

Predictability of aid: Do fickle donors undermine economic development?

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1. INTRODUCTION

Poverty and development aid remain at the centre of attention of the international community. Millions were lifted out of poverty over the past decade, and the world's poverty incidence based on a US\$1 per day metric declined from 28 percent in 1990 to 21 percent in 2001. As an estimated more than 1 billion people continued to live on less than US\$1 per day in 2002, developed countries agreed at that time in Monterrey to increase their development aid levels to 0.7 percent of their GDP by 2015. This promise was, however, predicated on recipient countries ensuring a more effective use of aid. At the same time, donor countries acknowledged weaknesses in their own aid delivery mechanisms and committed to tackling them. Subsequently, these donor commitments to provide "better aid" were formalized in a High Level Forum of the Organisation for Economic Co-operation and Development (OECD) in Paris in 2005, which agreed on a set of 12 indicators to measure progress in harmonizing aid and improving its quality.²

Among the key issues on which donors agreed in Paris in 2005 was to make aid more predictable. More predictable aid, so the argument goes, would improve recipient countries' ability to plan for aid flows and allow them to more effectively execute the activities financed with such aid. Low predictability, by contrast, is costly by requiring adjustments to government consumption and investment plans, with potentially harmful effects on the objectives attached to the spending of aid resources. As Lensink and Morrissey (2000) suggest, aid uncertainty may also negatively affect the impact of aid on growth. Finally, if aid is delivered late compared to original plans the underlying lack of predictability could at the same time be a source of procyclicality, with aid flows arriving when the economic downturn is over and reinforcing economic cycles rather than dampening them, imposing costs on economic management and reducing welfare (Pallage and Robe, 2003). As a stylized fact, lack of aid predictability is typically more severe in

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² The Forum issued what is now known as the Paris Declaration on Aid Effectiveness, see <http://www.oecd.org/dataoecd/57/60/36080258.pdf>.

poorer countries (Figure 1), suggesting that the increased efforts of donors to gain a better understanding of the costs of aid unpredictability and to find possible ways to reduce these costs are well justified.

Although predictability has been highlighted as a key issue for aid effectiveness (see also IMF and World Bank, 2007, and IMF, 2007) little systematic information is available on the magnitude of the predictability problem and thus its potential impact on aid recipients. In fact, although making aid more predictable is a key objective of the Paris declaration, no baseline data or agreed statistic was available to measure progress over time.³ The objective of this paper is therefore threefold: (i) to discuss the potential impact of low predictability on aid effectiveness, reasons for low predictability, and measurement issues; (ii) to review the empirical relevance and pattern of predictability in widely used donor-reported data for aid flows; and (iii) to use a new dataset to verify the actual empirical evidence for economic consequences as well as to study some of the channels that determine the economic impact of predictability. The paper concludes with key policy recommendations for both improving the quality of aid flows and measuring progress against the commitments of the Paris declaration.

2. PREDICTABILITY AND AID EFFECTIVENESS

How does predictability affect aid effectiveness? In this section we sketch some key channels by which low predictability would reduce the ability of recipient governments to achieve the objectives of aid. In pursuing this subject, we do not limit ourselves to a single motive for giving aid or alternatively a single definition of when aid is considered effective. Instead, we focus on whether aid, and the way in which it is delivered, is conducive to allow governments to meet the objectives attached to their expenditure. We therefore sidestep the widely debated issue whether aid enhances growth. The latter has played an important role in the recent aid literature (e.g., Burnside and Dollar, 2000, Easterly, Levine and Roodman, 2004, Rajan and Subramanian, 2006, Patillo, Polak, and Roy, 2007) with to date inconclusive results as to whether and under which circumstances aid may enhance growth. However, the question of predictability is relevant even if the main motive of aid is to transfer resources for providing basic social services and offering some income protection. From the perspective of this paper, predictability undermines aid effectiveness if it reduces a government's ability to pursue the objectives attached to the spending of aid resources in an efficient manner. As discussed below, borrowing constraints and partial earmarking of aid can severely hamper the ability of government's to effectively counter "aid shocks" and thus reduce the effectiveness of aid resources.

The OECD's Development Assistance Committee (DAC) in its guidelines for harmonising donor practices for effective aid delivery defines aid as predictable if "partner countries can be confident about the amount and timing of aid disbursements" (OECD, 2005). This broad definition encompasses short-, medium-, and long-term disbursements, as well as intra-annual disbursements. We will, for the purposes of this paper, largely focus on measures of annual predictability, that is we will – within the restrictions of the data -- review the impact of low predictability of aid within governments' annual budget frameworks.

³ The OECD recently produced baseline data under a survey conducted for the purpose of measuring predictability. However, the statistic used explicitly mingles predictability with the issue of on-budget recording of aid by comparing donor-reported commitments against recipient-reported on-budget disbursements. See OECD (2007).

Our paper focuses on aid predictability rather than aid volatility (see, for example, Bulir and Hamann, 2003, Fielding and Mavrotas, 2005, and DfID, 2006). Although these concepts are closely related – low predictability may also result in more volatile aid – observed aid volatility on its own does not conclusively indicate to what extent aid is less effective. For example, aid could be volatile and predictable at the same time since volatile aid disbursements can in part mirror the lumpiness of spending of large investment projects. Volatile aid may also reflect donor efforts to counterbalance volatile economic conditions such as external shocks. This point, emphasized recently by Chauvet and Guillaumont (2007), implies that volatile aid may be stabilizing rather than destabilizing. By contrast, low predictability generates the need for governments to adjust their spending plans in response to “aid surprises” and thus has inherent destabilizing characteristics. If aid is intended to be countercyclical, low predictability may also lead to more procyclical aid and reinforce rather than soften economic cycles, exacerbating problems of aid management.

2.1. Management of government spending and unpredictable aid flows

How does low aid predictability contribute to the spending decisions of governments in low-income countries and could affect aid effectiveness? In considering these aspects we briefly review the special financing circumstances for many low-income countries, and the relationship between aid modalities and the impact of predictability.

2.1.1. Responding to borrowing constraints under uncertainty

Aid-dependent low-income country normally cannot access international capital markets to smooth government spending and buffer “aid shocks” resulting from low predictability. Governments need to rely on domestic revenue and external concessional resources (usually in the form of development assistance) to finance their expenditure. Domestic borrowing is limited by levels consistent with maintaining macroeconomic stability, and external non-concessional borrowing is subject to constraints related to debt sustainability concerns. In fact, limits on non-concessional external borrowing are a standard feature of programs supported by the IMF in low-income countries. As a result, aid-dependent governments need to factor the impossibility to smooth their spending by responding to uncertainty through borrowing into their decisionmaking processes. Decisionmaking under uncertainty in these countries is therefore akin to the problem of the liquidity-constrained consumer, explored in a seminal paper by Deaton (1991).⁴ As Deaton also demonstrates, borrowing constraints may be frequently binding and optimal buffer stocks to self-insure are small if aid and tax revenue levels are highly auto-regressive, that is next year’s are statistically close to current levels. Borrowing constraints therefore imply that possible expenditure adjustments are more severe for countries without access to international capital markets since neither significant buffer stocks nor external savings can be accessed to smooth government incomes. Countries facing several shocks (e.g., to aid and domestic revenue the same time) may thus be forced to cut government spending urgently and severely, leading to disruptions in medium-term programs.

⁴ Deaton’s (1991) analysis also assumes that consumers are impatient, an assumption we consider reasonable for low-income countries. Deaton also notes that his analysis carries over for cases in which the borrowing constraint is non-zero, which would represent a government’s internal debt limits and external non-concessional borrowing limit.

2.1.2. Aid modalities: how the type of aid affects government spending decisions

Decisions on government spending are made within a setting of different aid modalities (see Figure 2 for a simplified schematic representation). Governments must allocate their available resources to recurrent spending and investment spending so as to achieve their objectives through certain outputs. In order to “produce” certain results, spending must be appropriately balanced between recurrent and investment spending. For example, to educate children, both teachers (recurrent spending), and classrooms need to be provided. Although the required mix of teachers and classrooms is not completely fixed, effective schooling is not possible in the absence of either, that is investment alone without recurrent spending is ineffective.

Aid modalities of disbursements place additional constraints on governments to effectively align their annual spending plans with objectives when aid is unpredictable. The two most important aid modalities are budget aid and project aid, with the following characteristics:

- *Budget aid* is aid disbursed into a government’s treasury account to finance regular budgetary expenditure. Budget support would normally not include any provisions tying aid to specific expenditures and can be applied to finance both recurrent and investment spending. Budget aid can therefore be seen as fully substitutable to internal government revenue from tax and non-tax sources. Budget aid decisions are typically made on the basis of annual reviews, even if some donors commit aid within a medium-term framework. The integration of budget aid into the domestic planning processes is seen as a major advantage of this aid modality to support capacity building and strengthen government systems.⁵ As discussed below, this advantage also implies that low predictability of budget aid imposes difficult choices on aid-receiving governments and undermines the effectiveness of budget aid in meeting its objectives of strengthening internal planning processes.
- *Project aid* is tied to specific and pre-identified expenditures of the aid recipient. The classical example of project aid is a large infrastructure project, such as a road, that donors agree to finance. Project aid is typically committed for several years in advance and disbursed against incurred expenditure as project implementation proceeds. Typically donors require the recipient to follow specific rules (i.e., procurement guidelines) for identifying the contractor who constructs the road and to set up specific financial management systems to oversee the use of donor funds. These often donor-specific rules and guidelines are meant to ensure that donor resources are used efficiently and economically, but at the same time can lead to fragmentation and aid complexity. Earmarking of donor resources applies also to aid modalities of technical assistance (where the spending often is on external experts and advice) and most emergency aid.

The different aid modalities and timing of decisionmaking by donors regarding aid lead to different characteristics of government responses, with greater difficulties to manage budget aid shortfalls. If *budget aid* is withdrawn unexpectedly, typically within the annual approval cycle, the government must cut recurrent spending, budgetary investment outlays, or mobilize other internal financing sources (issue debt or increase taxes). Since most recurrent expenditure (most importantly wages) cannot be reduced and are pre-committed, and additional debt financing is normally limited, many countries must use budgetary investment outlays as a buffer for unexpected budget aid. Such cuts can create gaps or imbalances between different categories of government spending, and often create severe disincentives for proper planning of

⁵ For a detailed review of budget aid see Koeberle, Stavreski, and Walliser (2006).

non-project investment spending financed with budgetary resources. Similarly, unexpected (larger-than-planned) budget aid disbursements may not be effectively integrated into internal expenditure planning and may therefore be used with delay or are more likely to be spent on recurrent rather than investment spending. If unpredictable budget aid also leads to procyclical disbursement patterns, for example because originally planned aid is delivered late, additional pressures would ensue on fiscal and monetary policy in managing aid flows.

Project aid shortfalls would directly affect spending on investments for which project aid is earmarked. Given the normally multi-year frameworks of project aid, a withdrawal of project support would typically be announced before project implementation has started, and only rarely are multi-year projects cancelled when under full implementation. Thus, annual predictability of disbursements is more affected by compliance with donor rules than withdrawal of any donor commitments. Given that project aid is tied to specific investment expenditure, an unexpected variation in project aid does not lead to cash shortages or pressures on the budget as the project expenditures are normally not committed before a donor approves. Given typically high import content, its near-term macroeconomic impact is limited and more easily manageable. E.g., even if the project aid arrives when economic conditions are improving and growth is accelerating, it may not create major problems for macroeconomic management if most of the goods and services related to project aid are imported.

2.2. Fickle donors or protecting aid quality: trade-offs in aid predictability

Although lack of predictability has generally undesirable consequences, at times trade offs may arise between predictability and aid effectiveness. Broadly, one could characterize lack of predictability as desirable if – at least from a donor perspective – the benefits in terms of increasing aid effectiveness related to lack of predictability outweigh the country’s costs related to managing aid shortfalls. By contrast, below we will refer to a “fickle donor” problem when there seems little evidence that unpredictable disbursements are grounded in aid effectiveness considerations. Table 1 summarizes the main cases.

Table 1. Characterizing “Fickle Donor” Behaviour

Reason for lack of predictability	Fickle donor problem?	
	Budget aid	Project aid
Major shift in policy or country circumstances, including emergencies	No	No
Slow project implementation speed	N/a	No
Specific conditionality not met	Possible	Possible
Difficulties meeting donor-specific project disbursement procedures	N/a	Possible
Administrative delays and slow response by donors	Yes	Yes
Aid re-allocation or additions to aid envelopes for political or donor-related reasons	Yes	Yes

Source: Authors

Unpredictable aid cuts may at times be necessary to protect donor objectives. If fundamental shifts in a country's policy put in doubt aid recipients' commitments to use aid for the intended purposes, donors may find lack of predictability a necessity to protect aid resources from being misspent – and to defend their aid policies domestically. This issue arises more in a more visible manner for budget aid. Most donor policies on budget aid include provisions that require continued commitment to a sound overall program (including adequate macroeconomic policies) to provide such support. For example, the UK's policies for budget support require commitment to poverty reduction, commitment to address fiduciary weaknesses, and respect of human rights. In case of major political or economic events the entire donor community may walk away from budget support and supply aid through different channels. Such cases are relatively rare (Eifert and Gelb, 2006) and they show that in the interest of preserving aid effectiveness and credibility even otherwise “steady” donors may not always be able to be fully predictable, and may have to withdraw aid suddenly. Since project aid already embeds donor concerns about effective use of resources into its design (e.g., special procurement rules) sudden interruptions of project aid disbursement are more likely the consequence of a country's incapacity to spend aid in accordance with donor rules (e.g., civil war or non-payment of debt) rather than outright donor decisions to withdraw a project.

On the opposite end, some aid may also have to be disbursed unexpectedly to be effective. Emergency aid by nature is hard to predict, and such unexpected additions to disbursements (of both budget and project aid) in response to natural disasters and major economic shocks, help rather than hinder its effectiveness.

A more controversial and complicated case are specific donor conditions meant to assure that country objectives are aligned with donor objectives (see also figure 2). Such conditions, which are typically applied to budget aid, can include specific policy actions (e.g., for the World Bank) or result indicators (e.g., for the European Commission). If recipients do not comply with such specific conditions, conditionality may also cause lack of predictability, but the link with aid effectiveness may be less clear.⁶ If aid is withheld on the basis of conditions that have little relation with effective use of aid, the resulting lack of predictability would be a “fickle donor” problem. A similar conclusion would apply if excessive administrative delays and cumbersome processes prevent the timely disbursement of budget aid. In recent years, many budget support donors have adopted measures to reduce the impact of specific conditionality on annual predictability by making financing decisions early in the budget cycle, and including additional flexibility in their decision processes that downplay the importance of any one action or indicator and allow graduated responses.

In the context of project aid, predictability is concerned mostly with the disbursements under ongoing multi-year projects. Slow project implementation would lead to disbursements falling short of expectations (as would acceleration of implementation cause an unexpected surge in disbursements), and these deviations would not carry aid effectiveness concerns. Similarly, if implementation delays lead to delays in disbursements for reasons related to ensuring aid effectiveness, the resulting lack of predictability of disbursements would be justified. However, a “fickle donor” problem arises if a donor who does not disburse part of committed funds on time because of lengthy administrative delays and unnecessary controls in overseeing the project. Such a predictability concern is part of the broader trade-off between donor oversight and the possible weakening of recipient governments' systems. The recent debate on effectiveness

⁶ See the contributions in Koeberle et al (2006) and the overview in Koeberle and Walliser (2006).

of project aid therefore often stresses issues of project design related to harmonisation of procedures among donors, simplification of processes, and use of a country's own systems.

Other causes for "fickle donors" that can explain both excess aid and aid shortfalls are revisions of aid allocations, and political considerations by bilateral donors. Donors may add or subtract to their originally planned aid during the year in response to political developments or based on the aid absorption of other recipient countries.⁷ Donors could thus potentially divert resources to countries that are able to absorb more aid than expected and disburse more than their original commitments.

2.3. Measuring aid predictability

Measuring predictability of aid flows and the impact of "aid surprises" seems straightforward: one would ideally compare aid flows anticipated by aid recipients and ultimate disbursements to these recipients, differentiated by type of aid. In addition, ideal data would allow an assessment of the underlying reasons for differences between anticipated and realized aid flows, and give information on the impact of aid surprises on government spending and other economic indicators. Since unfortunately no single existing data source meets all these information needs, we approach the predictability issue using two different data sets. The first set of data is the widely used data on aid flows by the Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD-DAC). The second dataset we construct from available program data of the International Monetary Fund (IMF) for a select group of countries. Both datasets are described further below, and their different strengths and limitations are summarized in Table 2.

An important aspect in gauging the burden on recipient countries related to low aid predictability is the source of the data on aid commitments and disbursements. OECD-DAC data are based on *donor*-reported commitments and disbursements. Although the OECD-DAC data gives important insights into predictability patterns from the donor perspective, it does not allow measuring fully the impact on the aid recipient as information on donor commitments may not coincide with expectations for aid flows that enter recipient countries' internal planning processes. By contrast, IMF-based data takes into account the government's discounting of aid promises, as it results from a joint programming exercise. However, at the same time IMF-based data for disbursement data of recipient countries may not fully capture aid that bypasses the government's systems such as direct support to non-government organizations or technical assistance funds disbursed to foreign consultants.

As discussed above, adjustment patterns of recipient countries to unpredictable aid may be different for budget aid and project aid (including technical assistance and emergency aid). OECD-DAC data identifies technical assistance, but does not allow breaking out budget aid. IMF-based data allows a separation in project and budget aid, but does not provide information on technical assistance and emergency aid.

⁷ The well-known "November fever" of the budget cycle in donor countries also applies to aid budgets, as budget administrators try to ensure that budget allocations for aid in any given year are been used fully. It is therefore possible to find aid "top-ups" late in the donor countries' budget years.

Table 2. Measurement Aspects for Predictability of Aid

Measurement issue	OECD-DAC data	IMF-based data
Comprehensive coverage across countries and time	(+) Long-term data series on commitments and disbursements	(-) Data only available for countries with long-term IMF program engagements
Aid expectations are those of recipient countries	(-) Aid expectations are from donor-reported commitments, disbursement data are donor-reported	(+) Aid expectations are constructed from IMF program data that is based on agreed projections with recipient countries and discounts donor commitments; disbursements are those recorded and reported by recipients
Differentiation by aid type	(-) Distinguishes technical assistance, but cannot distinguish project aid and budget aid	(+) Distinguishes budget aid and project aid, but does not have separate coverage for technical assistance
Identification of reasons for lack of predictability	(-) Differences between commitments and disbursements cannot be traced to specific donor decisions	(-) Data cannot directly identify the reasons for unanticipated aid shortfalls or excesses
Identification of fiscal adjustments to aid surprises	(-) Does not offer any additional data on adjustments to unanticipated changes in aid flows	(+) Allows for a comparison of anticipated spending and actual outturns for a variety of fiscal and economic variables

Source: Authors

Information on reasons for lack of predictability is not directly available from most datasets. Ideally, data would indicate why committed or expected aid and actually disbursed aid differ. Such reasons include failure to comply with conditionality for budget aid (which, as laid out above, may reflect different degrees of a country's performance); administrative delays in releasing budget aid; non-compliance with procedures or administrative delays for project aid; and unanticipated changes in the speed with which project activities are executed. To overcome the lack of specific data on this issue, we apply regression analysis to study whether predictability varies consistently with factors typically associated with country performance and effective use of aid resources to gauge whether aid effectiveness concerns may lead donors to be less predictable.

