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## Public Financial Management and Fiscal Outcomes in Sub-Saharan African Heavily-Indebted Poor Countries

*Tej Prakash and Ezequiel Cabezon*



**IMF Working Paper**

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**Public Financial Management and Fiscal Outcomes in Sub-Saharan African  
Heavily-Indebted Poor Countries**

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Authorized for distribution by Thanos Catsambas

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**Abstract**

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This paper examines, in a formal econometric framework, the linkages between public financial management and fiscal outcomes in sub-Saharan African countries. Similar analyses have been done for Latin America, Europe, and the United States, but none in the context of low-income countries. Using public financial management indicators, as measured in two recent assessments related to the Heavily-Indebted Poor Countries Initiative, this study shows that improving public financial management leads to better fiscal outcomes, as measured by the overall fiscal balance and external debt levels, after controlling for other characteristics that might alter fiscal outcomes.

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## I. INTRODUCTION

During the last few years there has been noticeable progress in improving economic growth in sub-Saharan Africa (SSA), although it still lags significantly behind other regions in economic development and socioeconomic indicators. Sustainable development in SSA has thus become the focus of aid initiatives of the G-7 countries as well as of multilateral and bilateral agencies. A substantial amount of donor aid, estimated to be around US\$60 billion from bilateral and multilateral sources, is expected to flow to SSA in the coming years to help these countries alleviate poverty and achieve the Millennium Development Goals (MDGs).

As a part of this effort, the World Bank and the International Monetary Fund decided to forgive certain debts to Heavily-Indebted Poor Countries (HIPC) so that the reduction in debt service would create room for spending on poverty alleviation.<sup>2</sup> However, there were a number of key concerns: (i) how to manage the macroeconomic impact of a substantial increase of aid flows so that these countries could absorb this aid without leading to an overheating of the economy and exchange rate appreciation that would impair competitiveness; (ii) how to increase their aid absorptive capacity; (iii) how to sustain their increased poverty-reducing spending over the medium term, and (iv) how to ensure that the money was used efficiently and transparently and not lost as a result of inefficiency and corruption. These countries were required to demonstrate that they had reached a certain level of capacity in macroeconomic policy and management—one of the “completion points” for debt relief. The other two triggers, for reaching the “completion point” were, effectively, specific improvements in public financial management (PFM) systems (in many cases), and preparation of a strategy for poverty alleviation.

PFM is a critical instrument in the implementation of economic policy, and it works by influencing the allocation and use of public resources through the budget and through fiscal policy, in general. A well-functioning PFM system, the donors felt, would provide the assurance that the funds released through debt forgiveness would be productively used in a transparent and efficient manner. A well-functioning PFM system, as defined by certain key indicators, would improve the use of aid as well as overall budget performance, and thus contribute to macroeconomic stability and growth. It would contribute to overall governance through protection of public resources against the risk of expropriation and corruption.

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<sup>2</sup> The HIPC countries were a group of countries (Annex I), who were identified by the World Bank and IMF as having unsustainably high debt and low income and would require debt relief to set them on a path toward fiscal and external sustainability.

Good PFM contributes to the achievement of fiscal policy goals. At the same time, sound fiscal policies are likely to contribute to a better PFM system through the allocation of resources for development of the PFM processes and institutional knowledge. The quality of a PFM system is usually correlated with other aspects of the economic and institutional environment. For instance, in developed countries, it is not unusual for a well-functioning PFM system to go hand-in-hand with an institutional environment in which corruption is not tolerated. However, this correlation is not perfect, as there are separate influences on each at work.

The capacity of the PFM systems to support meaningful public spending came into focus during the IMF-World Bank initiative to forgive debt to the heavily indebted poor countries (known as HIPC) during 2000–2001. Most HIPC countries are in SSA. The IMF and the World Bank wanted to ensure that these countries had the capacity to meaningfully spend the money released from debt forgiveness initiative. This money was targeted to be spent on programs for poverty alleviation, and thus it was important to be able to track the actual spending at the lowest level. In order to do so, these institutions designed an evaluation instrument to assess which areas of PFM needed to be strengthened. Based on the evaluation, an action plan was drawn to help these countries strengthen their PFM systems.

Between 2001 and 2004 when the two PFM assessments for HIPC countries were made, macroeconomic and fiscal policy reforms were also underway along with PFM reforms, suggesting synergy between these simultaneous efforts at capacity building. Between these two PFM assessments, an action plan supported by technical assistance was developed for each of these countries to meet specific PFM goals.

As a starting point, the PFM systems of all the HIPC countries, including 22 in SSA, were assessed against 15 PFM indicators designed to assess the overall strength of their PFM systems. Each indicator had a minimum benchmark, on a three-point scale, which was considered adequate. The first assessment in 2001 was followed by an action plan for technical assistance to help the countries meet the minimum acceptable benchmarks in areas where they fell short. A second assessment, based on the same set of indicators and benchmarks, was done in 2004.<sup>3</sup> The determination for eligibility for debt relief was done following the second assessment.

This paper is organized as follows. In section two, we define what is meant by a PFM system and provide an overview of main weaknesses in PFM in HIPC countries. In section three, we provide a review of the literature on the role of PFM in altering fiscal

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<sup>3</sup> In the 2004 assessment there was a small adjustment in the criteria and measurement (IMF 2005). However, changes in the criteria do not significantly change the results.

outcomes. We examine linkages between PFM and institutional quality and corruption. In section four, we examine, using data from the two PFM HIPC assessments, the relationship between PFM and fiscal outcomes, including overall balances and debt levels. We use a panel data set, consisting of the two years' data, and investigate the sensitivity of the results to various statistical assumptions. In the concluding section, we provide the policy implications of our findings, especially for technical assistance from the IMF.

Given the limitations of the HIPC PFM data set, the empirical results need to be interpreted cautiously. There are other instruments that assess PFM systems, most notably the multi-donor group-driven Public Expenditure Financial Assessments (PEFAs) and Country Financial Accountability Assessments (CFAAs). However, PEFA assessments have been made public for only a few countries so far, and the instrument seems to be evolving as many quality control issues are being addressed. The CFAAs are a description of PFM systems and do not assign numerical ratings, and hence do not lend themselves to a data assessment.

## **II. WHAT IS PFM**

PFM refers to the procedures, established by law or regulation, for management of public monies through the budget process, which includes formulation, execution, reporting, and analysis (Potter and Diamond, 1999). PFM systems should include management of revenues as well as expenditures. However, in this paper we use the term PFM, following general convention, to refer to expenditures only. PFM systems are generally established by regulations, within a specific legal context. In many cases, an organic budget law comprises mostly of PFM system.

One of the most important objectives of a PFM system is management of the budget, and should include management of revenue as well as expenditure. However, in this paper we use the term PFM, following general convention, as synonymous with budget process and limit it to expenditure only. The budgeting process varies from place to place but typically requires budgets to be prepared and presented to the legislature for approval by a certain date. Public resources are allocated, appropriated, and spent following legislative approval. The budgeting process also covers revenue and financing and asset management issues, to varying extents. Otherwise, they are covered in other fiscal legislation. Various institutions, including the legislative and executive institutions, play a role in this process, and this role varies according to the form of government.

The process of implementing the approved budget begins with the authorization by the legislature to the executive to appropriate funds to incur spending. Actual spending is governed by laws, rules, and procedures on who is authorized to incur spending, and with it includes checks and balances in the process. An important part of budget execution is the custody of public money (where public money should be kept), procedures for



withdrawing money from government funds, and authority for committing any expenditures and making any payments. The cycle of spending ends with audit or an oversight report on the spending to ensure that public money was spent for the purpose for which it was approved.

One of the main pillars of a PFM system is that all government money should flow into a single holding source, such as a government account held in the central bank. No public revenue collecting agency or individual should retain the money beyond a certain period, and most countries have rules about remitting public monies within a certain time in the account of the government. Hence, the establishment of a single treasury account is a central feature of almost all developed economies. No agency or individual outside the government or without the approval of the Ministry of Finance is allowed to operate any bank account on behalf of the government. Similarly, all payment and commitment of government resources should follow checks and balances established by law and regulations. In a weak PFM system, these fundamentals are not observed, and while a single treasury account or a consolidated fund for government monies may exist, it is not enforced and the systems have multiple agencies and individuals operating multiple bank accounts, outside the government. Resources may be used for purposes other than those authorized by law.

One of the symptoms of a weak PFM system in a country is arrears of payment. As a rule, an agency or individual is not authorized to commit the government to any expenditure unless it is provided for in the budget or other fiscal legislation. Such authorizations follow established procedures and are supported by supply of cash. Arrears arise when such expenditure commitments are made without proper authorization and without any availability of cash. In the absence of checks and balance of PFM systems, such arrears can threaten fiscal stability, by leading to significant distortion in expenditure and liability. The phenomenon of unpaid suppliers of goods and services for which no records are kept and which are unverifiable is a typical part of such a scenario.

PFM also includes the structure and the format for presenting the budget and other financial information. For example, this includes the format in which the line agencies prepare and submit the budget requests, and the budget classification system and form of accounts they use. Standardization of formats and their meaning ensures that fiscal operations are understandable and transparent.

One of the core elements of PFM is accounting, which provides measurement of the implementation and impact of the budget and economic policy. Public sector reforms in many advanced countries were initiated through reforms to accounting systems to improve information on public finances. In the absence of a sound budget and a reliable accounting system, it will be difficult to formulate sound fiscal policies. Accounting systems have been one of the weaknesses of the SSA countries. In nearly every SSA

country accounting systems are on a single-entry cash basis, which is much simpler to maintain. These weaknesses encompass the full range of problems including, most notably, the failure to account fully or accurately for direct and indirect liabilities. In addition, because of lags in data collection and recording, reliable and timely in-year data are generally unavailable to guide the budget process. Timely and accurate actual outturn accounting numbers could be used to provide a rough baseline for the cost of current policy, which could provide a base for the fiscal framework, and thus some kind of reality check. If reliable budget outturn data is available with considerable lag, it can not be used in the annual budgeting process.

### **Some specific PFM issues in SSA countries**

In SSA, weak revenue bases and limits on borrowing capacity make it difficult for governments to fund their activities. In the HIPC countries, governments have exhausted their borrowing power and generally have little to show for these debts except high debt service. In SSA, there are two main kinds of fiscal weaknesses that lead to systematically worse budget outcomes than legislated budgets. First, economic growth and revenue projections, including grants, are generally prepared optimistically so that higher budget spending can be accommodated. None of the SSA HIPC countries, except Uganda and to some extent, Tanzania, have a hard legal constraint on outcomes such as the budget deficit or debt limit. Thus, while the overall projections of growth and revenues generally determine the aggregate expenditure envelope, the outcome may lead to systematically worse deficits than budgeted because of the tendency to overestimate revenues.

