specifically, in the selection equation the dependent variable is the probability of a country i receiving a positive amount of debt relief at time t:

$$Pr(DEBT\_RELIEF_{i,t}) = \Phi(DEBT\_RELIEF_{i,t-1}, CPIA_{i,t-1}, AID_{i,t-1}, GDP_{i,t-1}, DEBT\_SERVICE_{i,t-1}, EXTERNAL\_DEBT_{i,t-1}, HIPC_i, COLONY_i, D_t) \quad (1)$$

where Φ is the normal distribution function. The possible determinants of the probability of receiving debt relief refer to time *t-1* and include the logarithm of the amount of debt relief already received in the previous period($DEBT\_RELIEF$), the logarithm of aid inflows (as a share of GDP, AID), the logarithm of real GDP per capita (GDP), the logarithm of total debt service (as a share of GDP, $DEBT\_SERVICE$), the logarithm of the Net Present Value of external debt over GDP ($EXTERNAL\_DEBT$), the overall CPIA score ($CPIA$), a dummy for HIPC countries ($HIPC$), and the number of years the country has been a former colony of an OECD country since 1900 ($COLONY$, from the World Factbook (Central Intelligence Agency, 2008)), to take into account political interest driving aid allocation by donors, which might want to preserve an influence on recipient countries[13].

The outcome equation expresses the amount of debt relief as a function of past levels of aid, total debt service and external debt (all expressed as the logarithms of their ratios over GDP) and of the level of the overall CPIA score in the previous period:

[13]The same measure is used, amongst others, by Alesina and Dollar (2000). To control also for geopolitical motivations in donors' behavior, in separate regressions we have also included the log of the minimum kilometric distance between the capital of the indebted country and either New York, Tokio or Rotterdam (the variable is taken from Gallup, Sachs and Mellinger (1999)). Our main findings are confirmed, even if the sample size is further reduced because of data availability.

$$ln(DEBT\_RELIEF_{i,t}) = \alpha + \beta_1 CPIA_{i,t-1} + \beta_2 AID_{i,t-1} + \\ +\beta_3 DEBT\_SERVICE_{i,t-1} + \beta_4 EXTERNAL\_DEBT_{i,t-1} + D_t + \hat{\lambda}_i \quad (2)$$

where time dummies (D_t) and the inverse Mills ratio estimated in equation 1 ($\hat{\lambda}_i$) are included. Therefore, the excluding restrictions which are likely to affect the probability of receiving debt forgiveness but not its amount are the real per capita GDP, the amount of debt relief in the previous period, the past colonial experience and a dummy for HIPCs. For the latter variable, we follow Freytag and Pehnelt (2008), while $COLONY$ is included to taken into account possible political motivation in the allocation of debt relief (similarly, Neumayer (2002), who does not find past colonial experience being correlated with the amount of debt forgiven) and the other two variables are generally significantly correlated with the probability of receiving debt relief, but not with the quantity of debt forgiven.

Table 2 reports the results for the pooled cross sections over the whole period 1998-2003 as well as for the three sub-periods for the whole sample of developing countries. As regard the selection equation, results show that donors are more likely to grant debt reductions to the HIPC countries and to those that already received debt relief, supporting the hypothesis of the presence of path dependence in debt relief (Michaelowa, 2003). However, the level of indebtedness, both in terms of stocks and flows, and the level of income are not a significant determinants of the likelihood of receiving debt relief. The result about the lack of significance of debt variables is not due to the presence of the dummy for HIPCs, since its exclusion does not turns the coefficient on external debt and debt service significant. Hence, once controlled for being HIPC and for past debt relief, there is no evidence of donors targeting more indebted and poorer countries. The number of years as former colony does not influence the probability of having debt forgiven[14]. Finally, as concerns the variable of interest, the overall CPIA score is significant at five per cent level only in the last period: since 2000 donors seem to reward countries with good policies and institutions granting them debt relief.

Turning to the outcome equation, the picture is quite different. In this case, in fact, the larger the stock of external debt in present value terms, the greater the amount of debt canceled in the subsequent period. Debt service payments enter in the equation with a negative and significant sign. Even if, at first glance, this result could appear contrary to expectations, it is fully consistent with the hypothesis of debt relief at least partially concerning debt which were not being serviced. In other words, donors grant debt relief to countries which are most in need and with lower probability of repayment. Aid inflows are also negatively correlated with subsequent debt relief, which is still consistent with a targeting of debt relief towards countries most in need and with low repayment capacity. Finally, the analysis of the coefficients of the overall CPIA score shows a very interesting finding, which is consistent with the descriptive evidence (Figure 5). Even if there is a general positive association between institutional quality and debt reduction, this correlation substantially increases over time. Hence, results suggest a change

[14]This result could be driven by the aggregation of data, since political interest could better identified with bilateral flows (Alesina and Weder, 2002), instead of looking at the total amount of external debt forgiven, which involve also multilateral creditors.

Table 2: Determinants of Debt Relief, Whole Sample

	1992-2003	1992-1995	1996-1999	2000-2003
Outcome equation: Dep. Var.: $DEBT\_RELIEF_t$				
$CPIA_{t-1}$	0.459***	0.022	0.472*	0.878***
	(0.154)	(0.252)	(0.252)	(0.239)
AID_{t-1}	-0.531**	-0.350	-0.792**	-0.065
	(0.267)	(0.487)	(0.384)	(0.389)
$DEBT\_SERVICE_{t-1}$	-0.448***	0.033	-0.046	-1.084***
	(0.173)	(0.307)	(0.315)	(0.201)
$EXTERNAL\_DEBT_{t-1}$	0.629***	-0.000	0.761***	1.032***
	(0.159)	(0.283)	(0.258)	(0.234)
Selection equation: Dep. Var.: $Pr(DEBT\_RELIEF_t) > 0$				
$HIPC(0,1)$	1.152***	1.289*	1.044	0.905
	(0.330)	(0.678)	(0.676)	(0.609)
$COLONY$	-0.000	-0.009	-0.000	0.009
	(0.005)	(0.012)	(0.011)	(0.010)
$ln(DEBT\_RELIEF_{t-1})$	0.534***	0.779***	0.617***	0.482**
	(0.112)	(0.255)	(0.216)	(0.234)
$CPIA_{t-1}$	0.144	-0.298	0.146	1.106**
	(0.202)	(0.358)	(0.388)	(0.473)
AID_{t-1}	-0.044	0.264	-0.288	0.486
	(0.354)	(0.693)	(0.605)	(0.855)
$DEBT\_SERVICE_{t-1}$	0.067	-0.081	0.084	0.458
	(0.278)	(0.554)	(0.494)	(0.529)
GDP_{t-1}	0.169	0.004	0.614	-0.680
	(0.278)	(0.552)	(0.575)	(0.581)
$EXTERNAL\_DEBT_{t-1}$	0.267	0.322	0.192	0.480
	(0.213)	(0.452)	(0.368)	(0.465)
$\hat{\lambda}$	0.152	-0.124	0.727***	0.156
	(0.220)	(0.450)	(0.281)	(0.295)
Observations	161	50	53	58
Censored	76	24	25	27

Notes: The table reports regression coefficients and, in brackets, the associated standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%. The model is estimated by Two-Step Heckman, using Stata 10 SE package with HECKMAN command. Time dummies (in the first column) and the constant are included.

in donors behavior which, in correspondence of the start of the HIPC Initiative, are choosing the eligible countries and the amount of debt relief on the basis of the quality of policies and institutions, rewarding the countries with better governance.

