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## Conference Paper

# Debt Relief and Good Governance: New Evidence

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# Debt Relief and Good Governance: New Evidence

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Work-in-Progress Paper

Andreas Freytag<sup>\*</sup>, Jonatan Pettersson<sup>\*\*</sup> and Julian Schmied<sup>\*\*\*</sup>

Abstract: Debt relief has been an instrument of development cooperation for almost 50 years. Its track record is mixed at best, and its drivers were mainly political during its practice. However, in the early 2000s, the HIPC Initiative increased the economic rationality remarkably, because LDCs had to deliver before they were relieved from their debt. Since then, debt as well as its relief has fallen significantly. In addition, the recipient countries have changed, more fragile countries are among the top recipients. We discuss the hypothesis that debt relief has changed another time; it nowadays seems to be – at least partly – a diplomatic instrument. We find that there is no significant improvement of governance quality within our sample of developing countries. Our preliminary regression results show that improvements in governance quality lead to higher level of debt forgiveness in 2000-2004 but not in the subsequent periods. Instead, we find that debt relief is determined by governmental spending behavior of the creditor country, which in turn can be explained by the fractionalization of the government. The analysis uses data from 1995 to 2013 and applies a 2-Step-Heckman filter model and a panel model with fixed country and year effects.

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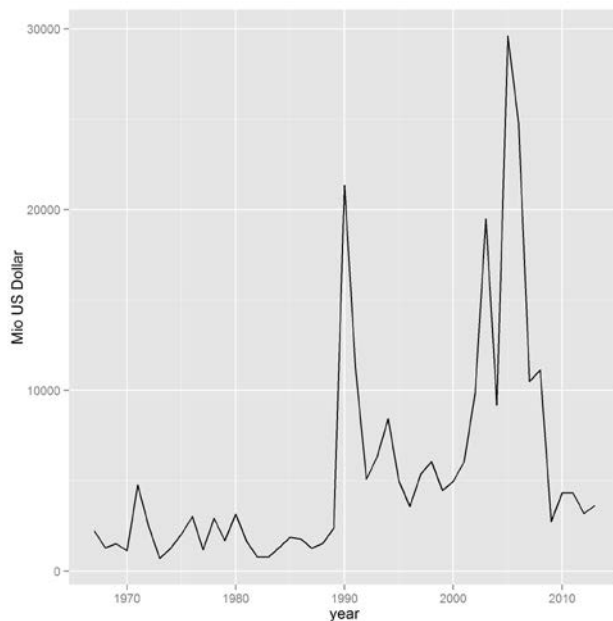
## List of Abbreviations

- African Development Fund (ADF)
- Akaike Information Criterion (AIC)
- Bayesian Information Criterion (BIC)
- Country Policy and Institutional Assessments (CPIA)
- Development Assistance Committee (DAC)
- Foreign Direct Investments (FDI)
- Gross National Income (GNI)
- Gross Domestic Product (GDP)
- Group of Seven (G7)
- Highly Indebted Poor Countries (HIPC)
- International Development Association (IDA)
- International Monetary Fund (IMF)
- Millennium Developing Goals (MDG)
- Multilateral Debt Relief Initiative (MDRI)
- Net Present Value (NPV)
- Non-Governmental Organizations (NGO)
- Official Development Assistant (ODA)
- Poverty Reduction Strategy Paper (PRSP)
- Purchasing-Power-Parity (PPP)
- Retroactive Terms Adjustment (RTA)
- United Nations (UN)
- United Nations Conference on Trade and Development (UNCTAD)
- World Health Organization (WHO)

# 1. Introduction

After the rather successful implementation of the extensive multilateral debt-relief initiatives HIPC and MDRI, debt-relief has become a less prominent macroeconomic measure within the donor society. Particularly after 2005, the amount of debt-relief by DAC donors has reduced significantly (see Figure 1). We are interested in the reasons for this reduction: Developing countries might have downsized their national debts, which would indicate that there is less demand for debt relief. Alternatively, the reduction might be the cause of an improvement of governance quality in the recipient countries – the improvement being a direct or indirect consequence of debt relief. Anticipating that not all questions are answered by the recipients performance, we analyze the role of the donors’ governments to provide further explanation for debt relief. In particular, we examine the fractionalization of the government in donor countries, which recent literature identified be a determining factor for the explanation of aid (Round and Odadukun 2004, Dreher and Langlotz 2015). We are going test if this also holds for debt-relief.

Figure 1: Volume of debt relief by all DAC Donors 1965-2013



Source: own illustration, Data: OECD (2014)

We contribute to the literature by a more thorough analysis of the relationship between debt relief and various performance indicators of recipient countries. We update the results of Freytag and 1

Pehnelt (2009) and Presbitero (2009) examining the years between 2000 and 2013. We test if older hypotheses still hold and add new hypotheses. Additionally we provide new theory for the relationship between government fractionalization and debt relief.

We collected data from the World Bank, IMF, OECD, UNCTAD and Beck et al (2001). Our descriptive results show that there is no improvement of governance quality within our sample of developing countries. In contrast, the amount of debt relief allocated to developing countries decreases significantly. This could be partly explained by a shrinking level of indebtedness, which was observable between 2000 and 2013. Applying a Heckman selection filter model, we find that political stability is an important factor for debt relief decisions in 2000-2004 but not in the subsequent periods. Further, the hypothesis of path dependency cannot be rejected since we find that external debt of recipient countries still plays a crucial role in determining debt relief. This result is confirmed, applying a fixed effect panel model. Finally, we find that debt relief and government expenditures are positively correlated which leads us to the hypothesis, that fractionalized governments spend more on welfare and thus the acceptance of debt relief initiatives is higher in those countries.

The remainder of the paper is organized as follows. We will start in section 2 by presenting an overview of the history of debt relief programs and the current programs in place, such as the HIPC initiative and the Multilateral Debt Relief Initiative (MDRI). In section 3 we will discuss economic reasons for debt relief and in section 4 the political justification for debt relief from a donor's perspective. In Chapter 5 we provide an empirical investigation of our research questions, trying to explain the changing pattern of debt relief justification. Chapter 6 concludes.

## **2. Historic background of debt relief initiatives**

Debt relief programs have been used since the 1960s, first using programs such as the Pearson Report in 1969 and the Retroactive Terms Adjustment (RTA) program in 1978 (Freytag and Pehnelt 2009). Subsequently, the main tool to handle countries which are unable to service their debt, was rescheduling of the long-term official bilateral debt in accordance with the Paris club (Boote and Thugge 1997). The rescheduling of debt builds on the assumption that the problem was a temporary liquidity problem that would end as the indebted nations' economy recovered.



However, the financial crisis in Latin America in the 1980s showed that the problems were not temporary. The so-called Brady plan, which linked the promise of debt relief with a demand for economic reforms, was introduced in 1988. The Brady plan was considered to be a success which led the World Bank and the International Monetary Fund (IMF) to jointly launch the HIPC initiative in 1996. For a country to be eligible to receive debt relief under the first HIPC initiative (aka HIPC I), it had to be a poor developing country and had to initially show six-years of promising macroeconomic policy. This is also referred to as ex-ante conditionality. The Cologne terms were introduced in 1999 by the Paris Club nations<sup>1</sup> allowing debt relief up to 90 percent. The terms – ,proposed at the G7<sup>2</sup> meeting in Cologne – also relaxed some of the conditions for being eligible for debt relief and introduced an ex-post evaluation. All countries applying for debt relief under the enhanced HIPC initiative (HIPC II) have to develop a Poverty Reduction Strategy Paper (PRSP). The MDRI was introduced by the G8 (now including Russia as well) during the meeting in Gleneagles, Scotland 2005 and was launched in 2006. The creditors committed themselves to cancel further debt to, up to 100 percent, which were owed by the most indebted countries in the world. The aim of this initiative was to enable poor countries to reach the MDGs. Debt relief under MDRI has been granted to 35 HIPCs and two non-HIPCs countries<sup>3</sup>. Only debt accumulated before the first of January 2005 will be considered for debt forgiveness under the MDRI. (World Bank 2014a, IMF 2014b). The main objective of these debt relief programs is to provide sustainability, which will promote growth, and permanently abolish the need for rescheduling (Isar 2012).

The effectiveness of the HIPC Initiative is rated positively. Schmid (2009) shows that infant mortality fell after the completion point was reached. The same positive effect was achieved with respect to education; the drop out rate in primary school fell after the completion point as reached (Crespo Cuaresma and Vincelette (2009). However, growth after debt relief did not pick up in fragile states (Bandiera, Crespo Cuaresma and Vincelette 2009). Although the institutional quality

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<sup>1</sup>Permanent members: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Netherlands, Norway, Russian Federation, Spain, Sweden, Switzerland , United Kingdom and United States of America. (Paris Club 2014)

<sup>2</sup>G7 nations: Canada, France, Germany, Italy, Japan, the United Kingdom and the United States (CRF 2014)

<sup>3</sup>Countries receiving debt relief under the MDRI: HIPC with income no more than \$ 380: Afghanistan, Burkina Faso, Burundi, Central African Republic, Democratic Republic of Congo, Ethiopia, The Gambia, Ghana, Guinea-Bissau, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, São Tomé and Príncipe, Sierra Leone, Tanzania, Togo and Uganda. HIPC with income over \$ 380: Benin, Bolivia, Cameroon, Comoros, Republic of Congo, Côte d'Ivoire, Guinea, Guyana, Haiti, Honduras, Mauritania, Nicaragua, Senegal and Zambia Non-HIPC: Cambodia and Tajikistan (IMF 2014a)

itself is not decisive (other than changes) for the decision to receive debt relief, its effect is positively correlated with institutional quality (in this case the absence of fragility).

### **3. Economic justification and debt overhang**

#### **3.1.Theory**

The first and most commonly used justification of the various debt relief programs builds on the theory of debt overhang, which was first introduced by Myers (1977). The paper dealt with corporate finance and the theory was first applied to development economics by Krugman (1988) and Sachs (1989) after the Latin American debt crisis in 1980s. Krugman (1988) argues that when external debt exceeds the expected present value of the potential future payments to the creditors, the country no longer has any incentive to implement the necessary financial and macro-economic changes to improve productivity and increase the chances to repay the creditors. He shows this with a two-period utility model where the expected utility in period two must be larger than the utility in period one. Otherwise the country will not have an incentive to make the necessary investments. If all the economic return goes to the creditor, if the debt services are too high, the utility is highest in the first period and the improvements will not be implemented. A reduction of the debt burden would create an incentive for the necessary investments and thereby increase the chances that at least some of the loan would be repaid, which would create a win-win situation, compared to the case in which the borrower defaults on the loan.

Sachs (1989) uses an inter-temporal utility model to show the risk of a debt overhang. In this model Krugman's idea of under investment in the productivity enhancing activities is captured in the aggregated investment decision. In Sachs' model, a high debt service, which stems from an excessive external debt, acts like a tax on investments and lowers the aggregated investment activities. A tax on investments leads to a lower capital accumulation, lower economic growth and lower ability to repay the creditors. He is also predicting a win-win situation as a result of debt relief.