Even prior to the HIPC Initiative, donor aid monies often required counterpart funds from the budget. The donors were more likely to fund certain parts of the budget, such as capital spending on infrastructure, and social sector spending on education and health. With the formulation of a Poverty Reduction Strategy Plan (PRSP) as eligibility criteria, the budget with a higher spending envelope would accommodate donor objectives, and more recently, PRSP objectives, even though resources to fund these programs could be lacking. Budgetary outcomes are also adversely affected by the external aid in a different way. In many cases, there is a difference between commitment of aid and aid money actually delivered. Many SSA countries formulate the budget on the basis of aid commitments received. Sometimes, projects start being implemented from the country's own budget resources in anticipation of such commitments. When aid flows are not realized, it results in wasteful spending and in budgetary distortion.

Second, many real spending pressures on the budget are not taken into account while preparing the fiscal framework and aggregate spending limits. Unless exceeding a budgeted deficit carries some kind of sanctions, governments could systematically run larger deficits, especially if the data on budget outturns were not reliable and timely. Expenditure in excess of the approved budget often takes place in many areas of the

budget. In-year budgetary management is frequently characterized by ad hoc response to emerging pressures in SSA countries. There are many emergent priorities and spending pressures such as control of HIV/AIDS, malaria, and other health programs, where spending pressures may not be adequately forecast. In addition, weather- or military- and police-related pressures may have first call on resources. Thus, an approved budget, which may be unrealistic to begin with because of overoptimistic revenue forecasts, may fall even further from being realized as a consequence of unforeseen or unbudgeted spending pressures.

Many SSA countries have limited access to borrowing. Typically, military and police ministries, the presidency, and donor-favored activities, especially those where counterpart funds are needed, are funded first. Other ministries may resort to unauthorized market borrowings (mainly suppliers' credit) to fund their existing commitments. Hence we observe arrears in nearly all these countries, most frequently to suppliers.

Typically, it is against such a background of cash-strapped budgets that the poverty reduction strategy is often prepared. Given the demands on cash flows and the need to fund the poverty reduction strategy, the country faces two options. First it can make structural changes in the spending priorities of the government. These changes can, however, only be made over the medium term without causing social problems since in many countries public spending provides basic goods and services and serves as an important source of formal sector employment. The second option is to contain "power ministry" spending. Given the political economy of the countries, this option may not always be possible.

When governments are cash-strapped, many may also incur spending through public sector entities, such as state owned enterprises (SOEs), which borrow or provide goods at below market cost, and incur both direct and contingent liabilities of their own. In many cases, borrowing through SOEs remains outside the budget and accounts.

### **III. A BRIEF REVIEW OF THE LITERATURE**

#### **A. Growth, Institutions, and PFM in SSA**

Institutions, as defined by North (1990), are the rules of the game, formal and nonformal, which affect economic incentives and behavior. Among economic institutions, property rights and trade are considered to be the most significant. The growth literature on SSA has strongly concluded that institutional weaknesses in SSA have been one of the main causes of lack of or slow economic growth.

Acemoglu and Johnson (2003) find a strong relationship between higher per capita income and protection against the risk of appropriation by the politically and other powerful groups. Rodrik, Subramaniam, and Trebbi (2004) find that institutions are a major determinant of economic growth and the level of institutional development helps explain differences in income between countries. Acemoglu, Johnson, and Robinson (2004) explore the link between political power, political institutions, economic institutions, and economic performance. Protection of property right and protection against the risk of expropriation are central to these institutions.

Brautigam and Knack (2004) point to the lack of institutions of governance such as a well-functioning civil service in SSA, and how this has adversely affected the effectiveness of external aid utilization. A similar point has been made by Birdsall (2007) about how weak institutions prevent the most effective use of external aid, and pose a risk to creating and sustaining a middle class.

A well-functioning PFM system goes hand in hand with institutional development. In SSA, a large majority of the population does not have the economic means to access basic goods through the markets, including basic commodities such as clean drinking water, and education and health care services. This population thus depends upon the government for the provision of these basic services. These essential public goods are necessary for survival, and can thus be characterized as public property rights. A strong PFM system protects the use of the budget for provision of these basic goods and services. A well formulated budget allocates resources transparently. The money is spent on the objectives articulated in the budget, thus minimizing the risk of expropriation of public funds for private gain. The process of custody of public money, the process of incurring expenditure, making payments, accounting for the money spent, and oversight and audit, also ensure similar results. A well-functioning PFM system thus contributes directly to and is reflective of institutional quality.

The quality of PFM systems also relates to corruption since PFM establishes rules and processes for “who-receives-what” from public resources. Corruption takes place when rules, procedures, and checks and balances are violated. A well-functioning PFM system ensures that all inflows and outflows of government monies follow a process established by law or regulations, and that these rules are enforced. It makes financial transactions more transparent, thus reducing the chances of corruption. In SSA countries, there are rules regarding management of monies. However, penalties and sanctions for noncompliance are generally absent, and hence while the rules exist, there is effectively no or little enforcement.

A good PFM system contains rules and procedures. But excessive PFM rules and procedures can also be a cause of corruption. Mauro (1996) suggests that pervasive regulation and excessive discretion in applying the rules can lead to corruption.

Corruption distorts budgetary allocation of resources resulting in adverse budgetary consequences, lower quality of public infrastructure as well as the composition of public expenditure, thus adversely affecting income and growth. Since a large share of the population depends on public services for many basic needs such as health care, drinking water supply and education, and the supply is limited, officials have greater discretion in deciding who should be allowed to access these goods and services (Tanzi, 1998, Tanzi and Davoodi, 2000). Exercise of such discretionary power in contravention of PFM systems of checks and balances give rise to corruption.<sup>4</sup> However, it is essential for a well functioning enforcement system to support PFM systems. In the absence of a meaningful enforcement system, PFM systems can be subverted.

### **B. General Literature Review on PFM and Fiscal Outcomes**

There is a growing literature on the relationship between PFM and fiscal outcomes. Most of this research has been done in the context of Latin American countries, the European Union, and the United States. There has been little analytical work on this subject for SSA. However, the research done on other regions, especially Latin America, is relevant for SSA, since these regions share many similar issues.

In the economics literature, PFM is analyzed as part of budget processes. This research focuses on how budget processes affect fiscal and macroeconomic outcomes, and the allocative and distributive effects of budgeting. Budget laws and regulations, and the processes of preparation, execution, and audit of the budget are all assessed for how they influence budget decisions. A separate literature focuses on the more practical aspects of budget processes. It concerns itself with the role of each budget agent in budget processes and the techniques of budgeting, regulations, and procedures. These two areas of research complement each other. Nearly all the literature on Latin American as well as on European countries considers both the broader economic issues as well as the practical aspects.

Alesina and Perotti (1996) examine how the budget process affects fiscal deficits and borrowing. They divide budget rules and regulations into three kinds: procedural rules; rules on transparency; and numerical targets such as balanced budget laws. They focus on numerical targets and argue that such targets encourage creative accounting, and are not optimal and flexible from an economic point of view. With regard to procedural rules, they distinguish between hierarchical and collegial procedures. In hierarchical procedures, the minister of finance is seen as more powerful and they argue that this arrangement results in better fiscal discipline. In collegial procedures, the line ministries

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<sup>4</sup> See also Dorotinsky and Pradhan (2007) for a discussion on corruption and PFM.

have equal power, and checks and balance and compromise are important. This arrangement delivers more flexibility but less discipline. They enumerate a number of ways that countries, both developed and developing, adapt budget processes to circumvent rules. These include generating overly optimistic forecasts of economic variables, including budget outcomes, and strategic determining what is in or out of budget.

Alesina, Hausmann, Hommes, and Stein (1996) construct an index of budget process through a questionnaire and conclude that budget procedures—formulation, approval, and implementation of the budget—strongly influence fiscal outcomes. They define budgetary institutions as all the rules and regulations according to which budgets are drafted, approved, and implemented. They caution that since institutions are endogenous, other factors such as social, cultural, and political variables also impact budget processes. They show that in Latin America, countries with the best budget processes had, between 1989–1993, fiscal surpluses of 1.8 percent of GDP, while the three weakest had average deficits of 2.2 percent.

Eichengreen et al. (1999) and Alesina et al. (1999) also show, for Latin America, that budget processes and rules have a significant impact on the budget deficit and debt. Budget rules include both formal and informal rules. Rules and procedures help political bargain in budgeting and reduce and resolve conflict. By assigning roles and responsibilities to different budget agents, procedures ensure better flow of information, and transparency, and thus prevent collusion among budget participants. They recommend that procedural reforms that include increasing the budgetary power of the minister of finance over line ministers, limiting off budget spending and earmarking, and preventing line agencies from making commitments without a budget, strongly improve fiscal outcomes.

In their study of the EU countries, von Hagen and Harden (1995) show that in the 1980s, the three countries with the weakest budgetary processes had a budget deficit of 11 percent of GDP, while the three countries with the strongest processes had a budget deficit of 2 percent. Poterba (1994) shows that, in the U.S. states, budget rules potentially determine expenditure outcomes, although use of creative accounting is not uncommon here as well.

The literature on the practical dimensions of public financial management is of more recent origin. Most of this literature comes from the multilateral and bilateral aid agencies such as the International Monetary Fund, World Bank, Asian Development Bank, Organization for Economic Cooperation and Development (OECD), and the U.K. government's Department for International Development (DFID). It focuses on defining PFM (e.g., what is accrual-based accounting), and elaborates on the techniques of

preparing, executing, and monitoring budgets. It lays out a step-by-step approach: from how to establish aggregate spending envelopes to measuring the end results.

Potter and Diamond (1999) and DFID (2001) cover a large range of issues, from institutional roles and responsibilities to all the stages in the budget process. They provide guidelines on public expenditure management in developing economies (including those in SSA), and emphasize the role of PFM in promoting fiscal discipline by restraining expenditure. DFID highlights that PFM can bring political engagement, clarity of policy, affordability, predictability, transparency, comprehensiveness, and accountability to the budgetary process.

### **PFM literature on SSA**

The PFM literature on SSA mainly originates from technical assistance to improve budgeting. It includes Public Expenditure Reviews (PERs) of the World Bank, Working Papers of various institutions, and technical assistance of the IMF and other multilateral and bilateral institutions. A substantial number of country studies remain unpublished. Much of the published literature on PFM in SSA is descriptive in nature.

Lienert and Sarraf (2001), in their study of Anglophone African PFM systems, and Moussa (2004), in his study of Francophone systems, report significant systemic weaknesses, not unlike those found by research on Latin America and Europe. Their findings are later supported by the evaluation of PFM systems which was done as a part of the HIPC/MDRI debt relief process. They also find, following Alesina and Perotti (1996), that the Francophone model is more “hierarchical,” which is more conducive to fiscal discipline than the Anglophone model which is more “collegial” and flexible in nature. The study by Kutessa et al. (2002) on Uganda points out that expenditure and budget control was a key strategy in Uganda’s fiscal consolidation and deficit reduction. A recent study by Folscher (2006) warns of the risk of instrument-based technical reforms in the budget process, and suggests that political and civic society participation is crucial.

