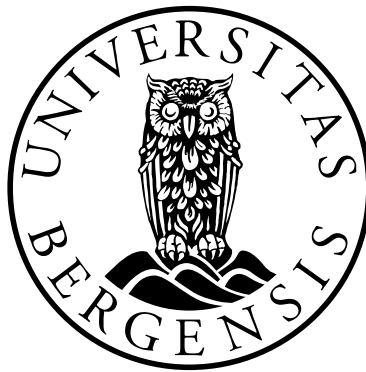


Capital flows to developing countries: Essays on the behavior of aid donors and official creditors

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Abstract

The capital flows from bilateral and multilateral donors to developing countries have increased considerably since the start of foreign aid in the 1950s. During the same period, the policies of aid allocation have changed, the number of aid donors has increased, and multilateral aid organizations have taken a more dominant position in the global aid systems. Thus, how donor countries distribute their aid budgets, which is paid by their citizens, has received great attention by researchers. The lack of results on economic development and welfare in the recipient countries has also contributed to the interest in this field.

This thesis consists of an introductory chapter and three essays on the aid policies of donor countries and official lending to developing countries. The main objective has been to investigate further how bilateral and multilateral donors behave, focusing on their policies on the allocation of loans, concessional or non-concessional, and grants as well as the motivation for bilateral donors when delegating the responsibility of aid policies to multilateral aid organizations.

Aid donors choose whether to disburse aid bilaterally, where the donor government controls the allocation and implementation of aid projects, or to delegate this responsibility to an agent, typically a multilateral aid organization. In the first essay, "Poverty aversion and delegation of aid policies", I address the question naturally arising from this behavior: Why do donors delegate the responsibility for aid allocation to multilaterals? Using panel data on aid disbursements from 23 Development Assistance Committee (DAC) donor countries for the period from 1987 to 2011, I test a dynamic model for the decision to delegate. Focusing on the predictions from theories on the Samaritan's Dilemma and time inconsistency in aid allocation, I analyze how the relative poverty aversion of bilateral and multilateral aid agencies affects the share of total aid budgets delegated. The choices donors make when allocating aid across countries and deciding whether to delegate the responsibility for aid allocation to an agent both reflect the donors' motivations for aid and influence the efficiency of aid, with respect to economic development in the recipient countries. The

results show that the share of multilateral aid is negatively related to average income and population size, and positively related to the degree of openness. An increase in the level of corruption, reflecting the quality of institutions in the donor country, also increases the share of aid budgets delegated to multilaterals. While there is some support for the prediction that delegation is a convex function of the relative poverty aversion of bilateral and multilateral aid agencies, the result does not hold once donor interests are controlled for. Thus, the results indicate that the characteristics of the donor country are more important when donors decide whether or not to delegate, and not the possibility to alleviate the commitment problem when donors have a strong or weak aversion to poverty.

In the second essay, “Partner country ownership: Does better governance and commitment to development attract general budget support?”, I exploit disaggregated data on official development assistance (ODA) commitment from the Creditor Reporting System (CRS) to test whether better governed countries and countries with stronger commitment to development are more likely to receive general budget support. The data used in the analysis cover 23 DAC donor countries and 115 recipient countries from 1995 to 2009. Comparing the results using disaggregated and aggregated data, I confirm that the results are sensitive to the data used. As expected, I find that donors are selective when looking at the allocation of general budget support GBS, while the effect of the quality of governance and commitment to development is not significant at conventional levels when using data on total program aid. The results are in line with existing empirical evidence suggesting that the use of aggregate data on aid flows gives an inaccurate picture of the degree of selectivity among donors, and shows that donors do follow the recommendation of being more selective when allocating budget support than with other types of aid. Still, variables indicating political and historical ties between the donor and recipient countries have a strong effect on both the probability of receiving GBS and the volume received.

The third essay, “Lending to developing countries: How do official creditors respond to defaults?”, which is co-authored with Cathrin N. Fløgstad, is related to the literature on aid allocation as well as the empirical literature on reputational costs of sovereign

defaults. The focus in the existing literature on reputational costs is on defaults and exclusion from international capital markets. However, most developing countries, and especially low-income countries, are not considered to be creditworthy by private creditors and therefore mainly rely on grants and loans from official sources. Thus, for countries that only rarely have access to international capital markets, the effects of sovereign defaults on disbursements of new loans from official creditors are more important. We also discuss whether countries defaulting on their sovereign debt can turn to official creditors for capital. Using data on 118 low- and lower middle-income countries for the period from 1972 to 2011, we analyze the effect of sovereign defaults on disbursements of concessional and non-concessional loans from bilateral and multilateral creditors. Separating bilateral and multilateral, and concessional and non-concessional lending, we find that disbursements of new concessional loans and bilateral non-concessional loans are negatively related to an increase in arrears on principal and/or interest, on average. The effect is robust and significant at conventional levels. There is also a negative relationship between arrears and disbursements of multilateral non-concessional loans, but the statistical significance of this effect depends on how the arrears are measured. While the existing literature has found that countries are excluded from international capital markets following sovereign defaults, our results show that access to capital from official creditors is also reduced. Thus, countries cannot simply turn to official creditors for loans after a default.

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Chapter 1

Introduction

Introduction

1. Introduction

A large share of the countries in the world do not have access to private capital markets and are therefore dependent on other sources for capital, such as grants and concessional and non-concessional loans from official creditors. The countries that are excluded from private capital markets are typically low-income countries, as well as several middle-income countries that are not considered to be creditworthy. Gelos et al. (2011) find that 41% of the 139 countries in their sample have had no market access (i.e., are never observed borrowing through a syndicated bank or issuing bonds while increasing their indebtedness) from 1980 to 2000, while 47% only have occasional access. Reinhart et al. (2003) divide their sample of 102 countries into three “debtor clubs”, where 7 countries are defined as having only sporadic access to international capital markets, 14 are advanced economies with continuous access, and the last 41 countries are somewhere in between. The policies of aid donors have therefore received great attention in the aid allocation literature, but the role of official creditors is less discussed in the literature on sovereign debt and market access.

This thesis presents three essays focusing on different aspects of the policies of bilateral and multilateral aid donors when providing grants and concessional and non-concessional loans. The literature on aid allocation and donor behavior is expansive. Still, there are several questions that are not addressed. This thesis is an effort to fill some of the gaps in the empirical literature on the behavior of aid donors and official creditors.

The rest of the chapter provides an overview of the relevant literature, focusing on aid efficiency, aid allocation, multilateral aid, and official lending. I then give a short summary of the three essays, focusing on the motivation for addressing the research questions in the essays, the methodology used, and the main results from the analyses, as well as policy implications and the contributions to the existing literature.

2. Literature review

2.1. Aid effectiveness

Official development assistance (ODA) is defined by the Development Assistance Committee (DAC)/OECD as concessional flows from official agencies to low- and middle-income countries or multilateral aid organizations, with the objective of contributing to economic development and welfare.¹ To be defined as concessional, there must be a grant element of a minimum of 25%, calculated at a discount rate of 10%.¹ The stated purpose of foreign aid is (by definition) to contribute to economic development and welfare, and there is a vast amount of literature analyzing the effect of aid on economic development, usually measured by growth in GDP per capita.

The conclusion that can be drawn from the large number of empirical analyses is that there is no clear consensus on whether or not there is a significant positive effect of aid on growth, and whether a possible positive effect is diminishing or contingent on policy environments or other factors.² Some often cited contributions to the literature on aid effectiveness include Boone (1996), who finds a positive effect of aid on the size of the public sector but no effect on investments and indicators for human development. Burnside and Dollar (2000) find that foreign aid has a positive effect on economic growth if the recipient countries have sound macroeconomic policies—results that have later been criticized as several other studies have shown that their results are very sensitive to changes in the model specification and the sample used in the analysis.³ At the same time, several other studies have found support for the main finding by Burnside and Dollar (2000), which is that aid has a positive but diminishing effect in a good policy environment.⁴ Performing a meta-analysis on 68 empirical aid-growth studies with a total of 541 estimates, Doucouliagos and Paldam (2008)

¹ Throughout the chapter the word (foreign) aid refers to ODA as defined by the OECD/DAC unless otherwise specified.

² Here, I focus on studies from the period called the third and fourth generation of the aid effectiveness literature. The third generation was defined by Hansen and Tarp (2000) as the group of empirical studies on aid effectiveness from the early 1990s, typically including larger samples of countries and years compared to earlier analyses, and where the endogeneity of aid is accounted for using different instruments. The fourth generation is defined by Arndt et al. (2010) as the strand of literature seeking to explain the small and/or negative effect of aggregated aid flows on economic growth that has emerged in the last 6-7 years.

³ See for instance Hansen and Tarp (2001) and Roodman (2007).

⁴ See Collier and Dollar (2002), Collier and Hoeffler (2004), and Collier and Dehn (2001), among others.

conclude that the literature has not been able to establish a positive effect of aid on growth.⁵ Mekasha and Tarp (2012) use the same sample as Doucouliagos and Paldam (2008) and reach the conclusion that there is empirical support for a positive effect of aid on growth at conventional significance levels.⁶

Roodman (2007) tests the robustness of seven aid-growth studies, including the paper by Burnside and Dollar (2000), and concludes that the results in the literature are not robust. Especially, expansion of the sample changes the results substantially. He mentions several possible explanations for the lack of robustness; for example, the fact that foreign aid is not homogenous. When using aggregate aid flows in an aid-growth regression, one implicitly assumes that all types of aid, from food aid to general budget support, have the same effect on economic growth. The effect of aid is also likely to depend on the motivation of donors when allocating aid. Bearce and Tirone (2010) argue that aid is less effective when the strategic, political, or economic interests of the donor are high, because the threat of reducing aid when economic reform is not implemented is not credible. Exploiting the reduced importance of political interests after the end of the Cold War (Berthélemy and Tichit, 2004), Bearce and Tirone (2010) show that foreign aid has promoted economic reform and has demonstrated a positive effect on economic growth only in the post-Cold War period. The hypothesis that the donors' motives for allocating aid will influence the outcome has also been tested in other empirical studies. The results are mixed, but there tends to be evidence that the heterogeneity in motivation for aid is important to understanding the relationship between aid and economic development. Kilby and Dreher (2010) test and reject the homogeneity assumption that all aid has the same impact on growth. Their results show that aid allocated based on recipient needs has a significant positive effect on growth, while aid allocated based on donor interests has a significant negative effect. Minoiu and Reddy (2010) use results from the literature on aid allocation and

⁵ Doucouliagos and Paldam (2011) do a follow-up study of their meta-analysis from 2008 where they include more recent contributions to the aid-effectiveness literature. Their conclusion remains the same as before: the existing empirical results together indicate that aid does not generate growth.

⁶ Mekasha and Tarp (2008) use a different approach than Doucouliagos and Paldam (2008) by relying on the random effects model rather than a fixed effects model, weighting the average effect differently and taking into account the partial effects when interaction terms are included in the model; and finally, they recode the data by filling in some of the missing observations, increasing the number of observations from 471 to 519.

use rankings of donors to separate aid into two groups, developmental and non-developmental aid. They find evidence that developmental aid contributes positively to growth in the long run. Rajan and Subramanian (2008), however, do not find any positive effect of aggregate aid on growth, and the result also holds when allowing for the effect to differ depending on different geographical environments, different policies in the recipient countries, and between different types of aid.⁷

Clemens et al. (2012) emphasize the importance of taking into account the fact that the growth effect of different aid projects may occur at different times. In other words, some projects may affect economic activity in the short run, while others are expected to influence economic growth only in the long run. In addition to the problem of timing, Clemens et al. (2012) also criticize the instruments used in the most influential papers in the aid-growth literature. Allowing for aid to affect growth with a time lag, controlling for fixed effects, restricting the aid variable to only include early-impact aid, and avoiding the use of weak instruments which could result in biased estimates similar to OLS estimates, Clemens et al. (2012) find that the results using the datasets from Boone (1996), Burnside and Dollar (2000), and Rajan and Subramanian (2008) are quite similar and show a small but positive effect of early-impact aid on economic growth, statistically significant at conventional levels. Thus, according to Clemens et al. (2012), the lack of robustness is due to poorly specified econometric models; not allowing for a lag in the timing of effects, including aid types not likely to affect growth in the time period observed, and controlling for country fixed effects, in addition to the common use of weak instruments.

2.2. Aid allocation

Alesina and Dollar (2000) argue that the inefficiency of foreign aid, on average, is not surprising given that bilateral aid donors tend to allocate aid based on self-interests rather than on needs or recipient country merits. They find that “An inefficient, economically closed, mismanaged non-democratic former colony politically friendly

⁷ Rajan and Subramanian (2008) separate bilateral and multilateral aid, social sector aid and economic aid, and late-impact aid and early-impact aid.

to its former colonizer, receives more foreign aid than another country with similar level of poverty, a superior policy stance, but without a past as a colony” (p. 33). The importance of self-interests (favoring trade partners, former colonies, and political allies) in explaining the patterns of bilateral aid flows is confirmed by several studies during the last decade (Berthélemy and Tichit, 2004; Berthélemy, 2006a; Hoeffler and Outram, 2011). The importance of political considerations has weakened since the end of the Cold War, while recipient merits have become more important (Dollar and Levin, 2006). After the War on Terror following the 9/11 terror attack, foreign aid from the United States has again become more politicized (Fleck and Kilby, 2010). Thus, the evidence suggests that the presence of global conflicts such as the Cold War and War on Terror leads to shifts in the aid policies toward allocation patterns, where geopolitical objectives become more important and the needs of the recipients are not emphasized as strongly.

While the majority of the studies on bilateral aid allocation focus on the member countries of the DAC, there are also analyses of the allocation patterns of aid from other bilateral donors and multilateral aid organizations. Multilateral aid organizations are more selective on the degree of democracy and the quality of institutions in the recipient countries than bilateral donors, on average (Dollar and Levin, 2006). However, Berthélemy (2006b) also find that the commercial interests of the US, the UK, and Japan also influence multilateral aid flows. Dreher et al. (2009) use data on IMF lending programs and whether or not recipient countries temporarily hold a seat in the UN Security Council, and find a robust positive relationship between the two variables. A similar result for IMF lending and voting in the UN General Assembly is found by Dreher and Vreeland (2011). The results indicate that aid allocated by multilateral organizations is at least partly determined by political considerations and is in line with the literature on the influence of the US on multilateral organizations such as the World Bank and the IMF (see for instance McKeown, 2009; Fleck and Kilby, 2006; Kilby, 2009).⁸

⁸ This strand of literature is discussed more thoroughly in the next subsection.

Comparing the allocation of aid from the non-DAC donors to DAC donors, Dreher et al. (2011) find that they are similar in several aspects, but that non-DAC donors are, on average, less concerned with recipient needs. Neumayer (2003) finds that Arab donors (both bilateral and multilateral) are also strongly motivated by self-interests, especially political and religious allies.

Even though the results show a low degree of selectivity on variables such as quality of governance, on average, there is considerable heterogeneity among the different bilateral aid donors—and the degree of selectivity has changed over time.⁹ Typically, the Nordic countries are found to be more responsive to recipient needs as well as more selective on variables such as human rights and democracy, and less motivated by self-interests (Berthélemy, 2006b; Gates and Hoeffler, 2004). Dollar and Levin (2006) show that both bilateral and multilateral donors were more selective on the degree of democracy and the quality of institutions in the recipient countries after 2000, as compared to the late 1980s.

An important development in the empirical analyses of aid allocation (as in the literature on aid effectiveness) is the increasing use of disaggregated data. As emphasized by Radelet (2004), the selectivity of donors should not only be present when determining the volume of aid but also when determining the type of aid to allocate to different countries. Exploiting data on the aid channel, Dietrich (forthcoming) finds that donors tend to bypass the recipient governments when the quality of governance is low. Thus, while studies using aggregate data on aid flows find that donors are not selective on the level of corruption (e.g., Alesina and Weder, 2002), Dietrich shows that donors choose other channels when the quality of governance (including the level of corruption) is relatively low. Thiele et al. (2007) also use disaggregated data to analyze whether donors target sectors in line with the Millennium Development Goals (MDGs). With some exceptions, their analysis reveals that the sectors targeted by the aid donors deviates from the objectives stated in the MDGs.

⁹ By selectivity I mean policies for aid allocation where the donors target countries in which the expected efficiency of aid is higher when controlling for recipient needs (e.g., average income).

2.3. Multilateral aid

ODA delegated to multilateral aid organizations accounted for 30% of the total aid budgets of the DAC donors in 2012 (OECD, 2013a).¹⁰ Given that donors to a large extent are motivated by commercial and political self-interests, it is not clear why they delegate, on average, close to a third of their total aid budgets, thus reducing the possibility of gaining benefits through bilateral aid flows. Rodrik (1995) provides two main rationales for the existence of multilateral lending. First, information on the debtors is a collective good, and thus multilaterals are better suited for collecting information. Second, if multilateral organizations are independent of their member governments, they are less politicized and can therefore better exercise conditionality. The existence of multilateral aid organizations can also be supported by theories of burden sharing. If the objective of the organization is a public good (e.g., poverty reduction), an organization may better serve the common interests of the member countries (Olson and Zeckhauser, 1966).

A slightly different argument for delegation of aid policies to such organizations is the Samaritan's Dilemma.¹¹ If a donor country is concerned with income inequality and consumption smoothing across recipient countries and cannot credibly commit to an aid policy *ex ante*, Svensson (2000) shows that delegation to multilateral aid organizations may solve the time inconsistency problem. Hagen (2006) presents a similar result but also shows that the same holds for donor countries with a low emphasis on income inequality (a strong emphasis on aid efficiency).

The latter argument of Rodrik (1995) is based on the independence of multilaterals. However, existing empirical studies show that the larger member countries have significant influence over the policies of multilaterals. Countries like Japan and the UK, and especially the US, have been found to influence the allocation aid by multilateral aid organizations (Berthélemy, 2006b). Fleck and Kilby (2006) analyze the influence of U.S. interests on lending by the World Bank, and find that while the

¹⁰ The percentage of multilateral aid is calculated based on data for net disbursements.

¹¹ See Buchanan (1975) for an introduction to the Samaritan's Dilemma in a general context.

US exerts a considerable influence over World Bank lending, the degree varies with presidential administrations and is also dependent on economic and political circumstances.

2.4. Official lending and reputational costs of default

There is a relatively large amount of literature on the existence of sovereign lending in the absence of legal rights arguing that there must be some costs for the debtor country in the case of defaults for sovereign lending to occur. Empirical studies support the hypothesis that there are some reputational costs related to defaults on sovereign debt in the sense that future access to capital is reduced (Cruces and Trebesch, 2013; Gelos et al., 2011; Richmond and Dias, 2009).¹² However, the focus in the literature is mainly on the default of loans to, and lending from, private creditors.

A possibility when being excluded from international capital markets is to turn to official creditors and aid donors for capital. In addition to ODA (grants and/or concessional loans), official creditors also provide non-concessional loans at market or near-market conditions.

ODA is allocated to low- and middle-income countries for developmental purposes (e.g., reducing poverty and improving welfare in the recipient countries). One argument for providing grants and concessional loans (i.e., loans with long grace periods and/or interest rates below market rates) is that poor countries lack access to capital from international capital markets. Thus, in order for developing countries to increase economic growth through investments and reforms, they are dependent on capital from other sources. Countries not considered to be creditworthy by private creditors in the international capital markets therefore rely on loans (either concessional or non-concessional) and grants from bilateral and multilateral creditors.

The empirical literature on the links between access to international commercial capital markets and the capital flows from official creditors to developing countries is

¹² Other types of costs related to defaults include direct sanctions (Bulow and Rogoff, 1989; Fernandez and Rosenthal, 1990; Panizza et al., 2009) and domestic costs (Cole and Kehoe, 1998; Kapur et al., 2007; Sandleris, 2008).

scarce. One contribution to the literature is Brandt and Jorra (2012), who test how aid is related to debt restructuring through the Paris Club. They find that restructurings with official creditors increase aid by 6.4 % on average, indicating that, following a default on official loans, developing countries can increase capital inflows from aid donors.¹³ Looking at the effect of aid on repayments, Bjørnskov and Schröder (2013) show that foreign aid has a negative effect on debt service. Thus, an increase in access to capital from donors may have a negative impact on the recipient countries' incentives to repay their sovereign debts.

3. Chapter summaries

3.1. Poverty aversion and delegation of aid policies

Single-authored

Defining poverty aversion as a donor country's aversion to income inequality among the recipient countries, a strong aversion to poverty will give the recipient countries an incentive to lower their efforts in implementing reforms in order to increase average income (Svensson, 2000). The reason is simply that recipient governments anticipate consumption smoothing across recipient countries; and so, when the donor cannot credibly commit to an aid allocation ex ante, donors strongly motivated by poverty aversion may lead to a lower efficiency of aid.¹⁴ As a possible solution to the time inconsistency problem, Svensson shows that delegation of aid policies to an independent aid agency with a relatively lower aversion to poverty will be beneficial for both the donor and the recipient country. In a similar model, Hagen (2006) shows that if the donor country is strongly motivated by aid efficiency, then the incentives to invest in countries with a relatively low productivity of aid will be weakened.¹⁵ Thus, while aid efficiency is likely to improve if poverty-averse donors delegate to an

¹³ The measure of aid used in their analysis is gross ODA minus debt forgiveness grants and rescheduled debt.

¹⁴ Similarly, Pedersen (2011) shows that the outcome may even be increased inequality if the donor has a strong aversion to income inequality within recipient countries.

¹⁵ Donor interests are not included in the model. Thus, donors either care about efficiency, income inequality, or a combination of the two.

independent agency with a relatively lower aversion to poverty, the same outcome holds if donors strongly motivated by efficiency delegate to an agency with a relatively lower emphasis on efficiency.

Even though multilateral aid accounts for about a third of the DAC donors' aid budgets, the empirical literature on the determinants of delegation is limited. Focusing on the importance of the relative poverty aversion, I use a dynamic model to test the determinants of the delegation decision. The data include 23 DAC donors from 1978 to 2011. As expected, the share of multilateral aid is highly persistent, which can be explained by aid inertia. The results also show that delegation to multilateral organizations is negatively related to average income and population size, and positively related to the degree of openness and level of corruption. The degree of poverty aversion relative to the multilateral aid organizations (either the average of all multilaterals or the average of the multilaterals each donor delegates to) does not have a statistically significant effect on delegation at conventional significance levels. Thus, burden sharing, improving international relations, and exploiting the systems and competence present in multilateral organizations are more important for the delegation decision than the possibility to reduce the negative incentive effects and, thereby, improve aid efficiency.

In addition to the benefits already exploited by the donor countries, they should therefore consider using multilateral organizations when they have difficulties committing to an efficient aid allocation *ex ante*.

3.2. Partner country ownership: Does better governance and commitment to development attract general budget support?

Single-authored

Partner country ownership has been stressed in the Paris Agenda in order to improve the effectiveness of foreign aid.¹⁶ Thus, the donor countries should contribute to

¹⁶ The Paris Agenda refers to the Paris Declaration for Development, the Accra Agenda for Action, and the Busan Partnership for Effective Development Cooperation.

including the partner or recipient countries, and the recipient governments should be more involved in the decision-making and implementation of projects. As stated in the Accra Agenda for Action: “Developing countries determine and implement their development policies to achieve their own economic, social and environmental goals” (OECD, 2005, 2008, p. 16). General budget support (GBS) is funding which is not earmarked for a specific sector or project, but provided as direct financial support to the public sector in the recipient country. The use of GBS thus involves delegating the responsibility for use of aid flows to the recipient countries’ own financial and political systems. While the use of GBS would leave the decision-making and implementation of projects to the recipient governments, the results of GBS with respect to economic growth and improved welfare for the population in the recipient countries depends on the recipient governments’ commitment to development and the efficiency of the public institutions within the country.

Following the recent developments in the aid literature, I exploit aid data disaggregated by the type of aid. Using data on GBS from 23 DAC donors to 115 recipient countries in the period from 1995 to 2009, which is available from the CRS, I test the selectivity of the donors with respect to the quality of governance and the recipient governments’ commitment to development. The main indicator for the quality of governance used in the analysis is government effectiveness from the World Governance Indicators (WGI).

Government effectiveness is included in the baseline model as this is an indicator meant to reflect aspects of governance that are relevant for the ability of recipient governments to effectively make use of GBS. In addition, a range of other indicators for other aspects of the quality of governance is used to test the robustness of the result. The results show that donors are selective on the quality of governance in the recipient countries, and this finding holds for all variables used except the Polity IV indicator for the degree of democracy. However, historical and political ties are still important, indicating that there is still room for improvements in order to achieve a higher efficiency of aid. A risk when not being selective in allocation of aid, and especially GBS, is that the public in the donor countries may become less supportive

of foreign aid in general. If so, stories of corruption and other difficulties related to the quality of governance and commitment to development in the recipient countries may result in reduced total aid budgets.

3.3. Lending to developing countries: How do official creditors respond to sovereign defaults?

Co-authored with Cathrin N. Fløgstad

The literature on aid allocation focuses on flows of grants and concessional loans. However, official creditors also provide non-concessional loans to developing countries. The majority of studies looking at patterns of aid flows also disregard the link between aid, official non-concessional lending, and lending from private capital markets. At the same time, the literature on the reputational costs of default typically focus on defaults in, and access to, private capital markets only. In an effort to combine the two fields of research and test how official creditors respond to defaults, we estimate the effect of sovereign defaults on disbursements of new loans from official creditors using data on 118 low- and lower middle-income countries from 1972 to 2011.

The results show that defaulting on commercial or official loans is followed by a reduction in disbursements of new concessional loans, on average. The effect is not a result of substitution from concessional loans to grants, indicating that there is a real reduction in access to capital for developing countries in default. There is also indication of a negative effect for bilateral and multilateral non-concessional lending, but the statistical significance varies depending on the model specification. The lack of robustness for non-concessional lending could simply be due to the fact that we focus on low- and lower-middle income countries that are not necessarily considered to be creditworthy enough for non-concessional loans from official creditors.

The results for concessional loans are robust to a number of changes in the model specifications and sample size. The negative effect could be interpreted as a positive effect of clearance of arrears. Both arrears and external debt ratios have declined after the Heavily Indebted Poor Countries (HIPC) initiative started in 1996. Thus, once

debtor countries with an unsustainable debt ratio clear their arrears in order to qualify for the HIPC initiative, they receive debt relief and may also be rewarded with an increase in access to new loans. Controlling for HIPC status and possible contingent effects of default on reaching the decision point in the HIPC process, we show that the negative effect of arrears remains the same.

We also show that reputational costs of default are present in the market for official loans as well as in the private capital markets. Thus, developing countries in default cannot simply turn to official creditors for capital.

References

Alesina, A. & Dollar, D. (2000). Who gives foreign aid to whom, and why? *Journal of Economic Growth*, 5, 33–63.

Alesina, A., & Weder, B. (2002). Do Corrupt Governments Receive Less Foreign Aid? *The American Economic Review*, 92, 1126-1137.

Arndt, C., Jones, S., & Tarp, F. (2010). Aid, growth and development: Have we come full circle? *Journal of Globalization and Development*, 1: Issue 2, Article 5.

Bearce, D. H., & Tirone, D. C. (2010). Foreign aid effectiveness and the strategic goals of donor governments. *The Journal of Politics*, 72, 837-851.

Berthélemy, J. C. (2006a). Bilateral donors' interest vs. recipients' development motives in aid allocation: Do all donors behave the same? *Review of Development Economics*, 10, 179-194.

Berthélemy, J. C. (2006b). Aid allocation: Comparing donor's behaviour. *Swedish Economic Policy Review*, 13, 75-109.

Bjørnskov, C., & Schröder, P. (2013). Are debt repayment incentives undermined by foreign aid? *Journal of Comparative Economics*, 41, 1073-1091.

Boone, P. (1996). Politics and the effectiveness of foreign aid. *European Economic Review*, 40, 289-329.

Brandt, J., & Jorra, M. (2012). *Aid withdrawal as punishment for defaulting sovereigns? An empirical analysis* (MAGKS Joint Discussion Paper Series in Economics No. 20-2012).

Buchanan, J. M. (1975): The Samaritan's Dilemma. In E. Phelps (ed.), *Altruism, Morality and Economic Theory* (pp. 71-85). New York: Russel Sage Foundation.

Bulow, J., & Rogoff, K. (1989). Sovereign debt: Is to forgive to forget? *American Economic Review*, 79, 43-50.

-
- Burnside, C., & Dollar, D. (2000). Aid, policies and growth. *The American Economic Review* 90, 847-868.
- Clemens, M., Radelet, S., Bhavnani, R. R., & Bazzi, S. (2012). Counting chickens when they hatch: Timing and the effects of aid on growth. *The Economic Journal*, 122, 590-617.
- Cole, H. L., & Kehoe, P. J. (1998). Models of sovereign debt: Partial versus general reputations. *International Economic Review*, 39, 55-70.
- Collier, P. and Dehn, J. (2001). *Aid, shocks, and growth* (World Bank Policy Research Working Paper No. 2688).
- Collier, P. and Dollar, D. (2002). Aid allocation and poverty reduction. *European Economic Review*, 46, 1475-1500.
- Collier, P., & Hoeffler, A. (2004). Aid, policy and growth in post-conflict societies. *European Economic Review*, 48, 1125-1145.
- Doucouliafos, H., Paldam, M. (2008). Aid effectiveness on growth: A meta study. *European Journal of Political Economy*, 24, 1-24.
- Doucouliafos, H., & Paldam, M. (2011). The ineffectiveness of development aid on growth: An update. *European Journal of Political Economy*, 27, 399-404.
- Dollar, D., & Levin, V. (2006). The increasing selectivity of foreign aid, 1984–2003. *World Development*, 34, 2034-2046.
- Dreher, A., Sturm, J. E., & Vreeland, J. R. (2009). Global horse trading: IMF loans for votes in the United Nations Security Council. *European Economic Review*, 53, 742-757.
- Dreher, A., Nunnenkamp, P., & Thiele, R. (2011). Are “new” donors different? Comparing the allocation of bilateral aid between nonDAC and DAC donor countries. *World Development*, 39, 1950-1968.

Dreher, A., & Vreeland, J. R. (2011). *Buying votes and international organizations* (CEGE Discussion Paper No. 123).

Fernandez, R. and Rosenthal, R. W. (1990). Strategic models of sovereign-debt renegotiations. *Review of Economic Studies*, 57, 331-349.

Fleck, R. K., & Kilby, C. (2006). World Bank independence: A model and statistical analysis of US influence. *Review of Development Economics*, 10, 224-240.

Fleck, R. K. and Kilby, C. (2010). Changing aid regimes? U.S. foreign aid from the Cold War to the War on Terror. *Journal of Development Economics*, 91, 185-197.

Gates, S. and Hoeffler, A. (2004). *Global Aid Allocation: Are Nordic Donors Different?* (The Centre for the Study of African Economies Working Paper No. 234).

Gelos, R. G., Sahay, R., & Sandleris, G. (2011). Sovereign borrowing by developing countries: What determines market access? *Journal of International Economics*, 83, 243-254.

Hagen, R. (2006). Samaritan agents? On the strategic delegation of aid policy. *Journal of Development Economics*, 79, 249-263.

Hansen, H., & Tarp, F. (2000): Aid effectiveness disputed. *Journal of International Development*, 12, 375-398.

Hoeffler, A. and Outram, V. (2011). Need, merit, or self-interest – what determines the allocation of aid? *Review of Development Economics*, 15, 237-250.

Kapur, S., Fostel, A., & Catão, L. (2007). *Persistent gaps, volatility types, and default traps* (IMF Working Paper No. 07/148).

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). *The worldwide governance indicators. Methodology and analytical issues* (World Bank Policy Research Working Paper No. 5430).

-
- Kilby, C. (2009). The political economy of conditionality: An empirical analysis of World Bank loan disbursements. *Journal of Development Economics*, 89, 51-61.
- Kilby, C., & Dreher, A. (2010). The impact of aid on growth revisited: Do donor motives matter? *Economics Letters*, 107, 338-340.
- Mavrotas, G., & Villanger, E. (2006). *Multilateral aid agencies and strategic donor behaviour* (UNU-WIDER Discussion Paper No. 2006/02).
- McKeown, T. J. (2009). How U.S. decision-makers assessed their control of multilateral organizations, 1957-1982. *Review of International Organizations*, 4, 269-291.
- Mekasha, T. J., & Tarp, F. (2012). Aid and growth: What meta-analysis reveals. *The Journal of Development Studies*, 49, 564-583.
- Minoiu, C., & Reddy, S. (2010). Development aid and economic growth: A positive long-run relation. *The Quarterly Review of Economics and Finance*, 50, 27-39.
- Neumayer, E. (2003): What factors determine the allocation of aid by Arab countries and multilateral agencies? *Journal of Development Studies*, 39, 134-147.
- OECD. (2013a). *Aid (ODA) disbursements to countries and regions [DAC2a]* (OECD International Development Statistics). Retrieved April 17, 2013, from <http://stats.oecd.org/Index.aspx?datasetcode=TABLE2A>
- Panizza, U., Sturzenegger, F., & Zettelmeyer, J. (2009). The economics and law of sovereign debt and default. *Journal of Economic Literature*, 47, 651-698.
- Pedersen, K. R. (1996). Aid, investment and incentives. *The Scandinavian Journal of Economics*, 98, 423-437.
- Pedersen, K. R. (2001). The Samaritan's Dilemma and the effectiveness of development aid. *International Tax and Public Finance*, 8, 693-703.

Radelet, S. (2004). *Aid effectiveness and the millennium development goals* (Center for Global Development Working Paper No. 39).

Rajan R., & Subramanian, A. (2008). Aid and growth: What does the cross-country evidence really show? *The Review of Economics and Statistics*, 90, 643–665.

Reinhardt, C. M., Rogoff, K. S., & Savastano, M. A. (2003). Debt intolerance. *Brookings Papers on Economic Activity*, 1, 1-73.

Rodrik, D. (1995). *Why is there multilateral lending?* (NBER Working Paper No. 5160).

Roodman, D. (2007). The anarchy of numbers: Aid, development and cross-country empirics. *The World Bank Economic Review*, 21, 255-277.

Sandleris, G. (2008). Sovereign defaults: Information, investment and credit. *Journal of International Economics*, 76, 267-275.

Svensson, J. (2000). When is foreign aid policy credible? Aid dependence and conditionality. *Journal of Development Economics*, 61, 61-84.

Svensson, J. (2003). Why conditional aid does not work and what can be done about it? *Journal of Development Economics*, 70, 381-402.

Thiele, R., Nunnenkamp, P., & Dreher, A. (2007). Do donors target aid in line with the millennium development goals? A sector perspective of aid allocation. *Review of World Economics*, 143. 596-630.

World Bank (2013). *World Development Indicators*. Retrieved December 2, 2013, from <http://data.worldbank.org/data-catalog/world-development-indicators>

Chapter 2

Poverty aversion and delegation of aid policies

Poverty aversion and delegation of aid policies*

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Abstract

It can be shown that a strong aversion to poverty among aid donors might result in lower levels of investments, and thus reduced growth due to strategic behavior in the recipient countries. At the same time, if donors do not care about consumption smoothing, the result may also be lower investment levels in the recipient countries. A possible solution to the negative incentive effects mentioned is to delegate the responsibility for aid allocation to an independent agent (e.g., a multilateral aid organization). If a donor with a strong (weak) aversion to poverty delegates to an agent with a relatively weaker (stronger) emphasis on income inequality among the recipient countries, the incentives of recipient governments to implement reforms in order to generate growth and improve welfare in the country should be improved. Using data on aid disbursements from 23 DAC donors from 1978 to 2011, the decision to delegate is analyzed in a dynamic panel data model. The empirical results show that the donor countries do not use multilateral organizations in order to alleviate the incentive effects when they are not able to credibly commit to an allocation policy *ex ante*. While relative poverty aversion does not seem to have an effect on the delegation decision, other characteristics of the donors, such as country size, average income, the degree of openness, and the size of the public sectors are all significant determinants of the share of multilateral aid.

