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Fiscal capacity and aid allocation: Domestic resource mobilization and foreign aid in developing countries

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Working Paper 2014–7

Fiscal Capacity and Aid Allocation *Domestic Resource Mobilization and Foreign Aid in Developing Countries*

Aniket Bhushan
Yiagadeesen Samy

prepared for the UNRISD project on
Politics of Domestic Resource Mobilization

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This paper is part of a series of outputs from the research project on The Politics of Domestic Resource Mobilization for Social Development.

The project seeks to contribute to global debates on the political and institutional contexts that enable poor countries to mobilize domestic resources for social development. It examines the processes and mechanisms that connect the politics of resource mobilization and demands for social provision; changes in state-citizen and donor-recipient relations associated with resource mobilization and allocation; and governance reforms that can lead to improved and sustainable revenue yields and services. For further information on the project visit www.unrisd.org/pdrm.

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List of Acronyms

AEO	African Economic Outlook
CPIA	Country Policy and Institutional Assessment
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DRM	Domestic Resource Mobilization
GFS	Government Financial Statistics
HC-IDC	House of Commons International Development Committee
IDA	International Development Association
IMF	International Monetary Fund
MDG	Millennium Development Goal
MCC	Millennium Challenge Corporation
NSI	North-South Institute
OECD	Organization for Economic Co-operation and Development
PEFA	Public Expenditure and Financial Accountability
PFM	Public Financial Management
UNRISD	United Nations Research Institute for Social Development
USAID	United States Agency for International Development
VAT	Value Added Tax
WDI	World Development Indicators

Summary

This paper is part of a the UNRISD project on The Politics of Domestic Resource Mobilization (UNRISD 2012). Its specific contribution is with regards to the interaction between fiscal performance and donor aid allocation in developing countries. While several studies have examined whether aid affects fiscal performance, there has been no systematic study of whether fiscal capacity and performance in developing countries has any impact on donor aid allocation decisions. We argue that the latter is an important issue given that domestic resource mobilization (DRM) is being increasingly recognized as an important component of financing for development, and that some donors are beginning to pay more attention to taxation and fiscal capacity. After reviewing the fiscal performance and aid allocation literature, we discuss the results of a large N-analysis for the period 1992-2010 that augments a standard aid allocation model with fiscal variables. This preliminary analysis of overall bilateral and multilateral aid allocation leads us to conclude that there is hardly any correlation between overall aid and fiscal performance and capacity. We then complement this analysis by discussing the recent fiscal performance data and donor involvement in taxation and public financial management (PFM) in four case study countries. These case studies allow us to examine donor-recipient relationships. Specifically, we calculate a tax effort index for recipient countries over the period 1990-2012 and examine trends in various fiscal performance metrics. We also highlight which donors are present in the case study countries, and what their perceptions of fiscal performance in these countries are. Our analysis shows that there are important gaps in terms of donors delivering on their commitments to align with recipient country priorities and providing aid through country PFM systems.

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Introduction

This paper is concerned with the interaction between fiscal capacity and performance in developing countries on the one hand, and donor aid allocation on the other. We are interested in whether fiscal capacity and performance in developing countries has any impact on donor aid allocation decisions. Given that domestic resource mobilization (DRM) is now seen by the international community as an important component of financing for development, we attempt in this paper to conduct an empirical analysis of whether (and the extent to which) donors consider tax performance in aid allocation decisions.

In order to answer this question, the paper is divided into the following five sections. The next section sets out the rationale and motivation for the analysis in more detail. Section 3 reviews the fiscal performance and aid allocation literature, pointing out the contributions and gaps in the literature. Section 4 presents our empirical framework and discusses the results of several large-N regression analyses that augment a standard donor aid allocation model with fiscal variables. Section 5 discusses recent fiscal performance data and donor involvement in taxation and public financial management (PFM) in four case study countries (Bolivia, Guatemala, Uganda and Zimbabwe) that were selected for the UNRISD project on “The Politics of Domestic Resource Mobilization for Social Development” (UNRISD 2012). An examination of different cases allows us to answer our main research question by looking more specifically at donor-recipient relationships, which the large-N analysis (as a result of data limitations at the individual donor level) cannot do. In particular, we are able to calculate a tax effort index for recipient countries and examine trends in various fiscal performance metrics. We are also able to highlight which donors are prominent in our case study countries, and what their perceptions of fiscal performance in these countries are. A concluding section highlights key messages and findings, and suggests areas that require further research, especially for further examination of the cases using local knowledge.

Rationale and Motivation

While there is already a significant literature on aid allocation (which has tried to measure the extent to which aid is allocated based on recipient need and merit as opposed to donor self-interest), and a growing literature on whether high levels of aid are a disincentive to greater tax effort especially in highly aid reliant countries, the rationale for examining fiscal performance from the perspective of donor aid allocation is not obvious at the outset. In other words the main question here is *not* embedded in an established theoretical literature. Furthermore, it is quite possible that even if donors are placing more emphasis on DRM, and even if they are increasingly supporting tax administration and other reforms, that these measures may only affect the types of aid they give and conditions attached, rather than the volume of aid. However, even if donors are not using recipient tax performance as a factor determining their allocation of aid, it is still helpful to see whether the rhetoric and observations from independent evaluations (more on these below) show up in the data. Recipient countries may also be interested to know whether and the extent to which they may be penalized if they increase DRM.

Therefore the first issue we must confront is why such an analysis is still worth pursuing. Or more appropriately, why would we expect to see fiscal performance impact

on donor aid allocation? We put forward three reasons why it is worth analyzing fiscal performance from the perspective of donor aid allocation.

First, the international community is increasingly recognizing the importance of DRM.¹ DRM is gaining prominence in discussions on what has come to be known as the post-2015 agenda, or the set of broad development goals that will replace the Millennium Development Goals (MDGs) when they reach their target date in 2015 (Bhushan 2013; Bhushan, Samy and Medu 2013). Until the 2002 Monterrey Consensus on Financing for Development which accompanied the MDGs, DRM had received relatively little attention as a development financing strategy, especially in poorer regions such as sub-Saharan Africa (Culpeper and Bhushan 2008, 2009, 2010). The Monterrey Consensus served to highlight and focus attention on DRM even in the poorest regions.

The emerging post-2015 agenda has set high expectations for developing country DRM efforts and the contribution of DRM to financing ambitious post-2015 goals. During recent outreach missions, both the president of the World Bank and the lead author and executive secretary of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda argued that one of the main reasons to be optimistic about delivering on an ambitious post-2015 agenda and goals such as “ending extreme poverty” is that more countries are now able to rely on their own resources to finance their own development (NSI 2013a; Kim 2013; Higgins and Bond 2013). Clearly, DRM expectations are high and the international community including aid donors are increasingly viewing enhanced DRM as a self-sustaining development finance strategy, including in the poorest regions. Donors are also increasingly supporting developing country led efforts as evidenced in the support for the establishment of the African Tax Administration Forum in 2008, an organization that aims to promote cooperation among African tax authorities.²

Second, of late donors themselves have sought to explicitly link aid to taxation and tax effort in partner countries. This argument stems from the thinking that the main reason to be concerned about high levels of aid dependence (defined as aid-to-gross national income ratios above 10 per cent) is that such high reliance on aid undermines good governance by distorting domestic political accountability. Governments that are highly aid dependent, it is argued, pay too much attention to donors and too little to their own citizens. Therefore aid should be ‘capped’ at 50 per cent of the amount of tax revenue (Wood 2008) that the aid-receiving government raises from its own citizens by non-coercive means and excluding revenue from oil and minerals. Wood (2008) further argued that this would also help get around the incentive problem as it would encourage governments to raise more taxes from their citizens since every extra dollar raised would attract a matching increase of 50 cents in aid.³ Similarly and more recently the Organization for Economic Co-operation and Development (OECD)’s Development Cooperation Directorate has taken up the issue of how to link different aid modalities to the goal of strengthening tax systems. The OECD recommends introducing variable tranche mechanisms linked to carefully structured revenue targets into general budget support and sector budget support strategies (OECD 2013a).

¹ For the purposes of the analysis in this paper domestic resource mobilization or DRM refers mainly to domestic *revenue* mobilization. While we recognize that private savings mobilization, and banking and financial sector issues are an important component of DRM, these are outside the scope of the present analysis, which is restricted to taxation, tax effort and other aspects of fiscal performance. Broader DRM issues have been covered elsewhere; see Culpeper and Bhushan 2008, 2009 and 2010.

² Similarly, one could also point to the Inter-American Center of Tax Administrations, which pursues the same objectives in the Latin American context.

³ Adrian Wood, the proponent of this argument cited here, was formerly chief economist of the UK’s Department for International Development (DFID).

There are further signs that taxation in partner countries is starting to figure more prominently in donor decision making on aid allocation. The recent UK House of Commons International Development Committee report on Pakistan is indicative in this regard (UK HC-IDC 2013). The UK is one of Pakistan's largest aid donors and Pakistan is the biggest recipient of UK aid.⁴ Yet the IDC report bluntly states that "if the Pakistan government is unwilling to take action to increase its revenues and improve services for its people, it cannot expect the British people to do so in the long run... [we] cannot expect the citizens of the UK to pay taxes to improve education and health in Pakistan if the Pakistan elite are not paying income tax" (UK HC-IDC 2013). Tax collection in Pakistan has remained nearly constant at around 10 per cent of GDP over a decade. Moreover, social sector expenditure such as on health and education remains very low especially compared to expenditure in areas such as defense. Corruption, tax evasion and avoidance remain high. Less than 0.6 per cent of the population paid any income tax in the last year, and it is reported that over 70 per cent of elected representatives in the country including many ministers do not pay any tax (Holmes 2013, Tran 2013). Given this background experts have backed calls to make tax reform a prerequisite for development assistance (Holmes 2013).⁵

Third, while the aid allocation literature has largely ignored taxation as an independent variable in explaining aid flows, focusing instead on recipient needs and donor interests, one could argue in fact that the inability of countries to raise revenue through taxes as a result of their structural characteristics is also a reflection of recipient needs. A cursory look at the data reveals that countries at fairly similar levels of development differ in their abilities to collect revenue through taxes and in the composition of their revenue sources. Therefore, from an analytical perspective taxation and fiscal performance variables can be a useful proxy for recipient needs.

The links between aid allocation and fiscal performance can go both ways. For instance, one might expect donors would "reward" countries making significant tax effort and reforms with more aid or better aid (for example aid on better terms).⁶ On the other hand one might also expect to see more aid going to countries with lesser fiscal capacity (thus filling in gaps in DRM), or certainly more aid specifically to taxation and PFM related issues going to countries that have greater needs in these areas. Beyond the lack of a theoretical literature, data and direction of causality issues complicate such analyses. One of the few cross-country econometric analyses in this area found evidence that suggests donor PFM support is positively and significantly associated with the quality of recipient PFM systems (Renzi, Andrews and Mills 2011). In other words, while it cannot be interpreted as causal, the positive and significant relationship between donor PFM assistance and the quality of PFM systems could be interpreted as a reflection of the fact that donors tend to provide more PFM related assistance to countries that have already achieved a certain level of success in improving the quality of PFM systems. Moreover, the same study also finds that donors reward countries with better PFM systems by shifting more of their aid to directly support the government budget. General budget support as an aid modality has been increasing in importance in recent years. Renzi, Andrews and Mills (2011) find some evidence to support the fact that donors reward countries improving fiscal performance with better aid modalities.

⁴ Aid from the UK to Pakistan is set to increase substantially from £267m in 2012-13, rising to £446m in 2014-15.

⁵ Kieran Holmes cited here, a UK tax specialist and advisor, is currently the head of Burundi's new revenue authority which was set up with the support of foreign donors including the UK.

⁶ By "better aid" we mean aid modalities that are associated with fewer conditions, and aid that is more aligned with recipient priorities. Typically general budget support (GBS) would be the most fungible form of aid wherein recipients retain greater agency, compared for instance to project or programme support.