Standard aid data from the OECD DAC is not embedded into a set of internally consistent macro-fiscal variables and thus does not permit comparing expected and realized aid flows within such a setting. By contrast, the IMF-based data traces out the expected and realized variables (including tax revenue, spending, and deficit financing) to trace the impact of low predictability on budget decisions.

Two additional datasets deliver important pieces of information on aid predictability. A recent survey to follow up on the Paris declaration of 2005 (OECD, 2007) includes data collected from both donors and aid recipients on predictability. The data is only for 2005 and measures whether aid was disbursed on schedule by comparing donor promises against disbursements recorded in recipient countries' budgets. The survey finds that that about 73 percent was disbursed on schedule. However, relies on donor-reported data (rather than recipient expectations) and intermingles different measurement issues by comparing commitments only with aid disbursements recorded in government budgets, implicitly treating a disbursement as lost if it is not recorded in the budget.

An initiative by the budget support working group of the Strategic Partnership with Africa (SPA) program, a group of multi- and bilateral donors, delivers new and fairly comprehensive information on budget aid in select African countries (SPA, 2005 and 2007). These data are focused on budget aid predictability for a set of around 15 African countries with some small variation in coverage over the years. The SPA survey is extremely valuable to generate consistent commitment data that reflects actual agreements between donors and recipients and actual disbursements data. It also helps identifying reasons for disbursement delays, and we will use some of its results below for that purpose.

3. PATTERNS OF PREDICTABILITY IN DONOR-REPORTED AID DATA

One key data source to investigate different measures of aid predictability and procyclicality are aggregate data collected by OECD's DAC. OECD-DAC statistics contain information on aid commitments and disbursements, as reported by donors broken down by country. It also allows distinguishing debt relief flows from other aid, but, as explained above, does not identify budget aid separately. This section reviews patterns of total development aid donors have committed and disbursed in a large sample of low-income countries during 1990-2005. For the purpose of establishing some stylized facts on predictability, we limit ourselves to comparing donor-reported data on an annual basis in this section. The sources and definitions of the data used in this section are detailed in Annex 1.

3.1. Predictability of aggregate donor-reported aid flows

3.1.1. Measuring predictability with OECD-DAC data

Do donors deliver on their own aid promises? OECD-DAC data is a uniquely placed source to answer this question on the basis of donor-reported commitments and disbursements. Although, as we noted above, such a notion of predictability is not necessarily directly related to the ultimate economic costs of aid volatility, it gives a first indication of the potential magnitude of the problem by juxtaposing the aid volumes donor countries themselves say they committed and disbursed.

As a first pass to gauging predictability, we analyze patterns of aid commitments and disbursements in 60 low income countries during 1990-2005. The sample consists of countries with GDP less than 1675 in constant 2005 US dollars, received net aid flows exceeding 2 percent of GDP on average during 1990-2005, and had average population exceeding 1 million. Key features of the data and definitions used to arrive at the aid data are summarized in Box 1.

We correct the raw data by identifying those donors that never report commitments to OECD-DAC. Rather than subtracting disbursements for these donors from overall disbursements, which would treat them implicitly as being fully predictable, we assume that aid disbursements by these donors are as predictable as disbursements of the other donors in that country and year (e.g., if 30 percent of aid is not disbursed in a country, we would impute that 30 percent of disbursements from these donors come as a surprise as well). The underlying hypothesis is that donors that never report commitments are simply not reporting

commitments to the OECD, rather than lacking predictability.⁸ Overall, this adjustment does not affect our results as it concerns annual aid flows in the magnitude of typically 0.1 percent of GDP or less for each of the countries in our sample.

Box 1. DAC Statistics on Aid Flows

Established in 1961, The Development Assistance Committee (DAC) of the OECD is a key forum of major bilateral donors. Members of the DAC—donor countries—are required to report to DAC on the official development assistance (ODA) flows originating from their official agencies to developing countries, including those channelled through multilateral development agencies. ODA flows cover transactions satisfy a minimum degree of concessionality and have the promotion of economic development and welfare of developing countries as their main objective. Covering virtually all recipients of ODA, the DAC statistics constitute the most comprehensive, readily-available dataset on aid flows.

Tables 2a and 3a of the DAC Statistics report the total (bilateral and multilateral) disbursements and commitments of ODA to developing countries. Commitments are firm written obligations 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. Commitments are considered to be made at the date a loan or grant agreement is signed or the obligation is otherwise made known to the recipient. Commitments for a given year comprise new commitments and additions to earlier commitments, excluding any commitments cancelled during the same year. A disbursement is the placement of resources at the disposal of a recipient country or agency, or in the case of internal development-related expenditures, the outlay of funds by the official sector.

Table DAC 2a. Destination of ODA - Disbursements

Grants (201)
of which:
Debt Forgiveness (212)
Loans and Other Long-term Capital
Extended (204)
of which:
Rescheduled Debt (214)
Received, excl. offsetting debt relief (205) (-)
Offsetting entries for debt relief (215) (-)
Total Net Loans and Other Long-term Capital (218)
Total Net Disbursements (206)
of which:
Technical Cooperation (207)
Developmental Food Aid (213)
Emergency Aid (216)

Table 2a of the DAC statistics provide information on gross and net ODA, as well as some sub categories of net ODA, such as technical cooperation, development food aid, and emergency aid which typically do not affect the recipient country's government budget. Gross ODA is given by the sum of grants (201) and extended loans (204). Gross ODA net of debt relief would exclude debt forgiveness grants (212) and rescheduled debt (214) from gross ODA. Net ODA equals gross ODA minus loan repayments, given by actual payments, received loans excluding debt relief (205) and offsetting entries for debt relief (215). Roodman (2006) provides estimates of net aid transfers that further exclude received and forgiven ODA interest payments, and offsetting entries for forgiven loans which were not classified as being concessional at the time of disbursement.

Table 3a of the DAC statistics documents gross commitments of ODA by recipient country, broken down into grants and loans and other long-term capital. These commitments include debt forgiveness grants and rescheduled debt flows, although separate entries for such categories are not given. Technical assistance is the only subcategory for which commitments are reported.

Table DAC 3a. Destination of ODA - Commitments

Grants (301)
Loans and Other Long Term Capital (304)
Total Comitments (305)
of which:
Technical Cooperation (306)

⁸ By contrast, for donors that only occasionally fail to report commitments, we continue to treat their disbursements as not predictable.

3.1.2. Aid predictability by country and region

As displayed in detail and by country in table 3 (column 2), on average many aid recipients receive aid disbursements that exceed aid commitments. This finding is in contrast with the general belief that donors rarely keep their aid promises and systematically disburse less than they commit.⁹ In our dataset, Sub-Saharan African countries received 1 percent of GDP more in disbursements on an annual basis than had been committed by donors during 1990-2005, although the magnitude of excess disbursements has declined in recent years. By contrast, countries in the Middle East, Latin America and transition economies typically received less disbursements than were originally committed.

Notwithstanding the fact that for many countries on average disbursements exceed commitments, aid remains highly unpredictable. In many years, aid disbursements deviate from commitments, both exceeding and falling short of commitments (table 3, column 3). A simple measure of predictability, the absolute deviation in percent of GDP of committed and disbursed aid, is persistently large. Take, for example, Rwanda, a highly aid-dependent country. The difference between aid disbursements and commitments (that is the average value of periods of excess aid or aid shortfalls) exceeded 3 percent of GDP, even though over longer time horizon shortfalls and excesses appear to cancel out. Figures for some post-conflict cases such as Sierra Leone (9 percent of GDP) are also staggering.

During 1990-2005, on average annual aid disbursements deviated by 3.4 percent of GDP from aid commitments in Sub-Saharan Africa. However, there has been a positive trend, with a decline in absolute deviations from 4.4 percent on average during 1990-1997 to 2.8 percent during 1998-2005, the numbers remain large. Other regions also show deviations of disbursements and commitments in a range of 1.7-2.4 percent of GDP on average during 1990-2005.¹⁰

Commitments as reported to OECD-DAC by donors relate to legally binding agreements between donors and recipients and may affect disbursements over several years, in particular for project aid. As a result, one might suspect that spikes in commitments related in any given year would result in an upward bias in our statistic on absolute deviations between annual commitments and disbursements. To verify the importance of this aspect, we assume, following Roodman (2006), that average project duration is three years and allocate one-third of commitments reported to OECD-DAC database to the year in which commitments are made and the 2 following years. Ideally, this smoothing of commitments would only be applied to project aid and other aid disbursed over several years. However, given the lack of data on types of aid for commitments, we smooth all commitment data, recognizing that it could bias our finding in the opposite direction.

Overall, the smoothing of commitments does not alter our summary findings on the magnitude of the predictability issue. As shown in table 3 (columns 4 and 5), for all regional averages except South Asia, the absolute deviations of commitments from disbursements are within a range of 0.3 percent of GDP from previous findings. For Sub-Saharan Africa it appears that absolute deviations increase slightly on average,

⁹ See, for instance, the discussion in Birdsall (2006). Vargas Hill (2005) also shows that total aid disbursements to Sub-Saharan Africa exceeded commitments in almost every year since 1990. Our finding contrasts with results by Pallage and Robe (2001) and Bulir and Hamann (2001, 2006), who compare gross commitments with smaller subsets of disbursements. Pallage and Robe (2001) document consistent disbursement shortfalls from commitments, but they compare *gross* official development aid commitments with *net* disbursements. Bulir and Hamann (2001, 2006) compare *total* debt commitments with disbursements of *long-term* debt reported by the World Bank's Global Development Finance database.

¹⁰ Data on disbursements and commitments for technical cooperation suggests no clear pattern on whether technical cooperation aid is more predictable than other types of aid. The deviations from commitments as a share of disbursements are broadly comparable in magnitude for technical cooperation and overall aid; the deviations are smaller for technical cooperation in roughly half of the sample (Annex Table A1).

indicating that smoothed commitments for a number of countries track disbursements less rather than more closely. Although for some countries absolute deviations change significantly in either direction (e.g., Congo DRC and Sierra Leone), for the majority of Sub-Saharan countries the changes are within a range of 0.5 percent of GDP.

3.2. In which circumstances is aid more predictable?

Based on the stylized facts on aid predictability and within the limitations of OECD-DAC data, we pursue the question whether certain country characteristics may be associated with more or less predictable aid. We also try to discern through the use of country-specific variables whether such pattern gives rise to the belief that aid effectiveness reasons may be a main driver of predictability of aid. In other words we attempt to review whether there is evidence that part of the loss in aid predictability is related to aid effectiveness concerns identified above in table 1, or whether we cannot reject the “fickle donor” hypothesis.

3.2.1. Capturing common patterns of predictability

Data on donor and recipient country behaviour are not directly observable to identify their importance for the identified patterns of predictability in OECD-DAC data. We therefore rely on proxies for key aspects that could relate country characteristics and other observable characteristics to predictability in a simple regression analysis. Not all of these variables are necessarily independent from each other, and hence we do not attribute causal relations to our first set of regressions, an aspect reviewed in detail below. However, to the extent that these different variables capture what we consider to be good reasons to be not predictable, we associate any remaining unexplained lack of predictability with some of the unobservable “fickle donor” issues detailed above.

Above, we identify fundamental shifts in policies and country circumstances as possible good reasons for donors to not be predictable. Here, we try to seek out indicators that may pick up these elements to see whether a relationship emerges to predictability. In particular, we use the number of continuous years under IMF-supported programs as a proxy for longer-term macroeconomic stability and stable policy implementation.¹¹ This variable captures the potential importance of macroeconomic instability and recipients failing to implement IMF-supported program for aid predictability, and we would expect to observe higher values of this variable in countries that have stable relationships with donors.¹² Since exiting or entering an IMF program on its own may signal a fundamental policy change and determine aid disbursements, we also include an IMF program dummy as a control variable.

In line with the argument that donors must at times respond to shocks with unpredictable aid to be effective, we review whether emergency aid significantly affects predictability. We would see a relatively large magnitude of emergency aid as an indicator that some predictability issues arise from adjustments of aid levels to current events by donors. Similarly, we review whether predictability aspects are driven by

¹¹ We do not include policy variables or macroeconomic outcomes among the explanatory variables, as these are potentially endogenous to aid excesses or shortfalls.

¹² For instance, the number of consecutive years under an IMF program is negatively associated with the volatility of inflation in the past four years, lending support to the notion that this variable captures a more stable macroeconomic environment and more consistent adherence to macroeconomic policy conditionality.

terms-of-trade shocks, in an attempt to identify sources of unpredictability from donor responses to unforeseen shocks.

We also include additional variables to capture other aspects. First, as an additional measure of country performance influencing views of aid effectiveness, we include an index measuring the quality of governance derived from the International Country Risk Guide. Further, we use the share of net aid transfers in GDP as a control variable for the scale of aid.¹³ Given the simultaneity between our predictability measure and net aid (which is defined as disbursements minus repayments), and the possible negative impact from unforeseen aid shocks on the quality of governance, we use the lags of net aid and governance observed in the previous year. In addition, to control for time-varying factors that potentially affect predictability in all recipient countries in the same manner—such as the OECD business cycle or political cycles in major donor countries, we include time effects in all regressions.

Before we move to more formal regression analysis, Figure 3's different panels visualize the impact of years in IMF program, emergency aid, and terms of trade movements on predictability. Panel 1 shows that predictability – measured as the difference between commitments and disbursements – sharply increases with the number of years a country has implemented an IMF-supported program (or successive programs). This finding suggests that stable macroeconomic policy implementation and the factors enabling it, which are signalled by a sustained track-record of implementing IMF-supported programs, allow countries to receive aid in a more predictable manner. Panel 2 suggests that emergencies do not systematically lead to excess disbursements – in fact, it appears to be more common that donors do not live up to their overall commitments in years when there are large disbursements of emergency aid.¹⁴ Similarly, Panel 3 indicates that terms of trade movements are not linked to excess disbursements or commitments in any systematic way. Panel 4 suggests that predictability is higher in countries that receive more aid.

In our regressions (table 4), we first study the absolute value of the deviation of disbursements from commitments, normalized by GDP, as an indicator of predictability.¹⁵ In this case, a negative estimated coefficient indicates that the explanatory variable reduces the difference between commitments and disbursements, i.e., it increases the predictability of aid flows. Likewise, a positive coefficient indicates a reduction in predictability. Table 4 summarizes the results for the full sample of countries. In line with our earlier considerations, the results in column 1 suggest that predictability is higher in countries that have had a longer period under an IMF program. However, implementing an IMF program on its own does not make a significant difference. Predictability decreases when the overall aid transfer is larger (a scale effect—a larger potential gap between commitments and disbursements comes hand in hand with a higher base level of disbursements) and when disbursements of emergency aid are larger. Better governance and terms of trade movements, however, do not systematically affect our predictability variable.¹⁶ This first regression explains some 23 percent of the variation in predictability, suggesting that other unidentified explanatory factors do play an important role, such as weak donor practices (e.g., administrative delays) or other issue that our dependent variables capture only imperfectly (e.g., slow implementation of projects and additional donor conditions).

¹³ The net aid transfers data is from Roodman (2005) who estimates the amounts of forgiven nonconcessional debt and interest payments and subtracts them from the OECD DAC measure of net official development aid to arrive at a net transfer (as opposed to net flow) concept. Our regression results are fully robust to using net official development aid instead of net aid transfers.

¹⁴ No disaggregated data is available on commitments of emergency aid.

¹⁵ All the regressions in the paper were run on annual data.

¹⁶ Since our dependent variable in this case is censored at 0, we verified the consistency of the regression against alternative Tobit analysis.

The second and third columns of table 4 use the same regression analysis but split the sample into two separate subsets of aid shortfalls (column 2 – aid delivered is smaller than committed) and excess aid (column 3 – aid exceeds commitments), both defined as positive variables. The regressions show that a continued and longer engagement with the IMF reduces excess aid (“surprise disbursements”) but not aid shortfalls. A higher level of emergency aid is associated with both excess commitments (donors overpromise) and excess disbursements (donors deliver more than they promise), but the effect on excess commitments is larger. A higher level of net disbursements as a share of GDP is associated with both larger shortfalls and excesses as a share of GDP. Finally, positive terms-of-trade shocks are weakly associated with smaller excess disbursements.

Some additional insights are offered by a second predictability indicator – the difference between commitments and disbursements as a percentage of disbursements. We test the relationship of this indicator to the explanatory variables outlined above, and the results are reported in column 4 of table 4. Similar to earlier results, longer IMF involvement is associated with smaller percentage deviations, whereas emergency aid receipts are associated with larger percentage deviations of commitments and disbursements. When we scale the gap between commitments and disbursements by disbursements, we no longer find that the level of net aid as a share of GDP is associated with less predictability.

We also verify the robustness of our findings against outliers (columns 5-12). In particular we omit observations where the net aid transfer exceeded 25 percent of GDP or emergency aid was in excess of 20 percent of GDP, which are typically associated with post-conflict emergencies that are not necessarily representative of the majority of the observations. We furthermore test specifications that omit the observations that are classified as being multivariate outliers by the Hadi (1994) procedure. These additional regressions largely confirm the previous results, except that the effect of emergency aid on predictability is not robust to excluding outliers.

3.2.2. Robustness of results to alternative regression analysis

The association of certain variables with predictability patterns does not imply these variables actually cause lower predictability of aid. Indeed, most of the different variables used in the regressions cannot be interpreted as having a causal impact on predictability on the basis of our ordinary least-square regressions, although they may point at recipient country characteristics that are associated with more or less predictable aid. Some of the variables could potentially be simultaneously determined with excess aid or aid shortfalls, or be subject to reverse causality, while some of the variables are likely to be correlated with largely time-invariant yet unobserved country characteristics that also have a bearing on aid predictability.

In particular, a surprise disbursement would not only automatically increase the excess disbursement measure, but it would also increase net aid. The possibility of a negative link between aid predictability and the quality of governance cannot be ruled out, and serial correlation in aid prediction errors could lead to a negative bias on the coefficient on lagged governance. Furthermore, the significance of the number of years in an IMF program is likely to reflect a country’s more stable implementation of donor conditionality and more stable donor-recipient relations, which is largely a fixed country effect rather than a time varying effect whereby donors would literally behave more predictably just because a country implements yet another year

of an IMF supported program.¹⁷ Likewise, implementing an IMF program might simply reflect underlying macroeconomic difficulties which could by itself cause aid to be less predictable. As such, this variable is also a control for unobservable country characteristics. Unobserved and fixed country characteristics could also imply both higher levels of net aid and less or more predictable aid.

A first element of our strategy to reduce the potential bias of endogenous variables is to use lagged variables for net aid and governance. Since aid prediction errors do not appear to be serially correlated – regressing the absolute value of prediction errors on its lag produces an insignificant coefficient – lagging both variables would eliminate contemporaneous effects of predictability on net aid and governance. Our earlier regressions already included lagged values for these variables.