Keywords: aid policies, multilateral aid, delegation, poverty aversion

JEL classification: F35; F53

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1. Introduction

A major part of the existing empirical literature on the behavior of aid donors focuses on the determinants of aid allocation across recipient countries, and the motivation for donating aid¹⁹. Donors' decisions to delegate the responsibility for allocating aid to multilateral organizations have not received as much attention, even though multilateral aid accounts for a considerable share of total aid disbursed from the DAC donors. In the period from 1978 to 2011, the member countries in the Development Assistance Committee (DAC) delegated 35% of the total Official Development Assistance (ODA) to multilateral organizations, on average (OECD, 2013b). In 2011, the groups of multilateral agencies receiving the largest share of multilateral ODA from the DAC donors were the EU institutions (33%), World Bank agencies (27%), and UN agencies (16%) (OECD, 2013b).

One rationale for delegation follows from the time inconsistency problems that arise when donor countries are poverty averse. When donors cannot commit to an aid policy, they will try to alleviate need in recipient countries, even if this need is partly due to strategic behavior on the part of the recipients. This problem, known as the Samaritan's Dilemma, might be reduced if there is an aid agency (e.g., a multilateral aid agency) with a relatively lower aversion to poverty (i.e., a higher emphasis on aid efficiency). Delegation to this agent might then improve the effectiveness of aid, as less redistribution *ex post* creates greater incentives for recipient effort *ex ante* (Svensson, 2000). When aid impact varies across recipient countries, Hagen (2006) shows that a donor with a low aversion to poverty can also benefit from delegation as long as the aid agency is relatively more poverty averse (relatively less concerned with aid efficiency). In this case, such donors provide strong disincentives for governments of countries where aid impact is low. They can therefore benefit from having an agent that allocates a greater share of available resources to these recipients.

In addition to the relative poverty aversion of bilateral aid donors and multilateral aid organizations, burden sharing, improving international relations, and exploitation of the systems and competence present in multilateral organizations may be important explanations for the relatively high share of aid budgets delegated.

¹⁹ Some important contributions to the literature are Alesina and Dollar (2000), Alesina and Weder (2002), Gates and Hoeffler (2004), Neumayer (2003), Berthélemy and Tichit (2004), Dollar and Levin (2006), and Hoeffler and Outram (2011).

By estimating an empirical model of the decision to delegate a share of the total aid budgets to multilateral organizations, this paper relates to the literature on international organizations and aid allocation. The main focus of the analysis is on the link between the relative poverty aversion of the donors and the multilateral organizations, and the share of aid budgets delegated. To my knowledge there are no existing studies analyzing the effect of relative poverty aversion on the decision to delegate.

The empirical model is a dynamic panel data model using data on ODA from the OECD's International Development Statistics (OECD, 2013a). The data cover ODA from 23 member countries of the DAC in the period from 1978 to 2011.²⁰ However, due to missing observations on some of the explanatory variables, the actual sample size is reduced and, for some model specifications, Switzerland drops out of the sample. The model tested is a dynamic panel data model as the share of aid budgets delegated is likely to be highly persistent, partly because of bureaucratic inertia, which is usually present in aid policies (Fuchs et al., 2014). The fixed effects (FE) model suffers from the short panel bias when the lagged dependent variable is included and the number of time periods (T) is not sufficiently large. Thus, the bias-corrected least square dummy variable estimator (LSDVC) is also applied. However, the results are quite similar, and the FE model performs better in predicting the share of multilateral aid. The results indicate that the relative poverty aversion of donors has a positive but decreasing effect on the share of aid budgets delegated, but the effect is not statistically significant at conventional significance levels. This contradicts the predictions in the theoretical literature on delegation as a possible solution to the Samaritan's Dilemma. One possible explanation for this result is that the donors do not perceive multilateral aid organizations as independent agents. The results also suggest that donor characteristics are more important when donors decide whether or not to delegate the responsibility for allocating aid. Given the observed poverty aversion of the multilateral aid organizations, many donors could improve the productivity of aid by increasing their share of multilateral aid.

The paper is organized as follows: Section 2 provides a brief summary of relevant literature on the delegation of aid policies, focusing on the theories that constitute the basis for the empirical analysis. The empirical model, methodology, and data used in the analysis are

²⁰ See Table 1 for an overview of the countries in the sample.

presented in Section 3. The results are discussed in Section 4, and the last section provides some concluding remarks.

2. Literature review

The DAC works to improve development efforts by donor countries, including improving the efficiency of foreign aid by collecting data, improving coordination between different donors, and making the donors commit to work for development. However, empirical evidence shows that, even if the stated purpose of foreign aid is to contribute to development and poverty reduction, other objectives in foreign policies still explain a substantial share of total aid flows. The main results on aid allocation are well established, and there is little debate about the political and strategic motivation of many bilateral aid donors.²¹ Alesina and Dollar (2000) argue that “The allocation of bilateral aid across recipient countries provides evidence as to why it is not more effective at promoting growth and poverty reduction” (p. 55).

Based on the empirical results on aid allocation, there are several studies examining whether the effect of aid on economic growth differs depending on the main motivation of the donors.²² The results are mixed, but the majority of studies find evidence that the main objectives when allocating aid are important for the efficiency of aid.²³ In addition, Collier and Dollar (2002) show that changing the allocation of aid towards a more poverty-efficient allocation can increase the number of people lifted out of poverty substantially.²⁴ From the literature on aid allocation we know that multilateral aid, on average, is more responsive to recipient needs than bilateral aid (Berthélemy, 2006).

²¹ This result is mainly driven by the largest donors of bilateral aid, such as the US, France, and Japan, while several small donors (particularly the Scandinavian countries and the Netherlands) place a larger emphasis on recipient needs when allocating bilateral aid (Alesina and Dollar, 2000).

²² Some relevant contributions are Ram (2003), Rajan and Subramanian (2008), Dreher et al. (2010), Kilby and Dreher (2010), and Minoiu and Reddy (2010).

²³ Throughout the paper, the efficiency of aid refers to the effect of aid on economic development, such as growth and poverty reduction.

²⁴ They compare the actual allocation of aid with a poverty-efficient allocation derived by estimating the effect of aid on growth, assuming that growth leads to poverty reduction. Their results indicate that aid is more efficient when directing the aid towards poorer countries with good policies.

Rodrik (1995) argues that there are mainly two rationales for the existence of multilateral lending. First, information on the policies and economies in recipient countries is a public good; and second, multilaterals that are independent of the donor countries are more credible when imposing conditions for lending (they are less politicized). Donor countries will often have political or strategic objectives in the case of bilateral lending, while an independent multilateral organization can be less politicized. However, the assumption that the multilateral aid organizations are fully independent of their donors is not supported empirically. In particular, the US has been found to have a significant impact on the allocation of loans from multilateral organizations.²⁵ This lack of independence may have an effect on the donors' decision to delegate. For instance, Mavrotas and Villanger (2006) show how smaller and less influential donors may reduce their contributions to multilaterals when larger countries influence the multilateral agencies' aid policies. As argued by McKeown (2009), less influential members will accept the influence on the policies of the multilaterals as long as the contributions of the influential members are sufficiently important.

The empirical analysis is mainly based on the theoretical predictions in Svensson (2000) and Hagen (2006). In a principal-agent model, Svensson (2000) analyzes incentive problems when the donor is poverty averse. In a two-step game, where the donor cannot commit to an aid policy *ex ante*, the recipients anticipate consumption smoothing between the recipient countries and will therefore lower their effort to implement reforms to alleviate poverty, agreed upon by the donor and recipients. *Ex post*, a poverty-averse donor will always allocate aid to the poorest recipient(s), even if the recipient governments have not fulfilled the conditions of the aid contract agreed upon *ex ante*. Thus, there is a problem with time inconsistency in aid allocation when the donor is poverty averse (Svensson, 2000).²⁶ In this setting, delegation of aid

²⁵ See for instance Fleck and Kilby (2006b), Kilby (2006, 2009), Dreher et al. (2009), Lim and Vreeland (2011), and Dreher and Vreeland (2011). Also see McKeown (2009) for a discussion on how the US influences multilateral organizations.

²⁶ This result is similar to that derived by Pedersen (2001). He analyzes the time inconsistency problem when the donor has an aversion to income inequality within recipient countries rather than between recipient countries. Assuming that the aid agency is a Stackelberg follower, and the recipient governments are Stackelberg leaders, he shows that the incentives of the recipient governments caused by the donors being inequality averse may actually be counterproductive, leading to an increase in income inequality in the recipient countries.

policies to a less poverty-averse agency alleviates the time inconsistency problem and benefits both the donor and the poor in the recipient country.²⁷

In his model, Svensson assumes that the recipients are identical *ex ante*. Hagen (2006) relaxes this assumption by allowing recipients to differ in terms of the effect of aid on consumption in the recipient countries. In the benchmark version of the model, Hagen shows how the allocation of aid depends on the degree of poverty aversion. If the donor only cares about efficiency, the recipient with the highest productivity of aid would receive the total aid budget of the donor. If the donor has an extreme aversion to poverty, it will divide the total aid budget between the recipients so that consumption is equal in both countries. However, in the case where the donor only cares about the productivity of aid, the incentives to invest in countries with a low productivity of aid are weakened. By delegating the aid policies to an agent with a relatively stronger aversion to poverty (or income inequality among the recipient countries), the negative incentive effects can be reduced. Thus, donors with a high level of poverty aversion will benefit from delegating to an agency with a lower level of poverty aversion, while donors with a high emphasis on efficiency will benefit from delegating to an agency with a lower emphasis on efficiency.²⁸

Schneider and Tobin (2011) have a different view on the delegation decision of the donors. They argue that unless the interests of a donor country coincide with those of the multilateral aid agencies, they will reduce their share of multilateral aid, even if multilateral aid increases efficiency. As a solution to this problem, they argue that donor countries should build a portfolio of multilateral aid in order to both achieve their own interests and maximize efficiency, and analyze the determinants of donors' portfolios of multilateral aid. This contradicts the predictions in Svensson (2000) and Hagen (2006), where the diverging interests of the donor and the agency are necessary for the donor to benefit from the delegation.

²⁷ Svensson (2000) also shows how tied aid can mitigate the time inconsistency problem, but this is not discussed here as the focus of the analysis is on delegation to multilateral aid agencies.

²⁸ The results in Svensson (2000) and Hagen (2006) are closely related to discussions of the Samaritan's Dilemma in the context of foreign aid (Pedersen, 1996, 2001). See Buchanan (1975) for a general presentation of the Samaritan's Dilemma.

The literature on burden sharing is also related to the discussion of the delegation of aid policies. Addison et al. (2004) analyze the burden sharing in multilateral aid organizations based on the model in Olson and Zeckhauser (1966). Using each donor's share of total contributions to an organization as the dependent variable, they do not look at the size of multilateral aid budgets relative to bilateral aid budgets, thus implicitly assuming that the sizes of the two are independently determined. Looking at the burden sharing for all multilateral aid agencies, they find empirical evidence that the relative size of the donors' economy, pro-poor bilateral aid policies, and size of government are positively related to the share of funding. The results also show that countries with a lower income inequality contribute relatively more to multilateral aid agencies, and that right-wing governments are less willing to contribute to UN agencies.

Another strand of literature on the rationale for multilateral aid is models where multilateral aid serves as a solution to a domestic principal-agent problem where the public supports aid for developmental purposes, while the government wishes to achieve political and strategic objectives (Milner, 2006). This argument does not explain why countries with a relatively high degree of poverty aversion (e.g., the Nordic countries and the Netherlands) delegate, but may be relevant for the decision to delegate in countries such as the US, France, and Japan. Milner (2006) argues that a country will donate more multilateral aid if the public is more skeptical towards foreign aid, because the public is more confident that multilateral aid agencies will target the recipient countries based on recipient needs; additionally, it is also difficult to observe how multilateral aid is actually allocated due to the pooling of resources and lack of transparency. However, it is not clear why countries motivated by strong political and/or economic interests would choose to delegate when bilateral aid is likely to be a more efficient instrument for achieving these interests. Even the US, which has some influence over multilateral aid organizations such as the World Bank, is more likely to gain political influence in a country using state-to-state aid, where economic interests can be achieved by using, for example, tied aid.

3. Analysis

3.1. Empirical model

The main focus in the empirical analysis builds on the results derived by Svensson (2000) and Hagen (2006). Both models predict delegation of the total aid budgets but, as this is never observed in the data, the analysis carried out tests the effect of relative poverty aversion on the shares of delegated aid budgets. The former predicts delegation if the donor has a relatively high degree of poverty aversion, while the latter predicts that the share of aid delegated is a convex function of the relative poverty aversion. Following this, two main hypotheses are tested. Hypothesis 1 is used to test the predictions from both models:

H_1 : An increase in relative poverty aversion is related to a higher share of aid budgets delegated to multilaterals, given that the donor has a stronger aversion to poverty compared to the multilateral organizations. This hypothesis is tested against:

H_0 : The relative poverty aversion is not related to the share of aid budgets delegated to multilaterals.

In addition, Hagen (2006) predicts that it will also be beneficial for donors with a relatively low poverty aversion to delegate their aid budgets. Thus, the second hypothesis tested is:

H_2 : A reduction in relative poverty aversion is related to a higher share of aid budgets delegated to multilaterals, given that the donor has a weaker aversion to poverty compared to the multilateral organizations. This hypothesis is tested against:

H_0 : The relative poverty aversion is not related to the share of aid budgets delegated to multilaterals.

Bureaucratic inertia is rarely controlled for within the literature on aid allocation, even though the problem with bureaucracy in foreign aid is well known (Easterly, 2002, 2006). A direct consequence of bureaucratic inertia is that the share of multilateral aid

is determined by the share of aid delegated to multilaterals in the past, regardless of the relative efficiency of bilateral and multilateral aid with respect to the objectives of the donor country (e.g., poverty reduction or political influence). To control for persistence in the dependent variable, a dynamic panel data model given in Equation 1 is used to test the hypotheses:

$$y_{it} = \rho y_{it-1} + \alpha_1 \gamma_{it-3} + \alpha_2 \gamma_{it-3}^2 + \beta' X_{it-3} + v_i + \lambda_t + \varepsilon_{it} \quad (1)$$

The dependent variable is ODA delegated to multilateral organizations in percent of total ODA.²⁹ The main independent variable (γ) is a measure of relative poverty aversion, and the coefficients of interest are thus α_1 and α_2 . The squared term is included to account for the expected non-linear relationship between relative poverty aversion and the share of multilateral aid. X is a vector of control variables, β is a vector of the corresponding coefficients, and ε is the error term. Time fixed effects (λ) and donor fixed effects (v) are also included in the model.

To test whether there is state dependence, the lagged dependent variable is included in the model and is expected to have a positive effect on the share of aid budgets delegated due to bureaucratic inertia. When including the lagged dependent variable in the model, longer lags of the other independent variables are also indirectly included, as shown in Equation 2:

$$y_{it-1} = \rho y_{it-2} + \alpha_1 \gamma_{it-4} + \alpha_2 \gamma_{it-4}^2 + \beta' X_{it-4} + v_i + \lambda_t + \varepsilon_{it-1} \quad (2)$$

The timing of commitments versus disbursements is important for the empirical analysis. Because it may take several years from when a donor country commits until the actual transfers occur, the disbursements in a specific year will depend on the aid policies some years ago. Thus, the disbursements of both the share of multilateral aid

²⁹ Using a linear model can be a problem when the dependent variable is a compositional variable (always lies between 0 and 100), as is the case here. First, prediction of the dependent variables may be outside the restricted interval; and second, the estimated effects cannot be constant for all values of the independent variables unless the range of the independent variable is restricted. These problems can be solved by using the log-odds ratio as the dependent variable (Aitchison, 1982). However, because there are no observations at the upper or lower bound it is less problematic. Transforming the dependent variable does not affect the results. Due to difficulties with interpreting quantitative effects with the transformed dependent variable, the results are not presented in the text, but are available upon request.

and the bilateral aid allocation will depend on the lagged independent variables (e.g., commitments to LICs and the political orientation of the government when the commitments were made). In the baseline model, therefore, the independent variables are lagged three years.³⁰ However, the difference in timing for reporting commitments and disbursements is uncertain and will differ depending on several conditions, such as the type of aid and the time frame of the aid projects.³¹

3.2. Data

Delegated aid

The dependent variable is the percent of total aid budgets delegated to multilateral aid organizations. The data on aid flows are gross disbursements from the OECD (2013a).³² In order to be defined as multilateral aid by the DAC, the contributions must be made to an international agency, institution, or organization, or to a fund managed by such an agency, and in which all donations are pooled, and the main activities are in favor of development (OECD, 2010a). Contributions to multilateral organizations can be categorized as either non-core or core contributions. Only the latter is reported in the data as multilateral aid, while the former is reported as bilateral aid. The main differences between the two types of contributions are that, while non-core contributions are earmarked (i.e., for a specific purpose or sector), core contributions are pooled and their allocation is determined by the multilateral organizations. Core contributions are, or are at least supposed to be, independent of the donors' aid policy. Thus, for core contributions, it is not possible to identify both the donor and recipient countries at the same time. The allocation of non-core contributions is determined by the donor country and should therefore be considered bilateral aid as opposed to delegated aid. However, this means that donor countries can take advantage of some

³⁰ The results for the relative poverty aversion remain the same when increasing or decreasing the lag by one year. The results are not presented due to space limitations, but are available upon request.

³¹ See Odedokun (2003) for a discussion on the relationship between commitments and disbursements, and different factors that may cause delays in disbursements.

³² Disbursements are preferred over commitments for two reasons. First, the number of observations is larger for disbursements than for commitments. Second, when reporting multilateral commitments, donors report the sum of disbursements in the current year, which have not been reported as commitments before, along with the expected disbursements for the following year. For bilateral aid, all firm obligations are reported as commitments regardless of the time of the disbursement. For disbursements, the procedures for reporting are similar for bilateral and multilateral aid (OECD, 2010a).

benefits related to multilaterals, such as economies of scale, experience, and knowledge about recipient countries, without giving up their possibility to control the aid flows.

Total aid equals the sum of bilateral and multilateral aid. Bilateral aid is defined as aid transferred directly from a donor country to a recipient country. Core contributions to non-governmental organizations (NGOs), other private organizations, public-private partnerships (PPPs), and research institutes are also reported as bilateral ODA.³³ In the same way as for multilateral aid, core contributions to other organizations imply delegating the funding, and are therefore subtracted from bilateral and total aid flows.³⁴

A part of the aid delegated to multilateral organizations could be compulsory contributions. However, this is not assumed to be a major problem as these types of contributions are small and symbolic amounts (OECD, 2009). The number of DAC donor countries with an explicit multilateral aid strategy has also increased recently, showing that there is an overall strategy followed by the donor countries with regards to the share of multilateral aid, non-core vs. core multilateral aid, and the portfolio of multilateral aid (OECD, 2010b).

The average percent of multilateral aid for the 23 DAC donors in the period from 1978 to 2011 are presented in Table 1.³⁵ Overall, 35% of total ODA from the DAC donors were delegated to multilateral organizations. There is, however, great variation among the different countries. While the US delegated just above 21% of their total aid budgets on average, Greece delegated far more than half of their aid budgets to multilateral organizations over the same period.

³³ From here on, core contributions to NGOs, other private organizations, PPPs, and research institutes are simply referred to as core contributions to other organizations.

³⁴ This is not likely to affect the results much as these types of core contributions only accounted for about 3% of total gross disbursements in the period from 1987 to 2011 (OECD, 2013a).

³⁵ Depending on the model specification, Switzerland sometimes drops out of the sample.

Table 1 – Average share of multilateral ODA by donor country, 1987-2011

Portugal	70.14	New Zealand	26.85
Ireland	65.13	Canada	25.30
Denmark	44.17	France	23.29
Belgium	42.05	Korea	21.90
Norway	38.52	United States	21.61
Italy	36.72	Germany	20.90
Finland	36.41	Australia	20.41
United Kingdom	34.87	Austria	16.21
Luxembourg	34.16	Japan	14.80
Switzerland	29.37	Spain	13.57
Sweden	29.22	Greece	7.13
Netherlands	27.19		

Source: Author's calculations based on data from the OECD.

Poverty aversion

The main independent variable in the model is a proxy of relative poverty aversion. This is difficult to measure, but the allocation patterns of bilateral aid commitments can be used to find an estimate for the relative importance of recipient needs (e.g., average income). As a measure of pro-poor aid, Addison et al. (2004) use the share of bilateral aid allocated to countries with an average income below a certain threshold. A similar approach is taken here. A natural threshold would be to use the World Bank classification for low-income countries (LICs). To obtain a measure of relative poverty aversion data on both, bilateral commitments for each of the donor countries and total commitments of multilateral aid organizations are used. Thus, the proxy variable is simply the ratio of the shares of bilateral and multilateral aid budgets allocated to LICs: $\frac{b_i^{LIC}}{m^{LIC}}$, where b indicates the shared bilateral commitments to LICs and m indicates the share of multilateral commitments to LICs.

The main proxy for relative poverty aversion is calculated using commitments, as this reflects the aid policies in the time period reported. As argued by Berthélemy and Tichit (2004), donors have better control over commitments while disbursements are influenced by other factors, such as the cooperation with the recipient governments. The average measure of relative poverty aversion for the donor countries in the sample are listed in Table 2. Of the 23 donor countries, only four have a stronger aversion to

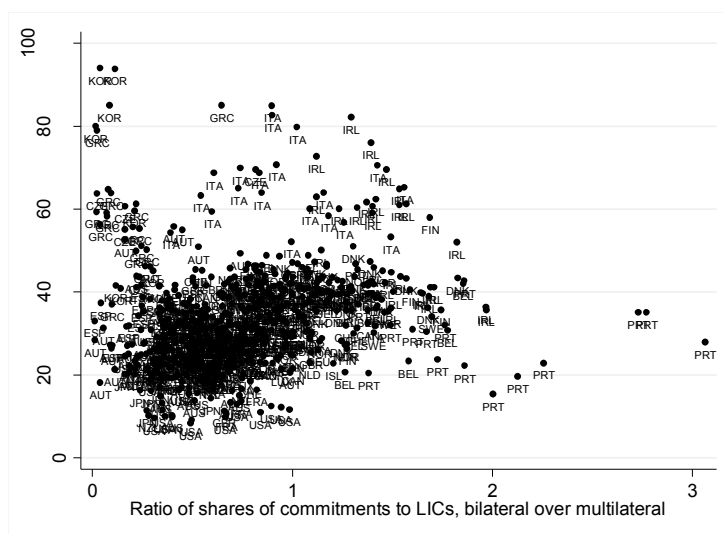
poverty than the multilateral organizations, on average.³⁶ Plotting relative poverty aversion against the share of multilateral aid in Figure 1, there seems to be a slight positive correlation between the two variables, but there are several observations that seem to be possible outliers.

Table 2 – Average ratio of the share of bilateral commitments to LICs to the share of multilateral commitments to LICs, 1987-2011

Portugal	1.74	New Zealand	0.64
Ireland	1.56	Canada	0.60
Denmark	1.06	France	0.56
Belgium	1.01	Korea	0.53
Norway	0.94	United States	0.52
Italy	0.89	Germany	0.50
Finland	0.88	Australia	0.49
United Kingdom	0.84	Austria	0.39
Luxembourg	0.81	Japan	0.36
Switzerland	0.71	Spain	0.33
Sweden	0.69	Greece	0.18
Netherlands	0.66		

Source: Author's calculations based on data from the OECD.

Figure 1 – Relative poverty aversion and delegation



³⁶ Of the 851 observations on the ratio of the shares of aid budgets targeted at LICs, there are 220 observations where the donor country is relatively more poverty averse than the average multilateral organization.

Using disbursements rather than commitments, imputed multilateral aid can be used to obtain a measure of poverty aversion for multilaterals based on the organizations delegated to by each of the donor countries.³⁷ In Table 3, the donor countries are ranked by the ratio of the shares of disbursements allocated to LICs. The data show a very similar ranking of the countries as in Table 2, but Italy moves up in the ranking with an average ratio over 1. The share of imputed multilateral aid to LICs is calculated based on the donors' multilateral portfolio (the multilateral organizations supported financially by each of the donors). This is in line with the model in Hagen (2006), where the donor chooses whether or not to delegate, and which agent (multilateral organization) to delegate to. Thus, it is implicitly assumed that a poverty-averse donor will choose to delegate to a less poverty-averse agent. However, this is not essential for the outcome as the share of multilateral aid budgets allocated to LICs is quite close to the overall average for all of the aid donors. The results exploiting the additional information from the data on imputed multilateral disbursements are still presented for comparison in the following section.

Table 3 – Average ratio of the share of bilateral gross disbursements to LICs to the share of imputed multilateral gross disbursements to LICs, 1987-2011

Portugal	1.88	New Zealand	0.64
Ireland	1.73	France	0.63
Denmark	1.07	Korea	0.57
Italy	1.04	Germany	0.56
Belgium	1.03	Canada	0.55
Luxembourg	0.97	Australia	0.48
Norway	0.97	United States	0.47
Finland	0.94	Austria	0.46
United Kingdom	0.91	Japan	0.36
Sweden	0.81	Spain	0.36
Netherlands	0.73	Greece	0.21
Switzerland	0.67		

Source: Author's calculations based on data from the OECD.

³⁷ Because core contributions to multilateral organizations are pooled, both donor and recipient country for multilateral aid flows cannot be identified. Imputed multilateral ODA is therefore calculated based on each multilateral organization's aid allocations and each donor's contribution to the multilaterals (OECD, 2013c). Data on imputed multilateral aid are not available for commitments.

Control variables

One could imagine that smaller countries would be more prone to use multilateral organizations due to economies of scale. However, it is possible to exploit economies of scale by channeling aid through multilateral aid agencies without giving up the control of the aid allocation. Non-core contributions are channeled through multilateral organizations, but the funds are earmarked for specific purposes, and are therefore reported as bilateral aid in the data. Still, country size may be important for the decision to delegate in at least two ways. First, larger countries (e.g., the US, Japan, and the UK) are likely to have a stronger interest in exerting influence in the recipient countries in order to maintain their global political power. Again, these interests are probably better achieved bilaterally. Second, smaller countries are often more dependent on international trade, and may be more supportive of multilateral organizations in general. Population size and the degree of openness measured by trade in percent of GDP are therefore included in the model, with the former expected to be negatively related to the share of multilateral aid and the latter positively related to the delegation of aid policies.

Whether the government is conservative or liberal may influence the aid policies of a donor country and thus the share of aid delegated to multilateral organizations. It is realistic to assume that bilateral aid is more efficient if the donors' objective is to gain political influence and improve the relationship with a recipient country. On average, right-wing governments may be less concerned with recipient needs, and thus may reduce the share of multilateral aid.³⁸ To control for the ideological orientation of the government, data on Chief Executive Party Orientation from the Database of Political Institutions (DPI) is used (Beck et al., 2001; World Bank, 2013a). The variable ranges from 1 (right-wing) to 3 (left-wing). A possible problem with cross-country comparisons using this type of data is that policies that are considered to be left-wing policies in one country may be centrist-policies in another (e.g., what are considered to be centrist policies in Scandinavia are likely to be considered (far) left in the US).

³⁸ E.g., Fleck and Kilby (2006a) find that with a conservative President and Congress, the US puts a stronger emphasis on commercial interests in bilateral aid allocation.

Thus, the model is also tested using general government final consumption, measured in percent of GDP, as a proxy for the political orientation of the government rather than data from the DPI.³⁹

Corruption levels in the donor countries may affect the share of multilateral aid in at least two ways. If the donor country has a higher level of corruption, the country may delegate a larger share of their aid budgets to reduce the losses related to corrupt bureaucrats in the bilateral aid agencies. However, corrupt politicians may also wish to donate more aid bilaterally as it might be easier for national politicians and bureaucrats to extract resources from bilateral aid. The level of perceived corruption is measured using the International Country Risk Guide (ICRG), available from the PRS Group (2013).⁴⁰ The ICRG index ranks countries from 0 (high level of corruption) to 6 (low level of corruption). Corruption is a measure of institutional quality.⁴¹ Thus, when interpreting the estimated effect of corruption, it is important to acknowledge that it may reflect more than just the level of corruption in a donor country. Donor countries with better country systems are better equipped for monitoring the use of bilateral aid funds. In the opposite event, the donor may find it beneficial to delegate this task to multilaterals.

GDP per capita in thousands of constant 2005 USD is used to control for average income. The average income may affect a donor country's ability to finance bilateral aid agencies, and relatively poorer countries may therefore prefer to delegate the responsibility for aid allocation to multilateral aid organizations. Even though the sample is restricted to high-income countries, the variation in average income in the sample is considerable.⁴²

³⁹ Switzerland drops out of the sample when including data on the political orientation of the Chief Executive Party.

⁴⁰ An alternative measure is also tested using the Corruption Perceptions Index (CPI) from Transparency International (2013). However, using the CPI rather than the ICRG data shortens the time period by ten years, and thus reduces the number of observations substantially. Using the CPI reduces the statistical significance of some of the control variables, but the main results also remain similar. Therefore, the ICRG index is preferred.

⁴¹ North (1990) defines institutions as "the rules of the game in a society or, more formally, [...] the humanly devised constraints that shape human interaction" (p. 3).

⁴² The average income in Luxembourg (52175 USD) is more than five times that of Korea (9849 USD), measured in constant 2005 USD for the period from 1969 to 2011. The Czech Republic (11182 USD), Portugal

In the model derived by Hagen (2006), a lower aversion to poverty is related to a stronger emphasis on aid efficiency. However, as already mentioned, empirical evidence shows that even if the stated purpose of foreign aid is to contribute to development and poverty reduction, other objectives in foreign policies still explain a substantial share of total aid flows. Thus, it is essential to control for other interests or objectives in foreign aid, as well as in country characteristics that may affect the decision to delegate, in order to avoid an omitted variables bias. Thus, exports to non-OECD countries in percent of total exports and military expenditures in percent of GDP are included, to control for economic interests outside the OECD and international conflicts, respectively.

Finally, dummy variables for different time periods and country fixed effects are controlled for. Time dummies capture changes from one period to another that may affect the aid policies of all donors, such as the end of the Cold War and fluctuations in the global economy. The country fixed effects will capture unobserved time-invariant heterogeneity between the donor countries. For instance, the US has a strong influence on the World Bank and the IMF (McKeown, 2009), which is likely to have a positive effect on the share of multilateral aid. Being a former colonial power is also controlled for with country fixed effects. Possible advantages of multilateral aid agencies, such as better access to information and improved credibility when imposing conditionality (because they are independent from the donors), will also be captured by the fixed effects, as argued by Rodrik (1998).

3.3. Methodology

The dataset includes 23 DAC donor countries over 25 years, but due to missing observations the number of observations varies depending on the model specification. With unobserved heterogeneity and a lagged dependent variable, OLS estimates will be biased. An LSDV estimator, or fixed effects estimator (FE), controls for the unobserved country fixed effects, but will result in biased estimates of the coefficients

as the lagged dependent variable is correlated with the error term (Nerlove, 1967; Nickell, 1981). The bias (often called the short panel bias or dynamic panel bias) is especially severe in short panels, and will go to zero when T goes to infinity (Nickell, 1981).⁴³ Several different methods have been proposed in order to deal with the short panel bias in dynamic models when T is low. If T is high, fixed effects estimators provide consistent estimates.

Anderson and Hsiao (1982) suggest using internal instruments, thereby instrumenting the lagged dependent variable using longer lags (e.g., the dependent variable lagged two periods). The data is transformed using first-differencing to remove fixed effects, and the model can be estimated using two-stage least squares (2SLS). Using longer lags as additional instruments may improve efficiency, but at the cost of reducing the sample size (Roodman, 2009b). Difference generalized method-of-moments (GMM) (Arellano and Bond, 1991) and system GMM (Blundell and Bond, 1998) use all valid lags as instruments, but because missing observations are substituted by zero, the sample size is not reduced. Both the lagged dependent variable and other endogenous variables can be instrumented for using internal instruments in this setup. Difference and system GMM is suitable for dynamic panel data models with fixed effects when N is large and T is small. With $N = 22$ and T ranging from 25 to 34 depending on the model specification, the estimates from GMM are not reliable due to too many instruments (Roodman, 2009a, 2009b).

Instead of instrumenting for the lagged dependent variable, Bruno (2005b) introduces a method that corrects for the bias of the LSDV.⁴⁴ The bias-corrected LSDV (LSDVC) performs better than the GMM for small samples (low N and T), and allows unbalanced panels (Flannery and Hankins, 2013).⁴⁵

⁴³ An approximation of the size of the short panel bias, depending on T , can be found in Bruno (2005a).

⁴⁴ Kiviet (1995) also presents an approach for correcting the bias in LSDV. This method is not applied here as it assumes that the panel data is balanced.

⁴⁵ Using a Monte Carlo analysis, Bruno (2005b) shows that for an unbalanced panel with N equal to 10 or 20, the bias-corrected LSDVC estimator outperforms the GMM estimators.

LSDVC is preferred over difference and system GMM because of the problems with too many instruments for panel data with low N. The main problem with the LSDVC as compared to the difference and system GMM is that the independent variables are assumed to be exogenous. Controlling for both country- and time fixed effects, the problem with the possible omission of variables is reduced. Comparing alternative estimators when some of the independent variables are endogenous, Flannery and Hankins (2013) find that both FE and LSDVC actually perform quite well (when $T = 12$). However, the precision of FE estimates is reduced when the data are unbalanced (T ranging from 6 to 18) and the estimated coefficient for the lagged dependent variable is biased. If the lagged dependent variable is of interest, the system GMM (BB) is preferred. Thus, for small samples the bias caused by endogenous variables seems to be relatively small. When T increases, the short panel bias for the lagged dependent variable in the FE model will also be reduced.⁴⁶

4. Results

4.1. Baseline results

Based on the discussion of alternative estimators above, the results from FE estimation are presented in Table 4; and from LSDVC in Table 5. As already discussed, the FE model is likely to suffer from the short panel bias, especially when the number of years included in the sample is low, as is the case here ($T = 25$). However, the FE model performs considerably better in predicting the percentage of multilateral aid, and as the lagged dependent variable is not the variable of interest here, the FE results are also presented and discussed.

Due to the timing issues already discussed, the independent variables are all lagged by three years. The LSDVC model is estimated with a bias-correction up to order $O(1/T)$,

⁴⁶ Flannery and Hankins (2013) show that if T is sufficiently large, or if the assumptions of the dynamic panel models are violated, FE may be the best choice for estimation. Judson and Owen (1999) find that even though the bias can be up to 20% of the true value of the coefficient when $T = 30$, the LSDV model (which is equivalent to the FE model) performs well compared to OLS, difference GMM, and the Anderson-Hsiao estimator (AH).

bootstrapped standard errors with 500 repetitions, and the Blundell-Bond as the initial estimator.⁴⁷ The standard errors for the FE model are clustered at country level.