#### **3.2.Empirical results**

##### **3.2.1. Critical level of external debt**

As discussed earlier, debt is generally considered to be harmful for growth, due to the lack of incentives, via the debt overhang theory (Krugman, 1988; Sachs, 1989). Another way that high

debt affects growth is through the crowding-out effect. The service of external debt is crowding out investments in the country (Cohen 1993). According to these theories, debt relief should lead to economic growth, through increasing incentives, resources and investments in the country. However, a lack of good quality institutions in the receiving country may reduce the impact that debt relief has on growth and investments (Arslanalp and Henry, 2006; Asiedu, 2003). Furthermore, moral hazard (Bauer, 1991; Easterly, 2002) and adverse selection (Buiter and Srinivasan, 1987) are other factors that might reduce the positive impact of debt relief. Some ambitious attempts of calculating the effectiveness of debt relief have been carried out by Depetris and Kraay (2005), Presbitero (2009) and Johansson (2010). Depetris and Kraay (2005) use data on estimated changes in the present value of the external debt for 62 low-income countries, between the years 1989 to 2003, to empirically test how efficient debt relief has been in fulfilling its objectives. The authors do not find evidence that the debt forgiveness grants lead to higher growth rates, improved investment rates or higher institutional quality. They suggest that these negative results can be due to a variety of data- and statistical problems. Presbitero (2009) studied 62 low- and lower-middle-income countries in the period 1988 to 2007 and comes to similar conclusions as Depetris and Kraay (2005). His results show no increase in growth rates, investment or FDI as a result of debt relief, when country specific factors are accounted for. Johansson (2010) studies the direct effect of debt relief and also concludes that there is no direct link between debt relief and growth. On the bright side, debt relief seems to increase investment rates in non-HIPC countries. Arslanalp and Henry (2005) found that debt relief increased investments, as well as increased asset prices and accelerated growth in 16 mid-income countries receiving debt relief through the Brady Plan 1989-1995. The aforementioned study by Bandiera, Crespo Cuaresma and Vincelette (2009) showed a positive effects for relatively well-governed states and no effects for fragile states.

### **3.2.2. Investment and growth**

As discussed earlier, debt is generally considered to be harmful for growth, due to the lack of incentives, via the debt overhang theory (Krugman, 1988; Sachs, 1989). Another way that high debt affects growth is through the crowding-out effect. The service of external debt is crowding out investments in the country (Cohen 1993). According to these theories, debt relief should lead to economic growth, through increasing incentives, resources and investments in the country. However, a lack of good quality institutions in the receiving country may reduce the impact that

debt relief has on growth and investments (Arslanalp and Henry, 2006; Asiedu, 2003). Furthermore, moral hazard (Bauer, 1991; Easterly, 2002) and adverse selection (Buiter and Srinivasan, 1987) are other factors that might reduce the positive impact of debt relief. Some ambitious attempts of calculating the effectiveness of debt relief have been carried out by Depetris and Kraay (2005), Presbitero (2009) and Johansson (2010). Depetris and Kraay (2005) use data on estimated changes in the present value of the external debt for 62 low-income countries, between the years 1989 to 2003, to empirically test how efficient debt relief has been in fulfilling its objectives. Namely, has debt relief managed to increase incentives by reducing the debt overhang and to free up resources that would otherwise have been spent on debt services, for development purposes? The authors do not find evidence that the debt forgiveness grants lead to higher growth rates, improved investment rates or higher institutional quality. The authors suggest that these negative results can be due to a variety of data- and statistical problems. Presbitero (2009) studied 62 low- and lower-middle-income countries in the period 1988 to 2007 and comes to similar conclusions as Depetris and Kraay (2005). His results show no increase in growth rates, investment or FDI as a result of debt relief, when country specific factors are accounted for. Johansson (2010) studies the direct effect of debt relief. The study contains data from 118 low- and mid-income developing countries from 1989 to 2004. She also concludes that there is no direct link between debt relief and growth. On the bright side, debt relief seems to increase investment rates in non-HIPC countries. Arslanalp and Henry (2005) found that debt relief increased investments, as well as increased asset prices and accelerated growth in 16 mid-income countries receiving debt relief through the Brady Plan 1989-1995.

#### **4. Political Justification**

A different body of literature asks a different set of questions, namely questions regarding the political motivations of rich countries granting debt relief to the poorest countries. To start with a general observation, mid- and high-income countries have a higher institutional quality than low-income countries and especially HIPC countries. Easterly (1999) shows that low quality institutions are the reason why HIPCs are just poor and highly indebted. These findings suggest that even if there is no direct link between debt relief and growth, there is still hope, as long as debt relief leads to better institutional- and governance quality.

#### 4.1. Poor governance and economic stagnation

As we show above, debt relief programs have not increased growth or investment rates directly, especially not in countries with low quality governance. However, improvements of institutions and governance quality are an important factor to lift lagging nations from stagnation and promote growth. Hence, a continuation and expansions of debt relief programs would be justified if they ensured and enhanced measurable improvements of governance- and institutional quality. One can identify a trend in that direction.

Throughout the 1980s and 1990s, aid and debt forgiveness grants were often conditioned upon the implementation of certain pre-determined reforms, in the receiving countries. This was largely inefficient and with the introduction of the HIPC initiative both bilateral and multilateral, donors seem to direct their debt relief efforts towards countries with better institutions and policies already in place (Nanda 2006; Presbitero 2009). Presbitero (2009) finds that countries with higher Country Policy and Institutional Assessments (CPIA) indicator, which he uses as proxy for good governance, are rewarded with debt relief grants after the enhanced HIPC initiative was put in place. He concludes that the ex-post governance conditionality, which his results suggest, creates the right incentives for indebted countries to improve the quality of governance and the efficiency of the public sector, and at the same time limit the negative effects of aid dependency. However, these positive results are not confirmed by all other studies. Chauvin and Kraay (2007) also used CPIA as a proxy for institutional and governance quality in roughly the same period. Their study was conducted on 62 low-income countries, and they find the CPIA to have a positive effect, but not to be sufficiently significant, in their cross section regression analysis. They also find that there was a negative relationship between high CPIA levels and debt relief before the enhanced HIPC initiative was introduced. Freytag and Pehnelt (2009) find mixed results for the relationship between governance indicators and debt relief. They use a variety of governance indicators, finding none of them to have a significant effect on the amount of debt relief before the enhanced HIPC initiative, and just three of them to have a positive and significant effect on debt relief in the period after the introduction<sup>4</sup>. Akoto (2013) conducted a study on all the 16 countries that applied for debt relief under the enhanced HIPC initiative in 2000 and on nine non-HIPC countries that didn't apply. He finds that countries applying for debt relief under the enhanced HIPC initiative in 2000 were more likely to improve

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<sup>4</sup>This study will be discussed in more detail in part 4

their institutions in in the years 1996 to 2000. He concluded that the introduction of the enhanced HIPC initiative created a motivation for these countries to improve their institutions.

#### 4.2. Political motives in creditor countries

In many cases, recipients' welfare and institutional improvements are not the main objective of donors. Debt relief may well be an instrument to gain political capital domestically. Michaelowa (2003) present a theory of debt relief, based on rational political reasoning, especially under the enhanced HIPC initiative. She argues that the decision making process follows the same procedures in both IMF and World Bank, and borrows Vaubel's (1991: 210ff.) definition of the relevant groups of actors taking part in the process.

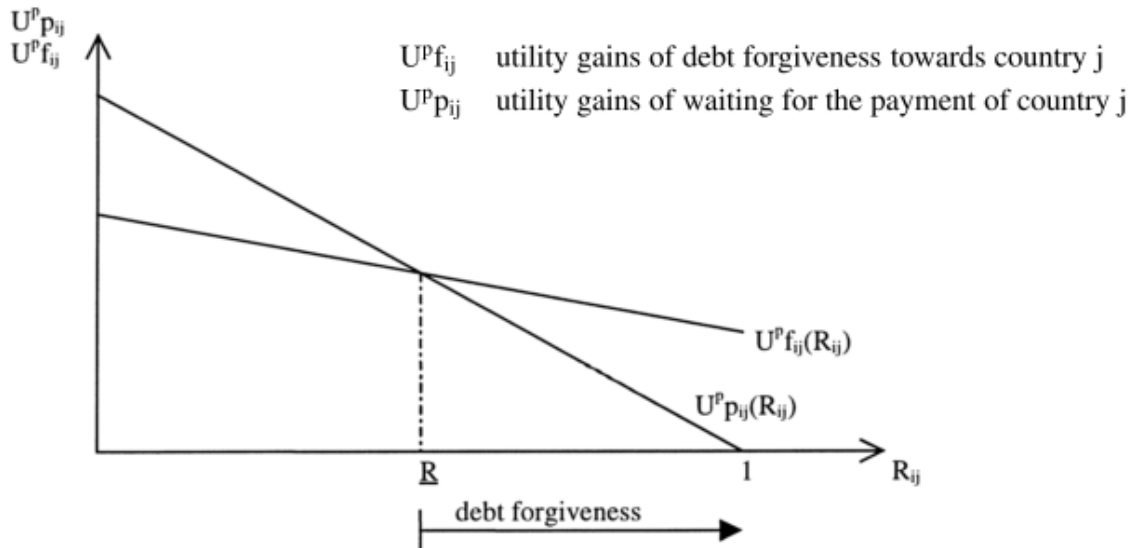
- National politics: Board of Governors (representation of the politicians of the national member governments) and Board of Executive Directors (made up by national delegates)
- National bureaucrats and international bureaucrats (international civil servants)
- Non-Governmental Organizations (NGO), which are the national and international interest groups.

The national governments have both a direct way, through the Board of Governors, and an indirect way, through Board of Executive Directors<sup>5</sup>, to influence the debt relief decisions of the World Bank or IMF. However, the information flow, which all decisions are based on, is controlled by the international bureaucrats. At the same time, bureaucrats can oppose any policy decision by blocking its implementation. This is possible due to the enormous difficulties to control a vast amount of international civil servants. NGOs, on the other hand, lobby to affect national politics und bureaucracy. International NGOs further directly influence the decision making of IWF and World Bank. Similarly, one may argue that an increasing number of NGOs supporting debt relief will lead to an increase, since government can raise the political support by pleasing many development friendly NGOs. In other words, NGOs in large number cause a shift of the utility of debt relief  $U^p p_{ij}(R_{ij})$  to the right. Since it is impossible to measure the number and strengths of NGOs, we will not test this hypothesis.

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<sup>5</sup>The board of Governors only meet once a year and chooses their national representatives in the Board of Executive Directors

Figure 2: Decision making of national politicians for debt debt forgivess



Source: Michaelowa (2003, p 6)

The political actor's decision on debt relief is depending on their utility function. As often assumed in public choice theory, the politician's utility function depends on the expected amount of votes in the next election. Creditor countries have two options concerning loans to poor developing countries. They can either wait for the loan to be repaid and use the repaid funds, plus interest, to implement policies to increase the expected amounts of votes. Alternatively, they can grant debt forgiveness and forgo the possibility to be repaid. The second option may also have a positive effect on the expected amounts of votes because of the high moral appeal of such an act of charity towards the world's poorest. The utility of waiting to be repaid decreases with the increase of the risk of default, and the utility of debt forgiveness increases inversely (See Figure 2). While the first relationship is clear, the second might need some explanations. Michaelowa (2003) argues that the public in the creditor country has knowledge of the default risk and considers the debt relief as a less charitable act, the higher the risk of default is. Figure 2 shows the national politicians' decision point. The utility of waiting  $U^p p_{ij}(R_{ij})$  - and the utility of debt relief  $U^p f_{ij}(R_{ij})$  - react differently depending on the default risk  $R$ . At the intersection point,  $\underline{R}$  the politician is indifferent between the two options of action. Ultimately, national politics will vote for debt relief if the default risk exhibits the intersection point risk  $\underline{R}$ . Meanwhile, the default risk depends on several debtor and creditor characteristics (Michaelowa 2013, p. 16).

