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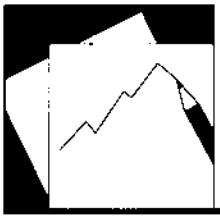

IMF Working Paper

Fiscal Policy Implementation in Sub-Saharan Africa

Victor Lledó and Marcos Poplawski-Ribeiro

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Fiscal Policy Implementation in Sub-Saharan Africa[1]

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Abstract

This paper investigates economic, political, and institutional constraints to fiscal policy implementation in sub-saharan Africa. We find that planned fiscal adjustments or expansions are less likely to be implemented the larger they are, the more inaccurate the growth forecasts they are based on, the more fragile the regulatory system in the country, and the weaker the institutions framing the design, approval, and execution of the budget. The findings support ongoing efforts in the region to improve the quality and timeliness of economic data; enhance forecasting capacity; adopt realistic fiscal plans; and strengthen governance, budgetary institutions, and public financial management procedures.

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I. INTRODUCTION

Fiscal policy implementation in any country is subject to a number of constraints. They arise from difficulties in, among other things, (i) real time forecasting of downturns and recoveries; (ii) strategic considerations that lead to overambitious fiscal targets;[2] (iii) lengthy budget procedures; and (iv) political pressure to overspend or undertax.

Fiscal policy implementation is particularly challenging in sub-Saharan Africa (SSA). In that region, additional constraints include poor data quality, weaknesses in forecasting capacity, large and frequent macroeconomic shocks, inadequate budget institutions, dependency from volatile and unpredictable aid flows, slow project execution, and less stable political systems. Such factors have often been identified as reasons fiscal policies in SSA have tended to be more procyclical than elsewhere (IMF, 2008; Lledó, Yackovlev, and Gadenne, 2009); and, given that procyclical fiscal policies in Africa have been shown to affect the real economy, reasons fiscal policies typically have been perceived more as cause than cure for excess macroeconomic volatility in the region (Carmignani, 2010).

But how challenging is fiscal policy implementation in the region? Does it differ from other countries? What are its main constraints? This paper addresses these questions empirically in two steps. Firstly, it measures fiscal policy implementation gaps, defined as changes in fiscal plans and outturns, for a large number of countries in different sub regions and levels of development to benchmark fiscal policy implementation in SSA. Secondly, the paper uses these implementation gap measures in an econometric model to investigate the relevance for fiscal policy implementation in SSA countries of the most commonly identified economic, political, and institutional constraints. Notably, we analyze the effects on fiscal policy implementation in SSA of forecast errors of key budget parameters (growth, inflation, and terms of trade); the quality of political and budget institutions; and the role of aid unpredictability.

Following the methodology of Cimadomo (2007) and Beetsma, Giuliodori, and Wierts (2009), we estimate fiscal reaction functions using a new real-time dataset for SSA countries. In particular, we proxy planned changes in fiscal policy by real-time, one-year-ahead fiscal projections; that is, the fiscal forecasts available to policy makers when they are preparing budget plans. We measure such implemented changes in fiscal policy using the latest available fiscal data. *World Economic Outlook* (WEO) fall projections and historical series are used to ensure comparability across countries.

A regional comparison indicates that fiscal policy implementation gaps in SSA tend to be on average comparable to, but more dispersed than in other regions. This is due mainly to quite distinct patterns among SSA country groups. Revenue shortfalls tend to be more prevalent among oil exporters, while overspending prevails among middle-income countries; a combination of both is the norm in the low-income subgroup. Jointly these patterns explain why planned fiscal consolidations in sub-Saharan Africa sometimes end in fiscal expansions.

[2] For example, overly optimistic predictions of economic growth and tax revenues to ensure compliance with ex ante fiscal rules.

Our econometric results suggest that planned fiscal adjustments or fiscal expansions in sub-Saharan Africa are less likely to be implemented the larger they are. Under some specifications, we also find fiscal implementation in the region to falter the more inaccurate the growth and terms of trade forecasts they are based upon; the higher the initial stock of debt; the larger the difference between committed and disbursed aid; the lower the quality of the regulatory system in the country; and the weaker the fiscal institutions framing the design, approval, and implementation of the budget. Taken together these results further advance the case for sustaining ongoing efforts to improve the quality and timeliness of economic data, enhance forecasting capacity, adopt realistic fiscal plans, and strengthen the regulatory framework in the country and the institutions related to the budget and public financial management procedures.