Table 4 – FE results

	(1)	(2)	(3)	(4)	(5)
	FE	FE	FE	FE	FE
Multilateral ODA, % of total ODA (t-1)	0.441*** (0.072)	0.446*** (0.066)	0.361*** (0.075)	0.368*** (0.068)	0.370*** (0.066)
Ratio, share of commitments to LICs (t-3)	0.547 (3.123)	-0.575 (3.112)	2.219 (3.463)	1.170 (3.573)	-2.269 (1.732)
Ratio, share of commitments to LICs sq. (t-3)	-0.926 (1.302)	-0.653 (1.319)	-1.732 (1.297)	-1.465 (1.297)	
Population, millions (t-3)	-0.107*** (0.030)	-0.106*** (0.031)	-0.208*** (0.035)	-0.232*** (0.043)	-0.226*** (0.042)
GDP per capita, thousands (t-3)	-0.251** (0.101)	-0.258** (0.115)	-0.282 (0.183)	-0.402* (0.205)	-0.406* (0.208)
Total commitments, % of GDP (t-3)	0.499 (3.106)	1.363 (3.058)	0.715 (2.599)	1.699 (2.568)	1.498 (2.512)
General gov. final consumption, % of GDP (t-3)	-0.426 (0.359)	-0.492 (0.364)	-0.368 (0.578)	-0.507 (0.557)	-0.487 (0.542)
Corruption (t-3)	-1.449** (0.575)	-1.521** (0.558)	-1.018 (0.644)	-1.057* (0.520)	-1.055* (0.519)
Trade, % of GDP (t-3)	0.095*** (0.031)	0.096*** (0.032)	0.062 (0.044)	0.062 (0.047)	0.055 (0.048)
Right-wing chief executive party (t-3)		0.902 (1.389)		1.735 (3.348)	1.612 (3.269)
Left-wing chief executive party (t-3)		-0.540 (1.236)		0.641 (3.334)	0.485 (3.247)
Exports to non-OECD countries, % of tot. exp. (t-3)			-0.094 (0.097)	-0.126 (0.099)	-0.104 (0.087)
Military expenditures, % of GDP (t-3)			1.558 (1.898)	1.416 (1.800)	1.216 (1.726)
Year dummies	Yes	Yes	Yes	Yes	Yes
R2 within	0.31	0.34	0.27	0.30	0.30
Observations	513	488	419	398	398
Countries	23	22	23	22	22
Years	87-11	87-11	91-11	91-11	91-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variable is multilateral ODA in percent of total ODA. Clustered standard errors are reported in parentheses.

⁴⁷ The bias of order $O(1/T)$ is derived by Nickell (1981). Kiviet (1995) and Bun and Kiviet (2001) also derive the inconsistency, but using the alternative bias corrections does not affect the main results. The results are also robust to alternative initial estimators and increasing the number of repetitions in the bootstrapping up to 1000. The results for these robustness tests are not reported, but are available upon request.

Table 5 – LSDVC results

	(1)	(2)	(3)	(4)	(5)
	LSDVC	LSDVC	LSDVC	LSDVC	LSDVC
Multilateral ODA, % of total ODA (t-1)	0.514*** (0.044)	0.519*** (0.044)	0.457*** (0.052)	0.466*** (0.054)	0.468*** (0.055)
Ratio, share of commitments to LICs (t-3)	0.999 (3.339)	-0.097 (3.489)	1.968 (3.473)	0.980 (3.566)	-2.286 (1.612)
Ratio, share of commitments to LICs sq. (t-3)	-1.021 (1.303)	-0.754 (1.277)	-1.639 (1.274)	-1.390 (1.351)	
Population, millions (t-3)	-0.103 (0.080)	-0.101 (0.082)	-0.212* (0.110)	-0.236** (0.111)	-0.231** (0.111)
GDP per capita, thousands (t-3)	-0.242* (0.134)	-0.246* (0.136)	-0.227 (0.256)	-0.334 (0.265)	-0.338 (0.264)
Total commitments, % of GDP (t-3)	0.634 (2.452)	1.546 (2.431)	1.025 (2.756)	1.983 (2.971)	1.791 (2.968)
General gov. final consumption, % of GDP (t-3)	-0.386 (0.381)	-0.479 (0.374)	-0.349 (0.463)	-0.498 (0.469)	-0.480 (0.469)
Corruption (t-3)	-1.301* (0.693)	-1.389* (0.721)	-1.001 (0.808)	-1.050 (0.816)	-1.048 (0.812)
Trade, % of GDP (t-3)	0.092* (0.054)	0.092* (0.054)	0.058 (0.059)	0.056 (0.055)	0.050 (0.055)
Right-wing chief executive party (t-3)		0.398 (2.272)		1.326 (2.061)	1.209 (2.054)
Left-wing chief executive party (t-3)		-0.894 (2.165)		0.317 (2.075)	0.169 (2.063)
Exports to non-OECD countries, % of tot. exp. (t-3)			-0.090 (0.121)	-0.120 (0.127)	-0.099 (0.124)
Military expenditures, % of GDP (t-3)			1.511 (2.137)	1.387 (2.143)	1.198 (2.130)
Year dummies	Yes	Yes	Yes	Yes	Yes
Initial estimator	BB	BB	BB	BB	BB
Bias correction	O(1/T)	O(1/T)	O(1/T)	O(1/T)	O(1/T)
Observations	513	488	419	398	398
Countries	23	22	23	22	22
Years	87-11	87-11	91-11	91-11	91-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variable is multilateral ODA in percent of total ODA. Bootstrapped standard errors (500 rep.) are reported in parentheses.

The results in Table 4 indicate persistency in the share of total aid budgets delegated to multilaterals. This is not very surprising and is likely to be, at least partly, a result of bureaucratic inertia. Comparing the size of the coefficient for the lagged dependent variable in Table 5, the results indicate that the coefficient for the lagged dependent variable is downward biased in the FE model, as expected. Overall, the estimated coefficients are very similar whether the FE or LSDVC estimator is applied, but the standard errors are smaller using the FE model.

From the models by Svensson (2000) and Hagen (2006), we expect delegation to be a convex function of relative poverty aversion, all else equal. However, the results indicate a positive and decreasing effect of relative poverty aversion, once the donors' self-interests are controlled for. Thus, there does not seem to be any empirical support for the theories predicting that donor countries will delegate their aid policies in order to alleviate the commitment problem. However, the variables for relative poverty aversion are never statistically significant at the 10% level. Omitting the squared term in column 5 in Tables 4 and 5, there seems to be a negative relation between poverty aversion and delegation, but again the effect is insignificant evaluated at the 10% significance level.

The model controls for other possible determinants of delegation, such as burden sharing, donor interests, political orientation of donor governments, and unobserved fixed effects. Thus, the results may indicate that the DAC donors do not perceive multilateral aid organizations as independent agents. As has already been discussed in the literature review, it is well known that larger donors—and especially the US—have a great influence on the major multilateral aid organizations.

Population size has a statistically significant negative effect on the share of multilateral aid. Thus, an increase in population size is related to a decrease in the share of multilateral aid. According to the model on burden sharing by Olson and Zeckhauser (1966), the larger members of an alliance or international organization will bear a disproportionately large share of the costs. Here, the dependent variable is each donor's share of aid budgets delegated to multilateral aid organizations and does not, therefore, measure the donors' share of total costs of multilaterals versus the benefits. Thus, the results are not comparable to the results in Addison et al. (2004), who find a positive effect of population size on the share of total transfers to multilateral aid organizations. The negative estimated coefficient for population size is likely to be related to the effect of the degree of openness measured by trade in percent of GDP. The coefficient for trade is always positive, but is only significant at conventional levels in columns 1

to 3 for both FE and LSDVC. Population size and trade are likely to capture some of the same effects, as small countries are typically more dependent on trade.⁴⁸ This result suggests that multilateral aid is used as a part of the foreign policies of smaller countries; for example, to gain “goodwill” in the global economy and possibly improve their access to international markets. The effect may be weakened by the influence of major economies in the policies of international organizations, as suggested by Mavrotas and Villanger (2006), but that effect is not dominant here.

Neither the political orientation of the chief executive party nor the size of the public sector in a donor country seems to be of importance to the share of multilateral aid. Both the left-wing and right-wing dummies have a positive coefficient, suggesting that the average share of multilateral aid is lower when a country has a centrist government compared to either a right-wing or left-wing government. However, the effect is not statistically significant at the 10% level.

The variables meant to capture political and economic interests of the donor countries, such as military expenditures and the share of exports going to countries outside the OECD, are never statistically significant at conventional levels. While the latter has a negative coefficient as expected, an increase in military expenditures is positively related to the share of multilateral aid. Even though the effect is not significant at conventional levels, the result is unexpected. Because bilateral aid is likely to be more efficient in influencing recipient governments, a higher level of conflict as proxied by military expenditures was expected to be negatively related to the share of aid budgets.⁴⁹

4.2. Outliers

Plotting the relative poverty aversion against the share of multilateral aid in Figure 1, there appear to be some potential outliers in the sample, which may lead to unreliable

⁴⁸ Population size and trade are negatively correlated with a correlation coefficient of -0.4.

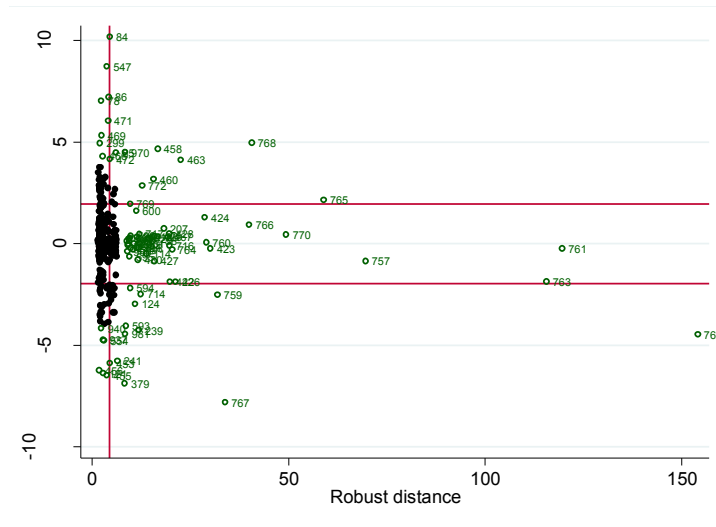
⁴⁹ Adding the variables for donor interests to the model restricts the data sample to the post-Cold War period. The changes in the other explanatory variables are not due to the reduced sample size but the inclusion of additional variables, indicating an omitted variables bias in columns 1 and 2.

results. Rousseeuw and Leroy (2003) separate outliers into three groups: bad leverage points, good leverage points, and vertical outliers. Leverage points are observations that are outliers with respect to the values of the independent variables. Good leverage points do not have an unusually large residual in a robust regression and will therefore not distort the estimated coefficients. Bad leverage points, on the other hand, are of great concern as they have outlying values for the independent variables as well as large residuals (i.e., bad leverage points have a major influence on the regression line). Vertical outliers have high residuals, but as the independent variables have values close to the mean, these outliers will not “pull” the regression line and are therefore easier to detect using non-robust regression methods (methods with low breakdown points). Both vertical outliers and bad leverage points influence the estimates (Hubert et al., 2008), and a robust estimation method should therefore be applied when they are present.

Different diagnostics and robust regressors are available in order to identify and reduce the influence of outliers. Bramati and Croux (2007) argue that the MS-estimator introduced by Maronna and Yohai (2000) is well suited in fixed effects panel data models with both continuous and categorical independent variables. In order to detect and classify outliers, the model is estimated using the MS-estimator, and the robust distance and standardized residuals are plotted in Figure 2. An alternative estimator, which also has a high breakdown point, is the MM-estimator (Yohai, 1987); but because there are several dummy variables in the model, the MS-estimator is preferred (Verardi and Croux, 2009).⁵⁰ The robust estimation is not available for the bias-corrected LSDV, but as has already been shown, the FE model performs very well in estimating the model, with the exception of the coefficient for the lagged dependent variable.

⁵⁰ A high breakdown point means that the estimators can have a relatively high fraction of outliers without the estimates being distorted (Yohai, 1987).

Figure 2 – Detecting outliers (MS-estimator)



The outliers identified based on the model specification in Table 4, column 4 are plotted in Figure 2. There are a large number of vertical outliers, with large robust standardized residuals in absolute terms. This means that there is a rather large group of observations where the model predicts quite well the share of multilateral aid, even though the values for the characteristics of the country differ from the rest of the sample. There are also a few observations that are classified as bad leverage points. The outliers are identified in Table 6.

Table 6 – Vertical outliers and bad leverage points

Australia	1991	France	2010	Korea	2005
Austria	2000	Germany	2004	Korea	2006
Austria	2003	Germany	2005	Korea	2010
Austria	2004	Germany	2009	Luxembourg	2002
Austria	2005	Greece	2003	New Zealand	2009
Austria	2009	Greece	2007	Portugal	1996
Austria	2010	Italy	1991	Portugal	1999
Austria	2011	Italy	1992	Portugal	2004
Belgium	2002	Italy	1993	Portugal	2005
Belgium	2003	Italy	1994	Portugal	2009
Belgium	2006	Italy	1996	Spain	2011
Canada	1997	Italy	1998	Sweden	1998
Canada	2001	Italy	1999	Sweden	2002
Denmark	2010	Italy	2001	Sweden	2005
Finland	1991	Italy	2004	Sweden	2007
Finland	1992	Italy	2006	Sweden	2009
Finland	1993	Italy	2007	Sweden	2010
Finland	1994	Italy	2009	United Kingdom	1999
Finland	1999	Italy	2010	United Kingdom	2002
France	2001	Japan	1996	United Kingdom	2004
France	2004	Japan	2000	United Kingdom	2005
France	2007	Korea	1999	United States	1992
France	2008	Korea	2002	United States	2003
France	2009	Korea	2004	United States	2005

Results from robust regression using the MS-estimator are presented in Table 7. Once the influence of outliers is reduced, the results for the relative poverty aversion change substantially. The positive and decreasing effect is now statistically significant in columns 1 to 3. Thus, there is still no empirical support for donors' using delegation in order to alleviate negative incentive effects from the problem of credibly committing to an allocation policy *ex ante*. The results presented so far are more in line with the predictions of Schneider and Tobin (2011), namely that the donors delegate more when their aversion to poverty is aligned with that of the multilaterals. However, once both the orientation of the chief executive party and the variables controlling for donor interests are included, the p-values increase to 0.76 and 0.45, respectively. Comparing the results in column 4 with columns 6 and 7, the sample is held constant, but the effect is again positive and decreasing (the p-value for the linear term in column 6 is 0.103). Thus, the insignificance of the proxies for relative poverty aversion in column 4 is not due to the reduction in observations when including additional variables.

For the preferred model specification (in column 4), the results for some of the control variables also change. One notable difference using the robust MS-estimator is the estimated coefficient for military expenditures. In Table 7, there is a negative effect significant at the 1% level. An increase in military expenditures of one percentage point is related to a decrease in the share of multilateral aid by 5.7 percentage points. In addition, the size of the public sector, proxied by general government final consumption measured in percent of GDP, is now positively related to the share of multilateral aid. Thus, an increase in government consumption of one percentage point is related to an increase in the share of total aid budgets delegated to multilaterals by 0.6 percentage points.

Table 7 – Results from robust regression

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Multilateral ODA, % of total ODA (t-1)	0.449*** (0.028)	0.524*** (0.063)	0.443*** (0.026)	0.349*** (0.048)	0.397* (0.209)	0.547*** (0.035)	0.445*** (0.032)
Ratio, share of commitments to LICs (t-3)	6.378*** (1.351)	4.911* (2.925)	7.383*** (2.082)	0.791 (2.556)	-1.143 (2.454)	3.919 (2.398)	6.045** (3.031)
Ratio, share of commitments to LICs sq. (t-3)	-2.898*** (0.514)	-2.785** (1.201)	-2.975*** (0.734)	-0.655 (0.858)		-2.382*** (0.668)	-2.647*** (0.904)
Population, millions (t-3)	-0.067** (0.027)	-0.045 (0.040)	-0.125*** (0.044)	-0.068* (0.036)	-0.006 (0.111)	-0.097 (0.061)	-0.130** (0.060)
GDP per capita, thousands (t-3)	0.131 (0.101)	-0.114 (0.319)	-0.368 (0.240)	-0.309*** (0.094)	-0.240 (0.517)	-0.192 (0.289)	-0.408** (0.191)
Total commitments, % of GDP (t-3)	1.598 (1.078)	1.067 (3.572)	-0.415 (2.159)	1.866 (1.154)	3.321 (2.632)	-0.488 (1.886)	-0.514 (2.503)
General gov. final cons., % of GDP (t-3)	0.217 (0.213)	0.011 (0.290)	-0.115 (0.422)	0.603** (0.271)	0.676 (0.692)	-0.530* (0.276)	-0.102 (0.443)
Corruption (t-3)	-1.023* (0.551)	-1.016** (0.447)	-0.123 (0.793)	-0.450 (0.536)	-0.415 (0.734)	-1.204** (0.561)	-0.376 (1.129)
Trade, % of GDP (t-3)	0.137*** (0.025)	0.132** (0.061)	0.014 (0.034)	0.093*** (0.019)	0.083*** (0.024)	0.031 (0.034)	0.021 (0.028)
Right-wing chief executive party (t-3)		-0.897 (2.375)		-0.172 (0.868)	-1.713 (1.457)	-5.264*** (1.766)	
Left-wing chief executive party (t-3)		-0.904 (2.118)		-0.994 (0.738)	-2.982 (1.971)	-5.433*** (1.645)	
Exports to non-OECD countries, % of tot. exp. (t-3)			-0.188*** (0.062)	-0.010 (0.054)	-0.113 (0.126)		-0.185** (0.072)
Military expenditures, % of GDP (t-3)			-0.410 (1.296)	-5.688*** (1.557)	-4.464** (1.754)		-0.571 (1.172)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	513	488	419	398	398	398	398
Countries	23	22	23	22	22	22	22
Years	87-11	87-11	91-11	91-11	91-11	91-11	91-11

* p<0.1, ** p<0.05, *** p<0.01. The dependent variable is multilateral ODA in percent of total ODA. The model is estimated using an MS-estimator controlling for country fixed effects.

Table 8 provides robust results when using disbursements rather than commitments to calculate the proxy for relative poverty aversion. The estimated coefficients for the control variables are mostly the same compared to the results in Table 7. For the independent variable of interest, the results again suggest that the share of multilateral aid is a concave function of relative poverty aversion, but only the squared term is statistically significant at the 10% level when including the full set of control variables.

Table 8 – Results using imputed multilateral disbursements

	(1)	(2)	(3)
Multilateral ODA, % of total ODA (t-1)	0.549*** (0.186)	0.333*** (0.061)	0.429** (0.202)
Ratio, share of gross disbursements to LICs (t-3)	0.737 (5.628)	2.476 (2.908)	0.109 (3.974)
Ratio, share of gross disbursements to LICs sq. (t-3)	-1.332 (2.535)	0.486 (0.741)	-1.711* (0.977)
Population, millions (t-3)	-0.063 (0.085)	-0.056** (0.025)	-0.048 (0.223)
GDP per capita, thousands (t-3)	-0.082 (0.142)	-0.035 (0.168)	-0.412 (0.804)
Total commitments, % of GDP (t-3)	1.369 (2.050)	0.911 (1.239)	2.832 (9.023)
General gov. final consumption, % of GDP (t-3)	-0.230 (0.208)	0.624*** (0.227)	0.431 (0.439)
Corruption (t-3)	-1.025** (0.513)	-0.844 (0.848)	-1.108 (1.190)
Trade, % of GDP (t-3)	0.029 (0.022)	0.160*** (0.024)	0.095 (0.088)
Right-wing chief executive party (t-3)	-1.146 (1.753)		0.604 (3.812)
Left-wing chief executive party (t-3)	-1.149 (1.105)		-0.119 (4.425)
Exports to non-OECD countries, % of tot. exp. (t-3)		-0.020 (0.053)	-0.063 (0.089)
Military expenditures, % of GDP (t-3)		-4.830*** (1.069)	-4.587 (5.521)
Year dummies	Yes	Yes	Yes
Observations	487	422	401
Countries	22	23	22
Years	87-11	91-11	91-11

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is multilateral ODA in percent of total ODA. The model is estimated using an MS-estimator controlling for country fixed effects.

5. Concluding remarks

The results presented confirm that donor characteristics such as population size, average income, degree of openness, and size of the public sector are significant determinants of the share of aid budgets delegated. Relative poverty aversion, on the other hand, does not have a significant effect on the share of aid budgets delegated to multilaterals, as evaluated at conventional significance levels. Thus, there is no empirical support for the predictions that donor countries with a relatively stronger or weaker aversion to poverty will use multilateral organizations to alleviate the incentive effects when they are not able to credibly commit to an allocation policy *ex ante*.

Controlling for outliers by employing an estimator with a high breakdown point, the results indicate that delegation is a concave function of relative poverty aversion. This result is in line with the findings in Schneider and Tobin (2011), who find that donors delegate to multilaterals with similar aid allocations as themselves and argue that, in this way, donors better achieve their own interests. However, once both the political orientation of the chief executive party and the donors' political and economic interests are controlled for, the relative poverty aversion is again insignificant at conventional levels.

One possible explanation for the result could be that donors do not perceive multilateral organizations as independent agents. As a relatively large amount of literature has shown, the bigger donor countries, especially the US, have considerable influence over the policies in organizations like the IMF and the World Bank. Still, given the observed poverty aversion of the multilateral aid organizations, many donors could improve the productivity of aid by increasing their share of multilateral aid.

References:

- Addison, T., McGillivray, M., & Odedokun, M. (2004). Donor funding of multilateral aid agencies: Determining factors and revealed burden sharing. *The World Economy*, 27, 173-191.
- Aitchison, J. (1982). The statistical analysis of compositional data. *Journal of the Royal Statistical Society. Series B*, 44, 139-177.
- Alesina, A., & Dollar, D. (2000). Who gives foreign aid to whom, and why? *Journal of Economic Growth*, 5, 33-63.
- Alesina, A., & Weder, B. (2002). Do Corrupt Governments Receive Less Foreign Aid? *The American Economic Review*, 92, 1126-1137.
- Anderson, T. W., & Hsiao, C. (1982). Formulation and estimation of dynamic models using panel data. *Journal of Econometrics*, 18, 47-82.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58, 277-297.
- Beck, T., Clarke, G., Groff, A., Keefer, P., & Walsh, P. (2001). New tools in comparative political economy: The Database of Political Institutions. *World Bank Economic Review*, 15, 165-176.
- Berthélemy, J. C. (2006). Aid allocation: Comparing donor's behaviour. *Swedish Economic Policy Review*, 13, 75-109.
- Berthélemy, J. C., & Tichit, A. (2004). Bilateral donors' aid allocation decisions – a three-dimensional panel analysis. *International Review of Economics and Finance*, 13, 253-274.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87, 115-143.

-
- Bramati, M. C., & Croux, C. (2007). Robust estimators for the fixed effects panel data model. *Econometrics Journal*, *10*, 521-540.
- Bruno, G. S. (2005a). Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Economics Letters*, *87*, 361-366.
- Bruno, G. S. (2005b). Estimation and inference in dynamic unbalanced panel-data models with a small number of individuals. *The Stata Journal*, *5*, 473-500.
- Buchanan, J. M. (1975). The Samaritan's Dilemma. In E. Phelps (ed.), *Altruism, Morality and Economic Theory* (pp. 71-85). New York: Russel Sage Foundation.
- Bun, M. J., & Kiviet, J. F. (2001). *The accuracy of inference in small samples of dynamic panel data models* (Tinbergen Institute Discussion Paper TI 2001-006/4).
- Collier, P., & Dollar, D. (2002). Aid allocation and poverty reduction. *European Economic Review*, *46*, 1475-1500.
- Dollar, D., & Levin, V. (2006). The increasing selectivity of foreign aid, 1984–2003. *World Development*, *34*, 2034-2046.
- Dreher, A., Sturm, J. E., & Vreeland, J. R. (2009). Global horse trading: IMF loans for votes in the United Nations Security Council. *European Economic Review*, *53*, 742-757.
- Dreher, A., Klasen, S., Vreeland, J. R., & Werker, E. (2010). *The Costs of Favoritism: Is Politically-driven Aid Less Effective?* (IZA Discussion Paper No. 4820).
- Dreher, A., & Vreeland, J. R. (2011). *Buying votes and international organizations* (CEGE Discussion Paper No. 123).
- Easterly, W. (2002). The cartel of good intentions: The problem of bureaucracy in foreign aid. *The Journal of Policy Reform*, *5*, 223-250.
- Easterly, W. (2006). *The white man's burden: why the West's effort to aid the rest have done so much ill and so little good*. Oxford University Press.

- Flannery, M. J., & Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance*, 19, 1-19.
- Fleck, R. K., & Kilby, C. (2006a). How do political changes influence US bilateral aid allocations? Evidence from panel data. *Review of Development Economics*, 10, 210-223.
- Fleck, R. K., & Kilby, C. (2006b). World Bank independence: A model and statistical analysis of US influence. *Review of Development Economics*, 10, 224-240.
- Fuchs, A., Dreher, A., & Nunnenkamp, P. (2014). Determinants of donor generosity: A survey of the aid budget literature. *World Development*, 56, 172-199.
- Gates, S., & Hoeffler, A. (2004). *Global Aid Allocation: Are Nordic Donors Different?* (The Centre for the Study of African Economies Working Paper No. 234).
- Hagen, R. (2006). Samaritan agents? On the strategic delegation of aid policy. *Journal of Development Economics*, 79, 249-263.
- Hoeffler, A., & Outram, V. (2011). Need, merit, or self-interest – What determines the allocation of aid? *Review of Development Economics*, 15, 237-250.
- Hubert, M., Rousseeuw, P. J., & Van Aelst, S. (2008). High-breakdown robust multivariate methods. *Statistical Science*, 23, 92-119.
- Judson, R. A., & Owen, A. L. (1999). Estimating dynamic panel data models: a guide for macroeconomists. *Economics Letters*, 65, 9-15.
- Kilby, C. (2006). Donor influence in multilateral development banks: The case of the Asian Development Bank. *Review of International Organizations*, 1, 173-195.
- Kilby, C. (2009). The political economy of conditionality: An empirical analysis of World Bank loan disbursements. *Journal of Development Economics*, 89, 51-61.
- Kilby, C., & Dreher, A. (2010). The impact of aid on growth revisited: Do donor motives matter? *Economics Letters*, 107, 338-340.

-
- Kiviet, J. F. (1995). On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *Journal of Econometrics*, 68, 53-78.
- Lim, D. Y. M., & Vreeland, J. R. (2011). *Regional organizations and international politics: Trading Asian Development Bank loans for United Nations Security Council votes* (Mortara Working Paper 2011-1).
- Mavrotas, G., & Villanger, E. (2006). *Multilateral aid agencies and strategic donor behaviour*. UNU-WIDER Discussion Paper No. 2006/02.
- McKeown, T. J. (2009). How U.S. decision-makers assessed their control of multilateral organizations, 1957-1982. *Review of International Organizations*, 4, 269-291.
- Milner, H. V. (2006). Why multilateralism? Foreign aid and domestic principal-agent problems. In D. G. Hawkins, D. A. Lake, D. L. Nielson, & M. J. Tierney (Eds.), *Delegation and Agency in International Organizations* (pp. 107-139). Cambridge: Cambridge University Press.
- Minoiu, C., & Reddy, S. (2010). Development aid and economic growth: A positive long-run relation. *The Quarterly Review of Economics and Finance*, 50, 27-39.
- Nerlove, M. (1967). Experimental evidence on the estimation of dynamic economic relations from a time series of cross-sections. *The Economic Studies Quarterly*, 3, 42-74.
- Neumayer, E. (2003a). The determinants of aid allocation by regional multilateral development banks and United Nations agencies. *International Studies Quarterly*, 47, 101-122.
- Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49, 1417-1426.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.

Odedokun, M. (2003). Analysis of deviations and delays in aid disbursements. *Journal of Economic Development*, 28, 137-169.

OECD (2009): *2008 DAC Report on Multilateral Aid*. OECD Publishing. Retrieved December 6, 2011, from www.oecd.org/dataoecd/59/11/42901553.pdf

OECD (2010a): *DAC statistical reporting directives*. Retrieved October 31, 2011, from <http://www.oecd.org/dataoecd/28/62/38429349.pdf>

OECD (2010b): *Multilateral Aid 2010*. OECD Publishing. Retrieved May 20, 2011, from <http://dx.doi.org/10.1787/9789264046993-en>

OECD (2013a): *Total flows by donor (ODA+OOF+Private) [DAC1]*. OECD International Development Statistics. Retrieved April 17, 2013, from <http://stats.oecd.org/Index.aspx?datasetcode=TABLE1>

OECD (2013b): *Aid (ODA) disbursements to countries and regions [DAC2a]*. OECD International Development Statistics. Retrieved April 17, 2013, from <http://stats.oecd.org/Index.aspx?datasetcode=TABLE2A>

OECD (2013c): *OECD methodology for calculating imputed multilateral ODA*. Retrieved April 17, 2013, from <http://www.oecd.org/investment/stats/oecdmethodologyforcalculatingimputedmultilateraloda.htm>

OECD (2013d): *Harmonised system 1988*. Retrieved April 19, 2013, from <http://stats.oecd.org/Index.aspx?DataSetCode=HS1988>

Olson Jr., M., & Zeckhauser, R. (1966): An economic theory of alliances. *The Review of Economics and Statistics*, 48, 266-279.

Papke, L. E., & Wooldridge, J. M. (1996). Econometric methods for fractional response variables with an application to 401 (k) plan participation rates. *Journal of Applied Econometrics*, 11, 619-623.

Pedersen, K. R. (1996). Aid, investment and incentives. *The Scandinavian Journal of Economics*, 98, 423-437.

Pedersen, K. R. (2001). The Samaritan's Dilemma and the effectiveness of development aid. *International Tax and Public Finance*, 8, 693-703.

The PRS Group (2013). *International Country Risk Guide (ICRG)*. Retrieved April 19, 2013, from <http://www.prsgroup.com/Default.aspx>

Ram, R. (2003). Roles of bilateral and multilateral aid in economic growth of developing countries. *Kyklos*, 56, 95-110.

Rajan R., & Subramanian, A. (2008). Aid and growth: What does the cross-country evidence really show? *The Review of Economics and Statistics*, 9, 643-665.

Rodrik, D. (1995). *Why is there multilateral lending?* (NBER Working Paper No. 5160).

Roodman, D. (2009a). A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, 71, 135-158.

Roodman, D. (2009b). How to do xtabond2: An introduction to "difference" and "system" GMM in Stata. *The Stata Journal*, 9, 86-136.

Rousseeuw, P. J., & Leroy, A. M. (2003). *Robust regression and outlier detection*. John Wiley & Sons.

Schneider, C., & Tobin, J. (2011). *Eenie, meenie, miney, moe? Institutional portfolios and delegation to multilateral aid institutions* (Working Paper). Retrieved March 14, 2012, from <http://ssrn.com/abstract=1949238>

Svensson, J. (2000). When is foreign aid policy credible? Aid dependence and conditionality. *Journal of Development Economics*, 61, 61-84.

Transparency International (2013). *Corruption Perceptions Index*. Retrieved from http://www.transparency.org/policy_research/surveys_indices/cpi

Verardi, V., & Croux, C. (2009). Robust regression in Stata. *The Stata Journal*, 9, 439-453.

World Bank (2013a). *Database of Political Institutions 2012*. Retrieved April 19, 2013, from <http://go.worldbank.org/2EAGGLRZ40>

World Bank (2013b). *World Development Indicators*. Retrieved April 19, 2013, from <http://data.worldbank.org/indicator>

Yohai, V. J. (1987). High breakdown-point and high efficiency robust estimates for regression. *Annals of Statistics*, 15, 642-656.

Appendix

Table A.1. List of variables and sources

Variable	Source	Accessed (date)
Multilateral ODA, % of total ODA	OECD (2013a)	4.17.13
Bilateral ODA to LICs, % of total bilateral ODA	OECD (2013b)	4.17.13
Population (mill.)	World Bank (2013b)	4.19.13
GDP per capita (constant 2005 USD, in thousands)	World Bank (2013b)	4.19.13
Total ODA commitments, % of GDP	OECD (2013b)	4.17.13
Political orientation of chief executive party	World Bank (2013a)/ Beck et al. (2001)	4.19.13
ICRG Corruption	PRS Group (2013)	4.19.13
Trade (% of GDP)	World Bank (2013b)	4.19.13
General gov. final consumption expenditure (% of GDP)	World Bank (2013b)	4.19.13
Military expenditure (% of government expenditure)	World Bank (2013b)	4.19.13
Exports to non-OECD countries, % of total exports.	OECD (2013d)	4.19.13

Table A.2. Summary statistics

	Obs.	Mean	Std. Dev.	Min.	Max.
Percent of multilateral aid, gross disbursements	580	34.28	12.77	8.24	93.81
Ratio, share of commitments to LICs	529	0.73	0.42	0.01	3.06
Ratio, share of disbursements to LICs (using imputed multilateral aid)	554	0.80	0.49	0.03	3.03
Ln population	600	16.41	1.57	12.43	19.56
Ln GDP per capita (constant 2005 USD)	586	10.34	0.43	8.95	11.38
Total commitments, % of GDP	530	0.57	0.35	0.01	2.16
Right-wing chief executive party	576	0.46	0.50	0	1
Left-wing chief executive party	576	0.37	0.48	0	1
Corruption (ICRG)	595	4.72	1.06	2	6
Trade, % of GDP	597	79.29	48.80	15.92	333.53
Exports to non-OECD countries, % of total exports	564	21.97	12.54	4.02	67.03
Military expenditures, % of GDP	569	1.87	0.90	0.05	5.79
General gov. final consumption, % of GDP	597	19.53	3.88	10.37	29.79

Chapter 3

Partner country ownership:

**Does better governance and commitment to development attract
general budget support?**

Partner country ownership: Does better governance and commitment to development attract general budget support?*

Ingvild Nordtveit[†]

Abstract

General budget support (GBS) is funding which is not earmarked for a specific sector or project, but is provided as direct financial support to the public sector in the recipient country. This type of aid is argued to have a positive effect on aid efficiency if it is targeted at countries with good governance and a strong commitment to development. In this study, data on commitments of official development assistance (ODA) from 23 DAC donors to 115 recipient countries in the period from 1995 to 2009 is used to estimate the probability of receiving GBS. The results show that the DAC donors are selective with respect to the quality of governance, and there is some support for the notion that the recipient governments' commitment to development is a significant determinant for the allocation of GBS. Empirical evidence showing that DAC donors are more selective when allocating GBS than with program aid in total is also presented, underlining the importance of using disaggregated data when analyzing aid allocation.

Keywords: aid allocation, general budget support, good governance, commitment to development

JEL classification: F35

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1. Introduction

In the Paris Agenda (the Paris Declaration for Development, the Accra Agenda for Action and the Busan Partnership for Effective Development Cooperation), recipient country ownership and involvement are emphasized as necessary in order to increase the efficiency of aid.¹ General budget support (GBS) is funding which is not earmarked for a specific sector or project, but provided as direct financial support to public budgets in the recipient country. Thus, GBS is a type of aid where the donor, in practice, delegates the responsibility for the distribution and use of aid funds to the recipient government. In that way, GBS is an instrument the donors that have committed to the Paris Agenda could use in order to increase the involvement of the recipient. However, aid donors have often been accused of not following up on their rhetoric when allocating aid, and the actual allocation of aid may not be in line with the commitments made in the Paris Agenda.

Looking at the data for commitments of GBS from 1995 to 2009, only 8% of all commitments of project and program aid consist of or include GBS, and the development during that period has been slightly negative.² The use of GBS versus project aid involves a trade-off between the loss of control and possible benefits, such as lower transaction costs and recipient country involvement. Thus, descriptive statistics indicate that the DAC donors prefer aid types where the possibility of control and surveillance is larger than with GBS. The low use of GBS could also indicate that the donors are more selective when allocating GBS as compared to other aid modalities, where selectivity refers to targeting of countries in which the expected efficiency of aid is higher, controlling for recipient needs (e.g., average income).