Table 1: Driving factors of debt default risks in debtor and creditor countries

<u>Debtor</u>	<u>Creditor</u>
<ul style="list-style-type: none"> <li>• Cumulative external debt</li> <li>• Cumulative defaults</li> <li>• Dependency on trade with creditor</li> <li>• Trade deficit, dependency on external finance</li> <li>• Political stability</li> <li>• Good Governance</li> </ul>	<ul style="list-style-type: none"> <li>• Development Aid</li> <li>• Income</li> <li>• Trade with debtor</li> <li>•</li> </ul>

Source: Own compilation based on Michaelowa (2013, p. 16)

The default risk decreases hypothetically with higher creditor income and higher debtor dependency on aid and bilateral trade. The assumption being that these variables enable the creditor to penalize defaulted repayments. In contrast, default risk increases with debtor ex-ante indebtedness, previous repayment defaults and debtor trade deficit, which indicates that the debtor's economy depends on external finance (Michaelowa 2013, p.17). Intuitively, instable political conditions have a detrimental influence on economic activities, which in turn lowers the chances of debt repayments: Fragile debtor countries are more likely to miss repayments (Bandiera, Crespo Cuaresma and Vincelette 2009). As discussed in chapter 2, a good behavior of the debtor government, especially with respect to the allocation of the benefits of debt relief, is crucial to overcome debt overhang. Furthermore, good governance secures the sound usage of revealed financial resources and hence lowers the default risk in upcoming periods.

The introduction of NGOs into the model of Michaelowa (2003) increases the amount of debt relief granted by increasing the utility of debt relief. NGOs have fought for debt relief for poor countries for a long time and are actively campaigning for it (e.g. the Jubilee 2000 initiative). During these campaigns, the public interest for these questions rises and the positive effects of debt forgiveness for the domestic politicians increase. An increase of public awareness and evaluation of debt relief as something positive, will shift the  $U^p f_{ij}(R_{ij})$  upwards. Furthermore, the government can raise the political support of debt relief by pleasing many development



friendly NGOs. With the default risk, being unaffected, national politics will more likely support debt relief initiatives.

Debt relief might, on one hand, lead to budget cuts for the bureaucrats. On the other hand, it might also increase their reputation, leading to more funds and reduce problems that arise from debtors defaulting on their loans. Bureaucrats are expected to have a utility maximizing point close to the one of the national politicians, and will not oppose to the debt forgiveness decision taken by the politicians.

Michaelowa (2013) provides empirical evidence for the reason that conditionality became more and more out of fashion after HIPC II and especially during MDRI. However, there are still questions left about the willingness of a national government to grant debt relief. For debt forgiveness the creditor government has to free resources or at least, planned revenues have to be depreciated. In other words, debt forgiveness is associated with an increase in government spending. Within the political economics literature, political decisions about expenses are explained, not only by the rational utility maximizing of the agents, but also by the structure of the national political system. For instance, Roubini and Sachs (1989) show that weak and divided governments are less effective when it comes to reduce budget deficits. Their explanation is, that a weaker and more divided government is more likely to spend money on welfare because members of divided governments have different views on how expenditure improves the social welfare of a society. Along this line, Volkerink and de Haan (2001) empirically confirm that fragmented governments have higher deficits, using a large panel data set with observations from 1971-1996. This is because it becomes more difficult to identify the causal agent of an expensive policy when the number of decision maker is large. The authors also tested if the political orientation of a government has an effect on government expenditures. However, they find no empirical support for this.

Scartascini and Crain (2002) examined the effect of the size and composition on government spending in detail, the basic claim being, that electoral institutions influence the competition between parties and this way fiscal decision are affected. They introduce "*the Law of 1/n*", stating that expenditures grow proportionally to the number of relevant bargaining agents, i.e. the legislators. The authors provide two main explanations: Firstly, with no legally binding contracts between legislators, minimum winning coalitions are unstable (Weingast 1979, Niou and

Ordeshook 1984) and within multi-party system fragility of coalition rises as the number of parties increases (Scartascini and Crain 2002, p.11). For instance, the majority of three parties can be overturned easily by a new coalition. The typical reaction to this unstable condition is universalism, which is defined in political economy as “seeking unanimous passage of programs through inclusion of project for all the political parties who want one” (Scartascini and Crain (2002, p.11) extend the definition of Weingast (1979, P.249)).<sup>6</sup> Party leaders face the problem that they are potentially in the losing minority and hence prefer certain returns instead of uncertain benefits. With a scarce party budget, usually the coalition party tries to spend money on projects, which benefits their supporters. Without a legislative majority however, the project will not pass the legislature unless the party find additional votes from other parties, which will quid pro quo, ask for votes for their own projects. Consequently, welfare projects such as aid or debt relief and ultimately the overall budget will rise in more fractionalized coalitions. Round and Odadukun (2004) provide empirical evidence that political polarization and fractionalization enhance aid efforts.<sup>7</sup> As we will show later this holds also for debt relief.

## 5. Empirical Analysis

As discussed in the previous sections, there are diverse motives to receive debt-relief just as there are diverse motives to grant it. In the following section, we try to find the relevant patterns behind the political economics of debt-relief. For this reason, we collected cross-country debt data from recipient and a donor’s respectively. Our leading interest is to make inferences about the relationship between the quality of institutions and debt-relief grants. Further, we try to find evidence that the probability for a country to grant debt-relief depends on the political system of a country’s government.

### 5.1.Hypotheses

Initially, we draw our attention to the *path dependency hypothesis* of debt relief: We want to test if the amount of debt relief depends on the ex-ante level of indebtedness and/or previous debt reliefs of recipient countries. The concept of debt relief is often criticized, the main argument

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<sup>6</sup> The argument was originally made for 2-party systems. Scartascini and Crain (2002) further developed it to multiparty systems and introduced the term “modified universalism”.

<sup>7</sup> Dreher and Langlotz (2015) exploit this relationship to construct an instrument variable with the objective to make causal inferences about the relationship between growth and aid.

being that recipient countries become heavily indebted over time due to a lack of incentives for economic players and a moral hazard of political players (Easterly 1999, 2002). Freytag and Pehnelt (2009) indeed find this “path dependency” for periods with the 1990s – yet not in the subsequent period 2000-2004. We want to find out if the same path dependency returns during the periods from 2005 to 2009 and 2010 to 2013.

For the debt relief programs to work as efficient as possible, decisions regarding the level of grants should be based on purely economic (or macro-economic) factors. One cannot rule out the possibility that the resources bounded by debt relief would be more efficient in the form of other growth-enhancing instruments. However, recent literature reveals a strong political motivation within the donor countries determining the amount of debt relief (See, among others, Michalelowa 2003, Khan 2012, Akoto 2013). Within this context, we want to examine if there are further political determinants guiding the donor’s decision to grant debt-relief. Round and Odadukun (2004), Dreher and Langlotz (2015) find that the fractionalization of a country’s government affects the allocation of aid since a larger number of political parties is positively correlated with a larger government budget. Hypothetically, the fractionalization of donors also positively affects the amount of granted debt relief. In the remainder, we refer to this hypothesis as the *fractionalization hypothesis*.

Among others, Agénor and Montiel (2010) and North (1990, 1992) find that good governance is the sufficient condition of debt relief to avoid path dependency. Hence, we expect that measures of good governance positively influence the amount of debt forgiveness and vice versa. Results from Freytag and Pehnelt (2009) and Akoto (2013) found evidence supporting this hypothesis during the HIPC initiative. We are going to test if these results are persistent over time. Furthermore, Bandiera, Crespo Cuaresma and Vincelette (2009) proved that debt relief does not help fragile countries in terms of economic growth. Consequently, we expect that political fragile countries should receive smaller amounts of debt relief (instead, they are more eligible for aid or infrastructure supports). We refer to this claim as the *fragility hypothesis*.

## 5.2.Data Sources

Data on debt relief has been collected from OECD's statistical database, in particular the degree of debt forgiveness reported by the Development Assistance Committee (DAC)<sup>8</sup> for each of the countries on a yearly basis (OECD 2014). This debt forgiveness is part of the ODA. In the debt overhang theory, the expected Net Present Value (NPV) is used as a measure for indebtedness. Nevertheless, we preferred the face value for our studies, the reasons being the following. Firstly, it appears to be a complex task to calculate the NPV of the debt in question. The results of attempts pointing into this direction are, to our mind, questionable. Additionally, there is no single database containing the NPV of the debt on a loan-to-loan basis. Secondly, from the creditor's perspective, the NPV does not matter much. The probability that some of these countries will repay their debt including interest is close to zero. For our study, therefore, the reported face values provide the most important measure, not least as a selling point for domestic taxpayers, NGOs, etc.

GDP and GDP per capita are the Purchasing-Power-Parity (PPP) valuation of a country's GDP and are collected from the IMF database (IMF 2014d). This will provide the GDP measurement we use to calculate the debt-relief per GDP.

Data on total external debt, ODA, Foreign Direct Investments (FDI), debt services as a percentage of Gross National Income (GNI) together with governance indicators, were taken from the World Bank database (World Bank 2014b). The Worldwide Governance Indicators (WGI) include six indicators, namely Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption (See the Annex for their definition, quoted from Kaufmann, Kraay and Mastruzzi 2010). The indicators are available on a semiannual basis from 1996 to 2002 and on an annual basis from 2003 onwards. For robustness tests and responding to the recent criticism on the WGI, we additionally use the Index of Economic Freedom by the Heritage foundation (2016) which provides institutional indicators with a special respect to economic conditions since 1995.

For information about the trade balance of recipient countries, we collected data from the United Nation Conference of Trade and Development (UNCTAD 2015).

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<sup>8</sup>The DAC Members are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, the United States and the Commission of the European Communities.

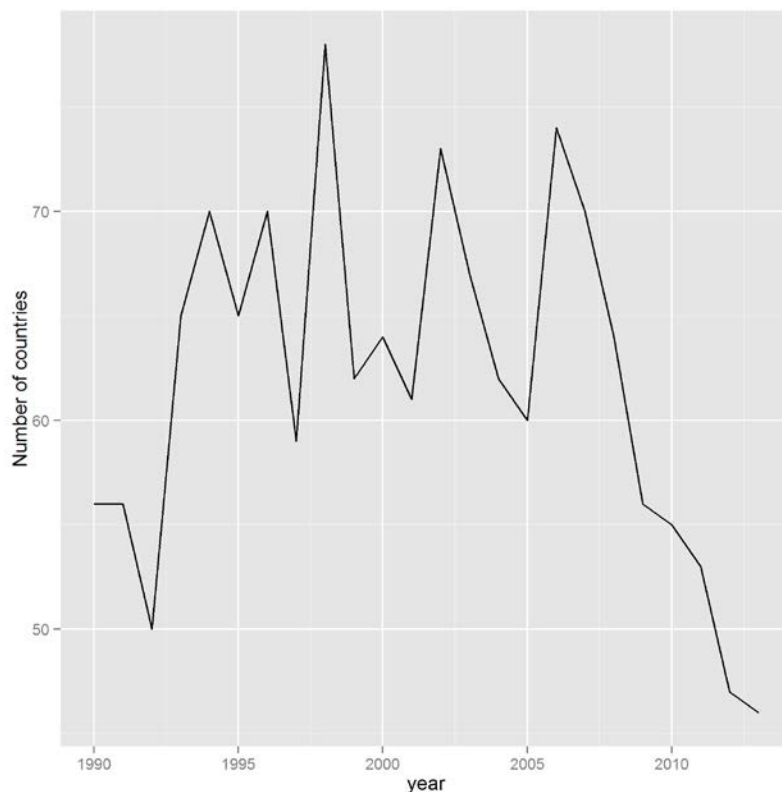
Following Dreher and Langlotz (2015), we use the dataset of Beck et al. (2001) to examine the effect of the donor’s political systems on the amount of granted debt relief. We merge this data with OECD (2014) and IMF (2014) data covering the years between 1995 and 2013.

### 5.3.Descriptive statistics

To address the fragility and path dependency hypothesis we use an unbalanced data set of developing countries<sup>9</sup> to In particular, we include countries, which received a multilateral debt grant by DAC Donors between 1990 and 2013. We are aware that with this selection process the inference from the sample population to the general population can be biased. We observe only a part of the distribution. We correct for this obstacle with a suitable estimation technique.