Some significant studies on SSA have been done in the context of HIPC debt relief. Allen et al. (2007) emphasize the importance of strengthening PFM systems to ensure that debt relief is absorbed effectively and the money is spent on poverty-related programs. Heller (2005) points to the importance of a strong PFM system to increase the capacity of the poor countries to meaningfully use scaled-up aid. Claessens et al. (2007) recommend country specific conditionalities on tracking poverty-related spending, in the context of HIPC debt relief.

A smaller but growing literature examines the impact of fiscal transparency on fiscal outcomes. Fiscal transparency includes many aspects of PFM systems (IMF, 2007). Alt

and Lassen (2006) conclude that budget transparency leads to lower debt and deficit in OECD countries. Hameed (2005) concludes, based on the index created by him from the studies conducted by the IMF, that fiscal transparency is strongly correlated with better fiscal discipline.

### **C. Fiscal Targets in SSA Countries**

How relevant and feasible are fiscal rules in the HIPC SSA countries? We surveyed the 22-SSA HIPC countries in our sample, summarized in Table 1, to find out if they had (i) any kind of numerical fiscal targets in place, either in their own laws or as a member of a regional economic group, (ii) a limit on the deficit or required budget balance by law, or (iii) a ceiling on aggregate spending. Of these 22 countries, eight (Benin, Burkina Faso, Cameroon, Chad, Guinea-Bissau, Mali, Niger, and Senegal) had some kind of numerical constraint as a part of rules of the regional organizations, West African Economic and Monetary Union (WAEMU) or Economic and Monetary Community of Central Africa (CEMAC), even if these were not always observed. Uganda adopted a balanced budget rule in 2000. Tanzania's law on government guarantees and loans (2004) prescribes both numerical targets and procedures. Others seem to have no rule-based constraints. However, most of these countries were under some kind of IMF program (such as PRGF or PRSP) during this period which provided a close proxy for numerical targets.

Fiscal rules, expressed as numerical targets, can be meaningfully achieved only in an environment of well functioning PFM systems. A numerical spending limit can optimally function as a part of a system, rather than on an ad hoc basis. Many of SSA countries, such as Tanzania and Uganda, have "cash budget" systems, where each agency spending is restricted to a cash limit each month. The aggregate spending is thus limited to the cash available that month. Such cash ceiling, we argue, is like an unpredictable and unplanned numerical target. We hypothesize that since political reality makes a law based numerical target infeasible, cash ceilings act like emergency breaks on expenditures creating, unlike in numerical targets, budget distortions such as overbidding for cash, and inability to plan spending.

The role of parliaments in the budget process is a part of the overall PFM system, and therefore parliament also influences fiscal outcomes. In most of the SSA countries, parliaments do not have the ability to increase the budget expenditures or the deficit proposed by the executive. We measure the impact of PFM on fiscal outcomes against approved budgets, and the impact of parliaments is felt mainly at the budget preparation stage.



**Table 1. Numerical Targets in SSA HIPC Countries (2000–06)**

	Numerical Targets	Regional Convergence Targets <sup>4</sup>	Followed in Practice?
Benin	No <sup>1</sup>	Yes/WAEMU	Not in practice
Burkina Faso	No	Yes/WAEMU	Not in practice
Cameroon	No	Yes/CEMAC	Mainly in practice
Chad	No	Yes/CEMAC	Not in practice
Congo, Dem. Rep. of	No	-	-
Ethiopia	No <sup>1</sup>	-	-
Gambia, The	No	-	-
Ghana	No	-	-
Guinea	No	-	-
Guinea-Bissau	No	Yes/WAEMU	Not in practice
Madagascar	No <sup>2</sup>	-	-
Malawi	No	-	-
Mali	No	Yes/WAEMU	Mainly in practice
Mozambique	No	-	-
Niger	No	Yes/WAEMU	Not in practice
Rwanda	No	-	-
São Tomé and Príncipe	No <sup>2</sup>	-	-
Senegal	No	Yes/WAEMU	Not in practice
Sierra Leone	No	-	-
Tanzania	Yes	-	-
Uganda	Yes <sup>3</sup>	-	-
Zambia	No	-	-

Source: IMF staff compilations.

Notes: **Yes/No:** in column 1, indicates whether there are country-specific numerical fiscal rules or targets; in column 2, whether there are regional fiscal rules or targets; and in column 3, whether these regional rules or targets are adhered to.

<sup>1</sup>Recently added (since 2007).

<sup>2</sup>Recently added.

<sup>3</sup>Since 2000.

<sup>4</sup> Includes for: WAEMU the main convergence targets such as:

Budget balance (in percent of GDP, criteria:  $\geq 0$ ),

Arrears payment (in billion CFA, criteria:  $= 0$ ),

Wages and salaries (in percent of tax revenues, criteria:  $\leq 35\%$ ),

Internal funding of Capital expenditure (in percent of tax revenues, criteria:  $\geq 20$ ),

Total tax revenue (in percent of GDP, criteria:  $\geq 17\%$ ).

CEMAC the main convergence targets such as:

Balance Budget (as% of GDP, criteria:  $= 0$ ),

Balance Budget structural (in percent of GDP, criterion:  $= 0$ ),

Public debt (in percent of GDP; criterion:  $= 70\%$ ),

Arrears int. and ext. (in billions; criterion:  $= 0$ , late payment = 120 days),

Primary budget balance (in percent of GDP, criteria:  $> 0$ ).

## IV. PFM AND FISCAL OUTCOMES

### A. Measurement of PFM Quality

The HIPC PFM data set was intended to measure the quality and strength of PFM systems.<sup>5</sup> This indicator set is divided into three parts with 15 variables, measuring the quality of budget formulation, execution, and reporting (Annex II). The main objective of the PFM HIPC indicator design for the 2001 and 2004 assessments was to ensure that the countries have the capacity to identify and track poverty-related spending so that the use of the money released from debt relief could be properly assessed. However, it was also felt that improvement in any subset of PFM systems to meet a rather narrow objective is not sustainable if overall weaknesses in the system remain. Hence, the scope of the effort was broadened to include a fundamental strengthening of PFM so that the money could not only be meaningfully tracked but spent, and its use evaluated. However, the primary focus in the design remained on tracking poverty-related spending.

In the SSA HIPC countries, economic institutions are not well developed, and a number of weaknesses in fiscal management can be found at any stage of the budget process. Measurement of these weaknesses by any set of PFM indicators is difficult, complicating the evaluation of the effectiveness of PFM systems.

Table 2 presents a summary of the performance of the SSA HIPC countries for two broad groups of indicators in 2001 and 2004. The PFM overall score refers to the PFM score from the two surveys converted into a numerical score on a three-point scale, 3 being highest; and, benchmarks met refers to the total number of benchmarks met out of 15. It is interesting to note the relatively stable PFM indicator scores when comparing 2001 and 2004. Box 1 summarizes these results.

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<sup>5</sup> Mauritania is dropped from the analysis because of poor overall data quality.

### Box 1. Changes in HIPC Indicators Met from the 2001 to 2004 Assessment

*The 2001 report on the initial assessment of these countries<sup>1</sup> reported 88 percent of these countries could not “produce timely, functionally based expenditure reports from core accounting data.” It also reported that 71 percent of these countries do not close their accounts within two months of the end of the year, and 92 percent did not provide budget data consistent with the GFS definition of general government, and 83 percent of these countries did not produce audited accounts within 12-months of the close of the year. This assessment also indicated that budget coverage was inadequate in most (nearly 90 percent) of the countries in the sample. None of the countries met all the benchmarks on fiscal reporting.*

There are three indicators that measure how realistic the budget is. These are indicators on comparison of budget outturn with the initial budget, level of payment arrears, and use of off budget funds. Performance in all these indicators declined in 2004 as compared with the survey results of 2001. One explanation of this somewhat counter-intuitive result is the difficulty in sustaining any PFM reforms in these countries. Timeliness of functionally based expenditure reports from core accounting data improved from 14 percent to 31 percent countries meeting this benchmark between 2001 and 2004. However, the indicator on timeliness of monthly internal expenditure reports declined.

**Table 2. HIPC PFM Assessment**

Country	Met out of 15		2001		2004		Scores using numerical scale	
	2001	2004	Budget formulation	Budget execution	Budget formulation	Budget execution	2001	2004
	met	met	met	met	met	met		
Benin	8	8	5	3	4	4	32	34
Burkina Faso	8	9	5	3	5	4	33	35
Cameroon	4	7	1	3	3	4	26	31
Chad	8	8	5	3	3	4	28	29
Congo, Dem. Rep	...	3	...	...	3	0	...	24
Ethiopia	6	7	4	2	5	2	31	32
Gambia	5	3	4	1	3	0	27	25
Ghana	1	7	0	1	3	4	19	32
Guinea	5	5	3	2	2	3	26	28
Guinea-Bissau	...	0	...	...	0	0	...	17
Madagascar	7	4	5	2	3	1	29	30
Malawi	7	5	4	3	3	2	33	29
Mali	8	11	4	4	6	5	32	37
Mozambique	5	4	3	2	3	1	28	26
Niger	3	5	2	1	3	2	24	30
Rwanda	8	8	5	3	4	4	33	32
São Tomé and Príncipe	4	4	1	2	3	2	26	25
Senegal	4	7	4	0	4	3	28	32
Sierra Leone	...	7	...	...	4	3	...	28
Tanzania	8	11	4	4	6	5	33	36
Uganda	9	8	5	4	3	5	35	32
Zambia	3	3	1	2	0	3	23	24

Sources: IMF and World Bank HIPC Assessments 2001 and 2004; staff calculations.

The World Bank's Country Policy and Institutional Assessments (CPIA) measure the quality of macroeconomic and fiscal policies, and budget and financial management. The CPIA indicator on rule of law refers to the quality of the justice system, both civil and criminal, rather than to any deterrent against non-observance of regulations on public finance. However, the CPIA indicator can be good proxy for enforcement of regulations on public finance. Between 2000 and 2004, when the two HIPC related PFM assessments were made, many institutional and structural reforms were also taking place. However, structural and institutional reforms, unlike process reforms, have a much longer gestation period and the impact of such reforms filters down gradually and with a significant lag. Hence the impact of these reforms on fiscal outcomes during this period would be minimal, if any at all, making these hard to measure. The CIPA data to some extent proxy the impact of these reforms. From these indicators it is evident in Table 3 that the highest five countries with the best macro policy environment also had the best PFM scores in the HIPC assessments.

**Table 3. Macro and Fiscal Policy and PFM**

	Macro Score	Fiscal Score	Budget and Financial Management Score	PFM HIPC
	CPIA data (out of 1-6, 6 best)			Met, out of 15 Indicators
<b>Highest performing</b>				
Benin	4.5	4.0	3.5	8
Burkina-Faso	4.5	4.5	3.5	9
Mali	4.5	4.0	3.5	11
Uganda	4.5	4.5	4.5	8
Tanzania	5.0	4.5	4.5	11
<b>Lowest performing</b>				
Guinea-Bissau	2.0	2.5	2.5	0
Ethiopia	3.0	4.0	4.0	7
Guinea	2.5	3.0	2.5	5
Malawi	3.5	3.0	3.0	5
Gambia, The	3.5	3.0	2.5	3

Sources: World Bank CPIA and IMF and World Bank HIPC assessments; Fund staff calculations.