The rest of the paper is organized as follows. Section II briefly reviews the theoretical background and literature on fiscal policy implementation, particularly in sub-Saharan Africa. Section III reports the methodology used to benchmark fiscal implementation gaps and account for their cross-country variability. Section IV summarizes our empirical results. Section V concludes the paper, fleshing out some policy recommendations and proposing some areas for future research.

II. Theoretical Background and Literature Review

Fiscal policy implementation models envisage maximizing the utility of public sector fiscal decision makers. These decision makers can be thought to possess well-behaved and homothetic preferences, behaving as if they were a single individual. In any year they determine specific budgetary expenditure appropriations financed by revenues and other financial sources (Feeny and McGillivray, 2010).

Typically approved by parliament or a delegated authority, the appropriations permit public sector agencies to incur obligations and to make payments from the revenues at their disposal. They also attempt to achieve exogenously determined annual targets for the actual (endogenous) overall balance, expenditure, and revenue, subject to budget constraints. Annual expenditure appropriations and revenue estimates are usually formulated and published in the year before the one to which they apply.

Thus, the utility of public sector fiscal decision makers could be described by the following quadratic function:

$$U = \alpha - \sqrt{\left(B_t - B_t^*\right)^2} = \alpha - \left|B_t - B_t^*\right|, \tag{1}$$

where B_t is the actual (realized) overall budget balance for period t, and B_t^* is the correspondent target (or planned) budget balance for the same period.
The welfare loss function (1) represents the disutility for fiscal authorities of gaps in the budget balance implementation. There, the maximum unconstrained level of decision maker utility is α, which is reached if the budget target is exactly achieved. Following Binh and McGillivray (1993), it also can be approximated to represent the disutility with implementation gaps in expenditures and revenues separately as follows:

$$U = \alpha - \beta\left|E_t - E_t^*\right| - \gamma\left|R_t - R_t^*\right|, \quad (2)$$

where E_t is actual expenditure aggregates, R_t is actual revenue aggregates, E_t^* and R_t^* are corresponding targets or plans, α is a constant, and β and γ are weights of the disutility of each gap in the fiscal authorities' utility function.

Beetsma, Giuliodori, and Wierts (2009) rewrite the gaps in (1) and (2) in terms of *changes* in alternative fiscal outcomes (actual vs. planned changes) and call these gaps "implementation errors." Using real-time data from Europe's Stability and Convergence Programs, they explore how fiscal plans and their implementation in the European Union are determined and show the importance of the magnitude of planned adjustments and growth surprises to explain the errors. Their other main findings are that implemented adjustments fall systematically short of plans. The variability in eventual fiscal outcomes is, in turn, dominated by the implementation errors. Further, more ambitious plans lead to more stock-flow adjustment relative to what was planned, so governments try to limit the errors with more creative accounting. A significant but limited role for political factors in determining fiscal policy in its two stages (planning and implementation) is obtained. Planned budgetary adjustments and adherence to those plans are also positively related to the strength of national fiscal institutions. Hence, improving fiscal governance at the national level appears effective at promoting fiscal discipline.

Cebotari and others (2009) define similar gaps as in (1) and (2) as "fiscal risks." These authors analyze the main sources of fiscal risks, including unanticipated changes in macroeconomic variables and contingent liabilities in the banking system, public enterprises, subnational governments, for 35 countries, most of them advanced economies or emerging markets, with only four SSA countries (Gabon, Ghana, Nigeria, Tanzania). They argue that fiscal outturns often differ substantially from budget or other fiscal projections owing to shocks such as deviations of economic growth from expectations, terms of trade shocks, natural disasters, calls on government guarantees, or unexpected legal claims on the state.

Auerbach (1995) and Leal and others (2007) also study policy forecast errors. According to them, such errors stem from errors owing to policy, economic, and technical (behavioral) actions. Policy errors are due to actions on the course of fiscal policy that involve the unanticipated implementation of new measures or the cancellation of previously announced measures. Economic errors can be explained by wrong forecasts of macroeconomic variables used in the budget projections (e.g., GDP). Finally, technical errors are due to all other remaining actions. They might in part derive from behavioral responses but also from model misspecification on the fiscal side.