The number of countries in our sample decreased from a maximum of 78 countries in 1998 to a minimum of 46 recipient countries in 2013 (See Figure 3).

Figure 3: Number of countries reseicing debt relief by OECD donors 1990-2013



Source: own illustration, Data: OECD (2014)

<sup>9</sup> To define the term “developing country”, we use the IMF (2014) definition low income countries (LICs).

Similarly, the volume of debt relief by DAC Donors decreased (See Figure 1: Volume of debt relief by all DAC Donors 1965-2013 Figure 1 in the introduction). The peaks are in 1990 where the “Paris Club” granted large amounts of debt forgiveness. The next peak was in 2005 within the context of the HIPC Initiative. After this period, the amount of debt relief decreased constantly.

In Table 2 we show the average performance of debt related variables, i.e. debt service, income, external debt and the amount of debt relief. We constructed averages for 4-5 year periods, which have several advantages. Firstly, debt relief is - unlike other instruments like aid - not granted linearly between years. This means, there might be large amount of debt relief granted in one year and next year there is no debt relief at all. With period averages, we construct a “smoothing” effect. Further, it is crucial to keep in mind that we examine debt relief decisions, which are hypothetically based on ex-ante conditions, like good governance. However, to improve institutional quality it requires reforms, which might take multiple years until, they lead to an actual better - measurable by the WGI - result. Eventually, we are able to compare our results with Freytag and Pehnelt (2009) and Presbitero (2009). We additionally cover the time periods 2004 to 2009 and 2010 to 2013. The data indicate that the average amount of debt relief received by developing countries decreases from , i.e. from 12,8 % of GDP in Period 4 (2005-2009) to 8,6 % of GDP in the latest period (2010-2013). During Period 4, the largest amount of debt relief relative to the average GDP is granted. This illustrates the impact of HIPC Initiative and the follow up initiative, the MDRI.

Table 2: Summary statistics for debt indicators for developing countries, which received debt relief between 1990 and 2013

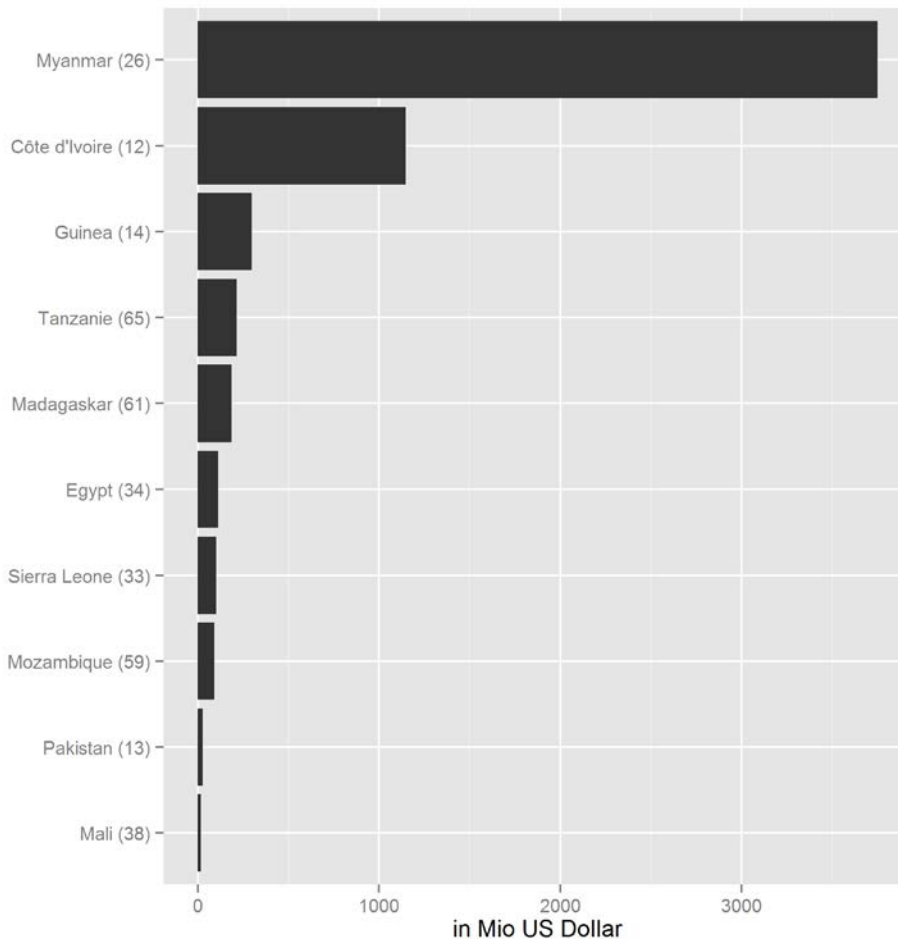
	n	Mean	St. Dev.	Median	Min	Max
<b>1990-1994 (Period 1)</b>						
Debt service per GNI in %	57	6.0	6.9	4.3	0.8	48.8
GDP per capita in current int. Dollar (PPP)	65	3022.2	3042.6	1692.8	284.3	13419.7
Debt relief per GDP in %	67	8.6	12.8	4.0	0.0	60.3
External debt per GNI in %	58	108.0	128.9	71.5	5.5	771.4
<b>1995-1999 (Period 2)</b>						
Debt service per GNI in %	63	5.4	4.3	4.4	0.3	21.0
GDP per capita in current int. Dollar (PPP)	68	3287.6	3117.5	2140.2	378.1	15300.4
Debt relief per GDP in %	69	7.2	10.5	3.6	0.0	47.8
External debt per GNI in %	63	99.6	110.8	69.2	12.3	798.1
<b>2000-2004 (Period 3)</b>						
Debt service per GNI in %	63	4.8	4.7	4.0	0.4	26.7
GDP per capita in current int. Dollar (PPP)	71	4211.2	4375.8	2309.7	534.9	21872.2
Debt relief per GDP in %	71	8.3	13.0	2.6	0.0	61.1
External debt per GNI in %	63	90.1	108.5	66.5	8.1	868.6
<b>2005-2009 (Period 4)</b>						
Debt service per GNI in %	66	4.6	9.2	2.5	0.1	69.0
GDP per capita in current int. Dollar (PPP)	71	5332.9	5751.0	3330.1	692.6	38906.7
Debt relief per GDP in %	71	12.8	49.0	2.3	0.0	400.5
External debt per GNI in %	66	51.1	44.4	36.8	6.9	320.4
<b>2010-2013 (Period 5)</b>						
Debt service per GNI in %	45	1.9	2.2	1.0	0.1	11.5
GDP per capita in current int. Dollar (PPP)	48	5202.1	6802.7	2457.3	743.9	38584.2
Debt relief per GDP in %	48	8.6	33.8	0.5	0.0	231.4
External debt per GNI in %	45	32.5	18.9	28.7	4.4	108.7

Source: own illustration, Data: World Bank (2014), IMF (2014), OECD (2014) The sample is limited to developing countries only. The categorization as a developing country is based on the classification system provided by IMF (2015).

By the same token, the average debt service per year decreases over time from 5.4% in period 1 to 3.8% in period 5. The average GDP per capita of the developing countries, which receive debt relief, however, increased significantly between Period 1 and 4. For the latest examined period, we observe a slight downswing. We cannot infer that developing countries became poorer after 2010. More likely is that richer countries left the sample after 2009, since the data sample shrinks from 71 to 47 developing countries in Period 5. Lastly, the average external debt of developing

countries, being a good number to express the success of debt-relief initiatives, exhibits an interesting dynamic: the peak of indebtedness is reached in period 1 with 87% of the average GDP. However, in the following periods, probably due to the HIPC and MDRI initiatives, this indicator shrunk to 50% in Period 4 and even 44% in the latest period. It seems to be the case that on average, developing countries have become less indebted over time.

Figure 4: Top 10 debt forgiveness by DAC Donors in 2013



Note: In brackets, rank of the Fragile State Index provided by Found for Peace Foundation (2015); Source: own illustration, Data: World Bank (2014)

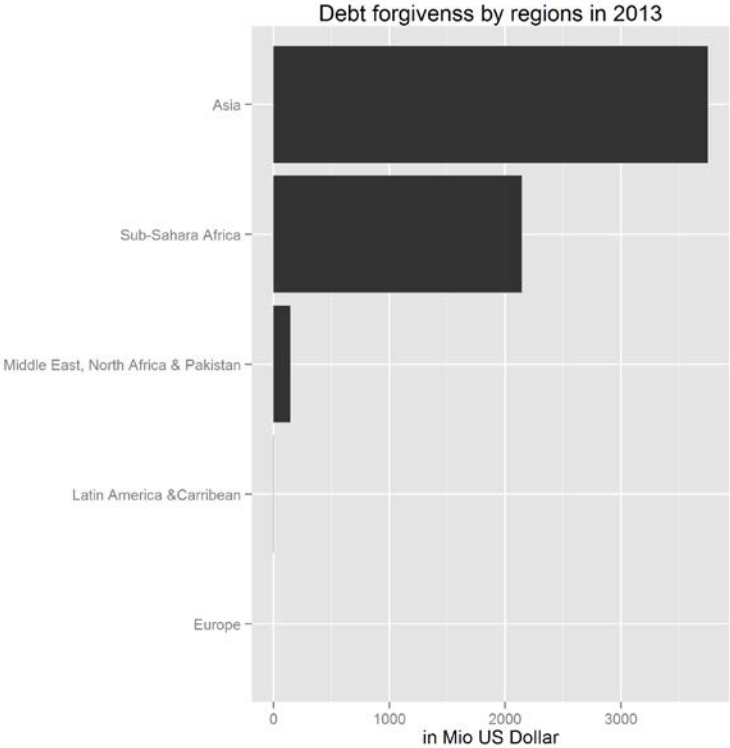
As illustrated in Figure 4, the highest debt-relief of the year of 2013 is granted to the countries of, Myanmar, the Côte d'Ivoire and Guinea. Myanmar has experienced - thanks to the democratization process since 2011 – extensive debt relief (Hulova 2013). The military junta accumulated large debt burden over time and only after its resolution, IMF, World Bank and AfDB were willing to reduce this burden (along with the removal of other economic sanctions).



Large sums of debt relief were also granted to the Côte d'Ivoire after the peace accord of 2007 and the end of the post-election crisis in April 2011. The country further successfully implemented a Poverty Reduction Strategy Paper (PRSP) and showed improvements of its macroeconomic management (World Bank Group 2012). Similarly, multilateral donors rewarded Guinea for its positive political dynamics in democracy: Since the 2008 military coup, the country had the first democratic elections in December 2010 and was consequently able to reach the completion point of the HIPC Initiative (IMF 2015).

Remarkable in the list of Figure 4 is that 8 of 10 countries which received debt relief in 2013 are located on the African continent. However, most likely due to the debt initiative of Myanmar, the largest sum of debt relief was granted within the region of Asia with more than 3.3 Billion US Dollar (See Figure 5).