To sum up, expectations of developing country DRM efforts in the context of so-called post-2015 goals are high. DRM is being emphasized as a self-sustaining development financing strategy, and one that is preferable to foreign aid, increasingly even in the poorest countries. This raises the question of what is realistic in terms of DRM for these countries, and we address this issue later in the paper by calculating a tax effort index for various countries. Major donors have sought to link foreign aid disbursements to improved fiscal performance and tax effort. Recent research, while still tentative, shows there are generalizable patterns in terms of the quality of recipient country PFM systems and donor allocation of PFM assistance. Given this backdrop and despite the lack of a theoretical literature and established framework, it is worth analysing whether fiscal capacity and performance has any discernible impact on donor aid allocation.

Aid Allocation, Fiscal Capacity and Performance: What Does the Literature Say?

Given that our central objective is to examine whether improvements in fiscal capacity in low and middle income developing countries have any impact on donor aid allocation decisions, we briefly review the existing literature on how aid *is* allocated⁷, namely how much aid countries receive and why.

There is now a fairly broad consensus that aid allocation patterns are dictated by a combination of political, strategic, commercial and humanitarian factors; in other words, recipient needs and donor interest matter, and their relative importance varies across donors. Obviously, the type of aid being allocated matters, and this is indeed a major issue with earlier studies that have examined, possibly because of a lack of data, aggregate aid flows and thus failed to distinguish among aid types. In the empirical analysis that we conduct in the next section, we face a similar problem in that we are not able to examine the behaviour of individual donors. That is, we do not in this paper look at data at the individual donor-recipient pairing level but at the aggregate level of all donor aid, whether bilateral or multilateral.

Empirical models of aid allocation going back to the 1970s make the implicit assumption that donors derive utility from the impact of their aid on recipient countries and/or provide aid because they care about the well-being of recipient countries (Dudley and Montmarquette 1976); self-interest and developmental objectives are thus both present in those studies. For example, McKinlay and Little (1977) examined the pattern of US bilateral aid during the 1960s and concluded that it was driven by political and security objectives. Trumbull and Wall (1994) used panel data for eighty-six countries over the period 1984-89 and find that infant mortality (a proxy for physical well-being) and political rights are significant explanatory factors for total aid allocation whereas income levels (a proxy for material well-being) are not.

More recent studies have included several variables that account for donor interests (for example, trade openness, colonial history and UN voting patterns), political factors (level of democracy and civil liberties) and recipient needs (proxied by variables such as per capita income, the human development index and infant mortality) in order to explain aid allocation patterns⁸. Specifically, Neumayer (2003 a, b) examines whether

⁷ There is a parallel, though prescriptive/normative literature that examines how aid *should* be allocated. For example, Collier and Dollar (2002) derive a poverty-efficient allocation of aid whereby donors should allocate aid in order to maximize poverty reduction (their objective function) subject to the amount of aid (their budget constraint). We focus only on the positive/explanatory literature of how aid *is* allocated here.

⁸ For example, Alesina and Dollar 2000; Neumayer 2003 a, b; Alesina and Weder 2002; Dollar and Levin 2004; Clist 2011.

human rights matter and finds that they have a limited role at best. The papers by Alesina and Weder (2002) and Dollar and Levin (2004) focus on the quality of recipient governance as determinants of aid allocation, namely examining whether levels of corruption, and the quality of recipient institutions and recipient policy performance influences donor behaviour. In particular, Alesina and Weder (2002) do not find any evidence that donors are being selective by giving more aid to less corrupt governments; while Scandinavian countries provide more aid to less corrupt countries, the United States tend to allocate more assistance to corrupt governments, even though the U.S. favours democratic regimes over dictatorial counterparts.

Using the World Bank's Country Policy and Institutional Assessment Index (CPIA), Dollar and Levin (2004) find that donors that target assistance towards recipients with sound institutional and policy environments tend to be the same donors that provide the largest amount of aid to the poorest recipients. According to Dollar and Levine (2004), donors have become more selective since the 1990s by focusing more on governance, with differences across bilateral and multilateral agencies.⁹ Finally, Berthelemy and Tichit (2004), using a rich dataset that contains donor-recipient pairs over time, find that the bias towards former colonies has declined since the end of the Cold War in favour of trade policies. In other words, aid is now less strategic than it used to be, and as in the case of Dollar and Levin (2004), they argue that donors have become more selective by rewarding good policies. Clist (2011), in an analysis of 25 years of aid allocation practice, finds that donors tend to favour different factors in their aid allocation patterns and that non-development factors matter (thus confirming earlier findings by Alesina and Dollar (2000)). However, unlike Dollar and Levine (2004), Clist (2011) does not find evidence supporting the application of selectivity in aid allocation.

On a practical level there are differences between donors in terms of their aid allocation approaches. Multilateral agencies use explicit resource allocation formulas to determine their aid allocations to countries based on their global mandate. Formulas, such as those employed by the World Bank International Development Association (IDA), African and Asian Development Banks, typically incorporate both recipient needs and institutional performance metrics. By accounting for both recipient need (that is: recipient income) and institutional performance (usually measured using indexes for institutional quality, such as the CPIA) in allocation formulas, multilateral agencies ensure that poor countries, which tend to have lower institutional capacity than higher income developing countries, continue to receive an adequate proportion of aid funds in spite of lower governance rankings (OECD 2012).

Bilateral donors generally do not explicitly use quantitative aid allocation formulas, but even here there are exceptions. The UK and Netherlands, for instance, use explicit aid allocation formulas in determining aid allocation (OECD 2012). Others, such as the US Millennium Challenge Corporation (MCC) also allocate aid based on ex-ante quantitative assessments, with an emphasis on governance, economic performance and human development, with the aim of allocating aid to 'development minded' partners. Given these differences we might expect to see different donors (bilateral vs. multilateral) react differently to taxation and fiscal capacity as a factor in their aid allocation strategies.

⁹ It is important to note that most of these studies also find that bilateral aid is more strategic than multilateral aid. However, O'Keefe and Potter (2007) find that the allocation of multilateral aid varies according to the preferences of bank staff, where executive board members advocate larger loans to key strategic recipients; staff members promote bigger loans to highly indebted countries; and managers pursue incrementalism, providing larger budgets to countries that received loans the year before rather than the countries most in need.

Several studies have assessed how different types of aid affect recipient fiscal systems,¹⁰ and we review some of the main results here. For instance, it has also been shown that the composition of aid modalities can affect revenue mobilization. In a much cited paper, Gupta et al. (2003) analysed the difference between the impact of loans vs. grants. They find that net aid has a negative impact on government revenue and that the relationship is primarily driven by the negative impact of grants. The relationship is more pronounced in countries with high levels of corruption as grants seem to substitute for domestic revenue effort (as opposed to loans – presumably because they have to be serviced)¹¹ (Gupta et al. 2003).

Mavrotas (2002) disaggregated aid in the context of a fiscal response model applied to India and Kenya (1973-1990). The study found project aid is less likely to displace other sources of government funding relative to programme aid. In Uganda, Mavrotas (2003) found that the country did not reduce its taxation effort following additional disbursements of different types of aid. Measuring the impact of four types of aid (project, programme, food, and technical assistance) on the investment, consumption, revenue, and borrowing preferences of the Ugandan government, the results suggest that the Ugandan governments' fiscal decisions on taxation and expenditure (tax effort) did not change in the presence of increased aid. Specifically, Mavrotas (2003) found that for every 1,000 shilling increase in project aid, programme aid, or technical assistance, government revenue decreased by a mere 4 shillings, suggesting that additional aid did not reduce the incentive for the Ugandan government to tax effectively. The decrease was even lower for additional inflows of food aid, which saw a decrease in government revenues of less than 3 shillings for every 1,000 shillings in food assistance.

In Côte d'Ivoire Mavrotas and Ouattara (2006) found the recipient government responds to different types of aid differently. Increases in project aid affect public investment negatively while the impact on government consumption is positive. Clist and Morrissey (2011), in an examination of 82 developing countries for the period 1970-2005, find no evidence that aid (whether in the form of grants or loans) has had a negative effect on the tax to GDP ratio; in fact, they find that grants have instead had a positive effect on tax revenue since the mid-1980s. In a review of recent evidence, Morrissey (2012) finds that there is no systematic effect of aid on tax effort.

There are indications that donors are recognizing the importance of differences in aid modalities in the context of support for taxation and public financial management more generally. OECD (2013a) summarizes key lessons from a comprehensive study (including six case studies) on how different aid modalities, from budget support to multi-donor funds, can be used to support DRM in developing countries.

There are two main takeaways from this literature review. First, aid allocation studies have not taken fiscal performance into consideration as an additional explanatory variable. We made a case for why this should be examined in section 2, and we proceed with a large-N empirical examination of this issue in the next section. Second, the empirical evidence of the impact of aid on tax effort from large-N studies is far from conclusive, and it is our view that country case studies (section 5) can contribute further evidence to this debate.

¹⁰ Gupta et al. 2003; Mavrotas 2002, 2003; Mavrotas and Ouattara 2006; Clist and Morrissey 2011; Morrissey 2012.

¹¹ Gambaro et al. (2007) meanwhile find a positive relationship between aid and tax revenue (using different data, enlarging sample size) driven by the role of grants, but only for a shorter and more recent period (1990-2002). The authors attribute this to new trends in donor/recipient practices including the recent emphasis on institution building.

Cross-Country Empirical Analysis And Discussion

As discussed in the previous section, aid allocation studies have largely ignored fiscal capacity as an independent variable. Rather, these studies tend to focus on donor interests, recipient needs, political factors (proxied by indicators of democracy) and governance as a proxy for the effectiveness of institutions and policies. Even if recipient needs (measured by per capita incomes) reflect fiscal capacity, countries at fairly similar levels of development differ in terms of revenue collection through taxes; it would therefore be appropriate to consider fiscal capacity as an additional explanatory variable for aid allocation. One could also interpret fiscal performance as a form of selectivity, whereby donors reward countries as domestic performance improves. Although we are agnostic about the net impact, we want to know whether the latter is significant or not, and how that varies between bilateral and multilateral aid.

The purpose of this section of the paper is thus to conduct a preliminary and exploratory empirical analysis of whether variations in fiscal capacity have any impact on donor aid allocation decisions. We follow the approach taken by aid allocation studies such as Alesina and Dollar (2000) and focus on the aggregate, as opposed to individual, behaviour of bilateral and multilateral donors. We are aware that our approach does not take into account the different behaviour of donors, and that this may affect our results. However, we believe this is a useful first step as it allows us to answer the question at the aggregate level from the perspective of recipient countries.¹²

We control for recipient need, donor interests, and whether recipient countries respect political and civil rights, and good governance. In order to account for differences in the size of countries, we use the size of their populations as an explanatory variable. Period-specific time dummies are also included to account for changes over time that affect all recipients equally.