Even though the association of (1) and (2) to "fiscal risks" or "implementation errors" is relevant for more developed economies; we prefer to use here the more neutral term "implementation gap". That is because some differences between fiscal plans and outturns in SSA may in fact be appropriate policy responses to changes in the business cycle and its more fragile and shock-prone economic environment than in more advanced economies. Moreover, gaps in SSA may be more related to low technical, political, and institutional capacity than to risks themselves. In particular the effect of financial liabilities in those

countries may not be as high as in advanced and emerging economies given the low development level of the financial sector in SSA.

Our empirical analysis also borrows from the recent literature on real-time data in fiscal policy. Real-time data relies on macroeconomic forecasts that policy makers possess at the moment fiscal policy decisions are made. As Orphanides (2001) emphasizes, policy decisions should be evaluated based on this information, and not on ex post, revised data. In particular, budgetary decisions for a given year are generally made in the fall of the year before, on the basis of the information and forecasts available at that moment. In the field of fiscal policy, real-time data has been used already for advanced and Eastern European economies.[3] However, to the best of our knowledge, this is the first time this approach is being used to analyze fiscal policy implementation in SSA.

Another branch of empirical literature relevant for our paper is the one assessing the effect of governance and budgetary institutions on fiscal policy outcomes in developing countries.[4] In SSA, Dabla-Norris and others (2010) and Gollwitzer (2011), for example, construct indexes of quality of budget institutions and show that strong budget institutions help improve fiscal balances and public external debt outcomes. A subset of this "budget institutions-fiscal outcomes" literature has looked at public financial management (PFM) in SSA. Prakash and Cabezon (2008) show that a hierarchical budget or public financial management (PFM) system, where the minister of finance is more powerful, seems to lead to better fiscal discipline. Andrews (2010) finds that SSA budgets are made better than they are executed (upstream processes are stronger than downstream processes, see also Peterson, 2010).

The last field of literature relevant for our paper is the incipient, but rapidly growing research on fiscal policy implementation and budget practices specific to sub-Saharan Africa (see Gollwitzer, 2011). Based on country surveys, the Collaborative African Budget Initiative (CABRI) has prepared a report about budget practices on 26 African countries (CABRI, 2008). In turn, the Africa Infrastructure Country Diagnostic (AICD) has compiled several analysis and working papers with case studies on the subject for SSA countries. Empirical evidence from those studies suggests that some African countries may leave unspent up to a quarter of their capital budgets and a third of their recurrent budgets for a given fiscal year (see www.infrastructureafrica.org/aicd). We contribute to this mostly qualitative literature by measuring, in a systematic way, gaps in fiscal policy implementation in the region and by econometrically assessing potential causes of these gaps in the overall balance, expenditures and revenues.

[3] See for example, Cimadomo (2011), Giuliodori and Beetsma (2008), Beetsma, Giuliodori, and Wierts (2009), Cebotari and others (2009), Lewis (2009), and Poplawski-Ribeiro and Rülke (2011).

[4] This literature is vast. On the links among public spending, governance, and outcomes see the recent paper of Rajkumar and Swaroop (2008) and references therein. The literature on budgetary institutions and fiscal outcomes, in turn, dates back to Alesina and others (1999). Dabla-Norris and others (2010) provide a recent overview with a focus on low-income countries.

III. METHODOLOGY

This section formalizes the concepts and empirical model used to benchmark and analyze fiscal policy implementation in sub-Saharan Africa.

A. Defining and Benchmarking Fiscal Implementation Gaps

Given the focus on fiscal adjustments and fiscal expansions, fiscal policy is defined in terms of changes in alternative fiscal outcomes (df). Accordingly, changes in fiscal overall balances, expenditures, and revenues as a percent of GDP between the fiscal years $t+i$ and $t+i-1$ are analyzed with the data available or published at time t' for each country as

$$df_{j,t'}^{t+i} = f_j\left(t+i,t'\right) - f_j\left(t+i-1,t'\right), \qquad for\, i = 1,2,3,\ldots, \tag{3}$$

where j is the particular SSA country under analysis.