The macro and fiscal policy performance is broadly correlated with budget and financial management in the CPIA and HIPC assessments. There are, however, some differences. Ethiopia, for example, scores low on macro policy, but high on fiscal policy and budget and financial management. We present the correlation coefficients in Table 4 for HIPC SSA countries, which show the relatively high correlation.<sup>6</sup> The correlations are highest for budget execution and reporting, but only marginally less so for overall score.

<sup>6</sup> The main basis for excluding São Tomé and Príncipe from the statistical calculations is that several fiscal indicators were more than two standard deviations from the mean of the relevant fiscal indicator. It is a small country and the fiscal variables during 2000–06 have been unduly influenced by oil sector issues as oil development started during this period.

**Table 4. Spearman Correlation Coefficients  
PFM and CPIA**

	HIPC SSA CPIA all
<b>PFM overall score</b>	<b>0.789</b>
p-value	0.000
<b>PFM budget formulation score</b>	<b>0.503</b>
p-value	0.020
<b>PFM budget execution and reporting score</b>	<b>0.786</b>
p-value	0.000
Number of observations:	21

Sources: International Monetary Fund and World Bank PFM indicators for 2004, and CPIA for 2005.

We next examine the statistical relationship between PFM quality and fiscal outcomes in HIPC countries. While the HIPC assessments were supposed to have been undertaken with a consistent methodology, these assessments were done by separate technical teams for each region. Countries in SSA region share many common characteristics, which may have been better understood by the assessment teams. Hence the assessments in a particular region are likely to have had a methodologically sounder or more consistent basis.

## **B. Data**

Table 5 presents a summary of the data set constructed for this analysis (discussed in more detail in Annex III). Table 5 shows the main indicators for SSA HIPC countries and identifies São Tomé and Príncipe as an outlier in several fiscal variables. Therefore it was excluded from the subsequent analysis.

**Table 5. HIPC SSA<sup>1</sup> 2001 and 2004**  
(Percent of GDP, unless otherwise indicated)

	Mean	Median	Standard Deviation	Max.	Min.	São Tomé and Príncipe <sup>2</sup>	
						2001	2004
PFM benchmarks met (number)	6.1	7.0	2.5	11.0	0.0		
PFM overall score (value)	65.1	66.7	9.9	82.2	37.8		
Overall balance	-4.1	-3.5	3.2	2.6	-15.0	Outlier	Outlier
Overall balance excl. grant	-9.8	-8.6	5.9	2.2	-32.2	Outlier	Outlier
Primary balance	-1.7	-1.9	2.9	5.6	-9.4	Outlier	Outlier
Primary balance excl. grants	-7.4	-6.8	5.2	5.2	-26.1	Outlier	Outlier
Interest payments	2.4	1.5	2.3	9.9	0.3		
Primary expenditure	21.8	20.7	6.3	43.3	12.7	Outlier	Outlier
PPG external debt	85.8	70.0	46.3	273.1	35.8	Outlier	Outlier
Gross central gov. debt	117.4	90.9	107.3	647.8	32.4		

Number of observations: 39.

<sup>1</sup> Includes: 2001: Benin, Burkina Faso, Cameroon, Chad, Ethiopia, The Gambia, Ghana, Guinea, Madagascar, Malawi, Mali.

2004: Benin, Burkina Faso, Cameroon, Chad, Congo, Dem. Rep. of, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda and Zambia.

<sup>2</sup> Identifies São Tomé and Príncipe as outlier if the observation value is higher or lower than two times standard deviation from the sample mean.

### C. Econometric Analysis

The main purpose of this section is to provide some econometric evidence that better PFM (measured by the number of benchmarks met or overall score) is associated with better fiscal outcomes, after controlling for relevant explanatory variables for fiscal outcomes.

The empirical analysis is divided into sections.

1. In the first section, a sample summary, correlations, and graphs are presented to suggest the broad relationships among the different indicators.
2. In the second section, regressions are estimated using the main variables suggested in the literature. Regressions using ordinary least squares are estimated to identify the main relations. Additional quantitative analyses and robustness are shown in Annex IV.

#### The simple correlation of quality of PFM systems and fiscal outcomes

In this first section, we follow the Von Hagen (1992) approach where nonparametric tests are performed because they do not require an explicit specification of the relationships between variables.

Table 6 shows the correlations between the PFM overall score in 2001 and 2004 and benchmarks met with different fiscal variables: overall balance including and excluding grants, primary balance including and excluding grants, interest payments, primary expenditure, and public and publicly guaranteed external debt, and gross central government debt. Correlation is measured using the Spearman rank correlation coefficient which measures the correlation between the ranks of the variables in the sample. It excludes the scale effect of the variables, but keeps the order of the relations observed in the ranks. Additionally it identifies p-values, providing a rigorous analysis of statistical significance.

**Table 6. HIPC SSA<sup>1</sup> Correlations Between Fiscal Outcomes and PFM Variables**

	Spearman Rank Correlation Coefficients	
	PFM Overall Score	PFM Overall Benchmarks Met
<b>Overall balance</b>	<b>0.492</b>	<b>0.514</b>
p-value	0.002	0.001
<b>Overall balance excluding grants</b>	<b>0.038</b>	<b>0.018</b>
p-value	0.820	0.916
<b>Primary balance</b>	<b>0.213</b>	<b>0.232</b>
p-value	0.194	0.156
<b>Primary balance excluding grants</b>	<b>-0.015</b>	<b>-0.009</b>
p-value	0.928	0.956
<b>Interest payments</b>	<b>-0.565</b>	<b>-0.619</b>
p-value	0.000	0.000
<b>Primary expenditure</b>	<b>-0.047</b>	<b>-0.215</b>
p-value	0.776	0.188
<b>Public and publicly guaranteed external debt</b>	<b>-0.615</b>	<b>-0.649</b>
p-value	0.000	0.000
<b>Gross central government debt</b>	<b>-0.576</b>	<b>-0.630</b>
p-value	0.000	0.000
Number of observations	39	39

Source: See Table 5.

<sup>1</sup> Excluding São Tomé and Príncipe.

There is a positive and statistically significant correlation between the overall balance and PFM overall score. A similar result is obtained for the correlation between the overall balance and PFM overall benchmarks met. The correlation between the overall balance excluding grants and PFM indicators, in contrast, is not significant. Similarly, the primary balance measures, which excludes interest payments, also show no significant correlation. These results suggest the strong influence of grants on the significance of the correlation. There is a negative and significant correlation between interest payments, the

public and publicly guaranteed external debt, and gross central government debt and the two PFM quality variables. The HIPC Initiative entails the reduction of debt stock of these countries, and since improvement in PFM systems were a key trigger for this debt relief, it is expected that there would be a relationship between PFM indicators, interest payments, and debt stocks. The correlation between primary expenditure and the PFM indicators is not significant.

It may be useful to examine the differences between the 2001 and 2004 assessments. Thus we break the sample into the two years in Table 7, below, and examine the correlations between the fiscal variables and the PFM overall score. The 2004 results show a stronger pattern of significance. However, overall the results show little differences between the two years and the complete sample, lending credibility to the results.

**Table 7. HIPC SSA<sup>1</sup> Correlations Between Fiscal Outcomes and PFM Overall Score**

	Spearman Rank Correlation Coefficients	
	2001	2004
<b>Overall balance</b>	<b>0.390</b>	<b>0.579</b>
p-value	0.109	0.006
<b>Overall balance excluding grants</b>	<b>0.033</b>	<b>-0.033</b>
p-value	0.896	0.888
<b>Primary balance</b>	<b>0.076</b>	<b>0.313</b>
p-value	0.765	0.167
<b>Primary balance excluding grants</b>	<b>-0.106</b>	<b>-0.039</b>
p-value	0.675	0.866
<b>Interest payments</b>	<b>-0.540</b>	<b>-0.609</b>
p-value	0.021	0.003
<b>Primary expenditure</b>	<b>0.013</b>	<b>-0.029</b>
p-value	0.961	0.901
<b>Public and publicly guaranteed external debt</b>	<b>-0.543</b>	<b>-0.635</b>
p-value	0.020	0.002
<b>Gross central government debt</b>	<b>-0.398</b>	<b>-0.605</b>
p-value	0.102	0.004
Number of observations	18	21

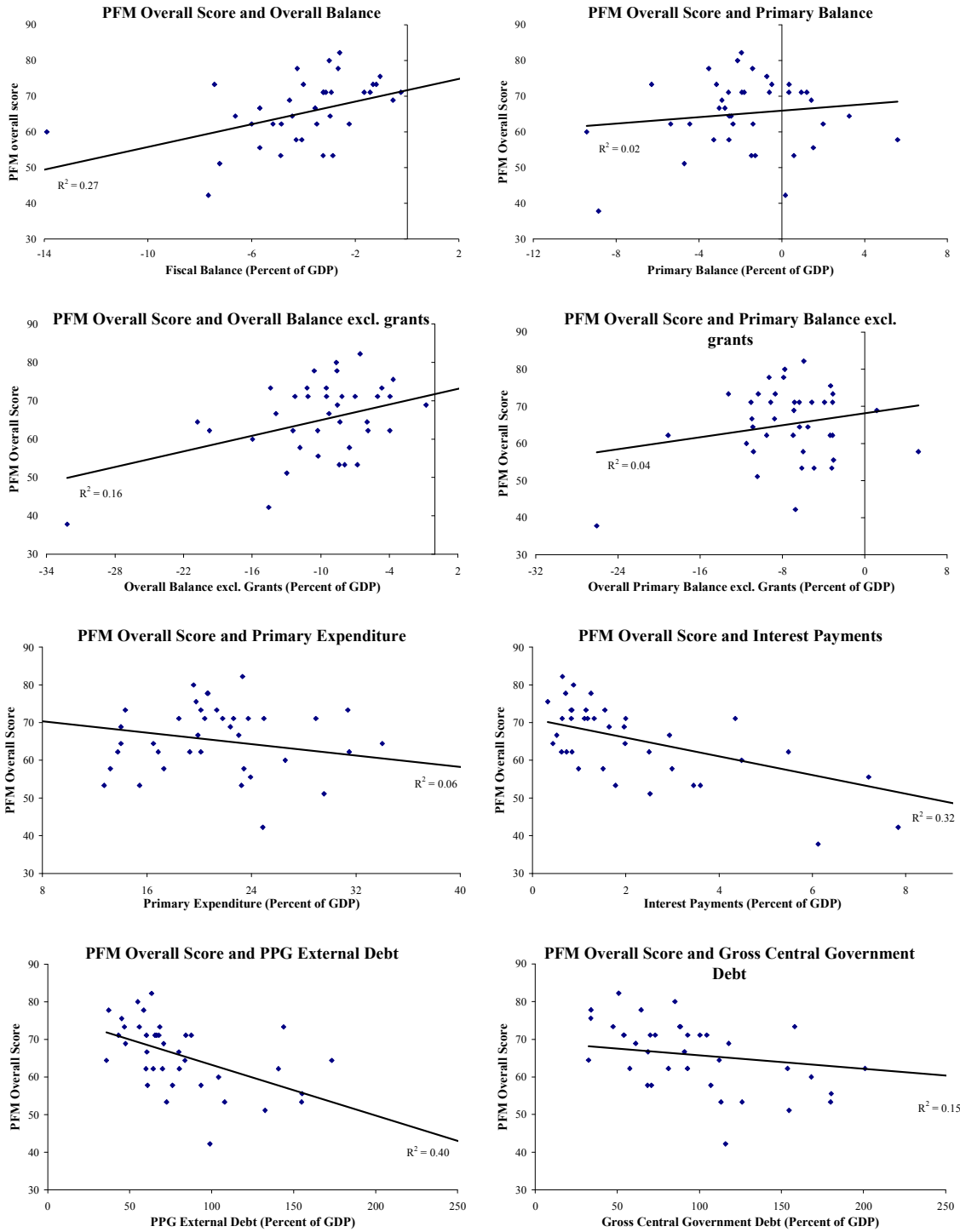
Source: See Table 5.