Our baseline specification for estimation takes the following general form:

$$\ln(AID_{it}) = f(GDPPC_{it-1}, POP_{it-1}, DEM_{it-1}, OPEN_{it-1}, GOV_{it-1}, FISCAL_{it-1})$$

where i refers to countries and t refers to time. The dependent variable, AID , consists of bilateral and multilateral aid (official development assistance or ODA) in separate regressions; the data is from the OECD Development Assistance Committee (DAC). Since bilateral aid is typically more strategic, one would expect it to respond more to donor interests while multilateral aid is more responsive to the needs of recipient countries. By the same logic, multilateral agencies are expected to respond more to fiscal capacity than bilateral ones. A possible problem with these dependent variables, however, is the fact that they lump together various forms of aid, including for example, humanitarian aid, which does not have anything to do with fiscal capacity. We thus also consider aid that goes towards public finance management (PFM), which includes fiscal policy and planning, support to ministries of finance, strengthening financial and

¹² This also has important implications for the method of estimation. At the aggregate level, the dependent variable does not include many zeroes, that is, donors are collectively giving (albeit different amounts of individual) aid to almost every developing country. If one were to estimate aid allocation by donor, to the extent that there are many zeroes among potential recipients, a Tobit procedure that accounts for the truncation of the variable would be needed. We leave this as an area for future work.

managerial accountability, public expenditure management, improving financial management systems, tax policy and administration, budget drafting and so on.¹³ The only need variable considered here is the natural log of GDP per capita in constant 2005 USD from the World Development Indicators (WDI). Although many other studies have considered infant mortality - a measure of physical need – as an additional control, it was excluded here because of its high correlation (at 0.8) with per capita incomes. As noted above, population, *POP*, is included to control for country size, and is also obtained from WDI. We include a measure of the level of democracy, *DEM*, as a proxy for civil and political rights. This variable is constructed by adding a civil liberties index to a political rights index, both of which are published annually by Freedom House. Each of these indices ranges from one to 7, where 1 refers to the highest degree of freedom and 7 to the least amount of freedom. The democracy variable thus ranges from 2 to 14. Another variable that is often used to measure democracy is from the Polity dataset, and which varies from strongly autocratic (-10) to strongly democratic (+10); we will consider it to check for sensitivity. We consider two additional independent variables. Trade openness, *OPEN*, which is the sum of exports of imports as a percentage of GDP, is obtained from WDI and is a measure of economic/strategic interest. Government effectiveness, *GOV*, is included to control for the quality of institutions and policies. It comes from the Worldwide Governance Indicators research project by Kaufmann, Kraay and Mastruzzi¹⁴ and is defined as “capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies”. This indicator varies from -2.5 to +2.5, with higher numbers corresponding to better outcomes.

For our main variable of interest, namely fiscal capacity, we consider two indicators. The tax/GDP ratio is the most commonly used variable in empirical studies. Tax data is available from the Government Financial Statistics (GFS) database from the International Monetary Fund (IMF), and has now been merged with WDI; we thus consider *TAX1*, the tax/GDP ratio from WDI, as one indicator. However, there are lots of gaps in the data, especially for developing countries. The African Economic Outlook (AEO) database also contains detailed data on taxation at the country level for all African countries but cannot be merged with WDI because it uses a different methodology. We will use the tax/GDP ratio, *TAX2*, from AEO when we examine sub-Saharan African countries as a separate sample and then compare our results with *TAX1* (for sub-Saharan African countries).

The above equation is estimated using panel data for the period 1992-2010. All independent variables are averaged over three-year periods to smooth annual fluctuations, starting in 1992, that is, 1992-1994, 1995-1997, 1998-2000, 2001-2003, 2004-2006, and 2007-2009. The dependent variable is also averaged over three years but allows a time lag of one year for the effect of the independent variables on the dependent variable by starting from 1993 (that is, 1993-1995, 1996-1998, 1999-2001, 2002-2004, 2005-2007 and 2008-2010) in order to reduce the likelihood of endogeneity.

¹³ Data on PFM aid used here is drawn directly from the OECD-DAC’s Creditor Reporting System (CRS). While this is the most widely used source for such data, it is not without weaknesses. Ultimately OECD-DAC CRS sector data is only as good as sector level coding. A recent study that analysed the CRS’s PFM sub-sector purpose code (15120) finds that “despite its apparent relevance as a source for data on donor support to PFM reforms, the quality, reliability and comprehensiveness of CRS data are highly questionable. Analysis of the underlying ‘micro data’ reveals not only that a number of activities included should not be classified as support to PFM reforms, but also that many activities that should be included under this classification are omitted” (Renzio et al. 2011). Interestingly, the correlation between the DAC CRS’s PFM data and other studies such as Renzio et al (2011) that developed a custom PFM dataset is low (0.23). Our analysis, like most others, is limited by this data constraint.

¹⁴ See <http://info.worldbank.org/governance/wgi/index.asp> (last accessed on 25 September 2013)

Regarding the specification of the above equation, in order to correct for skewness and produce a more normalized distribution, we took the natural logarithm of the aid variables, per capita income and population. Aid allocation studies (see for example, Alesina and Dollar 2000; Berthelemy and Tichit 2004) typically introduce both linear and quadratic terms for per capita incomes and population to control for a middle-income or population bias. However, one main problem with this approach is the high level of collinearity between linear and squared terms. As a result, we follow the approach of Neumayer (2003a, 2003b) who considers only linear terms in his analysis of bilateral and multilateral aid flows. We did, however, run some tests using squared terms and they were generally not significant.

Table 1 below provides summary statistics for the (untransformed) variables that are used in the empirical analysis. The different estimated models will contain fewer observations as combinations of these variables are considered together in different specifications. We have fewer observations for the fiscal capacity variables, largely because there are many gaps in taxation data. The average values for bilateral and multilateral aid are basically in line with what is typically observed, namely that significantly more aid is allocated bilaterally than multilaterally (more than 3:1). We note in passing that a lot of aid that is coded as bilateral is in fact delivered through multilateral agencies. Although bilaterals or their ministries tend to make these decisions, they are only signing a cheque to a multilateral that will then be the executing agency. This so-called “bilateralization” of multilateral aid is often seen in the case of tax projects.^a

Table 1. Summary statistics

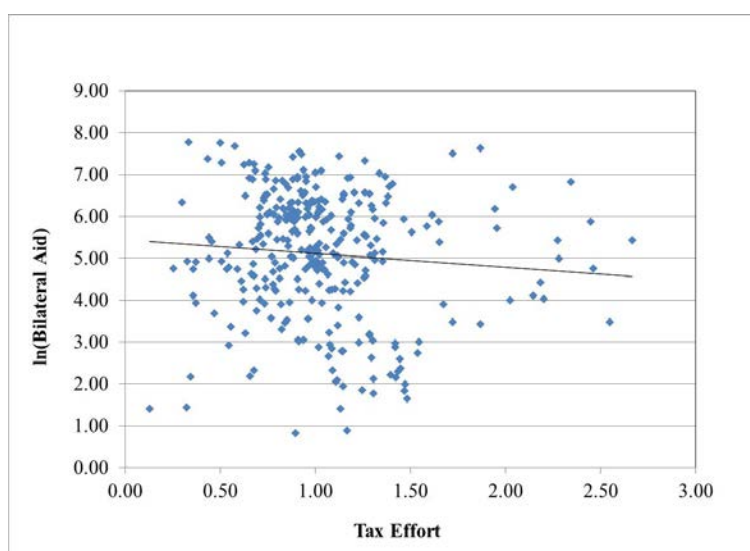
Variable Name	Number of Observations	Mean	Median	Standard Deviation
Bilateral Aid (USD m) ^a	879	311.26	139.91	654.95
Multilateral Aid (USD m) ^a	837	100.78	32.80	167.85
GDP per capita (USD) ^b	892	3590.0	1716.0	4828.0
Population (m) ^b	924	31.74	5.64	133.56
Democracy (Freedom House) ^c	924	7.25	7.00	3.97
Openness (per cent) ^c	871	85.79	78.84	43.33
Government Effectiveness ^d	763	-0.35	-0.41	0.71
Tax/GDP (per cent) – TAX1 ^b	452	16.13	15.11	8.48
Tax Effort ^e	334	1.20	1.00	1.31
PFM ^f	334	14.93	5.47	24.87
Tax/GDP (per cent) – TAX2 ^g	237	13.72	12.11	6.86

^a OECD: 2013c; ^b World Bank 2013 World Development Indicators Database; ^c Freedom House 2014; ^d Kaufmann, Kraay and Mastruzzi 2009, Worldwide Governance Indicators 2013; ^e Own calculations, based on World Bank 2013 World Development Indicators Database; ^f OECD 2013b; ^g AEO 2013.

When *TAX1* is restricted to African countries only, the coverage is quite poor (see tables below). Although the tax/GDP ratio is widely used in empirical analysis, it can also be misleading. For instance, there is no simple association between the tax/GDP ratio and overall economic performance; as an example, resource-rich countries can report high

tax ratios when resource-related revenues are counted in (von Haldenwang and Ivanyina 2011; OECD 2013a). Furthermore, the tax/GDP ratio can increase for reasons that have nothing to do with better performance and be extremely punitive when, for example, rapacious governments mobilize revenue in the face of instability or embargoes. As a result, one can use a tax effort measure, TAXEFF, which is the ratio of actual tax collection to taxable capacity (discussed in detail later in the paper). The latter is estimated from TAX1 as a predicted tax/GDP ratio that takes into account the country specific characteristics that influence tax mobilization. Since TAXEFF is itself derived from some of the independent variables in the above equation, we cannot use it for estimation. However, a simple correlation of this variable with bilateral aid (Figure 1 below) shows a very weak relationship between aid and tax effort.¹⁵

Figure 1. Bilateral aid vs. tax effort



Source: Constructed using tax effort data (authors' calculations) and aid data from OECD 2013c

Table 2 below presents the first set of estimates for the above equation with bilateral aid (in natural log form) as the dependent variable.¹⁶ As expected, per capita income is significant across different specifications with the right sign; as countries develop, they receive less aid, other things remaining equal. The controls for the level of democracy and government effectiveness are also significant and with the expected signs. More democratic countries are rewarded with more aid, and countries with better institutions and policies also receive more bilateral aid¹⁷. This is perhaps not surprising given that our time period corresponds largely with debates about selectivity that started in the late 1990s. On the other hand, population and openness do not seem to be important factors. None of the fiscal capacity variables are significant, indicating that they are not important in explaining aid allocation decisions at the bilateral level. This is also true when sub-Saharan African countries are considered separately (column (4) below, where TAX1 is not significant when only SSA countries are considered).

¹⁵ A similar result was obtained with multilateral aid.

¹⁶ The equations are estimated with period dummies and fixed effects; panel corrected standard errors are reported and account for both cross-section heteroskedasticity and autocorrelation. Using pooled estimates would have assumed that the intercept value and slope coefficients of different countries are the same and may produce biased estimates. Hausman tests provided strong evidence against the null hypothesis that there is no misspecification in the case of random effects; as a result we report the fixed effects estimation results.

¹⁷ The results do not change significantly when a different measure of democracy from Polity 2 (as noted before in the text) is considered.

Table 2. Allocation of bilateral aid and fiscal capacity, fixed effects

Explanatory Variables	(1)	(2)	(3)	(4)
<i>Constant</i>	-6.683 (7.299)	7.430 (10.647)	6.221 (16.787)	42.56 (35.833)
<i>ln(GDPPC)</i>	-0.313* (0.175)	-0.902** (0.202)	-0.315* (0.161)	-2.754** (1.290)
<i>ln(POP)</i>	0.920** (0.427)	0.263 (0.603)	0.127 (1.049)	-1.115 (2.119)
<i>DEM</i>	-0.053** (0.015)	-0.007 (0.022)	-0.086* (0.045)	-0.096* (0.057)
<i>OPEN</i>	0.001 (0.001)	0.001 (0.002)	0.001 (0.002)	0.001 (0.007)
<i>GOV</i>	0.313** (0.119)	0.504** (0.147)	0.447** (0.154)	1.661** (0.513)
<i>TAX1</i>		0.018 (0.017)		
<i>TAX2</i>			0.015 (0.013)	
<i>TAX1(SSA only)</i>				0.022 (0.023)
#Observations	673.0	359.0	233.0	96.0
#Countries	148.0	108.0	49.0	31.0
Hausman Test (p-value)	127.34 0.0	54.10 0.0	48.12 0.0	33.46 0.0

Notes: (1), (2), (3), (4) are the results for a different regression (each with different tax variables). Except where indicated otherwise, the figures in parentheses are the robust standard errors. (***) indicates 10(5) percent level of significance. Coefficients on time dummies not reported.