¹ The Paris Declaration states that “Donors commit to: Respect partner country leadership and help strengthen their capacity to exercise it” (OECD, 2005/08, p. 3). In the Accra Agenda for Action, the importance of recipient country ownership is repeated: “Developing countries determine and implement their development policies to achieve their own economic, social and environmental goals. We agreed in the Paris Declaration that this would be our first priority” (OECD, 2005/08, p. 16). Also see Bigsten and Tengstam (2012) for a more thorough discussion of the Paris Agenda.

² The data on aid commitments are from the OECD database CRS (OECD, 2012), and descriptive statistics for GBS are provided in Figure 1. See Table 1 for a classification of different aid types.

The main objective of the empirical analysis is to test the degree of selectivity in the allocation of GBS. In particular, the importance of the quality of governance and commitment to development in the recipient countries for the probability of receiving GBS is estimated.³ The analysis is carried out exploiting information on aid type or aid modality in the data available from the Creditor Reporting System (CRS). The data are on commitments of official development assistance (ODA) from 23 DAC donors to 115 recipient countries in the period 1995-2009. By analyzing the allocation of GBS, I seek to answer two main questions. First, do the DAC donors target countries where funding in the form of GBS is likely to have a stronger positive effect on economic development in the recipient countries? The emphasis on recipient ownership in the Paris Agenda is based on an objective of improving aid efficiency, and the donors should therefore allocate GBS to countries where the funds are expected to have the strongest positive effect on economic development. A second question is how recipient countries can attract GBS. This is an important question, as GBS improves recipient ownership and lowers the transaction costs of aid, and thus has some advantages over alternative aid types.⁴ GBS is also very likely the preferred type of aid by the recipient government, and it is therefore useful to know whether policy reforms can increase the probability of receiving this type of aid.

Therefore, the paper contributes to the literature on aid allocation by using disaggregated data to investigate the degree of selectivity among the DAC donors. In order to promote the use of GBS among taxpayers in the donor countries, it is crucial that there is clear empirical support for a high degree of selectivity, as the donors' ability to control the use of the aid funds is limited compared to, say, project aid. To my knowledge, there are no other empirical papers focusing on the allocation of GBS from bilateral donors. The paper also relates to the discussion on recipient ownership and aid effectiveness in the Paris Agenda. Unless the donors follow up on their commitments in the Paris Agenda, it has limited use.

³ Kaufmann et al. (2004) define governance as "the exercise of authority through formal and informal traditions and institutions for the common good, thus encompassing: (1) the process of selecting, monitoring, and replacing governments; (2) the capacity to formulate and implement sound policies and deliver public services, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them." (p. 254).

⁴ See for instance Koeberle and Stavreski (2006).

The main results from a pooled time-series cross-section analysis confirm the hypotheses that the DAC donors are selective with respect to the quality of governance in the recipient countries and, to some extent, in their commitment to development. The results are robust in adding additional variables and the choice of governance indicator. However, the quantitative effect of governance varies depending on the aspect of governance captured by the proxy variables. For the commitment to development, the result is sensitive to the choice of proxy variable and does not hold when restricting the sample to donors with former colonies among the recipient countries.

The paper is structured as follows. Section 2 provides a summary of the relevant literature and presents the main hypotheses tested in the analysis. Section 3 presents the empirical model, methodology, and data. The results from the baseline model, as well as several extensions and robustness tests, are presented and discussed in Section 4. In the last section, I make some concluding remarks.

2. Related literature and main hypotheses

There is vast empirical literature analyzing the allocation of aid and, implicitly, the behavior of aid donors, focusing on their main motivations for aid. Some important contributions to the literature include Alesina and Dollar (2000), Alesina and Weder (2002), Berthélemy and Tichit (2004), and Neumayer (2003). A common feature of the majority of the empirical studies is that they normally use data on total bilateral or multilateral aid commitment. Recently, more disaggregated data have been exploited to test for the possible heterogeneity of aid. Thiele et al. (2007) use sectoral data to compare the actual targeting of different sectors to the objectives given in the Millennium Development Goals (MDGs), and find that “there is a considerable gap between donor rhetoric and actual aid allocation” (p. 622). Clist et al. (2012) use disaggregated data to look at the allocation of GBS from the World Bank and the European Commission, and Dietrich (forthcoming) disaggregates the data by an aid channel to test whether donors tend to bypass recipient governments in countries with a low quality of governance. The studies carried out by Alesina and Weder (2002) and

Dietrich (forthcoming) give a nice illustration of why it can be essential to employ disaggregated aid data. The main result in the former study is that corruption does not reduce aid flows to a country, while the latter shows that when the quality of governance is low (e.g., the level of corruption is high), donors tend to use non-state actors such as NGOs to implement aid projects in the country. Thus, aggregated data conceal a lot of information, and the conclusions drawn may give an inaccurate picture of what is really driving the behavior of aid donors. While the existing empirical evidence does not indicate selectivity among donors in allocation of total bilateral aid (Alesina and Dollar, 2000; Alesina and Weder, 2002; Berthélemy and Tichit, 2004), it is possible that the degree of selectivity differs between different aid modalities.

A highly relevant question regarding the choice of aid modality (e.g., project aid or budget support) is whether the efficiency of aid with respect to growth and poverty reduction is likely to differ, and how. In the empirical literature on aid effectiveness, the results vary between studies. Roodman (2007) tests the robustness of seven important aid-growth studies,⁵ concluding that most results are not robust to changes in the sample, length of time periods, and model specifications. One of the explanations provided by Roodman for the lack of robustness is that aid is heterogeneous.⁶ Data on aid disaggregated by type, sector and purpose is only available for commitments, and only from 1995 onwards. The limited data available makes it difficult to estimate the effect of different types of aid on an outcome variable such as economic growth. First, one has to construct an estimate for disbursements based on aid commitments. Second, the time period is quite short for running regressions for the long-term effect of aid on, for example, economic growth. There are, however, some empirical studies trying to estimate the effect of aid disaggregated by type on growth, including Clemens et al. (2012), Rajan and Subramanian (2008), and Uttara and Strobl (2008). While Clemens et al. find a significant positive effect of short-impact aid (such as budget and balance of payment support), the results of

⁵ Burnside and Dollar (2000), Collier and Dehn (2001), Guillaumont and Chauvet (2001), Hansen and Tarp (2001), Collier and Dollar (2002), Collier and Hoeffler (2004), and Dalgaard et al. (2004).

⁶ The other two explanations provided by Roodman (2007) are that aid is not as important as other factors in increasing growth and that much aid is poorly used.

Outtara and Strobl show a significantly negative effect on financial program aid (budget support) and a significant and positive effect on project aid. Rajan and Subramanian do not find evidence of any significant effects on growth, regardless of the type of aid. None of the mentioned papers investigate possible heterogeneity between different recipient countries, with the exception of including interaction variables between policy variables and aid variables (following the model specification in Burnside and Dollar, 2000). It is realistic to assume that different types of aid will have different effects on the economy depending on other characteristics of the recipient countries. Thus, if donors do not target the “right” recipients with different types of aid, this may explain some of the lack of robustness of the results.

When donors determine whether or not a country is eligible for GBS, there are some factors that have been emphasized as important in the literature on budget support. First, the efficiency or ability of the recipient country to effectively spend the aid (the quality of recipient country systems) is relevant. Koeberle and Stavreski (2006) emphasize that donors should be selective with respect to the capacity to allocate the aid flows efficiently when allocating budget support. Thus, the institutions and quality of governance is important when choosing between project aid and budget support. Dietrich (forthcoming) argues that if the quality of governance in the recipient country is poor, it might be more efficient to avoid costs related to corruption, bureaucracy, etc., by bypassing state actors. This is in line with the arguments made by Radelet (2004), who highlights the importance of donors being more selective with respect to average income and governance measures, and suggests that the aid modality chosen should be dependent on the quality of governance in order to improve aid effectiveness. Thus, the research question addressed in the analysis is whether the donors are selective with respect to the quality of governance:

Is the probability of receiving GBS higher for countries with better governance?

The governance indicators are positively correlated with average income.⁷ Thus, the poorest countries are normally also the countries with a low quality of governance. Even if aid should be targeted for the poorest countries, donors can be selective with respect to the quality of governance. If donors target recipient countries with a quality of governance above the expected level given its average income, the probability of receiving GBS should increase with the measure of governance, controlling for average income. As concluded by Radelet (2004, p. 19):

Poorly governed countries should not only receive less money, they should receive more of it as project aid, it should come with a shorter time commitment, should be focused on a narrower set of activities, and much of it should be distributed through NGOs.

Koeberle and Stavreski (2006), on the other hand, highlight possible benefits of GBS on the quality of governance in the recipient countries. Providing financial assistance to the budgets of the recipient government, rather than using earmarked project aid, could lead to improvements in country ownership, transparency, and efficiency in budget spending, as well as government accountability.⁸ If GBS does have a significant positive effect on governance measures in the long run, using it as an “investment” in better governance requires that the donors take a long-run perspective. However, as most donor countries are dependent on a certain level of support among the public, they might be more concerned with results in the short run. It is also unlikely that simply providing GBS will improve governance in a country unless there is already a certain level of human capital and quality of governance. GBS might just as well lead to an increase in corruption, especially if the recipient government is already relatively corrupt, as the spending of GBS is more difficult for a donor to monitor than funds for specific projects. Thus, the argument of Koeberle and Stavreski will, at best, hold if the donor has a long-run perspective and targets the “right”

⁷ See correlation matrix in the Appendix.

⁸ Eifert and Gelb (2005) also argue that budget support is an investment to improve the budget and financial systems in the recipient countries.

countries. In the short run, to improve the efficiency of aid, donors should target recipient countries with better governance when controlling for income levels.

The majority of empirical studies analyzing the effect of foreign aid on the quality of governance in the recipient countries conclude that there does not seem to be a significant positive effect. Alesina and Weder (2002) find that an increase in ODA will lead to an increase in corruption, but the authors emphasize that the results must be interpreted with caution due to the way corruption is measured and the problems with determining the direction of causality.⁹ Djankov et al. (2008) test the effect of aid on democracy and political institutions in the recipient countries, instrumenting for foreign aid to deal with the endogeneity problem.¹⁰ They conclude that aid reduces the quality of political institutions, and the negative effect is stronger than the effect of oil rents. However, as emphasized before, aid is not homogenous, and different types of aid might influence the quality of governance in recipient countries differently. Both Alesina and Weder (2002) and Djankov et al. (2008) use aggregate aid data in their analyses.¹¹ Focusing only on the Millennium Challenge Corporation (MCC), Öhler, Nunnenkamp, and Dreher (2012) find that rewarding recipients who fight corruption *ex post* does have a positive effect on the level of corruption in the recipient countries.¹²

In addition to the quality of governance, Koeberle and Stavreski (2006) also emphasize the importance of the level of commitment to development. Assuming that development is (one of) the objectives of the donor, a higher commitment to development by the recipient government implies alignment in the preferences of the donor and recipient. Alignment in preferences increases the probability that the recipient country allocates the funds in line with the donor's intentions, and thus reduces the cost of monitoring the use of aid. A stronger commitment to development in the recipient government should therefore increase the probability of receiving GBS

⁹ Other studies with similar results include Knack (2004) and Rajan and Subramanian (2007).

¹⁰ They instrument for aid using initial income, population, and the standard variables for strategic interests in the aid-allocation literature, and also test the model using system GMM.

¹¹ Alesina and Weder (2002) use ODA per capita and Djankov et al. (2008) use ODA in percent of GDP.

¹² The MCC is a U.S. aid agency targeting their aid at well-performing poor countries with respect to the quality of governance, economic freedom, and commitment to investing in their citizens.

(Koeberle and Stavreski, 2006; Cordella and Dell'Arricia, 2007; Clist et al., 2012), and is the basis for the second research question:

Does a stronger commitment to development by the recipient government increase the probability of receiving GBS?

3. Data and methodology

The empirical model tested is given in Equation 1.

$$Pr(y_{ijt} = 1) = \beta'X_{ijt-1} + \lambda_t + \alpha_i + u_{ijt}, \quad (1)$$

where i indexes the donor country, j the recipient country, and t the time period.¹³ The dependent variable in the model given in Equation 1 is a binary variable equal to one if GBS is larger than zero. X is a vector of regressors (either dyadic or recipient-specific), λ_t represents time dummies, α_i is donor fixed effects, and u_{ijt} is the error terms.¹⁴ The baseline model is estimated using both pooled OLS and Probit models with standard errors clustered by group (donor-recipient).¹⁵

In addition to the binary dependent variable model in Equation 1, a Tobit model is estimated to test the effect on the volume of GBS. The Tobit model is used because the dependent variable is censored, and it is likely that the variables determining the probability of receiving GBS will also have an effect on the size of GBS.

The model estimated is given in Equation 2, where the dependent variable (y_{ijt}^*) is observed only when the true value (\tilde{y}_{ijt}^*) is larger than zero. The dependent variable is

¹³ In a more general form, the probability of receiving general budget support is

$$y_{ijt} = \begin{cases} 1 & \text{with prob. } p \\ 0 & \text{with prob. } 1-p \end{cases}, \text{ where } p \equiv \Pr(y_{ijt} = 1 | X) = F(X_{ijt}'\beta).$$

¹⁴ An overview of all the variables included in the baseline model is provided in Appendix A.

¹⁵ Angrist and Pischke (2009) argue that marginal effects in the Probit model will often be very similar to a linear probability model using OLS regression. Interpreting the empirical results from an OLS model is straightforward, and would therefore be preferred if the results were similar.

measured as GBS in percent of total program and project aid. μ_t and a_i represents time and donor fixed effects, respectively, and e_{ijt} is the error terms.

$$y_{ijt}^* = \delta' X_{ijt-1} + \mu_t + a_i + e_{ijt}, y_{ijt}^* = \begin{cases} \tilde{y}_{ijt} & \text{if } \tilde{y}_{ijt} > 0 \\ - & \text{if } \tilde{y}_{ijt} \leq 0 \end{cases} \quad (2)$$

The data on GBS and total program and project aid used to construct the dependent variables are annual aid commitments for the period from 1995 to 2009 from the CRS (OECD, 2012).¹⁶ Commitments are used for two reasons. First, aid data disaggregated by aid modality are not available for disbursements; and second, commitments are considered to better reflect the aid policies of the donors in the literature on aid allocations (i.e., the supply of foreign aid) (Dudley and Montmarquette, 1976; McGillivray and White, 1993). An overview of the classification of aid modalities in the CRS is provided in Table 1. As the focus in the paper is on the countries receiving GBS given that they are aid recipients, the analysis tests the probability that a country receives GBS given that they receive program and/or project aid during the same period.¹⁷ Aid types classified as “other” in Table 1 are therefore excluded from the data. Thus, if a country only receives humanitarian aid, it is not included in the sample.¹⁸

¹⁶ “A commitment is a firm written obligation by a government or official agency, backed by the appropriation or availability of the necessary funds, to provide resources of a specified amount under specified financial terms and conditions and for specified purposes for the benefit of a recipient country or a multilateral agency.” (OECD, 2012).

¹⁷ Only including observations where program and/or project aid are positive could lead to a selection bias. However, using a Heckman selection model, the null hypothesis that the selection of countries receiving GBS is independent of the selection process for receiving aid cannot be rejected, and the results are not sensitive to controlling for selection.

¹⁸ Throughout the paper, the term aid will refer to the sum of project and program aid, and is the equivalent to ODA, excluding humanitarian aid, administrative costs of donors, refugees in donor countries, and unspecified aid.

Table 1 – Classification of aid modalities

Program aid	Commodity aid and general program assistance	General budget support Dev. food aid Other commodity assistance
	Actions related to debt	Actions related to debt
Project aid	Project aid	Social infrastructure and services Economic infrastructure and services Production sectors Multi-sector
		Administrative costs of donors
		Humanitarian aid Refugees in donor countries Unspecified
Other	Other	

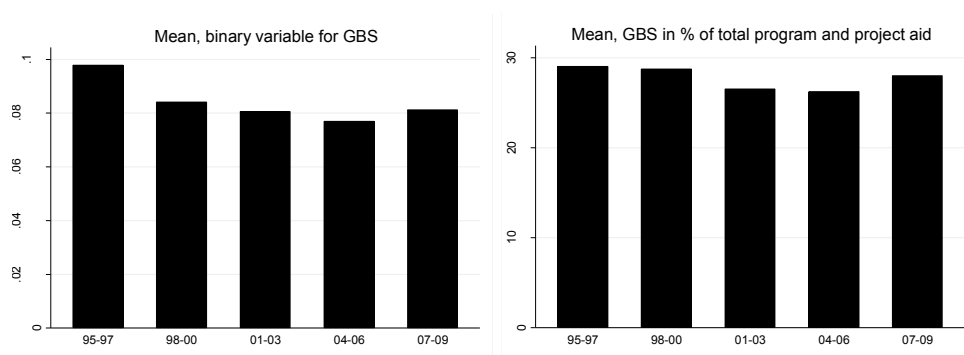
One possible problem with annual data on aid commitments is the timing of reporting and the time horizon for GBS committed. A positive observation of commitments of GBS in year t followed by no commitments of GBS in year $t+1$ does not necessarily mean that GBS is to be disbursed in only one year. It could also reflect that the committed amount of GBS in year t is meant to be disbursed in year $t+1$ to $t+s$, where $s \geq 1$. Thus, if a donor country commits, for example, to provide a certain amount of general support over the next three years, this will only lead to one positive observation in the data on commitments. This generates a problem when estimating the model as it looks like GBS is only provided in one year. Therefore, the annual data are used to construct three-year averages for all variables in the model. In addition to dealing with the timing of commitments, it also removes “noise” in the data, and the results can more easily be compared to results for the allocation of aggregate aid commitments, where averaging across time periods is quite common.

Other types of program aid, such as actions related to debt, can be argued to have similar effects on the recipient economy as GBS. However, there is one crucial difference between GBS and debt relief. GBS can be used by the recipient government to repay debt or increase public spending in any sector, while debt relief does not leave the decision to reduce sovereign debt or increase spending to the recipient country. Thus, while debt support, as GBS, improves the financial situation for the recipient government, the donor does not delegate the responsibility of allocating the funds to

the recipient country and so the problem with control is not present. While donors should always be selective when allocating any type of aid, the degree of selectivity should be considerably higher for GBS than for other types of program aid and project aid. However, the model is also estimated using program aid as the dependent variable, in order to compare the degree of selectivity. This will be discussed more thoroughly in Section 4.

The development in GBS in the time period from 1995 to 2009, using averages over three-year periods, is illustrated in Figure 1. In the period from 1995 to 97, almost 10% of all positive commitments of aid included, or consisted of, GBS. For the following three-year periods, the share has remained close to 8%. Looking at GBS in percent of project and program aid, there has been a similar trend, with a slight decrease from 1995-97 to 2004-06. In the period from 2007 to 09, GBS on average accounted for 28% of total project and program aid. Thus, positive commitments of GBS are not often reported by the DAC donors but, for the positive observations, GBS accounts for a considerable share of aid committed. GBS is likely to be the preferred type of aid from the recipient government, and the transaction costs related to this type of aid are lower for both the donor and recipient. The low use of GBS could then indicate that the DAC donors are highly selective.

Figure 1 – Development in GBS over time



Source: OECD (2012)

Looking at the donors and recipients with the highest frequency of observations where GBS is larger than zero, some interesting patterns emerge. Table 2 lists the ten donors

and recipients with the highest frequency of GBS, measured as the share of all positive observations of commitments of aid where GBS is larger than zero. Mozambique and Tanzania have the highest share among the recipient countries. Of all positive commitments of project and/or program aid to Mozambique, 52% include or consist of GBS. Seven of the top ten recipients are located in Sub-Saharan Africa (eight are located in Africa), and they are all former colonies of France, Portugal, Spain, or the UK. The majority of the recipients only rarely receive GBS, while a few countries have a relatively high number of positive observations reported in the period from 1995 to 2009. Of the 115 recipient countries in the sample used in the analysis, there are no positive observations of commitments of GBS for 23 countries.¹⁹

Table 2 – The ten most frequent donors and recipients of general budget support

Donor	Frequency	Recipient	Frequency
Japan	0.23	Mozambique	0.52
France	0.17	Tanzania	0.42
Netherlands	0.16	Vietnam	0.32
Ireland	0.16	Ghana	0.30
United Kingdom	0.16	Burkina Faso	0.29
Sweden	0.10	Uganda	0.27
Canada	0.09	Mali	0.24
Italy	0.08	Nicaragua	0.23
Belgium	0.08	Benin	0.20
Denmark	0.08	Zambia	0.19

Source: OECD (2012)

Japan, France, and the Netherlands are the donors most frequently committing to allocate GBS. Of all the positive observations for aid from Japan, 23% either include or consist of GBS. Based on the results in the literature on bilateral aid allocation, we know that Japan and France are strongly motivated by self-interests, while the Netherlands allocates aid mostly based on recipient needs (Alesina and Dollar, 2000; Berthélemy, 2006). Thus, both self-interested and more altruistic donors use this type

¹⁹ Azerbaijan, Bahrain, Belarus, Botswana, Costa Rica, Croatia, Cuba, Dominican Rep., Equatorial Guinea, Fiji, Iran, Korea, Libya, Malaysia, Mexico, Montenegro, Oman, Saudi Arabia, Slovenia, Syria, Turkmenistan, Ukraine, and Venezuela.

of aid. South Korea is the only donor that has never reported any commitments of GBS.

The main proxy variable for the quality of governance used is the government effectiveness (GE) indicator from the Worldwide Governance Indicators (WGI). The WGI also provide five other indicators capturing different aspects of governance: voice and accountability (VA), control of corruption (CC), political stability and absence of violence (PV), regulatory quality (RQ), and rule of law (RL) (Kaufmann et al., 2010).²⁰ Government effectiveness is included in the baseline model as this is an indicator meant to reflect aspects of governance that are relevant for the ability of recipient governments to effectively make use of GBS. In addition, Clist et al. (2012) find that government effectiveness is significant for the allocation of GBS from the World Bank and the EC. However, the different indicators are highly correlated, and the effect of government effectiveness can therefore be interpreted as the effect of an overall improvement in the quality of governance; additionally, when testing the robustness of the results, alternative measures of governance are used. The indicators range from -2.5 to 2.5, where a higher score reflects a higher quality of governance, but the variation within each country is relatively small.²¹ To avoid problems with reverse causality, the governance is lagged one period when included in the model.

Alignment of the objectives of the governments of the donor and recipient countries makes GBS preferable to project aid (Cordella and Dell'Arricia, 2007). Assuming that at least one of the objectives of the donors when allocating aid is to reduce poverty and improve the welfare of the poor, a higher commitment to development in the recipient country should have a positive impact on the probability of receiving GBS. The recipient governments' commitment to development is not possible to measure directly. Two different groups of proxies that can be used are outcome variables, such as child mortality or life expectancy, or public expenditures in the social sectors. Public spending in social sectors would reflect the interest of the current government

²⁰ See Williams and Siddique (2008) for a discussion of possible issues related to the use of different types of governance indicators.

²¹ The overall variation for GE is 0.59, but the within variation is only 0.16 for the sample used in the analysis.

to improve welfare in the country, while outcome variables depend to a larger extent on the effort of governments in the past. Gomanee et al. (2005a) argue that countries with higher expenditures in social sectors (sanitation, education, and health) increase the benefits for the poor share of the population, on average. Outcome variables are also likely to depend on other factors, such as whether a country has a problem with HIV or malaria. Based on the relatively high number of observations, expenditures in the health sector in percent of total expenditures lagged one period is included as a proxy for the commitment to development in the baseline model. However, alternative proxies are tested in the robustness section.

The degree of aid dependency should also be controlled for, but the expected effect is ambiguous. Clist et al. (2012) argue that more aid-dependent countries have higher transaction costs (if the aid is allocated from several different donors) related to project aid, and thus budget support would be preferable. Cordella and Dell'Arricia (2007) emphasize that when the projects funded by foreign aid are larger relative to domestic resources, it reduces the possibility for the recipient government to reallocate their own resources. When the problem of fungibility is reduced, project aid will be relatively more efficient. This is consistent with the results produced by Hagen (2006), which show that when the objectives of the donor and recipient differ, an increase in the share of available resources controlled by the donor will reduce the problem of fungibility. On the other hand, Moss et al. (2006) argue that when a relatively larger share of public revenues comes from abroad, the governments' incentives to invest in public goods are lower and the governments will be less accountable to their citizens. Aid dependency is usually measured as net ODA in percent of GDP. Alternative measures available from the World Bank include net ODA in percent of gross capital formation, central government expenditure, or imports of goods and services. The number of observations for net ODA in percent of gross capital formation is considerably higher than for net ODA in percent of GDP. Thus, the former is included in the baseline model and is also lagged one period.²²

²² The correlation between the two variables is 0.81.

GBS is financial support to the recipient government, and it is therefore possible that allocating GBS is a way for donors to assist countries with balance of payment problems. Whether or not a recipient country has an IMF lending program (either Extended Credit Facility, Standby Arrangement or Extended Fund Facility) is therefore included as a proxy for balance of payment problems, and is expected to provide a positive effect on the probability of receiving GBS. The data are from the IMF (2012b). In addition, policy conditions are (always) attached to IMF lending,²³ and donors might perceive the information that a country is borrowing from the IMF as an indicator that the recipient country will implement policy reforms in order to improve economic stability and growth.²⁴ Consequently, a positive effect of this variable may also indicate that the IMF serves as a “gatekeeper” for flows from official capital sources, as well as for private creditors.²⁵

Donor-recipient relationships are significant determinants for the allocation of total bilateral aid.²⁶ To control for the economic, colonial, and political ties between the donor and recipient, three different proxy variables are included. These are bilateral exports from the donor to the recipient measured in percent of total exports from the donor, a dummy variable indicating whether or not the donor and recipient country has ever had a colonial relationship, and an index variable ranging from -1 (least similar) to 1 for the similarity on voting patterns in the UN General Assembly (UNGA).

GDP per capita is included to control for average income, and the effect is expected to be negative because richer countries are less likely to receive aid. However, since the observations included in the sample are restricted to countries receiving aid (either program or project aid) at time t , the effect is likely to be weaker compared to the results if all observations were included. Adding average income to the model is important for the interpretation of other effects. For example, GDP per capita and

²³ The nature of the conditions following an IMF lending arrangement varies, but they are often related to economic policies meant to improve the macroeconomic condition of the country (IMF, 2012c).

²⁴ There are several papers analyzing the catalytic effect of lending from international financial institutions in general, and the IMF specifically. See for instance Rodrik (1995), Bird and Rowlands (1997, 2002) and Bauer et al. (2012).

²⁵ See for instance Lombardi and Woods (2008) and Hagen (2009, 2012).

²⁶ E.g., colonial history, geographic proximity, bilateral trade relationships, and donors' strategic interests in the recipient countries.

governance indicators are positively correlated, and controlling for average income is therefore necessary to avoid a spurious effect.²⁷ Population is also added to account for differences in country size. While the larger countries in the sample (e.g., Brazil or Indonesia) may receive GBS from a large number of donors, smaller countries (e.g., Guyana or Solomon Islands) are less likely to receive GBS from all donors. Both population size and average income are in logs.

The variables included as regressors are either recipient-specific or dyadic. However, the donors differ with respect to the frequency of GBS, indicating that policies vary on whether GBS is a preferred aid modality. For example, Korea has not reported any commitments for GBS in the period from 1995 to 2009 while the Netherlands, Japan, Ireland, France, and the UK have a relatively high frequency of GBS.²⁸ Differences in the use of GBS may reflect donor characteristics, such as the support for aid among the public in the donor countries. Dummy variables for the donor countries are therefore included to control for differences between donors in the use of GBS. Variations across time—for example, shocks in the global economy and the geographic region where the recipient countries are located—are also controlled for using dummy variables.

4. Results

4.1. Baseline model

The results from OLS and Probit regressions of the baseline model can be found in Table 3. In order to interpret the quantitative effects from the Probit estimations, only the marginal effects evaluated at the means (MEMs) are presented. In columns 1 and 4, only the control variables and main independent variables are included. In columns 2 and 5, the dummy variable for IMF programs is added to control for balance of payment problems, and variables controlling for the donor-recipient relationship are included in columns 3 and 6. All time-varying regressors, with the exception of

²⁷ A correlation matrix is provided in the appendix.

²⁸ See Table 2 for descriptive statistics on the frequency of GBS.

population, are lagged to reduce problems with reverse causality. However, the timing of the regressors and the outcome variable is not sufficient to establish a causal relationship. The results should therefore be interpreted with caution regarding the direction of causality.

Table 3 – Baseline model

	OLS			Probit (MEMs)		
	(1)	(2)	(3)	(4)	(5)	(6)
GE	0.045*** (0.008)	0.040*** (0.008)	0.042*** (0.008)	0.040*** (0.007)	0.033*** (0.007)	0.036*** (0.007)
Health spending	0.005*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.003*** (0.001)	0.002** (0.001)	0.002** (0.001)
Aid dependency	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
IMF (b)		0.052*** (0.007)	0.051*** (0.007)		0.039*** (0.006)	0.037*** (0.005)
Bilateral exports			-0.008 (0.005)			-0.005 (0.006)
UNGA			0.056* (0.031)			0.060** (0.025)
Colonial link (b)			0.248*** (0.036)			0.224*** (0.041)
Population	0.012*** (0.003)	0.012*** (0.003)	0.014*** (0.003)	0.007*** (0.002)	0.008*** (0.002)	0.010*** (0.002)
Average income	-0.049*** (0.006)	-0.039*** (0.006)	-0.043*** (0.006)	-0.044*** (0.005)	-0.032*** (0.005)	-0.035*** (0.005)
SSA (b)	0.036** (0.016)	0.033** (0.016)	0.031* (0.016)	0.011 (0.011)	0.009 (0.011)	0.006 (0.010)
LAC (b)	0.007 (0.015)	-0.009 (0.015)	-0.010 (0.016)	0.011 (0.015)	-0.003 (0.012)	-0.001 (0.012)
ECA (b)	-0.018 (0.015)	-0.028* (0.015)	-0.030** (0.015)	-0.018* (0.010)	-0.020** (0.009)	-0.023*** (0.008)
MENA (b)	0.018 (0.017)	0.021 (0.017)	0.028 (0.018)	0.011 (0.018)	0.013 (0.017)	0.019 (0.020)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
Donor dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	7611	7611	7452	7413	7413	7258
R2/Pseudo R2	0.10	0.11	0.14	0.18	0.20	0.23

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors in parentheses. Coefficients for time and donor dummies not reported. (b) dy/dx is the discrete change from the base level (from 0 to 1) in the Probit models. All time-varying regressors except population are lagged one period.

The results from the OLS regressions are similar to the estimated marginal effects from the Probit model, but the size of the marginal effects from the Probit model are

consistently weaker than the conditional probabilities from the OLS regression.²⁹ In order to avoid overestimating the effects, the MEMs from the Probit model are referred to when discussing the results, and only results using the Probit model are presented when testing the robustness of the results. The Probit model also performs better when predicting the probability of receiving GBS. Adding variables indicating balance of payment problems and proxies for the donor-recipient relationship greatly improves the fit of the model. Thus, the preferred model specification is the model in column 6, which is the baseline model for further analysis and robustness testing in the following subsections.

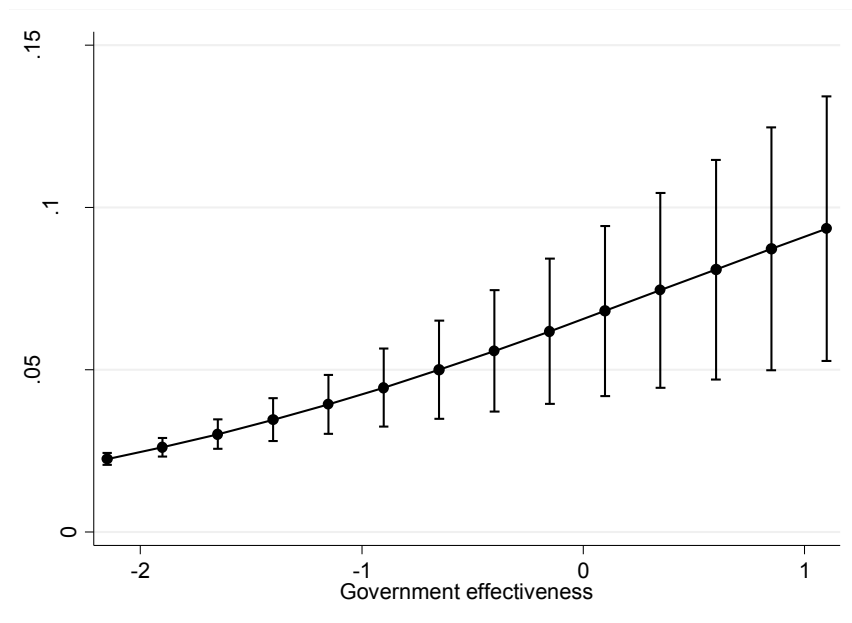
An increase in government effectiveness is related to a higher probability of GBS being larger than zero. Based on the results in column 6, an increase in the indicator for government effectiveness of one standard deviation (0.59) would increase the probability of GBS being committed by 2.1 percentage points. The predicted probability of receiving GBS is 7.1%, illustrating that an increase of 2.1 percentage points is a considerable effect. However, this only shows the marginal effects evaluated at the means. In order to explore marginal effects at different values of GE, the average marginal effects (AMEs) are graphed with 90% confidential intervals in Figure 2. The graphs are based on the model specification in column 6 with the AMEs on the probability that $GBS > 0$ on the vertical axis.

The AMEs are higher for larger values on the GE indicator. While an increase of one standard deviation evaluated at a score on the GE indicator of -2.15 has a positive average marginal effect of 1.5 percentage points, an equivalent increase evaluated at a score of 1.1 is related to an average marginal effect of 5.4 percentage points. Thus, the donors are more selective among recipient countries with a higher level of government effectiveness. However, the estimated AME is also less precise for higher values. This

²⁹ The number of observations is lower when using the Probit model because the dummy variable for Korea predicts failure perfectly (as Korea has never reported a commitment of GBS in the period from 1995 to 2009), and the observations for Korea are therefore dropped from the sample. Running the OLS without Korea, the results are almost identical to the OLS results for the full sample.

is as expected as the majority of the observations in the sample are in the lower ranges.³⁰

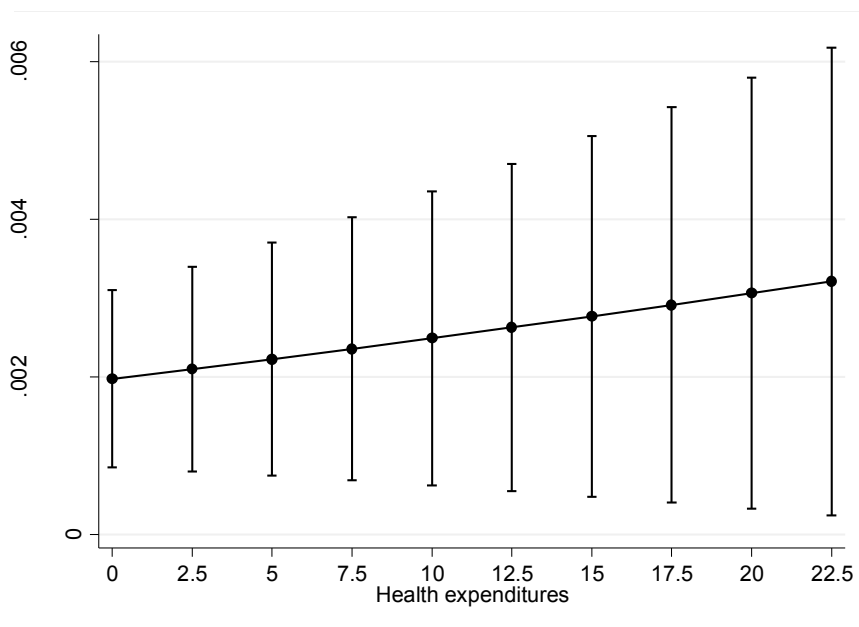
Figure 2 – AMEs for government effectiveness



The proxy for commitment to development in the recipient countries is both positive and statistically significant at the 10% level. An increase in public spending in the health sector of one standard deviation (4.1 percentage points) is related to an increase in the probability of receiving GBS of 0.8 percentage points. Thus, the donors do not seem to be as selective on the recipient governments' commitment to development. The AMEs evaluated at different values of spending in the health sector is graphed in Figure 3.