<sup>1</sup> Excluding São Tomé and Príncipe.

We also construct some simple plots to illustrate these correlations, for the sample including both years, for the SSA HIPC countries.



**Figure 1. Plots of the Fiscal Variables and the PFM Overall Score**



### Which PFM quality variable is most important?

Table 8 shows the correlations between the fiscal variables and the PFM variables grouped into those relating to formulation of the budget and to execution of and reporting on the budget.

**Table 8. HIPC SSA<sup>1</sup> Correlations Between Fiscal Outcomes and PFM Indicators of Formulation and Execution**

	Spearman Rank Correlations Coefficients		
	PFM Overall Score	PFM Budget Formulation Score	PFM Budget Execution and Reporting score
<b>Overall balance</b>	<b>0.492</b>	<b>0.394</b>	<b>0.465</b>
p-value	0.002	0.013	0.003
<b>Overall balance excluding grants</b>	<b>0.038</b>	<b>0.055</b>	<b>0.017</b>
p-value	0.820	0.739	0.918
<b>Primary balance</b>	<b>0.213</b>	<b>0.141</b>	<b>0.241</b>
p-value	0.194	0.393	0.140
<b>Primary balance excluding grants</b>	<b>-0.015</b>	<b>-0.040</b>	<b>0.031</b>
p-value	0.928	0.809	0.851
<b>Interest payments</b>	<b>-0.565</b>	<b>-0.438</b>	<b>-0.536</b>
p-value	0.000	0.005	0.000
<b>Primary expenditure</b>	<b>-0.047</b>	<b>-0.149</b>	<b>0.047</b>
p-value	0.776	0.367	0.776
<b>Public and publicly guaranteed external debt</b>	<b>-0.615</b>	<b>-0.426</b>	<b>-0.610</b>
p-value	0.000	0.007	0.000
<b>Gross central government debt</b>	<b>-0.576</b>	<b>-0.422</b>	<b>-0.552</b>
p-value	0.000	0.007	0.000
Number of observations	39	39	39

Source: See table 5.

<sup>1</sup>Excluding São Tomé and Príncipe.

The correlations show the same pattern of significance where the PFM indicators are grouped together and across the two categories. One interesting, although intuitive, result is that when budget formulation and execution are measured together, the correlation is slightly stronger (in absolute value), suggesting the different components of PFM add to each other's effectiveness to influence fiscal outcomes.

Another question explored is whether elements of PFM that are more in the nature of rules and procedures or those that are more like laws and policies have greater effect on

fiscal outcomes. We divided the 15 indicators into those that had predominantly characteristics of procedures and those that had predominantly characteristics of laws and policies. Table 9 shows that both PFM procedures and rules show the same pattern of sign and significance, compared to the indicators grouped together. However, for the two debt variables the significance of the rules correlation is stronger than the overall correlation of the indicators grouped together.

**Table 9. HIPC SSA<sup>1</sup> Correlations between Fiscal Outcomes and PFM Indicators Rules and Procedures**

	Spearman Rank Correlation Coefficients		
	PFM Overall Score	PFM Rules Score	PFM Procedures Score
<b>Overall balance</b>	<b>0.492</b>	<b>0.442</b>	<b>0.463</b>
p-value	0.002	0.005	0.003
<b>Overall balance excluding grants</b>	<b>0.038</b>	<b>0.011</b>	<b>0.036</b>
p-value	0.820	0.946	0.829
<b>Primary balance</b>	<b>0.213</b>	<b>0.206</b>	<b>0.216</b>
p-value	0.194	0.208	0.187
<b>Primary balance excluding grants</b>	<b>-0.015</b>	<b>-0.045</b>	<b>0.031</b>
p-value	0.928	0.788	0.851
<b>Interest payments</b>	<b>-0.565</b>	<b>-0.555</b>	<b>-0.487</b>
p-value	0.000	0.000	0.002
<b>Primary expenditure</b>	<b>-0.047</b>	<b>-0.187</b>	<b>0.054</b>
p-value	0.776	0.255	0.742
<b>Public and publicly guaranteed external debt</b>	<b>-0.615</b>	<b>-0.620</b>	<b>-0.530</b>
p-value	0.000	0.000	0.001
<b>Gross central government debt</b>	<b>-0.576</b>	<b>-0.597</b>	<b>-0.475</b>
p-value	0.000	0.000	0.002
Number of observations	39	39	39

Source: See table 5.

<sup>1</sup>Excluding São Tomé and Príncipe.

### The econometric analysis of quality of PFM systems and fiscal outcomes

Next we turn to the regression analysis. The purpose of this section is to examine whether PFM is significant in explaining fiscal performance. OLS is used to explore the relationship between the various fiscal variables, specified as the dependent variable, and explanatory variables.

For explanatory variables, we use the PFM overall score (the correlations suggest the PFM number of benchmarks met would perform similarly), economic growth, GDP per capita, the percentage of the population under 15 years of age, the literacy rate, the level of corruption, a dummy for fractionalization, a dummy for resource rich countries, a dummy for countries that met the decision point in HIPC relief, a dummy for countries that met the completion point in HIPC relief, and a dummy for countries with French legal system origin. Additionally a time dummy for 2001 is added, in order to capture omitted variables that change over time such as the changes in interest rates or commodity prices.

Apart from the PFM overall score and HIPC variables, these variables can be found in standard empirical models to explain fiscal outcomes and can be derived from formal utility maximization theories of government. Stronger economic growth or rising GDP per capita might be expected to be linked to better fiscal outcomes (better budget balances and lower debt) and to higher spending. Similarly higher literacy and lower corruption might be expected to contribute to better fiscal outcomes. The percentage of youth, fractionalization, and dummy for French legal origin countries might explain differences in fiscal preferences. Budget support in SSA from most donors is tied to education. The variable on the percentage of youth captures the impact of such spending on education. The dummy for French legal origin captures the more hierarchical nature of PFM systems in Francophone countries. The impact of fractionalization of economic growth has been emphasized by Collier and others, and this variable captures the impact of fractionalization on the budget. The HIPC debt relief dummies control for the impact on fiscal variables of this debt relief, and takes a value of 1 for years in which the debt relief is given and subsequent years.<sup>7</sup> We would expect to find a positive relation between the debt relief variables and the fiscal balance measures and a negative relation with the interest and debt variables. Controlling for these variables then allows us to measure the effect of PFM quality on fiscal outcomes.

This empirical work advances our understanding of how the quality of PFM and budgetary processes, as systematically measured, influences fiscal outcomes in SSA. Although it is widely believed that better PFM systems improve fiscal outcomes, there is actually little empirical study owing to a lack of good data. The HIPC assessments provide a means to assess these relationships, with a data set that is likely to be superior to many other measures of PFM quality because the assessments were made in a uniform way and by experts. However, the small sample size is a limitation, especially in its time

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<sup>7</sup> Specifically two dummies are used: one for countries that reach the decision point, after which countries start to receive some debt relief, and one for countries that reach the completion point after which countries start to have effectively debt relief.

series dimension, and there are also inherent inconsistencies in any subjective evaluation of a complex system that must be converted into a numerical score.

The results shown in Table 10 indicate that the quality of PFM has a significant effect on all fiscal variables, although the degree of significance varies. The relationship is strongest for the overall balance, including and excluding grants, interest payments, and the external and central government debt. The PFM overall score is positively and significantly related to the overall balance, both including and excluding grants, in accordance with expectations (and in contrast to the Spearman test). The budget balance is a policy decision. A government could decide to have a more expansionary fiscal stance, even with a well-functioning PFM system. PFM systems thus do not, per se, determine the budget balance, but an efficient PFM system by providing the government with timely and reliable information on the direction of its budget policy and management enables it to manage the outcome more consistently with its intentions. In the overall balance including grants, we also find that corruption has a negative and significant relation with overall balance, as expected. The PFM overall score is negative and significantly related to primary expenditure, and supports the finding of the positive effect of PFM overall score on the overall balance.