Source: Authors' calculations

In the case of multilateral aid (see Table 3), per capita income and the level of democracy are significant in a few cases but the fiscal capacity variables are generally not significant, except in the case of TAX1 when the sample is restricted to sub-Saharan African countries only. Given the small number of countries and observations for that variable, we cannot therefore conclude that multilaterals are behaving any differently from bilateral donors when it comes to fiscal capacity. Finally, we examine what happens when we use aid that goes towards PFM as our dependent variable. Given its specific nature and purpose, as noted above, one would expect fiscal capacity to be better correlated with this variable. However, as we can see in Table 4 below, this is not the case. Contrary to expectations, we also find that countries that are more open tend to receive less PFM. Because of lower data coverage, we have fewer observations in the case of PFM (Table 4) than bilateral or multilateral aid (Tables 2 and 3).

The preliminary results obtained here reinforce the view that donors – whether bilateral or multilateral – have paid little attention to fiscal capacity in their aid allocation decisions. It would be interesting in terms of future work to see whether different measures of aid and/or fiscal capacity yield different results, and whether there is a

difference in behaviour across different bilateral donors when it comes to fiscal capacity.

Table 3. Allocation of multilateral aid and fiscal capacity, fixed effects

Explanatory Variables	(1)***	(2)***	(3)***	(4)***
<i>Constant</i>	5.668 (8.379)	26.752 (16.816)	-11.170 (20.353)	-3.759 (31.864)
<i>ln(GDPPC)</i>	-0.369** (0.119)	-1.182 (0.781)	-0.731** (0.222)	-1.777* (0.903)
<i>ln(POP)</i>	0.054 (0.535)	-0.855 (0.730)	1.303 (1.303)	1.202 (1.824)
<i>DEM</i>	-0.059* (0.030)	-0.111** (0.040)	-0.054 (0.034)	0.045 (0.052)
<i>OPEN</i>	0.004** (0.002)	0.000 (0.003)	-0.001 (0.003)	-0.001 (0.005)
<i>GOV</i>	0.375 (0.266)	0.113 (0.263)	0.229 (0.351)	0.380 (0.376)
<i>TAX1</i>		0.017 (0.015)		
<i>TAX2</i>			0.016 (0.014)	
<i>TAX1(SSA only)</i>				0.045** (0.045)
#Observations	616.0	324.0	228.0	95.0
#Countries	139.0	99.0	49.0	30.0
Hausman Test (p-value)	100.06 0.0	83.95 0.0	51.44 0.0	70.34 0.0

Note: Except where indicated otherwise, the figures in parentheses are the robust standard errors.

** indicates 10(5) percent level of significance. Coefficients on time dummies not reported.

*** (1), (2), (3), (4) are the results for a different regression (each with different tax variables)

Source: Authors' calculations

Table 4. Allocation of PFM, fixed effects

Explanatory Variables	(1)	(2)	(3)	(4)
<i>Constant</i>	18.304 (32.092)	39.387 (106.462)	48.127 (100.068)	85.979 (99.667)
<i>ln(GDPPC)</i>	-1.281** (0.631)	-2.818 (2.852)	-1.886 (1.200)	-7.166** (2.897)
<i>ln(POP)</i>	-0.413 (1.996)	-1.132 (5.331)	-2.089 (6.842)	-2.402 (5.448)
<i>DEM</i>	0.032 (0.113)	0.225 (0.156)	0.265* (0.157)	0.350 (0.275)
<i>OPEN</i>	-0.012** (0.005)	-0.009 (0.007)	-0.019** (0.008)	-0.019** (0.009)
<i>GOV</i>	0.952* (0.498)	0.539 (0.737)	2.065** (0.759)	-0.458 (1.551)
<i>TAX1</i>		0.006 (0.056)		
<i>TAX2</i>			0.016 (0.069)	
<i>TAX1(SSA only)</i>				-0.011 (0.063)
#Observations	315.0	195.0	138.0	69.0
#Countries	111.0	79.0	45.0	27.0
Hausman Test (p-value)	18.091 (0.003)	13.098 (0.042)	13.198 (0.040)	11.120 (0.085)

Note: Except where indicated otherwise, the figures in parentheses are the robust standard errors.
*(**) indicates 10(5) percent level of significance. Coefficients on time dummies not reported.

Source: Authors' calculations

Overview of Country Cases

Large-N analyses are useful in providing an overall sense of the relationship (or lack thereof) between fiscal performance and aid allocation. It is important however to assess the relationship further at the more specific donor-recipient level. A more limited and specific case study approach is useful in this regard. This section provides a descriptive yet comprehensive overview of fiscal performance and donor involvement in supporting taxation and public financial management efforts in the four case study countries: Bolivia, Guatemala, Uganda and Zimbabwe.¹⁸ The discussion is divided into two subsections. The first deals with taxation and fiscal performance issues and relies on country data, while the second deals primarily with donor involvement, and relies on donor, donor-recipient and third party data. The section brings together recent data from a range of sources to address trends in tax mobilization performance, tax effort (where available), tax administration capacity and efficiency and other fiscal performance

¹⁸ These cases were selected by the UNRISD project leads. For a more detailed description of country case studies of the PDRM project see UNRISD 2013a, UNRISD 2013b, and UNRISD 2013c (the case study on Guatemala has been delayed).

metrics. The section also discusses which donors are prominent in the four case study countries and provides a preliminary analysis of donor perception of recipient country fiscal capacity and performance and donor performance based on internationally agreed aid effectiveness principles.

Taxation and fiscal performance

How do the four case study countries compare with others in their respective regions and income groups? Table 5 below provides a comparison from the perspective of the tax-GDP ratio. Bolivia and Guatemala are Latin American low middle income countries, while Uganda and Zimbabwe are Sub Saharan African low income countries.

On the tax-GDP ratio Bolivia fares better than the regional average for Latin American and for lower middle income countries. This may be due to the inclusion of resource related revenues, which may be significant in the case of Bolivia given the presence of natural gas, oil and minerals.¹⁹ Guatemala on the other hand fares far worse than both the regional average and the average for lower middle income countries. Guatemala's tax-GDP ratio is half that of its regional and income level average, indicating very low collection levels.²⁰ While Uganda consistently fares worse than (the already low) regional average and low income country average tax-GDP ratio, Zimbabwe fares better in both comparisons (with the exception of 2008-09).²¹

Table 5. Tax-GDP Ratio

	2007-08	2008-09	2009-10	2010-11	2011-12
Bolivia	23.80%	22.30%	23.36%	27.40%	26.40%
Guatemala	10.38%	12.22%	11.48%	10.40%	10.48%
Uganda	11.63%	12.53%	12.22%	6.95%	12.18%
Zimbabwe		4.00%		20.10%	27.90%

	2007-08	2008-09	2009-10	2010-11	2011-12
Central Europe and Central Asia	24.7%	23.5%	24.3%	23.1%	18.3%
Latin America and Caribbean	20.1%	20.3%	20.6%	18.4%	20.1%
East Asia and Pacific	19.1%	19.6%	17.8%	17.5%	18.4%
Sub-Saharan Africa	16.7%	16.2%	17.5%	16.2%	16.9%
Middle East and North Africa	17.0%	17.1%	14.6%	15.4%	12.7%
South Asia	10.1%	10.5%	10.6%	11.5%	11.0%

	2007-08	2008-09	2009-10	2010-11	2011-12
Low Income	14.3%	14.5%	14.8%	13.7%	14.7%
Lower Middle Income	20.4%	20.5%	19.5%	18.3%	18.2%
Upper Middle Income	21.9%	21.3%	21.6%	20.5%	18.3%

Source: USAID 2013

The tax-GDP ratio is useful in providing a general aggregate comparison. However it does not provide a sense of the revenue sources contributing to the overall performance. Detailed breakdowns of the composition of revenue sources from cross-country (that is:

¹⁹ The main primary source of data for the USAID database is the IMF Article IV consultation. We suspect this includes resource related revenues as other sources of revenue make up a small share (please see annex for corporate tax, personal income taxes and value-added tax).

²⁰ The main advantage of using the USAID (2013) database here is that it includes more recent data. While the USAID data is largely consistent with other sources such as the IMF GFS, World Bank and AEO data for Guatemala, Uganda and Zimbabwe, tax ratios for Bolivia reported here are higher, perhaps due to the inclusion of resource revenues, which are typically excluded from other sources. Data for Zimbabwe should be interpreted with caution.

²¹ Zimbabwe's poor performance in 2008-09 can be attributed to the then ongoing economic crisis. Uganda's poor performance, when compared to the regional average, is the result of a very narrow tax base due to low compliance, poor enforcement and too many tax exemptions.

internationally comparable) sources are hard to find. However we can use USAID (2013) and AEO (2013) to shed light on the case study countries from a comparative perspective.

USAID (2013) provides data on three main tax types: corporate income taxes, personal income taxes and value added taxes (as a share of GDP). There is a reasonably clear pattern in terms of the relative importance of the three types of taxes and their relationship with levels of development. Personal income taxes and corporate income taxes tend to be the main tax revenue sources in higher income countries with more developed tax systems, while consumption taxes such as VAT are more important in less developed, low and lower middle income developing countries.

How do the case study countries compare in terms of the composition of their revenue base, as compared to regional and income level averages? Corporate taxes in Bolivia in recent years have been similar to both the regional average for Latin America, as well as the average for lower middle income countries. However corporate tax collection in Guatemala lags both the regional average and lower middle income country average. Corporate taxes in Uganda are far lower than both the already low average for sub-Saharan African countries as well as low income countries.

Similarly, personal income tax collection levels as a share of GDP in both Guatemala and Uganda are a fraction of both their respective regional averages and the average for lower middle and low income countries.

Of the three tax types compared here VAT is the most important in all four case study countries. This is consistent with the broader trend across low and lower middle income countries where VAT collection as a share of GDP is rising. VAT collection levels are comparable or higher than regional and income level averages in both Bolivia and Guatemala. While still lower than the regional and income group average, VAT collection in Uganda is approaching sub-Saharan and low income country levels.

Drawing on AEO (2013) data we are able to analyse the revenue mix further for the two African countries (see appendix). Over a longer time frame (2000-2010) the data indicates that while direct taxes are increasing as a share of the overall revenue mix in Uganda they have been falling in the case of Zimbabwe. Another interesting pattern worth noting is that grants (foreign aid) made up the largest share of the revenue mix in Uganda as recently as in 2000. The share of grants since then has been declining and now stands lower than the share of domestic direct taxes. This is indicating that Uganda is having some success in transitioning from its historically high reliance on foreign aid.

Beyond tax collection and composition, the data at hand also allow us to shed some light on the efficiency and effectiveness of tax systems. USAID (2013) includes structural data on average cost of tax collection and the ratio of taxpayer staff to population. The average cost of tax collection is calculated as a ratio of the budget of the tax authority and the total revenue collected by the authority.²² The tax authority staff ratio is calculated as the number of tax authority staff members per 1,000 persons in the country.

²² For instance, if the budget of a tax authority is USD 2 million and the tax authority collects USD 200 million, the cost ratio is 1 per cent. In other words, for every USD 1 spent, USD 100 is collected.

Data on cost of collection is available for three out of the four countries. At around 3.1 per cent the cost of collection in Uganda is comparable with the regional average for sub-Saharan Africa at 2.93 per cent and for low income countries, but the cost of collection in Zimbabwe at 7.4 per cent is far higher than the regional and income group average. The cost of collection in Guatemala at around 3.4 per cent is more than double that of the regional average at 1.26 per cent as well as the average for lower middle income countries. The tax authority staff ratios for Guatemala and Bolivia are similar to both the average for the Latin American region and lower middle income countries. This pattern indicates that out of the four countries Guatemala is clearly the least efficient and effective at raising taxes. Not only does Guatemala spend more on collection, its tax collection ratios as we have seen earlier are far lower than countries at a comparable income level or in the region. Tax collection ratios in Uganda are similarly low by comparison with reference groups; however Uganda's efficiency metrics are in line with comparable countries.