A second element is to use instruments for the remaining potentially endogenous variables. Following Acemoglu, Johnson, and Robinson (2001) we instrument the quality of governance by the logarithms of settler mortality and population density in former colonies. Following Alesina and Dollar (2000) we instrument net aid by the number of years the recipient country has been a colony in the 20th century and the correlation of votes cast in the UN General Assembly by the recipient country and major donor countries (United States, France, Germany, Japan, and Italy).

The results of instrumental variables regressions on overall, positive, and negative values of commitment-disbursement deviations are shown in columns 1, 3, and 5 of Table 5, respectively.¹⁸ The results largely confirm previous results on the significance of longer IMF engagement and the positive association between the size of net aid and the size of deviations. However, except for excess commitments, emergency aid is no longer significant. The quality of governance remains insignificant, as do most other variables.

A third element of our verification strategy is to include a fixed effect for each country in the regression. Columns 2, 4, and 6 present the results of these regressions. As expected, the variable capturing the number of years in an IMF program becomes insignificant, confirming that the variable largely captures fixed recipient country characteristics that come hand in hand with more predictable aid. The only other difference from previous findings is that we find some weak indication that better governance lowers excess commitments when correcting for country fixed effects.

3.3. Predictability and cyclicity of aid

One of the concerns related to aid predictability is whether poor predictability may also undermine good donor intentions to give more aid when economic conditions worsen. To measure such effects we study the correlations of commitments and disbursements with three sets of variables. First, following Chauvet and Guillaumont (2007) we review the relationship of commitments and disbursements with export data. Given the direct link between GDP and aid levels, the intention is to capture movements of an exogenous variable indicative of economic activity.¹⁹ Second we compute correlations of commitments and disbursements with

¹⁷ Mosley and Abrar (2006) have argued that the underlying relationship (“trust”) is more important than actual compliance with conditions.

¹⁸ We ran limited information maximum likelihood estimations given that our instruments are not strong. Running two stages least squares of GMM regressions did not alter the main results.

¹⁹ Chauvet and Guillaumont (2007) also show that to address the broader question of whether aid has a stabilizing impact on a reference economic aggregate, it is necessary to take into account the relative sizes and volatilities of aid and the reference variable in addition to their correlation. Here we focus only on the question of whether lack of predictability might contribute to a higher correlation between aid and a number of macroeconomic variables, recognizing that the correlation is only part of the picture on stabilizing aid.

terms-of-trade movements, again with the assumption that the latter are largely exogenous and capture an important driver of economic activity. Third, we review the possibility that donors intend to disburse aid countercyclically but that incorrect growth projections or disbursement delays result in procyclical aid ex-post. For this purpose, we compute the correlations with the projected change in the GDP growth rate, as reported in the IMF's World Economic Outlook, which is an important source of consistent data on GDP forecasts in low income countries.

Table 6 presents the correlations between different measures of aid and economic activity, by country and in the pooled sample. Columns 1 and 2 show that commitments and disbursements are both positively and negatively correlated with exports in different countries, without any clear pattern. Hence, there is no indication that donors try to behave countercyclically either in commitments or disbursements. As the positive correlations slightly dominate the sample, the pooled sample has a small positive and almost identical correlation between exports and commitments and export and disbursements. Although again a wide range of country cases exists, for the entire sample lack of predictability neither enhances nor reduces the mildly procyclical pattern of aid.

Regarding terms-of-trade movements, we find no indication that donors try to systematically commit or disburse aid in a countercyclical manner. For the pooled data, commitments are mildly procyclical while disbursements are not significantly correlated with terms-of-trade movements (table 6, columns 3-4). In the aggregate, this could be seen as a slight dampening of a mild procyclical stance of commitments when deciding on disbursements. In other words, in line with our earlier arguments, some donors may respond with positive aid surprises to help countries subject to a terms-of-trade shock (see also column 8), but not to a degree that would generate a significant countercyclical stance.

Another, slightly different, view of the data emerges when actual commitment and disbursements are reviewed against growth projections. It appears that for the pooled sample the level of actual commitments (as a share of realized GDP) are negatively correlated with projected growth accelerations, i.e. aid commitments tend to decrease when projected growth rates rise above current growth rates. This effect is also present, albeit weaker, for disbursements. It indicates that, against information on economic growth available at the time aid allocations are made, both commitments and disbursements appear to dampen cycles, but disbursements less so than commitments. We also find that predictability is negatively correlated with decline with larger GDP projection errors (column 9). In other words, donors are more likely to disburse close to their commitments or more than their commitments if GDP outturns fall short of projections, that is donors appear to compensate somewhat for growth shortfalls.

3.4. Predictability of aid: a first set of conclusions

Taken together, our analysis in this section suggests a few stylized facts that emerge from donor-reported aid commitments and disbursements. First, predictability issues are prevalent in the data, and discrepancies between donor-reported commitments and disbursements are large in absolute terms, albeit with some declining trends in recent years. Certainly, the magnitude remains important enough to have a negative impact on aid management by recipient countries. Deviations occur in both directions, resulting in both aid shortfalls and excess aid. Sub-Saharan Africa, in particular, tends to have a excess disbursements exceeding disbursement shortfalls on average and over time.

Second, a significant share of predictability patterns can be associated with factors that are close proxies for major changes in a country's environment and therefore justify, if not necessitate, some degree of unpredictable donor behaviour. Predictability of aid is significantly higher in countries that have had IMF

engagements of longer duration, which we take to be a proxy for the stability of the country environment and donor relations. Presence of emergency aid is related to less predictability, driven largely by a few cases with large emergency aid disbursements. By contrast, terms of trade shocks and related aid adjustments do not significantly correlate with aid predictability. Recipients of more aid are also subject to less predictability when measured as deviations of commitments from disbursements as a share of GDP (scale effect). However, predictability measured per dollar of disbursements declines with the level of aid. Overall we find that about 25 percent of the variance in predictability can be associated with IMF program years, emergency aid, and scale effects.

Third, following from the above, there remains an important part of donor behaviour that cannot be associated with factors that would typically justify unpredictable aid. There is thus a rather large part of lack of predictability that is unexplained. We see this as evidence of a non-negligible “fickle donor” element in the lack of predictability.

Fourth, we find no significant role of predictability in the cyclicalities in disbursements and commitments when compared with exports and terms-of-trade. We find, however, to some degree, that commitments and disbursements decline when growth is projected to accelerate, and that disbursement increase when growth falls short of original projections.

4. PREDICTABILITY: THE COUNTRY PERSPECTIVE

In this section, we enhance some of our earlier findings on predictability with evidence from governments’ macroeconomic programs. In this context, we understand predictability as the *government’s* ability to limit the forecasting error of aid disbursements based on the information available at the time of budget preparation. By shifting attention from the donor’s perspective to the government’s perspective, we avoid attributing lack of predictability to commitments and aid promises governments already discount as unreliable. Discounted levels of disbursements could, in turn, avoid some of the costs we identified as being associated with low predictability.

In addition, we focus on identifying in detail the adjustment costs of low predictability for recipients. Section 3 captures the importance of the “fickle donor” but OECD-DAC data cannot identify how countries adjust to such aid surprises. In this section, we attempt to trace out responses by governments to lower and higher-than expected aid disbursements.

Studying the response to low predictability of budget aid builds on the availability of macroeconomic and fiscal data, both in projections and in outturns, in IMF-supported programs. These data allow identifying expectations for disbursements of both project and budget aid within a consistent framework of fiscal variables and macroeconomic projections. They thereby also permit identifying how countries adjust ex-post to incorrect projections. As we have shown above, long-term IMF engagements tend to eliminate factors that reflect country macroeconomic instability and thus allow us to focus on how donor behaviour could undermine aid predictability even in countries with steady program implementation. Moreover, data for long-term IMF programs tend to be available at shorter intervals and with greater precision as regards future disbursements than those merely under IMF surveillance, and thus are more apt for producing disbursement expectations by governments.

The previous section also suggests that a promising avenue for further exploration of predictability issues is to focus mostly on budget aid, an aid modality that represents about one-fifth of official development assistance and more in better-performing countries. Low predictability of budget aid has an immediate effect

on the government's resources and requires adjustments to spending and/or financing. Moreover, budget support disbursements can be more easily traced to donor behaviour whereas project aid disbursements as reflected in IMF programs also depend on general project implementation speed, a factor that cannot be empirically separated from predictability issues.

4.1. Using IMF program data to measure aid predictability

In order to gauge some characteristics on the predictability of aid, and budget aid in particular, we study in detail aid and macro-fiscal projections and outturns reported in IMF staff reports from 1992 to 2007 for a set of thirteen countries.²⁰ IMF staff reports document projected aid flows and outcomes within the macroeconomic framework of IMF-supported programs, which is a crucial determinant of overall spending levels, tax targets, and financing needs in countries that receive large aid flows. The selected countries are characterized by (i) long-term program relations with the IMF, albeit not always without minor program interruptions or delays; (ii) relatively large external aid flows; and (iii) receipt of World Bank budget support. We also compare these data to key characteristics of aid flows reported in the OECD-DAC data.

4.1.1. Recovering aid flow projections from program data

In constructing the dataset, we took care to the largest extent possible to identify IMF projections that would underpin decisions for the government's policymaking of the following year. This choice has been made to simulate to the best extent possible the information set available to policymakers and IMF staff at that time. Untied general budget aid, which helps closing the fiscal gap and thereby is central for financing budgets under IMF programs, receives fairly great attention in projections, presumably resulting in maximum use of information on the volume and likelihood of disbursements. Projections in IMF-supported programs lay out expected values for aid, revenue, spending, and domestic financing in local currency by country authorities and IMF staff, and are in large part the guiding post for budget implementation. Aid numbers reflect commitments made by donors as well as judgments by the governments as regards the likelihood of disbursements. For example, governments may anticipate delays in meeting certain conditions or processing requirements, and this information may not be available to donors who report their commitments to the OECD-DAC.

In establishing our data for expected aid flows and other projected variables from IMF reports, we usually choose projections established by governments under IMF programs between zero and six months before the beginning of the budget year. These original projections, which may be revisited in mid-year by the IMF, would usually drive original fiscal planning, even if not officially, whereas mid-year projections already reflect the need to make adjustments to new information.²¹ See Annex 2 for further discussion of data issues.

We contrast projections for a variety of variables with outturn data for the same variables. Outturn data are usually drawn from the latest staff reports reporting on that year in order to ensure that original preliminary data have been firmed up. The data include a consistent set of information on fiscal revenue, current and capital spending, as well as financing items, normalized with GDP outturns. By drawing on these items from

²⁰ Albania, Benin, Burkina Faso, Ghana, Kyrgyz Republic, Madagascar, Mali, Mozambique, Rwanda, Senegal, Sierra Leone, Tanzania, and Uganda. The vast majority of the IMF reports are publicly available on the IMF's external website.

²¹ The number of the originating staff report has been recorded in the database to be able to trace the origin of each projection.

internally consistent fiscal accounts, we assure that we can identify how governments adapted to changes between projection and outturns.²² Overall, we obtain 132 observations for the dataset.

4.1.2. Patterns of predictability in IMF program data

Based on the aid projections and outturns from IMF program data, we are able to review in some detail the predictability of budget aid and study key determinants of predictability. As shown in Figure 4, aid inflows in our data vary from 2-3 percent of GDP in recent years in Albania to more than 15 percent of GDP in Mozambique. Although budget support is an important aid modality and has become more important in some countries (Rwanda, Tanzania, Uganda), it has declined in importance elsewhere (Albania, Kyrgyz Republic, Senegal). Project aid continues to be the dominant form of aid in almost all countries, typically ranging from 5-10 percent of GDP.

Table 7 shows in detail that even in this set of countries with long-term IMF engagement, both negative and positive errors in projecting budget aid disbursements are large and thus impose burdens on budget management. Although excess aid and aid shortfalls almost even out over time, so that disbursed aid on average differs from projected aid by about 0.2 percent of GDP (column 2), projection errors are large (column 3). In this respect, our data from IMF programs are similar to the OECD-DAC data. On average, the mean absolute error in projecting budget aid has been about 1 percent of GDP during 1993-2005, indicating that on average disbursed aid differed by 1 percent of GDP from projections. This figure is striking as overall average budget aid is only 3.3 percent of GDP on average for these countries, indicating that slightly less than one-third of that number is unpredictable. Efforts to improve predictability in recent years have yielded some results with errors declining by about 0.3 percentage points of GDP for the second half of the sample period. Some countries show strong improvements (e.g., Benin, Burkina Faso, Kyrgyz Republic, Madagascar), with others stagnating (e.g., Mali, Senegal, Tanzania), or even regressing (e.g., Uganda). Equally striking is the finding that countries in post-conflict situations appear to face enormous levels of unpredictability, at more than 2 percent of GDP easily exceeding half of their regular budget aid (Rwanda in 1997-99 and Sierra Leone during 2001-05).

IMF data does not identify the reasons for the low predictability of budget support. However, according to SPA (2005), on average 81 percent of 2003 commitments were disbursed during 2003, with an additional 10 percent being disbursed in the following and 9 percent being permanently lost. Donors also responded that 40 percent of delayed or lost disbursements were due to unmet policy conditions, followed by administrative problems on the donor side (29 percent), government delay in meeting processing conditions (25 percent), and political problems on the donor side (4 percent).

We also find that tax revenues are difficult to predict but have somewhat better characteristics than budget aid, which is a perfect substitute for tax revenue. Projection errors on average have been sizable at 0.9 percent of GDP, but were smaller than errors in projecting budget aid. In fact, errors in projecting tax revenue as a share of GDP have been consistently smaller by about 20 percent than errors made in projecting budget aid disbursement, indicating a higher overall “predictability” of tax revenue compared with budget aid in contrast to the argument put forth by Collier (1999). Average projection errors have remained stable for our sample of countries, but have declined as a share of tax revenue. Some countries

²² For a few years, we were unable to derive projection and outturn data for lack of sufficiently detailed fiscal data. Notably, for 1993-1997 in Ghana and 1994-1997 in Mozambique, the break-down between budget aid and project aid was not reported.

(e.g., Albania, Benin, Burkina Faso, Rwanda, Tanzania) have made quite important progress in improving revenue forecasts, whereas others (e.g., Kyrgyz Republic, Madagascar) have had less predictable tax revenue in recent years.

IMF data also allow identifying the deviations of project aid disbursements from projected values. Project aid disbursements also can vary substantially from projections (see Figure 5). In our data, on average, project aid deviated by 1.4 percent from projected values, and these values increased comparing the periods 1993-1999 and 2000-2005. However, as we note above, these deviations also capture forecasting errors regarding the speed of project implementation. Moreover, shortfalls and excesses in project aid do not directly affect the fiscal programming framework and thus they neither cause adjustment costs nor do they receive the same attention by governments in preparing program forecasts. For these reasons, most of our discussion on adjustment costs below concerns budget aid.

4.1.3. Comparing predictability patterns in IMF program data and OECD-DAC data

Predictability data derived from IMF-supported programs tends to differ from patterns in OECD-DAC data. Figure 5 compares predictability measures for IMF-reported data on projections and outturns for budget aid and project aid against the differences between commitments and disbursements from OECD-DAC data. It is evident that the OECD-DAC predictability statistic tends to be more volatile as a share of GDP, and in a number of years shows larger shortfall and excess aid disbursements than IMF program data, such as in 2001 in Benin or in 2002 in Ghana. OECD-DAC data also has a pattern that often differs from the general direction of IMF data, e.g., by showing an aid shortfall in 2001 in Mozambique whereas IMF data indicates excess disbursements of both project and budget aid.

As annex Figures A.1. and A2 underscore, the differences between IMF data and OECD-DAC data result largely from differences between commitments reported by donors and the disbursements expected by recipients. Although OECD-DAC and IMF disbursement data levels also differ substantially, at times by several points of GDP, they generally move in the same direction and have the same trend. In most years and countries, OECD-DAC disbursements exceed IMF disbursements, presumably because certain aid is not recorded in the fiscal accounts and IMF data focuses on budget and project aid and may not capture certain other aid, such as food aid or disbursements that bypass the government's treasury. These differences underscore the value added of studying projections that are based on country program projections rather than donor commitments to gauge the impact of low predictability on aid dependent economies. They furthermore highlight that donor commitment data is heavily altered in the process of establishing realistic aid flows by recipients.

4.1.4. Identifying covariates of aid predictability in IMF data

In order to explore further which factors explain predictability patterns in data from IMF-supported programs, we repeat the regression analysis conducted for OECD-DAC data using time and country fixed effects. Table 8 reports on our findings, separately for budget aid and project aid. Similar to our earlier regressions with country fixed effects, we find that the number of years in an IMF program is not a significant explanatory factor. (The same applies for regressions, not shown, without country fixed effects since the dataset includes only countries that had long-run IMF program engagements.)

Second, looking at budget aid (column 1), we find that our predictability variable – the difference between original projections undertaken before the beginning of the budget year and outturns – is affected by terms-of-trade shocks but neither by governance, macroeconomic policies, or any other of our previously employed explanatory factors. The impact of term-of-trade shocks is such that positive shocks reduce the

absolute deviation of disbursements from projections, and thus improve predictability. Broadly, this regression confirms our earlier finding that a significant degree of low predictability cannot be explained, which is suggestive of a “fickle donor” issue.

To further review the relevance of such a finding, we split our sample in cases of excess disbursements and disbursements shortfalls. Our excess budget aid disbursements regressions – when more budget aid than expected by the government is disbursed – have no significant explanatory variable (column 2). In the case of aid shortfalls (column 3), both positive and negative terms-of-trade shocks are associated with smaller aid shortfalls. Emergency aid appears to be associated with larger aid shortfalls, i.e, it seems that donors overpromise in emergencies.

In terms of project aid, we find it to be more predictable in countries with long-term IMF programs and less predictable when emergency aid is large (column 5). The latter results can be refined in the split sample (column 6), which shows that excess project aid disbursements are smaller in countries with long-term IMF programs (i.e., disbursement projections for projects in these countries are more accurate). Emergency aid is associated with large project aid shortfalls (column 7). Recall also that, as other data, our dataset using IMF program projections cannot disentangle uncertainty over project implementation from other causes of unpredictability in aid disbursements.

For both types of aid, projected aid flows are strong predictors of actual aid flows (columns 4 and 8). For budget aid and project aid, countries with longer IMF program participation more likely to obtain the promised disbursement. Given that many low-income countries have had IMF programs for 5 or more years, the long-term program relationship can be associated with significant differences in aid predictability.

4.2. Adjusting to low predictability of budget support

Predictability matters particularly for budget support because low predictability reduces the ability of policymakers to manage their budgets properly. Unexpected aid shortfalls force governments to reduce spending in mid-year or find other sources of financing. Unexpected additional disbursements may not be used effectively since they could not be subjected to regular budget planning. For these reasons, and as laid out in section 2, unpredictable budget aid poses particular challenges compared with other types of aid.

In order to assess the degree to which budget aid shortfalls or excess aid are absorbed by governments, we trace the response of governments to budget aid shortfalls and excess aid by dividing the sample into episodes of aid shortfalls and episodes of excess aid. In each of the cases we use the fiscal variables available from projections and outturns in IMF program documents to study the response of governments (see Box 2). These responses ultimately help identifying the potential costs of low predictability for budget aid recipients and answer the question of how fickle donors may harm the effective use of aid.