Table 3 reports the results for the sub-sample of HIPCs. Even if the limited the sample size could widen standards errors and make the estimates less reliable, it is worth assessing whether the main findings are confirmed for the HIPCs or not. Given the great effort undertaken by the international community to implement the HIPC Initiative and the emphasis on poverty reduction and institutional quality it would be reasonable to expect HIPC relief targeting countries more in need and better governed. In fact, we find that the choice of forgiving debt is path dependent and debt relief is targeted to the countries most in need and with low repayment capacity. With respect to any change in donor's behavior in HIPCs, we find that since 2000 both the choice of granting debt relief and its amount depends on the policy and institutional framework. All in all, results are consistent with a more

Table 3: Determinants of Debt Relief, HIPC Sample

	1992-2003	1992-1995	1996-1999	2000-2003
Outcome equation: Dep. Var.: $DEBT\_RELIEF_t$				
$CPIA_{t-1}$	0.252	0.024	0.252	0.947*
	(0.157)	(0.201)	(0.259)	(0.554)
AID_{t-1}	-0.433	-0.367	-0.352	-0.123
	(0.271)	(0.470)	(0.444)	(0.431)
$DEBT\_SERVICE_{t-1}$	-0.455***	-0.181	-0.307	-1.202***
	(0.175)	(0.238)	(0.304)	(0.362)
$EXTERNAL\_DEBT_{t-1}$	0.635***	0.210	0.889***	1.051***
	(0.155)	(0.241)	(0.291)	(0.343)
Selection equation: Dep. Var.: $Pr(DEBT\_RELIEF_t) > 0$				
$COLONY$	-0.002	-0.007	-0.008	0.012
	(0.007)	(0.012)	(0.014)	(0.015)
$ln(DEBT\_RELIEF_{t-1})$	0.736***	0.607**	1.158***	0.304
	(0.163)	(0.281)	(0.387)	(0.447)
$CPIA_{t-1}$	-0.171	-0.412	-0.441	2.794**
	(0.288)	(0.424)	(0.745)	(1.416)
AID_{t-1}	-0.196	0.483	-0.628	-0.719
	(0.517)	(1.019)	(0.959)	(1.391)
$DEBT\_SERVICE_{t-1}$	0.589	0.164	1.339	-0.391
	(0.398)	(0.585)	(1.175)	(1.091)
GDP_{t-1}	-0.368	0.111	-1.079	-1.253
	(0.358)	(0.611)	(1.032)	(0.790)
$EXTERNAL\_DEBT_{t-1}$	-0.020	-0.076	-0.240	1.305
	(0.277)	(0.562)	(0.612)	(0.965)
$\hat{\lambda}$	-0.297	0.057	-0.167	0.131
	(0.271)	(0.368)	(0.382)	(0.653)
Observations	108	36	35	37
Censored	32	12	10	10

Notes: The table reports regression coefficients and, in brackets, the associated standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%. The model is estimated by Two-Step Heckman, using Stata 10 SE package with HECKMAN command. Time dummies (in the first column) and the constant are included.

recent selective approach by donors and also with a better targeting on poorer countries.

Finally, Tables 4 and 5 report the estimation of equations 1 and 2 for the debt relief granted in period 2000-2003, substituting the overall CPIA score with the World Governance Indicators, in order to see which aspect of institutional governance matters for debt forgiveness. Differently, from the CPIA score, in the whole sample none of the governance indicators affect the probability of debt relief, while all but "control of corruption" are positively associated with larger amount of debt forgiven (Table 4). Besides, the quality of bureaucracy and of public service provision, as well as the ability of the government to formulate and implement sound policies and regulations are the aspects of governance which matter most in the allocation of debt relief. These effects almost vanish in the subset of HIPCs, where only differences in the implementation of sound policies and in the regulations to promote private sector development positively affect the amount of debt relief (Table 5)

Table 4: Determinants of Debt Relief, Whole Sample, 2000-2003

	Corruption	Government	Regulation	Rule of law	Stability	Voice
Outcome equation: Dep. Var.: $DEBT\_RELIEF_t$						
$GOVERNANCE_{t-1}$	0.306	1.036***	0.791***	0.620**	0.429***	0.413*
	(0.350)	(0.311)	(0.220)	(0.303)	(0.148)	(0.226)
AID_{t-1}	0.333	0.108	0.078	0.223	0.155	0.077
	(0.471)	(0.408)	(0.418)	(0.449)	(0.425)	(0.487)
$DEBT\_SERVICE_{t-1}$	-0.855***	-1.134***	-1.114***	-1.024***	-0.992***	-0.896***
	(0.263)	(0.230)	(0.239)	(0.258)	(0.232)	(0.249)
$EXTERNAL\_DEBT_{t-1}$	0.644**	0.890***	0.957***	0.859***	0.756***	0.677***
	(0.258)	(0.227)	(0.227)	(0.269)	(0.220)	(0.234)
Selection equation: Dep. Var.: $Pr(DEBT\_RELIEF_t) > 0$						
$HIPC$	1.008*	1.078*	1.027*	1.013*	1.009*	0.988*
	(0.566)	(0.579)	(0.577)	(0.567)	(0.566)	(0.575)
$COLONY$	0.008	0.008	0.008	0.008	0.007	0.008
	(0.008)	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)
$DEBT\_RELIEF_{t-1}$	0.455**	0.483**	0.478**	0.468**	0.467**	0.455**
	(0.200)	(0.207)	(0.211)	(0.202)	(0.199)	(0.198)
$GOVERNANCE_{t-1}$	0.320	0.840	-0.118	0.433	0.166	0.068
	(0.532)	(0.637)	(0.483)	(0.551)	(0.288)	(0.438)
AID_{t-1}	0.563	0.564	0.758	0.619	0.607	0.691
	(0.808)	(0.785)	(0.785)	(0.771)	(0.798)	(0.806)
$DEBT\_SERVICE_{t-1}$	0.774	0.588	0.898*	0.655	0.796*	0.828*
	(0.489)	(0.518)	(0.518)	(0.530)	(0.482)	(0.491)
GDP_{t-1}	-0.439	-0.522	-0.380	-0.403	-0.476	-0.415
	(0.482)	(0.511)	(0.487)	(0.485)	(0.499)	(0.483)
$EXTERNAL\_DEBT_{t-1}$	-0.023	0.098	-0.190	0.064	-0.071	-0.116
	(0.378)	(0.381)	(0.403)	(0.419)	(0.347)	(0.344)
$\hat{\lambda}$	0.176	0.129	0.386	0.088	0.057	0.218
	(0.334)	(0.283)	(0.283)	(0.323)	(0.304)	(0.326)
Observations	58	58	58	58	58	58
Censored	27	27	27	27	27	27

Notes: The table reports regression coefficients and, in brackets, the associated standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%. $GOVERNANCE$ refer to the six World Governance Indicators (Kaufmann, Kraay and Mastruzzi, 2008) reported at the top of each column. The model is estimated by Two-Step Heckman, using Stata 10 SE package with HECKMAN command.