Figure 5: Debt forgiveness by regions in 2013



Source: own illustration, Data: World Bank (2014)

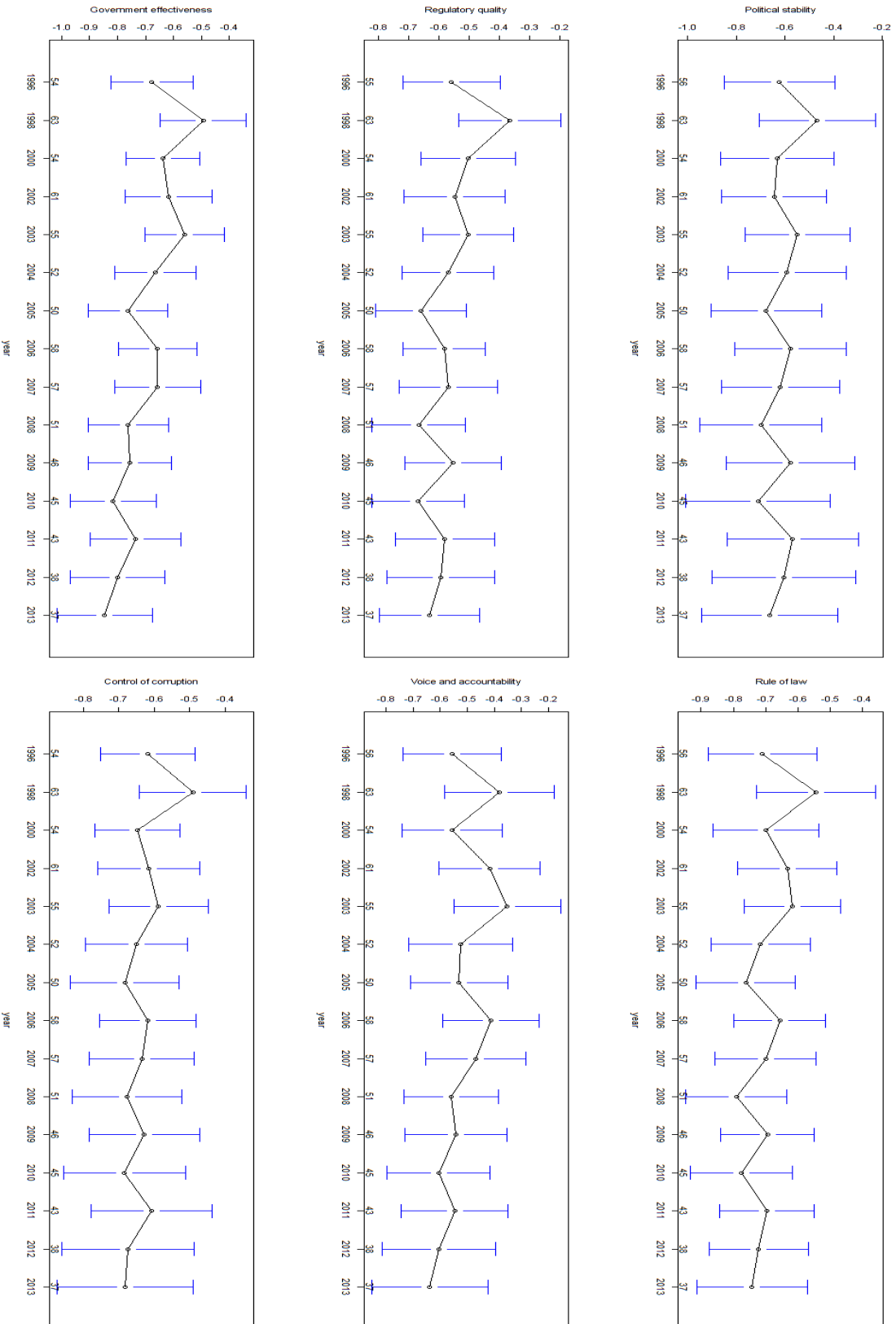
Bandiera, Crespo Cuaresma and Vincelette (2009) find that debt relief does not promote growth in fragile states. Nevertheless, comparing the list with the Fragile State Index 2013 by the Fund for Peace Foundation (2015) some of the top debt relief recipients are also among the most

fragile countries. Three out of ten countries (Cote d'Ivoire, Guinea and Pakistan) are even among the 20 most fragile countries of 2013 (note the rank in brackets in Figure 4). Bearing in mind, that this is only weak evidence, it leads us to the suspicion that the recent multilateral debt initiative tend to grant debt relief to fragile countries, rather than countries with economic potential.

Freytag and Pehnelt (2009) as well as Presbitero (2009) find that donors are more likely to grant debt relief to developing countries with a visible improvement in institutional quality. With the amount of debt relief decreasing over time (see Figure 1) we are interested how the quality of governance in developing countries has evolved. As shown Figure 6 Voice and accountability improves between period 2 and period 3. However, after 2005 there has apparently been no improvement. The average level of government effectiveness decreased from -0.43 to -0.46 in the following decade. Regulatory quality went down after 1999 from -0.37 to -0.44 in period 4. After 2009, the indicator increases slightly to -0.43. The average governance with respect to the rule of law remains constant between 1995 and 2004, but decreases from -0.44 to -0.48 in the subsequent periods. In addition, the corruption index goes down between all periods examined. Lastly, the indicator for political stability decreased slightly between period 2 and 3 but remained constant afterwards. To put it concisely, there have been no significant improvements of governance indicators between period 3 and period 5. The indicators rather show a decrease in governance quality.

Thus, it appears that two contradicting dynamics are involved. On the one hand, the amount of debt relief is reduced after 2010; on the other hand, the governance quality of developing countries did not improve or even worsens.

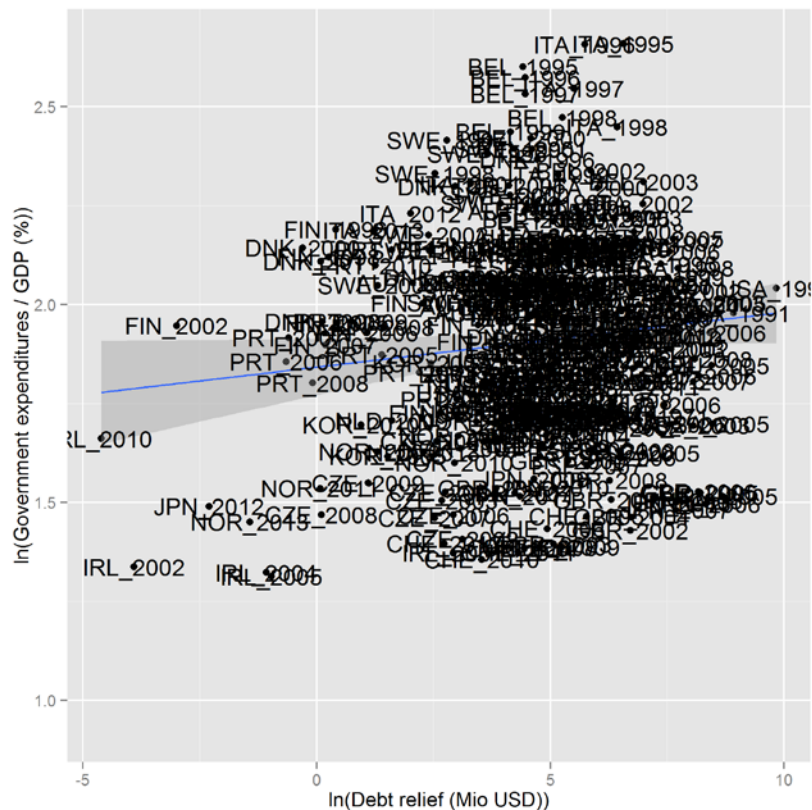
Figure 6: Performance of governance indicators in developing countries which received debt relief



Source: own illustration, Data: World Governance Indicators by World Bank (2014)

Michaelowa (2003) argues that debt relief cannot be explained solely by recipients' characteristics. To complete the picture, the donor perspective has to be taken into account. We are particularly interested in the relationship between creditor's government fractionalization and other specifics of the political system, debt relief and government expenditures. Roubini and Sachs (1989), Volkerink and de Haan (2001), Round and Odadukun (2004), Dreher and Langlotz (2015) find empirical evidence, that the fractionalization of a donor's government has a significant effect on the amount of government expenditures. In **Fehler! Ungültiger Eigenverweis auf Textmarke.** we show that there is a visible positive correlation between government expenditures and the amount of debt relief by DAC Donors between 1995 and 2013. This leads us to the suspicion that fractionalization determines government expenditure and government expenditure determines debt relief. However, causality remains unclear so far and demands a deeper empirical analysis (this will be addressed in the final paper)

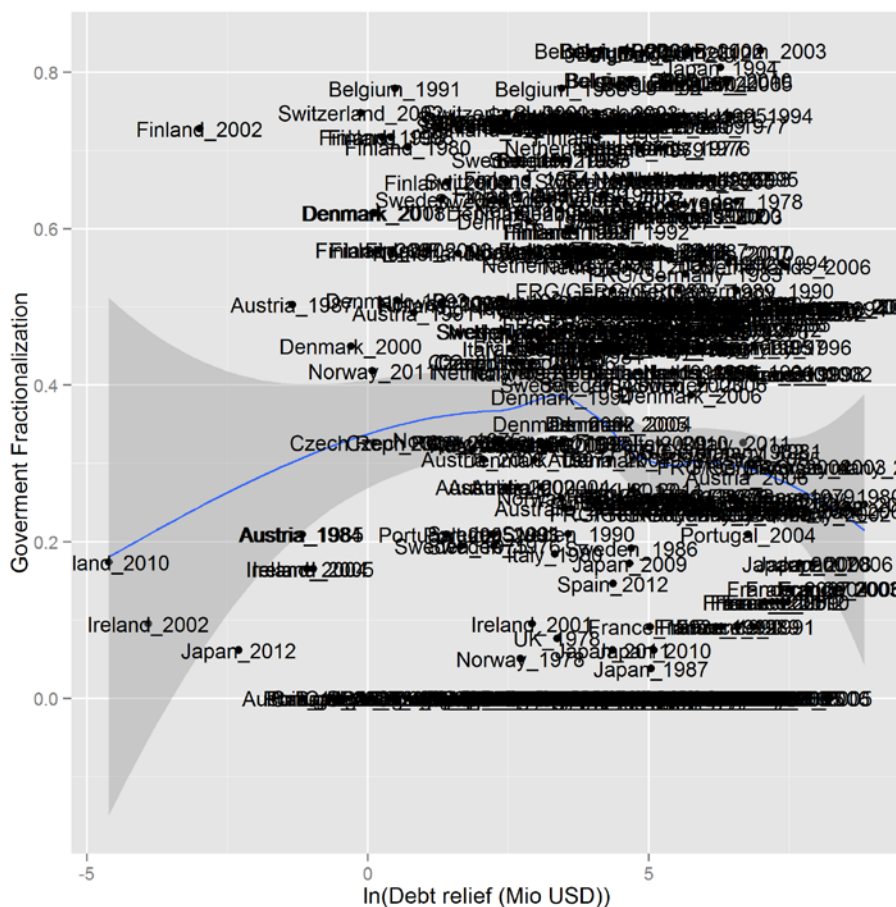
Figure 7: Government expenditures vs. debt relief by DAC Donors (1995-2013)



Source: own illustration, Data: OECD (2014)

If we examine the direct relationship between fractionalization and debt relief we cannot observe a linear relationship (Figure 8). However, this could be the results of an U-shaped relation, leaving us to explore the relation a little further in the following.

Figure 8: Relationship between government fractionalisation and debt relief



Source: own illustration, Data: Beck et al (2001) and OECD (2014)

Table 3: Summary statistics of DAC creditors 1995-2013

	n	mean	sd	median	min	max
Government expenditures (in % of GDP)	502	6.64	2.23	6.44	2.54	14.29
Fractionalization (in %)	324	31.26	27.27	31.58	0.00	82.78
Debt relief (in Mio. US Dollar)	253	524.01	951.73	146.60	0.01	5936.10

Source: own illustration, Data: Beck et al (2001) and OECD (2014)

In Table 3: Summary statistics of DAC creditors 1995-2013 Table 3 we summarize statistics for DAC Donors taking into account 1995-2013. The average government expenditures of DAC countries in this period were 6.6 percent while the average debt forgiveness was 524 million US Dollar per year. The average fractionalization of donors' governments, i.e. the probability to find two deputies from a different party for a random pick of the parliament, is 32 percent while the maximum probability is about 83 percent.