Box 2. Fiscal Framework for IMF program data

The data derived from IMF programs is based on an internally consistent presentation of the fiscal accounts, both for original projections and outturns. Item A. represents the government's revenues (on a cash basis) and item B. its expenditures (on a commitment basis). The difference between revenue and expenditure, the government's deficit on a commitment basis, needs to be financed by items C. (arrears or delayed payment of expenditure), D. (new external financing net of amortization but including debt relief and rescheduling), and E. (domestic financing from banks and non-banks, including borrowing from the Central Bank and privatization receipts.). Hence it always holds as an identity that $B-A = C + D + E$. As discussed in section

A. Government revenue

- A.1. Tax revenue
- A.2. Nontax and other revenue
- A.3. Grants
 - A.3.1. Budget support grants
 - A.3.2. Project grants

B. Government expenditure

- B.1. Current expenditure
- B.2. Capital expenditure and net lending
 - B.2.1 Domestically financed investment
 - B.2.2 Foreign financed investment
 - B.2.3. Net lending

C. Change in payment arrears/treasury commitments**D. Net foreign financing**

- D.1. Project loans
- D.2. Budget support loans
- D.3. Amortization net of rescheduled debt and debt relief

E. Domestic financing

- E.1. Bank financing
- E.2. Non-bank financing

3, as a convention, foreign financed capital expenditure (B.2.2) are the sum of project grants (A.3.2.) and project loans (D.1). Hence, foreign-financed capital spending is by convention always fully covered and any adjustments made to foreign-financed investment would imply automatic and equivalent changes to project grants or loans. The level of foreign-financed investment is thus independent of the level of budget support. Finally, information on domestic bank and non-bank financing, by way of internal consistency of monetary accounts and projections on broad money, also signifies underlying assumption about net reserve accumulation. I.e., an IMF program allowing for larger domestic financing in case of aid shortfalls would normally also have a less ambitious target for net foreign reserves.

We decompose the adjustment to aid surprises into changes in tax revenue, current spending, domestically financed investment spending (total public investment spending minus investment spending funded by project aid), domestic bank financing (financing by the central bank and commercial banks), and net amortization and other categories (Figure 6).²³ The "other" category mostly reflects non-tax revenue and nonbank financing items. All categories are measured as deviations from projections, as a share of GDP, with positive items reflecting outturns that exceed projections. By accounting convention and as a result of the internally consistent macroeconomic and fiscal framework from which both projections and outturns are derived, any budget aid shortfall or excess can be fully decomposed into other fiscal adjustments.

²³ As an accounting convention, foreign financed investment spending corresponds to project aid disbursements. Thus, fluctuations in budget aid would be reflected in adjustments to domestically financed investment spending.

4.2.1. Adjusting to budget aid shortfalls

In those episodes where budget aid disbursements fall short of projections, those shortfalls are substantial and average 1.1 percent of GDP. Under IMF programs, aid shortfalls can usually be substituted with increased domestic borrowing up to a certain limit. In our data, budget aid shortfalls are compensated for, on average, by both additional financing and expenditure cuts (Table 9). For the whole sample, shortfalls are fairly closely matched by higher bank financing (0.7 percent of GDP) and lower domestically financed investment spending (0.3 percent of GDP). Assuming foreign aid inflows are not sterilized, a fairly intuitive first cut at the costs associated with aid shortfalls would be higher government borrowing costs and crowding out of other domestic borrowing (amounting to about two-thirds of the aid shortfall) and economic impact of lower public investment (about one-third).²⁴ Overall, such adjustment is consistent with the discussion in section 2, noting that adjustments to budget aid shortfalls would need to take place within domestic borrowing limits, with any expenditure cuts falling disproportionately on investment spending.

However, our findings also point to more complex adjustment needs as aid shortfalls are overwhelmingly associated with tax revenue shortfalls and current expenditure overruns, which further complicate economic management. On average a 1.1 percent of GDP budget aid shortfall is accompanied by a 0.3 percent tax revenue shortfall. For some countries, average budget aid shortfalls and tax revenue shortfalls are identical (Ghana, Tanzania). In addition, on average governments overrun current expenditures by 0.3 percent of GDP despite being faced with an aid shortfall. Governments therefore on average need to simultaneously address aid shortfalls, tax revenue shortfalls, and current expenditure overruns amounting to 1.7 percent of GDP in total. They do so largely, in order of magnitude, through higher domestic bank financing (0.7 percent of GDP), reducing debt service or running arrears (0.4 percent of GDP), cuts in domestically financed investment spending (0.3 percent of GDP), and finding other financing sources outside regular channels, such as privatization or non-tax revenue (0.3 percent of GDP).

Overall, what emerges is that countries cannot escape adjusting investment spending items, accessing more domestic financing or running arrears/rescheduling debt when they are hit by a budget aid shortfall since on average “positive” surprises, such as additional revenues from non-tax sources are needed to absorb tax revenue and recurrent spending shocks.

Structural differences between countries can result in strikingly different adjustment patterns for similar aid shortfalls. Take Burkina Faso, where almost 2 percent of GDP are at stake owing to aid shortfalls, tax revenue shortfalls and expenditure overruns. Given the relatively limited domestic bank financing capacity of government within the fixed exchange rate regime of the West-African Monetary Union, the government typically quite heavily reduces domestic investment spending in years of aid shortfalls. By contrast, the Ugandan government absorbs aid shortfalls largely by way of additional domestic financing and small cuts in recurrent expenditure. Hence, within the results presented here, costs associated with aid shortfalls can be quite different according to country circumstances.

A final point, which should not be underestimated, is the timing of any budget aid disbursement within the government’s fiscal year. Governments that operate in an environment of uncertain budget aid may restrain their expenditures if they do not receive funds early in the budget cycle. Given the impossibility to reverse commitments for domestic investments, say, it would seem imprudent to count on full disbursements and go

²⁴ The impact of higher domestic bank financing on inflation would be identical to those of foreign resource inflows if the latter are not sterilized.

ahead with committing budget resources before aid inflows are reasonably certain. Such a strategy, however, could lead to the involuntary saving of aid at year-end in the form of international reserves at the expense of poverty reducing fiscal expenditures. In this sense, predictability of budget aid within years also plays an important role for aid effectiveness (see box 3 for an example of marked differences in with-year aid predictability.)

Box 3. Intra-year predictability: A tale of two neighbours

Governments need to manage their cash-flows within any given budget year. Domestic financing constraints may make it difficult to smooth fluctuations on disbursements during any given year, especially if budget aid is large relative to tax revenue. Unfortunately, IMF staff reports only offer an incomplete look at this issue as they do not systematically report quarterly projections and outturns. However, in the case of Burkina Faso and Mali, performance criteria tables permitted to reconstruct not only the series of actual disbursements but also quarterly projections.

Annex Figure A3 illustrates to which extent budget aid disbursement were back loaded and how disbursement patterns changed over time in Mali and Burkina Faso. Until 2001, Burkina Faso received 80-90 percent of its annual budget aid during the last quarter of the year. Since then, as budget aid has increased in predictability, donors also have made an effort to more evenly spread disbursements over the budget year. Still, only in 2004 did the bulk of disbursements move from the fourth to the third quarter. For Mali, by contrast, a rather smooth disbursement pattern of budget aid in the mid-1990s has been replaced since 2000 by a pattern under which 90 percent or more of disbursements are made in the last quarter. These developments can be largely attributed to the diverging paradigm of budget aid in both countries, with a reluctance of donors to move to regular and predictable budget support in Mali due to concerns about recurrent structural weaknesses in the cotton sector.

To the extent that disbursement of budget aid within the budget year remains uncertain, drawing on domestic bank financing or accumulating payment backlogs while awaiting aid carries large risks of undermining macroeconomic stability and thereby leading to deviations from program targets. Comparing projections of quarterly budget aid disbursements and actual outturns reveals that in both countries – even when for the year as a whole outturns exceeded projections – in most cases disbursements during the first three quarters fell significantly short of projections (often between 30 and 100 percent), and thus made it very difficult to assure smooth execution of the budget without accessing other financing sources. Fiscal accounts reveal that shortfalls in budget aid often resulted in slow-downs in budget execution, notably for domestically financed investment spending. Additional gains for managing the budget could therefore be achieved by further limiting the intra-year variability of budget aid disbursements.

4.2.2. Absorption of Excess Budget Aid

Can excess disbursements be effectively absorbed by governments that did not plan for excess funds? Disbursements of budget aid in excess of projection occur frequently and average 1 percent of GDP for our dataset (Table 10). Our data shows that, on average, almost the exact equivalent of excess aid (0.9 percent of GDP) is used to reduce domestic bank debt, with often significant recurrent spending overruns being financed out of other sources. None of the excess aid and revenue goes toward domestic investment spending. Thus, at first glance it would appear that countries do not use excess disbursement for additional spending but instead save them or use them for higher recurrent spending. Domestic investment does not recover the spending lost during times of aid shortfalls when disbursements exceed projections.

Although such behaviour may represent rational debt management, several arguments speak against such an interpretation. First, the debt reduction in case of excess aid is larger as a share of GDP than the additional debt incurred during periods of aid shortfalls. Second, countries with long strings of excess aid (Mali, Mozambique) appear to also use most if not all of excess aid for debt reduction. One possible explanation for observed data patterns is the design of IMF programs. So-called program adjusters frequently cap the amount of domestic debt that can be incurred in response to aid shortfalls while requiring that all excess disbursements be saved.

Overall, we find that excess budget aid cannot be effectively absorbed by aid recipients but largely flows into debt reduction. Of course, lower debt may open additional space for fiscal spending in future years. However, it is likely that up-front information about aid flows would lead to better planning of expenditure, especially of public investments which appear to suffer in years of aid shortfalls but do not recover when aid exceeds what governments expect. The inability to steadily implement domestic investments may have important repercussions for governments' growth objectives and represent a permanent loss of output associated with low budget aid predictability.

4.3. Cyclicity and predictability of aid in IMF program data

Similar to the OECD-DAC data, we review whether low predictability may overturn good donor intentions in terms of cyclicity of aid. In this regard, IMF program data also allows reviewing aspects of cyclicity separately for budget aid and program aid.

Overall, for the whole set of countries we find no significant correlations of budget aid projections and outturns with exports, terms-of-trade, projected GDP growth, or tax revenue growth (Table 11). These findings mask wide variation between countries, but only few countries show countercyclical aid realisations against exports (e.g., Mali, Sierra Leone, and Senegal). We find also that, on average aid shortfalls are negatively correlated with growth falling below its projected value. Thus, similar to OECD-DAC data, there are indications that aid shortfalls are smaller when growth falls short of expectations. We find no significant relation between budget aid and tax projection errors on average. However, again some countries appear to have strong covariation of budget support and tax revenue errors, suggestive of larger challenges for economic management in their case (Burkina Faso, Ghana, Mali).

Taken together, IMF program data does not suggest that budget aid on a projected basis is more countercyclical than on an ex-post basis. Thus, we do not have evidence than planned budget aid behaves any different than executed budget aid. This may not be entirely surprising since the IMF program data "discounts" donor commitments and thus already strips out some of what could be seen as "unrealistic" part of donor intentions.

Project aid, in contrast to budget aid, seems to pick up in better times. This fact, as discussed in section 2, may not necessarily indicate poor aid practices but is more likely to reflect the fact that the speed project implementation tends to pick up in more conducive economic environments. This interpretation is supported by the finding that realized project aid appears to be correlated positively with exports, terms-of-trade, and growth acceleration whereas the same is not true for projected disbursements. We do not find any significant correlation of project aid with tax revenue. The same holds for the correlation between aid shortfalls and growth shortfalls or revenue shortfalls, albeit with significant variation across countries.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Drawing on the concern expressed by donors and aid recipients to improve aid quality, our study looks at the issue of aid predictability from a variety of different angles, using two principal sources of data. This comprehensive view, in our opinion, avoids a number of fallacies and can help focus the debate and actions by policymakers on the ultimate objective of improving aid effectiveness. We lay out in the following our main conclusions and suggest a number of areas for follow-up to in the aid effectiveness discussion.

5.1. Main findings

One of the firmly held beliefs is that low predictability results always from donors not delivering on their original promises, the “donors never live up to their commitments” view. We show that, in fact, low predictability is a result of disbursements exceeding and falling short of promises. This finding, which holds for both donor-reported and IMF-program level aid data, implies that managing low predictability involves managing both aid shortfalls and excess disbursements.

A second issue is whether our data reveal to what extent fickle donor behaviour may be cause deviations of commitments or projections from actual outturns. Absent detailed case studies, we can only approach this issue in an indirect way by identifying some key factors associated with predictability. We find that in OECD-DAC data predictability of all aid increases with the length of IMF programs, a variable that is shown to capture some of the recipient country effects. Emergency aid and aid levels also are associated with part of the variation in predictability. According to our regression analysis, about 25 percent of the variation in predictability reflects some of the normal tension between predictability and aid effectiveness, i.e. country conditions that need to prevail for aid to be used effectively, and scale effects. At the same time, this leaves significant parts of low predictability unexplained by a range of variables commonly associated with more effective use of aid. We suggest that a more complete treatment of aid predictability would need to focus on this “fickle” donor behaviour that reduced predictability without being associated with clear aid effectiveness considerations.

Third, we highlight that even in countries with relatively stable environments, aid is unpredictable. A new dataset drawing on IMF programs, addresses information needs regarding recipient expectations and allows to reduce the impact of country macroeconomic instability on predictability. Predictability of budget aid in this dataset is still strikingly low, with budget aid disbursements deviating by about 1 percent of GDP from projections representing about 30 percent of budget aid promised on average.

Fourth, we demonstrate quite large costs of low predictability even in otherwise relatively stable environments. In our data drawn from IMF programs, governments need to absorb budget aid shortfalls of more than 1 percent of GDP on average, and they largely do so by accumulating more internal debt and by reducing capital spending. Capital spending losses are not reversed in good times – when budget aid exceeds expectations – and most of the additional budget aid flows to reimburse domestic bank debt. Thus, any losses to domestic investment resulting from times of disbursement shortfalls are permanent.

Fifth, with the exception of IMF-based project aid data, we do not identify major cyclical patterns in either aid disbursements or commitments. Thus, we do not find any support for the hypothesis that low predictability may overturn initial good donor intentions and convert countercyclical commitments into procyclical disbursements. However, both OECD-DAC and budget aid data from IMF programs show that countries with unexpected growth shortfalls may receive more aid than their peers. Also IMF data indicates that actual project aid disbursements – but not projected aid – increase when economic conditions improve.

5.2. Policy implications

Our findings summarized above imply a number of areas for further consideration in the debate on aid effectiveness and improving donor practices. First, we believe that it is necessary to link the predictability debate more closely to the original question of aid effectiveness. As we have shown, the “fickle donor” is not the only reason for unpredictable aid, but only a portion of any measured lack of predictability responds to weaknesses in the recipient country’s environments. Answering the question under which circumstances donors should no longer have an “aid effectiveness excuse” for low predictability of aid would help better operationalise the aid effectiveness targets of the Paris declaration.

Second, as part of the debate on aid effectiveness, we suggest more clearly circumscribing the types of aid for which predictability is an essential ingredient. Likely, these would include budget support and aid flows for predominantly recurrent spending under project aid. A closer focus on such aid types would again be a factor in translating the good intentions of the Paris declaration into practical changes.

Third, to better measure the true impact of low predictability, data collection to measure the Paris declaration commitments should be improved in at least two dimensions. More closely tracking the predictability of the aid categories whose effectiveness rely on predictability—specifically budget aid – would help in better identifying those areas where aid effectiveness is reduced by low predictability. This analysis would also avoid conflating factors such as slow project implementation with donor-induced delays. In addition, it is critical to record not only donor declarations but also the mutual expectations of donors and recipients arising from these declarations to capture the implicit discount rates of aid commitments.

Finally, the persistence of the predictability problem, especially for budget support, would also suggest reconsidering some of the mechanisms of aid delivery to these countries in general. One possible way, discussed by Eifert and Gelb (2006) is to lengthen aid allocation periods and tie them to slower-moving country indicators rather than reconsidering fast-disbursing aid volumes annually within annual conditionality frameworks. They suggest committing to annual budget aid disbursements over a longer-term period as long as an indicator for the broad country framework, such as the country institutional and policy assessment (CPIA) of the World Bank, remains stable within a given range. Such mechanism would remove the discretion over aid disbursements, but leave in place the possibility to be unpredictable if the country environment deteriorates sharply. Eifert and Gelb (2006) that the theoretical costs associated with abandoning short-term control over aid disbursements would be small. The implication for the international aid architecture would be important since longer-term commitments to budget aid, say over a 10-year horizon, would also imply that aid funding mechanisms, including for multilateral institutions, would have to be reconsidered. Currently many aid budgets are set annually, and multilateral institutions need to replenish their low-income funds every three years.

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Annex 1. Data Definitions and Sources for OECD-DAC data and the explanatory variables

ODA Commitments: Gross Commitments of Official Development Aid. Source: Table 2a of the OECD DAC Statistics.

ODA Disbursements: Gross Disbursements of Official Development Aid, sum of ODA Grants and ODA Loans extended. Source: Table 2a of the OECD DAC Statistics.

Net ODA: Net Disbursements of Official development Aid, given by Gross ODA – ODA loans received. Source: Table 2a of the OECD DAC Statistics.

Net Aid Transfer: Aid transfer net of nonconcessional debt relief, and interest and principal received, given by Gross ODA-debt forgiveness grants-rescheduled debt-ODA loans received-(interest received-interest forgiven). Source: Roodman (2006).

GDP: Gross Domestic Product in current US dollars. Source: World Development Indicators, the World Bank.

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

Governance: Simple average of indices measuring bureaucratic quality, corruption, and the rule of law, from the *International Country Risk Guide*. Source: Political Risk Services (2006).

IMF Program Dummy: Dummy variable indicating whether a country was implementing a program supported by the Poverty Reduction and Growth Facility of the International Monetary Fund. Source: www.imf.org.

Years in IMF Program: Number of contiguous years a country has been implementing an IMF-supported program. Source: www.imf.org.

Emergency Aid: Net disbursements of emergency aid. Source: Table 2a of the OECD DAC Statistics.

Terms of Trade: Index of net barter terms of trade. Positive terms of trade shocks are given by the percentage increases of the terms of trade, negative terms of trade shocks are given by the percentage declines in the terms of trade. Source: World Development Indicators, the World Bank.

Real GDP Growth: Growth rate of GDP in constant 2000 US dollars. Source: World Development Indicators, the World Bank.

Projected Real GDP Growth: Expected growth rate of real GDP from the World Economic Outlook (WEO) of the International Monetary Fund, published biannually every September and April. The expectation used in the regressions is the simple average of the projections made in the previous September and the April of the current year. See Timmermann (2006) for further information on WEO GDP forecasts.

Logarithm of settler mortality: for former colonies. Source: Acemoglu, Johnson and Robinson (2001).