Table 5: Determinants of Debt Relief, HIPC Sample, 2000-2003

	Corruption	Government	Regulation	Rule of law	Stability	Voice
Outcome equation: Dep. Var.: $DEBT\_RELIEF_t$						
$GOVERNANCE_{t-1}$	-0.171	0.723*	0.684**	0.111	0.183	0.231
	(0.395)	(0.407)	(0.267)	(0.368)	(0.194)	(0.247)
AID_{t-1}	0.123	-0.058	-0.220	0.019	0.017	-0.121
	(0.500)	(0.467)	(0.472)	(0.511)	(0.490)	(0.505)
$DEBT\_SERVICE_{t-1}$	-0.593*	-0.984***	-1.132***	-0.762**	-0.821***	-0.827***
	(0.318)	(0.299)	(0.331)	(0.338)	(0.313)	(0.301)
$EXTERNAL\_DEBT_{t-1}$	0.555**	0.845***	0.990***	0.689**	0.707***	0.698***
	(0.269)	(0.249)	(0.267)	(0.295)	(0.250)	(0.244)
Selection equation: Dep. Var.: $Pr(DEBT\_RELIEF_t) > 0$						
$COLONY$	0.008	0.009	0.007	0.008	0.005	0.010
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
$DEBT\_RELIEF_{t-1}$	0.631*	0.566*	0.668*	0.600*	0.589*	0.555*
	(0.346)	(0.328)	(0.373)	(0.331)	(0.324)	(0.319)
$GOVERNANCE_{t-1}$	0.710	1.166	-0.351	0.451	0.235	0.595
	(0.888)	(1.051)	(0.732)	(0.837)	(0.400)	(0.667)
AID_{t-1}	-0.187	0.046	0.343	0.156	0.075	-0.137
	(1.207)	(1.140)	(1.155)	(1.094)	(1.134)	(1.208)
$DEBT\_SERVICE_{t-1}$	1.189	0.940	1.572*	1.134	1.337*	1.317*
	(0.726)	(0.812)	(0.804)	(0.849)	(0.717)	(0.725)
GDP_{t-1}	-1.053	-1.052	-0.915	-0.939	-1.096	-1.120
	(0.676)	(0.665)	(0.672)	(0.655)	(0.701)	(0.688)
$EXTERNAL\_DEBT_{t-1}$	0.029	0.114	-0.466	-0.045	-0.165	-0.135
	(0.565)	(0.546)	(0.582)	(0.589)	(0.443)	(0.454)
$\hat{\lambda}$	-0.353	-0.142	-0.089	-0.434	-0.341	-0.446
	(0.596)	(0.596)	(0.530)	(0.604)	(0.580)	(0.581)
Observations	37	37	37	37	37	37
Censored	10	10	10	10	10	10

Notes: The table reports regression coefficients and, in brackets, the associated standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%. $GOVERNANCE$ refer to the six World Governance Indicators (Kaufmann, Kraay and Mastruzzi, 2008) reported at the top of each column. The model is estimated by Two-Step Heckman, using Stata 10 SE package with HECKMAN command.

4.2 Debt Relief Effectiveness

In the previous section we have addressed one side of the relationship between debt relief and institution building, finding that, starting since 2000, donors started targeting debt forgiveness to countries with better policies and institutions. However, the main question we are interested in is debt relief effectiveness. This section aims at assessing the impact of debt relief on different outcomes and the eventual improvements due to a sort of *learning by doing* and to a targeting towards better governed countries.

4.2.1 Descriptive Evidence

A very simple way to inspect the effectiveness of debt relief consists in the visual representation of the correlation between actual debt relief and subsequent changes in different macroeconomic outcomes. In particular, we wash out business cycle fluctuations averaging data over four non-overlapping five years periods (1988-91; 1992-95; 1996-99; 2000-03; 2004-07) and we measure the change in outcome Y as the difference $Y_t - Y_{t-1}$, while the corresponding debt relief measure refers to the period $t-1$ and it is divided by the initial stock of external debt (measured in Net Present Value in the year before the four years period).

Amongst the possible variables which could be affected by debt relief, we consider the following ones in order to test some simple hypothesis:

1. The real growth rate of GDP per capita ($GROWTH$), calculated as log difference of the per capita GDP, measured in purchasing power parity at constant international dollars. This first exercise aims at unraveling any direct relationship between debt relief and subsequent growth.
2. The investment rate (INV), calculated as the share of gross capital formation over GDP, to test for the presence of debt overhang.
3. The ratio of foreign direct investments over GDP (FDI), to evaluate whether debt reduction is perceived as a positive signal by the international community, so that private investors increase their presence in the country.
4. The ratio of domestic debt over GDP ($DomD$). In this case, the testable hypothesis is based on an unintended consequence of the HIPC Initiative, based on the asymmetric adjustment of the real and monetary sides of the economy, which is likely to determine an increase in domestic borrowing.
5. The quality of policies and institutions measured, alternatively, by the overall Country Policy and Institutional Assessments score ($CPIA$) and by the six World Governance Indicators, to assess whether debt relief goes hand in hand with improvements in the institutional framework.

Figures 6 to 11 plots the correlation between actual debt relief and subsequent changes in the above variables in the whole sample and also in the HIPC countries[15].

The diagrams reported in Figure 6 show that there is a positive association between the amount of debt forgiven and subsequent changes in GDP growth in

[15]For the last period (2004-2007) data availability on $GROWTH$, $CPIA$ and FDI exclude 2007, while for $DomD$ and there is only the observation in 2004. Hence, results on this sub-period are to be taken with caution and, at least, as preliminary. More reliable are the results on the WGI which, however, can not be extended backwards before 2000.

HIPCs (right panel), while the relationship is weaker in the whole sample (left panel). The investment rate, instead, does not seem to react to previous debt relief both in the whole sample and in the HIPCs subset (Figure 7). Taken together, these diagrams suggest that, in HIPCs, there is a negative correlation between external debt and economic growth, even if this adverse effect works seems not to be due to a lower capital accumulation, but to a slowdown of total factor productivity, consistent with the findings of Pattillo, Poirson and Ricci (2004) and Presbitero (2006).

Figure 8 shows that debt relief did not enhance FDI neither in the whole sample nor in HIPCs. This result could be explained by the fact that part of debt actually canceled was already discounted as debt which would have never been serviced. Hence, foreign investors do not modify their expectations on debtors' future growth prospect and do not change their investment strategy because of a formal debt relief agreement. Furthermore, and in line with this possible explanation, debt relief might be interpreted by investors as a signal for countries that, given their large external debt, are likely to have a high (and stable over time) discount rate against the future: this would mean that governments will keep on overborrowing and trading off consumption today versus consumption tomorrow, heavily taxing the private sector and discouraging investors (Easterly, 2002).

The diagram reported in the right panel of Figure 9 confirms the hypothesis discussed by Arnone and Presbitero (2007), who documented a significant increase in domestic debt in a number of HIPC countries[16]. Especially between 2000 and 2003 it is possible to observe a strong and positive correlation between the amount of debt forgiven and the subsequent increase in domestic debt as a share of GDP[17]. According to Arnone and Presbitero (2007), the increase in internal financing is mainly due the asymmetric adjustment process implied by the HIPC Initiative, given that the fiscal variables reacted slower than the the monetary ones. Low revenues and the inherent political difficulties in reducing public spending in countries where most of the population lives in extreme poverty, together with the lack of access to international capital markets and adequate inflows of concessional lending, forced the governments to recur to domestic markets to finance their primary deficits. The different characteristics of the other low income countries included in the whole sample, and especially their access to international capital markets (limited, instead by the HIPC Initiative) could explain the lack of a significant correlation between domestic debt and debt relief showed in the left panel of Figure 9. As already discussed, the shift from external to domestic financing could also have adverse effects on the economy, because of its high costs in term of debt service and also because of a drain of resources from the private to the public sector, which are likely to crowd out private investments.

Finally, figures 10 and 11 focus on the critical aspect of institution building. Given the large number of conditions attached to debt reduction programs, one would expect countries that had a share of their debt forgiven improving their policies and institutions in the following periods. Nevertheless, the theoretical argument is not so straightforward, given that aid dependence could undermine institutional quality by weakening accountability, instigating conflict and corruption over control of resources, siphoning off scarce talent from the bureaucracy, and postponing the

[16]More generally, Panizza (2008) shows a recent trend in developing countries, which are substituting external public debt with domestically issued debt.