³⁰ For government effectiveness, only 18% of the 7258 observations in column 6 are higher than zero.

Figure 3 – AMEs for health expenditures



The variation in the marginal effects depending on the value of health expenditures is much smaller than for the GE. Still, the size of the AMEs is somewhat higher for larger values of spending in the health sector, and the marginal effects are also less precise. Thus, the donors seem to be selective on both the quality of governance and the commitment to development in the recipient countries. However, the marginal effect is considerably stronger for governance than commitment to development and, looking at the AMEs, the donors seem to be more selective among countries with a relatively high score on government effectiveness.

Countries with an IMF program are also more likely to receive GBS from the DAC donors. The estimated marginal effect evaluated at the means show that the probability of receiving GBS is 3.7 percentage points higher for countries with an IMF program. Thus, the results indicate that GBS is used by the DAC donors as financial support to developing countries with a balance of payment problem. In addition, countries accepting the terms for IMF programs signal a commitment to improving economic stability and growth, which may also be part of the explanation as to why donors seem

to favor countries with an IMF program.³¹ The marginal effect of aid dependency evaluated at the means is equal to zero in all three model specifications, and is therefore not a significant determinant of the probability of receiving GBS.

Overall, the variables controlling for different aspects of the relationship between the donor and recipient countries are important in determining the probability of receiving GBS.

The binary variable indicating whether the donor and recipient have or have had a colonial relationship has by far the strongest effect on the probability of GBS being committed. Having a colonial link increases the probability that GBS is larger than zero by 22.4 percentage points. As expected, recipient countries with similar voting patterns in the UNGA are also more likely to receive GBS. The importance of colonial history and political alliances is in line with results in the empirical literature on aggregated bilateral aid.³² Bilateral trade (proxied by the percentage of total exports from donor i going to recipient j) does not have a statistically significant marginal effect on the probability of receiving GBS.

Dreher et al. (2008) argues that program aid, including GBS, is more likely to be determined by political interests of the donors than other types of aid. This argument is based on the fact that GBS is preferred by the recipient countries and, therefore, politically motivated donors should use program aid to achieve the wanted political influence. This could explain the importance of colonial history for the allocation of GBS, where former colonial powers may use GBS to maintain political influence, and similar voting patterns in the UNGA, but it does not hold for bilateral exports.

The probability that the DAC donors commit to disbursing GBS to a recipient country increases when average income is reduced or the population size increases. Thus, poorer countries are more likely to receive GBS when controlling for the quality of

³¹ Using variables such as current account and cash surplus/deficit instead of the IMF dummy as a proxy for macroeconomic management supports the result that GBS is allocated to countries with a balance of payment problem. Other macroeconomic indicators, such as inflation and the degree of openness, are not statistically significant. These results are not reported in the paper, but are available upon request.

³² See for instance Alesina and Dollar (2000) and Dreher et al. (2008).

governance. Average income is measured as the logarithm of GDP per capita, and an increase of 1% is related to a reduction in the probability of receiving GBS of 3.5 percentage points. Similar to the results for aggregate aid in the literature on aid allocation, larger countries are also more likely to receive GBS. The geographic location of the recipient countries does not seem to be very important. Only countries in Europe and Central Asia are less likely to receive GBS (the base group is East Asia and the Pacific).

The results from a Tobit model are presented in Table 4. As before, only observations where the total commitments of program and project aid are larger than zero are included in the model. The results show that the variables with a positive (negative) effect on the probability of GBS in Table 3 also have a positive (negative) effect on the share of GBS. Thus, the selectivity of donors when allocating GBS is not only based on which countries receive GBS but also on the volume of GBS in percent of total project and program aid allocated.

The average amount of GBS committed in the data sample is 27 million 2011 USD. There is great variation in the volume of GBS, with a standard deviation of 70. An increase of one standard deviation in the indicator for government effectiveness (0.59) is related to an increase of almost 12 million USD in GBS committed. The effect is weaker for the proxy variable for the degree of commitment to development. An increase in health expenditures in percent of total expenditures by 4.08 percentage points, which corresponds to one standard deviation, is related to an increase in GBS of almost 5 million USD. Compared to the effect of having a colonial relationship, these effects are relatively modest. Still, the results provide support for the hypothesis that donors are selective on both the quality of governance and the recipient governments' commitment to development when allocating GBS.

The results presented in Table 3 and 4 show that the DAC donors are selective on the quality of governance, and that there is a small positive effect of an increase in the recipients' commitment to development. This differs from the results in the literature on allocation of aggregate bilateral aid and thus underlines the importance of using

disaggregate data when analyzing aid commitments. Even if the DAC donors do not tend to be selective on governance when allocating total bilateral aid, they do in fact take the effectiveness of government into account when allocating general budget support. In the following subsection, the robustness of the main independent variables—the quality of governance and commitment to development—is tested for using the Probit model.

Table 4 – Tobit results

	(1)	(2)	(3)
GE	21.101*** (3.807)	18.063*** (4.037)	20.309*** (3.987)
Health spending	1.608*** (0.474)	1.361*** (0.457)	1.208*** (0.463)
Aid dependency	0.038 (0.025)	0.047* (0.025)	0.043* (0.025)
IMF		24.847*** (3.970)	24.452*** (4.002)
Bilateral exports			-2.123 (3.476)
UNGA			38.314** (15.474)
Colonial link			49.912*** (5.862)
Population	3.097*** (1.111)	3.688*** (1.158)	4.655*** (1.218)
Average income	-23.046*** (2.787)	-17.213*** (2.757)	-20.043*** (2.921)
SSA	7.153 (5.627)	6.188 (5.503)	4.361 (5.725)
LAC	2.552 (6.974)	-4.963 (7.052)	-3.908 (7.241)
ECA	-6.797 (6.363)	-9.142 (6.095)	-13.023** (6.206)
MENA	8.370 (8.202)	9.205 (8.076)	13.467 (8.938)
Donor dummies	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes
Sigma constant	53.527*** (2.436)	52.684*** (2.378)	51.716*** (2.404)
N	7611	7611	7452
Pseudo R2	0.08	0.09	0.10

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The model is estimated using a Tobit model. The dependent variable is GBS in percent of the sum of program and project aid. Clustered standard errors are reported in parentheses. All time-varying regressors except population are lagged one period.

4.2. Robustness testing

Quality of governance

In Table 3, the GE indicator from the WGI is used to test how the DAC donors take the quality of governance into account when allocating GBS. This indicator is only one of several indicators that are available. In order to test if the results are robust to the choice of indicator, a number of alternative measures of the quality of governance are used to replace the GE, and the MEMs are presented in Table 5. There may also be some aspects of governance in the recipient countries that are more important than others, and the possible heterogeneity in the effect of governance is therefore also discussed in this subsection.³³ The full baseline model specification in Table 3 is used, dropping government effectiveness and adding one of the alternative indicators at the time. The marginal effects for the other variables in the model remain approximately the same as in the baseline model, and are therefore not reported.³⁴ All variables are coded so that an increase reflects an improvement in the quality of governance.

With the exception of the democracy index Polity IV, all the governance indicators have positive and statistically significant marginal effects, at least at the 5% level. Comparing the MEMs of an increase equal to one standard deviation in the governance indicators, the estimates range from 0.5 to 1.9 percentage points. Thus, all the alternative indicators provide a lower estimate of the marginal effects compared to the results in the baseline model. Consequently, the estimated effect of quality of governance using the indicator for government effectiveness can be interpreted as an upper bound. However, the difference in MEMs depending on the indicator included can, at least to some extent, be explained by the fact that the indicators capture different aspects of the quality of governance. While the strongest marginal effects are found when including indicators for regulatory quality (1.9 pp.) and political risk (1.9 pp.) the marginal effects are considerably weaker for the different indicators for corruption in the public sector as well as the Polity IV.

³³ To see how the different indicators correlate with each other, a correlation matrix for the different governance indicators can be found in Appendix A.

³⁴ The full results are available upon request.

Table 5 – *The quality of governance*

Indicator	VA	PV	RQ	RL	CC	CPI	COR	PR	SFI	Polity IV
MEM	0.020*** (0.005)	0.021*** (0.004)	0.029*** (0.006)	0.022*** (0.005)	0.014** (0.006)	0.007* (0.004)	0.006* (0.004)	0.002*** (0.000)	0.003*** (0.001)	0.001 (0.001)
SE										
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	7263	7263	7258	7258	7258	4937	5671	5671	7263	7209

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The model is estimated using a Probit model with clustered standard errors. Only MEMs for governance indicators are reported. All time-varying regressors except population are lagged one period.

Both the control of corruption (CC) from the WGI and the corruption perception index (CPI) from Transparency International have an estimated positive marginal effect of 0.8 percentage points from an increase equal to one standard deviation. An equivalent increase in the corruption index from the ICRG is related to an increase in the probability of receiving GBS of 0.5 percentage points. All three corruption measures are meant to capture corruption in the public sector. While the CPI and WGI measures are based on perceptions of corruption, the ICRG indicator is based on political information and financial and economic data, which may explain the low correlation between COR and the other two indicators for corruption, as well as the weaker marginal effect.¹ One would expect donors to have an aversion to allocating GBS to countries with a low score on corruption in the public sector, but after analyzing the allocation of GBS, it seems as though other aspects of governance are more important.

Voice and accountability (VA) is an indicator reflecting the perceptions of freedom of a country's citizens² and their ability to influence the composition of the government. Naturally, this indicator is highly correlated with the Polity IV measuring the degree of democracy. Unlike the Polity IV, though, VA has a positive marginal effect on the probability of GBS, which is statistically significant at the 1% level. An increase in the index of one standard deviation (0.72) is related to an increase in the probability of GBS of 1.4 percentage points.

The marginal effects of political risk (PR), absence of political violence/terrorism (PV), and the state fragility index (SFI) are all positive and statistically significant at the 1% level. An increase of one standard deviation is related to an increase in the probability of receiving GBS by 1.9, 1.7, and 1.6 percentage points, respectively. RL also has a positive marginal effect on the probability of receiving GBS of 1.3 percentage points. Overall, the results confirm the positive effect of the quality of governance on the probability of receiving GBS. However, the effect is considerably

¹ The CPI measures the perceived levels of public sector corruption, and is based on information from independent organizations. The control of corruption index is also a measure of perceived corruption, where corruption is the exercise of public power for private gain.

² Freedom of expression, freedom of association, and a free media.

weaker when looking at the effect of corruption, and the effect of democracy is not statistically significant.

Commitment to development

In Table 6, the results when using alternative proxy variables for the recipient governments' commitment to development are presented. Alternative proxy variables for the commitment to development include public spending in other social sectors as well as outcome variables. Alternative measures include child mortality, measured as the mortality rate per 1000 children younger than five years old, and public spending on education in percent of GDP. For comparison, the results measuring spending in the health sector measured in percent of GDP and the sum of spending in the two sectors are also presented.³ In addition, a binary variable for whether or not the recipient country has an Interim Poverty Reduction Strategy Paper (IPRSP) or a Poverty Reduction Strategy Paper (PRSP) is used to indicate the commitment to reduce poverty, following Clist et al. (2012).⁴

As discussed previously, proxy variables like child mortality will depend on the efforts made to educate health personnel, invest in health institutions, and so on, decades ago, and it is also likely to depend on other factors, such as whether a country has a problem with HIV or malaria. Thus, this type of outcome variable may be a poor proxy for the governments' current commitment to development, and so the lack of any significant effect on the probability of receiving GBS is not very surprising.

The MEMs for the commitment to development are still positive and significant at the 5% level for public spending in the health sector. Using data on education spending, the marginal effect is negative and significant at the 10% level. As spending in the two sectors has the opposite effect on the probability of receiving GBS, it is not surprising that the effect of the two combined is insignificant. The number of observations is reduced by close to a third when including data for spending on education. The

³ Spending in education is measured in percent of GDP rather than total expenditures due to data availability.

⁴ The main objective of an (I)PRSP is long-term poverty reduction through national strategies with the (financial) support of development partners. The strategy papers are prepared by the governments, but the process also involves multilateral organizations such as the IMF and World Bank (IMF, 2012a).

positive effect of spending in the health sector is robust to reducing the sample size equivalently. It is difficult to see why donors would target countries based on public spending in the health sector but not take spending in education into account.

However, the positive effect for the health sector may be driven by a focus on health-related issues (e.g., HIV and mother and child health). This would be consistent with the results in Thiele et al. (2007), where they find that the MDGs have not shaped the allocation of aid, with the exception of the fight against HIV/AIDS, using data disaggregated by sectors.

The variable indicating whether the country has a PRSP is a binary variable, and is therefore evaluated for a discrete change from zero to one for the Probit model, and not at the mean. The results in column 3 show that the probability of receiving GBS is 3 percentage points higher if the country has an IPRSP or PRSP. Thus, the effect is much stronger than when using health expenditures as a proxy. One possible explanation for this is that an (I)PRSP is prepared by the recipient government, but the process also involves other parties, including the World Bank and the IMF. It is not just a strategy paper for social policies in order to improve growth and reducing poverty; it also includes macroeconomic policies (IMF, 2012a). In that way, the preparation of an (I)PRSP does not only signal that the recipient country is focusing on poverty reduction but also that it cooperates with the World Bank and the IMF to improve economic development in the country. The (I)PRSP dummies both then indicate a commitment by the recipient governments to improving macroeconomic policies. This effect can be compared to the signaling effect of having an IMF program, even though the latter might have a larger component of pressure from others, such as the IMF and foreign creditors. Comparing the results for the IMF dummy in Table 6 with Table 3, the marginal effect of having an IMF program is reduced from 3.7 to 2.6 percentage points. Thus, it could reflect that the (I)PRSP and IMF dummies both capture a commitment to policy reforms by the recipient governments.

Table 6 – Commitment to development

	(1)	(2)	(3)	(4)	(3)
GE	0.040*** (0.007)	0.033*** (0.007)	0.038*** (0.008)	0.035*** (0.008)	0.033*** (0.007)
Child mortality	0.000 (0.000)				
Health spending, % of GDP		0.007** (0.003)			
Education spending, % of GDP			-0.002* (0.001)		
Sum of spending in health and edu., % of GDP				-0.000 (0.001)	
IPRSP/PRSP					0.030*** (0.007)
Aid dependency	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)
IMF (b)	0.037*** (0.006)	0.036*** (0.005)	0.031*** (0.006)	0.031*** (0.006)	0.026*** (0.006)
Bilateral exports	-0.004 (0.006)	-0.004 (0.006)	0.003 (0.005)	0.003 (0.005)	-0.004 (0.006)
UNGA	0.072*** (0.025)	0.059** (0.025)	0.083*** (0.026)	0.081*** (0.026)	0.073*** (0.025)
Colonial link (b)	0.221*** (0.041)	0.224*** (0.040)	0.250*** (0.047)	0.251*** (0.047)	0.224*** (0.041)
Population	0.009*** (0.002)	0.011*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.011*** (0.002)
Average income	-0.037*** (0.005)	-0.037*** (0.005)	-0.037*** (0.005)	-0.036*** (0.005)	-0.029*** (0.005)
SSA (b)	0.003 (0.012)	0.005 (0.010)	0.015 (0.012)	0.014 (0.012)	0.004 (0.010)
LAC (b)	0.008 (0.013)	0.001 (0.012)	0.026 (0.017)	0.025 (0.017)	0.006 (0.012)
ECA (b)	-0.024*** (0.007)	-0.024*** (0.007)	-0.014 (0.010)	-0.015 (0.010)	-0.025*** (0.007)
MENA (b)	0.020 (0.021)	0.014 (0.019)	0.051* (0.030)	0.043 (0.028)	0.021 (0.021)
Donor dummies	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes
N	7280	7258	5198	5198	7280
Pseudo R2	0.23	0.23	0.23	0.23	0.24

* p < 0.1, ** p < 0.05, *** p < 0.01. The model is estimated using a Probit model with clustered standard errors in parentheses. All time-varying regressors except population are lagged one period.

4.3. Colonizers vs. non-colonizers

The results for the baseline model in Table 3 show that even though the DAC donors are selective on the quality of governance and, at least to some extent, the commitment to development in the recipient countries, colonial history still has the strongest

predicative power on the probability of receiving GBS. It is well known from the aid allocation literature that former colonizers, and France in particular, favor their former colonies (Berthélemy and Tichit, 2004). All the top ten recipients of GBS, listed in Table 2, are former colonies. Thus, it would be interesting to know whether the selectivity in allocation of GBS differs between donors with former colonies among the recipient countries and other donors.

In Table 7, the sample is divided based on whether or not the donor has had at least one colony among the recipient countries in the sample. As expected, former colonial powers are less selective when allocating GBS.⁵ The quantitative effect of government effectiveness is reduced from a marginal effect evaluated at the mean of 2.1 percentage points for the full sample to 1.8 percentage points when only including donors with former colonies among the recipients. For the subsample only including donors without a colonial link to any of the recipient countries in the sample, the marginal effect is 2.4 percentage points. Health expenditure, as a proxy for commitment to development, is positive in both columns, but only statistically significant at the 10% level in column 2.

In addition to favoring their former colonies, donors with a colonial history with one or more of the recipient countries in the sample also favor countries with similar voting patterns in the UNGA, and the positive marginal effect of having an IMF program is stronger, while bilateral exports is not a significant determinant. Thus, political alliances seem to be more important for this group of donor countries, as well as alleviation of balance of payment problems.

Surprisingly, the effect of bilateral trade is negative and statistically significant at the 5% level in column 2. An increase in bilateral exports equal to one standard deviation (0.66) is related to a reduction in the probability of receiving GBS by 4.2 percentage points. Thus, countries that hold a larger share in the donors' exports, given that the donor is not a former colonizer, are less likely to receive GBS.

⁵ Running the model for the full sample with interaction effects confirms the higher emphasis on GE of donors without colonial ties to any of the recipient countries, while there is no support for the effect of health expenditures being contingent on colonial links.

Table 7 – Former colonizers vs. donors without former colonies in the sample

Subsample	Donors with colonial links	Donors without colonial links
	(1)	(2)
GE	0.030*** (0.009)	0.041*** (0.008)
Health spending	0.001 (0.001)	0.002** (0.001)
Aid dependency	0.000 (0.000)	0.000 (0.000)
IMF (b)	0.041*** (0.007)	0.023*** (0.006)
Bilateral exports	-0.000 (0.006)	-0.064** (0.027)
UNGA	0.069** (0.032)	0.027 (0.032)
Colonial link (b)	0.223*** (0.040)	
Population	0.007** (0.003)	0.015*** (0.003)
Average income	-0.037*** (0.006)	-0.026*** (0.007)
SSA (b)	0.001 (0.014)	0.009 (0.011)
LAC (b)	-0.011 (0.015)	0.016 (0.018)
ECA (b)	-0.023** (0.011)	-0.019*** (0.007)
MENA (b)	0.027 (0.028)	-0.010 (0.013)
Donor dummies	Yes	Yes
Time dummies	Yes	Yes
N	4616	2642
Pseudo R2	0.24	0.25

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The model is estimated using a Probit model with clustered standard errors in parentheses. MEMs for time and donor dummies not reported. (b) dy/dx is the discrete change from the base level (from 0 to 1) in the Probit models. All time-varying regressors except population are lagged one period.

4.4. Within variation

For the recipient governments it may be more interesting to see how variations within the countries are related to changes in the dependent variable. Thus, the more relevant question to address would be whether or not recipient governments, by implementing

reforms and improving policies, can increase the probability of receiving GBS. In order to address this question, the model is estimated using a fixed effects logit, and the results are provided in Table 8. The main problem with this approach is that only observations where the dependent variable changes over time (donor-recipient pairs where there are both observations where no GBS is committed and where the donor has committed to disbursing GBS) are included. Thus, the total number of observations is reduced substantially, which leads to less precise estimates. In addition, the variation in government effectiveness is low as changes in governance rarely change much in the short or medium run. Thus, selection based on governance is likely to be across countries and not within countries.

Table 8 – Fixed effects logit

	(1)	(2)	(3)
GE	0.129 (0.399)	0.149 (0.402)	0.277 (0.410)
Health spending	-0.074** (0.037)	-0.074** (0.037)	-0.075** (0.037)
Aid dependency	0.007*** (0.002)	0.007*** (0.002)	0.006*** (0.002)
IMF (b)		-0.129 (0.256)	-0.009 (0.267)
Bilateral exports			-0.620 (0.899)
UNGA			-0.512 (1.080)
Population	10.170*** (2.262)	10.254*** (2.268)	9.666*** (2.365)
Average income	3.315*** (0.884)	3.312*** (0.883)	3.431*** (0.918)
N	1140	1140	1122

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The model is estimated using a FE logit model. The odds-ratios are reported with clustered standard errors. All time-varying regressors except population are lagged one period.

The estimated coefficients in Table 8 are odds-ratios and can be interpreted as semi-elasticities. Government effectiveness still has a positive coefficient, but the p-value is now 0.3. Spending in the health sector is still statistically significant, but the sign of the effect is now negative. A one-unit increase in public spending in the health sector

decreases the odds ratio by 0.07.⁶ An improvement in observable characteristics indicating a stronger commitment to development has a negative effect on the relative probability of receiving GBS over time. The direction of the effect also changes for average income, where an increase reduces the probability of receiving GBS.

Using a fixed effects logit model, there is no support for the DAC donor being selective with respect to governance and commitment to development. Thus, the selectivity seems to be a result of variation across countries rather than within them. This is relevant, as it indicates that improvements over time are not rewarded with an increase in the probability of receiving GBS. However, the variation within countries for the quality of governance is very low, and this may also explain the lack of statistical significance when controlling for fixed effects.

4.5. GBS and program aid

The use of disaggregated data to focus on the allocation of GBS implicitly builds on an assumption that the allocation of GBS is different than for other types of aid. As has been discussed in the literature review, there are several arguments as to why the allocation pattern of GBS should be different from the allocation of project aid. However, other types of program aid (e.g., debt relief and food aid) are also not included in the dependent variable. One reason for this is that debt relief and food aid do not improve recipient country ownership, as they do not (necessarily) involve a delegation of the responsibility for the distribution and use of aid funds to the recipient governments. Thus, one would expect donors to be less selective on the quality of governance and the level of commitment to development. Estimating the baseline model with a dummy variable equal to one if the sum of commitments of program aid is positive, the empirical results confirm that donors are selective when allocating GBS, but not if we look at total program aid.⁷ This underlines the importance of using

⁶ Here, the odds-ratio is the probability that the commitments of GBS are larger than zero relative to the probability that the commitments of GBS are zero.

⁷ The full results referred to here are reported in Appendix B.

disaggregated aid data in these types of analyses, as different types of aid are allocated based on other criteria.

Table 9 – GBS vs. program aid

Dependent variable	GBS			Program aid		
	(1)	(2)	(3)	(4)	(5)	(6)
GE	0.040*** (0.007)	0.033*** (0.007)	0.036*** (0.007)	0.024 (0.018)	0.003 (0.018)	0.008 (0.019)
Health spending	0.003*** (0.001)	0.002** (0.001)	0.002** (0.001)	0.003 (0.002)	0.002 (0.002)	0.000 (0.002)
Aid dependency	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
IMF (b)		0.039*** (0.006)	0.037*** (0.005)		0.122*** (0.014)	0.128*** (0.014)
Bilateral exports			-0.005 (0.006)			-0.010 (0.015)
UNGA			0.060** (0.025)			0.079 (0.064)
Colonial link (b)			0.224*** (0.041)			0.351*** (0.049)
Population	0.007*** (0.002)	0.008*** (0.002)	0.010*** (0.002)	0.031*** (0.005)	0.034*** (0.005)	0.037*** (0.006)
Average income	-0.044*** (0.005)	-0.032*** (0.005)	-0.035*** (0.005)	-0.167*** (0.013)	-0.139*** (0.013)	-0.149*** (0.014)
SSA (b)	0.011 (0.011)	0.009 (0.011)	0.006 (0.010)	0.154*** (0.029)	0.151*** (0.029)	0.149*** (0.030)
LAC (b)	0.011 (0.015)	-0.003 (0.012)	-0.001 (0.012)	0.176*** (0.039)	0.130*** (0.039)	0.136*** (0.040)
ECA (b)	-0.018* (0.010)	-0.020** (0.009)	-0.023*** (0.008)	-0.052* (0.027)	-0.067** (0.026)	-0.082*** (0.027)
MENA (b)	0.011 (0.018)	0.013 (0.017)	0.019 (0.020)	0.069 (0.042)	0.076* (0.043)	0.094* (0.048)
Donor dummies	Yes	Yes	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	7413	7413	7258	7611	7611	7452
Pseudo R2	0.18	0.20	0.23	0.27	0.28	0.30

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Clustered standard errors in parentheses. Coefficients for time and donor dummies not reported. (b) dy/dx is the discrete change from the base level (from 0 to 1) in the Probit models. All time-varying regressors except population are lagged one period.

While an improvement in the quality of governance and the commitment to development is related to an increase in the probability of receiving GBS, it is not significant when analyzing the probability of receiving program aid. This could be driven by the fact that, for example, debt relief is an alternative to GBS in poorly governed countries, as that can also be a way to alleviate balance of payment

problems. At the same time, the marginal effect of colonial history and aid share is stronger for program aid, while similar voting patterns in the UNGA are not statistically significant at the 10% level for total program aid.

5. Conclusion

In the Paris Agenda, the DAC donors have committed to improving recipient ownership as a part of a strategy to increase the efficiency of aid. One way to follow up on this commitment is to increase the use of GBS. During the period from 1995 to 2009, there has been a slight negative trend in both the frequency and share of GBS (see Figure 1). Thus, it may seem as though the emphasis on recipient ownership is rhetorical and not followed by changes in the aid commitments made by the DAC donors. However, the low use of GBS could also be a result of selectivity among the donors. The donors delegate the responsibility to the recipient governments when they allocate GBS, and it therefore involves a trade-off between the loss of control and possible benefits (e.g., reduced transaction costs), and so a higher degree of selectivity when allocating GBS rather than other types of aid would therefore be expected.

Using data on commitments of GBS, the results from a Probit model show that the DAC donors are selective on the quality of governance, and the result is robust to changes in the model specification. However, the size of the effect depends on the choice of governance indicators. While government effectiveness has a relatively strong effect on the probability of receiving GBS, the results indicate that aspects of governance, such as the level of corruption in the public sector, are not equally important for the allocation of GBS. There is also some support that the DAC donors target countries with a stronger commitment to development. Both countries with higher public expenditures in the health sector and with an (Interim) Poverty Reduction Strategy Paper are more likely to receive GBS, but the result does not hold for public expenditures in education or child mortality. Thus, the DAC donors do, at least to some extent, target countries that are likely to use the funding from GBS more efficiently. Countries with balance of payment problems (proxied either by having an

IMF program or macroeconomic indicators such as the current account or cash surplus/deficit) are also more likely to be supported financially with GBS.

Even though the quality of governance and commitment to development are significant determinants of the probability of receiving GBS for the full sample of DAC donors, the degree of selectivity is considerably weaker, and political alliances have a significant and positive effect for the group of donors with former colonies among the recipient countries. In addition, a colonial link between a donor and recipient country has the strongest predicative power for the probability of receiving GBS, and also has a strong quantitative effect on the volume of GBS. Thus, while donors without colonial links to any of the recipient countries put a strong emphasis on the quality of governance on average, former colonizers strongly favor their former colonies and other countries with similar voting patterns in the UNGA. As the allocation of GBS is determined to a large extent by colonial history, there is only limited support for stating that the low use of GBS is due to a high degree of selectivity among the donors. For former colonial powers, the historical ties and political influence with former colonies seem to be more important than the commitments made in the Paris Agenda. Still, compared to the results for aggregate bilateral aid in the literature on aid allocation, and when looking at program aid, the results must be considered as encouraging.

Comparing the degree of selectivity in the allocation of GBS and total program aid also underlines the importance of using disaggregated data when analyzing the allocation of aid. While the DAC donors on average are selective when allocating GBS, the allocation of program aid is not dependent on the quality of governance or commitment to development in the recipient countries. This also indicates that the donor countries are more selective when allocating direct financial funds, and thus in delegating the responsibility for the distribution and use to the recipient governments.

For the donor countries, and especially the former colonial powers, the emphasis on the quality of governance and the degree of commitment to development should be more important when GBS is allocated across recipient countries. The results, when

using the level of corruption in the public sector in particular, demonstrate that there is room for improvement. For the recipients, it is of interest to know how one may attract GBS rather than other types of aid, and the results presented here give some pointers as to what the donors are affected by. In addition to better governance, public expenditures in health are rewarded, while spending on education is not. The degree of democracy is the only governance indicator not statistically significant at conventional levels, indicating that democratic elections and processes in the recipient countries are less important than, for example, political stability. Committing to IMF programs and fighting poverty through preparing an (I)PRSP also signals a dedication to improving policies in order to promote economic development.

The term “donor darlings” has been used for the countries receiving the majority of aid flows. The possibility of herd behavior among the donors, where herd behavior, or “herding”, is the tendency to converge to similar behaviors as others (Bikhchandani et al., 2011), is not pursued here. The joint targeting of some countries, such as Mozambique and Tanzania, may be a result of herd behavior among donors. Thus, an interesting extension to the analysis would be to test whether donors tend to disregard private information, and simply follow each other when allocating GBS.

References:

Alesina, A., & Dollar, D. (2000). Who gives foreign aid to whom and why? *Journal of Economic Growth*, 5, 33-63.

Alesina, A., & Weder, B. (2002). Do corrupt governments receive less foreign aid? *The American Economic Review*, 92, 1126-1137.

Angrist, J. D., & Pischke, J. S. (2009). *Mostly harmless econometrics. An Empiricist's companion*. Princeton: Princeton University Press.

Azevedo, J.P. (2011). *wbopendata: Stata module to access World Bank databases* (Statistical Software Components S457234, Boston College Department of Economics). Retrieved March 29, 2012, from <http://ideas.repec.org/c/boc/bocode/s457234.html>

Bauer, M. E., Cruz, C., & and Graham, B. A. (2012). Democracies only: When do IMF agreements serve as a seal of approval? *Review of International Organizations*, 7, 33-58.

Berthélemy, J. C. (2006). Bilateral donors' interest vs. recipients' development motives in aid allocation: Do all donors behave the same? *Review of Development Economics*, 10, 179-194.

Berthélemy, J. C., & Tichit, A. (2004). Bilateral donors' aid allocation decisions – a three-dimensional panel analysis. *International Review of Economics and Finance*, 13, 253-274.

Bigsten, A., & Tengstam, S. (2012). *International coordination and the effectiveness of aid* (UNU-WIDER Working Paper No. 2012/32).

Bird, G., & Rowlands, D. (1997). The catalytic effect of lending by the international financial institutions. *World Economy*, 20, 967-991.

Bird, G., & Rowlands, D. (2002). Do IMF programmes have a catalytic effect on other international capital flows? *Oxford Development Studies*, 30, 229-249.

Burnside, C., & Dollar, D. (2000). Aid, policies and growth. *The American Economic Review* 90, 847-868.

Clemens, M., Radelet, S., Bhavnani, R. R., & Bazzi, S. (2012). Counting chickens when they hatch: Timing and the effects of aid on growth. *The Economic Journal*, 122, 590-617.

Clist, P., Isopi, A., & Morrissey, O. (2012). Selectivity on aid modality: Determinants of budget support from multilateral donors. *The Review of International Organizations*, 7, 267-284.

Collier, P., & Dehn, J. (2001). *Aid, shocks, and growth* (World Bank Policy Research Working Paper No. 2688).

Collier, P. & Dollar, D. (2002). Aid allocation and poverty reduction. *European Economic Review*, 45, 1-26.

Collier, P., & Hoeffler, A. (2004). Aid, policy and growth in post-conflict societies. *European Economic Review*, 48, 1125-1145.

Cordella, T., & Dell'Arricia, G. (2007). Budget support versus project aid: A theoretical appraisal. *The Economic Journal*, 1(17), 1260-1279.

Center for Systemic Peace (2011a). *Polity IV Annual Time Series 1800-2011*. Retrieved June 21, 2011, from <http://www.systemicpeace.org/inscr/inscr.htm>

Center for Systemic Peace (2011b). *State Fragility Index and Matrix Time-Series Data, 1995-2011*. Retrieved October 2, 2012, from <http://www.systemicpeace.org/inscr/inscr.htm>

CEPII (2010). *GeoDist* [database]. Retrieved August 31, 2010, from http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=6

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- Dalgaard, C., Hansen, H., & Tarp, F. (2004). On the empirics of foreign aid and growth. *Economic Journal*, 114, 191-216.
- Dietrich, S. (forthcoming). Does donor selectivity in aid delivery help the poor? *International Studies Quarterly*. Retrieved from <http://ssrn.com/abstract=1644727>
- Djankov, S., Montalvo, J. G., & Reynal-Querol, M. (2008). The curse of aid. *Journal of Economic Growth*, 13, 169-194.
- Dreher, A., Nunnenkamp, P. & Thiele, R. (2008). Does US aid buy UN general assembly votes? A disaggregated analysis. *Public Choice*, 136, 139-164.
- Dudley, L., & Montmarquette, C. (1976). A model of the supply of bilateral foreign aid. *The American Economic Review*, 66, 132-142.
- Eifert, B. and Gelb, A. (2005). *Improving the dynamics of aid. Towards more predictable budget support* (World Bank Policy Research Working Paper No. 3732).
- Gartzke, E. (2010). *The Affinity of Nations: Similarity of State Voting Positions in the UNGA*. Retrieved June 21, 2011, from <http://dss.ucsd.edu/~egartzke/htmlpages/data.html>
- Gomanee, K., Girma, S., & Morrissey, O. (2005). Aid, public spending and human welfare: Evidence from quantile regressions. *Journal of International Development*, 17, 299-309.
- Guillaumont, P., & Chauvet, L. (2001). Aid and performance: A reassessment. *Journal of Development Studies*, 37, 66-92.
- Hagen, R. (2006). Buying Influence: Aid fungibility in a strategic perspective. *Review of Development Economics*, 10, 267-284.
- Hagen, R. (2009). Basic analytics of multilateral lending and surveillance. *Journal of International Economics*, 79, 126-136.

Hagen, R. (2012). Certified or branded? A game-theoretic analysis of the IMF's policy support instrument. *Review of International Organizations*, 7, 203-230.

Hansen, H., & Tarp, F. (2001). Aid and growth regressions. *Journal of Development Economics*, 64, 547-570.