As discussed elsewhere, the data for 2011–12 show that sub-Saharan Africa still has some of the most expensive tax collection systems of any developing region (Bhushan, Samy, Medu 2013). The ratio of tax authority staff to population is one of the lowest and, despite significant recent reforms most countries in the region still have inefficient tax collection systems. By comparison Latin America has almost the same average tax authority staff ratio but is more than twice as efficient as Sub-Saharan Africa.

Tax effort index

While the tax-GDP ratio is the most widely used tax performance measure it is not without weaknesses. For instance, a low tax-GDP ratio does not necessarily mean bad performance and a high ratio does not necessarily mean good performance. Lesotho and Swaziland report atypically high tax ratios that are related to a revenue sharing agreement with South Africa, which arguably has little to do with domestic fiscal capacities. Similarly, many oil-exporting countries report high tax ratios when resource-related revenues are included (von Haldenwang and Ivanyina 2011; OECD 2013a).

Moreover, the literature indicates that the tax-GDP ratio can increase for all sorts of reasons, including reasons that have little to do with better performance or a better state-citizen compact. For instance, during the 1980s and 1990s, Uganda and Burundi experienced a marked reduction in donor aid due to conflict or embargo. Despite having been highly dependent on aid, both increased tax revenue during periods of reduced donor support. Instability created opportunities for the leadership in both countries to take whatever resources they could (African Development Bank Group 2010).²³ In such situations, the tax mobilization ratio may well rise, but mobilizing revenue by imposing punitive costs on the population is not what anyone is advocating. DRM is ultimately about building a better state-citizen compact; it is therefore as much about how revenue is collected as it is about how much is collected.

The tax effort index is a more sophisticated, yet still easy to interpret measure of tax performance, as it estimates a relative index controlling for the known factors affecting taxation. We calculate the index as a ratio between the share of actual tax collection and

²³ Bureaucratic modernization of the tax administration was a high priority following the wars that brought the National Resistance Movement into power. After its victory, the NRM government was cognizant of the high priority it needed to accord to resource mobilization, in order to sustain its operations as a modern state. Also, since the NRM was not democratically elected, the expansion and intensification of basic social services was central to achieving regime legitimacy among the population. It is therefore no wonder that the NRM regime was a trail blazer among the countries of the region in establishing an autonomous revenue authority (ARA), the Uganda Revenue Authority (URA) in 1991, with high expectations of rapid growth in DRM. For more see African Development Bank Group (2010).

taxable capacity. For this we first need to compute *taxable capacity*. Following Tuan Minh Le, Blanca Moreno-Dodson, and Nihal Bayraktar (2012), taxable capacity is estimated to be the predicted tax-GDP ratio calculated using the estimated coefficients of a regression specification, taking into account the country-specific characteristics that influence tax mobilization. In other words, we control for factors such as income levels (GDPPC), openness (trade-GDP ratio) and the economic structure (agriculture share of GDP) that influence the tax-GDP ratio to predict what individual countries *should* be collecting, given their structural characteristics.²⁴

A tax effort index value above 1 indicates “high tax effort,” whereas an index value below 1 indicates “low effort.” The correct interpretation of the index is that high tax effort countries are utilizing their tax bases well to increase revenues, while low tax effort countries may have relatively substantial scope to increase revenue collection from existing tax bases. In other words, countries already showing high tax effort may not be able to increase revenue mobilization substantially without affecting other objectives (such as growth and investment). Countries with low tax effort and low collection may have room to improve performance without affecting other objectives.

Figure 2 below shows the average tax effort over the period 1990-2012 on the x-axis while the average tax-GDP ratio over the same period range is given on the y-axis²⁵. In this way countries can be divided into four groups: a) countries where tax effort is high, that is: above 1, and tax-GDP is above the median level, b) countries where tax effort is above 1 but the tax-GDP ratio is below median, c) countries where tax effort is below 1 but the tax-GDP ratio is above median and d) countries where tax effort is below 1 and tax-GDP is below median.

Given data limitations we are able to calculate average tax effort index scores over the 1990-2012 period for 94 countries. 47 countries fall above the tax effort score of 1 and an equal number below 1.

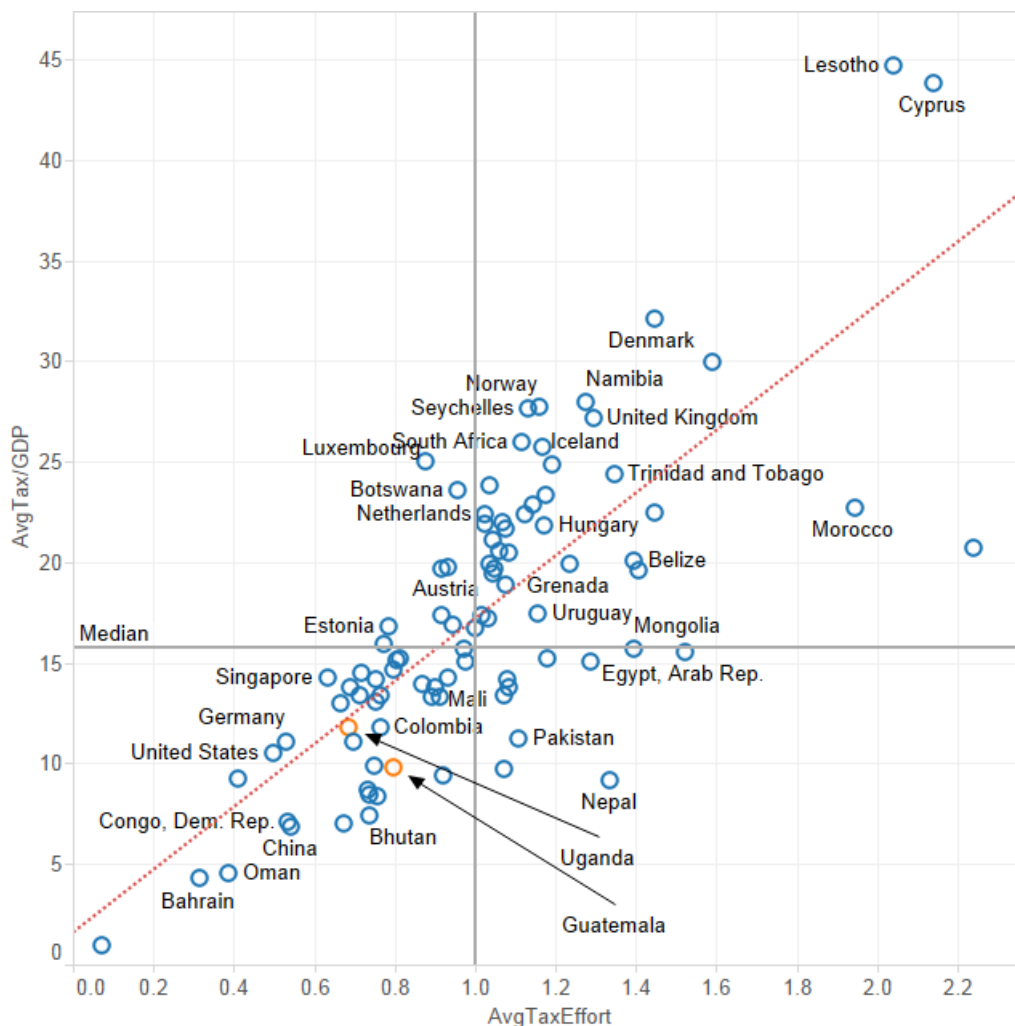
The tax effort index is more closely correlated with tax collection than income levels. In other words, even though most of the countries in the high effort high collection quadrant are more advanced countries, the richest countries do not necessarily make the greatest tax effort. High tax effort countries also include Morocco and Jordan.²⁶ On the other hand low tax effort and below median collection countries include several resource rich countries such as Kuwait, Bahrain, DR Congo; but also advanced economies like the United States and Germany, as well as rapidly emerging economies like China and India. These countries could mobilize more tax revenue by more fully utilizing their tax bases. By comparison, high tax effort countries may not have the same room to increase collection.

²⁴ For details see appendix.

²⁵ All the data for this calculation is from the World Development Indicators database (World Bank) and covers the period 1990-2012. The tax effort index is calculated for each country for each year where data were available.

²⁶ Both Morocco and Jordan have received significant support in the area of taxation and public finance.

Figure 2. Tax effort index (1990-2012)



Source: AvgTaxEffort is based on authors' calculations; AvgTax/GDP is based on World Bank 2013 (World Development Indicators Database)

Where do the four case study countries rank in terms of the tax effort index? Data is only available for two of the four case study countries: Guatemala and Uganda. The results of the tax effort index analysis reconfirm the earlier discussion. Both Guatemala (0.79) and Uganda (0.68) fall in the low tax effort and below median collection quadrant. Time series data for Guatemala shows a declining trend in the tax effort index since 2002. The time series trend for Uganda is flat since 2000.²⁷

Given their classification as low effort, and relatively low collection countries, both Guatemala and Uganda should be able to increase tax mobilization further without constraining other objectives such as growth and investment. In this regard our findings are consistent with other studies. Le et al. (2012) for instance similarly place both Guatemala and Uganda in the low effort low collection quadrant (for the time period 1994 to 2009). Le et al. (2012) also classify the other two case study countries. Bolivia is classified as high effort but low collection, Zimbabwe is classified as high effort and

²⁷ Different data sources are not entirely consistent with each other. The WDI data shows a spike in the tax ratio for Uganda in 2011, which implies a jump in the tax effort index. However while WDI data places the tax-GDP ratio at 16.1 per cent in 2011, two other sources we used, USAID (12.1 per cent) and AEO (12.7 per cent) indicate different figures, which are more consistent with each other than with WDI. Using these, the tax effort trend in Uganda is largely flat.

high collection.²⁸ The implication is that Bolivia and Zimbabwe may not have significant room to increase tax collection substantially, given their structural characteristics, at least not without affecting broader economic objectives.

Political economy dynamics can certainly be a further constraining factor, beyond structural characteristics. Guatemala for instance has definite political economy constraints raising further revenues. Political interference created instability in top management in the revenue agency during the early years of operation, leading to inconsistent policies and programmes. In addition the Ministry of Finance allocated less funding than stipulated by law. As a result revenue performance stagnated. The weak performance has also been attributed to outdated tax laws, tax expenditures, the effects of trade liberalization on customs revenue and widespread evasion. While corruption in the tax authority is not considered a significant factor priority areas for improvement that have been identified include strengthening the regulatory framework, improving core business processes and human resources, modernization of infrastructure, and enhancing ethics and transparency. Notably, the World Bank recently held up disbursement of tranche of a programmatic fiscal and institutional development policy loan for lack of progress, specifically on taxation (OECD 2013a).

The tax effort index analysis is useful in providing an additional proxy for fiscal performance across countries, and one that is relative to structural economic factors. The index is also useful in framing more reasonable expectations of increased DRM effort across countries. One possible limitation is that this approach is a function of the factors one chooses to include in the calculation of the index. However, we should note that even with somewhat different specifications (such as Le et al. 2012), results are generally consistent.