[17]The lack of a positive relationship in the last period could be due to limited data availability.

reform of inefficient policies and institutions (Knack, 2001; Moss, Pettersson and van de Walle, 2006). The descriptive analysis confirms the presence of a sort of *debt relief curse*, given that, on the whole, there is not any positive correlation between debt relief and subsequent improvements in the overall CPIA score. Besides, in the period 2000-2003 there is evidence that the larger the share of outstanding external debt which was forgiven, the worse the performance in terms of polices and institutions, supporting the evidence on aid discussed by Djankov, Montalvo and Reynal-Querol (2008). For robustness, Figure 11 measures institutional quality according to the six World Governance Indicators provided by Kaufmann, Kraay and Mastruzzi (2008), focusing only on their changes in the last two periods in response to debt relief in 1996-99 and 2000-03, because of data availability. These years are the most interesting, since they cover the raise in debt forgiveness following the HIPC Initiative. While the indexes of regulatory quality, government effectiveness and political stability do not show any clear improvements in both periods (with the correlations being sometimes negative), the picture is quite different for the indexes of corruption, rule of law and voice and accountability. In this cases it seems that there was a sort of reversal, with a *debt relief curse* during the years 2000-03 and, instead, a positive effect of debt relief on institutional reform after 2003. More generally, especially in the HIPC sub-sample, there is a positive pattern in the correlation between debt relief and subsequent changes in governance, with the relationship passing from negative to positive or, in some cases, flat. This last result could be read as a positive signal of learning in the debt relief initiatives: the strong emphasis given by International Financial Institutions on fighting corruption and promoting the rule of law and institutional accountability seems to start having real effects.

4.2.2 Multivariate Analysis

The evidence described in section 4.2.1 points to some positive effect of debt relief on economic growth and institutional reform, at least in the last years and especially in HIPCs. However, those indications should be confirmed by a more accurate analysis. Having five periods, we are able to look at the debt relief effects over a panel dataset consisting of four intervals (1992-95; 1996-99; 2000-03; 2004-07). Table 6 reports the coefficient β of this very simple regression for the whole sample and for HIPCs exclusively:

$$Y_{i,t} - Y_{i,t-1} = \alpha + \beta DEBT\_RELIEF_{t-1} + \gamma D_t + \epsilon i, t \tag{3}$$

Equation 3 is estimated with the within-group estimator in order to wash out country-specific fixed-effects which might jointly affect the likelihood and the amount of debt relief and the variation in Y, where the outcomes are the five macroeconomic variables discussed above.

In the whole sample of developing countries there is no evidence of any statistical significant correlation between debt relief and subsequent changes in growth, investment, FDI, institutional quality and domestic debt. Nonetheless, when the sample is limited to the HIPCs, it turns out that past debt relief is associated with an increase in domestic debt, suggesting a shift from external towards internal financing, and with a worsening of institutional quality, consistently with the *debt relief curse* hypothesis.

Table 6: The Effects of Debt Relief

Dep. Var.: Change in:	(1) $GROWTH$	(2) INV	(3) FDI	(4) $DomD$	(5) $CPIA$
			Whole sample		
$DEBT\_RELIEF_{t-1}$	0.002	-0.030	0.039	0.041	-0.006
	[0.002]	[0.060]	[0.070]	[0.043]	[0.004]
Observations	220	221	223	183	230
Number of countries	60	60	60	48	62
			HIPC countries		
$DEBT\_RELIEF_{t-1}$	0.002	0.015	-0.020	0.054**	-0.011**
	[0.003]	[0.056]	[0.063]	[0.022]	[0.005]
Observations	146	143	145	136	152
Number of countries	38	37	38	35	39

Notes: The table reports regression coefficients and, in brackets, the associated standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%. The model is estimated by Within Group, using Stata 10 SE package with XTREG command.

The lack of significance of the coefficient could be due to the fact that the relationship is likely to change across time, as suggested by the Figures 6 to 11 discussed in the previous section. Therefore, we estimate Equation 3 allowing for the coefficient β to change over time, interacting $DEBT\_RELIEF_{t-1}$ with the time dummies D_t. The results are reported in Table 7 for the whole sample (upper panel) and for the HIPC sub-sample (lower panel) but they do not show any significant effect of debt relief on the variables of interest, apart from the association between debt relief and increasing domestic financing and worsening governance in HIPCs in response to the debt forgiven at the end of the Nineties, consistently with Figures 9 and 10. The lack of significance of any shift from external to internal financing in the last period could be due to poor data availability (the change in domestic debt is limited to one year only), while the lack of evidence of a *debt relief curse* could be a signal of an increased effectiveness of debt relief in institution building in the last years, in line with the descriptive results discussed in the previous section. Furthermore, the positive correlation between debt forgiveness and economic growth in HIPCs vanishes once country fixed effects are taken into account, except that in the first three years of the Initiative, when also investment increased. From 2000 onwards there is no evidence of debt relief triggering economic growth, consistently with the recent critical evidence on the presence of debt overhang in HIPCs and also with the model developed by Koeda (2008), which implies that only a one-time debt cancelation could help countries escaping a situation of aid dependence.

Finally, we have run to other test for the possibility that the impact of debt relief is (1) differentiated according to institutional quality and (2) less effective the larger the amount of foreign aid because of the increased management effort required to local bureaucrats and of a sort of *aid fatigue*. To do so, we interacted $DEBT\_RELIEF_{t-1}$ with respectively the overall CPIA score in $t-1$ and with AID_{t-1}. However, the results are generally not significant. The lack of non-linearities according to policies is consistent with the finding of Depetris Chauvin and Kraay (2005) but contrary to Harrabi, Bousrih and Mohammed (2007) and Dessy and Vencatachellum (2007) who document a larger influence of debt relief in countries with sound institutions and policies.

Table 7: The Effects of Debt Relief, different sub-periods

Dep. Var.: Change in:	(1) $GROWTH$	(2) INV	(3) FDI	(4) $DomD$	(5) $CPIA$
Whole sample					
1992-95	0.001	0.010	0.165	0.053	-0.002
1996-99	0.012**	0.039	0.014	0.078	0.006
2000-03	-0.001	-0.076	0.025	0.092	-0.013**
2004-07	0.004	-0.023	-0.018	-0.044	-0.001
HIPC countries					
1992-95	0.002	0.036	0.306**	-0.019	-0.006
1996-99	0.015**	0.219*	-0.114	0.062	0.001
2000-03	-0.004	-0.060	-0.085	0.122***	-0.024***
2004-07	0.005	0.014	-0.086	0.011	-0.002

Notes: The table reports regression coefficients and, in brackets, the associated standard errors. * significant at 10%; ** significant at 5%; *** significant at 1%. The model is estimated by Within Group, using Stata 10 SE package with XTREG command.

5 Concluding Remarks

The paper has proposed an *ex-post* evaluation of debt relief, focusing on the last years and on the HIPC Initiative in order to assess whether the development of such a large program by International Financial Institutions changed the effectiveness of debt relief as well as donors' lending policies.

We firstly document that, since the start of the HIPC Initiative bilateral and multilateral donors seem to target debt relief efforts to countries with better institutions and policies, following an *ex-post* governance conditionality. This is reflected in a subsequent effectiveness of debt relief in promoting institutional reforms, suggesting that debt relief programs are probably providing the right incentives to debtors limiting the negative effects of aid dependence on the quality of institutions and on the efficiency of the public sector.

With respect to other possible effects of debt relief, we do not find any influence on subsequent increases in economic growth, investment and FDI once country fixed-effect are taken into account, consistent with the absence of any debt overhang effect. This result could be explained by debt relief concerning a large share of debt which were not likely to be serviced anyway, so that formal debt relief agreements do not free many resources for investments and do not change the incentive of foreign and domestic investors. These findings do not necessarily imply that debt relief is ineffective: more time might be probably necessary to reap the benefits of debt forgiveness and, if its effectiveness depends on institutional improvements, we might expect current debt relief to achieve better results in the next future.