**Table 4: Expenditures, Fractionalization and debt relief of selected DAC creditors in 2011**

	Government Expenditures / GDP in %	Fractionalization in %	Debt relief in Mio. US Dollar
Austria	7.36	50.31	30.71
Belgium	8.56	82.44	134.46
Czech Rep.	4.50	64.16	0.00
Denmark	8.24	62.00	1.09
Finland	8.00	65.92	0.00
France	6.83	12.31	1333.01
FRG/Germany	6.64	47.21	273.36
Ireland	5.86	17.40	0.00
Italy	8.55	32.63	797.13
Japan	4.55	6.15	77.85
Netherlands	5.31	57.25	135.39
Norway	4.64	41.83	1.08
Portugal	8.49	0.00	4.97
Spain	6.20	0.00	29.31
Sweden	7.65	57.18	189.39
Switzerland	3.95	73.13	74.26
Turkey	6.13	0.00	0.00
UK	5.65	26.61	183.14
USA	6.00	0.00	0.00

Source: own illustration, Data: Beck et al (2001) and OECD (2014)

In Table 4 it is shown that there are indeed large differences between DAC Donors with respect to debt relief. While France for instance granted over 1 Billion in US Dollar the average debt forgiveness in the UK was only 181 Mio US Dollar.

## 5.4. Estimation Strategy

Our variable of interest, debt-relief, exhibits a skewed distribution. The majority of these developing countries receive small grants compared to their GDP. We will use a logarithmic transformation to allow for an estimation techniques, which assume a normal distribution.

To test the path dependency and fragility hypothesis, we use the following specification (following Presbitero 2009).

$$1) \ln(\text{Debt relief})_t = \text{Aid}_{t-1} + \text{Debt Service}_{t-1} + \text{External Debt}_{t-1} + \text{Governance}_{t-1} + \lambda + u_t$$

with the log of the amount of debt-relief over GDP on the left hand side. We control for multiple variables related to a country's debt situation. All of them stem from the previous period and are log-transformed. Thus, we include the external debt stock over GDP, the debt-relief of the previous period and the debt service over GDP. We add a proxy for the income level of the country, the GDP per capita or, alternatively, the poverty level (measured by the 1,25 poverty line). The WGI will enter the model one by one to be able to find out if some aspects of governance have been considered more important than others by the donor countries.

We construct the sample by including countries, which receive debt relief in a certain point of time. By excluding developing countries without debt relief we consider only a part of the distribution, which is likely to lead to a selection bias. Since we want to make inferences about the total population of developing countries, we correct for this with the Heckman Selection Procedure. For the selection equation, we gather variables, which potentially affect the probability (not the amount) that a country receives debt grants (as proposed by Presbitero 2009, p. 543) in a particular year.

$$2) \Pr(\text{Debt Relief}_t > 0) = \Phi(\text{Debt variables}_{t-1}, \text{Governance}_{t-1}, \text{Trade balance}_{t-1}, \text{Aid}_{t-1}, \text{HIPC status})$$

where  $\Phi$  is the normal distribution function. We use the information we obtain about the individual country and “save” that information in the inverse Mill ratio which is added to the outcome equation (1) in the second stage.

As mentioned before we want to test three different time periods. 2000-2004, 2005-2009 and 2009-2013. We use these particular periods to make this comparable to the results of Freytag and Pehnelt (2009). To test their hypothesis these authors used the between estimator, which means that they took the period (year) average of the variables and estimated this with an OLS technique. This method has the advantage that, given that debt relief occurs usually not in a regular basis, there is a smoothing effect on the variables and business-cycle fluctuations are “washed out” (Presbitero 2009, p.549). Furthermore, we have a constant number of countries in the sample. With a panel regression, there are naturally different numbers of countries per year, given that a country enters the sample once it had granted debt forgiveness. Presbitero (2009) advanced this approach by estimating a panel model using the average of four-year periods between 1988 and 2007. With four periods at hand he applied a fixed effect model to allow for country specific effects. Applying a panel model might rule out most forms of unobserved heterogeneity. This is particularly true when the selection process of the observations is time constant (Vella 1998). A fixed effect method assures that the results are not biased by unobserved time constant effects (Wooldridge 2010).

Bearing in mind the advantages and disadvantages of the two approaches we firstly apply the between estimator, i.e. regressing period averages and correct the selection bias with the Heckman Filter. To check the robustness of the results we additionally estimate equation (1) with year and country fixed effects.

For the fractionalization hypothesis, we use the following simple specification:

$$3) \ln(\text{Debt Relief})_{i,t} = \text{Frac}_{i,t} + X_{i,t} + u_{i,t} ,$$

where  $i$  indicates the donor country and  $t$  the annual time period.  $Frac$  represents the probability that two randomly chosen members of the coalition are from the same political party.  $X$  is a vector for control variables. We will present the regression results of this estimation in the final paper.



## 5.5. Preliminary results

To test the path dependency hypothesis as well as the fragility hypothesis we apply a Heckman filter model and regress in the first step with a tobit-estimation technique the probability that a country receives any debt relief (the amount does not matter) in period  $t$ . This is called the selection equation. Since we are interested if the country has ex-ante stable political conditions in the previous period we initially use the WGI “Political stability” as a governance indicator. In the outcome equation, we estimate the effect of the variables which potentially affect the size of debt relief.

We observe in Table 5 Determinants of debt relief applying a Heckman filter model with political stability as governance measure Table 5 that between 2000 and 2004 political stability has a significant positive effect on the amount of debt relief, i.e. the more stable a country the larger is the amount of granted debt relief on average. In the subsequent periods, the coefficient turns negative but insignificant. Hence, we provide some evidence that more fragile countries receive larger amount of debt relief in recent years.

The relationship between ODA and debt relief is dubious and yet not well researched. Cassimon and Essers (2013) even claim that debt relief is, in many cases, a hidden form of aid, which would result in the suspicion that debt relief is granted instead of aid. A different view is that countries, which received aid are more likely to be indebted due to poor macroeconomic performance. In our results, Official Development Aid has a large and significant negative effect on debt relief between 2005 and 2009 but a positive effect in the other examined periods. Between 2010 and 2013 the effect is even significant at a 10 % - Significance level.

A common criticism is that debt relief does not lift recipient countries out of the “debt trap” (The Economist) because of missing incentives. Our results show that between the effect of the external debt on the amount of debt relief is positive in all examined periods, supporting the hypothesis that on average more indebted countries are eligible for debt relief. In the most recently period the effect becomes smaller and insignificant. Instead, the amount of debt service, paid in the previous period becomes crucial for debt relief. In sum, the path dependency hypothesis cannot be rejected by our regression results.

**Table 5 Determinants of debt relief applying a Heckman filter model with political stability as governance measure**

<b>Selection equation</b>				<b>Outcome equation</b>			
	<i>Dependent variable:</i>				<i>Dependent variable:</i>		
	Pr(Debt relief>0)				Debt relief <sub>t</sub>		
	2000-2004	2005-2009	2010-2013		2000-2004	2005-2009	2010-2013
Debt relief <sub>t-1</sub>	-0.06 (0.05)	1.97 (1.60)	0.01 (0.01)	External debt <sub>t-1</sub>	11.43*** (3.54)	65.93*** (9.87)	10.38 (9.72)
External debt <sub>t-1</sub>	-2.33 (1.56)	-0.16 (1.08)	-0.16 (0.45)	Debt service <sub>t-1</sub>	-0.04 (2.38)	-30.65*** (7.22)	22.81*** (7.12)
Debt service <sub>t-1</sub>	4.11* (2.15)	0.53 (0.79)	-0.38 (0.36)	ODA <sub>t-1</sub>	2.58 (1.54)	-12.47** (6.08)	9.60* (5.56)
Political Stability <sub>t-1</sub>	-1.39* (0.82)	-0.23 (0.40)	-0.04 (0.28)	Political Stability <sub>t-1</sub>	3.80* (2.02)	-2.36 (7.10)	-0.69 (5.21)
GDP per capita <sub>t-1</sub>	-3.13* (1.65)	-0.24 (0.70)	-0.73* (0.42)	Observations	62	63	65
HIPC (0,1)	11.60 (1,405.27)	6.42 (1,761.62)	0.85 (1.27)	R <sup>2</sup>	0.42	0.57	0.64
ODA <sub>t-1</sub>	1.68* (0.91)	0.41 (0.40)	-0.17 (0.29)	Adjusted R <sup>2</sup>	0.36	0.52	0.59
Trade balance <sub>t-1</sub>	7.01 (4.54)	2.34 (2.25)	1.00 (1.31)	rho	0.34	0.96	-1.20
				Inverse Mills Ratio	3.63 (10.41)	36.37 (23.45)	-35.97** (14.54)

Note: Debt relief, External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data: World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

The results are robust to a different measure of governance. With government effectiveness, we hope to capture the quality and credibility of the government in general, albeit political instability, which is sometimes caused by external factors, such as international conflicts or natural disasters. As observable in Table 6 the statements from above can be repeated. However, government effectiveness has a large positive effect on the amount of debt relief in 2010-2013 (with large standard errors though). Hence, the hypothesis that institutional quality has not a positive effect on the amount debt relief can be rejected.<sup>10</sup>

<sup>10</sup> In the Annex we provide the same regressions for the four alternative Worldwide Governance Indicators: Rule of law, Regulatory quality, Control of corruption and voice and accountability.

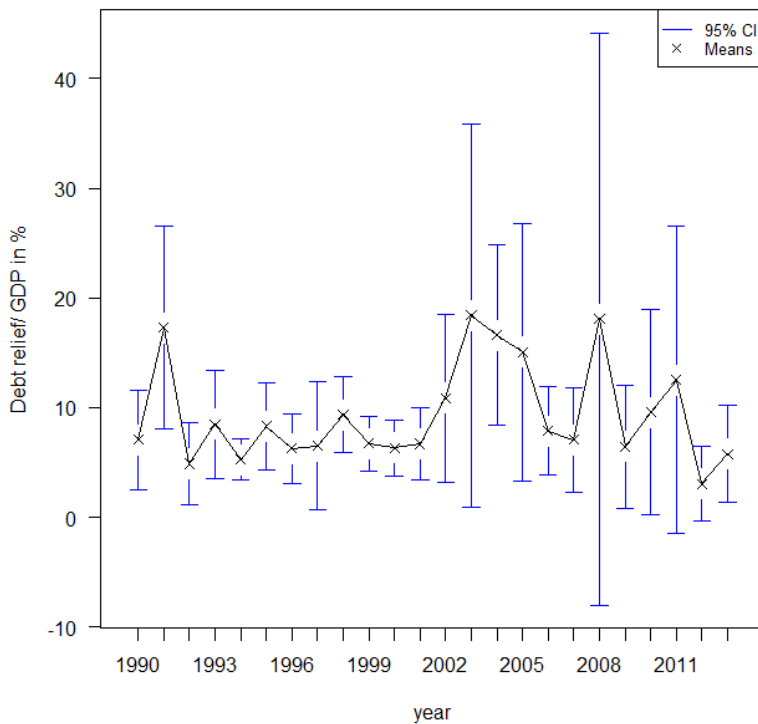
**Table 6: Determinants of debt relief applying a Heckman filter model with government effectiveness as governance measure**