**Table 10. Fiscal Outcome as Dependent Variable**

	Overall Balance	Primary Balance	Overall Balance Excluding Grants	Primary Balance Excluding Grants	Interest Payments	Primary Expenditure	PPG External Debt	Gross Central Government Debt
PFM overall score	0.24 (3.00)***	0.14 (1.83)*	0.39 (2.59)**	0.29 (2.01)*	-0.10 (3.55)***	-0.37 (2.15)**	-2.93 (3.00)***	-3.89 (2.94)***
Growth	0.00 (0.06)	-0.03 (0.30)	-0.01 (0.11)	-0.05 (0.38)	-0.04 (1.04)	-0.13 (0.92)	-2.24 (3.15)***	-2.30 (1.80)*
GDP per capita (PPP)	0.00 (0.67)	0.00 (0.81)	0.00 (1.21)	0.00 (1.43)	0.00 (0.47)	-0.00 (0.18)	-0.02 (1.58)	-0.03 (1.26)
Population <15	0.02 (0.07)	-0.02 (0.08)	-0.37 (1.04)	-0.40 (1.24)	-0.03 (0.28)	0.15 (0.34)	1.04 (0.47)	2.82 (0.36)
Literacy	0.05 (1.65)	0.04 (1.40)	0.01 (0.17)	0.00 (0.06)	-0.00 (0.38)	0.01 (0.21)	-0.07 (0.31)	-0.08 (0.15)
Corruption	-2.67 (1.79)*	-1.82 (1.35)	-4.15 (1.40)	-3.29 (1.23)	0.86 (1.12)	6.36 (1.67)	1.84 (0.09)	10.47 (0.23)
Fractionalization	-3.31 (0.77)	-2.50 (0.59)	-3.96 (0.44)	-3.15 (0.35)	0.81 (0.45)	11.83 (1.20)	21.62 (0.39)	67.83 (0.75)
Resource rich	1.72 (0.99)	0.84 (0.48)	5.21 (1.57)	4.33 (1.38)	-0.88 (1.22)	-6.99 (1.94)*	-21.33 (1.23)	-81.59 (1.66)
HIPC decision point	-1.62 (0.64)	-3.88 (1.52)	-0.00 (0.00)	-2.26 (0.59)	-2.26 (1.95)*	4.36 (0.82)	37.96 (1.61)	36.73 (0.61)
HIPC completion point	0.16 (0.15)	-1.70 (1.24)	1.32 (0.62)	-0.54 (0.27)	-1.86 (1.66)	-0.84 (0.31)	-39.78 (2.68)**	-119.91 (1.60)
French	2.36 (1.53)	0.11 (0.06)	3.79 (1.77)*	1.53 (0.70)	-2.26 (3.28)***	-3.79 (1.60)	-25.50 (2.42)**	-71.52 (1.64)
Year dummy 2001	0.47 (0.38)	-1.65 (1.08)	2.89 (1.25)	0.77 (0.33)	-2.12 (2.31)**	-2.86 (1.16)	-34.82 (2.80)***	-97.21 (1.54)
Constant	-24.24 (2.21)**	-8.17 (0.77)	-27.26 (1.85)*	-11.19 (0.87)	16.07 (3.15)***	38.25 (1.95)*	268.03 (2.69)**	382.79 (1.21)
Observations	39	39	39	39	39	39	39	39
R-squared	0.53	0.34	0.54	0.43	0.73	0.47	0.76	0.56

Robust t statistics in parentheses.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

<sup>1</sup> Excluding São Tomé & Príncipe.

The PFM overall score is negatively and significantly related to interest payments, external debt, and gross central government debt, also in accordance with expectations. GDP growth is negatively related to the two debt variables, also in accordance with expectations. The Francophone variable is negative and significantly related to interest payments and external debt, which may be consistent with the need for greater fiscal discipline as a condition of the monetary unions, in which most francophone countries participate. Another explanation is that the Francophone system is more hierarchical in nature, and thus more conducive to fiscal discipline.

The negative and significant relation between debt stocks and PFM quality can be interpreted similarly to the results for overall balances, above. The decision to borrow, especially in the absence of any fiscal rule, is a policy decision, independent of the strength of PFM systems. Thus a government could decide to have a higher level of debt, even with a well-functioning PFM system. However, weaknesses in PFM systems make it more likely that a government will incur liabilities, both internal and external. If rules and procedures to control expenditure and borrowing exist but are not enforced, for instance, the line agencies may incur liabilities, especially wage and suppliers' arrears, when the approved budget is not fully funded. A stronger PFM system, on the other hand, results in better information for the governments on the total amount of liabilities incurred. Improved PFM leads to better control and coverage of government guarantees and debts contracted by other entities within the general government. It captures better information on contingent liabilities (including contingent liabilities coming due), third party contracted sovereign debts such as debt contracted by the state enterprise sector and by the lower levels of the government which are a sovereign liability of the central government. Timely accounting and fiscal data would help governments control contracting of sovereign debt as well as contingent liabilities such as guarantees.

In most of these countries, during this period there was some kind of conditionality, both as part of an IMF program as well as other donor expectations, related to borrowing, both internal and external, which would have limited the size of the debt stock. The results show that countries with stronger PFM systems were more successful in meeting these constraints on borrowing.

Some of these countries that were part of a common central bank had a harder legal constraint on automatic financing of the budget by the central bank. But for others, a shortfall in the cash flows and budget excess could be financed through central bank borrowing. In either case, countries could borrow from other domestic sources and externally. The negative and significant relationship holds for both external and overall debt, thus suggesting the robustness of the result, even for countries with varying monetary regimes. Even though financing of the budget by the central bank may be limited, a weak PFM system may contribute to unrealistic budgeting and subsequent breach of cash limits, and thus may lead to a need for higher financing.

The HIPC decision point is negatively and significantly related to interest payments, as well as to external debt level, as was expected. We do not find any significant relation, however, between the debt relief variables and the fiscal balance measures.

It is important to note that the sample of SSA HIPC countries are chosen systematically because they are heavily indebted, have low income, and also free from armed conflicts, which may generate bias in the estimation of the coefficient, including that for PFM quality, if the relationship between this variable and fiscal outcomes is systematically

related to the decision rule. It is possible to make correction for this bias, but it is difficult given the small sample size.<sup>8</sup>

Detailed quantitative implications and robustness analyses are provided in Annex IV. These include the marginal effects of improvement on PFM and robustness considering panel data estimations and instrumental variables estimation that allow us to increase the sample and correct endogeneity problems.

## V. CONCLUDING REMARKS

This paper has analyzed the link between PFM and fiscal outcomes. Even though data limitations imply that the results must be interpreted with caution, we have presented evidence that there is a positive and significant correlation between PFM quality and fiscal balances, after controlling for important effects, including the HIPC decision and completion points, and a negative and significant correlation between PFM quality and external debt levels, also after controlling for important effects. These results are similar to those found in previous research, including Latin America and Europe.

Another significant finding is that a hierarchical budget or PFM system, as in Francophone Africa, where the Minister of Finance is more powerful, leads to better fiscal discipline. This implies, in policy terms, that there is a good argument for strengthening the fiscal role and responsibilities of the Finance Minister in Anglophone Africa. This finding for SSA is similar to the results found in other regions, and emphasizes the need to consider the carefully the benefits of a more collegial process, which has greater flexibility, versus a more hierarchical process, which yields better fiscal discipline.

These results are important in indicating that improving the quality of PFM can yield significant benefits in terms of better fiscal outcomes, which then has important microeconomic and macroeconomic spillovers to the entire economy.

One of the constraints on the analysis was the inadequacy of the quantitative data. To assess these issues further, a strategy for developing a better data set and a longer time series would be useful. One lesson from the HIPC assessments is that the assessment instrument should be carefully designed in a comprehensive framework, rather than with a specific narrow focus.

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<sup>8</sup> The most commonly used method is the Heckman two-stage approach, available in most econometric software. Alternatively, one can use maximum likelihood techniques, which are more efficient.



## ANNEX I—Country Groups

**HIPC Countries:** Benin, Bolivia, Burkina Faso, Cameroon, Chad, Democratic Republic of Congo, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Guyana, Honduras, Madagascar, Malawi, Mali, Mauritania, Mozambique, Nicaragua, Niger, Rwanda, São Tomé and Príncipe, Senegal, Sierra Leone, Tanzania, Uganda, and Zambia. This group consists of the HIPC countries that were considered for debt relief and therefore PFM assessment. According to the World Bank classification there are a large number of countries classified as HIPC not listed here, but those countries were not considered for debt relief for different reasons such as being engaged in conflict (Somalia and Afghanistan among others).

**Sub-Saharan African HIPC Countries:** Benin, Burkina Faso, Cameroon, Chad, Democratic Republic of Congo, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, São Tomé and Príncipe, Senegal, Sierra Leone, Tanzania, Uganda, and Zambia.

**Includes:**

2001: Benin, Burkina Faso, Cameroon, Chad, Ethiopia, The Gambia, Ghana, Guinea, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Senegal, Tanzania, Uganda, and Zambia.

2004: Benin, Burkina Faso, Cameroon, Chad, Congo, Dem. Rep. of, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda, and Zambia.

**Non sub-Saharan African Countries:** Bolivia, Guyana, Honduras, Nicaragua, and Mauritania (dropped for data reasons).

## ANNEX II—HIPC Assessment Indicators

<b>Budget Formulation</b>	<hr/> <p style="text-align: center;"><b>COMPREHENSIVENESS</b></p> <ol style="list-style-type: none"> <li>1. Budget reporting follows GFS definition of consolidated general government.</li> <li>2. Government activities are not funded through extrabudgetary sources to a significant degree.</li> <li>3. Budget outturn data (levels, functional allocation) are quite close to that of the original budget.</li> <li>4. Budget includes capital and current expenditure financed by donors.</li> </ol> <p style="text-align: center;"><b>CLASSIFICATION</b></p> <ol style="list-style-type: none"> <li>5. Budget classified on an administrative, economic and functional basis.</li> <li>6. Poverty-related expenditure clearly identified in the budget.</li> </ol> <p style="text-align: center;"><b>PROJECTION</b></p> <ol style="list-style-type: none"> <li>7. Multi-year expenditure projections integrated into the budget cycle.</li> </ol> <hr/>
<b>Budget Execution</b>	<p style="text-align: center;"><b>INTERNAL CONTROL</b></p> <ol style="list-style-type: none"> <li>8. Small stock of expenditure arrears; little accumulation of new arrears over past year.</li> <li>9. Internal audit is active.</li> <li>10. Tracking surveys supplement internal control.</li> </ol> <p style="text-align: center;"><b>RECONCILIATION</b></p> <ol style="list-style-type: none"> <li>11. Fiscal and banking reconciliation is undertaken routinely.</li> </ol> <hr/>
<b>Budget Reporting</b>	<p style="text-align: center;"><b>REPORTING</b></p> <ol style="list-style-type: none"> <li>12. Internal budget reports from line ministries/Treasury received within four weeks of the end of the relevant period.</li> <li>13. Functional classification is reflected in the in-year budget reports.</li> </ol> <p style="text-align: center;"><b>FINAL AUDITED ACCOUNTS</b></p> <ol style="list-style-type: none"> <li>14. Closure of the accounts occurs within two months after the end of the fiscal year.</li> <li>15. Audited account presented to the legislature within 12 months of the end of the fiscal year.</li> </ol> <hr/>

Source: World Bank.

### ANNEX III—Variables in the Data Set

**PFM overall score:** corresponds to a numerical score assigned based on the HIPC Public Financial Assessment (2001 and/or 2004). The assessments are transformed into a numerical scale, using the following transformation: “3” for “A”; “2” for “B” and “1” for “C”. After this transformation, the values assigned (3, 2 or 1) for each PFM indicator are added and divided by the maximum possible score. A simplified example for two indicators would be: if a country had assessments of A and B for two indicators, the numerical score would be  $83.3 = (3+2)/6$ . The PFM Overall Score includes indicators 1 to 15 of the HIPC PFM Assessment. As a result the assessment is transformed into a numerical indicator, which shows the PFM performance of the country relative to the best possible assessment (in theory).

**PFM benchmark overall:** corresponds to the number of benchmarks met in the HIPC Public Financial Assessment (2001 and/or 2004).

Source: World Bank.

<http://intranet.worldbank.org/WBSITE/INTRANET/SECTORS/PUBLICSECTORANDGOVERNANCE/INTPUBLICFINANCE/0,,contentMDK:20235429~menuPK:2069256~pagePK:210082~piPK:254376~theSitePK:1339414,00.html#2005>.