Logarithm of population density in the 1500s: for former colonies. Source: Acemoglu, Johnson and Robinson (2001).

Years as a colony: number of years as colony of any colonizer since 1900. Central Intelligence Agency (1996).

UN voting patterns: Five variables measuring the percentage of times in which the recipient has voted in the United Nations General Assembly as the US, France, Germany, Italy, and Japan, respectively. Calculated based on data compiled on UN voting records by Voeten (2005).

Annex 2. Data compilation issues for IMF program data

All data have been drawn from IMF program projections and IMF program outturns of selected staff reports for 13 countries. These staff reports have been recorded in the dataset. The data have been put together in an internally consistent format, in line with the conventions for fiscal account that are explained in more detail in Box 2. In addition, we corrected and adapted the raw data from the IMF staff reports (recorded in the database) as follows:

- In a few cases, a financing gap was reported in the projection without direct indication how it would be filled. In these cases, we first lowered the gap by expected debt relief that could be obtained from other external financing tables or the text of the report and then distributed the remainder among budgetary grants and loans in accordance with historical patterns.
- In some cases, project grant information had to be derived from other variables, such as foreign-financed investment spending and project lending contained in fiscal and balance of payment data.
- We reclassified certain expenditure and financing categories to derive a fairly small set of consistent fiscal accounts across countries and time. For example, privatization was consistently classified as non-bank financing, arrears fluctuations were treated separately from domestic or external financing, and debt relief, including all relief under the HIPC Initiative, was treated as external financing item.
- Large commercial bank restructuring spending, which entered fiscal accounts simultaneously as expenditure and financing item, was omitted.
- Obvious arithmetic errors in fiscal accounts were corrected, if needed by including discrepancies in the non-bank financing item.
- For fiscal accounts reporting a discrepancy between above and below the line items, we included this discrepancy in non-bank financing.

Table 3. Aid Dependency and the Deviations of Gross ODA Commitments from Disbursements, averages, 1990-2005, in percent of GDP

	Annual Commitments		Smoothed Commitments		Absolute Value of Smoothed Commitments minus Disbursements
	Net Aid Transfer	Commitments minus	Absolute Value of Commitments minus	Smoothed Commitments minus	
		Disbursements	Disbursements	Disbursements	
<u>Sub-Saharan Africa (SSA)</u>					
Angola	4.6	0.0	0.7	-0.3	1.0
Benin	10.8	-0.1	1.8	-0.3	0.9
Burkina Faso	14.5	-0.5	2.3	-1.2	1.5
Burundi	23.0	-2.2	5.4	-3.7	5.8
Cameroon	3.6	0.4	1.6	0.3	1.5
Central African Rep.	10.5	-1.4	2.8	-0.8	2.3
Chad	12.3	-0.2	3.0	-0.2	2.1
Congo Dem.Rep.	4.7	-1.2	1.5	-3.0	8.2
Congo, Rep.	4.8	-0.7	1.9	-2.1	4.0
Cote d'Ivoire	3.5	0.4	1.6	0.3	2.1
Eritrea	26.1	1.1	6.9	-1.2	6.7
Ethiopia	8.4	0.1	2.4	-0.4	3.0
Gambia	16.2	-2.0	6.7	-1.5	3.7
Ghana	9.3	-0.5	2.0	-0.9	2.4
Guinea	8.4	-1.3	2.3	-1.3	1.7
Guinea-Bissau	38.1	-5.5	10.0	-3.5	11.0
Kenya	5.5	-0.6	1.6	0.0	0.7
Lesotho	10.7	-0.8	3.1	-0.4	2.1
Liberia	40.8	-2.2	6.8	-3.4	11.0
Madagascar	10.1	-0.8	2.3	-1.4	3.5
Malawi	24.6	-0.4	3.4	-0.6	3.0
Mali	15.3	-1.0	2.0	-1.5	2.1
Mauritania	19.2	-1.0	4.3	-1.3	3.3
Mozambique	27.6	-3.0	4.7	-3.3	6.9
Niger	14.2	-1.6	3.1	-1.9	2.5
Rwanda	26.0	-0.2	3.1	-2.1	6.8
Senegal	9.7	-1.0	2.0	-0.8	2.2
Sierra Leone	21.9	-2.3	9.0	-5.6	5.8
Sudan	3.8	-0.6	1.0	-0.5	0.7
Tanzania	12.8	0.4	3.2	-0.2	1.7
Togo	7.3	-2.3	2.4	-1.6	2.5
Uganda	14.4	0.3	2.1	-0.5	2.3
Zambia	14.5	-3.0	6.5	-3.6	6.7
Zimbabwe	4.8	-0.5	1.3	-0.5	1.3
<u>South and East Asia (SEA)</u>					
Bangladesh	1.8	0.0	0.4	0.1	0.4
Cambodia	10.2	0.8	1.8	0.0	1.8
Laos	15.2	0.9	3.3	0.1	1.3
Nepal	8.2	-0.1	1.9	-0.1	1.2
Papua New Guinea	7.4	-0.4	2.7	0.4	1.4
Sri Lanka	3.6	0.3	0.8	0.2	0.6
Viet Nam	3.4	2.3	2.8	1.5	1.9
<u>Middle East and North Africa (MENA)</u>					
Egypt	4.1	1.4	2.0	1.4	1.6
Iraq	0.9	3.3	3.8	-0.4	0.7
Jordan	7.2	0.2	1.6	0.6	1.8
Lebanon	2.1	0.4	0.9	0.2	0.6
Morocco	1.5	0.1	0.5	0.2	0.4
Palestinian adm.areas	16.5	-3.1	5.5	-4.5	5.9
Yemen	4.2	-0.7	1.6	-0.5	0.9
<u>Latin & Central America (LAC)</u>					
Bolivia	7.8	0.8	1.3	0.8	1.8
El Salvador	2.5	0.0	0.7	-0.1	1.1
Haiti	8.8	1.2	1.9	0.3	3.7
Honduras	7.5	0.9	2.1	0.7	2.4
Nicaragua	18.4	2.0	5.8	1.2	4.7
<u>Transition Economies (TE)</u>					
Albania	12.5	1.2	2.0	0.3	4.1
Armenia	9.4	1.2	2.9	0.3	2.9
Azerbaijan	2.7	0.7	1.9	0.5	1.4
Bosnia-Herzegovina	19.3	1.0	2.1	1.2	1.9
Macedonia	4.2	0.8	1.1	0.5	0.7
Georgia	5.9	0.2	1.5	-0.3	2.1
Kyrgyz Rep.	11.5	0.4	3.3	-0.1	3.0
Moldova	4.8	0.9	1.6	0.4	1.1
Mongolia	19.9	3.9	5.5	2.0	2.8
Serbia & Montenegro	2.0	1.1	1.3	-0.1	1.1
Tajikistan	9.0	1.2	2.2	0.0	1.8
<u>Regional Averages</u>					
SSA	14.2	-1.0	3.4	-1.4	3.6
SEA	7.1	0.5	2.0	0.3	1.2
MENA	4.6	0.2	1.7	0.1	1.4
LAC	9.0	1.0	2.4	0.6	2.7
TE	9.0	1.1	2.4	0.4	2.1

Notes: The sample covers countries that were IDA-eligible in 1990-2005 (with per capita income less than US\$ 1675 in 2005 US dollars), received more than 2 percent of GDP in net ODA and had average population exceeding one million in 1990-2005. Disbursements by donors that do not report commitments are excluded from the gap between commitments and disbursements, and the gap as a percent of GDP is then scaled up by the ratio of total disbursements to reporting donors' disbursements. Deviations calculated on the basis of "smoothed commitments" equal the three year moving average of commitments (the average of the current and past two years) minus disbursements.

Table 4. Correlates of ODA Disbursement Shortfalls and Excesses Relative to Commitments, 1990-2005

	Whole sample											
	Absolute Deviation of Commitments from Disbursements (% GDP)	Absolute Value of Disbursement Shortfalls (positive values of Com. minus Dis.) (% GDP)	Absolute Value of Excess Disbursements (negative values of Com. minus Dis.) (% GDP)	Absolute Deviation of Commitments from Disbursements (% GDP)	Absolute Value of Disbursement Shortfalls (positive values of Com. minus Dis.) (% GDP)	Absolute Value of Excess Disbursements (negative values of Com. minus Dis.) (% GDP)	Absolute Deviation of Commitments from Disbursements (% GDP)	Absolute Value of Disbursement Shortfalls (positive values of Com. minus Dis.) (% GDP)	Absolute Value of Excess Disbursements (negative values of Com. minus Dis.) (% GDP)	Absolute Deviation of Commitments from Disbursements (% Dis.)		
Years in IMF Program	-0.201** [0.082]	-0.173 [0.118]	-0.242** [0.115]	-1.028** [0.482]	-0.131** [0.064]	-0.192* [0.102]	-0.119* [0.068]	-0.809 [0.554]	-0.183** [0.080]	-0.128 [0.102]	-0.251** [0.116]	-0.779 [0.472]
IMF Program Dummy	0.66 [0.621]	0.18 [0.645]	1.151 [0.961]	1.003 [2.625]	0.586* [0.322]	0.419 [0.562]	0.664 [0.514]	1.064 [2.593]	0.772 [0.523]	0.54 [0.486]	1.238 [0.962]	-0.175 [2.205]
Governance (-1)	-0.164 [0.397]	0.395 [0.408]	-0.601 [0.480]	2.446 [2.381]	0.072 [0.344]	0.294 [0.425]	-0.091 [0.413]	3.269 [2.563]	-0.113 [0.423]	0.528 [0.405]	-0.607 [0.540]	2.921 [2.618]
Net Aid (%GDP) (-1)	0.139*** [0.029]	0.079* [0.042]	0.168*** [0.025]	-0.318 [0.220]	0.095*** [0.035]	0.076 [0.054]	0.127*** [0.043]	-0.536* [0.311]	0.162*** [0.040]	0.056* [0.029]	0.214*** [0.033]	-0.367 [0.264]
Emergency Aid (% GDP)	0.547*** [0.124]	0.782*** [0.256]	0.475*** [0.111]	1.720** [0.654]	0.38 [0.249]	0.559** [0.264]	0.165 [0.196]	2.311 [1.434]	0.129 [0.321]	0.085 [0.527]	0.08 [0.537]	-0.905 [2.466]
Negative TOT Shocks	0.012 [0.021]	0.03 [0.024]	0.006 [0.032]	0.24 [0.247]	0.007 [0.014]	0.032 [0.031]	-0.002 [0.014]	0.388 [0.322]	0.006 [0.023]	0.024 [0.026]	-0.006 [0.029]	0.298 [0.289]
Positive TOT Shocks	-0.022 [0.014]	-0.011 [0.027]	-0.015* [0.009]	0.052 [0.089]	-0.008 [0.010]	-0.001 [0.029]	-0.006 [0.007]	0.099 [0.108]	-0.059** [0.027]	-0.015 [0.025]	-0.061 [0.040]	0.094 [0.141]
Constant	1.558 [1.373]	-0.596 [1.845]	2.98 [1.771]	20.772** [8.182]	0.81 [1.217]	-0.004 [2.147]	0.627 [1.276]	10.111 [10.559]	1.276 [1.396]	-0.661 [1.695]	3.398 [2.186]	19.681** [8.308]
R-Squared	0.23 444	0.22 190	0.29 254	0.07 444	0.15 398	0.19 174	0.17 224	0.08 398	0.2 406	0.15 172	0.28 234	0.07 406

Notes: OLS regressions with time effects and robust standard errors. *, **, and *** denote significance at 10, 5, and 1 percent. The dependent variables in the regressions presented in columns 1-3, 5-7, 9-11 are the absolute values of the deviation of commitments from disbursements (columns 1, 5, and 9); disbursement shortfalls (columns 2, 6, 10); and excess disbursements (columns 3, 7, 11), respectively, all in percent of GDP. The dependent variable in columns 4, 8, 12 are the absolute deviation of commitments from disbursements as a percentage of disbursements. The samples include countries that were eligible for concessional IDA loans, had population exceeding one million, and received net aid in excess of 2 percent of GDP in 1990-2005. The regressions in columns 5-8 exclude observations where emergency aid exceeded 20 percent of GDP and net aid exceeded 25 percent of GDP. The regressions in columns 9-12 exclude Hadi (1994) outliers. Data definitions and sources are given Annex 1.

Table 5. Correlates of ODA Disbursement Shortfalls and Excesses Relative to Commitments, IV and Fixed-Effects Regressions, 1990-2005

	Absolute Deviation of Commitments from Disbursements (% GDP)		Absolute Value of Disbursement Shortfalls (positive values of Com. minus Dis.) (% GDP)		Absolute Value of Excess Disbursements (negative values of Com. minus Dis.) (% GDP)	
	IV	IV+FE	IV	IV+FE	IV	IV+FE
Years in IMF Program	-0.365** [0.146]	-0.137 [0.120]	-0.151 [0.116]	0.258 [0.264]	-0.636** [0.325]	-0.206 [0.145]
IMF Program Dummy	0.59 [0.491]	0.799 [0.529]	0.542 [0.736]	-0.287 [1.134]	1.01 [1.042]	0.905 [0.757]
Governance (-1)	1.767 [1.861]	-1.046 [1.041]	0.386 [1.090]	-5.021* [2.812]	4.338 [3.390]	-0.328 [3.655]
Net Aid (%GDP) (-1)	0.305** [0.144]	-0.277 [0.250]	0.031 [0.137]	-0.565 [0.356]	0.616** [0.294]	-0.063 [0.242]
Emergency Aid (% GDP)	0.316 [0.382]	1.034** [0.431]	1.101** [0.551]	1.106* [0.672]	-0.532 [0.777]	0.821 [0.614]
Negative TOT Shocks	0.017 [0.026]	-0.012 [0.035]	0.017 [0.039]	-0.015 [0.080]	-0.014 [0.046]	-0.025 [0.066]
Positive TOT Shocks	-0.012 [0.017]	-0.015 [0.017]	0.039 [0.049]	0.063 [0.052]	-0.015 [0.024]	-0.015 [0.026]
Constant	-6.388 [7.143]	7.854 [5.155]	-1.089 [3.815]	25.171** [12.800]	-18.156 [14.645]	3.219 [15.654]
Country Fixed Effects	No	Yes	No	Yes	No	Yes
R-Squared	0.52	0.64	0.55	0.58	0.07	0.75
N	323	276	134	112	189	164
Hansen's Test (P-value)	0.449	0.816	0.977	0.490	0.607	0.166

Notes: Instrumental variables regressions with time effects. *, **, and *** denote significance at 10, 5, and 1 percent. Regressions in columns 2, 4, and 6 include country fixed effects. The dependent variables in the regressions are: the absolute deviation of commitments from disbursements (columns 1 and 2); commitment excesses (columns 3 and 4) and disbursement excesses (columns 5 and 6), respectively, all in percent of GDP. The samples include countries that were eligible for concessional IDA loans, had population exceeding one million, and received net aid in excess of 2 percent of GDP in 1990-2005. All regressions were run using the Stata command ivreg2 by Baum, Schaffer, and Stillman (2007). Data definitions and sources are given Annex 1.

Table 6. Correlations Between Changes in Aid Disbursements and Commitments, and Economic Activity, 1990-2005

		Correlations between								
		Exports		Terms of Trade		Real GDP Projections		Commitments - Disbursements/GDP		
		Com.	Dis.	Com.	Dis.	Com.	Dis.	Exports	Terms of Trade	Real GDP
										Projection Errors
<u>Sub-Saharan Africa</u>	Angola	0.35	0.43	-0.07	0.01	0.64	0.58	-0.22	-0.24	-0.27
	Benin	0.56	0.33	-0.06	0.44	0.25	0.22	0.21	-0.05	0.28
	Burkina Faso	0.33	0.21	0.01	-0.15	0.14	0.09	0.26	0.00	-0.19
	Burundi	-0.17	-0.04	0.32	0.21	0.13	-0.10	-0.21	-0.05	-0.50
	Cameroon	-0.44	-0.33	-0.01	-0.29	0.16	0.26	-0.50	0.17	0.04
	Central African Rep.	0.15	-0.24	0.12	-0.19	-0.36	-0.14	0.37	-0.21	0.14
	Chad	0.66	0.20	-0.03	-0.10	0.23	-0.26	0.02	0.09	0.24
	Congo, Rep.	0.14	0.09	0.10	0.12	0.27	0.27	-0.06	0.05	0.11
	Cote d'Ivoire	0.34	0.37	0.41	0.44	-0.85	-0.88	-0.08	0.09	-0.61
	Ethiopia	-0.06	-0.37	0.35	0.24	-0.05	-0.19	0.02	0.24	0.22
	Gambia	0.12	0.12	0.51	0.04	0.18	0.07	-0.20	0.08	-0.25
	Ghana	0.11	0.28	0.09	0.01	0.21	0.05	-0.20	-0.01	0.05
	Guinea	0.24	0.25	0.27	0.34	0.41	0.51	-0.05	0.39	0.09
	Guinea-Bissau	-0.40	0.03	0.47	-0.14	0.43	0.00	-0.26	0.44	0.28
	Kenya	0.12	0.29	-0.57	-0.54	0.19	0.28	-0.01	0.02	-0.42
	Lesotho	-0.15	0.80	0.51	0.14	0.41	-0.07	-0.41	0.49	0.35
	Madagascar	0.31	0.15	0.11	-0.12	0.23	0.03	0.37	0.62	-0.36
	Malawi	0.20	0.10	-0.28	-0.33	-0.02	0.17	0.03	-0.11	0.03
	Mali	-0.35	-0.11	0.14	-0.15	-0.06	0.33	-0.27	0.17	-0.58
	Mauritania	0.38	-0.27	-0.06	-0.43	-0.17	0.10	0.59	-0.07	-0.47
	Mozambique	-0.29	-0.14	-0.26	-0.30	-0.03	-0.11	-0.26	-0.06	0.25
	Niger	0.30	0.22	-0.30	-0.21	-0.31	0.06	0.33	0.05	-0.42
	Rwanda	-0.65	-0.54	-0.26	-0.33	0.09	0.45	-0.20	-0.14	-0.33
	Senegal	0.53	0.52	0.03	0.29	-0.06	-0.01	-0.01	-0.22	-0.36
	Sierra Leone	0.11	0.37	-0.38	-0.30	-0.33	-0.11	-0.11	-0.26	0.09
	Sudan	0.02	0.02	0.35	0.32	0.36	0.44	0.16	0.42	-0.21
	Tanzania	0.14	-0.24	0.00	-0.04	-0.09	-0.44	0.39	-0.07	-0.11
	Togo	0.76	0.61	0.85	0.39	0.08	-0.01	0.35	-0.07	-0.02
	Uganda	-0.18	0.19	-0.33	-0.09	-0.27	-0.42	-0.52	-0.37	0.40
	Zambia	-0.29	0.08	0.13	0.27	0.20	0.19	-0.28	-0.22	-0.13
	Zimbabwe	-0.58	-0.47	-0.03	-0.45	-0.18	-0.23	0.23	0.04	-0.21
<u>South and East Asia</u>	Bangladesh	-0.45	-0.41	0.10	-0.11	0.17	0.06	-0.26	0.03	0.03
	Cambodia	0.69	0.47	0.13	0.19	-0.04	-0.40	0.62	-0.01	-0.25
	Laos	0.23	0.44	-0.28	-0.23	-0.53	-0.46	-0.04	-0.08	-0.18
	Papua New Guinea	0.73	0.49	0.22	0.01	0.05	-0.04	0.64	0.10	0.24
	Sri Lanka	-0.37	-0.12	-0.01	0.13	0.10	0.07	-0.52	-0.19	0.33
	Viet Nam	0.32	0.07	-0.54	-0.57	-0.41	-0.21	0.32	0.16	0.08
<u>Middle East and North Africa</u>	Egypt	-0.06	-0.09	-0.35	-0.42	0.25	0.52	0.05	-0.14	-0.03
	Morocco	0.07	0.47	-0.27	0.01	0.09	0.39	-0.10	0.05	0.02
	Yemen	0.15	-0.37	0.35	-0.51	-0.64	-0.53	0.25	0.59	-0.49
<u>Latin and Central America</u>	Bolivia	0.06	0.17	0.20	0.07	0.18	-0.09	-0.28	-0.10	0.20
	Haiti	0.05	-0.05	-0.23	-0.17	-0.51	-0.16	0.62	-0.01	-0.14
	Honduras	-0.08	-0.26	0.04	-0.06	0.03	0.18	-0.28	-0.02	0.47
	Nicaragua	0.09	0.21	-0.09	-0.07	0.21	0.10	0.43	0.24	-0.40
<u>Transition Economies</u>	Albania	0.76	0.73	0.67	0.61	0.05	-0.31	0.32	0.51	0.01
	Armenia	0.04	0.20	-0.25	0.42	-0.25	0.11	-0.55	-0.73	0.48
	Azerbaijan	-0.77	0.07	-0.51	-0.20	-0.22	0.49	-0.44	0.00	0.33
	Georgia	-0.63	-0.29	0.90	0.38	-0.39	0.29	-0.22	0.03	0.54
	Kyrgyz Rep.	0.28	-0.44	0.17	-0.48	-0.21	-0.05	0.09	0.35	-0.55
	Moldova	0.14	-0.28	-0.17	-0.30	-0.21	-0.21	-0.66	-0.19	0.42
	Mongolia	0.66	0.50	0.21	0.54	0.17	0.12	0.29	-0.20	-0.11
	Tajikistan	0.14	-0.45	0.13	-0.30	-0.50	0.07	0.19	-0.11	-0.05
	All countries (pooled)	0.0917*	0.0940*	0.0741*	-0.0131	-0.2594*	-0.1855*	0.002	0.0497	-0.0811*