By contrast, we find evidence of a shift from external to internal financing in HIPCs since the launch of the Initiative. The rising domestic debt is an unintended consequence of the HIPC Initiative and it is undermining overall debt sustainability and pro-poor spending since domestic debt service soaks up a large share of government revenues. Some of the countries which have low (or declining) poverty reduction expenditures are also the ones with high o rising domestic debt. Uganda and Sierra Leone, in example, increased their ratio of domestic debt to GDP from 1.6 and 4.6 of GDP in 1996 to 9.4 and 18.2 in 2004 and, as a result, debt service

on domestic debt (as a share of GDP) increased from 0.2 and 1.1 per cent to 1.5 and 4.3 per cent. Given debt relief and the high degree of concessionality on new loans, the amount of money used to serve internal financing in 2004 was around 70 per cent of the total (external and domestic) public debt service and it represented the actual constraints for government expenditures[18].

In conclusion, even if these results have to be taken with caution because more time and data are required to achieve a more conclusive evaluation of debt relief programs, the paper raises some concerns on the overall effectiveness of the HIPC Initiative and of the recent MDRI in achieving their main targets. Advocates of debt relief explicitly or implicitly assume that large external debts are a drag on domestic and foreign investment and on economic growth, thus leaving indebted countries in a poverty trap. However, we do not find a strong evidence of debt relief triggering investment and economic growth. Besides, aggregate indicators on HIPCs' external debt service and pro-poor spending (Figure 2) hide a more heterogeneous picture in which a number of countries lag behind and can not be evaluated *ceteris paribus*, given that HIPC debt relief is generally associated with rising domestic debt. Finally, one should take into account that the amount of resources freed by debt forgiveness are far less than the those required for achieving the Millennium Developing Goals and scale down expectations on a more realistic level.

[18]Data on domestic debt are taken from Arnone and Presbitero (2007).

References

Abbas, Ali S. M. 2007. "Public Domestic Debt and Economic Growth in Lower Income Countries." Department of Economics - University of Oxford.

Alesina, Alberto and Beatrice Weder. 2002. "Do Corrupt Governments Receive Less Foreign Aid?" *American Economic Review* 92(4):1126–1137.

Alesina, Alberto and David Dollar. 2000. "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth* 5(1):33–63.

Arnone, Marco and Andrea F. Presbitero. 2007. "External Debt Sustainability and Domestic Debt in Heavily Indebted Poor Countries." *Rivista Internazionale di Scienze Sociali* CXV(2):187–213.

Arslanalp, Serkan and Peter Blair Henry. 2006. "Policy Watch: Debt Relief." *Journal of Economic Perspectives* 20(1):207–220.

Asiedu, Elizabeth. 2003. "Debt relief and institutional reform: a focus on Heavily Indebted Poor Countries." *The Quarterly Review of Economics and Finance* 43(4):614–626.

Central Intelligence Agency. 2008. *The 2008 World Factbook*. Washington DC: Skyhorse Publishing.

Chowdhury, Abdur R. 2004. External Debt, Growth and the HIPC Initiative: Is the Country Choice Too Narrow? In *Debt Relief for Poor Countries*, ed. Tony Addison, Henrik Hansen and Finn Tarp. New York: Palgrave Macmillan chapter 8, pp. 158–180.

Christensen, Jakob. 2005. "Special Data Section Domestic Debt Markets in Sub-Saharan Africa." *IMF Staff Papers* 52(3):7.

Clements, Benedict J., Rina Bhattacharya and Toan Quoc Nguyen. 2003. External Debt, Public Investment, and Growth in Low-Income Countries. IMF Working Papers 03/249 International Monetary Fund.

Cohen, Daniel. 1993. "Low Investment and Large LDC Debt in the 1980's." *American Economic Review* 83(3):437–49.

Collier, Paul. 2007. *The Bottom Billion*. New York: Oxford University Press.

Cordella, Tito, Luca Antonio Ricci and Marta Ruiz-Arranz. 2005. Debt Overhang or Debt Irrelevance? Revisiting the Debt Growth Link. IMF Working Papers 05/223 International Monetary Fund.

Crespo Cuaresma, Jesus and Gallina Andronova Vincelette. 2008. "Debt Relief and Education in HIPCs." World Bank and University of Innsbruck.

Daseking, Christina and Robert Powell. 1999. From Toronto Terms to the HIPC Initiative - A Brief History of Debt Relief for Low-Income Countries. IMF Working Papers 99/142 International Monetary Fund.

Depetris Chauvin, Nicolas and Aart Kraay. 2005. "What Has 100 Billion Dollars Worth of Debt Relief Done for Low-Income Countries?" The World Bank.

Dessy, Sylvain E. and Desire Vencatachellum. 2007. "Debt Relief and Social Services Expenditure: The African Experience, 1989–003." *African Development Review* 19(1):200–216(17).

Dikhanov, Yuri. 2004. "Historical Present Value of Debt in Developing Economies: 1980-2002." The World Bank.

Djankov, Simeon, Jose Montalvo and Marta Reynal-Querol. 2008. "The curse of aid." *Journal of Economic Growth* 13(3):169–194.

Dollar, David and Victoria Levin. 2006. "The Increasing Selectivity of Foreign Aid, 1984-2003." *World Development* 34(12):2034–2046.

Drazen, Allan. 2002. Conditionality and Ownership in IMF Lending: A Political Economy Approach. CEPR Discussion Papers 3562 C.E.P.R. Discussion Papers.

Easterly, William. 2002. "How Did Heavily Indebted Poor Countries Become Heavily Indebted? Reviewing Two Decades of Debt Relief." *World Development* 30(10):1677–1696.

Elbadawi, Ibrahim A., Benno J. Ndulu and Njuguna Ndung'u. 1997. Debt Overhang and Economic Growth in Sub-Saharan Africa. In *External Finance for Low-Income Countries*, ed. Zubair Iqbal and Ravi Kanbur. Washington D.C.: IMF Institute chapter 5.

Freytag, Andreas and Gernot Pehnelt. 2008. "Debt Relief and Governence Quality in Developing Countries." *World Development* Forthcoming.

Gallup, John Luke, Jeffrey D. Sachs and Andrew Mellinger. 1999. Geography and Economic Development. CID Working Papers 1 Center for International Development at Harvard University.

Group, Independent Evaluation. 2006. *Debt Relief for the Poorest. An Evaluation Update of the HIPC Initiative*. Washington DC: The World Bank.

Hansen, Henrik. 2004. The Impact of External Aid and External Debt on Growth and Investment. In *Debt Relief for Poor Countries*, ed. Tony Addison, Henrik Hansen and Finn Tarp. New York: Palgrave Macmillan chapter 7, pp. 134–157.

Harrabi, Sana, Lobna Bousrih and Salisu Mohammed. 2007. "Debt Relief and Credit to the Private Sector in African Countries." *African Development Review* 19(3):469–480.

Heckman, James J. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47(1):153–61.

Imbs, Jean and Romain Ranciere. 2005. The overhang hangover. Policy Research Working Paper Series 3673 The World Bank.

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

International Development Association and International Monetary Fund. 2008. Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) - Status of Implementation. Technical report The World Bank.

Johansson, Pernilla. 2008. Debt Relief, Investment and Growth. Working Paper 11 Lund University.

Kanbur, Ravi. 2000. Aid, Conditionality and Debt in Africa. In *Foreign Aid and Development: Lessons Learnt and Directions for the Future*, ed. Finn Tarp. New York: Routledge.

Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi. 2008. Governance matters VII : aggregate and individual governance indicators 1996-2007. Policy Research Working Paper Series 4654 The World Bank.

Knack, Stephen. 2001. "Aid Dependence and the Quality of Governance: Cross-Country Empirical Tests." *Southern Economic Journal* 68(2):310–329.

Koeda, Junko. 2008. "A Debt Overhang Model for Low-Income Countries." *IMF Staff Papers* advance online publication.

Krugman, Paul. 1988. "Financing vs. forgiving a debt overhang." *Journal of Development Economics* 29(3):253–268.

Lora, Eduardo and Mauricio Olivera. 2007. "Public debt and social expenditure: Friends or foes?" *Emerging Markets Review* 8(4):299–310.

Loxley, John and Harry A. Sackey. 2008. "Aid Effectiveness in Africa." *African Development Review* 20(2):163–199(37).

Michaelowa, Katharina. 2003. "The Political Economy of the Enhanced HIPC-Initiative." *Public Choice* 114(3-4):461–76.

Moss, Todd. 2006. Will Debt Relief Make a Difference? Impact and Expectations of the Multilateral Debt Relief Initiative. Working Paper 88 Center for Global Development.

Moss, Todd, Gunilla Pettersson and Nicolas van de Walle. 2006. An Aid-Institutions Paradox? A Review Essay on Aid Dependency and State Building in Sub-Saharan Africa. Working Paper 74 Center for Global Development.

Neumayer, Eric. 2002. "Is Good Governance Rewarded? A Cross-national Analysis of Debt Forgiveness." *World Development* 30(6):913–930.

OECD. 2008. "Debt Relief is down: Other ODA rises slightly.".

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

Pattillo, Catherine A., Helene Poirson and Luca Antonio Ricci. 2002. External Debt and Growth. IMF Working Papers 02/69 International Monetary Fund.

Pattillo, Catherine A., Helene Poirson and Luca Antonio Ricci. 2004. What Are the Channels Through Which External Debt Affects Growth? IMF Working Papers 04/15 International Monetary Fund.

Presbitero, Andrea F. 2006. "The Debt-Growth Nexus: a Dynamic Panel Data Estimation." *Rivista Italiana degli Economisti* 3(4):417–462.

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

Rajan, Raghuram G. and Arvind Subramanian. 2005. What Undermines Aid's Impact on Growth? NBER Working Papers 11657 National Bureau of Economic Research, Inc.

Sachs, Jeffrey D. 1989. The Debt Overhang of Developing Countries. In *Debt, Stabilization and Development*, ed. Guillermo A. Calvo, Ronald Findlay, Pentti Kouri and Jorge Braga de Macedo. Oxford: Basil Blackwell.

Sachs, Jeffrey D., John W. McArthur, Guido Schmidt-Traub, Margaret Kruk, Chandrika Bahadur, Michael Faye and Gordon McCord. 2004. "Ending Africa's Poverty Trap." *Brookings Papers on Economic Activity* 35(2004-1):117–240.

UN Millennium Project. 2005. *Investing in Development: A Practical Plan to Achieve the Millennium Development Goals*. New York: United Nations.

Wood, Adrian. 2008. "How donors should cap aid in Africa." Financial Times.

World Bank. 2008. *World Development Indicators 2008*. Washington, DC: The World Bank.

A Sample

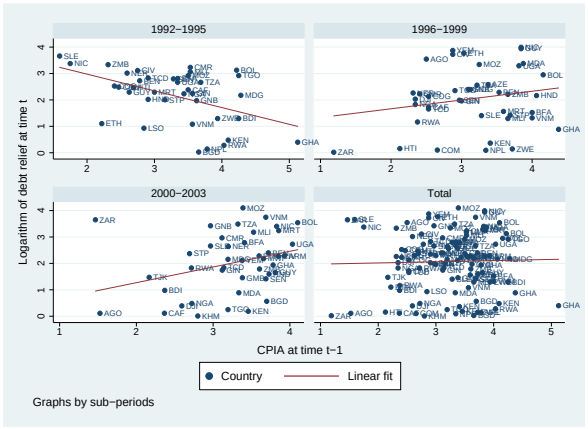
Table 8: Country coverage

Country	Code	Income	Region	HIPC	Country	Code	Income	Region	HIPC
Angola	AGO	LMIC	SSA	0	Lesotho	LSO	LIC	SSA	0
Armenia	ARM	LMIC	ECA	0	Moldova	MDA	LMIC	ECA	0
Azerbaijan	AZE	LMIC	ECA	0	Madagascar	MDG	LIC	SSA	1
Burundi	BDI	LIC	SSA	1	Mali	MLI	LIC	SSA	1
Benin	BEN	LIC	SSA	1	Myanmar	MMR	LIC	EA	0
Burkina Faso	BFA	LIC	SSA	1	Mongolia	MNG	LMIC	EA	0
Bangladesh	BGD	LIC	SA	0	Mozambique	MOZ	LIC	SSA	1
Bolivia	BOL	LMIC	LAC	1	Mauritania	MRT	LIC	SSA	1
Bhutan	BTN	LIC	SA	0	Malawi	MWI	LIC	SSA	1
Central African Rep.	CAF	LIC	SSA	1	Niger	NER	LIC	SSA	1
China	CHN	LIC	EA	0	Nigeria	NGA	LIC	SSA	0
Cote d'Ivoire	CIV	LMIC	SSA	1	Nicaragua	NIC	LMIC	LAC	1
Cameroon	CMR	LMIC	SSA	1	Nepal	NPL	LIC	SA	1
Congo, Rep.	COG	LMIC	SSA	1	Pakistan	PAK	LIC	SA	0
Comoros	COM	LIC	SSA	1	Rwanda	RWA	LIC	SSA	1
Djibouti	DJI	LMIC	MENA	0	Sudan	SDN	LIC	SSA	1
Eritrea	ERI	LIC	SSA	1	Senegal	SEN	LMIC	SSA	1
Ethiopia	ETH	LIC	SSA	1	Sierra Leone	SLE	LIC	SSA	1
Ghana	GHA	LIC	SSA	1	Somalia	SOM	LIC	SSA	1
Guinea	GIN	LIC	SSA	1	Sao Tome & Principe	STP	LIC	SSA	1
Gambia, The	GMB	LIC	SSA	1	Chad	TCD	LIC	SSA	1
Guinea-Bissau	GNB	LIC	SSA	1	Togo	TGO	LIC	SSA	1
Equatorial Guinea	GNQ	LIC	1	0	Tanzania	TZA	LIC	SSA	1
Guyana	GUY	LIC	LAC	1	Uganda	UGA	LIC	SSA	1
Honduras	HND	LMIC	LAC	1	Ukraine	UKR	LMIC	ECA	0
Haiti	HTI	LIC	LAC	1	Uzbekistan	UZB	LMIC	ECA	0
India	IND	LIC	SA	0	Vietnam	VNM	LIC	EA	0
Kenya	KEN	LIC	SSA	0	Yemen, Rep.	YEM	LMIC	MENA	0
Cambodia	KHM	LIC	EA	0	Congo, Dem. Rep.	ZAR	LIC	SSA	1
Lao PDR	LAO	LIC	EA	0	Zambia	ZMB	LIC	SSA	1
Liberia	LBR	LIC	SSA	1	Zimbabwe	ZWE	LMIC	SSA	0

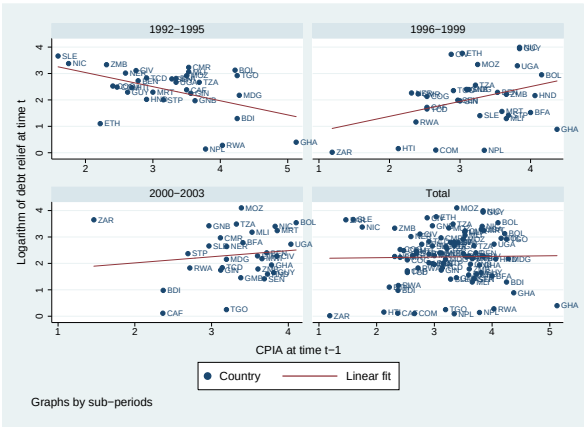
Notes: The country code, the regional and income categories refer to the World Bank Country Classification in 1988 (http://go.worldbank.org/K2CKM78CC0). ECA: Europe & Central Asia; SSA: Sub–Saharan Africa; SA: South Asia; EAP: East Asia & Pacific; LAC: Latin America & Caribbean; MENA: North Africa & Middle East. LIC: Low Income Country; LMIC: Lower Middle Income Country.