**Overall balance:** corresponds to the overall balance of the central government. The variable is expressed as a percentage of GDP.

Source: IMF-WETA database, April 2007, and IMF-WEO database, April 2007.

**Primary balance:** corresponds to the overall balance of the central government excluding interest payments of the central government. The variable is expressed as a percentage of GDP.

Source: IMF-WETA database, April 2007, and IMF-WEO database, April 2007.

**Overall balance excluding grants:** corresponds to the overall balance of the central government excluding grants. The variable is expressed as a percentage of GDP.

Source: IMF-WETA database, April 2007, and IMF-WEO database, April 2007.

**Interest payments:** corresponds to the interest payments of the central government. The variable is expressed as a percentage of GDP.

Source: IMF-WETA database, April 2007, and IMF-WEO database, April 2007.

**Primary balance excluding grants:** corresponds to the overall balance of the central government excluding interest payments of the central government. The variable is expressed as a percentage of GDP.

Source: IMF-WETA database, April 2007, and IMF-WEO database, April 2007.

**Primary expenditure:** corresponds to the total expenditure and net lending of the central government excluding interest payments. The variable is expressed as a percentage of GDP.

Source: IMF-WETA database, April 2007, and IMF-WEO database, April 2007.

**Gross government central debt:** corresponds to the total outstanding and disbursed debt in nominal value. The variable is expressed as a percentage of GDP. The lack of information on this variable for some countries required use of public and publicly guaranteed external debt (Benin, Burkina Faso, Chad, Democratic Republic of Congo, and Zambia) or the use of public debt.

Source: IMF-WEO database, April 2007, and IMF staff reports.

**External debt:** Corresponds to public and publicly guaranteed long-term external debt obligations of public debtors, including the national government, political subdivisions (or an agency of either), and autonomous public bodies, and external obligations of private debtors that are guaranteed for repayment by a public entity.<sup>9</sup> The variable is expressed as a percentage of GDP.

Source: World Bank, World Development Indicators, 2007.

### **PFM overall benchmarks:**

**PFM budget formulation score:** corresponds to a numerical score assigned based on the HIPC Public Financial Assessment (2001 or 2004) for “Budget Formulation.” This indicator includes 7 individual indicators about comprehensiveness and classification and projections of the budget (Indicators 1 to 7 in the HIPC Assessment). The Assessments are transformed into a numerical scale and then divided by the maximum possible score. This indicator follows the same methodology used in the PFM overall score.

Source: World Bank.

**PFM budget execution and reporting score:** corresponds to a numerical score assigned based on the HIPC Public Financial Assessment (2001 or 2004) for the “Budget Execution” and “Reporting” areas. This indicator includes 8 individual indicators about internal control, reconciliation, reporting, and final audited accounts (Indicators 8 to 15 in the HIPC Assessment). The Assessments are transformed into a numerical scale and then

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<sup>9</sup> World Development Indicators definition.

divided over the maximum possible score. This indicator follows the same methodology used in the PFM overall score.

Source: World Bank.

**PFM rules score:** this indicator tries to capture how the legal framework shapes PFM. It corresponds to a numerical score assigned based on indicators of the HIPC Public Financial Assessment (2001 or 2004). This indicator includes 8 individual indicators (Indicators 1, 2, 4, 7, 10, 12, 13, and 15 in the HIPC Assessment). The Assessments are transformed into a numerical scale and then divided over the maximum possible score. This indicator follows the same methodology used in the PFM overall score.

Source: World Bank.

**PFM procedures score:** this indicator tries to capture how the procedures function (the way in which the legal framework is applied). It corresponds to a numerical score based on indicators of the HIPC Public Financial Assessment (2001 or 2004). This indicator includes 7 individual indicators (Indicators 3, 5, 6, 8, 11, and 14 in the HIPC Assessment). The Assessments are transformed into a numerical scale and then divided over the maximum possible score. This indicator follows the same methodology used in the PFM overall score.

Source: World Bank.

### **Other variables:**

**GDP growth:** percentage change in real GDP.

Source: WEO, April 2007.

**GDP per capita at purchasing power parity.**

Source: WEO, April 2007.

**Population under 15:** percentage of overall population under 15 years of age.

Source: World Bank.

**Literacy:** Literacy rates are estimated. The estimation is based in interpolation of the illiteracy rate for the population, 15 years and older from “UNESCO Institute for Statistics, Estimates, and Projections, July 2002 Assessment.” That rate was subtracted from 1 to obtain the literacy rate. For Guinea estimation is based on the 2004 literacy rate (the Human Development Report 2006) and the growth rate of literacy for the region. For São Tomé and Príncipe estimation is based in interpolation of UNESCO Statistics. For

Sierra Leone estimation is based in UNESCO Statistics and the growth rate of literacy for the region.

Source:

[http://www.uis.unesco.org/ev.php?URL\\_ID=5794&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201](http://www.uis.unesco.org/ev.php?URL_ID=5794&URL_DO=DO_TOPIC&URL_SECTION=201).

**French: dummy variable:** taking a value of 1 if the legal origin of the country is French and 0 otherwise.

Source: La Porta, R. Lopez-de-Silanes, F., Shleifer, A., and Vishny, R., 1998, "*The Quality of Government*," National Bureau of Economic Research, NBER Working Paper 6727.

**Fractionalization:** average index of fractionalization for Ethnicity, Language, and Religion.

Source: Alesina, A., Devleeschauwer, A., Kurlat, S., and Wacziarg, R., 2002, "*Fractionalization*," National Bureau of Economic Research, NBER Working Paper 9411.

**Corruption:** World Bank governance indicator of control of corruption, for 2001 is the average 2000 and 2002 and for 2004 is year 2004.

Source: World Bank: Governance Indicator, 1996-2006. <http://info.worldbank.org/governance/wgi2007/>

**Resource rich dummy:** Dummy taking a value of 1 if the country is classified as a resource rich country.

Source: IMF, Fiscal Transparency Resource Guide (2005).

**Time Dummy:** a dummy variable taking a value of 1 for 2001 and 0 for 2004.

**HIPC Decision Point:** dummy variable taking a value of 1 if the country has reached the Decision Point in the HIPC debt relief.

Source: IMF, PDR Database HIPC countries.

**HIPC Completion Point:** dummy variable taking a value of 1 if the country has reached the Completion Point in the HIPC debt relief.

Source: IMF, PDR Database HIPC countries.

## ANNEX IV—Results with Endogeneity Correction

### Additional quantitative analyses

Quantification of the effect of improving PFM on fiscal outcomes can be deduced from the OLS results, notwithstanding the limitations that the quality of institutions is measured with error. Even with these limitations is useful to have an approximate magnitude of the effect of better PFM institutions on fiscal outcomes. Table 11 presents, as an example, the marginal effects associated with a reduction of the proportion of the budget being funded by inadequately reported extrabudgetary funds (equal to an improvement from 1 to 2 in indicator 2 of the HIPC assessment). In this case a country in which extrabudgetary sources are more than 10 percent of the total expenditures, this change would reduce the extrabudgetary sources to around 5 percent of the total expenditures. This would be associated with an improvement in the fiscal balance of around 0.5 percent of GDP. Similarly this would be associated with a reduction of about 6.5 percent of GDP in the level of public and publicly guaranteed external debt. The table below provides more details

**Table 11. Marginal Effects**

	Partial Effect of PFM	Change in the PFM Indicator	Change in the Fiscal Outcome (In percent of GDP)
	(a)	(b)=(2-1)/(3*15)	(c)=(a)*(b)
Overall balance	0.24	2.22	0.53
Primary balance	0.14	2.22	0.31
Overall balance excluding grants	0.39	2.22	0.87
Primary balance excluding grants	0.29	2.22	0.64
Interest payments	-0.10	2.22	-0.22
Primary expenditure	-0.37	2.22	-0.82
PPG external debt	-2.93	2.22	-6.50
Gross central government debt	-3.89	2.22	-8.64

## Robustness

It is desirable to control for specific characteristics of each country that might influence fiscal outcomes.<sup>10</sup> We thus explore various panel data estimations with the SSA data set, for two variables—overall balance including grants and external debt. The panel data specifications include between countries, fixed effects, random effects, and random effects maximum likelihood. Although panel data can be very useful, the potential to exploit the panel data set is limited by the small number of cross-sectional observations and only two years of data. The results, presented in tables 12 and 13, show that the main conclusions are reasonably robust to the specification, though there are some differences.

Starting with the overall balance as the dependent variable, the between effect estimation, which is a simple cross-sectional estimation that only considers the variation across countries, shows a positive and significant correlation between PFM quality and budget balance. The fixed effects estimation, which measures the changes within a country, does not show this significant relation, and in fact, the opposite sign, but it is limited as a result of the small number of time-series observations and to the small changes in the PFM indicators over the two years of the sample.

The random effects and the random effects maximum likelihood estimation, which consider both the changes across and within countries, show a positive and significant correlation between the PFM quality and budget balance. In this latter estimation, literacy is positive and significant and corruption and fractionalization (marginally) are negative, all in accordance with expectations. In addition, we find that Francophone countries have a better budget balance, all else the same.

Turning to the external debt variables as dependent variable, we find that in all the panel data estimations, we obtain a negative and significant relationship between PFM quality and external debt levels. In the random effect estimations, we find that GDP per capita is negative and significant (and growth is negative and significant in the random effects maximum likelihood as well). We obtain a positive and significant coefficient for the HIPC decision point in all but the between countries estimation, where the completion point is negative and significant, as in the OLS estimation. A Francophone system is correlated with a better debt outcome, only in the random effect maximum likelihood estimation.

Altogether, the results of the panel data estimations for both the overall fiscal balance and external debt variables present essentially the same picture as the OLS estimation for the

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<sup>10</sup> In theory the cross-country OLS estimation is affected by the omitted variables bias. In other word the omission of some variables may be producing biased and inconsistent estimations. In practice only fixed effect estimation allows us to correct this but the limited number of observations constrains this estimation.



PFM variable, thus suggesting that the result that better PFM leads to better fiscal outcomes is robust to the specification.