Donor involvement in taxation and public financial management

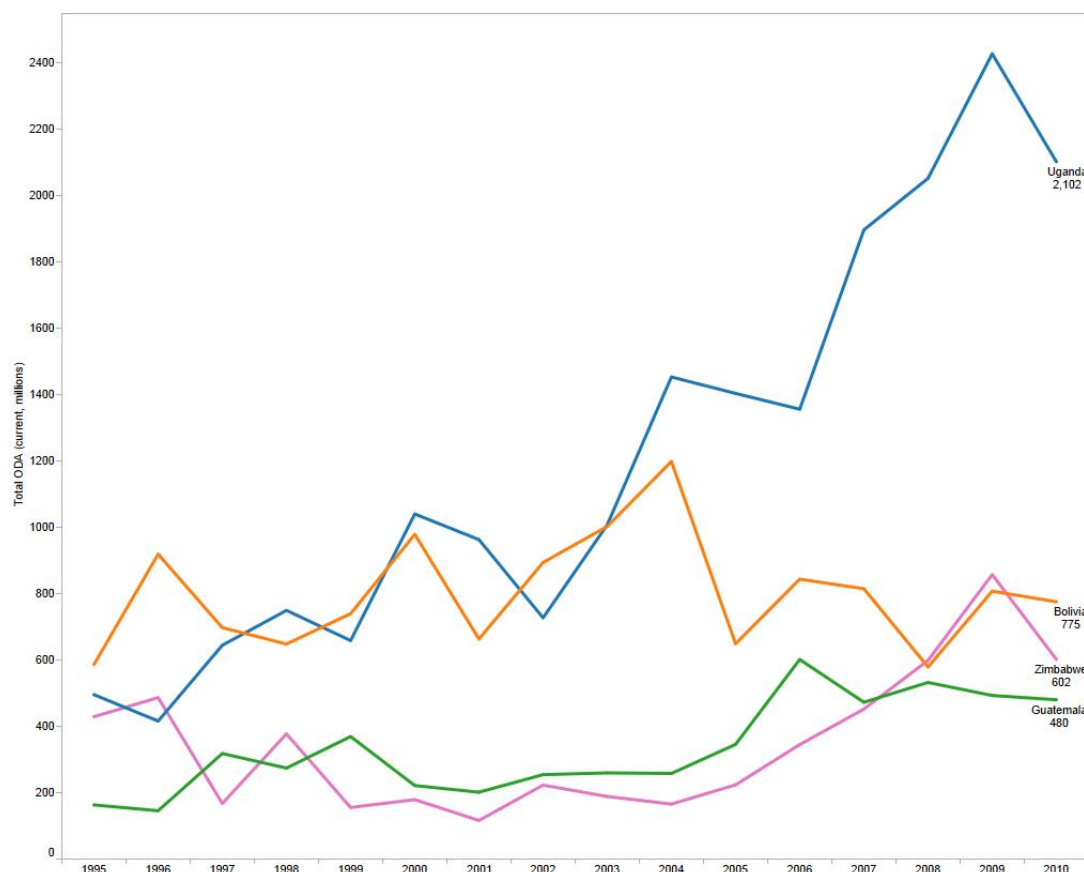
This section provides an overview of donor involvement in taxation and PFM efforts, including in the four case study countries. As discussed earlier, purely quantitative measures, especially at the cross country level, may not be enough to uncover the nuances of donor involvement in supporting taxation and PFM. However, descriptive statistics on donor involvement do provide a useful starting point. In this section we complement data on donor involvement in taxation and PFM from the OECD-DAC (Creditor Reporting System) CRS with other, more contextual and qualitatively richer information sources. These include the Public Expenditure and Financial Accountability (PEFA) assessment framework, which assesses key elements of country PFM systems and scores the same on an ordinal scale (PEFA 2011). Additionally, we complement data from the Paris Declaration Monitoring Survey which includes useful information gathered from both donor and recipient country sources (OECD 2011). The survey data provides insights into donor perceptions of country PFM systems, fiscal capacity and fiscal performance. The main limitation of both surveys (PEFA 2011 and OECD 2011) is that they are relatively recent and are not carried out very frequently.

As Figure 3 shows, Uganda receives the largest amount in total ODA from all donors compared to the other three countries. Total ODA to Uganda exceeded the USD 2 billion/year mark in recent years or between USD45 and USD55 per capita (between

²⁸ We were unable to replicate these results despite using similar data. Furthermore, we argue results for Zimbabwe should be interpreted with caution as the data quality is likely to be questionable and the ratios may be high due to the impact of recent inflationary and other economic crises on the denominator (that is: GDP).

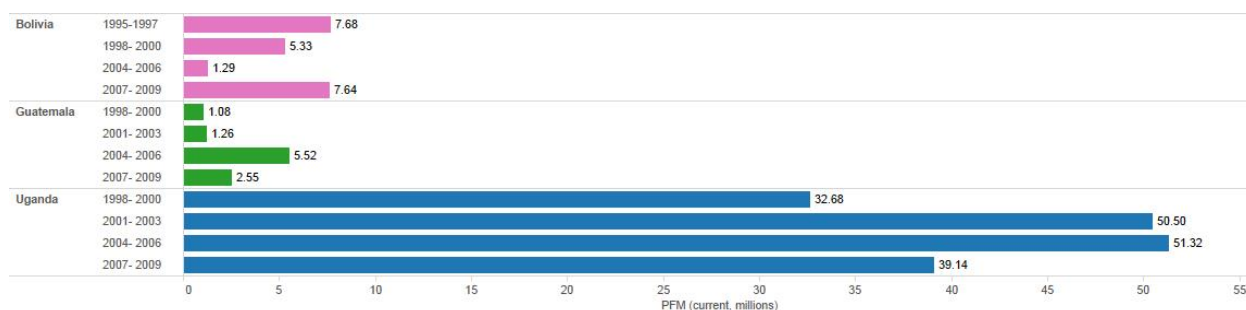
2009 and 2011). By comparison the other case study countries, Bolivia, Guatemala and Zimbabwe have never received even half the amount Uganda receives from donors.²⁹ This trend coincides with the trend in aid to the PFM sector. As Figure 4 shows, compared to the other countries Uganda receives a large amount of aid targeted at taxation and PFM issues. Figure 5 presents three year averages for PFM aid.

Figure 3. Total ODA to Bolivia, Guatemala, Uganda and Zimbabwe (in USD, current millions)



Source: OECD 2013b

Figure 4. ODA to the PFM sector in Bolivia, Guatemala and Uganda (in USD)



Source: OECD 2013b

Which donors are important providers of PFM aid in the four case study countries? Data from both the OECD-DAC CRS (2013b) and the Paris Monitoring Survey (OECD 2011) indicates that the main providers of PFM assistance are multilateral agencies. In Uganda, where PFM assistance as mentioned is significant, the main provider of aid to

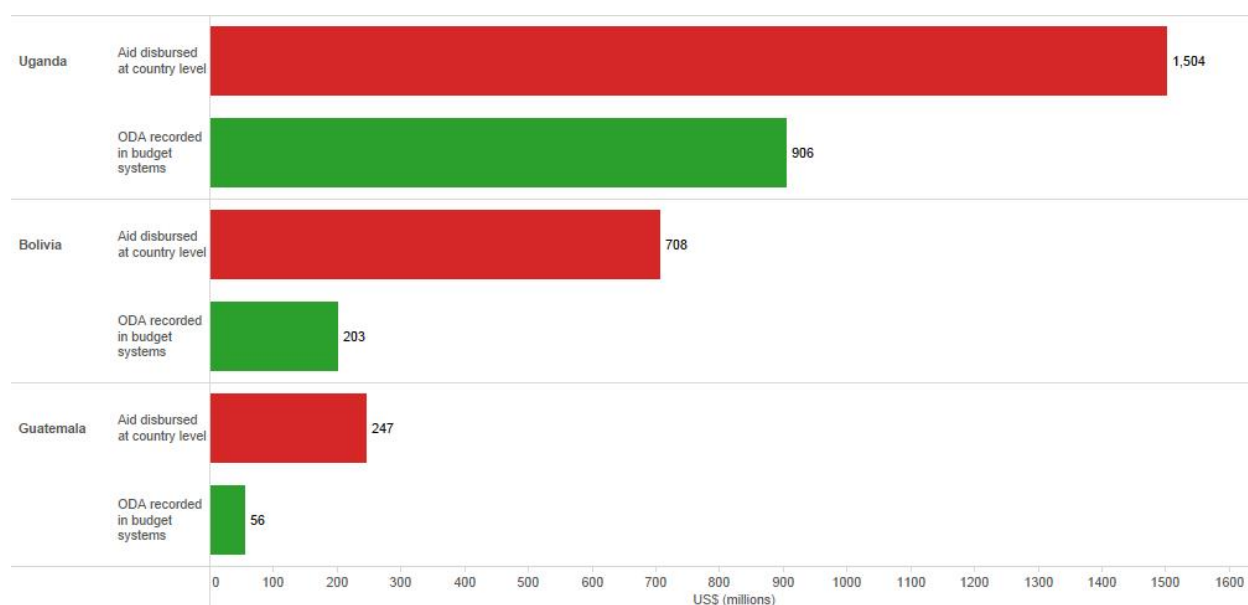
²⁹ On a per capita basis however Bolivia received between USD65 and US75; Guatemala aroundUSD27; and Zimbabwe around USD55 over the same period.

the PFM sector in recent years has been the World Bank, through the International Development Association (IDA). Select bilateral donors such as the UK, Denmark, Norway, Netherlands, Ireland, Japan and Sweden have also been significant providers of PFM aid to Uganda. In contrast the main providers of PFM aid to Guatemala in recent years have been Japan, Germany, the Netherlands and US. Whereas the main provider of PFM aid to Bolivia in recent years has been the Inter-American Development Bank.

What is the perception of country PFM capacity and PFM systems? The Paris Monitoring Survey provides a sense of donor perceptions of country PFM systems and capacity, as table A2.a asks ‘how reliable are country PFM systems?’ Donors rely on the World Bank’s CPIA assessment to rate the reliability of PFM systems from 1 (lowest) to 6 (highest) (OECD 2011). Bolivia’s score remains at 3.5 in all three years of the survey (2005, 2007 and 2010). Uganda’s score has deteriorated from 4.0 in 2005 and 2007, to 3.5 in 2010. Guatemala and Zimbabwe are not reported. It is interesting to note that despite providing significant support to building PFM capacity in Uganda over the years, donors perceive Uganda’s PFM systems to have deteriorated in terms of reliability. One might ask whether donor perception of any partner country PFM systems has improved over the course of the survey. According to the data, donors see improvement in a range of country PFM systems including Burkina Faso, Cambodia, Mozambique and Rwanda to name a few.

The Paris Monitoring Survey allows further, albeit indirect analysis of donor perception of country systems. The survey and related database comprise the results of separate but related questionnaires submitted to donor and recipient country representatives. Since the aim of the survey is to monitor compliance with the Paris Declaration on Aid Effectiveness, one of the key principles of which is the alignment of aid flows with national priorities, the survey and resultant database include data on indicators used to measure alignment (OECD 2011).

Figure 5. Recipient assessment of ODA recorded in budget systems vs. donor assessment of aid disbursed at the country level (2010 USD, millions)



Source: OECD 2011

The donor questionnaire asks how much ODA the donor disbursed at the country level in 2010. In the recipient government questionnaire the survey asks how much estimated ODA was recorded in the annual budget as grants, revenue or ODA loans. The closer the two numbers are the higher the share of aid that is channeled through country budget systems and thus aligned with national systems and priorities. Our tentative hypothesis here, following Renzio et al. (2011), is that donors will provide more aid via recipient country budget systems where they perceive these to be more reliable.

Figure 5 above provides a comparison based on data drawn from the Paris Monitoring Survey for the case study countries (OECD 2011).³⁰ Donors estimated they disbursed over USD 1.5 billion in ODA in Uganda, however only around USD 900 million of this was recorded in Ugandan budget systems. The ratio for Uganda was around 60 per cent in 2010 and around 71 per cent as an average over the three years of the survey. By comparison the ratio for Bolivia was only around 28 per cent in 2010 and around 37 per cent as an average over the three years of the survey. The ratio for Guatemala was only around 22 per cent in 2010 (Guatemala was not covered in the earlier years).

However, we should note that the monitoring survey and data have only been made available on 3 occasions. While they are useful in providing a sense of general trends, they do not go into detailed explanations in specific cases. One explanatory factor behind the above trends could be the type of aid modality. Certain modalities (like budget support) will be more reflected in country systems and on budgets by definition and so countries receiving this types of support may show higher percentages. Other types (such as technical support or direct support provided through local partners) may not be readily reflected on budget or in country systems. Of course, the comprehensiveness of coverage in country systems is an additional issue. For instance, while some developing countries have dedicated aid information management systems and platforms, others do not.