	Selection equation			Outcome equation			
	Dependent variable:			Dependent variable:			
	Pr(Debt relief $>$ 0)			Debt relief $_t$			
	2000-2004	2005-2009	2010-2013	2000-2004	2005-2009	2010-2013	
Debt relief $_{t-1}$	-0.05 (0.05)	1.71 (1.50)	0.01 (0.01)	External debt $_{t-1}$	11.94 <sup>***</sup> (3.63)	65.90 <sup>***</sup> (9.97)	16.02 (12.03)
External debt $_{t-1}$	-2.81 <sup>*</sup> (1.66)	0.05 (1.21)	-0.23 (0.46)	Debt service $_{t-1}$	-1.01 (2.62)	-31.37 <sup>***</sup> (7.36)	22.38 <sup>**</sup> (8.46)
Debt service $_{t-1}$	4.64 <sup>**</sup> (2.12)	0.54 (0.78)	-0.38 (0.37)	ODA $_{t-1}$	3.57 <sup>**</sup> (1.39)	-12.89 <sup>**</sup> (5.90)	7.23 (6.16)
Government effectiveness $_{t-1}$	-1.89 <sup>*</sup> (1.03)	0.23 (0.93)	-0.35 (0.60)	Government effectiveness $_{t-1}$	6.87 <sup>*</sup> (3.82)	-0.18 (12.12)	15.68 (14.80)
GDP per capita $_{t-1}$	-3.26 <sup>*</sup> (1.63)	-0.37 (0.68)	-0.55 (0.51)	Observations	62	63	65
HIPC (0,1)	13.69 (1,436.55)	7.15 (1,722.00)	0.88 (1.27)	R <sup>2</sup>	0.42	0.56	0.66
ODA $_{t-1}$	1.07 <sup>*</sup> (0.59)	0.38 (0.38)	-0.14 (0.28)	Adjusted R <sup>2</sup>	0.36	0.52	0.61
Trade balance $_{t-1}$	4.43 (3.67)	2.75 (2.44)	0.59 (1.49)	rho	0.21	0.89	-1.40
				Inverse Mills Ratio	2.25 (7.97)	33.56 (24.79)	-52.44 <sup>**</sup> (21.20)

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ ; Source: own calculations, Data : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

The outcome equation of the Heckman Selection process is estimated by applying an OLS model. This way we do not control for potential country specific effects, which are constant over time. One typical example would be a geographical handicap, e.g. being landlocked (which is the case in quite a few African countries within our sample). To control for this problem we include one dummy per country in equation (2). This approach is commonly referred to as a fixed effect panel model (Wooldridge 2010). To further control for unobserved heterogeneity across years (see Figure 9: Means and confidence intervall of debt relief over time we include year dummies as well.

Figure 9: Means and confidence intervall of debt relief over time



Source: own illustration, Data: OECD (2014), IMF (2014)

The fixed effect model reveals that for the whole sample (2000-2013) there is still on average an observable path dependency (See Table 7). Debt relief in period  $t$  depends significantly on the external debt per GDP of the previous period  $t-1$ . Further, the debt service, a country paid in the previous period is a significant driver of debt relief. Political stability has with this model a positive effect on the amount granted debt relief, which is in contrast to the results from above. One explanation is that the fragility hypothesis only holds for long-term ex-ante fragility.

Aid is positively related with debt relief, which provides evidence against the hypothesis from Cassimon and Ellers (2013) that debt relief is granted instead of aid. Finally we find a significant negative effect of poverty on debt relief: The poverty gap of the previous period actually reduces the amount of debt relief which speaks against the statement that debt relief targets poverty reduction. Only between 2005 and 2009 the trade balance, measured by the net trade, is significant. It was expected that with large net trade there is a high demand for external finance and hence a high probability of debt relief. Our results do not confirm this expectation.

**Table 7: Determinants of debt relief applying a fixed effect panel model with political stability as governance measure**

	<i>Dependent variable:</i>			
	Debt relief t			
	2000-2013	2000-2004	2005-2009	2010-2013
Debt relief $t_{-1}$	0.06 (0.08)	-0.27** (0.13)	-0.97*** (0.18)	-0.06 (0.19)
External debt $t_{-1}$	0.61* (0.35)	-3.27** (1.43)	1.10 (0.94)	-0.96 (0.71)
Debt service $t_{-1}$	0.37* (0.19)	0.16 (0.38)	0.42 (0.36)	0.86* (0.42)
GDP per capita $t_{-1}$	-2.82** (1.15)	-1.28 (2.84)	-8.56 (5.81)	-8.76 (7.51)
Political stability $t_{-1}$	0.48** (0.24)	0.49 (0.44)	0.82 (0.66)	0.95 (0.96)
ODA $t_{-1}$	0.99*** (0.27)	0.45 (0.49)	3.23*** (0.71)	1.02 (0.73)
Poverty gap $t_{-1}$	-1.26** (0.59)	-2.21* (1.24)	2.85 (1.75)	-1.88 (2.06)
Trade balance $t_{-1}$	1.76 (1.23)	-0.18 (2.36)	6.61* (3.87)	0.84 (4.14)
HIPC status x poverty	0.33*** (0.10)	0.16 (0.34)	1.20*** (0.27)	0.14 (0.18)
Observations	282	116	88	61
R <sup>2</sup>	0.42	0.23	0.65	0.47
Adjusted R <sup>2</sup>	0.31	0.13	0.31	0.19

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; time and country dummies are suppressed, Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; R-squared cannot be interpreted as quality indicator of fit; Source: own calculations, Data: World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

If we substitute political stability with government effectiveness as a measure of governance, we see a different picture. Within the sample of 2000-2013, institutional quality has no visible effect on the amount of debt relief. If there is an effect, it is negative, which indicates the more effective a recipient government the less debt relief it gets.

**Table 8: Determinants of debt relief applying a fixed effect panel model with government effectiveness as governance measure**

	<i>Dependent variable:</i>			
	Debt relief			
	2000-2013	2000-2004	2005-2009	2010-2013
Debt relief $t_{-1}$	0.07 (0.08)	-0.28** (0.13)	-0.96*** (0.18)	-0.03 (0.20)
External debt $t_{-1}$	0.46 (0.35)	-3.82** (1.47)	1.02 (0.94)	-0.98 (0.73)
Debt service $t_{-1}$	0.35* (0.19)	0.09 (0.37)	0.36 (0.37)	0.94** (0.41)
GDP per capita $t_{-1}$	-2.35** (1.18)	-1.18 (2.83)	-9.01 (5.95)	-5.59 (8.64)
Government effectiveness $t_{-1}$	-0.43 (0.52)	-1.27 (1.01)	2.06 (1.92)	-1.95 (2.85)
ODA $t_{-1}$	1.11*** (0.28)	0.59 (0.49)	3.30*** (0.71)	1.23 (0.73)
Poverty gap $t_{-1}$	-1.09* (0.60)	-2.25* (1.24)	3.05* (1.74)	-1.49 (2.09)
Trade balance $t_{-1}$	1.79 (1.25)	-0.21 (2.36)	6.21 (3.84)	-0.76 (3.93)
HIPC status x poverty	0.34*** (0.10)	0.23 (0.34)	1.16*** (0.27)	0.20 (0.17)
Observations	282	116	88	61
R <sup>2</sup>	0.41	0.23	0.65	0.46
Adjusted R <sup>2</sup>	0.31	0.14	0.31	0.18

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; ; time and country dummies are suppressed, \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; R-squared cannot be interpreted as quality indicator of fit; Source: own calculations, Data: : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

## 6. Concluding remarks

In this paper, we tried to identify the main drivers of debt relief. Initially, we had a look at the recipient countries and find that the performance of important indicators not necessarily coincides with the motivation of the multilateral debtors: Fragile countries receive debt relief even though it

is proved that they have no positive effect in those countries. The successful strategy to condition debt forgiveness to institutional quality improvements gets out of fashion. Path dependence is still an obstacle. From an economic perspective, many questions remain unanswered. Thus, we analyzed the political motives of creditors and find some clues that this explains more than expected. If debtors' characteristics are the main driver, one has to question if debt relief is necessarily the most efficient instrument for developing countries. Especially, as it may substitute other aid instruments, which was partly visible in the examined data.

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## ANNEX

Table 9: Definitions of Worldwide Governance Indicators

Voice and Accountability	The perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media".
Political Stability and Absence of Violence/Terrorism	The perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism".
Government Effectiveness	The perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formation and implementation, and credibility of the government's commitments to such policies".
Regulatory Quality	The perception of the ability of the government to formulate and implement sound policies and regulations that permits and promote private sector development".
Rule of Law	The perception of the extent to which agents have confidence in and abide by the rules of the society, and in particular in the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
Control of Corruption	The perception of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests".

**Table 10: Determinants of debt relief applying a Heckman filter model with rule of law as governance measure**

	<b>Selection equation</b>			<b>Outcome equation</b>			
	<i>Dependent variable:</i>			<i>Dependent variable:</i>			
	Pr(Debt relief>0)			Debt relief <sub>t</sub>			
	2000-2004	2005-2009	2010-2013	2000-2004	2005-2009	2010-2013	
Debt relief <sub>t-1</sub>	-0.04 (0.05)	1.71 (1.49)	0.01 (0.01)	External debt <sub>t-1</sub>	11.22*** (4.11)	65.36*** (10.05)	12.20 (10.27)
External debt <sub>t-1</sub>	-2.11 (1.31)	0.04 (1.15)	-0.11 (0.47)	Debt service <sub>t-1</sub>	0.07 (2.68)	-31.03*** (7.36)	22.19*** (7.27)
Debt service <sub>t-1</sub>	3.70** (1.69)	0.55 (0.77)	-0.39 (0.36)	ODA <sub>t-1</sub>	3.55** (1.53)	-12.68** (6.04)	8.72 (5.64)
Political Stability <sub>t-1</sub>	-0.91 (0.62)	0.20 (0.68)	0.16 (0.49)	Rule of law <sub>t-1</sub>	3.06 (3.24)	-1.66 (10.72)	3.45 (9.28)
GDP per capita <sub>t-1</sub>	-2.79** (1.22)	-0.33 (0.68)	-0.85* (0.49)	Observations	62	63	65
HIPC (0,1)	11.88 (1,440.61)	7.20 (1,758.00)	0.86 (1.27)	R <sup>2</sup>	0.39	0.56	0.64
ODA <sub>t-1</sub>	1.06* (0.56)	0.35 (0.36)	-0.22 (0.30)	Adjusted R <sup>2</sup>	0.33	0.52	0.59
Trade balance <sub>t-1</sub>	3.46 (2.92)	2.63 (2.25)	1.14 (1.39)	rho	0.73	0.91	-1.24
				Inverse Mills Ratio	8.09 (9.38)	34.21 (25.11)	-38.25** (14.96)

Note: Debt relief, External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data: : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

**Table 11: Determinants of debt relief applying a Heckman filter model with regulatory quality as governance measure**

	<b>Selection equation</b>			<b>Outcome equation</b>			
	<i>Dependent variable:</i>			<i>Dependent variable:</i>			
	Pr(Debt relief>0)			Debt relief <sub>t</sub>			
	2000-2004	2005-2009	2010-2013	2000-2004	2005-2009	2010-2013	
Debt relief <sub>t-1</sub>	-0.04 (0.05)	1.63 (1.50)	0.01 (0.01)	External debt <sub>t-1</sub>	11.82*** (3.49)	63.97*** (9.94)	12.37 (10.13)
External debt <sub>t-1</sub>	-2.03 (1.24)	0.04 (1.12)	-0.14 (0.45)	Debt service <sub>t-1</sub>	-1.55 (2.61)	-30.27*** (7.30)	22.30*** (7.27)
Debt service <sub>t-1</sub>	3.66** (1.61)	0.57 (0.77)	-0.37 (0.36)	ODA <sub>t-1</sub>	3.66** (1.38)	-12.60** (5.92)	9.40* (5.44)
Political Stability <sub>t-1</sub>	-0.29 (0.91)	0.35 (0.90)	0.12 (0.49)	Regulatory quality <sub>t-1</sub>	7.50** (3.47)	-6.89 (11.21)	4.79 (10.30)
GDP per capita <sub>t-1</sub>	-2.92** (1.31)	-0.47 (0.75)	-0.83* (0.49)	Observations	62	63	65
HIPC (0,1)	12.34 (1,436.30)	7.08 (1,759.93)	0.82 (1.27)	R <sup>2</sup>	0.43	0.57	0.64
ODA <sub>t-1</sub>	0.79* (0.47)	0.41 (0.39)	-0.19 (0.27)	Adjusted R <sup>2</sup>	0.37	0.52	0.59
Trade balance <sub>t-1</sub>	2.76 (2.53)	3.02 (2.63)	1.13 (1.44)	rho	-0.01	0.96	-1.24
				Inverse Mills Ratio	-0.08 (8.14)	36.15 (24.80)	-38.66** (15.20)