IMF (2012a). *Poverty Reduction Strategy Papers (PRSP)*. Retrieved August 30, 2012, from <http://www.imf.org/external/np/prsp/prsp.aspx>

IMF (2012b). *IMF Lending Arrangements*. Retrieved November 14, 2012, from <http://www.imf.org/external/np/fin/tad/extarr1.aspx>

IMF (2012c). *IMF Conditionality*. Retrieved November 14, 2012, from <http://www.imf.org/external/np/exr/facts/conditio.htm>

Kaufmann, D., Kraay, A. & Mastruzzi, M. (2010). *The worldwide governance indicators. Methodology and analytical issues* (World Bank Policy Research Working Paper No. 5430).

Knack, S. (2004). Does foreign aid promote democracy? *International Studies Quarterly*, 48, 251-266.

Koeberle, S., & Stavreski, Z. (2006). Budget support: Concept and issues. In S. Koeberle, Z. Stavreski, and J. Walliser (eds.) *Budget support as more effective aid? Recent experiences and emerging lessons* (pp. 3-23). Washington, D.C.: The World Bank.

Lombardi, D., & Woods, M. (2008). The politics of influence: An analysis of IMF surveillance. *Review of International Political Economy*, 15, 711-739.

Moss, T., Pettersson, G., & van de Walle, N. (2006). *An aid-institutions paradox? A review essay on aid dependency and state building in Sub-Saharan Africa* (Center for Global Development Working Paper No. 74).

McGillivray, M., & White, H. (1993). *Explanatory studies of aid allocation among developing countries: A critical survey* (ISS Working Paper Series No. 148).

Neumayer (2003). Do human rights matter in bilateral aid allocation? A quantitative analysis of 21 donor countries. *Social Science Quarterly*, 84, 650-666.

OECD (2005,2008). *The Paris Declaration on Aid Effectiveness and the Accra Agenda for Action*. Retrieved May 15, 2012, from www.oecd.org/dataoecd/11/41/34428351.pdf

OECD (2010). SITC Revision 3. *International Trade by Commodity Statistics* [database]. doi: [10.1787/data-00054-en](https://doi.org/10.1787/data-00054-en)

OECD (2012). *Creditor Reporting System* [database]. Retrieved March 29, 2012, from <http://stats.oecd.org/Index.aspx?datasetcode=CRS1>

Ôhler, H., Nunnenkamp, P., & Dreher, A. (2012). Does conditionality work: A test for an innovative US aid scheme. *European Economic Review*, 56, 138-153.

Outtara, B., & Strobl, E. (2008). Aid, policy and growth: Does aid modality matter? *Review of World Economics*, 144, 347-365.

The PRS Group (2011). *International Country Risk Guide (ICRG)*. Retrieved July 7, 2011, from <http://www.prsgroup.com/Default.aspx>

The PRS Group (2012). *International Country Risk Guide (ICRG)*. Retrieved November 2, 2012, from <http://www.prsgroup.com/Default.aspx>

Radelet, S. (2004). *Aid effectiveness and the millennium development goals* (Center for Global Development Working Paper No. 39).

Rajan, R. G., & Subramanian, A. (2007). Does aid affect governance? *American Economic Review*, 97, 322-327.

Rajan, R. G., & Subramanian, A. (2008). Aid and growth: What does the cross-country evidence really show? *The Review of Economics and Statistics*, 90, 643-665.

Rodrik, D. (1995). *Why is there multilateral lending?* (NBER Working Paper Series No. 5160).

Roodman, D. (2007). The anarchy of numbers: Aid, development and cross-country empirics. *The World Bank Economic Review*, 21, 255-277.

Transparency International (2011). *CPI 2011*. Retrieved August 31, 2012, from <http://cpi.transparency.org/cpi2011/results/>

Thiele, R., Nunnenkamp, P., & Dreher, A. (2007). Do donors target aid in line with the millennium development goals? A sector perspective of aid allocation. *Review of World Economics*, 143, 596-630.

Williams, A., & Siddique, A. (2008). The use (and abuse) of governance indicators in economics: A review. *Economics of Governance*, 9, 131-175.

World Bank (2012a). *World Governance Indicators*. Retrieved March 29, 2012, from <http://info.worldbank.org/governance/wgi/index.asp>

World Bank (2012b). *World Development Indicators*. Retrieved March 29, 2012, from <http://data.worldbank.org/indicator>

Appendix

Table A.1. List of recipient countries

Albania	<i>Cuba</i>	Laos	Rwanda
Algeria	Djibouti	Lebanon	<i>Saudi Arabia</i>
Angola	<i>Dominican Republic</i>	Lesotho	Senegal
Argentina	Ecuador	Liberia	Serbia
Armenia	Egypt	<i>Libya</i>	Sierra Leone
<i>Azerbaijan</i>	El Salvador	Macedonia, FYR	<i>Slovenia</i>
<i>Bahrain</i>	<i>Equatorial Guinea</i>	Madagascar	Solomon Islands
Bangladesh	Eritrea	Malawi	South Africa
<i>Belarus</i>	Ethiopia	<i>Malaysia</i>	Sri Lanka
Benin	<i>Fiji</i>	Mali	Sudan
Bhutan	Gabon	Mauritania	Swaziland
Bolivia	Gambia	Mauritius	<i>Syria</i>
<i>Botswana</i>	Georgia	<i>Mexico</i>	Tajikistan
Brazil	Ghana	Moldova	Tanzania
Burkina Faso	Guatemala	Mongolia	Thailand
Burundi	Guinea	Montenegro	Togo
Cambodia	Guinea-Bissau	Morocco	Tunisia
Cameroon	Guyana	Mozambique	Turkey
Central African Rep.	Haiti	Namibia	<i>Turkmenistan</i>
Chad	Honduras	Nepal	Uganda
Chile	India	Nicaragua	<i>Ukraine</i>
China	Indonesia	Niger	Uruguay
Colombia	<i>Iran</i>	<i>Oman</i>	Uzbekistan
Comoros	Jamaica	Pakistan	<i>Venezuela</i>
Congo, Dem. Rep.	Jordan	Panama	Vietnam
Congo, Rep.	Kazakhstan	Papua New Guinea	Yemen
<i>Costa Rica</i>	Kenya	Paraguay	Zambia
Cote d'Ivoire	<i>Korea</i>	Peru	Zimbabwe
<i>Croatia</i>	Kyrgyz Republic	Philippines	

Bold: Drops out of the sample when using the preferred model specification.

Italic: Never received GBS in the period 1995-2009.

Table A.2. Variables included in the baseline model

Group	Variable ⁹⁴	Description	Source
Dependent variable	GBS	A binary variable equal to 1 when GBS > 0, zero otherwise. Missing if total commitments are equal to zero. Dyadic variable.	OECD (2012)
Quality of governance	GE	Government effectiveness, ranging from -2.5 (low government effectiveness) to 2.5, recipient country.	World Bank (2012a)
Commitment to development	Health spending	Public spending on health (% of total expenditures), recipient country.	World Bank (2012b)
Aid dependency	Aid dependency	Net total ODA in % of gross capital formation or GDP, recipient country.	World Bank (2012b)
Macroeconomic management	IMF	A binary variable equal to one for IMF lending arrangements (Extended Credit Facility, Standby Arrangement or Extended Fund Facility), recipient country.	IMF (2012b)
Donor-recipient relationship	Bilateral exports	Export from donor to recipient, % of exports from donor to the world. Dyadic variable.	OECD (2010)
	UNGA	Index for similarity in voting in the UN General Assembly ranging from -1 (least similar) to 1 (most similar), dyadic data.	Gartzke (2010)
	Colonial link	A dummy variable equal to 1 if the donor and recipient have ever had a colonial relationship. Dyadic variable.	CEPII (2010)
Additional controls	Population	The logarithm of total population, recipient country.	World Bank (2012b)
	Average income	The logarithm of GDP per capita, constant 2000 USD, recipient country.	World Bank (2012b)
	Regional dummies	Binary variables for countries located in Sub-Saharan Africa (SSA), South Asia (SA), East Asia & Pacific (EAP), Europe & Central Asia (ECA), Latin America & Caribbean (LAC), and Middle East & North Africa (MENA), recipient country.	World Bank (2012b)

⁹⁴ All variables from the World Bank are accessed using the World Bank Open Data in Stata (Azevedo, 2011).

Table A.3. Alternative variables for governance and commitment to development⁹⁵

Group	Variable	Description	Source
Quality of governance	Voice and accountability (VA)	Index, -2.5 – 2.5.	World Bank (2012a)
	Political stability and absence of violence (PV)	Index, -2.5 – 2.5.	World Bank (2012a)
	Regulatory quality (RQ)	Index, -2.5 – 2.5.	World Bank (2012a)
	Rule of law (RL)	Index, -2.5 – 2.5.	World Bank (2012a)
	Control of corruption (CC)	Index, -2.5 – 2.5.	World Bank (2012a)
	Corruption Perception Index (CPI)	Index, 0 – 10.	Transparency International (2011)
	Political risk (PR)	Index, 0 – 100.	PRS Group (2011)
	Corruption (COR)	Index, 0 – 5.	PRS Group (2011)
	State Fragility Index (SFI)	Index, 0 – 25.	Center for Systemic Peace (2011b)
	Polity IV	Index, -10 – 10.	Center for Systemic Peace (2011b)
Commitment to development	IPRSP/PRSP	Binary variable equal to one for either an IPRSP or a PRSP.	IMF (2012a)
	Health spending, % of GDP	Public spending on health, % of GDP.	World Bank (2012b)
	Education spending, % of GDP	Public spending on education (% GDP).	World Bank (2012b)
	Sum of spending in health and edu., % of GDP	Sum of public spending in health and education (% of GDP).	World Bank (2012b)
	Mortality	Mortality rate, under 5 years (per 1,000).	World Bank (2012b)

⁹⁵ All variables from the World Bank are accessed using the World Bank Open Data in Stata (Azevedo, 2011).

Table A.4. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
GBS	775	27.04	70.13	0.00	1028.55
GBS dummy	9303	0.08	0.28	0	1
GE	9292	-0.49	0.59	-2.15	1.28
Health spending	9254	9.90	4.08	0	27.11
Aid dependency	9072	40.43	67.54	-0.48	609.59
IMF	9303	0.60	0.49	0	1
Bilateral exports	9171	0.15	0.66	0.00	22.53
UNGA	9135	0.41	0.27	-0.80	0.99
Colonial link	9182	0.05	0.22	0	1
Population	9303	16.27	1.50	12.81	21.00
Average income	9298	6.78	1.14	4.37	9.59
SSA	9303	0.39	0.49	0	1
LAC	9303	0.20	0.40	0	1
ECA	9303	0.20	0.40	0	1
MENA	9303	0.10	0.30	0	1
EAP	9303	0.11	0.32	0	1
VA	9303	-0.52	0.72	-2.13	1.32
PV	9299	-0.55	0.80	-2.83	1.23
RQ	9296	-0.45	0.65	-2.26	1.64
RL	9292	-0.59	0.61	-2.21	1.26
CC	9296	-0.52	0.57	-2.06	1.45
CPI	7038	3.08	1.09	0.97	7.47
COR	7294	2.32	0.83	0	5
PR	7294	61.57	9.26	28.36	80.71
SFI	9254	12.57	5.24	1	25
Polity IV	9207	2.15	5.90	-10	10
Mortality	9303	76.21	56.78	5	262.7
Health spending, % of GDP	9254	2.70	1.42	0	10.47
Education spending, % of GDP	6799	4.13	1.95	0.59	13.97
Sum of spending in health and edu., % of GDP	6799	6.85	2.91	1.75	23.48
IPRSP/PRSP	9303	0.54	0.50	0	1

Table A.5. Correlation matrix

	GE	Health spending	Aid dep.	IMF	Bil. exp.	UNGA	Col. link	Population	Avg. income	SSA	LAC	ECA	MENA
Health spending	0.21												
Aid dep.	-0.42	0.00											
IMF	-0.21	0.10	0.23										
Bilateral exports	0.18	-0.01	-0.12	-0.12									
UNGA	0.12	0.11	-0.08	0.11	-0.04								
Colonial link	0.00	0.00	0.02	-0.01	0.04	-0.05							
Population	0.11	-0.17	-0.21	-0.05	0.31	-0.07	-0.03						
Avg. income	0.62	0.21	-0.59	-0.36	0.16	0.14	0.00	-0.03					
SSA	-0.30	-0.12	0.43	0.15	-0.14	-0.16	0.04	-0.19	-0.53				
LAC	0.17	0.43	-0.21	0.02	0.00	0.07	0.01	0.00	0.45	-0.41			
ECA	0.01	-0.13	-0.15	0.11	0.00	0.24	-0.07	0.04	-0.02	-0.39	-0.25		
MENA	0.10	-0.10	-0.14	-0.27	0.02	-0.10	0.00	0.02	0.26	-0.25	-0.17	-0.16	
EAP	0.14	-0.11	-0.08	-0.14	0.20	-0.04	0.00	0.22	0.02	-0.29	-0.19	-0.18	-0.12

N = 8841

Table A.6. Correlation matrix for governance indicators

	GE	VA	PV	RQ	RL	CC	CPI	COR	PR	SFI
VA	0.60									
PV	0.50	0.43								
RQ	0.85	0.69	0.47							
RL	0.86	0.58	0.61	0.80						
CC	0.85	0.60	0.60	0.76	0.86					
CPI	0.82	0.52	0.56	0.73	0.81	0.92				
COR	0.49	0.44	0.37	0.52	0.53	0.61	0.54			
PR	0.73	0.54	0.79	0.72	0.73	0.71	0.68	0.51		
SFI	0.67	0.51	0.62	0.62	0.59	0.61	0.61	0.31	0.70	
Polity IV	0.32	0.83	0.14	0.45	0.26	0.30	0.24	0.23	0.21	0.32

N = 6013

Chapter 4

**Lending to developing countries:
How do official creditors respond to defaults?**

Lending to developing countries: How do official creditors respond to sovereign defaults?*

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Abstract

How is lending to developing countries from bilateral and multilateral creditors affected by sovereign defaults? The existing empirical literature on reputational costs of defaults focuses on lending from private creditors. Many developing countries, however, mostly rely on grants and loans from official creditors as they are often excluded from international capital markets. Using a panel dataset covering 118 developing countries in the period from 1972 to 2011, we estimate the effect of sovereign defaults on disbursements of concessional and non-concessional loans from official creditors. Following a default, we find that concessional lending from bilateral and multilateral creditors is reduced. For non-concessional lending, the results depend on the measure of defaults and model specification. Thus, the reputational costs of default are not only caused by exclusion from commercial capital markets but also are present when looking at official lending.

Keywords: bilateral lending, multilateral lending, reputational costs of default

JEL classification: F34; F35; H63

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1. Introduction

Capital inflows can be used to insure against income shocks, and to overcome shortages of domestic savings and foreign exchange. Developing countries can attract foreign capital from official sources in the form of bilateral or multilateral flows and from private capital sources. Bilateral capital flows include loans and grants from governments or official export credit agencies, while multilateral flows mostly refer to loans and grants from International Financial Institutions (IFIs). Private capital flows include bank lending, bonds, portfolios, foreign direct investment (FDI) and remittances.

The literature on sovereign debt normally focuses on lending from private creditors. The empirical literature on exclusion as a cost of default is restricted to exclusion from private capital markets following defaults on outstanding debt with private creditors. However, many developing countries rely on official creditors as a source for capital. Thus, we contribute to the literature on sovereign debt and the cost of default by estimating the effect of defaults on lending from bilateral and multilateral creditors. We test the effect of defaults proxied by arrears on principal and interest with both private and official creditors, controlling for access to capital from private creditors and grants. Thus, we include data on lending from both private and official creditors in our dataset, and distinguish between concessional and non-concessional lending, and bilateral and multilateral creditors. In that way, we provide an insight into the dynamics between private and official lending. This contributes to improving our understanding of the sovereign debt market as a whole.

The data used in the analysis cover 118 low- and middle-income countries in the period from 1972 to 2011.⁹⁹ We estimate the effect of arrears on lending controlling for a large number of relevant variables, as well as country and time fixed effects. The

⁹⁹ The classification of countries by income group is made using the thresholds for average income in 2011 USD used by the World Bank: Low-income countries: < 1026 USD and lower middle-income countries: 1026 – 4035 USD. We refer to lower middle-income countries as middle-income countries for simplicity. The classification is based on data on GDP per capita in constant 2011 USD from the World Bank. Thus, countries can drop out of the sample or move from one income group to another over time.

results show that concessional and bilateral non-concessional lending is reduced when a debtor country defaults on its sovereign debt. The negative effect is robust and indicates that a debtor country in default cannot simply turn to bilateral and multilateral creditors for new loans. We also find some support for a negative effect of defaults on non-concessional lending, but the results are not robust to changes in the model specification and measure of default.

The paper is set out as follows: An overview of the related literature is given in Section 2, and descriptive statistics for lending to developing countries during the last four decades is presented in Section 3. In Section 4, we discuss the data and methodology used in the analysis. The main results are provided in Section 5, together with a discussion of the robustness of the results. Some concluding remarks are provided in the final section.

2. Literature overview

2.1. The cost of default

In the market for sovereign debt, creditors have few legal rights. In contrast, if a domestic firm becomes bankrupt, creditors have a definite right to the company's assets. Those legal rights are necessary for the private debt to exist. So why do foreign creditors lend to sovereigns in the absence of legal rights? There is a broad consensus in the economic literature that there need to be some costs following a default to make sovereign debt possible. There is much less consensus on what the costs of default actually are, and also on what their scope is (Borensztein and Panizza, 2009).

Traditionally, the literature has focused on direct sanctions¹⁰⁰ and reputational costs,

¹⁰⁰ Direct sanctions are usually understood as interference with a country's current transactions, either through seizure of foreign assets or denial of trade credit. See for instance Bulow and Rogoff (1989), Fernandez and Rosenthal (1990), and Sachs and Cohen (1982). Panizza et al. (2009) argue that the legal protection of sovereign assets in foreign jurisdiction has weakened over time.

but lately more attention has been paid to the costs of default for the domestic economy.¹⁰¹

Reputational costs imply that governments repay their loans because they are worried that they will be excluded from the capital market if they default, as this would prevent them from smoothing consumption across time and possibly lead to the loss of valuable investment opportunities (Eaton and Gersovitz, 1981; Cole and Kehoe, 1998; Eaton, 1996; Kletzer and Wright, 2000). Here, we focus on reputational costs in the sense that sovereign defaults reduce access to loans in the future.

The empirical results on the duration of market exclusions vary depending on the data, time period and methodology applied. Gelos et al. (2011) and Panizza et al. (2009) conclude that a default is easily forgiven, while Richmond and Dias (2009) and Cruces and Trebesch (2013) find that the defaulting countries are excluded for a relatively long period. Richmond and Dias (2009) find that it takes, on average, 5.7 years to regain partial market access, and 8.4 years to regain full market access in the period from 1980 to 2005, where partial access is defined as the first year in which there are positive net private creditor debt transfers to the public or private sector, and full market access as the first year of positive net private creditor debt transfers to the private or public sector greater than 1.5% of GDP. Gelos et al. (2011) show that, while countries were excluded from the market after settling the debt for an average of 4 years in the 1980s, the duration of exclusion decreased to 2 years in the 1990s.

While Gelos et al. (2011) use a binary variable to indicate a default, Cruces and Trebesch (2013) exploit a comprehensive dataset on creditor losses or haircuts. In their study, higher creditor losses are associated with longer periods of market exclusion, which is more consistent with the theory on reputational costs. By using a binary default variable instead of a continuous one, the large variation in restructuring

¹⁰¹ The idea is that default causes broad “collateral damage” on the debtor country’s government or its economy. See for instance Cole and Kehoe (1998), Catão and Kapur (2006), Kapur et al. (2007), and Sandleris (2008).

outcomes is ignored.¹⁰² However, Richmond and Dias (2009) do not find a significant effect of haircuts on the length of exclusion after a default.¹⁰³

2.2. Official lending

An alternative to loans from private creditors in the international credit market as a source for capital inflows are loans and grants from official creditors (either governments or IFIs). Lending from official creditors differs from private lending in several aspects, including the objectives of the creditors when providing loans to sovereigns. Concessional loans are more generous than market loans, with lower interest rates, relatively long grace periods, or a combination of the two. Non-concessional lending refers to loans or export credits with market interest rates.

The literature on lending from official creditors is usually restricted to the allocation of official development assistance (ODA).¹⁰⁴ ODA is defined by the Development Assistance Committee (DAC) as official flows to countries on the DAC list of recipients with a grant element of 25% or more, where the objective is to promote economic development and welfare in the recipient countries. There is a vast amount of literature analyzing the determinants of the sum of concessional loans and grants defined as ODA, but non-concessional lending and loans from private creditors are usually not included in the analyses. Capital flows from governments or IFIs that do not fulfill the criteria for ODA are referred to as other official flows (OOF).

To our knowledge, there are no empirical studies looking at how official non-concessional and concessional lending to developing countries is affected by debt

¹⁰² Creditors can also penalize defaulting countries through higher future borrowing costs, but the results from the empirical literature are mixed. See for instance Özler (1993), Borensztein and Panizza (2009), and Cruces and Trebesch (2013).

¹⁰³ It has been argued that whether or not a default leads to exclusion differs between excusable and inexcusable defaults (Grossman and van Huyck, 1988). The former is defaults that are justified since they are contingent on the state of the world, and because these defaults are consistent with the lenders' expectations, they will not lead to exclusion from private capital markets. This is supported by Richmond and Dias (2009), who find that countries defaulting after a natural disaster experience a significantly shorter period of exclusion from private capital markets.

¹⁰⁴ Looking at the allocation of bilateral ODA from the member countries of the Development Assistance Committee (DAC), the largest donors (such as the US, Japan, and France) drive the main empirical results on the allocation, showing that donors favor trade partners, former colonies, and political allies (Alesina and Dollar, 2000; Berthélemy, 2006a), while smaller donors such as the Nordic countries to a larger extent emphasize recipient needs (Gates and Hoeffler, 2004). On average, Berthélemy (2006b) finds that multilateral ODA is more responsive to recipient needs than bilateral ODA, and Dollar and Levin (2006) show that multilateral organizations to a larger extent reward democracy and better rule of law than bilateral donors.

restructurings and defaults. There are, however, a few papers that are relevant for our analysis. Brandt and Jorra (2012) test how aid is related to debt restructuring through the Paris Club and find that defaults on average increase aid by 6.4%.¹⁰⁵ However, they do not look at non-concessional lending from official creditors or the effect of defaults in the private capital market. Rodrik (1995) provides some empirical results on the determinants of net bilateral transfers and net multilateral transfers, both measured in percent of GDP.¹⁰⁶ The results are in line with the literature on aid allocations, showing that bilateral and multilateral creditors differ with respect to the importance of political considerations in the allocation of financial flows. Evrensel (2004) analyzes the determinants of both official and private capital flows to developing countries. She finds that the low-income countries' access to private capital markets has been substantially reduced in favor of official lending during the post-debt crisis period (1989-1998). Bonds, portfolios, and FDI flows have replaced the decline in commercial bank lending in middle-income countries. Neither Rodrik (1995) nor Evrensel (2004) look at the effects of defaults on official lending.

In the case of defensive lending, creditors would provide new loans when the debt ratio and/or debt service of the debtor country increase, so that the debtor country is able to avoid default. If that were the case, one would observe an increase in lending as debt ratios and the debt service increase. However, Marchesi and Missale (2012) show that bilateral and multilateral creditors reduce their loans as the debt they hold increases. Thus, they do not find support for defensive lending among official creditors, but they do find evidence of defensive granting, indicating that grants are substituted for loans when debt increases. Geginat and Kraay (2012) analyze whether the International Development Association (IDA) engages in defensive lending, and conclude that new disbursements of loans are not provided simply for the debtor country to repay existing loans.

¹⁰⁵ The Paris Club is an informal group of official creditors whose role is to find coordinated and sustainable solutions to the payment difficulties experienced by debtor countries. The measure of aid used in their analysis is gross ODA minus debt forgiveness grants and rescheduled debt.

¹⁰⁶ Rodrik includes both grants, concessional and non-concessional lending from bilateral or multilateral creditors in the dependent variable.

2.3. Multilateral lending

Rodrik (1995) argues that multilateral creditors have two main advantages compared to bilateral and private lenders. First, assuming that multilateral development banks are independent, they will be less politicized and so be better suited to exercise policy conditionality in a borrowing country. In a discussion on loans versus grants, Bulow and Rogoff (2005) emphasize that the superior enforcement technology of multilaterals is outweighed by the risk of debt crisis, as it would lead to more lending and moral hazards for the government in the borrowing country.¹⁰⁷ Second, IFIs have access to substantial information on developing countries that can be beneficial for investors undertaking new investments in these countries. As stated by Hagen (2009), “multilaterals are better posed to monitor borrowers due to privileged access to information from their members” (p.127).

Based on the arguments for multilateral lending presented above, a commonly held view, although controversial, is that multilateral lending works as a catalyst for private lending. The role of the International Monetary Fund (IMF), especially, has received a lot of attention in the literature on the possibly catalytic effect of multilateral lending. Conditionality signals policy reforms aimed at improving economic performance, and as multilaterals have better access to information, they can act as a gatekeeper, certifying more creditworthy borrowers, thus alleviating the problem with adverse selection (Hagen, 2009). Focusing on the role of the IMF, Hagen (2009) shows that signaling good policies through certification only improves the global allocation of investment if the interests of private lenders are given more weight than the welfare in the country.

One can also argue that the IFI programs send out pessimistic signals about upcoming economic performance. Bird and Rowlands (1997) contend that there could be a negative effect of multilateral lending on other capital flows if countries only turn to the IFIs when the country is in economic distress. In such a case official lenders may

¹⁰⁷ They also argue that multilateral institutions have internal pressure to push out loans, persuading politically fragile developing countries to take on unwanted debt. Countries with weak institutions are likely to be serial defaulters and one should be careful in using external enforcement to expand the borrowing capacity of these countries.

react positively to a commitment made by the borrowing country, while private lenders react to actual results in macroeconomic indicators. Even though financing from the IMF is supposed to be short-term, for poorer countries the involvement has been more or less continuous (Hagen, 2012). This observation suggests that an IMF program probably signals needs more than good policies.

The empirical literature on the catalytic effect of IMF lending is mixed. Hagen (2009) summarizes the empirical literature on IMF programs and states that it shows a neutral effect on the whole, a negative effect on private flows, and a positive effect on official flows. Bauer et al. (2012) argue that the catalytic effect depends on the countries' domestic institutions. They argue that democracies are able to commit to implementation of new policies, and show that IMF agreements have a positive effect on FDI inflows for democracies, while the effect is negative for autocracies.

Another aspect is creditor seniority. According to Eichengreen (2003), IMF loans are typically repaid, and examples of arrears on IMF loans are the exception to the rule. Saravia (2010) confirms this observation, arguing that "countries have shown a higher aversion to default on IMF loans than on loans from private creditors" (p.1025). The seniority clause has been criticized because it could reduce the incentives of private lenders to provide loans to countries with IMF programs. A senior official loan would also increase the interest rate on new private loans that are made in the same environment (Chamley and Pinto, 2012). Since loans from the IMF are more likely to be repaid than others, the costs of loans are lower, and it is assumed that this allows the IMF to provide loans to countries in financial distress when other creditors are not willing to do so (Saravia, 2010).

3. Lending to developing countries

In this section, we briefly present some descriptive statistics for disbursements of loans and net transfers (NTR) from official and private creditors to developing countries. Disbursements are drawings made by the debtor country on loans committed. NTR are disbursements minus principal and interest repayments, and thus capture the real

resources transferred to the borrowing country.¹⁰⁸ The sample includes data on 118 low- and middle-income countries for the period from 1972 to 2011. A list of the countries is provided in the appendix. Due to missing observations for some of the variables and because some countries drop out of the sample if GNI per capita exceeds 4035 USD, the dataset is unbalanced. In addition to illustrating the development in lending over time for the full sample, we separate low- and middle-income countries to highlight some differences between the two income groups.

Developing countries are often grouped in debtor “clubs” based on various characteristics, including different indicators for creditworthiness (Reinhart et al., 2003) and their frequency of market access (Gelos et al., 2011).¹⁰⁹ Low-income countries usually rely on grants and concessional loans, while middle-income countries receive non-concessional loans from official creditors and have periodic access to the international credit market. Thus, many countries receiving loans from official creditors are often excluded by private creditors.

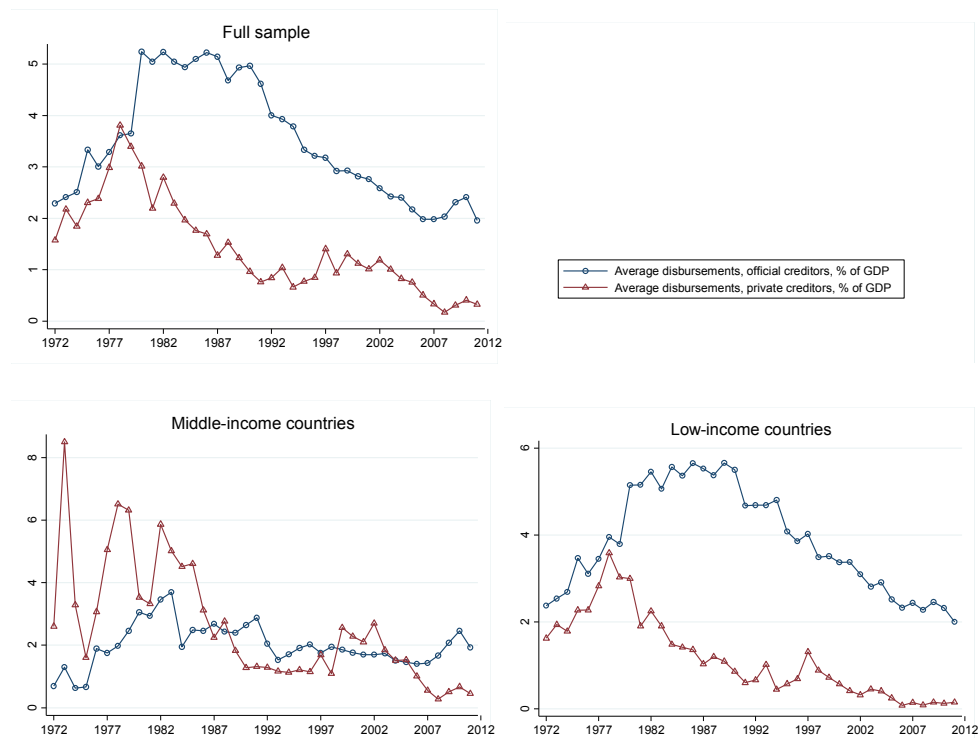
Figure 1 provides graphs of the average disbursements to low- and middle-income countries from private and official creditors, as measured in percent of GDP. Official lending is the main source for international lending for low-income countries, clearly exceeding lending from private creditors, especially since the late 1970s. The relative sizes of disbursements from private and official creditors to low-income countries are not surprising given that they are often excluded from the private capital market. It is also possible that low-income countries prefer concessional loans from official creditors over loans from private creditors because of the lower costs of borrowing. However, there are often conditions attached to concessional loans, so countries with alternative sources for capital might still prefer either non-concessional loans or capital from private creditors.

¹⁰⁸ See Eaton (1992) for an introduction to accounting of sovereign debt.

¹⁰⁹ Reinhart et al. (2003) classify three different debtor “clubs” depending on their access to private capital. While one group of countries usually has no access to capital markets and is dependent on grants and concessional official loans, other countries tend to have access to capital even during recessions and crisis. In the third debtor club, there are large variations between the countries, and access to capital is volatile and depends on different external and internal factors. Also see Gelos et al. (2011) for a discussion on different debtor “clubs.”

For middle-income countries, there is a much larger volatility in disbursements from private creditors. The trend is, however, downward sloping from around 1980, just as for low-income countries. While disbursements from private creditors exceeded those from official creditors in the 1970s, this has changed over time. With the debt crisis in the 1980s, disbursements, especially from private creditors, were reduced.

Figure 1 – Disbursements from private and official creditors

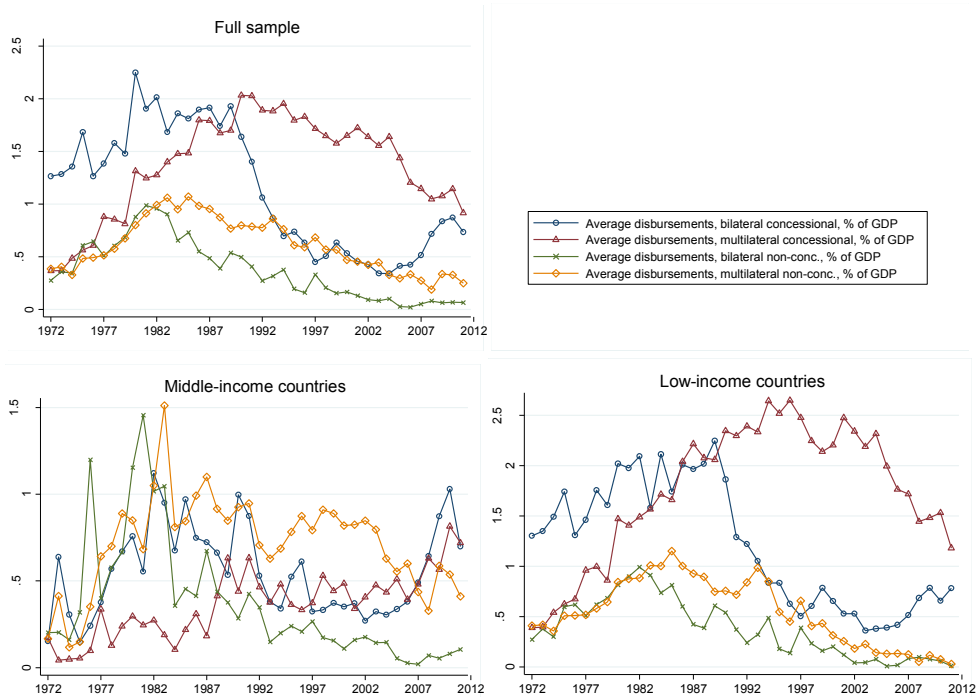


Source: Authors' calculations based on data from the World Bank.

In Figure 2, we separate total official lending into concessional and non-concessional, bilateral, and multilateral lending. For concessional lending to low-income countries, the importance of multilateral lending increased substantially from the 1970s to the mid-1990s. It appears that the fall in lending from private and bilateral creditors in the 1980s has been offset by an increasing involvement of multilateral lending. By the end of the Cold War, disbursements from multilateral organizations surpassed disbursements from bilateral creditors. A similar trend is also observed for non-

concessional lending, but the difference between multilateral and bilateral lending is smaller.