What do PEFA assessments tell us about country PFM systems in the case study countries? The PEFA framework is based on individual country assessments. The framework provides information on 28 indicators that assess key elements of the PFM systems including processes, institutions, and legislature. There are four relevant tax indicators within the PEFA framework: aggregate revenue out-turn compared to the original budget (PI-3), transparency of taxpayer obligations and liabilities (PI-13), effectiveness of measures for taxpayer registration and assessment (PI-14) and effectiveness of collection of tax payments (PI-15). These indicators help provide more context around country fiscal capacity and performance on.

Three out of the four case study countries had a PEFA assessment in recent years: Bolivia (2009), Guatemala (2010) and Uganda (2012). Results of the recent assessments are given below. While Bolivia and Guatemala fare reasonably well on most measures, Uganda performs poorly by comparison. Details are provided in Table 6. The main differences in performance are on account of the discrepancies between revenue performance as predicted and reported in the national budget and actual collection. Collection on arrears and links between taxpayer registration systems and other systems have been identified as areas Uganda could improve performance.

Furthermore, PEFA assessments provide useful reference information on donor involvement with the recipient country in the area of PFM, especially around budget

³⁰ Differences between the Paris Monitoring Survey data and other OECD-DAC aid data may be due to the fact that not all donors may have participated in the Paris Monitoring Survey.

support, and the predictability of donor engagement. Out of the case study countries, overall predictability of budget support was only applicable in Uganda.

On providing financial information for budgeting and reporting on project and programme aid, completeness and timeliness of budget estimates by donors, frequency and coverage of reporting by donors on actual flows including the share of flows managed via national procedures, donors receive only a C grade in Bolivia. In Guatemala, donors receive an A grade on deviations from forecast budget support, but only D+ in providing financial information for budgeting, C in completeness and timeliness of budget estimates, D in frequency of reporting and coverage and C in the share of aid managed through national procedures.

Predictability of donor budget support in Uganda received a poor D grade. In two of the last three years budget support fell short of forecast by more than 15 per cent and disbursement delays were commonplace. On most other areas including the share of aid managed through national procedures, donors receive also a poor grade of D in Uganda (less than 50 per cent of aid funds are managed through national procedures in the years surveyed).

Despite calls for adherence with internationally agreed aid effectiveness principles, there seem to be significant gaps in recipient government estimates of donor support and actual support. PEFA assessments are largely consistent with other surveys such as the Paris Monitoring Survey, which have shown that there remains a significant distance between stated commitments to aid effectiveness principles and actual performance.

Table 6. Taxation indicators in recent PEFA assessments in Bolivia, Guatemala and Uganda

	Bolivia (2009)	Guatemala (2010)	Uganda (2012)
Aggregate revenue out-turn compared to the original budget (PI-3)	A	A	D
Transparency of taxpayer obligations and liabilities (PI-13)	B+	A	A
Effectiveness of measures for taxpayer registration and assessment (PI-14)	B+	B+	B
Effectiveness of collection of tax payments (PI-15)	B+	NA	C+
Additional comments	Actual revenue collection was above forecast and target; tax legislation is comprehensive and limits discretionary powers; there are tax education programs and there is access to information in a range of formats; taxpayers are registered with unique and permanent IDs; average collections of arrears are high; coordination across agencies could improve performance and reduce risk of evasion.	Actual collection exceeded targets in 2006, 2007 and 2008; legislation is clear and understandable; the administrative appeals system works.	Revenue collections were less than budget in 2009-10 and higher than budget in 2010-11; the stock of arrears has not reduced in recent years; legislation and procedures for most taxes are clear with limited discretionary powers; taxpayers have access to comprehensive information; taxpayers are registered but linkages with other systems are weak; collection of arrears and outstanding arrears remain high.

Source: PEFA 2011

Conclusions

This paper, part of a wider project including four case studies, is a contribution to the UNRISD research project on *The Politics of Domestic Resource Mobilization*. The specific contribution of this paper is with regard to the interaction between fiscal performance and donor aid allocation in developing countries. We are interested in whether fiscal capacity and performance in developing countries has any impact on donor aid allocation decisions. We analysed this question in three ways. First we provided a comprehensive review of the literature on fiscal performance and aid allocation. Second we conducted a series of large-N regression analyses to unpack the determinants of donor aid allocation. Third we analysed descriptive data from a range of sources on fiscal performance and donor involvement in the area of taxation and PFM, in the four case study countries (Bolivia, Guatemala, Uganda and Zimbabwe).

Our broad conclusion is that rhetoric fails to meet reality in terms of the role of fiscal performance in determining aid allocation. Donors are increasingly and highly publically calling upon developing countries to improve fiscal performance. However there is not much evidence to suggest that donors collectively pay requisite attention to fiscal performance when they make aid allocation decisions. As we pointed out earlier, this result may change when individual donors are considered.

These broad results should be interpreted cautiously. Several data and methodological challenges plague such analyses. The data on fiscal performance is quite patchy, even when it comes to fairly basic indicators like the tax-GDP ratio. Where data is available, often from multiple sources, there are inconsistencies between data sources. In the latter part of our analyses we draw on more qualitative data from recent surveys and assessments of fiscal performance. While this information is interesting, it is only available for a handful of recent years, and is often not quantitative. There are quality issues even with well-established and widely used data sources such as the OECD-DAC's CRS, which carries information on foreign aid to various sectors. Such data is only as good as the sector level coding, which has been found wanting, including in the area of aid to public financial management (Renzio et al. 2011). Future analyses may need to start by developing their own custom datasets – an expensive and time consuming enterprise – instead of relying on publically available sources such as the World Bank and OECD. This is specially the case for fiscal data, but, somewhat surprisingly, also for foreign aid data. Further analysis requires more data that can be disaggregated at the donor-recipient pairing or 'dyad' level. These caveats aside, our main findings are summarized below.

Expectations surrounding developing country DRM efforts in the context of so called post-2015 development goals are high. The post-2015 debate has put DRM back in the spotlight. DRM is being emphasized as a self-sustaining development financing strategy, one that is preferable to foreign aid, increasingly even in the poorest countries.

Donors have sought to explicitly link foreign aid disbursements to improved fiscal performance and tax effort in recipient countries. This is both a reflection of frustration with low tax effort in many highly aid reliant countries, as well as increasing concern with high levels of aid becoming a disincentive to DRM and tax effort.

Recent research shows there are generalizable patterns in terms of the quality of recipient country PFM systems and donor allocation of PFM assistance. Donors tend to provide more PFM related assistance to countries that have already achieved a certain

level of success in improving the quality of PFM systems. Donors reward countries improving fiscal performance with better aid modalities, such as increased share of budget support. However, these findings are tentative at best and highly data dependant (Renzio et al. 2011).

The empirical literature on the impact of aid on taxation (that is: the reverse of the relationship we analyse here) has produced inconclusive results overall (see Bhushan and Samy 2012 for a review). In other words, unlike earlier studies, we fail to find convincing evidence that high levels of aid act as a disincentive to greater tax mobilization.

Given this context we undertook a series of large-N regression analyses to analyse whether fiscal capacity and performance have any influence on donor aid allocation. After all given the recent spike in interest surrounding DRM, especially in the donor community, it is a reasonable question whether donors are taking recipient country fiscal capacity and performance into account in their aid allocation decisions.

We find that more democratic countries are rewarded with more aid, and countries with better institutions and policies also receive more bilateral aid. None of the fiscal capacity variables are significant, indicating the absence of any relationship between aid received and tax performance at the bilateral level. In the case of multilateral aid, fiscal capacity variables were significant only in the case of sub-Saharan African countries. However, we cannot conclude multilaterals are behaving any differently than bilateral agencies in their treatment of fiscal capacity in allocating aid. The preliminary results obtained here reinforce the view that donors – whether bilateral or multilateral – have paid little attention to fiscal capacity in their aid allocation decisions, despite the rhetoric on the importance of DRM.

The empirical analysis here was supported by an analysis of descriptive data on fiscal performance and donor involvement in taxation and PFM issues in four case study countries.

A simple comparison, using the tax-GDP ratio shows that Guatemala is a significant underperformer in the group. While the tax-GDP ratio in Bolivia fares better than the average for lower middle income and Latin American countries, Guatemala's ratio is less than half the regional and income group average. Similarly, Uganda fares worse than the already low average seen across low income and sub-Saharan countries, while Zimbabwe fares better on both comparisons.

Value added taxes (VAT) are the most important tax type in all four countries. VAT levels are close to or higher than the regional and income level average for both Bolivia and Guatemala, while they are approaching the sub-Saharan and low income country average in Uganda. Corporate income taxes in Bolivia are comparable with the regional and income level average, but corporate income taxes are a fraction of regional and income level averages in both Guatemala and Uganda. Similarly, personal income taxes are a fraction of the regional and income level averages in both Guatemala and Uganda.

Data on tax administration efficiency and effectiveness again points to Guatemala as an outlier among the cases studied. Not only does Guatemala spend more on collection, its tax collection ratios as we have seen earlier are far lower than countries at a comparable income level or in the region. Tax collection ratios in Uganda are similarly

low by comparison with reference groups; however Uganda's efficiency metrics are in line with comparable countries.

Our analysis of fiscal performance in the four case study countries is further supplemented by our estimation of a tax effort index. The index is a better measure of tax effort than the tax-GDP ratio as it controls for known structural and economic factors that affect tax mobilization. The results of the tax effort index analysis reconfirm the earlier discussion. Both Guatemala (0.79) and Uganda (0.68) fall in the low tax effort and below median collection quadrant. Time series data for Guatemala shows a declining trend in the tax effort index since 2002. The time series trend for Uganda is flat since 2000.

Given their classification as low effort, and relatively low collection countries, both Guatemala and Uganda should be able to increase tax mobilization further without undermining other objectives such as growth and investment, by more fully capturing the potential tax base.

In terms of donor involvement in taxation and PFM in the four case study countries, Uganda stands out as the largest ODA recipient among the four countries, including ODA specifically aimed at the PFM sector. Uganda has the largest number of donors engaged in PFM support of the four case study countries; this includes both bilateral and multilateral donors, with the bulk of PFM aid being provided by the World Bank. Similarly, the bulk of PFM aid to Bolivia is also provided by multilateral donors (in this case the IADB), whereas the main providers of PFM aid to Guatemala are bilateral partners. Zimbabwe has received an insignificant amount of PFM aid, at least in recent years.

Beyond hard quantitative measures, perceptions matter greatly, especially in donor-recipient relations. This is the reason why we are interested in donor perceptions of developing country PFM systems. Using the Paris Monitoring Survey data (OECD 2011) and the Public Expenditure Financial Accountability (PEFA 2011) assessment framework, we are able to guide a preliminary analysis of donor perceptions of PFM systems in the case study countries.

Donors perceive the quality of Bolivia's PFM systems to have remained static (3.5 out of 6) between 2005 and 2010; however the quality of Uganda's PFM systems during the same period worsened (from 4 to 3.5 out of 6). Our analysis also shows that despite repeated assertions regarding adherence to internationally agreed aid effectiveness principles (such as the Paris Declaration and Accra Agenda) which include commitments on alignment with recipient country priorities and channeling aid through country PFM systems, there remain large gaps in terms of delivering on these commitments. At best, only around 60 per cent of donor aid disbursed at the country level flowed through Uganda's budget system, while the ratios for Bolivia (28 per cent) and Guatemala (22 per cent) were much lower, far below the cross-country average of around 48 per cent. This data is consistent with recent PEFA assessments on the predictability, transparency and timelessness of donor aid, including budget support, in the four case study countries. PEFA assessments also indicate Uganda lags both Bolivia and Guatemala in terms of taxation related measures included in the assessment.

Policy recommendations and future directions

Recommendations from our analysis are broadly consistent with those we have argued earlier (Culpeper and Bhushan 2009, 2010; Bhushan and Samy 2012, Bhushan et al. 2013) and those emerging from other recent analyses of taxation and development from a policy perspective (OECD 2013a).