Notes: Aid commitments, disbursements, exports, terms of trade, and real GDP growth projections are in percentage change terms. Excess commitments are measured as a percentage of actual GDP. The expected change in the real GDP growth rate is the percentage difference between the projected growth rate for the current year (average of the IMF World Economic Outlook projections made in the September of the preceeding year and in the April of the current year) and the actual real GDP growth rate of the previous year. Excess commitments are given by commitments minus disbursements. Growth projection errors are computed as the projected growth rate minus the actual growth rate. The sample covers 1990-2005, but some countries have missing observations. The pooled correlations are based on samples of around 650 observations each. A star indicates that the correlation is significant at 10 percent or better.

Table 7. Budget Aid and Tax Revenue, Deviations of Outturns from Projections, percent of GDP

		Budget Aid Projections			Tax Revenue Projections		
		Average Budget Aid	Average Deviation	Mean Absolute Deviation	Average Tax Revenue	Average Deviation	Mean Absolute Deviation
<u>Albania</u>	1998-1999	2.15	0.66	1.15	12.54	-1.65	1.65
	2000-2005	0.51	-0.08	0.25	16.56	-0.58	0.70
	1998-2005	0.92	0.11	0.48	15.55	-0.85	0.94
<u>Benin</u>	1993-1999	2.27	-0.70	1.18	12.29	0.88	0.88
	2000-2004	0.97	0.00	0.47	14.59	-0.11	0.45
	1993-2004	1.73	-0.41	0.89	13.25	0.46	0.70
<u>Burkina Faso</u>	1993-1999	2.95	-1.08	1.40	10.25	-0.02	0.91
	2000-2005	2.88	0.06	0.44	11.00	-0.66	0.70
	1993-2005	2.92	-0.55	0.96	10.60	-0.31	0.81
<u>Ghana</u>	1998-1999	1.85	-0.28	0.28	15.31	-0.71	0.71
	2000-2005	3.44	0.35	0.84	18.93	0.78	1.26
	1998-2005	3.04	0.19	0.70	18.02	0.41	1.12
<u>Kyrgyz Rep.</u>	1998-1999	5.58	1.70	1.83	13.25	0.01	0.13
	2000-2005	1.96	-0.77	0.87	14.62	-0.09	2.01
	1998-2005	2.86	-0.15	1.11	14.28	-0.07	1.54
<u>Madagascar</u>	1996-1999	2.07	-1.54	1.54	9.64	-0.15	0.35
	2000-2005	2.85	0.18	0.95	9.94	-1.63	1.81
	1996-2005	2.54	-0.51	1.19	9.82	-1.04	1.23
<u>Mali</u>	1993-1999	3.52	0.12	1.06	12.30	-0.01	0.97
	2000-2005	2.38	0.53	1.15	14.25	-0.67	0.72
	1993-2005	2.99	0.31	1.10	13.20	-0.31	0.86
<u>Mozambique</u>	1993	6.93	0.54	2.93	13.37	1.14	1.27
	2000-2005	6.11	0.80	0.80	12.23	-0.24	0.58
	1993-2005	6.39	0.71	1.51	12.61	0.22	0.81
<u>Rwanda</u>	1997-1999	3.07	-2.21	2.21	9.68	-0.48	1.54
	2000-2005	7.20	1.10	1.22	11.71	0.49	0.91
	1997-2005	5.82	0.00	1.55	11.03	0.17	1.12
<u>Senegal</u>	1994-1999	2.18	0.05	0.87	15.19	-0.33	0.68
	2000-2004	1.20	-0.37	0.88	17.83	-0.04	0.59
	1994-2004	1.73	-0.14	0.87	16.39	-0.20	0.64
<u>Sierra Leone</u>	2001-2005	5.97	-1.46	2.66	11.19	0.44	0.70
<u>Tanzania</u>	1993-1999	3.08	-0.51	0.58	12.67	-1.06	1.38
	2000-2005	3.92	-0.19	0.52	11.39	0.31	0.46
	1993-2005	3.46	-0.36	0.55	12.08	-0.43	0.96
<u>Uganda</u>	1993-1999	3.85	-0.27	0.84	9.90	-0.09	0.40
	2000-2005	4.76	-0.94	1.75	11.34	-0.20	0.46
	1993-2005	4.27	-0.58	1.26	10.57	-0.14	0.43
<u>Whole Sample</u>	1993-1999	3.16	-0.42	1.21	11.98	-0.13	0.89
	2000-2005	3.42	-0.04	0.97	13.46	-0.18	0.89
	1993-2005	3.31	-0.20	1.07	12.82	-0.16	0.89

Note: Projections are usually established in the three to six month period before the start of the budget-year.

Source: Authors' calculations based on IMF Staff Reports, various issues.

Table 8. Determinants of Budget and Project Aid Disbursements, and Budget and Project Aid Shortfalls and Excesses Relative to Projections, percent of GDP, 1990-2005

Dependent Variable:	Absolute Deviation of Disbursements from Projections	Excess Disbursements (positive deviations of outturns from projections)	Disbursement Shortfalls (negative deviations of outturns from projections)	Budget Aid Disbursements	Absolute Deviation of Disbursements from Projections	Excess Disbursements (positive deviations of outturns from projections)	Disbursement Shortfalls (negative deviations of outturns from projections)	Project Aid Disbursements
	Budget Aid				Project Aid			
Years in IMF Program	-0.01 [0.045]	-0.022 [0.058]	0.057 [0.124]	0.134** [0.050]	-0.115* [0.054]	-0.372*** [0.051]	-0.108 [0.090]	0.124* [0.067]
IMF Program Dummy	-0.091 [0.429]	-0.747 [0.787]	-0.551 [0.770]	-0.311 [0.668]	0.343 [0.495]	1.042 [1.150]	0.763 [1.019]	0.443 [0.832]
Governance (-1)	0.002 [0.237]	0.343 [0.412]	0.151 [0.402]	0.417 [0.573]	-0.141 [0.353]	-0.051 [0.500]	-0.36 [0.529]	-0.25 [0.977]
Net Aid (%GDP) (-1)	0.002 [0.043]	0.056 [0.048]	-0.065 [0.087]		0.008 [0.049]	0.04 [0.062]	-0.011 [0.073]	
Emergency Aid (%GDP)	0.23 [0.129]	-0.043 [0.177]	0.491* [0.262]	0.03 [0.264]	0.553** [0.195]	0.237 [0.441]	0.607** [0.225]	-0.271 [0.195]
Negative TOT Shocks	-0.022 [0.014]	-0.004 [0.026]	-0.038* [0.019]	0.02 [0.017]	0.024 [0.021]	0.045 [0.041]	0.003 [0.035]	0.018 [0.025]
Positive TOT Shocks	-0.026*** [0.006]	-0.01 [0.006]	-0.035* [0.016]	0.015 [0.012]	0.003 [0.008]	-0.007 [0.015]	-0.017 [0.021]	-0.009 [0.016]
Budget Aid Projection				0.441*** [0.109]				
Project Aid Projection								0.417*** [0.122]
Constant	1.915 [1.394]	-0.272 [1.976]	0.271 [1.787]	-0.499 [2.771]	0.718 [1.662]	1.658 [3.242]	2.22 [3.286]	1.934 [4.704]
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.36	0.31	0.5	0.78	0.58	0.63	0.7	0.72
N	91	41	50	99	91	38	49	99

Notes: Regressions include time and country fixed effects, with robust standard errors. *, **, and *** denote significance at 10, 5, and 1 percent, respectively. The dependent variables are various measures of budget and project aid, in percent of actual GDP. Data on the dependent variables are collected from IMF staff reports. Data definitions and sources for the explanatory variables are given in Annex 1.

Table 9. Decomposition of Budget Aid Shortfalls Relative to Projections into Fiscal Revenue and Expenditure Adjustments, percent of GDP

		Average Budget Aid Shortfall	Tax Revenue	Current Expenditure	Domestically Financed Investment Expenditure	Domestic Bank Financing	Net Debt Service and Arrears Clearance	Other	Number of Observations
<u>Albania</u>	1998-2005	-0.2	-0.9	-1.0	-0.2	0.1	-0.1	-0.3	6
<u>Benin</u>	1993-2004	-0.9	0.5	0.3	-0.5	0.2	0.5	0.5	9
<u>Burkina Faso</u>	1993-2005	-1.2	-0.7	0.2	-0.9	0.7	-0.3	0.3	8
<u>Ghana</u>	1998-2005	-0.5	-0.7	1.2	-0.6	0.7	0.0	1.1	4
<u>Kyrgyz Rep.</u>	1998-2005	-0.8	-0.2	1.2	0.2	0.6	-1.5	0.3	6
<u>Madagascar</u>	1996-2005	-1.2	-0.7	0.0	-0.3	0.8	-1.3	-0.5	7
<u>Mali</u>	1993-2005	-1.3	-1.0	0.3	-0.4	0.7	-0.7	0.8	4
<u>Mozambique</u>	1993-2005	-3.6	3.4	-1.1	1.3	2.3	0.9	-1.0	1
<u>Rwanda</u>	1997-2005	-1.8	0.2	1.2	0.1	-0.6	-2.8	0.4	5
<u>Senegal</u>	1994-2004	-0.8	-0.4	-0.3	0.0	-0.3	-0.5	0.8	7
<u>Sierra Leone</u>	2001-2005	-3.4	0.8	1.7	-0.2	0.7	-1.8	0.4	3
<u>Tanzania</u>	1993-2005	-0.6	-0.5	1.0	-0.6	1.4	0.0	0.2	10
<u>Uganda</u>	1993-2005	-1.7	-0.4	-0.2	-0.1	1.4	-0.2	0.2	7
<u>Whole Sample</u>	1993-2005	-1.1	-0.3	0.3	-0.3	0.7	-0.4	0.3	76

Note: A positive signifies that the outturn exceeds the projection, a negative signifies a shortfall of the outturn compared to the projection. Shortfalls in budget aid equal the sum of shortfalls in current expenditure (total investment expenditure-project aid), domestically financed investment expenditure, amortization and arrears clearance (excluding debt relief and rescheduling), minus shortfalls in tax revenue, domestic bank financing, and deviations in other categories (comprising nonbank domestic financing, and net lending by the government).

Source: Authors' calculations based on IMF Staff Reports, various issues.

Table 10. Decomposition of Excess Budget Aid into Fiscal Revenue and Expenditure Adjustments, percent of GDP

		Average Excess Budget Aid	Tax Revenue	Current Expenditure	Domestically Financed Investment Expenditure	Domestic Bank Financing	Net Debt Service and Arrears Clearance	Other	Number of Observations
<u>Albania</u>	1998-2005	1.2	-0.8	0.1	0.0	-0.7	-0.1	0.4	2
<u>Benin</u>	1993-2004	1.0	0.4	-0.7	0.1	-2.2	0.5	0.5	3
<u>Burkina Faso</u>	1993-2005	0.5	0.2	0.4	0.4	-0.6	-0.5	0.2	5
<u>Ghana</u>	1998-2005	0.9	1.5	3.7	0.3	1.4	1.1	1.3	4
<u>Kyrgyz Rep.</u>	1998-2005	1.9	0.4	2.5	0.4	-3.1	-1.1	2.6	2
<u>Madagascar</u>	1996-2005	1.1	-1.9	0.1	-0.5	-0.1	0.1	0.5	3
<u>Mali</u>	1993-2005	1.0	0.0	0.7	0.1	-0.8	-0.1	0.4	9
<u>Mozambique</u>	1993-2005	1.2	-0.2	-0.2	-0.2	-1.0	-0.1	-0.5	8
<u>Rwanda</u>	1997-2005	1.4	0.2	1.2	0.1	-0.6	0.1	0.4	5
<u>Senegal</u>	1994-2004	1.0	0.2	0.4	0.0	-1.8	-0.1	0.9	4
<u>Sierra Leone</u>	2001-2005	1.5	-0.1	1.1	-0.2	-1.4	0.2	1.1	2
<u>Tanzania</u>	1993-2005	0.4	-0.1	0.0	0.0	-0.6	0.0	0.2	3
<u>Uganda</u>	1993-2005	0.7	0.2	0.2	-0.2	-1.2	0.0	0.3	6
<u>Whole Sample</u>	1993-2005	1.0	0.1	0.6	0.0	-0.9	0.0	0.4	56

Note: A positive signifies that the outturn exceeds the projection, a negative signifies a shortfall of the outturn compared to the projection. Excesses in budget aid equal the sum of excesses in current expenditure, domestically financed investment expenditure (investment expenditure-project aid), amortization and arrears clearance (excluding debt relief and rescheduling), minus excesses in tax revenue, domestic bank financing, and deviations in other categories (comprising nonbank domestic financing, and net lending by the government).

Source: Authors' calculations based on IMF Staff Reports, various issues.

Table 11. Correlations Between Economic Activity, and Budget and Project Aid, 1993-2005, IMF data

	Growth of Exports		Growth of TOT		Change in the GDP growth forecast		Growth of Tax Revenue		Aid Shortfall/GDP	
	Projected Aid	Actual Aid	Projected Aid	Actual Aid	Projected Aid	Actual Aid	Projected Aid	Actual Aid	Growth Shortfall	Tex Revenue Shortfall
	<u>Budget Aid</u>									
Albania	-0.14	0.26	-0.18	0.37	-0.31	-0.16	0.11	0.07	0.19	-0.12
Benin	0.13	0.02	0.28	0.17	0.44	-0.31	0.02	-0.09	-0.38	-0.06
Burkina Faso	0.39	0.58	0.44	0.44	-0.02	-0.10	0.15	-0.02	0.44	0.49
Ghana	0.24	0.33	0.56	0.59	0.51	0.02	0.61	0.41	0.10	0.87
Kyrgyz Rep.	0.54	0.45	0.23	0.08	-0.62	-0.30	0.27	-0.10	0.09	-0.13
Madagascar	0.08	-0.05	-0.09	-0.07	0.17	0.25	0.08	-0.13	-0.24	-0.05
Mali	0.15	-0.32	-0.48	-0.16	-0.26	-0.80	-0.02	-0.38	0.27	0.32
Mozambique	0.07	0.26	-0.65	-0.43	0.65	0.54	-0.21	-0.08	-0.79	-0.72
Rwanda	0.48	0.24	0.44	0.14	0.95	0.68	0.15	-0.29	0.00	-0.04
Senegal	0.12	-0.45	0.47	0.12	-0.13	-0.14	-0.18	-0.44	0.28	0.54
Sierra Leone	-0.46	-0.47	-0.38	-0.47	0.39	0.26	-0.56	-0.42	-0.69	-0.92
Tanzania	0.18	0.20	0.07	-0.08	-0.27	-0.32	-0.02	0.21	0.23	-0.07
Uganda	-0.08	-0.16	-0.25	-0.21	0.08	0.23	-0.07	0.10	0.21	0.57
All countries	0.04	-0.03	0.03	0.08	-0.02	-0.03	-0.02	-0.03	-0.2297*	0.10
<u>Project Aid</u>										
Albania	-0.71	0.20	-0.32	0.43	0.46	-0.81	-0.24	-0.56	-0.08	0.24
Benin	0.47	0.67	0.20	0.66	-0.20	0.33	0.58	0.65	0.19	0.41
Burkina Faso	0.52	0.24	0.50	-0.12	-0.39	0.80	-0.02	0.79	-0.11	0.21
Ghana	0.17	0.25	0.14	0.59	-0.03	0.32	0.13	0.57	0.48	0.14
Kyrgyz Rep.	0.06	-0.10	-0.06	-0.30	-0.40	0.28	0.56	-0.36	0.23	0.34
Madagascar	-0.64	0.83	-0.59	0.36	0.58	-0.89	-0.40	0.77	0.67	0.82
Mali	0.34	-0.13	0.25	-0.09	0.06	-0.08	0.61	0.46	-0.10	-0.08
Mozambique	-0.20	0.49	0.28	-0.45	-0.30	0.93	0.67	-0.51	0.48	0.61
Rwanda	-0.05	0.77	0.40	0.50	0.37	0.77	0.72	0.44	-0.37	0.55
Senegal	0.46	0.75	0.22	0.10	0.56	0.26	0.48	0.61	0.08	0.06
Sierra Leone	0.09	-0.81	0.90	0.70	0.47	0.90	-0.23	-0.56	-0.69	-0.92
Tanzania	-0.12	-0.44	0.00	0.38	0.08	-0.24	-0.16	-0.13	0.43	0.72
Uganda	0.11	0.03	-0.15	-0.31	-0.06	-0.05	0.45	0.34	0.07	-0.31
All countries	-0.06	0.2660*	0.00	0.1826*	0.06	0.2660*	-0.08	0.12	-0.11	0.08

Notes: The first four pair of columns show correlations between export growth, terms of trade growth, expected percent change in the real GDP projection, and tax revenue growth, respectively, with projected and actual aid growth. Column 9 reports the correlations between the errors in projecting aid to GDP and real GDP growth. The last column report the correlations between errors in projecting tax revenue and aid, both in percent of GDP. The country specific correlations are based on 13 or fewer observations each. The pooled correlations are based on about 120 observations. Data were collected from IMF Staff Reports.