Figure 2 – Disbursements from official creditors



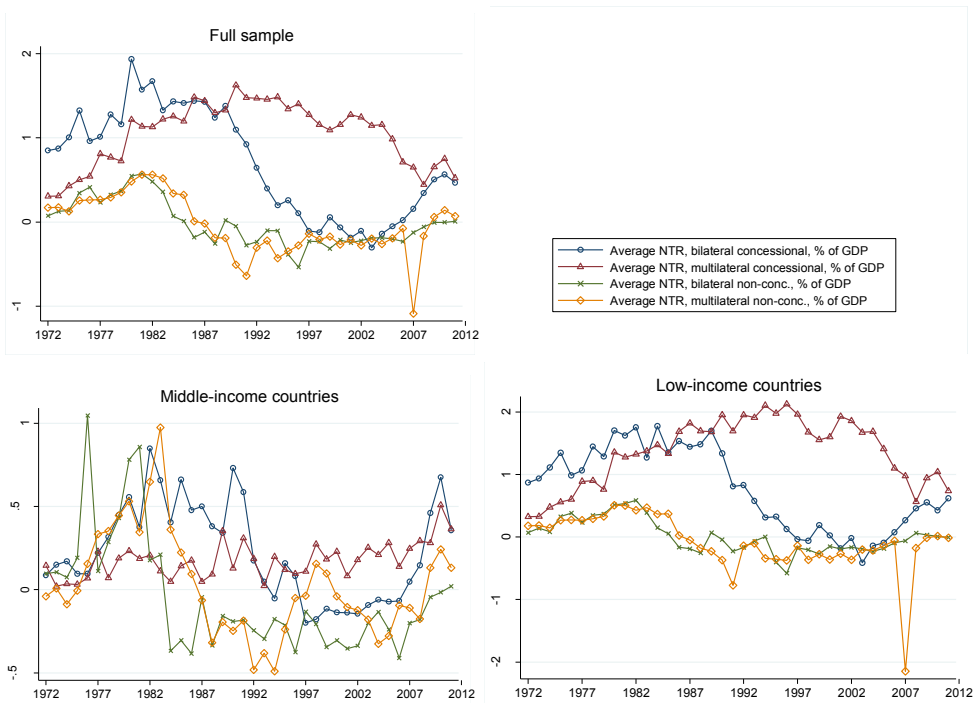
Source: Authors' calculations based on data from the World Bank.

Net transfers from official creditors are graphed in Figure 3. The development in NTR is influenced both by changes in disbursements and repayments of principal and interest. The drop in net transfers for the full sample and low-income countries in 2007 is due to one extreme observation for multilateral net transfers to Liberia. Excluding this observation from the sample, average net transfers from official creditors are higher than NTR from private creditors throughout the period from 1972 to 2011.

For concessional lending, bilateral NTR are reduced substantially in the post-Cold War period, while multilateral net transfers are only modestly decreasing. At the end of the time period observed, bilateral and multilateral concessional NTR converge, as bilateral NTR have increased after the beginning of the 2000s.

Splitting the sample by income groups, the picture looks different. NTR of non-concessional lending are lower on average than for concessional lending and are often negative for both income groups. However, the difference between non-concessional and concessional NTR is larger for low-income countries. In addition, non-concessional net transfers are frequently higher than concessional NTR for middle-income countries. This is as expected, and could be explained by the same logic as the difference in official and private lending observed in Figure 1. Low-income countries are perhaps more dependent on concessional lending (and grants) for the simple reason that they are poorer. Thus, they may prefer concessional lending despite the conditions that normally follow this type of lending, because non-concessional loans have higher interest rates and/or shorter grace periods. They may also be excluded from non-concessional loans because they are less creditworthy.

Figure 3 – Net transfers from official creditors



Source: Authors' calculations based on data from the World Bank.

4 Empirical analysis

4.1. Hypotheses

The purpose of the empirical analysis is to investigate how official creditors respond to sovereign defaults. In addition to reduced access to loans from private creditors, a default may affect capital flows from official creditors, and thus the costs of default. Concessional loans with low interest rates and/or relatively long grace periods are targeted to low-income countries, while non-concessional loans are offered at market terms or near-market terms to more creditworthy countries. Due to the objectives behind concessional loans, we expect no effect of sovereign defaults on concessional loans (or maybe even a positive effect) and a negative effect on non-concessional loans. Thus, the hypotheses tested are:

H_1 : *Net transfers of concessional loans from official creditors are not affected by defaulting on sovereign debt, and:*

H_2 : *Net transfers of non-concessional loans from official creditors are negatively dependent on sovereign defaults.*

To test our hypotheses we estimate the model given in Equation 1:

$$L_{it} = \alpha Arr_{it} + \beta' X_{it} + \lambda_t + \eta_i + u_{it}, \quad (1)$$

where the dependent variable L_{it} represent disbursements to country i at time t measured in percent of GDP. The main independent variable in the model is the sum of arrears on interest and principal measured in percent of external debt.¹¹⁰ X_{it} is a vector of control variables, λ_t indicates time fixed effects, η_i are the country fixed effects, and u_{it} represents the error terms.¹¹¹

We test the model using data disaggregated by creditor groups (multilateral or bilateral) and the type of loan (concessional or non-concessional). Thus, we allow for

¹¹⁰ Arrears in percent of external debt are used to measure defaults as it captures both being in default and the size of the default relative to the debt stock. As a robustness test we also use arrears in percent of GDP.

¹¹¹ The variables included in the main model specification and their sources are listed in the Appendix.

the effect on lending from bilateral and multilateral creditors to differ. If multilateral creditors have seniority, the negative effect on lending from bilateral creditors may be stronger compared to the effect for multilateral creditors, on average.

4.2. Data

The main data source is the World Bank database World Development Indicators (WDI), but we also include data from other sources for some of the control variables.¹¹² Based on the annual data, we construct a panel data set with eight five-year periods used in the analysis. Averaging data across periods we reduce possible problems related to measurement errors and noise in the data.¹¹³ Due to missing observations, and because some countries are only included in the sample when they are classified as either low- or middle-income countries, the dataset is unbalanced.

From the literature on defaults and exclusion by private creditors we know that the duration of exclusion varies from around 2 to 8 years (Gelos et al., 2011; Richmond and Dias, 2009). Estimating Equation 1, we look at whether countries in default experience a change in disbursements of loans from official creditors, controlling for all other relevant variables. In order to say something about the timing of the effects, we also test the model lagging all independent variables one period using both annual data and averages across five year periods.

The dependent variable is lending from official creditors, including public and publicly guaranteed loans from international organizations (multilateral lending) and governments (bilateral lending).¹¹⁴ Using data on net transfers, we would avoid the possibility of the debtor countries rolling over their debt, as net transfers reflect the real resources transferred. An obvious problem when estimating the effect of arrears on official loans on the net transfers of loans from official creditors is that, once

¹¹² See Table A.1. in the Appendix for a complete list of variables and sources.

¹¹³ The main results are not sensitive to the length of time periods. Results using annual data are reported in the Appendix.

¹¹⁴ The data include both long-term and short-term debt. Multilateral loans include loans and credits from multilateral and intergovernmental agencies. Bilateral loans include loans from governments and their agencies, autonomous bodies and direct loans from official export credit agencies.

arrears are being accumulated, net transfers will increase by definition.¹¹⁵ Thus, we use data on disbursements measured in percent of GDP.

The main independent variable is sovereign defaults proxied by the stock of arrears on long-term debt measured in percent of total external debt.¹¹⁶ The data on arrears are available for debt to private creditors and official creditors separately and, as can be seen in Table 1, the two variables are highly correlated. When defaulting on commercial loans, it is very likely that a country defaults on official loans, and vice versa. The high correlation between arrears in the two markets for capital is also evident when looking at the development in arrears over time in Figure 4, which may indicate that countries do not default strategically. In order to avoid problems with multicollinearity, we therefore test the model using data on the sum of arrears to private and official creditors; but as a robustness test, we also include either arrears to private creditors or official creditors, one at a time.

Table 1 – Arrears

Full sample					
	N	Mean	SD	Min	Max
Arrears (% of external debt)	816	4.23	9.04	0	58.91
Arrears to official creditors (% of external debt)	816	3.64	7.47	0	58.93
Arrears to private creditors (% of external debt)	816	7.87	16.31	0	117.85
Arrears (% of GDP)	813	11.73	68.43	0	1437.79
Correlation (arrears to official creditors, arrears to private creditors)					0.95
Low-income countries					
	N	Mean	SD	Min	Max
Arrears (% of external debt)	510	9.72	18.13	0	117.85
Arrears to official creditors (% of external debt)	510	5.26	9.94	0	58.91
Arrears to private creditors (% of external debt)	510	4.46	8.33	0	58.93
Arrears (% of GDP)	527	16.17	84.15	0	1437.79
Correlation (arrears to official creditors, arrears to private creditors)					0.97

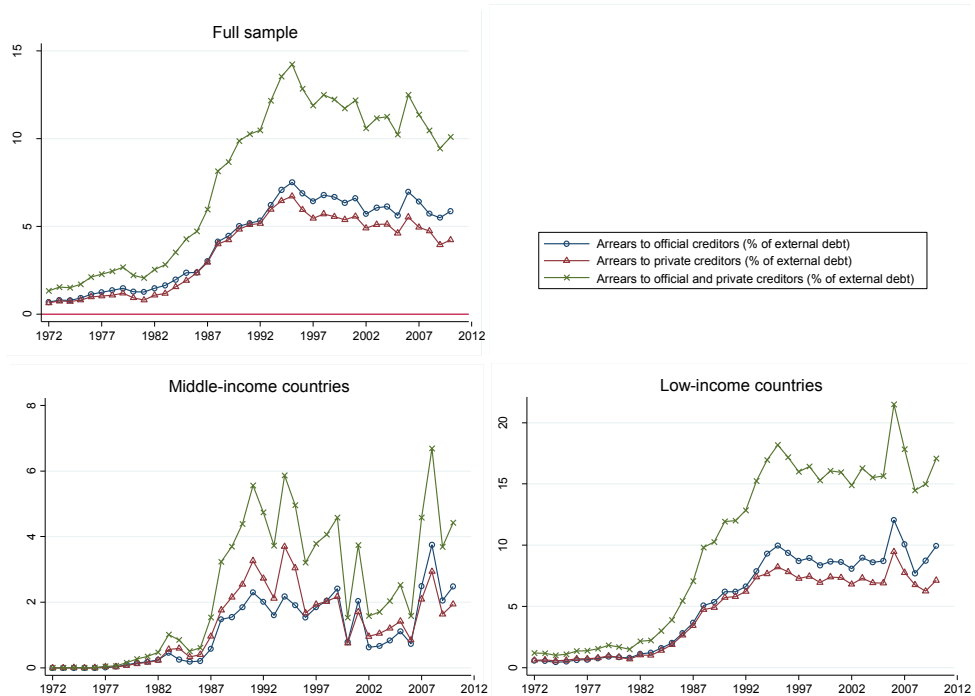
¹¹⁵ Net transfers are disbursements minus principal and interest repaid.

¹¹⁶ Benczur and Ilut (2009) also use arrears to identify defaults/repayment history, while Kraay and Nehru (2006) use arrears to identify debt distress.

Arrears are measured in percent of external debt. Thus, in addition to indicating a default, the variable also reflects the severity of the default relative to the size of the debt stocks. By using arrears, we avoid problems with timing, which is present in data on debt restructurings. As it may take several years to resolve a default (Benjamin and Wright, 2009), the effect of a default on lending is likely to occur prior to debt restructuring. Figure 4 presents a graph of the development of arrears in percent of external debt for the countries in our sample. As for lending, the development is somewhat different depending on whether we look at low- or middle-income countries. For the full sample, arrears reached a peak in 1995 and have slightly decreased since. The slight reduction in arrears has thus occurred after the Heavily Indebted Poor Countries (HIPC) Initiative started in 1996. This is not surprising, as one of the requirements to reach the decision point in the HIPC Initiative is clearance of arrears. For the HIPCs, both arrears and external debt will be reduced as a result of clearance of arrears followed by debt relief. Thus, if we look at the development in arrears measured in percent of GDP, the picture looks quite different with arrears in percent of GDP moving towards zero at the end of the period observed. The relatively stable development in arrears in percent of debt is simply a result of a considerable reduction in debt ratios in the same period. While the average external debt for the full sample was around 80% of GDP at the end of the 1990s, ten years later it is less than 40% of GDP. Thus, it seems as though decades of debt relief has both led to a decrease in the external debt ratio as well as arrears in percent of GDP, on average.

Of the 118 countries in our sample, only three (China, Lithuania, and Papua New Guinea) have no positive observations for arrears. Thus, even though there is a relatively large share of observations with no arrears, most of the countries have defaulted on principal and/or interest due at some point during the period from 1972 to 2011.

Figure 4 – Development in stock of arrears (% of external debt)



Source: Authors' calculations based on data from the World Bank.

4.3. Control variables

The control variables included in the model are mainly those found to be relevant for access to capital/creditworthiness in the literature on access to international capital markets and on aid allocation. First, we control for the average income in the debtor countries by including the logarithm of GDP per capita. The expected effect of average income on disbursements from official creditors is dependent on the type of loans analyzed. Concessional lending is assumed to be targeted toward low-income countries. Still, the poorest countries also receive more grants, which could reduce the negative effect of average income on concessional lending. Non-concessional lending is expected to be positively dependent on average income, as an increase in income is likely to have a positive effect on the creditworthiness of the countries. We also control for the size of the country by including the logarithm of population.

Further, we follow the literature on default and exclusion from private creditors and control for economic performance using macroeconomic variables expected to affect the size of disbursements to developing countries. The growth rate in GDP per capita controls for the fact that debtor countries are likely to repay in good times and borrow in bad times, given the assumption that lending is used for consumption smoothing.¹ External debt in percent of GDP (debt ratio) is included to control for the indebtedness of the debtor countries. In the case of defensive lending, one would expect to see a positive effect of debt ratios on lending.² We also control for the current account balance in percent of GDP. In addition to the average income, all three variables indicate whether the country is considered to be creditworthy.

In order to control for the political environment in the debtor countries, we use the Polity IV index for autocracy/democracy from the Center for Systemic Peace (2013), the International Country Risk Guide (ICRG) indicator for political risk provided by the PRS Group (2012), and an index for the similarity in voting patterns in the UN General Assembly (UNGA) between the debtor country and the US. The latter is an indicator for the similarity in voting patterns with the US in the UNGA from Gartzke (2010). From the aid allocation literature, we know that being a political ally is positively related to aid flows. The US is a major aid donor and has a strong influence on the policies in multilateral organizations like the IMF and the World Bank (McKeown, 2009). Finally, we include the degree of openness (trade in percent of GDP) to control for the dependence on access to international markets.³

In Sections 2 and 3, the change in international markets over time has been discussed. Different events, such as the debt crisis in the 1980s, the end of the Cold War, and the financial crisis starting in 2008, are likely to have significant effects on lending from official creditors. In order to deal with global events, we also include time fixed

¹ Contrary to the theoretical predictions, Panizza et al. (2009) find that private lending is pro-cyclical, while official lending is not significantly dependent on the output gap.

² The results in Marchesi and Missale (2012) show that loans from official donors do not increase when debt increases.

³ The robustness of the results to adding additional variables is discussed in Section 5.

effects. Country fixed effects control for country specific characteristics, such as colonial past, religion, and ethnic and geographical variables.

4.4. Methodology

We control for a large number of variables, as well as country and time fixed effects, and there should not be a problem of any omitted variables bias.⁴ However, we cannot conclude on the direction of causality of our results without addressing the possible endogeneity problem. Reduced access to capital (a reduction in new loans) may increase the risk of defaulting on loans, thus accumulating arrears. However, Bjørnskov and Schröder (2013) find that foreign aid reduces incentives to repay existing debt, suggesting that the effect of official (concessional) lending in fact has the opposite effect on arrears: an increase in (concessional) lending will lead to an increase in arrears.

An alternative to fixed effects estimation in the absence of valid external instruments is to use a GMM model with internal instruments (Holtz-Eakin et al., 1988; Arellano and Bond, 1991; Arellano and Bover, 1995; Blundell and Bond, 1998). Even though the GMM models are popular, the instruments are often weak, leading to biased estimates (Bazzi and Clemens, 2013; Bound et al., 1995), and the tests for validity are sensitive to the (often) high number of instruments (Roodman, 2009b). For the instruments to be valid, the exclusion restriction must hold. Thus, the instrument (e.g., the lagged differences in arrears) must not have a direct effect on lending, but only affect lending through the instrumented variable (arrears in levels lagged one period) controlling for the other variables in the model.⁵ From the literature on defaults and reputational costs in commercial international capital markets, we know that defaults can have a direct effect on lending for up to nine years after defaulting (Richmond and Dias, 2009). The probability of default is also closely related to past incidents of

⁴ An F-test confirms that there is unobserved heterogeneity, and fixed effects should be controlled for in order to obtain unbiased estimates.

⁵ It is assumed that “past changes in y (or other instrumenting variables) are uncorrelated with the current errors in levels, which include fixed effects” (Roodman, 2009b, p.138).

defaults (Reinhart et al., 2003). Thus, using the lagged differences as instruments, the lags used should be restricted to lags 2 and up.

Estimating the model using the system GMM estimator (Blundell and Bond, 1998), which is more efficient than the difference GMM (Arellano and Bond, 1991) and is less likely to suffer from weak instruments (Bun and Windmeijer, 2010; Bazzi and Clemens, 2013), the independent variables in levels are instrumented for using lagged differences.⁶ Thus, any country fixed effects are transformed away, and possible endogeneity is dealt with if the lagged differences are valid and strong instruments. The Windmeijer finite-sample correction in the two-step estimation is used to correct for the downward bias in the standard errors for small samples (Windmeijer, 2005). In order to restrict the number of instruments, we collapse the instrument matrix and restrict the lags for our two variables for default to lag 2 to 8.⁷ Thus, our identification relies on the assumption that defaults that occurred more than 10 years ago do not influence lending today, but having a history of default (even more than 10 years ago) does influence defaults today.

Overall, the results from the Hansen J-test fail to reject the null hypothesis that the instruments are valid, supporting our assumption that the exclusion restriction holds. However, following Bazzi and Clemens (2013), we test the strength of the instruments by running the model using 2SLS as a standard test for instrument strength, which is not available for the difference and system GMM models. The results of the Kleibergen-Paap LM test for underidentification, and Kleibergen-Paap Wald statistics show that the instruments are weak, and we therefore focus on the fixed effects results

⁶ Bun and Windmeijer (2010) confirm that the system GMM has a smaller bias than the difference GMM when series are persistent. However, they also show that when the variance of the country fixed effects increases relative to the variance of the error term, the bias in the system GMM increases.

⁷ As a general rule, Roodman (2009b) argues that the instrument count should at least be lower than the number of countries in the sample. In addition to making the Hansen J-test unreliable, a large number of instruments also lead to a bias. The cost of reducing the number of instruments by using laglimits or collapsing the instrument matrix is a loss of efficiency. In the presence of second-order autocorrelation, we restrict the lags used to lags 3 and longer.

in our discussion.⁸ However, the results from the system GMM estimation and test of the instruments are provided in the Appendix for comparison.

5. Results

5.1. Introduction

In this section, the main results from the analysis are presented. In Table 2, we present results for the fixed effects model using data on disbursements for the full sample. We also report the results using data on only low-income countries in Table 3, to have a more homogeneous group of countries in the sample. Low-income countries depend on capital from official sources, and we therefore present results only including countries with GDP per capita below 1026 constant 2011 USD since the creditors' response to default may differ depending on the average income. The main independent variable, arrears, is measured in percent of external debt. This makes our measure of default sensitive to debt reductions. Thus, we also present the results with arrears measured in percent of GDP (Table 4). In Table 5, we present the results using data on arrears to loans from official creditors and arrears on loans from private creditors separately. To further explore possible heterogeneity, we also estimate the model controlling for being in the HIPC Initiative (Table 6) and using data on only World Bank lending (Table 7).

5.2. Baseline results

Contrary to what we expected, the results presented in Table 2 show that the effect of defaults is negative and significant at the 5% level for concessional lending, while for non-concessional lending, the coefficients are negative but not always significant at conventional levels. Adding additional variables to the model in columns 5 to 8, the number of countries in the sample drops considerably. Still, the negative coefficients

⁸ A Cragg-Donald Wald test can also be used to test the strength of the instruments, but because it assumes iid errors, we prefer the Kleibergen-Paap Wald test.

for the stock of arrears when looking at concessional lending remain significant at conventional levels.

An increase in arrears of one standard deviation (16.3 percentage points) is related to a decrease in bilateral concessional lending of around 0.8 percentage points. Average disbursements of bilateral concessional loans in the full sample are 1.10%. Thus, the estimated reduction in bilateral concessional loans related to a default is quantitatively large. The equivalent effect for multilateral concessional lending is around 0.5 percentage points.

Comparing the estimated coefficients for arrears in columns 5 to 8 using a Wald test, we find that the coefficients for default when looking at concessional lending are not significantly different from each other at the 10% level. The same holds for non-concessional lending. However, the effect of defaults on concessional loans and non-concessional loans are significantly different from each other at the 5% level. Thus, we find that bilateral and multilateral creditors do not respond differently to sovereign default when providing loans to low- and middle-income countries, as could have been the case due to seniority. However, as some large donors (especially the US) have great influence over the policies of multilaterals, such as the IMF and the World Bank (McKeown, 2009; Fleck and Kilby, 2006; Kilby, 2009), it may also be that multilaterals will react to defaults on bilateral loans.

The negative effects of defaults on concessional lending are not sensitive to controlling for a possible substitution effect from loans to grants and access to capital from private creditors. Thus, the access to capital from official creditors is reduced following a default on sovereign debt, on average. Neither lending from private creditors nor grants is significant at conventional levels when looking at concessional lending (indicating that there is no substitution between grants and concessional loans) and private and official concessional lending, once the income level and other economic characteristics of the debtor country are controlled for. We have also controlled for the

possibility of catalytic effects by including lending from other official creditors, but again the main results remain the same.⁹

Using disbursements, the results may be affected by the possibility of rolling over debt. When a country is in default, a creditor may increase disbursements to make the debtor country able to serve its debt. The fixed effects results show a negative relationship between arrears and disbursements from both bilateral and multilateral creditors. If rolling over debt is present, we then underestimate the negative effect of default. In other words, the negative effect would be stronger if we were able to control for this behavior and the estimated effect can thus be interpreted as a lower bound. The literature on defensive lending investigates how debt ratios or total debt service affects new lending. Looking at both loans and grants to low-income countries, Marchesi and Missale (2012) find support for the hypothesis of defensive granting, but not for defensive lending, by bilateral and multilateral donors. This is in line with the results presented here, where the external debt ratio is not significant when looking at concessional lending. In the presence of defensive lending and a substitution from loans to grants as countries become more indebted, this could lead to an insignificant effect of the external debt ratio, as the two mechanisms have the opposite effects on lending. Controlling for grants, however, does not affect the results for arrears or external debt.¹⁰

The lack of statistical significance is probably due to the fact that most of the countries in the sample are low-income countries with limited access to non-concessional lending. However, it could also be caused by the implicit assumption of a linear relationship between default and disbursements of new loans. If the effect of sovereign defaults increases with the size of arrears, we would overestimate the effect for low levels of arrears and underestimate the effect for high values of arrears. Thus, we have

⁹ The results when including grants and lending from other official creditors or private creditors are not reported for brevity, but are available upon request.

¹⁰ Using data on net transfers rather than disbursements, we still find a statistically significant negative effect of defaults on concessional lending at the 5% level. For non-concessional lending, however, the effect is still negative but not significant at the 10% level. The results are not reported in the paper due to space limitations, but are available upon request.

also tested the model, adding a squared term for arrears to allow for a non-linear relationship, but have found no empirical support for this.¹¹

The control variables mostly have the expected sign but are not always significant at conventional levels. Only bilateral concessional lending is significantly dependent on the political stability in the debtor country at the 10% significance level, proxied by the ICRG indicator for political risk. It is also interesting to see that the variable for voting in line with the US in the UNGA has a significantly positive effect on multilateral lending. This is in line with the literature on US influence on multilateral organizations such as the World Bank and the IMF (McKeown, 2009; Fleck and Kilby, 2006; Kilby, 2009).

The coefficients for the time dummies are not reported in any of the tables for brevity, but it is worth noting that they are mostly significant at conventional levels and have a relatively strong effect on lending. Thus, a great share of the variation in disbursements of both concessional and non-concessional loans from official creditors is explained by global changes over time.

¹¹ The results are not reported in the paper but are available upon request.

Table 2 – Disbursements to low- and middle-income countries (FE)

	Concessional		Non-concessional		Concessional		Non-concessional	
	Bilateral (1)	Multilateral (2)	Bilateral (3)	Multilateral (4)	Bilateral (5)	Multilateral (6)	Bilateral (7)	Multilateral (8)
Arrears (% of external debt)	-0.052*** (0.013)	-0.021*** (0.008)	-0.013 (0.008)	-0.010** (0.004)	-0.048*** (0.018)	-0.028** (0.012)	-0.020* (0.012)	-0.007 (0.004)
In GDP per capita	-0.162 (0.486)	-0.713* (0.364)	0.321 (0.316)	-0.088 (0.235)	0.363 (0.674)	-0.354 (0.550)	0.905** (0.405)	0.033 (0.297)
Growth in GDP per capita	-0.035* (0.019)	0.040*** (0.014)	-0.007 (0.010)	-0.011 (0.009)	-0.036 (0.042)	0.048* (0.026)	-0.014 (0.012)	-0.003 (0.011)
Current account balance	-0.028* (0.015)	-0.016 (0.014)	-0.007 (0.007)	-0.015*** (0.005)	-0.009 (0.020)	-0.024 (0.023)	-0.013 (0.009)	-0.013* (0.008)
External debt stocks	0.010* (0.006)	0.003 (0.003)	0.006 (0.004)	0.001 (0.001)	0.011 (0.008)	0.002 (0.002)	0.007* (0.004)	0.001 (0.001)
Openness	0.003 (0.005)	0.011*** (0.004)	0.001 (0.002)	0.002 (0.003)	0.005 (0.004)	0.010*** (0.005)	0.000 (0.002)	-0.001 (0.004)
In population	-1.611* (0.950)	0.657 (0.792)	0.802 (0.588)	-0.487 (0.534)	-0.635 (1.587)	-0.918 (1.311)	1.705* (0.901)	-0.056 (0.784)
Political risk (ICRG)					-0.021* (0.012)	0.009 (0.016)	-0.005 (0.009)	-0.001 (0.007)
Democracy					-0.031 (0.023)	-0.022 (0.022)	0.001 (0.009)	-0.008 (0.012)
UNGA voting similarity with the US					-2.283 (1.587)	1.719 (1.088)	-0.682 (0.963)	1.434** (0.579)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.33	0.22	0.24	0.20	0.39	0.24	0.39	0.23
Number of observations	688	688	688	688	350	350	350	350
Number of countries	118	118	118	118	71	71	71	71
Years	72-11	72-11	72-11	72-11	82-11	82-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects on data averaged across five-year periods. Standard errors clustered at the country level are reported in parentheses.

5.3. Low-income countries

Only including low-income countries in Table 3, the results roughly remain the same as the full sample in Table 2. Sovereign defaults now have a negative effect on bilateral non-concessional lending at the 10% level for both model specifications, while the effect on multilateral non-concessional lending is never significant at the 10% level. Non-concessional lending is mainly provided to middle-income countries, so the lack of significance when looking at this type of loans is as expected.

A notable difference when comparing the results in Tables 2 and 3 is the importance of similarity in the voting patterns to the US when looking at multilateral lending. For the full sample, the variable for being a political ally of the US is only significant for multilateral non-concessional lending. An increase of one standard deviation (which is equivalent to comparing a situation where no votes are similar to the votes of the US to a situation having 12.5% similarity) increases disbursements by almost 0.4 percentage points. Restricting the sample to only low-income countries, the effect is similar for multilateral non-concessional lending. For multilateral concessional lending, on the other hand, the effect is now significant at the 1% level, indicating an increase in disbursements of 1.4 percentage points from an increase in similarity of voting patterns in the UNGA of one standard deviation. Again, the results are in line with the literature on the major influence of U.S. interests on the policies of multilateral organizations.

While we would expect the results to change when excluding lower middle-income countries, the robustness of the results may not be that surprising after all. As can be seen in Figures 1 to 5, the development in the dependent variables and the stock of arrears is mainly driven by lending to and defaults by low-income countries, indicating that lending from official creditors, to a large extent, is directed at low-income countries.

Table 3 – Disbursements to low-income countries (FE)

	Concessional		Non-concessional		Concessional		Non-concessional	
	Bilateral (1)	Multilateral (2)	Bilateral (3)	Multilateral (4)	Bilateral (5)	Multilateral (6)	Bilateral (7)	Multilateral (8)
Arrears (% of external debt)	-0.051*** (0.014)	-0.029*** (0.010)	-0.018* (0.009)	-0.005 (0.003)	-0.044*** (0.016)	-0.038*** (0.012)	-0.019* (0.010)	-0.002 (0.003)
In GDP per capita	-0.072 (0.712)	-0.845 (0.579)	0.476 (0.420)	0.141 (0.198)	0.049 (0.936)	-0.098 (0.788)	1.108** (0.526)	0.419* (0.240)
Growth in GDP per capita	-0.029 (0.030)	0.054** (0.025)	-0.004 (0.016)	-0.009 (0.011)	-0.022 (0.082)	0.052 (0.041)	-0.018 (0.026)	-0.002 (0.012)
Current account balance	-0.054*** (0.019)	-0.039* (0.022)	-0.012 (0.008)	-0.017*** (0.005)	-0.005 (0.034)	-0.070*** (0.023)	-0.014 (0.018)	-0.014 (0.010)
External debt stocks	0.012* (0.007)	0.002 (0.003)	0.007 (0.004)	-0.000 (0.001)	0.011 (0.008)	0.000 (0.002)	0.008* (0.005)	-0.001* (0.001)
Openness	0.009 (0.007)	0.014** (0.006)	0.004 (0.003)	0.008*** (0.003)	0.020** (0.008)	0.012 (0.008)	0.002 (0.005)	0.002 (0.002)
In population	-0.549 (1.654)	0.988 (1.693)	2.392* (1.385)	0.303 (0.641)	1.713 (3.258)	-0.241 (2.597)	3.415 (2.184)	0.171 (0.856)
Political risk (ICRG)					-0.035 (0.024)	0.007 (0.024)	-0.009 (0.018)	-0.001 (0.006)
Democracy					-0.074** (0.036)	-0.015 (0.029)	-0.008 (0.015)	-0.004 (0.009)
UNGA voting similarity with the US					-5.268 (3.931)	5.580*** (2.025)	-2.360 (2.258)	1.138** (0.552)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.37	0.32	0.26	0.28	0.47	0.37	0.41	0.30
Number of observations	440	440	440	440	217	217	217	217
Number of countries	104	104	104	104	62	62	62	62
Years	72-11	72-11	72-11	72-11	82-11	82-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects on data averaged across five-year periods. Standard errors clustered at the country level are reported in parentheses.

5.4. Measure of arrears

Measuring arrears in percent of external debt, there is a possibility that the results simply capture an effect of debt relief. Reducing external debt would lead to an increase in our preferred measure of default. If debt relief is positively correlated with disbursements of new loans, the negative effect of default we find could simply be a result of this. However, using arrears in percent of GDP rather than total external debt, the negative effect of defaults on concessional lending does not change (Table 4). For non-concessional lending, on the other hand, the effect of defaults on multilateral non-concessional lending is now negative and significant at the 1% level. An increase in arrears equivalent to one standard deviation (68.4 percentage points) is related to a decrease in disbursements of new loans between 0.3 and 0.9 percentage points, depending on the creditor group and type of loan analyzed. Thus, defaults now seem to cause a reduction in new loans from both bilateral and multilateral creditors, and in both concessional and non-concessional lending. This could indicate that total external debt has a positive correlation with multilateral non-concessional lending, which reduces the negative relation between arrears and disbursement when measuring arrears in percent of external debt.

Table 4 – Arrears in percent of GDP (FE)

	Concessional		Non-concessional	
	Bilateral (1)	Multilateral (2)	Bilateral (3)	Multilateral (4)
Arrears (% of GDP)	-0.013* (0.007)	-0.011** (0.005)	-0.007* (0.004)	-0.005*** (0.001)
Time fixed effects	Yes	Yes	Yes	Yes
Full set of controls	Yes	Yes	Yes	Yes
R-squared within	0.367	0.257	0.393	0.268
Number of observations	350	350	350	350
Number of countries	71	71	71	71
Years	82-11	82-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects on data averaged across five-year periods. Standard errors clustered at the country level are reported in parentheses.

Table 5 – Arrears to private and official creditors (FE)

	Concessional		Non-concessional		Concessional		Non-concessional	
	Bilateral (1)	Multilateral (2)	Bilateral (3)	Multilateral (4)	Bilateral (5)	Multilateral (6)	Bilateral (7)	Multilateral (8)
Arrears on official loans (% of external debt)					-0.092*** (0.033)	-0.044** (0.021)	-0.039* (0.023)	-0.009 (0.008)
Arrears on private loans (% of external debt)	-0.087** (0.034)	-0.063** (0.024)	-0.035 (0.022)	-0.018* (0.009)				
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.370	0.244	0.370	0.237	0.408	0.228	0.394	0.227
Number of observations	350	350	350	350	350	350	350	350
Number of countries	71	71	71	71	71	71	71	71
Years	82-11	82-11	82-11	82-11	82-11	82-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects on data averaged across five-year periods. Standard errors clustered at the country level are reported in parentheses.

Separating arrears to loans from official and private creditors in Table 5, we gain some additional insight to what is driving the main results. First, non-concessional lending bilateral creditors respond negatively to defaults on official loans, while multilaterals respond negatively to defaults on loans to private creditors. However, comparing the effects of arrears by type of loan and creditor group, the effects are never statistically different from each other at the 10% significance level.

5.5. HIPC

The results indicate reduced access to capital from official sources when the debtor countries are in default. However, the results could simply reflect an increase in lending to countries qualifying for the HIPC Initiative. Starting in 1996, the initiative was targeted at poor countries with unsustainable debt ratios. One of the prerequisites of qualifying was clearance of arrears. Thus, as arrears were reduced, countries received debt relief through the program. However, in addition to clearance of arrears, the countries also had to fulfill several other requirements. Decreasing arrears could then result in better access to capital from official creditors due to the commitment to the policy requirements for the HIPC. In order to test whether the results simply reflect an increase in lending when countries reach the decision point for the HIPC Initiative, we add a dummy variable for HIPC and an interaction term between the HIPC dummy and arrears. The results are presented in Table 6.

Only the three main independent variables are reported, as we are interested in whether or not the constitutive term for arrears remains significant. Thus, we would like to see whether the negative effect of default holds given that the debtor countries are not HIPC. The results for arrears are almost identical to the main results provided in Table 2. Concessional lending is negatively related to defaults, and this effect holds when including only the dummy for HIPC and the interaction between HIPC and arrears. For non-concessional lending, the coefficients are still negative, but the statistical significance varies as for the main results.

Table 6 – HIPC

	Concessional		Non-concessional		Concessional		Non-concessional	
	Bilateral (1)	Multilateral (2)	Bilateral (3)	Multilateral (4)	Bilateral (5)	Multilateral (6)	Bilateral (7)	Multilateral (8)
Arrears (% of external debt)	-0.048*** (0.018)	-0.027** (0.012)	-0.020* (0.012)	-0.007 (0.004)	-0.045** (0.020)	-0.023** (0.010)	-0.020 (0.012)	-0.008* (0.004)
HIPC dummy	-0.695*** (0.257)	0.143 (0.276)	-0.154 (0.125)	-0.250** (0.098)	-0.404 (0.326)	0.601** (0.278)	-0.200 (0.157)	-0.327** (0.152)
Interaction, HIPC, and arrears					-0.018 (0.019)	-0.028 (0.021)	0.003 (0.009)	0.005 (0.005)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Full set of controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.41	0.24	0.39	0.24	0.41	0.26	0.39	0.25
Number of observations	350	350	350	350	350	350	350	350
Number of countries	71	71	71	71	71	71	71	71
Years	82-11	82-11	82-11	82-11	82-11	82-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects on data averaged across five-year periods. Standard errors clustered at the country level are reported in parentheses.