B Figures

Figure 5: Debt Relief and Past Institutions

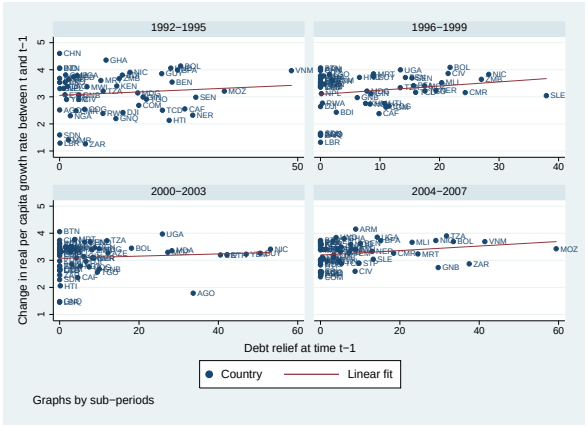


(a) Whole Sample

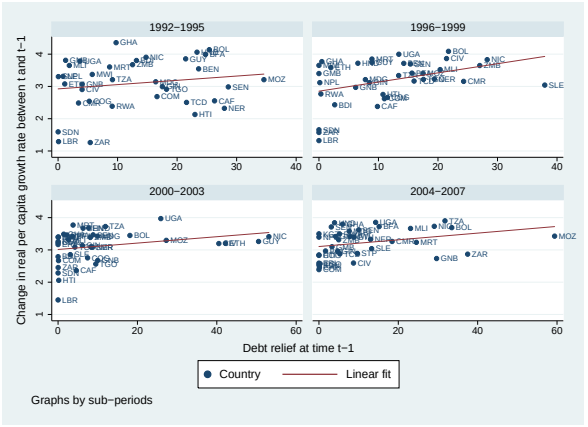


(b) HIPCs

Figure 6: Debt Relief and Subsequent Growth

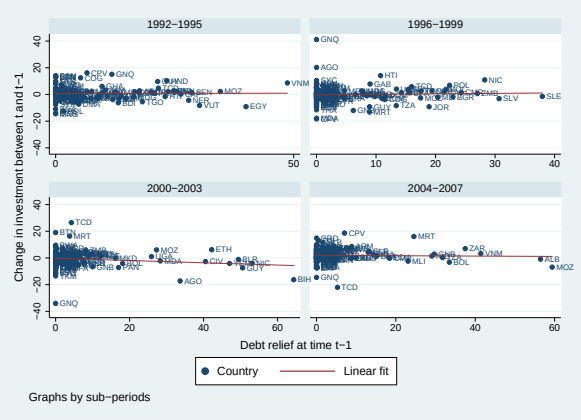


(a) Whole Sample

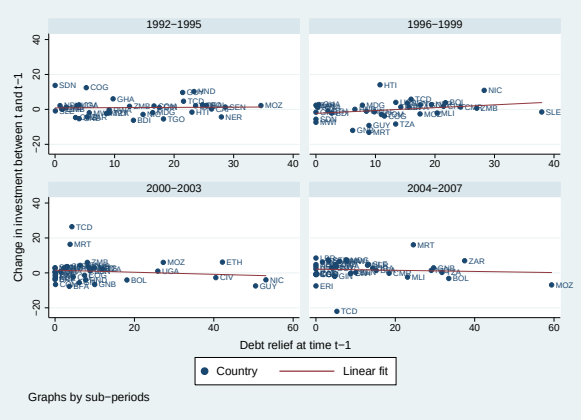


(b) HIPCs

Figure 7: Debt Relief and Subsequent Investment

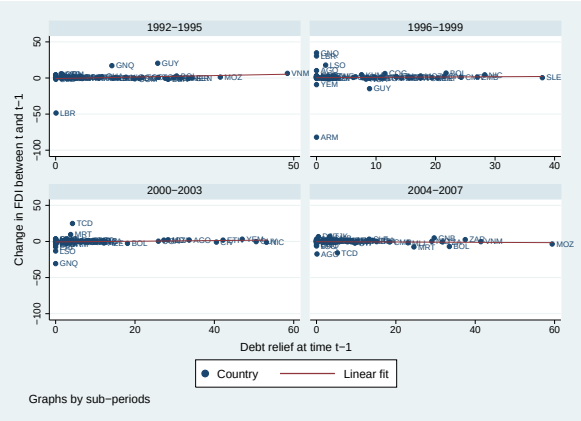


(a) Whole Sample

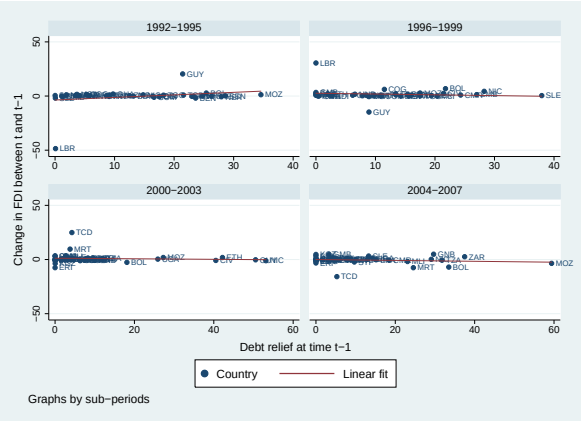


(b) HIPCs

Figure 8: Debt Relief and Subsequent Foreign Direct Investment