Note: Debt relief, External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data: : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

**Table 12: Determinants of debt relief applying a Heckman filter model with control of corruption as governance measure**

	<b>Selection equation</b>			<b>Outcome equation</b>			
	<i>Dependent variable:</i>			<i>Dependent variable:</i>			
	Pr(Debt relief>0)			Debt relief <sub>t</sub>			
	2000-2004	2005-2009	2010-2013	2000-2004	2005-2009	2010-2013	
Debt relief <sub>t-1</sub>	-0.04 (0.05)	1.63 (1.50)	0.01 (0.01)	External debt <sub>t-1</sub>	11.82*** (3.49)	63.97*** (9.94)	12.37 (10.13)
External debt <sub>t-1</sub>	-2.03 (1.24)	0.04 (1.12)	-0.14 (0.45)	Debt service <sub>t-1</sub>	-1.55 (2.61)	-30.27*** (7.30)	22.30*** (7.27)
Debt service <sub>t-1</sub>	3.66** (1.61)	0.57 (0.77)	-0.37 (0.36)	ODA <sub>t-1</sub>	3.66** (1.38)	-12.60** (5.92)	9.40* (5.44)
Political Stability <sub>t-1</sub>	-0.29 (0.91)	0.35 (0.90)	0.12 (0.49)	Control of corruption <sub>t-1</sub>	7.50** (3.47)	-6.89 (11.21)	4.79 (10.30)
GDP per capita <sub>t-1</sub>	-2.92** (1.31)	-0.47 (0.75)	-0.83* (0.49)	Observations	62	63	65
HIPC (0,1)	12.34 (1,436.30)	7.08 (1,759.93)	0.82 (1.27)	R <sup>2</sup>	0.43	0.57	0.64
ODA <sub>t-1</sub>	0.79* (0.47)	0.41 (0.39)	-0.19 (0.27)	Adjusted R <sup>2</sup>	0.37	0.52	0.59
Trade balance <sub>t-1</sub>	2.76 (2.53)	3.02 (2.63)	1.13 (1.44)	rho	-0.01	0.96	-1.24
				Inverse Mills Ratio	-0.08 (8.14)	36.15 (24.80)	-38.66** (15.20)

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

**Table 13: Determinants of debt relief applying a Heckman filter model with voice and accountability as governance measure**

<b>Selection equation</b>				<b>Outcome equation</b>			
	<i>Dependent variable:</i>			<i>Dependent variable:</i>			
	Pr(Debt relief>0)			Debt relief <sub>t</sub>			
	2000-2004	2005-2009	2010-2013	2000-2004	2005-2009	2010-2013	
Debt relief <sub>t-1</sub>	-0.03 (0.05)	2.07 (1.63)	0.01 (0.01)	External debt <sub>t-1</sub>	12.06*** (3.79)	67.79*** (9.61)	12.84 (10.42)
External debt <sub>t-1</sub>	-2.31* (1.36)	-0.08 (1.11)	-0.16 (0.45)	Debt service <sub>t-1</sub>	-0.49 (2.51)	-32.62*** (7.29)	21.75*** (7.72)
Debt service <sub>t-1</sub>	3.59** (1.64)	0.28 (0.87)	-0.38 (0.37)	ODA <sub>t-1</sub>	2.98* (1.51)	-14.55** (5.77)	7.70 (5.79)
Political Stability <sub>t-1</sub>	-0.73 (0.75)	-0.68 (0.71)	0.03 (0.39)	Voice and accountability <sub>t-1</sub>	4.70* (2.69)	5.20 (9.62)	8.04 (8.54)
GDP per capita <sub>t-1</sub>	-2.90** (1.21)	-0.42 (0.70)	-0.78* (0.45)	Observations	62	63	65
HIPC (0,1)	11.76 (1,412.83)	5.17 (1,578.89)	0.85 (1.27)	R <sup>2</sup>	0.41	0.57	0.65
ODA <sub>t-1</sub>	0.95* (0.56)	0.21 (0.39)	-0.19 (0.28)	Adjusted R <sup>2</sup>	0.35	0.52	0.61
Trade balance <sub>t-1</sub>	3.19 (2.73)	1.54 (2.39)	1.03 (1.42)	rho	0.32	0.74	-1.32
				Inverse Mills Ratio	3.41 (9.58)	27.09 (24.42)	-44.20*** (15.71)

Note: Debt relief, External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data: World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)



**Table 14: Determinants of debt relief applying a fixed effect panel model with rule of law as governance measure**

	<i>Dependent variable:</i>			
	Debt relief			
	2000-2013	2000-2004	2005-2009	2010-2013
Debt relief $t_{-1}$	0.06 (0.08)	-0.28** (0.13)	-0.99*** (0.18)	-0.08 (0.19)
External debt $t_{-1}$	0.55 (0.35)	-3.44** (1.45)	0.77 (0.93)	-1.15 (0.70)
Debt service $t_{-1}$	0.36* (0.19)	0.10 (0.38)	0.48 (0.36)	0.96** (0.41)
GDP per capita $t_{-1}$	-2.82** (1.18)	-1.25 (2.90)	-6.42 (5.70)	-8.88 (7.62)
Rule of law $t_{-1}$	0.59 (0.51)	0.51 (1.01)	2.82 (1.76)	-1.82 (2.76)
ODA $t_{-1}$	0.99*** (0.28)	0.50 (0.49)	3.09*** (0.71)	1.08 (0.73)
Poverty gap $t_{-1}$	-1.30** (0.60)	-2.41* (1.29)	3.14* (1.71)	-1.95 (2.11)
Trade balance $t_{-1}$	1.86 (1.24)	-0.37 (2.42)	4.59 (3.82)	-0.90 (3.95)
HIPC status x poverty	0.34*** (0.10)	0.18 (0.34)	1.19*** (0.27)	0.17 (0.17)
Observations	282	116	88	61
R <sup>2</sup>	0.41	0.22	0.66	0.46
Adjusted R <sup>2</sup>	0.31	0.13	0.32	0.18

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

**Table 15: Determinants of debt relief applying a fixed effect panel model with regulatory quality as governance measure**

	<i>Dependent variable:</i>			
	Debt relief			
	2000-2013	2000-2004	2005-2009	2010-2013
Debt relief $t_{-1}$	0.07 (0.08)	-0.27** (0.13)	-0.95*** (0.19)	-0.005 (0.19)
External debt $t_{-1}$	0.50 (0.34)	-3.35** (1.44)	0.97 (0.98)	-1.36* (0.69)
Debt service $t_{-1}$	0.33* (0.20)	0.05 (0.37)	0.42 (0.37)	1.09** (0.40)
GDP per capita $t_{-1}$	-2.31* (1.20)	-1.12 (2.85)	-7.45 (6.30)	-11.51 (7.62)
Regulatory quality $t_{-1}$	-0.39 (0.53)	-0.53 (0.81)	0.05 (2.73)	4.47 (3.03)
ODA $t_{-1}$	1.08*** (0.28)	0.53 (0.49)	3.27*** (0.72)	1.22* (0.70)
Poverty gap $t_{-1}$	-1.13* (0.60)	-2.34* (1.25)	3.13* (1.77)	-1.21 (2.03)
Trade balance $t_{-1}$	1.87 (1.25)	-0.11 (2.38)	5.73 (3.97)	1.54 (4.06)
HIPC status x poverty	0.33*** (0.10)	0.20 (0.34)	1.21*** (0.28)	0.28 (0.18)
Observations	282	116	88	61
R <sup>2</sup>	0.41	0.22	0.64	0.50
Adjusted R <sup>2</sup>	0.31	0.13	0.31	0.20

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data : World Bank (2014), IMF (2014), OECD (2014); UNCTAD (2014)

**Table 16: Determinants of debt relief applying a fixed effect panel model with control of corruption as governance measure**

	<i>Dependent variable:</i>			
	Debt relief			
	2000-2013	2000-2004	2005-2009	2010-2013
Debt relief $t_{-1}$	0.07 (0.08)	-0.29** (0.13)	-1.02*** (0.18)	-0.17 (0.20)
External debt $t_{-1}$	0.55 (0.34)	-3.38** (1.48)	1.52 (0.93)	-0.97 (0.69)
Debt service $t_{-1}$	0.36* (0.19)	0.07 (0.38)	0.29 (0.35)	1.05** (0.40)
GDP per capita $t_{-1}$	-2.85** (1.17)	-0.98 (2.87)	-10.95* (5.70)	-11.92 (7.81)
Control of corruption $t_{-1}$	0.58 (0.41)	-0.04 (0.75)	3.12** (1.33)	3.05 (2.24)
ODA $t_{-1}$	1.01*** (0.27)	0.51 (0.50)	3.14*** (0.68)	1.19 (0.70)
Poverty gap $t_{-1}$	-1.14* (0.59)	-2.26* (1.26)	3.72** (1.68)	-1.72 (2.01)
Trade balance $t_{-1}$	2.07* (1.24)	-0.14 (2.39)	6.55* (3.65)	-0.64 (3.81)
HIPC status x poverty	0.34*** (0.10)	0.20 (0.34)	1.14*** (0.26)	0.18 (0.17)
Observations	282	116	88	61
R <sup>2</sup>	0.41	0.21	0.68	0.49
Adjusted R <sup>2</sup>	0.31	0.13	0.33	0.19

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Note: Debt relief , External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data: : World Bank (2014), IMF

**Table 17: Determinants of debt relief applying a fixed effect panel model with voice and accountability as governance measure**

	<i>Dependent variable:</i>			
	Debt relief			
	2000-2013	2000-2004	2005-2009	2010-2013
Debt relief $t_{-1}$	0.06 (0.08)	-0.28** (0.13)	-0.97*** (0.18)	-0.07 (0.20)
External debt $t_{-1}$	0.52 (0.34)	-3.36** (1.44)	0.91 (0.94)	-1.13 (0.70)
Debt service $t_{-1}$	0.34* (0.19)	0.07 (0.37)	0.42 (0.36)	0.94** (0.42)
GDP per capita $t_{-1}$	-2.61** (1.16)	-1.18 (2.92)	-9.38 (6.03)	-8.35 (7.64)
Voice and accountability $t_{-1}$	0.29 (0.39)	0.19 (0.58)	1.43 (1.29)	0.57 (1.77)
ODA $t_{-1}$	1.01*** (0.28)	0.47 (0.50)	3.20*** (0.71)	1.11 (0.75)
Poverty gap $t_{-1}$	-1.24** (0.60)	-2.28* (1.25)	3.17* (1.74)	-1.81 (2.11)
Trade balance $t_{-1}$	1.66 (1.29)	-0.42 (2.53)	5.63 (3.81)	-0.19 (4.15)
HIPC status x poverty	0.33*** (0.10)	0.21 (0.34)	1.12*** (0.28)	0.18 (0.17)
Observations	282	116	88	61
R <sup>2</sup>	0.41	0.21	0.65	0.46
Adjusted R <sup>2</sup>	0.31	0.13	0.31	0.18

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Note: Debt relief, External debt, ODA, Debt service are divided by the GDP and in logarithmic terms; Standard errors in parentheses; \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; Source: own calculations, Data: World Bank (2014), IMF