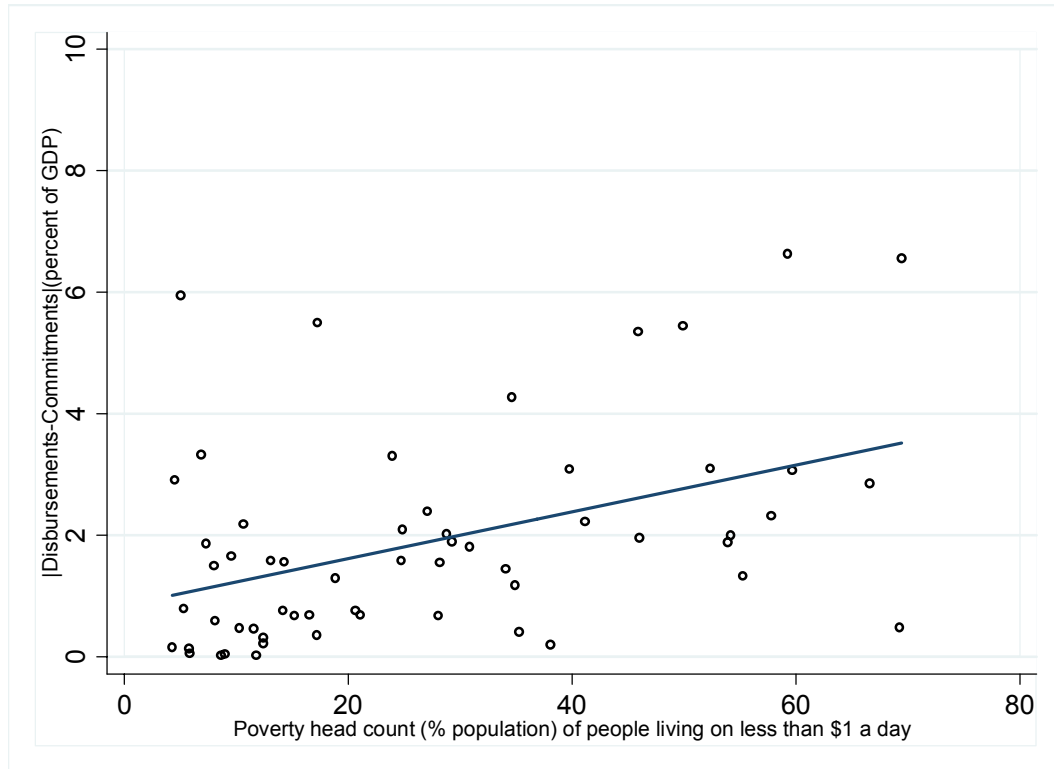


Figure 1. Lack of aid predictability, and poverty

Notes: The sample includes IDA-eligible countries with net aid transfers between 2 and 25 percent of GDP, poverty headcount (people living on less than \$1 a day) of more than 2 percent, population above 1 million in 1990-2005. Observations are averages for 1990-2005. The regression represented by the straight line has a t-statistic of 3.62, N=58, R-squared=0.17. The data sources are listed in the data appendix.

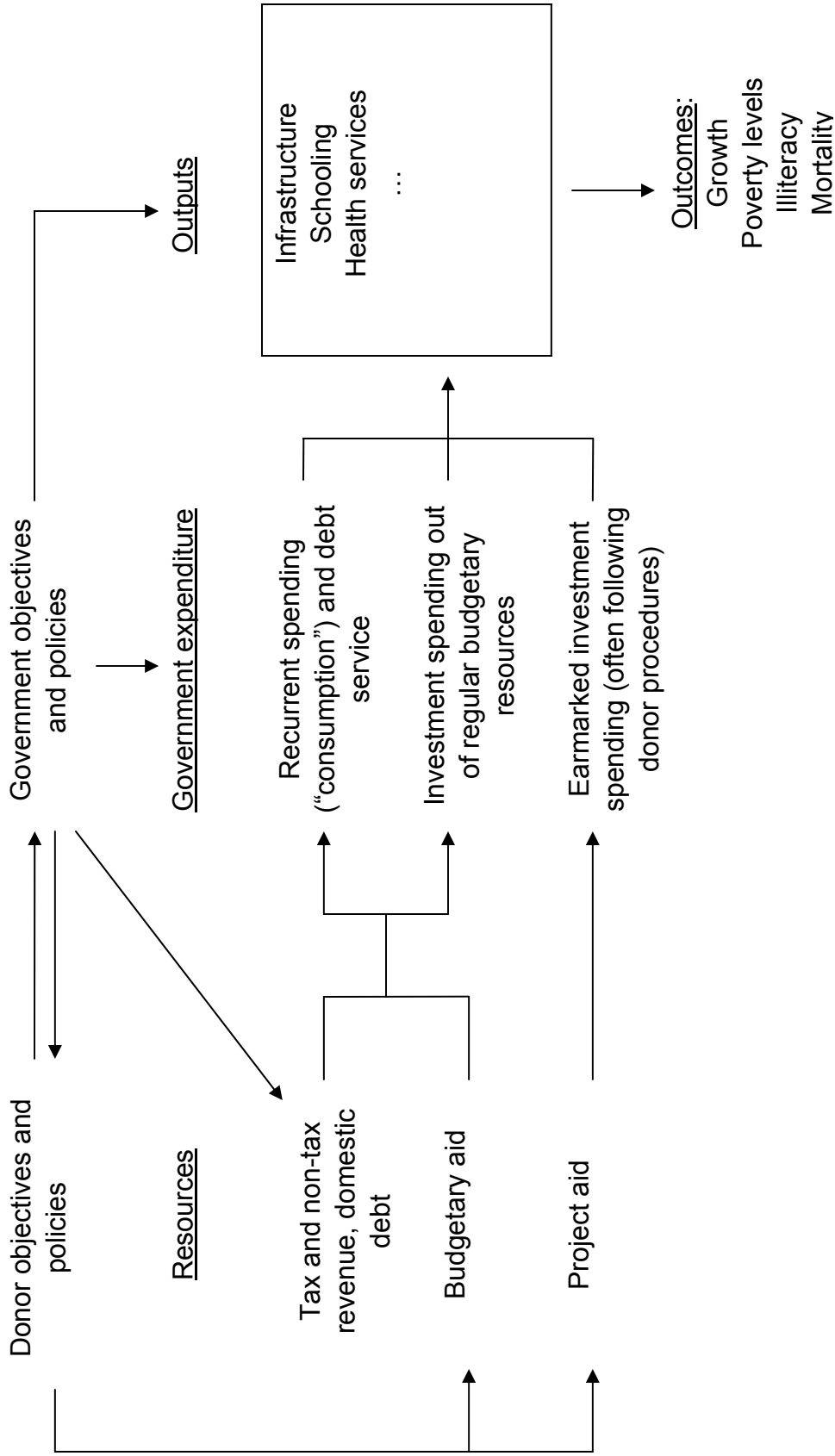


Figure 2. Aid, Government Policies, and Outcomes

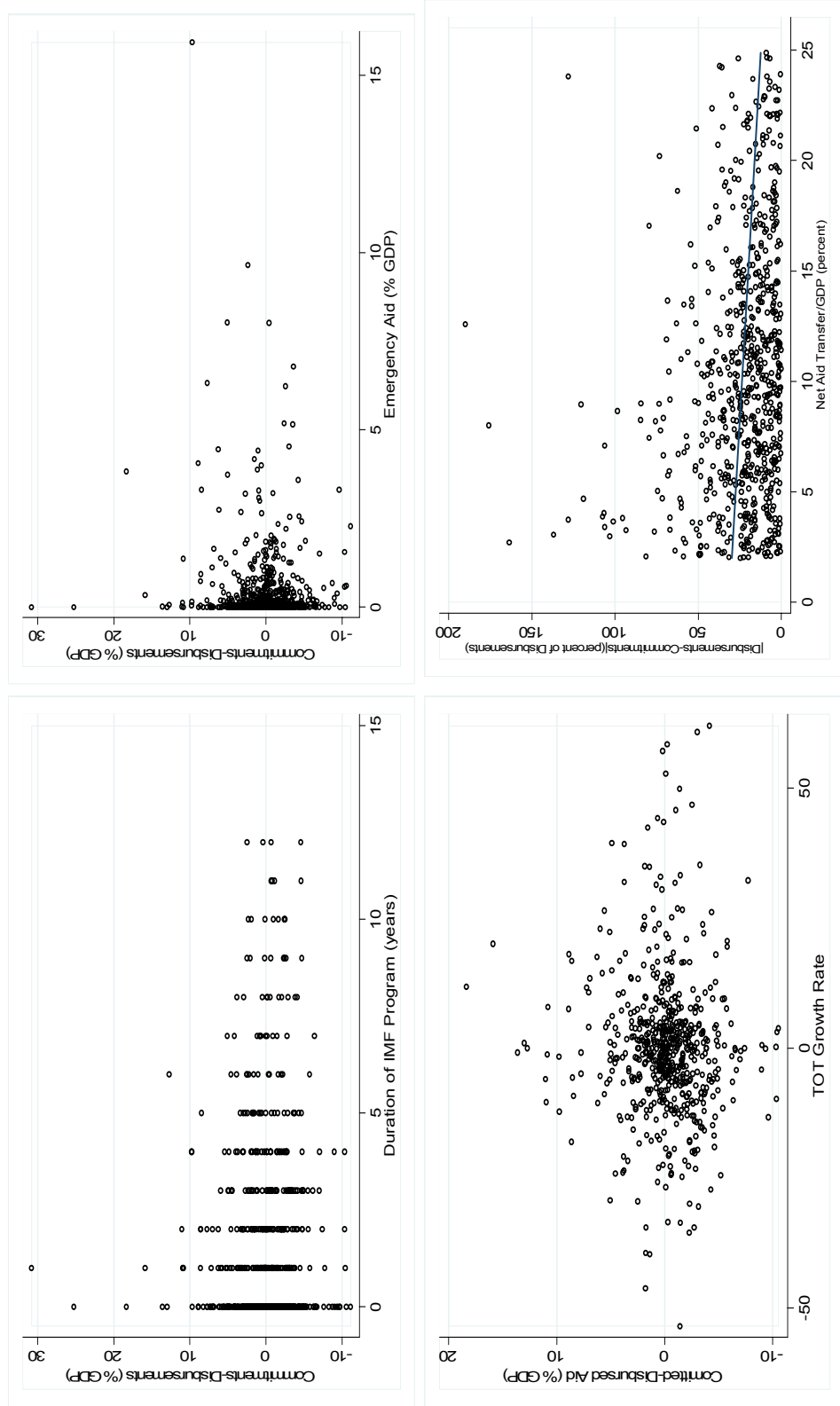


Figure 3. Lack of aid predictability, IMF program participation, emergency aid, and terms of trade growth

Notes: The sample includes IDA-eligible countries with net aid transfers between 2 and 25 percent of GDP, and population above 1 million in 1990-2005. The bottom panel excludes a small number of observations where the annual change in the terms of trade exceeded 100 percent. The data sources are listed in the data appendix.

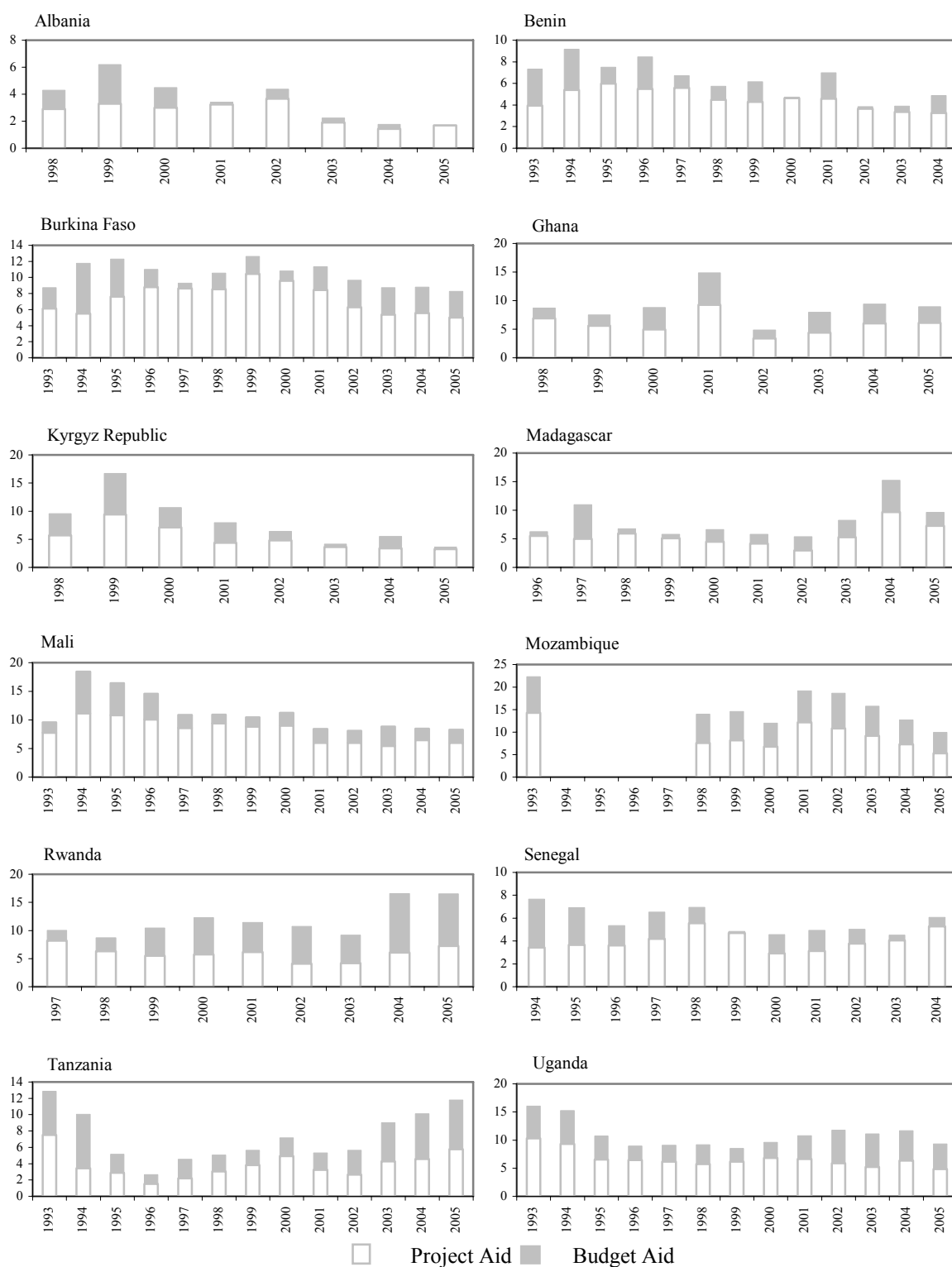


Figure 4. Budget and Project Aid, percent of GDP

Source: Authors' calculations based on IMF Staff Reports, various issues.

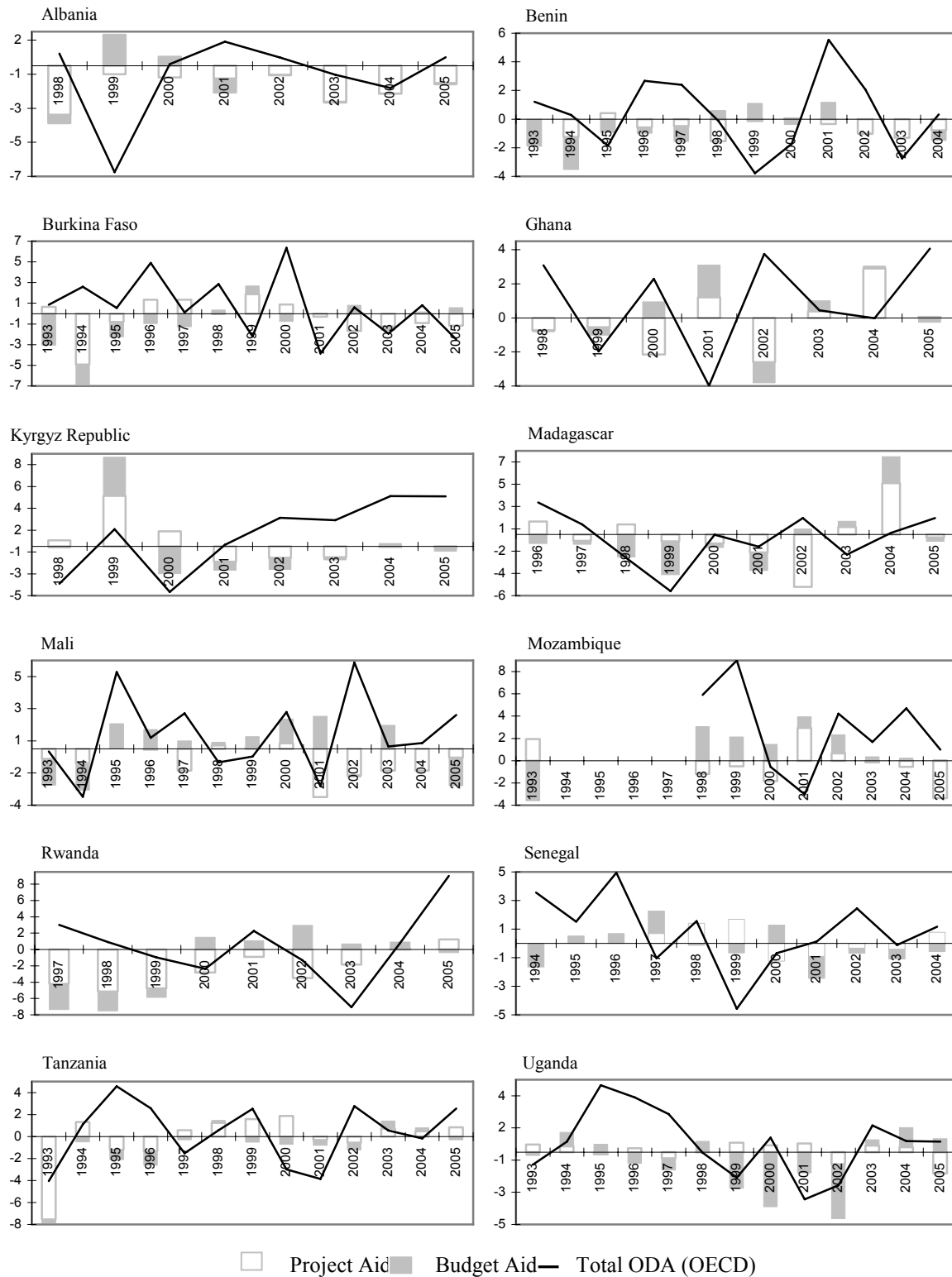


Figure 5. Deviations of Actual from Projected Budget and Project Aid (IMF), and Deviations of Disbursements from Commitments of ODA (OECD), percent of GDP

Source: OECD DAC and authors' calculations based on data from IMF Staff Reports, various issues.