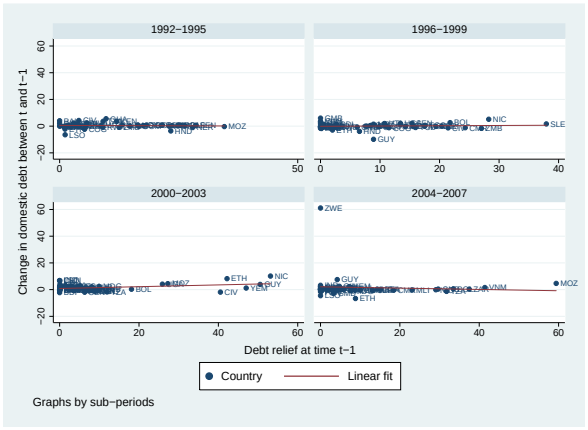


(a) Whole Sample

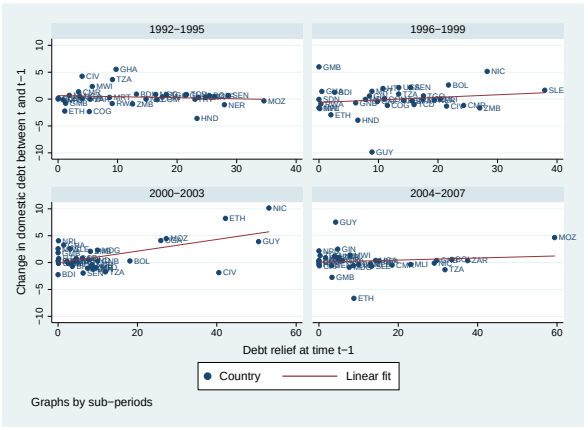


(b) HIPCs

Figure 9: Debt Relief and Subsequent Domestic Debt

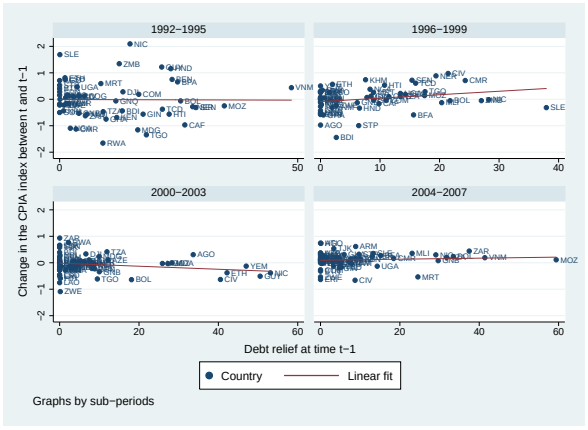


(a) Whole Sample

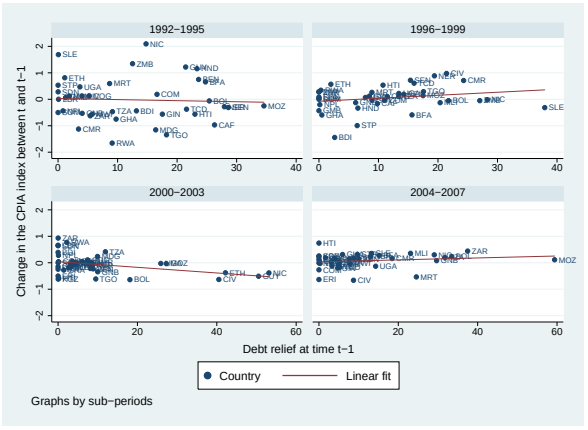


(b) HIPCs

Figure 10: Debt Relief and the Subsequent Institutional Framework, CPIA

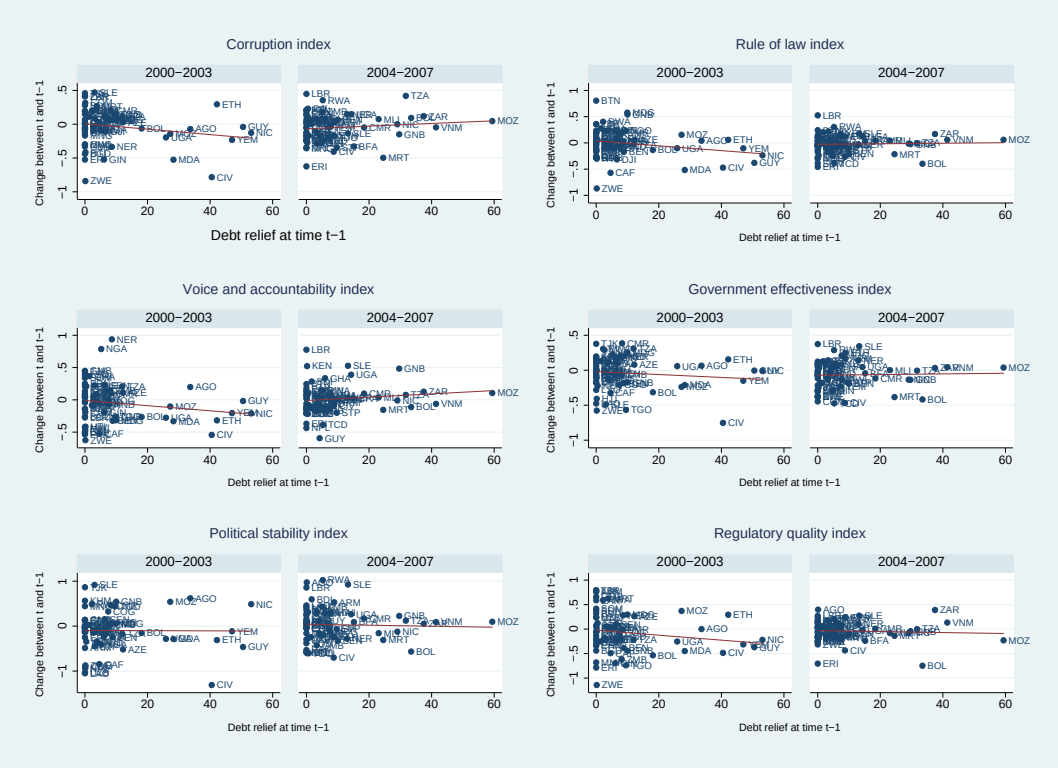


(a) Whole Sample

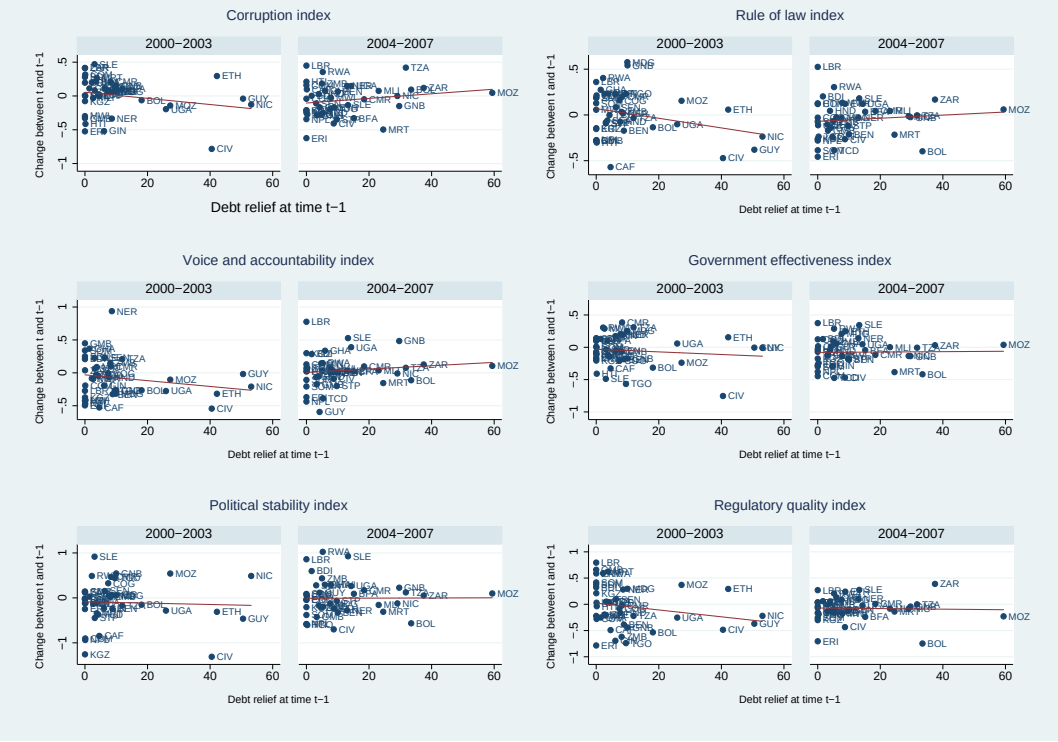


(b) HIPCs

Figure 11: Debt Relief and the Subsequent Institutional Framework, WGI



(a) Whole Sample



(b) HIPCs