5.6. World Bank lending

In Table 7, we only look at World Bank lending, which is divided into IDA and IBRD. We do this in order to compare the results with the results for total multilateral lending. The decision to look at World Bank lending instead of disaggregated data for other creditors was made based on data availability, and the nature of the IDA and the International Bank for Reconstruction and Development (IBRD) are suitable for testing our hypotheses. The IDA and the IBRD, where the former provides concessional loans (and grants) and the latter non-concessional loans, are financed in different ways. The IBRD raises its funds from international financial markets, and is meant to be self-sustained, and thus provides non-concessional loans to middle-income countries and creditworthy low-income countries. The IDA, on the other hand, is replenished by the richer member states every three years, and also receives some funds from the IBRD and repayments from debtor countries. Thus, while the IBRD is meant to make a profit, the objective of the IDA is to provide loans and grants to reduce poverty and increase economic growth.

The results for World Bank lending are similar to the results for aggregate disbursements of loans from multilateral creditors. The estimated coefficient for arrears is always negative, but once the full set of control variables are included, the effect is only significant at conventional levels for loans from IDA.

The influence of the US on World Bank lending is again evident, with a strong positive effect on disbursements of new loans if the debtor countries vote in line with the US in the UNGA. Country fixed effects are controlled for, so the effect revealed is based on variation within countries only. Thus, by voting similarly to the US, countries can significantly increase their access to capital from the World Bank.

Table 7 – World Bank lending

	IDA (1)	IBRD (2)	IDA (3)	IBRD (4)
Arrears (% of external debt)	-0.014*** (0.005)	-0.004* (0.002)	-0.022*** (0.008)	-0.002 (0.002)
ln GDP per capita	-0.493** (0.236)	-0.038 (0.181)	-0.264 (0.385)	0.049 (0.154)
Growth in GDP per capita	0.020** (0.009)	-0.006 (0.005)	0.035** (0.015)	-0.001 (0.007)
Current account balance	-0.014 (0.010)	-0.006* (0.003)	-0.021 (0.015)	-0.002 (0.003)
External debt stocks	0.002 (0.002)	0.000 (0.001)	0.002 (0.002)	0.000 (0.001)
Openness	0.004** (0.002)	0.000 (0.001)	0.006*** (0.002)	-0.000 (0.002)
ln population	0.043 (0.404)	-0.237 (0.335)	-0.330 (0.855)	0.374 (0.413)
Political risk (ICRG)			0.002 (0.012)	-0.003 (0.004)
Democracy			-0.024 (0.015)	0.008 (0.008)
UNGA voting similarity with the US			1.448* (0.800)	0.742** (0.352)
Time fixed effects	Yes	Yes	Yes	Yes
R-squared within	0.25	0.17	0.28	0.28
Number of observations	688	688	350	350
Number of countries	118	118	72	72
Years	72-11	72-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects with clustered standard errors reported in parentheses.

5.7. Timing of effects

In Table 8, results with lagged independent variables for both annual data and data averaged across five year periods are presented. The main results hold for concessional lending when using annual data, but the significant negative effect of defaults on official lending disappears when using five year averages. Thus, the results suggest that disbursements from official creditors in year t are negatively related to defaults in year $t-1$, while disbursements in the current five year period are not dependent on defaults occurring six to ten years ago.

Table 8 – Timing of effects

	Annual data								Five year averages					
	Concessional		Non-concessional		Concessional		Non-concessional		Bilateral		Multilateral			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		
Arrears (% of external debt) (t-1)	-0.021** (0.009)	-0.017** (0.007)	-0.008 (0.007)	-0.004 (0.003)	-0.001 (0.009)	-0.006 (0.010)	-0.001 (0.005)	0.001 (0.003)	0.007** (0.003)	0.001** (0.002)	0.004*** (0.001)	0.001** (0.002)	0.007** (0.003)	0.001 (0.001)
ln GDP per capita (t-1)	0.714 (0.749)	-0.751 (0.518)	1.157* (0.667)	-0.044 (0.321)	0.589 (0.707)	0.465 (0.471)	0.659 (0.414)	0.611** (0.249)	0.010 (0.023)	-0.016 (0.016)	0.051 (0.035)	0.014 (0.009)	-0.002 (0.014)	-0.023*** (0.014)
Growth in GDP per capita (t-1)	-0.048** (0.023)	0.010 (0.007)	-0.016 (0.016)	-0.009 (0.006)	-0.026 (0.024)	0.051 (0.035)	0.014 (0.009)	-0.002 (0.014)	-0.036** (0.014)	-0.036** (0.014)	-0.084 (0.058)	-0.020* (0.011)	-0.020* (0.006)	-0.023*** (0.006)
Current account balance (t-1)	0.013 (0.013)	0.014 (0.014)	0.005 (0.005)	0.004 (0.004)	0.004 (0.004)	0.004 (0.004)	0.005 (0.005)	0.006 (0.006)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)
External debt stocks (t-1)	0.007** (0.003)	0.001 (0.001)	0.004*** (0.002)	0.001** (0.001)	-0.005** (0.002)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	0.001 (0.001)	0.001 (0.001)	0.002 (0.002)	0.001 (0.001)	0.002 (0.002)	0.001 (0.001)
Openness (t-1)	0.010 (0.006)	0.007* (0.003)	-0.000 (0.002)	-0.002 (0.003)	0.001 (0.003)	0.002 (0.003)	0.002 (0.003)	0.002 (0.003)	0.001 (0.003)	0.002 (0.003)	0.002 (0.003)	0.001 (0.003)	0.002 (0.003)	0.004 (0.005)
ln population (t-1)	-0.139 (1.695)	-1.732 (1.360)	1.910* (1.059)	-0.246 (0.694)	-1.728 (1.450)	0.938 (1.551)	0.893 (0.549)	0.684 (0.705)	0.010 (0.015)	-0.012 (0.025)	-0.019 (0.015)	-0.025 (0.017)	-0.010 (0.006)	-0.010 (0.006)
Political risk (ICRG) (t-1)	-0.015 (0.015)	0.010 (0.014)	-0.012 (0.013)	0.001 (0.005)	-0.029 (0.025)	-0.019 (0.015)	-0.025 (0.017)	-0.010 (0.013)	0.001 (0.008)	0.001 (0.008)	0.001 (0.008)	0.001 (0.008)	0.001 (0.008)	0.001 (0.008)
Democracy (t-1)	-0.039* (0.020)	-0.019 (0.016)	-0.001 (0.008)	-0.000 (0.010)	-0.028* (0.017)	-0.058** (0.024)	0.003 (0.009)	0.010 (0.013)	-0.039* (0.020)	-0.039* (0.020)	-0.039* (0.020)	-0.039* (0.020)	-0.039* (0.020)	-0.039* (0.020)
UNGA voting similar to the US (t-1)	-1.799 (1.099)	1.291* (0.659)	-0.742 (0.850)	1.019** (0.441)	-3.264 (2.298)	1.899 (1.341)	-1.539 (1.380)	1.238** (0.586)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.21	0.13	0.17	0.15	0.28	0.30	0.20	0.39	0.21	0.13	0.17	0.15	0.28	0.30
Number of observations	1362	1362	1362	1362	282	282	282	282	1362	1362	1362	1362	282	282
Number of countries	118	118	118	118	71	71	71	71	118	118	118	118	71	71
Years	72-11	72-11	72-11	72-11	82-11	82-11	82-11	82-11	72-11	72-11	72-11	72-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using a fixed effects estimator. Standard errors clustered at the country level are reported in parentheses. (t-1) indicates that the variables are lagged one period.

The negative effect of defaults on bilateral non-concessional lending found in Tables 2 and 3 is no longer statistically significant at the ten percent level when lagging the independent variables. This could indicate a problem with reverse causality in the estimated effects for non-concessional lending presented so far, where non-concessional lending decreases prior to the default.

6. Concluding remarks

The paper contributes to the empirical literature on the cost of default by analyzing how official creditors respond to defaults on sovereign debt to both private and official creditors. The results show that both bilateral and multilateral creditors respond negatively to defaults on sovereign debt when providing concessional loans. The effect is not due to substitution from loans to grants or an increase in loans to countries clearing their arrears to qualify for the HIPC Initiative. The effect of arrears on concessional lending has been shown to be very robust to changes in model specification and sample size. In addition to the results discussed so far, the results are also robust to controlling for total reserves, oil rents, and the residuals from a regression of Institutional Investor country credit ratings on the full set of independent variables.¹²⁸ Thus, there are some reputational costs of default in the market for official loans as well as in the private capital markets, indicating that developing countries in default cannot simply turn to official creditors for capital. This is crucial when discussing capital flows to developing countries, and to low-income countries especially, as they rarely have access to bonds and bank loans from private creditors, and should strengthen the debtor countries' incentives to repay their sovereign debt.

Lagging the independent variables one period using both annual data and data averaged across five year periods, we find that the negative coefficient for defaults is statistically significant at conventional levels for concessional lending using annual

¹²⁸ The residuals are used when controlling for credit ratings in order to capture the effect of market perceptions not explained by other variables included in the model (Garibaldi et al., 2001; Gelos et al., 2011).

data only. The results suggest that the negative relation between defaults and concessional lending from official creditors only holds in the short run.

For non-concessional lending, the results are not robust to changes in the model specification and measure of default. The lack of support for the hypothesis that access to non-concessional lending is reduced following a default is somewhat surprising. However, the lack of robust results could be explained by the fact that most of the countries in the sample are low-income countries with limited access to non-concessional lending.

There are several aspects of the link between sovereign default and lending from official creditors that should be investigated further. In addition to analyzing the relation between arrears on sovereign debt and disbursements of new loans from official creditors, our dataset includes lending from private creditors in addition to lending from bilateral and multilateral creditors, making it possible to control for possible substitution or catalytic effects from official to private creditors or vice versa. Still, we do not focus on how the two sources for capital are related, which is a question that should be pursued in future research. Kraay and Nehru (2006) claim that the failure to repay concessional loans reduces the ability of multilateral creditors to provide new loans to other developing countries. We do not analyze the effect of other countries defaulting on the disbursements of new loans, but it would be an interesting hypothesis to test empirically. A third question that would be interesting to investigate closer is the role of the IMF, and whether the reputational costs of sovereign default are contingent on whether or not the debtor country accepts the terms of IMF lending programs following the default.

References

Alesina, A., & Dollar, D. (2000). Who gives foreign aid to whom and why? *Journal of Economic Growth*, 5, 33-63.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58, 277-297.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 6, 29-51.

Bauer, M. E., Cruz, C., & Graham, B. A. T. (2012). Democracies only: When do IMF agreements serve as a seal of approval? *Review of International Organizations*, 7, 33-58.

Bazzi, S., & Clemens, M. (2013). Blunt instruments: avoiding common pitfalls in identifying the causes of economic growth. *American Economic Journal: Macroeconomics*, 5, 152-186.

Benczur, P., & Ilut, C. L. (2009). *Evidence for relational contracts in sovereign bank lending* (2010 Meeting Papers 91, Society for Economic Dynamics).

Benjamin, D., & Wright, M. L. J. (2009). *Recovery before redemption: A theory of delays in sovereign debt renegotiations* (CAMA Working Paper Series 15/2009).

Berthélemy, J. C. (2006a). Bilateral donors' interest vs. recipients' development motives in aid allocation: Do all donors behave the same? *Review of Development Economics*, 10, 179-194.

Berthélemy, J. C. (2006b). Aid allocation: Comparing donors' behaviours. *Swedish Economic Policy Review*, 13, 75-109.

Bird, G., & Rowlands, D. (1997). The catalytic effect of lending by the International Finance Institutions. *World Economy*, 20, 967-991.

- Bjørnskov, C., & Schröder, P. (2013). Are debt repayment incentives undermined by foreign aid? *Journal of Comparative Economics*, *41*, 1073-1091.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*, 115-143.
- Borensztein, E., & Panizza, U. (2009). The costs of sovereign default. *IMF Staff Papers*, *56*, 683-741.
- Bound, J., Jaeger, D. A., & Baker, R. M. (1995). Problems with instrumental variables estimation when the correlation between the instruments and the endogenous explanatory variable is weak. *Journal of the American Statistical Association*, *90*, 443-450.
- Brandt, J., & Jorra, M. (2012). *Aid withdrawal as punishment for defaulting sovereigns? An empirical analysis* (MAGKS Joint Discussion Paper Series in Economics No. 20-2012).
- Bulow, J., & Rogoff, K. (1989). Sovereign debt: Is to forgive to forget? *American Economic Review*, *79*, 43-50.
- Bulow, J., & Rogoff, K. (2005). Grants versus loans for development banks. *American Economic Review*, *95*, 393-397.
- Bun, M. J. G., & Windmeijer, F. (2010). The weak instrument problem of the system GMM estimator in dynamic panel data models. *Econometrics Journal*, *13*, 95-126.
- Catão, L., & Kapur, S. (2006). Volatility and the debt-intolerance paradox. *IMF Staff Papers*, *53*, 195-218.
- Center for Systemic Peace (2013). *Polity IV Annual Time Series 1800-2011*. Retrieved April 29, 2013, from <http://www.systemicpeace.org/inscr/inscr.htm>
- Chamley, C., & Pinto, B. (2012). *Sovereign bailouts and senior loans*. World Bank Policy Research Working Paper 6181.

-
- Cole, H. L., & Kehoe, P. J. (1998). Models of sovereign debt: Partial versus general reputations. *International Economic Review*, 39, 55-70.
- Cruces, J. J., & Trebesch, C. C. (2013). Sovereign defaults: The price of haircuts. *American Economic Journal: Macroeconomics*, 5, 85-117.
- Dollar, D., and Levin, V. (2006). The increasing selectivity of foreign aid, 1984–2003. *World Development*, 34, 2034-2046.
- Eaton, J. (1992). Sovereign debt: A primer. *The World Bank Economic Review*, 7, 137-172.
- Eaton, J. (1996). Sovereign debt, reputation and credit terms. *International Journal of Finance & Economics*, 1, 25-35.
- Eaton, J., & Gersovitz, M. (1981). Debt with potential repudiation: Theoretical and empirical analysis. *The Review of Economic Studies*, 48, 289-309.
- Eichengreen, B. (2003). Restructuring sovereign debt. *The Journal of Economic Perspectives*, 17, 75-98.
- Evrensel, A. Y. (2004). Lending to developing countries revisited: changing nature of lenders and payment problems. *Economic Systems*, 25, 235-256.
- Fernandez, R., & Rosenthal, R. W. (1990). Strategic models of sovereign-debt renegotiations. *Review of Economic Studies*, 57, 331-349.
- Fleck, R. K., & Kilby, C. (2006). World Bank independence: A model and statistical analysis of US influence. *Review of Development Economics*, 10, 224-240.
- Garibaldi, P., Mora, N., Sahay, R., & Zettelmeyer, J. (2001). What moves capital to transition economies? *IMF Staff Papers*, 48, 109-145.
- Gartzke, E. (2010). *The affinity of nations: Similarity of state voting positions in the UNGA*. Retrieved from <http://dss.ucsd.edu/~egartzke/htmlpages/data.html>

Gates, S., & Hoeffler, A. (2004). *Global Aid Allocation: Are Nordic Donors Different?* (The Centre for the Study of African Economies Working Paper No. 234).

Geginat, C., & Kraay, A. (2012). Does IDA engage in defensive lending? *Review of Economics and Institutions*, 3, 1-24.

Gelos, R. G., Sahay, R., & Sandleris, G. (2011). Sovereign borrowing by developing countries: What determines market access? *Journal of International Economics*, 83, 243-254.

Grossman, H. I., & Van Huyck, J. B. (1988). Debt as a contingent claim: Excusable default, repudiation, and reputation. *American Economic Review*, 78, 1088-1097.

Hagen, R. (2009). Basic analytics of multilateral lending and surveillance. *Journal of International Economics*, 79, 126-136.

Hagen, R. (2012). Certified or branded? A game-theoretic analysis of the IMF's policy support instrument. *Review of International Organizations*, 7, 203-230.

Holtz-Eakin, D., Newey, W., & Rosen, H. S. (1988). Estimating vector autoregressions with panel data. *Econometrica*, 56, 1371-1395.

IMF (2013). *Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI) – statistical update*.

Institutional Investor (2013). *Institutional Investor's Country Credit Ratings*.

Kapur, S., Fostel, A. and Catão, L. (2007). *Persistent gaps, volatility types, and default traps* (IMF Working Paper No. 07/148).

Kilby, C. (2009). The political economy of conditionality: An empirical analysis of World Bank loan disbursements. *Journal of Development Economics*, 89, 51-61.

Kletzer, K., & Wright, B. D. (2000). Sovereign debt as intertemporal barter. *American Economic Review*, 90, 621-639.

-
- Kraay, A., & Nehru, V. (2006). When is external debt sustainable? *The World Bank Economic Review*, 20, 341-365.
- Marchesi, S., & Missale, A. (2012). *How defensive were lending and aid to HIPC?* (University of Milan - Bicocca Working Paper Series No. 220).
- McKeown, T. J. (2009). How U.S. decision-makers assessed their control of multilateral organizations, 1957-1982. *Review of International Organizations*, 4, 269-291.
- Panizza, U., Sturzenegger, F., & Zettelmeyer, J. (2009). The economics and law of sovereign debt and default. *Journal of Economic Literature*, 47, 651-698.
- The PRS Group (2012). *International Country Risk Guide (ICRG)*. Retrieved October 2, 2012, from <http://www.prsgroup.com/Default.aspx>
- Reinhardt, C. M., Rogoff, K. S., & Savastano, M. A. (2003). Debt intolerance. *Brookings Papers on Economic Activity*, 1, 1-73.
- Richmond, C., & Dias, D. A. (2009). *Duration of capital market exclusion: An empirical investigation*. Retrieved from <http://ssrn.com/abstract=1027844>
- Rodrik, D. (1995). *Why is there multilateral lending?* (NBER Working Paper No. 2746).
- Roodman, D. (2009a). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, 9, 86-136.
- Roodman, D. (2009b). Practitioners' corner. A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, 71, 135-158.
- Sachs, J., & Cohen, D. (1982). *LDC borrowing with default risk* (NBER Working Paper Series No. 925).
- Sandleris, G. (2008). Sovereign defaults: Information, investment and credit. *Journal of International Economics*, 76, 267-275.

Saravia, D. (2010): On the role and effects of IMF seniority. *Journal of International Money and Finance*, 29, 1024-1044.

Stock, J. H., & Yogo, M. (2002). *Testing for weak instruments in linear IV regressions* (NBER Technical Working Paper No. 284).

Stock, J. H., & Yogo, M. (2005). Testing for weak instruments in linear IV regressions. In D. W. K. Andrews, & J. H. Stock (Eds.), *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg* (pp. 80–108). Cambridge: Cambridge University Press.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, 126, 25-51.

World Bank (2012). *World Development Indicators*. Retrieved September 25, 2012, from <http://data.worldbank.org/indicator>

Özler, S. (1993). Have commercial banks ignored history? *American Economic Review*, 83, 608-620.

Appendix

A.I. Variables included in the model

Explanatory variable	Description	Source
Bilateral concessional disbursements	Disbursements of concessional loans from bilateral creditors, % of GDP.	World Bank (2012)
Multilateral concessional disbursements	Disbursements of concessional loans from multilateral creditors, % of GDP.	World Bank (2012)
Bilateral non-concessional disbursements	Disbursements of non-concessional loans from bilateral creditors, % of GDP.	World Bank (2012)
Multilateral non-concessional disbursements	Disbursements of non-concessional loans from multilateral creditors, % of GDP.	World Bank (2012)
Private disbursements	Disbursements from private creditors, % of GDP.	World Bank (2012)
Bilateral concessional NTR	Net transfers of concessional loans from bilateral creditors, % of GDP.	World Bank (2012)
Multilateral concessional NTR	Net transfers of concessional loans from multilateral creditors, % of GDP.	World Bank (2012)
Bilateral non-concessional NTR	Net transfers of non-concessional loans from bilateral creditors, % of GDP.	World Bank (2012)
Multilateral non-concessional NTR	Net transfers of non-concessional loans from multilateral creditors, % of GDP.	World Bank (2012)
Private NTR	Net transfers from private creditors, % of GDP.	World Bank (2012)
Arrears	The sum of arrears to private and official creditors, either in percent of debt or GDP.	Worlds Bank (2012)
Arrears to official creditors	Arrears of principals and interests in percent of total external debt	Worlds Bank (2012)
Arrears to private creditors	Arrears of principals and interests in percent of total external debt	World Bank (2012)
Grants	Total grants, % of GDP.	World Bank (2012)
ln GDP per capita.	ln GDP per capita.	World Bank (2012)
ln population	ln population.	World Bank (2012)
Growth in GDP per capita	Annual growth in GDP per capita.	World Bank (2012)
External debt stocks	External debt stocks, % of GDP.	World Bank (2012)
Current account balance	Current account balance, % of GDP.	World Bank (2012)
Total reserves	Total reserves, % of total external debt.	World Bank (2012)
Credit ratings	Institutional Investor country credit ratings.	Institutional Investor (2013)
HIPC	Dummy for HIPC Initiative and MDRI	IMF (2013)
US affinity	Index for similarities with the US in voting patterns in the UNGA.	Gartzke (2010)
Democracy	Polity IV index ranging from -10 (autocracy) to 10 (democracy)	Center for Systemic Peace (2013)
Openness	Trade, % of GDP.	World Bank (2012)
Oil rents	Oil rents, % of GDP.	World Bank (2012)
Political risk (ICRG)	ICRG indicator for political risk.	PRS Group (2012)

A.2. List of countries

Albania	Dominica	Lesotho	Senegal
Algeria	Dominican Republic	Liberia	Seychelles
Angola	Ecuador	Lithuania	Sierra Leone
Argentina	Egypt, Arab Rep.	Macedonia, FYR	Solomon Islands
Armenia	El Salvador	Madagascar	South Africa
Azerbaijan	Eritrea	Malawi	Sri Lanka
Bangladesh	Ethiopia	Malaysia	St. Lucia
Belarus	Fiji	Maldives	St. Vincent and the Grenadines
Belize	Gabon	Mali	Sudan
<i>Benin</i>	<i>Gambia, The</i>	<i>Mauritania</i>	Swaziland
Bolivia	Georgia	Mauritius	Syrian Arab Republic
Bosnia and Herzegovina	Ghana	Mexico	Tajikistan
Botswana	Grenada	Moldova	Tanzania
Brazil	Guatemala	Mongolia	Thailand
Bulgaria	Guinea	Morocco	Togo
Burkina Faso	Guinea-Bissau	Mozambique	Tonga
<i>Burundi</i>	Guyana	Nepal	Tunisia
Cambodia	Haiti	Nicaragua	Turkey
Cameroon	Honduras	Niger	Turkmenistan
Cape Verde	India	Nigeria	Uganda
<i>Central African Republic</i>	Indonesia	Pakistan	Ukraine
<i>Chad</i>	Iran, Islamic Rep.	Panama	Uruguay
Chile	Jamaica	Papua New Guinea	Vanuatu
China	Jordan	Paraguay	Venezuela, RB
Colombia	Kazakhstan	Peru	Vietnam
<i>Comoros</i>	Kenya	Philippines	Yemen, Rep.
<i>Congo, Rep.</i>	Kyrgyz Republic	Romania	Zambia
Costa Rica	Lao PDR	Russian Federation	Zimbabwe
<i>Cote d'Ivoire</i>	Latvia	<i>Rwanda</i>	
Djibouti	Lebanon	Samoa	

Bold: Countries included when running the model with the full set of control variables.

Italic: Countries in the HIPC Initiative at some point in the period from 1972 to 2011.

A.3. Summary statistics (full sample)

Variable	N	Mean	SD	Min.	Max.
Disbursements, official creditors, % of GDP	782	3.45	3.35	0.00	32.52
Disbursements, bilateral concessional, % of GDP	782	1.10	1.86	0.00	23.14
Disbursements, multilateral concessional, % of GDP	782	1.39	1.80	0.00	15.19
Disbursements, bilateral non-concessional, % of GDP	782	0.35	0.79	0.00	11.62
Disbursements, multilateral non-concessional, % of GDP	782	0.61	0.73	0.00	4.01
Disbursements, private creditors, % of GDP	782	1.38	2.33	0.00	19.34
NTR, official creditors, % of GDP	782	1.60	3.17	-20.02	31.55
NTR, bilateral concessional, % of GDP	782	0.65	1.78	-4.93	22.33
NTR, multilateral concessional, % of GDP	782	1.05	1.55	-3.10	12.88
NTR, bilateral non-concessional, % of GDP	782	-0.05	0.84	-4.70	10.10
NTR, multilateral non-concessional, % of GDP	782	-0.07	0.92	-17.02	4.01
NTR, private creditors, % of GDP	782	0.11	1.39	-5.52	12.88
Grants, % of GDP	813	6.31	8.45	0.00	96.80
Arrears, % of external debt	816	7.87	16.31	0.00	117.85
Arrears on debt to private creditors, % of external debt	816	3.64	7.47	0.00	58.93
Arrears on debt to official creditors, % of external debt	816	4.23	9.04	0.00	58.91
Arrears, % of GDP	813	11.73	68.43	0.00	1437.79
ln GDP per capita	817	6.74	1.01	4.27	8.89
ln population	908	1.81	1.86	-2.84	7.19
Growth in GDP per capita	809	1.73	4.70	-20.41	57.99
External debt stocks, % of GDP	782	63.64	83.22	0.00	1493.38
Current account bal., % of GDP	721	-4.92	7.36	-48.69	27.29
Total reserves, % of external debt	775	56.71	218.02	-0.17	4446.23
Openness	799	73.93	38.89	8.68	367.02
Democracy	751	-0.30	6.35	-10	10
UNGA voting similarity with the US	743	-0.32	0.26	-0.81	0.45
Political risk (ICRG)	451	56.40	11.11	17.17	79.68
Institutional Investor country credit rating	547	28.50	14.60	4.88	75.60

A.4. Summary statistics (low-income countries)

Variable	N	Mean	SD	Min.	Max.
Disbursements, official creditors, % of GDP	510	4.00	3.39	0.00	32.52
Disbursements, bilateral concessional, % of GDP	510	1.25	1.84	0.00	18.30
Disbursements, multilateral concessional, % of GDP	510	1.78	1.90	0.00	15.19
Disbursements, bilateral non-concessional, % of GDP	510	0.41	0.92	0.00	11.62
Disbursements, multilateral non-concessional, % of GDP	510	0.57	0.72	0.00	3.85
Disbursements, private creditors, % of GDP	510	1.17	2.02	0.00	15.72
NTR, official creditors, % of GDP	510	2.17	3.23	-20.02	24.33
NTR, bilateral concessional, % of GDP	510	0.80	1.78	-4.93	17.53
NTR, multilateral concessional, % of GDP	510	1.41	1.66	-3.10	12.88
NTR, bilateral non-concessional, % of GDP	510	0.02	0.91	-4.34	10.10
NTR, multilateral non-concessional, % of GDP	510	-0.06	1.02	-17.02	2.69
NTR, private creditors, % of GDP	510	0.12	1.21	-4.30	8.73
Grants, % of GDP	527	7.94	9.45	0.00	96.80
Arrears, % of external debt	510	9.72	18.13	0.00	117.85
Arrears on debt to private creditors, % of external debt	510	4.46	8.33	0.00	58.93
Arrears on debt to official creditors, % of external debt	510	5.26	9.94	0.00	58.91
Arrears, % of GDP	527	16.17	84.15	0.00	1437.79
ln GDP per capita	527	6.26	0.85	4.27	8.45
ln population	527	2.00	1.76	-2.84	7.17
Growth in GDP per capita	521	1.53	5.00	-20.41	57.99
External debt stocks, % of GDP	510	71.59	96.07	0.55	1493.38
Current account bal., % of GDP	458	-5.64	6.94	-46.07	16.68
Total reserves, % of external debt	496	32.89	49.61	-0.17	553.81
Openness	516	67.35	34.28	8.68	184.23
Democracy	488	-1.12	5.89	-10	10
UNGA voting similarity with the US	471	-0.31	0.27	-0.76	0.41
Political risk (ICRG)	269	52.80	10.71	17.17	72.60
Institutional Investor country credit rating	319	23.59	13.13	4.88	72.90

A.5. Results using annual data

	Concessional		Non-concessional		Concessional		Non-concessional	
	Bilateral (1)	Multilateral (2)	Bilateral (3)	Multilateral (4)	Bilateral (5)	Multilateral (6)	Bilateral (7)	Multilateral (8)
Arrears (% of external debt)	-0.044*** (0.010)	-0.018*** (0.006)	-0.010* (0.006)	-0.007** (0.003)	-0.036** (0.014)	-0.022** (0.009)	-0.015* (0.008)	-0.005 (0.003)
ln GDP per capita	0.471 (0.512)	-0.926** (0.430)	0.582* (0.328)	0.049 (0.207)	1.164 (0.893)	-0.739 (0.561)	1.203* (0.615)	-0.245 (0.369)
Growth in GDP per capita	-0.012* (0.007)	0.024*** (0.005)	-0.004 (0.003)	-0.010** (0.004)	-0.005 (0.011)	0.027** (0.012)	-0.012 (0.008)	-0.005 (0.006)
Current account balance	-0.022** (0.010)	-0.008 (0.007)	-0.007 (0.005)	-0.013*** (0.004)	-0.000 (0.014)	-0.016 (0.014)	-0.006 (0.010)	-0.005 (0.006)
External debt stocks	0.014** (0.007)	0.003 (0.003)	0.007* (0.004)	0.001 (0.001)	0.017** (0.007)	0.000 (0.002)	0.009** (0.004)	0.001 (0.001)
Openness	0.002 (0.004)	0.008** (0.004)	0.001 (0.002)	0.002 (0.002)	0.006 (0.004)	0.009** (0.004)	-0.000 (0.002)	-0.000 (0.003)
ln population	-0.193 (1.099)	0.303 (1.029)	1.102 (0.711)	-0.168 (0.621)	0.683 (1.783)	-1.425 (1.359)	2.259** (1.109)	-0.562 (0.798)
Political risk (ICRG)								
Democracy								
UNGA voting similar to the US								
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.25	0.14	0.19	0.11	0.37	0.14	0.29	0.13
Number of observations	2950	2950	2950	2950	1391	1391	1391	1391
Number of countries	118	118	118	118	71	71	71	71
Years	72-11	72-11	72-11	72-11	82-11	82-11	82-11	82-11

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using fixed effects on annual data. Standard errors clustered at the country level are reported in parentheses.

A.6. Disbursements (System GMM)

	Concessional			Non-concessional			Concessional			Non-concessional		
	Bilateral (1)	Multilateral (2)	Multilateral (3)	Bilateral (4)	Multilateral (5)	Multilateral (6)	Bilateral (7)	Multilateral (8)	Multilateral (9)	Bilateral (10)	Multilateral (11)	Multilateral (12)
Arrears (% of external debt)	-0.033** (0.014)	-0.028* (0.015)	-0.011 (0.007)	-0.006 (0.005)	-0.004 (0.003)	-0.024*** (0.008)	-0.023 (0.015)	-0.012* (0.007)	-0.005 (0.005)	-0.005 (0.005)	-0.005 (0.006)	-0.005 (0.006)
In GDP per capita	0.171 (0.340)	-0.991*** (0.313)	0.216 (0.162)	0.310*** (0.119)	0.199* (0.119)	0.181 (0.212)	-0.702** (0.293)	0.181 (0.187)	0.285*** (0.092)	0.186 (0.134)	0.186 (0.134)	0.186 (0.134)
Growth in GDP per capita	-0.008 (0.038)	-0.020 (0.063)	0.001 (0.025)	0.007 (0.024)	-0.002 (0.027)	-0.016 (0.029)	-0.040 (0.048)	0.007 (0.034)	0.015 (0.032)	0.020 (0.033)	0.020 (0.033)	0.020 (0.033)
Current account balance	0.007 (0.004)	0.008 (0.005)	0.002 (0.001)	-0.001 (0.001)	-0.000 (0.001)	0.006* (0.003)	0.007 (0.005)	0.002 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
External debt stocks	-0.049 (0.043)	0.021 (0.029)	-0.034* (0.017)	-0.033*** (0.012)	-0.036** (0.016)	-0.052* (0.028)	-0.002 (0.021)	-0.029* (0.017)	-0.028** (0.014)	-0.037** (0.017)	-0.037** (0.017)	-0.037** (0.017)
Openness	0.000 (0.006)	0.002 (0.008)	-0.001 (0.004)	-0.000 (0.003)	0.000 (0.002)	0.005 (0.005)	-0.001 (0.007)	0.000 (0.003)	-0.001 (0.003)	0.000 (0.003)	0.000 (0.003)	0.000 (0.003)
In population	-0.326 (0.306)	-0.605* (0.325)	-0.143 (0.128)	-0.029 (0.114)	0.191** (0.088)	-0.089 (0.145)	-0.551 (0.380)	-0.133 (0.134)	-0.023 (0.079)	-0.023 (0.140)	-0.023 (0.140)	-0.023 (0.140)
Political risk (ICRG)	-0.032 (0.033)	0.031 (0.026)	-0.031* (0.018)	-0.022** (0.010)	-0.018 (0.013)	-0.022 (0.019)	0.015 (0.021)	-0.028 (0.019)	-0.021* (0.013)	-0.021* (0.013)	-0.021* (0.013)	-0.021* (0.013)
Democracy	-0.038* (0.022)	0.000 (0.044)	0.008 (0.016)	-0.002 (0.012)	0.007 (0.016)	-0.056*** (0.016)	0.005 (0.038)	0.001 (0.015)	0.004 (0.016)	0.004 (0.016)	0.004 (0.016)	0.004 (0.016)
UNGA voting similar to the US	-2.817* (1.554)	-1.297 (1.562)	-1.265 (0.808)	-0.629 (0.825)	0.861 (0.563)	-1.865* (1.101)	-0.523 (1.435)	-1.244 (0.890)	-0.548 (0.727)	-0.548 (0.727)	-0.548 (0.727)	-0.548 (0.727)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations/countries/instruments	350/72/74	350/72/74	350/72/74	350/72/74	350/72/64	350/72/56	350/72/56	350/72/56	350/72/56	350/72/56	350/72/46	350/72/46
Lag limits	2, 8	2, 8	2, 8	2, 8	3, 8	2, 5	2, 5	2, 5	2, 5	2, 5	3, 5	3, 5
Collapsed instruments matrix	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Arellano-Bond test for AR(2)	0.93	0.16	0.84	0.05	0.06	0.93	0.15	0.74	0.05	0.05	0.06	0.06
Arellano-Bond test for AR(3)	0.38	0.21	0.88	0.11	0.43	0.31	0.15	0.83	0.11	0.11	0.42	0.42
Hansen J-test	0.41	0.25	0.54	0.57	0.85	0.75	0.62	0.56	0.34	0.34	0.49	0.49

* p<0.1, ** p<0.05, *** p<0.01. Dependent variables are disbursements in percent of GDP. The model is estimated using a two-step system GMM with data averaged across five-year periods. Standard errors are corrected using the Windmeijer finite-sample correction.

A.7. Test for strength of instruments

	Bilateral concessional	Multilateral concessional	Bilateral non- concessional	Multilateral non- concessional
Number of observations	350	350	350	350
Number of countries	72	72	72	72
Number of instruments	16	16	16	16
Collapsed instruments	Yes	Yes	Yes	Yes
Lags used	2nd	2nd	2nd	2nd
Kleibergen-Paap LM test (p-value)	0.14	0.14	0.14	0.14
Kleibergen-Paap Wald F-statistics	0.21	0.21	0.21	0.21
Kleibergen-Paap Wald stat:				
Relative OLS bias > 30% (p-value)	1.00	1.00	1.00	1.00