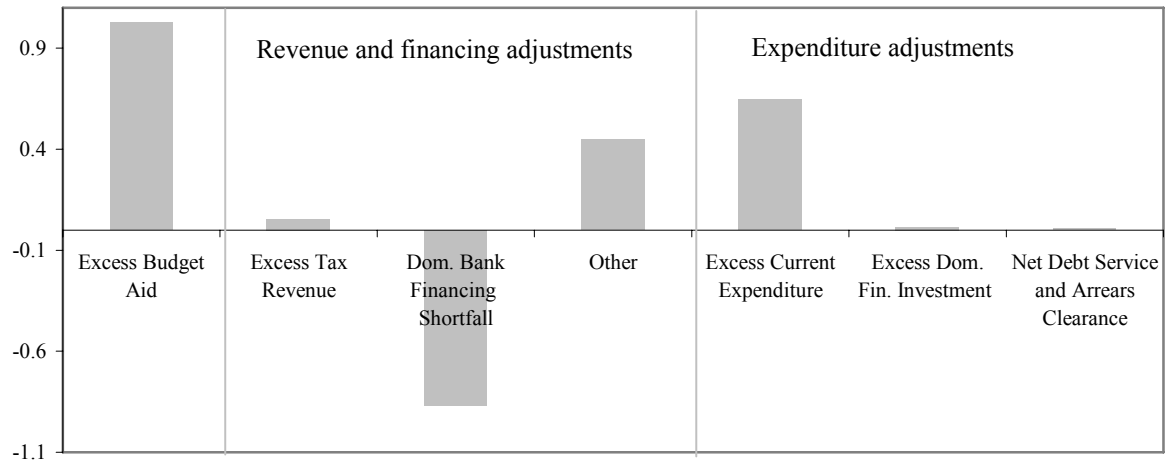
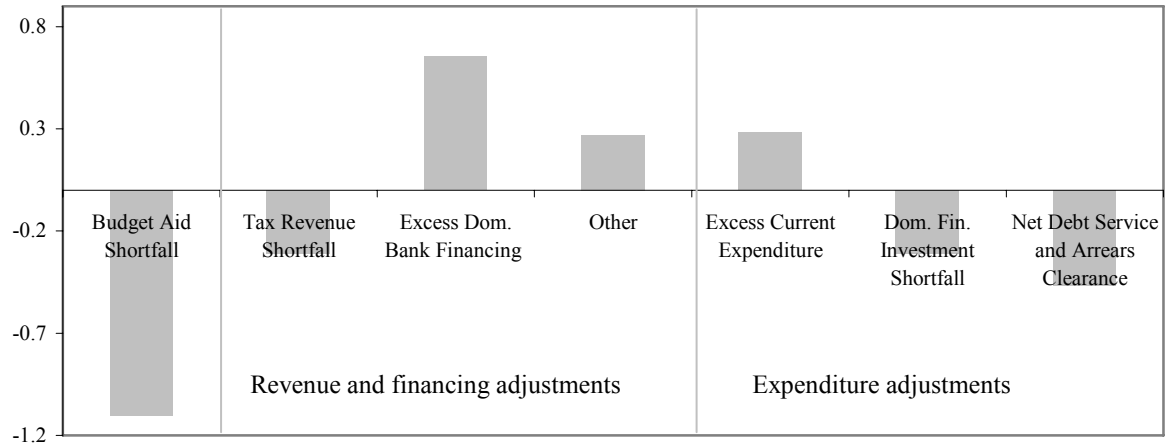


Figure 6. Adjustments to Budget Aid Shortfalls and Excesses, Percent of GDP, Pooled Average for All Countries, 1993-2005

Source: Authors' calculations based on IMF Staff Reports, various issues.

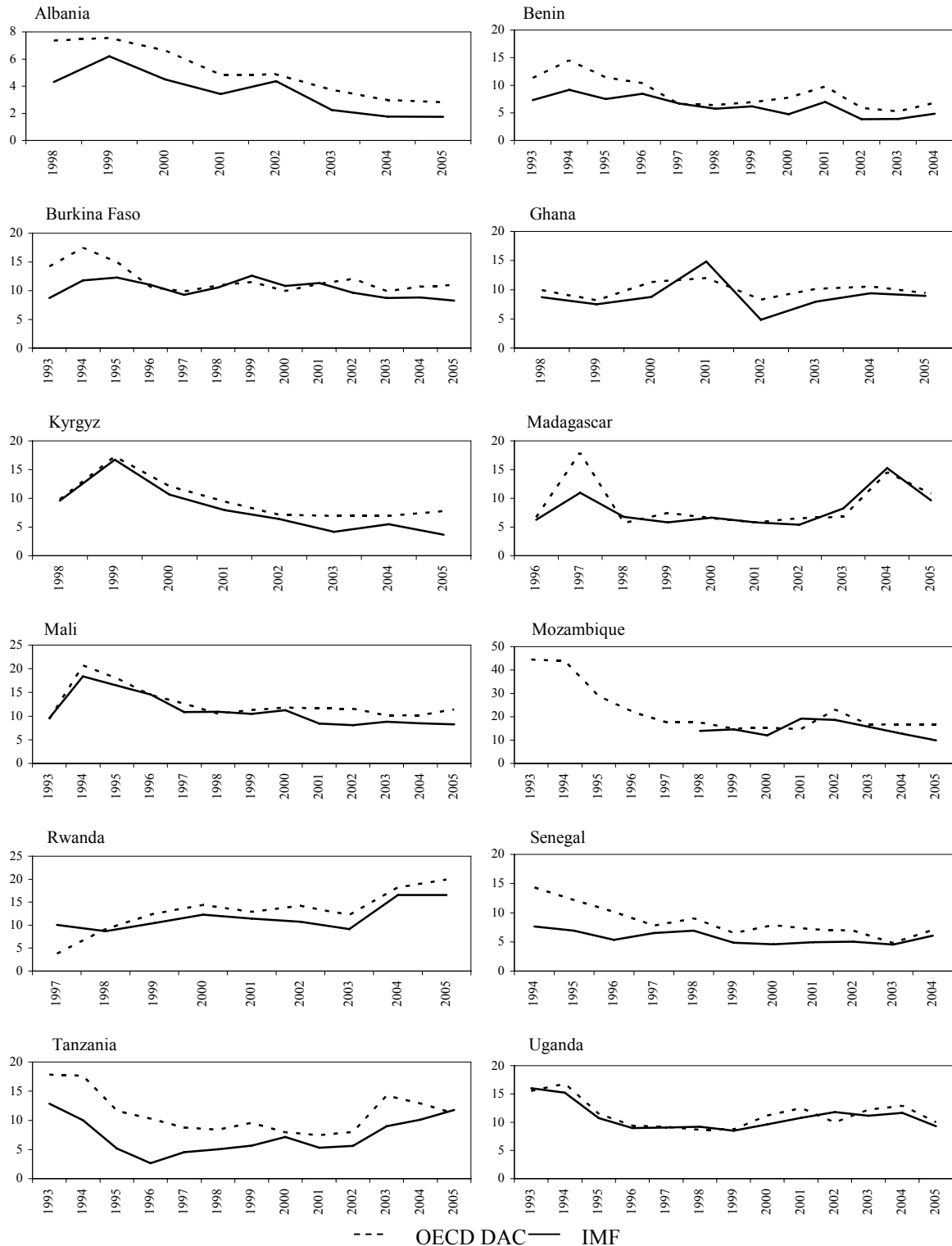


Figure A.1. Aid Disbursements, Percent of GDP, OECD DAC and IMF data

Source: OECD DAC. Aid Disbursements are given by Gross Disbursements-Technical Cooperation-Emergency aid-Development Food Aid.

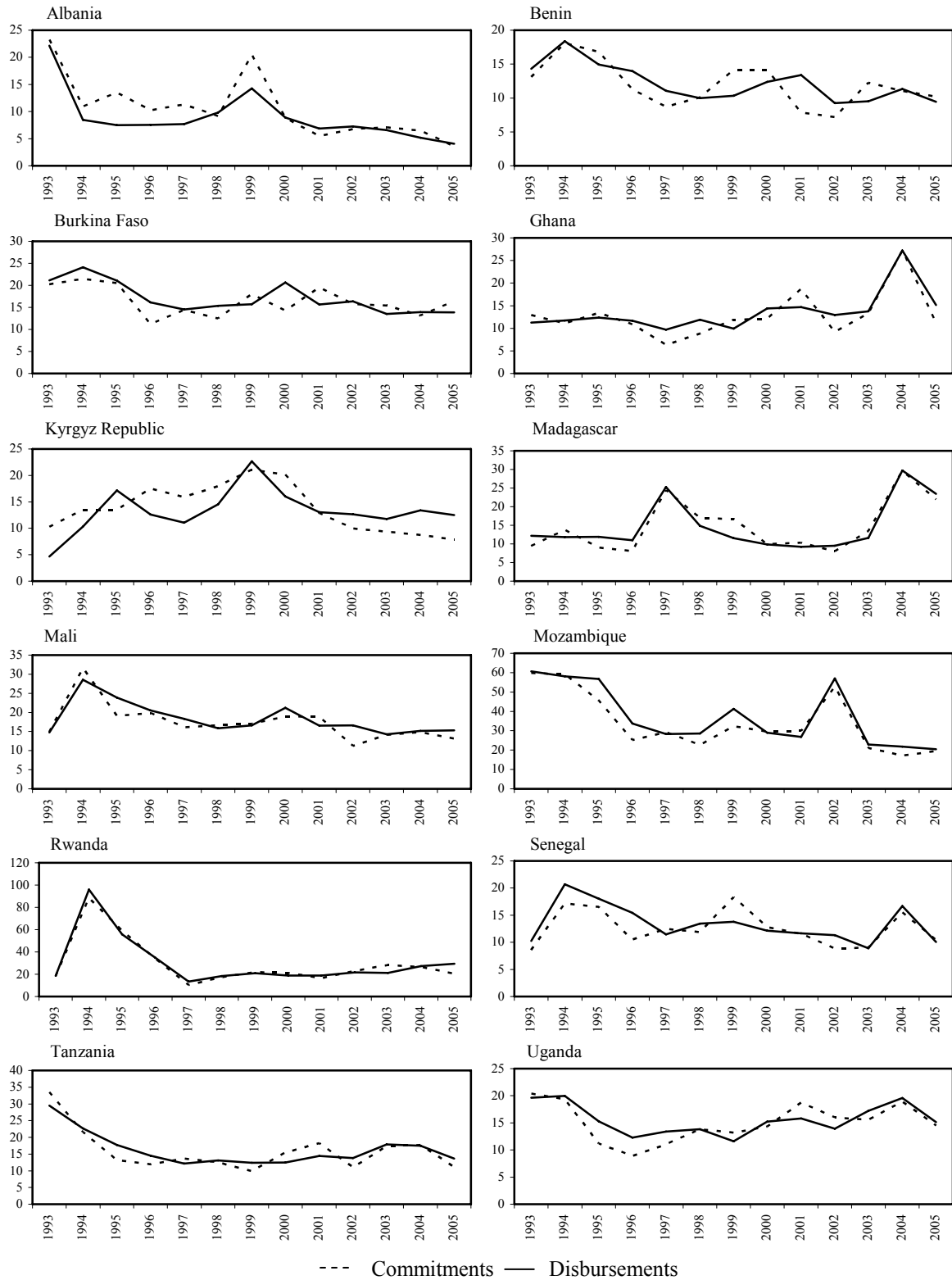
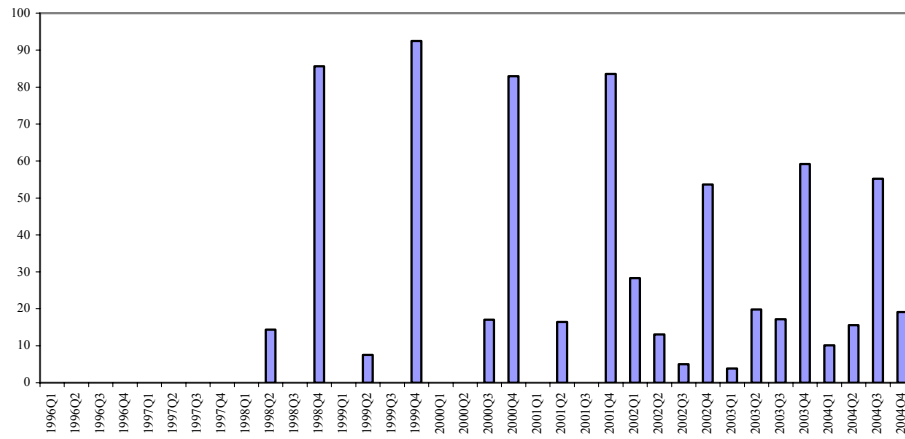


Figure A.2. Commitments and Disbursements of ODA, percent of GDP

Source: OECD DAC, Gross ODA Commitments and Disbursements, excluding Technical Cooperation

Burkina Faso



Mali

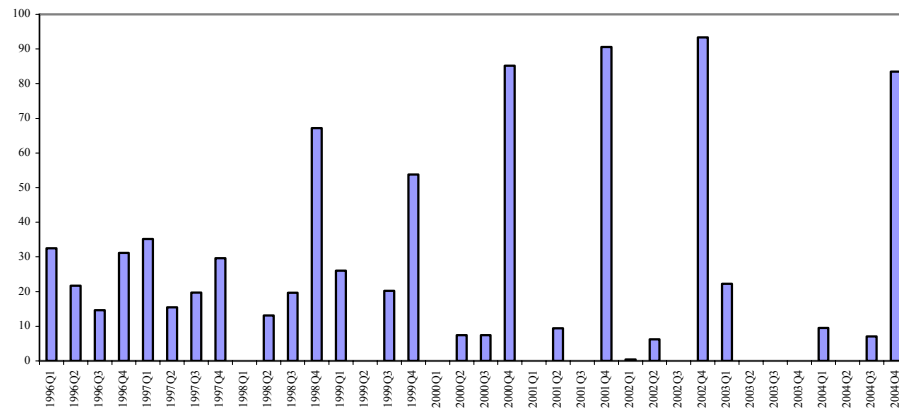


Figure A.3. Burkina Faso and Mali: Quarterly Distribution of Disbursements, percent of annual disbursements
 Source: Authors' calculations based on IMF Staff Reports, various issues.

Table A1. The Deviation of Technical Cooperation and Total Aid Commitments from Disbursements, averages, 1990-2005

	Technical Cooperation Aid/GDP	Technical Coop. Aid/Total Disbursements	Absolute Deviation of Commitments from Disbursements/ Disbursements	Absolute Deviation of Commitments from Disbursements/ Disbursements (Technical Cooperation only)
Sub-Saharan Africa (SSA)				
Angola	0.9	17.2	14.2	20.9
Benin	2.8	22.7	15.1	21.5
Burkina Faso	3.6	21.6	13.3	15.1
Burundi	4.1	16.5	24.8	21.8
Cameroon	1.1	18.2	21.0	13.1
Central African Rep.	3.2	27.4	28.2	24.9
Chad	2.8	19.7	22.1	19.7
Congo Dem.Rep.	1.3	21.1	16.4	29.8
Congo, Rep.	1.3	23.3	26.4	12.4
Cote d'Ivoire	0.9	15.3	16.5	7.5
Eritrea	4.4	17.8	26.0	52.8
Ethiopia	1.9	15.9	21.9	15.6
Gambia	4.6	23.2	39.5	27.1
Ghana	1.6	12.6	15.9	16.5
Guinea	1.9	17.9	20.9	17.9
Guinea-Bissau	11.7	25.9	23.6	32.0
Kenya	1.9	24.9	19.9	16.5
Lesotho	3.1	24.0	30.8	26.1
Liberia	6.4	18.2	22.9	29.4
Madagascar	2.6	19.4	17.0	14.6
Malawi	5.4	19.6	12.7	15.9
Mali	4.2	23.1	10.6	15.5
Mauritania	3.7	15.5	17.2	15.7
Mozambique	6.0	15.1	12.4	25.5
Niger	3.9	22.8	19.2	20.5
Rwanda	5.2	20.5	13.0	18.0
Senegal	3.2	24.8	14.1	9.9
Sierra Leone	3.5	15.0	34.1	20.9
Somalia	10.2	18.6	21.1	0.2
Sudan	0.7	16.9	21.4	23.1
Tanzania	3.1	16.7	16.4	16.1
Togo	2.2	26.5	26.4	18.4
Uganda	2.7	16.3	13.1	19.1
Zambia	3.6	14.9	23.9	18.9
Zimbabwe	1.5	27.1	23.3	20.3
South and East Asia (SEA)				
Bangladesh	0.6	13.9	10.3	20.8
Cambodia	3.6	35.5	15.5	16.5
Laos	4.0	24.4	20.9	9.1
Nepal	2.7	28.2	20.5	16.7
Papua New Guinea	2.8	35.2	30.2	37.8
Sri Lanka	0.8	13.5	14.8	17.8
Viet Nam	0.9	23.4	53.4	6.1
Middle East and North Africa (MENA)				
Egypt	1.1	26.8	22.8	30.3
Iraq	0.1	3.2	30.5	0.1
Jordan	1.6	20.0	17.8	26.4
Lebanon	0.7	33.6	38.7	18.8
Morocco	0.7	26.4	19.1	4.2
Palestinian adm.areas	6.1	30.1	20.8	39.6
Yemen	1.1	19.4	32.6	17.6
Latin & Central America (LAC)				
Bolivia	2.7	24.4	14.5	13.6
El Salvador	1.3	37.6	24.4	30.6
Haiti	2.7	31.9	21.5	30.5
Honduras	2.0	19.4	16.5	38.7
Nicaragua	4.2	17.1	22.4	30.9
Transition Economies (TE)				
Albania	1.4	20.1	23.5	39.3
Armenia	2.5	24.4	34.7	87.3
Azerbaijan	0.6	20.6	57.9	44.5
Bosnia-Herzegovina	2.8	12.5	10.7	54.5
FYROM-Macedonia	1.0	19.7	34.6	45.1
Georgia	1.6	22.8	30.7	52.3
Kyrgyz Rep.	2.5	19.5	37.5	29.6
Moldova	1.9	33.0	35.0	41.8
Mongolia	5.9	28.5	24.9	20.4
Serbia & Montenegro	0.6	22.4	19.6	44.7
Tajikistan	1.4	13.4	28.8	38.6
Regional Averages				
SSA	3.3	19.9	20.4	20.2
SEA	2.2	24.9	23.7	17.8
MENA	1.3	24.7	26.3	20.4
LAC	2.6	26.1	19.8	28.8
TE	2.0	21.9	32.5	45.2

Notes: The sample covers countries that were IDA-eligible in 1990-2005 (with per capita income less than US\$ 1675 in 2005 US dollars), received more than 2 percent of GDP in net ODA and had average population exceeding one million in 1990-2005.