**Table 12. Overall Balance as Dependent Variable**

SSA HIPC <sup>1</sup>				
	Between Countries	Fixed Effects	Random Effects	Random Effects Maximum Likelihood
PFM overall score	0.31 (5.72)***	-0.13 (1.03)	0.23 (2.61)***	0.24 (4.84)***
Growth	-0.10 (1.01)	-0.13 (1.19)	0.02 (0.29)	0.00 (0.02)
GDP per capita (PPP)	-0.00 (0.13)	-0.00 (0.05)	0.00 (0.76)	0.00 (0.92)
Population <15	-0.29 (1.45)	0.36 (0.50)	0.05 (0.24)	0.03 (0.20)
Literacy	0.03 (1.52)	0.76 (0.84)	0.05 (1.53)	0.05 (2.06)**
Corruption	-3.35 (1.92)*	-5.30 (1.19)	-2.28 (1.56)	-2.51 (1.67)*
Fractionalization	-7.34 (1.67)		-3.26 (0.71)	-2.97 (0.76)
Resource rich	4.93 (3.73)***		1.49 (0.82)	1.61 (1.39)
HIPC decision point	5.10 (0.98)	8.06 (2.86)**	-1.56 (0.65)	-1.90 (0.69)
HIPC completion point	5.02 (2.40)**	-1.52 (0.68)	-0.44 (0.53)	-0.22 (0.23)
French	2.06 (2.20)*		2.14 (1.26)	2.37 (2.59)***
Constant	-18.82 (1.90)*	-60.43 (0.89)	-24.77 (2.12)**	-24.87 (2.75)***
Observations	39	39	39	39
Number of countries	21	21	21	21
R-squared	0.89	0.55		

Absolute value of t statistics in parentheses.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

<sup>1</sup> excluding São Tomé & Príncipe.

**Table 13. External Debt as Dependent Variable**

	SSA HIPC <sup>1</sup>			
	Between Countries	Fixed Effects	Random Effects	Random Effects Maximum Likelihood
PFM overall score	-3.23 (3.26)***	-2.03 (2.99)**	-3.09 (3.14)***	-3.33 (5.72)***
Growth	-2.83 (1.62)	0.04 (0.05)	-0.73 (1.49)	-1.87 (2.39)**
GDP per capita (PPP)	-0.02 (1.20)	-0.09 (2.02)*	-0.03 (2.30)**	-0.02 (1.72)*
Population <15	2.68 (0.73)	-2.13 (0.54)	-2.54 (1.00)	-0.58 (0.27)
Literacy	-0.24 (0.57)	5.29 (0.98)	-0.03 (0.09)	-0.06 (0.23)
Corruption	2.14 (0.07)	-2.29 (0.08)	-20.38 (0.82)	-12.61 (0.71)
Fractionalization	81.07 (1.00)		-7.93 (0.11)	-5.75 (0.12)
Resource rich	-42.03 (1.72)		-11.98 (0.44)	-12.76 (0.94)
HIPC decision point	-75.50 (0.79)	40.85 (2.77)**	57.14 (2.61)***	62.47 (2.03)**
HIPC completion point	-91.00 (2.35)**	-5.20 (0.42)	3.93 (0.52)	-8.09 (0.79)
French	-17.76 (1.02)		-21.90 (1.14)	-25.35 (2.34)**
Constant	308.57 (1.68)	116.57 (0.31)	395.79 (3.12)***	326.61 (3.06)***
Observations	39	39	39	39
Number of countries	21	21	21	21
R-squared	0.86	0.71		

Absolute value of t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

<sup>1</sup> Excluding São Tomé & Príncipe.

## Controlling for endogeneity

The small number of observations does not allow for the usual Granger causality test to investigate the endogeneity of the PFM quality explanatory variable and the lack of good instruments for PFM indicators constrained the use instrumental variables. One way to correct for any possible endogeneity is to use lagged explanatory variables as instruments for the PFM quality variable. In this case, PFM was instrumented with the lags in: (i) growth; (ii) percent of population under 15; (iii) corruption; (iv) the HIPC decision point; and (v) the HIPC completion point. In order to expand the sample the pfm variable was predicted for all years (and not just 2001 and 2004), increasing the sample from 39 to 126 observations. The results, presented in tables 14–16, are similar, and specifically with regard to the PFM variable, though with some loss of significance. One anomaly is the negative relationship between growth and the fiscal balance measures in some regressions.

## Results with Endogeneity Correction

**Table 14. Fiscal Outcome as Dependent Variable**

	SSA HIPC							
	Overall Balance	Primary Balance	Overall Balance Excluding Grants	Primary Balance Excluding Grants	Interest Payments	Primary Expenditure	PPG External Debt	Gross Central Government Debt
PFM overall score (fitted)	0.36 (1.35)	0.10 (0.36)	0.87 (3.71)***	0.60 (2.80)***	-0.26 (3.75)***	-0.48 (2.40)**	-6.67 (3.95)***	-17.49 (3.44)***
Growth	-0.16 (1.62)	-0.14 (1.46)	-0.29 (2.40)**	-0.28 (2.49)**	0.01 (0.49)	0.06 (0.59)	-1.61 (1.80)*	-0.12 (0.07)
GDP per capita (PPP)	0.00 (0.03)	0.00 (0.11)	0.00 (1.66)	0.00 (1.85)*	0.00 (0.41)	-0.00 (1.31)	-0.02 (3.18)***	-0.04 (2.54)**
Population <15	0.06 (0.27)	0.01 (0.04)	-0.19 (1.02)	-0.25 (1.42)	-0.06 (1.01)	0.06 (0.28)	0.01 (0.00)	5.98 (1.23)
Literacy	0.02 (0.38)	0.03 (0.50)	-0.07 (1.61)	-0.06 (1.52)	0.01 (0.99)	0.02 (0.53)	-0.10 (0.52)	0.69 (1.27)
Corruption	-8.10 (2.14)**	-5.48 (1.44)	-11.94 (3.22)***	-9.31 (2.64)***	2.63 (3.40)***	7.39 (2.54)**	37.79 (2.02)**	118.58 (2.11)**
Fractionalization	-21.04 (2.05)**	-20.10 (1.96)*	-12.83 (1.47)	-11.90 (1.39)	0.93 (0.84)	11.12 (2.00)**	62.43 (1.21)	93.20 (1.26)
Resource rich	5.65 (2.86)***	4.63 (2.33)**	6.36 (2.79)***	5.33 (2.40)**	-1.02 (2.59)**	-6.44 (3.50)***	-29.73 (2.18)**	-122.63 (3.81)***
HIPC decision point	-6.07 (0.85)	-0.82 (0.11)	-21.79 (3.35)***	-16.55 (2.90)***	5.25 (2.35)**	16.10 (2.47)**	147.01 (2.98)***	379.87 (2.70)***
HIPC completion point	4.19 (1.10)	4.46 (1.16)	-3.88 (1.66)	-3.61 (1.67)*	0.27 (0.41)	2.87 (1.35)	6.54 (0.40)	26.30 (0.62)
French	2.42 (1.91)*	-0.36 (0.27)	2.81 (2.39)**	0.03 (0.03)	-2.78 (7.34)***	-3.92 (3.37)***	-30.75 (3.72)***	-118.43 (3.71)***
Year Dummy 2001	-0.15 (0.11)	-0.66 (0.47)	-1.34 (0.80)	-1.85 (1.27)	-0.51 (0.78)	0.22 (0.14)	1.42 (0.09)	-17.35 (0.54)
Constant	-19.57 (1.39)	0.13 (0.01)	-34.30 (3.42)***	-14.59 (1.54)	19.71 (7.36)***	36.53 (3.39)***	432.11 (6.36)***	766.72 (4.20)***
Observations	126	126	126	126	126	126	105	105
R-squared	0.23	0.15	0.29	0.25	0.63	0.31	0.54	0.56

Robust t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1 %.

<sup>1</sup> Excluding São Tomé and Príncipe.

Table 15. Overall Balance as Dependent Variable

SSA HIPC <sup>1</sup>				
	Between Countries	Fixed Effects	Random Effects	Maximum Likelihood Random Effects
PFM overall score (fitted)	-0.05 (0.07)	0.63 (1.64)	0.43 (1.81)*	0.35 (1.39)
Growth	-0.18 (0.45)	-0.20 (1.94)*	-0.16 (1.69)*	-0.15 (1.07)
GDP per capita (PPP)	-0.00 (0.74)	0.00 (0.40)	0.00 (0.50)	0.00 (0.03)
Population <15	0.03 (0.07)	1.36 (0.81)	0.07 (0.21)	0.06 (0.21)
Literacy	0.02 (0.32)	0.70 (1.49)	0.03 (0.39)	0.02 (0.53)
Corruption	-2.25 (0.37)	-19.08 (2.17)**	-10.47 (2.61)***	-8.05 (2.30)**
Fractionalization	-20.06 (1.81)		-22.81 (1.76)*	-21.09 (2.99)***
Resource rich	8.20 (2.26)*		5.00 (2.09)**	5.66 (2.72)***
HIPC decision point	15.33 (0.70)	-16.03 (1.71)*	-8.52 (1.50)	-5.77 (0.81)
HIPC completion point	10.04 (1.05)	0.67 (0.25)	3.54 (1.22)	4.31 (1.60)
French	1.75 (0.76)		2.48 (1.45)	2.41 (1.54)
Constant	-9.29 (0.31)	-141.55 (1.71)*	-23.10 (1.44)	-19.39 (1.24)
Observations	126	126	126	126
Number of countries	21	21	21	21
R-squared	0.55	0.24		

Absolute value of t statistics in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

<sup>1</sup> Excluding São Tomé and Príncipe.

**Table 16. External Debt as Dependent Variable**

SSA HIPC <sup>1</sup>				
	Between Countries	Fixed Effects	Random Effects	Maximum Likelihood Random Effects
PFM overall score (fitted)	-3.20 (0.49)	-0.94 (1.81)*	-1.22 (2.06)**	-2.19 (1.36)
Growth	-4.90 (1.27)	-0.10 (0.39)	-0.20 (0.66)	-0.36 (0.51)
GDP per capita (PPP)	-0.02 (0.67)	-0.01 (0.44)	-0.04 (3.99)***	-0.04 (2.00)**
Population <15	1.44 (0.27)	-6.15 (1.25)	-3.28 (1.11)	-2.28 (0.54)
Literacy	-0.39 (0.52)	-3.72 (1.13)	-0.64 (1.14)	-0.38 (0.65)
Corruption	34.42 (0.53)	24.16 (1.63)	20.54 (1.45)	15.68 (0.56)
Fractionalization	152.14 (1.22)		81.05 (0.74)	57.05 (0.57)
Resource rich	-51.58 (1.17)		4.47 (0.16)	-2.52 (0.10)
HIPC decision point	-46.06 (0.21)	27.65 (1.77)*	32.04 (2.00)**	53.94 (1.29)
HIPC completion point	-89.31 (0.90)	-6.42 (0.93)	-7.46 (1.08)	-4.70 (0.35)
French	-30.09 (1.23)		-20.48 (0.78)	-21.11 (0.91)
Constant	334.93 (1.05)	631.06 (1.94)*	347.71 (2.69)***	340.58 (1.76)*
Observations	105	105	105	105
Number of countries	21	21	21	21
R-squared	0.75	0.38		

Absolute value of t statistics in parentheses.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

<sup>1</sup> Excluding São Tomé and Príncipe.

### Non-SSA HIPC regressions

Finally, the regression analysis including Non-SSA HIPC countries shows similar results, although the levels of significance are slightly weaker. This may reflect that different teams worked in different regions and therefore the criteria for assessing PFM attributes varied by region and the measurement of the subjective variables was less uniform.

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