1. The level of aid to taxation at the aggregate level remains very low. Given the importance of taxation to state-building, good governance and ultimately domestic accountability, not to mention the potentially high payoff in terms of aid resources invested, donors need to think of creative ways of stepping up such support.
2. Increasing aid levels entirely unconditionally can create incentive problems; therefore, we recommend (as others have) that a graduated approach, linked for instance to revenue related or institutional performance related targets could be worth considering in appropriate contexts. Variable tranche financing mechanisms or cash-on-delivery aid could be options for new instruments (OECD 2013a).
3. Taxation and development issues are again receiving attention at the global level, as regards their role in the post-2015 agenda. Calls for a ‘data revolution’ have particular resonance in this area. There is a danger that the complex process of building key government infrastructure and a better state-citizen compact will be reduced to almost meaningless quantitative targets. Taxation and DRM are as much about how revenue is collected as they are about how much is collected, a fact that seems lost particularly in the treatment of these issues in the post-2015 agenda (Bhushan, Samy, Medu 2013). That said, taxation needs its own data revolution to improve the availability and consistency of basic information. Donors have a role to play in this regard, as they have already done by investing in data initiatives (such as the setting up of the African Economic Outlook’s fiscal performance database). Such initiatives need increased support if we are to have an informed discussion.
4. Several studies over the years have emphasized the importance of domestic ownership when it comes to progress in the area of taxation and development. Aid cannot “buy reforms” that are not aligned with domestic incentives (OECD 2013a). One effective investment could be setting up knowledge and information sharing platforms amongst various donors on their experience in supporting tax capacity. Similarly, continued and increased support for south-south platforms, such as the African Tax Administration Forum and similar initiatives in Latin America and Asia, could have important longer term effects given learning from peers may in certain areas (such as political economy issues) be more effective.
5. A key issue in terms of the role of donors in supporting DRM that rarely receives sufficient attention is the question of coordination and fragmentation, and the high transactions costs associated with the same. Past research has shown that donors tend to herd into particular countries in terms of their support for DRM (Bhushan and Samy 2012; OECD 2012). In other words, there are some countries where a large number of donors, some making very small investments, are engaged at the same time. Given the importance of country ownership, the burden of donor coordination for all practical purposes falls on the developing country partner. Donors would do well to both better coordinate their interventions and division of labour, as well as share their expectations in terms of payoffs more transparently.

6. Tax issues tend to be taken up purely from a technical capacity building perspective. As a result, issues like the importance of investing in independent policy research, public outreach, and engagement with the media, civil society and private sector groups get less attention. Broadening the stakeholder base involved in tax issues can have significant benefits, and remains an area donors could not only invest more in but also share their own domestic experience (OECD 2013a).

Appendix

Table 1A. Composition of tax revenue across case study countries

	Country	2007-08	2008-09	2009-10	2010-11	2011-12
TAXY	Bolivia	23.80	22.30	23.36	27.40	26.40
	Guatemala	10.38	12.22	11.48	10.40	10.48
	Uganda	11.63	12.53	12.22	6.95	12.18
	Zimbabwe		4.00		20.10	27.90
CITY	Bolivia	2.30	2.90	0.50	3.90	4.10
	Guatemala	1.75	2.30	2.10	2.80	2.74
	Uganda	1.84	0.90	0.80	0.40	0.91
	Zimbabwe		0.60		1.00	3.40
PITY	Bolivia					
	Guatemala	0.28	0.10	0.30	0.30	0.37
	Uganda	1.51	2.80	1.90	1.10	1.91
	Zimbabwe		0.70		3.50	5.80
VATY	Bolivia	6.23	7.20	7.20	6.50	7.00
	Guatemala	5.20	6.60	6.10	4.90	5.09
	Uganda	3.67	4.00	4.30	2.30	3.85
	Zimbabwe		1.00		8.40	9.30

Source: USAID 2013

Table 2A. Tax administration and capacity metrics 2011-12

	Avg Cost	Avg Tax Staff
East Asia and Pacific	1.19	0.45
Central Europe and Central Asia	1.13	0.99
Latin America and Caribbean	1.26	0.33
Middle East and North Africa	3.17	0.46
South Asia	1.83	0.27
Sub-Saharan Africa	2.93	0.32
Western Europe	0.93	1.19
US and Canada	1.53	0.69

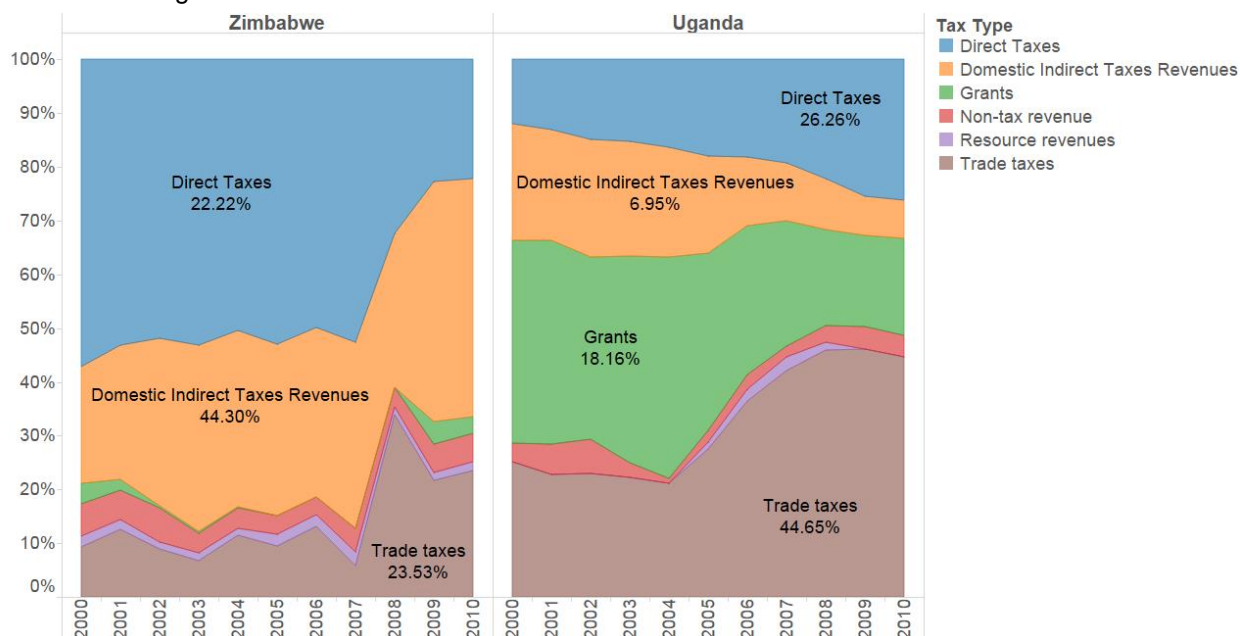
Source: USAID 2013

Table 3A. Composition of tax revenue across income groups and regions

		2007-08	2008-09	2009-10	2010-11	2011-12
Low Income	AvgCITY	2.42	2.16	2.12	2.23	2.44
	AvgPITY	1.70	1.79	2.02	2.32	3.70
	AvgVATY	3.65	4.07	4.52	4.33	5.09
	AvgTAXY	14.3%	14.5%	14.8%	13.7%	14.7%
Lower Middle Income	AvgCITY	3.49	3.25	3.42	3.19	3.61
	AvgPITY	2.85	2.71	2.48	2.71	3.60
	AvgVATY	6.82	7.40	7.28	5.43	6.80
	AvgTAXY	20.4%	20.5%	19.5%	18.3%	18.2%
Upper Middle Income	AvgCITY	3.61	3.43	3.45	3.40	3.11
	AvgPITY	3.39	3.43	3.37	2.75	3.85
	AvgVATY	7.09	6.94	6.81	6.34	7.02
	AvgTAXY	21.9%	21.3%	21.6%	20.5%	18.3%
High Income	AvgCITY	4.45	4.95	4.41	3.72	4.09
	AvgPITY	6.82	7.21	5.86	5.84	7.05
	AvgVATY	6.48	6.73	6.56	4.71	6.17
	AvgTAXY	26.0%	24.3%	23.8%	25.4%	20.0%
Year						
		2007-08	2008-09	2009-10	2010-11	2011-12
East Asia and Pacific	AvgCITY	5.51	5.53	4.20	4.01	4.77
	AvgPITY	3.61	4.20	3.58	3.60	6.46
	AvgVATY	4.90	5.21	5.26	3.40	5.51
	AvgTAXY	19.10	19.56	17.85	17.53	18.40
Central Europe and Central Asia	AvgCITY	2.75	2.64	2.74	2.20	1.72
	AvgPITY	3.40	3.42	3.21	2.56	3.00
	AvgVATY	8.40	9.06	8.63	8.17	8.71
	AvgTAXY	24.71	23.48	24.32	23.08	18.30
Latin America and Caribbean	AvgCITY	3.99	3.14	3.86	3.39	4.06
	AvgPITY	2.65	2.13	2.11	2.22	4.43
	AvgVATY	6.09	6.28	6.36	5.64	6.69
	AvgTAXY	20.14	20.32	20.64	18.41	20.06
Middle East and North Africa	AvgCITY	3.12	4.44	4.03	4.70	4.23
	AvgPITY	2.98	2.31	2.34	1.75	2.72
	AvgVATY	6.82	7.07	7.58	2.90	5.43
	AvgTAXY	16.97	17.08	14.64	15.37	12.69
South Asia	AvgCITY	1.65	2.42	2.42	2.18	2.20
	AvgPITY	0.65	0.87	1.35	1.38	1.52
	AvgVATY	4.06	3.75	3.58	1.79	2.74
	AvgTAXY	10.13	10.45	10.60	11.50	11.05
Sub-Saharan Africa	AvgCITY	2.84	2.51	2.66	2.65	2.96
	AvgPITY	2.38	2.48	2.61	2.98	4.06
	AvgVATY	3.77	4.00	4.32	5.17	5.34
	AvgTAXY	16.72	16.23	17.46	16.23	16.90
Western Europe	AvgCITY	3.47	3.96	3.51	2.98	2.85
	AvgPITY	7.46	8.16	7.06	8.46	6.92
	AvgVATY	6.98	7.43	7.30	6.77	6.53
	AvgTAXY	29.11	28.26	27.84	30.20	21.71
US and Canada	AvgCITY	2.32	2.85	1.35	2.30	3.00
	AvgPITY	8.00	9.40	6.65	9.55	12.60
	AvgVATY	2.27	2.00	1.70	0.85	1.70
	AvgTAXY	15.49	16.40	13.83	18.99	16.45

Source: USAID 2013

Figure 1A. Comparison of the composition of revenue sources, as a share of total revenue from all sources in Uganda and Zimbabwe



Source: AEO 2013

Tax effort index

The index is calculated as a ratio between the share of actual tax collection and taxable capacity. For this we first need to compute *taxable capacity*. Following Tuan Minh Le, Blanca Moreno-Dodson, and Nihal Bayraktar (2012), taxable capacity is estimated to be the predicted tax-GDP ratio calculated using the estimated coefficients of a regression specification, taking into account the country-specific characteristics that influence tax mobilization. In other words, we control for factors such as income levels (GDPPC), openness (trade-GDP ratio) and the economic structure (agriculture share of GDP) that influence the tax-GDP ratio to predict what individual countries *should* be collecting, given their structural characteristics.

The adopted empirical specification is:

$$TAX/GDP = \beta_0 + \beta_1 GDPPC + \beta_2 TRADE + \beta_3 AGRIC + \varepsilon$$

TAX/GDP is tax revenue as a percentage of GDP (tax revenue is the sum of direct, indirect, and trade taxes), GDPPC is constant GDP per capita (2000), TRADE is trade as a percentage of GDP, and AGRIC is agriculture value added as a percentage of GDP.

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