Modifying the utility functions (1) and (2) according to Beetsma, Giuliodori, and Wierts (2009), implementation gaps (or spreads), $gap_{j,t}$, for each country are defined as the absolute values of the differences between actual and planned changes in fiscal outcomes.[5] Actual changes are those based on the latest available fiscal outturns (i.e., t' equals $t+i$). Planned changes are those envisaged at the time the budget is formulated (i.e., t' equals t). Thus, for each country j, $gap_{j,t}$ can be defined as follows:

$$gap_{j,t}^{t+i} = abs\left(df_{j,t+1}^{t+i} - df_{j,t}^{t+i}\right) = abs\begin{pmatrix}\left[f_j\left(t+i,t+i\right) - f_j\left(t+i-1,t+i\right)\right] \\ -\left[f_j\left(t+i,t\right) - f_j\left(t+i-1,t\right)\right]\end{pmatrix}, \quad for\, i = 1,2,3,\ldots, \tag{4}$$

where $abs(\bullet)$ is the absolute value operator.

Using the definition above, fiscal policy implementation in SSA is benchmarked against other regions by comparing averages of implementation gaps, $gap_{j,t}^{t+i}$, for SSA as a whole and other specific African subgroups to other regional averages.

B. Analyzing Fiscal Policy Implementation Determinants

In view of the limited number of observations per country, the determinants of the fiscal policy implementation gaps are studied in a panel setup. They are modeled as functions of (i) the magnitude of planned fiscal policy changes, $df_{j,t}^{t+1}$; (ii) the forecast errors in macroeconomic assumptions such as growth, inflation, and the terms of trade; and (iii) the

[5] In the Appendix, we also analyze these differences in levels besides absolute values. Differences in absolute values indicate the overall divergence between actual and planned changes in fiscal outcomes, but may mask over-performance of plans. In turn, differences in levels point to the bias in these changes. For another study of fiscal gaps using absolute values see Poplawski-Ribeiro and Rülke (2011).

degree of democracy and political competition given by a set of political indicators, $pol_{j,t+1}$. The use of other macroeconomic variables forecast errors helps us in analyzing implementation gaps rather than only fiscal forecast errors.

Further, the empirical model includes as additional explanatory variables (i) the lag of the implementation gaps, $gap^{t}_{j,t-1}$; (ii) the stock of public debt in the previous period, $debt^{t-1}_{j,t}$; (iii) the gap between committed versus disbursed aid over GDP, $aid_{j,t+1}$;[6] and (iv) the quality of governance and the level of budgetary institutional capacity given by a set of indicators, $cap_{j,t+1}$.

These relationships are estimated in real time to proxy the information sets available for the policy makers at the time they made their decisions.[7] The empirical model is estimated for implementation gaps in the overall balance as well as in expenditures and revenues similar to (1) and (2), respectively. It can be described as follows:

$$gap^{t+1}_{j,t} = \begin{bmatrix} \alpha_j + \lambda_{t+1} + \beta_1 gap^{t}_{j,t-1} + \beta_2 abs\left(df^{t+1}_{j,t}\right) + \beta_3 abs\left(x^{t+1}_{j,t+1} - x^{t+1}_{j,t}\right) + \\ \beta_4 debt^{t-1}_{j,t} + \beta_5 abs\left(aid_{j,t+1}\right) + \beta_6 pol_{j,t+1} + \beta_7 cap_{j,t+1} + \varepsilon_{j,t+1} \end{bmatrix}, \qquad (5)$$

where α_j and λ_{t+1} stand for the country and time fixed effects, respectively; and $x^{t'}_{j,t'}$ is a vector capturing relevant macroeconomic variables in logs (real GDP growth, inflation, and terms of trade). As before, superscripts denote the corresponding fiscal year *for which* the forecast/assumption was made, and subscripts the year *when* the forecast/assumption was made. $\varepsilon_{j,t+1}$ is an i.i.d. error term.

Implementation gaps are expected to have some inertia with β_1 significantly larger than zero. They may also increase with larger planned changes in fiscal policy and with deviations between forecasts and realizations of GDP growth, inflation, and terms of trade $(\beta_2, \beta_3 > 0)$. These latter deviations may reflect weak forecasting capacity or "strategic" forecasts.[8]

Unexpected changes in macroeconomic variables often have major consequences for fiscal implementation and sustainability. Forecast errors in CPI inflation may affect fiscal

[6] As a robustness check we also used aid over GDP coming from the IMF WEO. The qualitative results are practically the same in all estimations, while aid over GDP is less significant than the gap between committed and disbursed aid over GDP.

[7] Hence, any potential measurement error here concerns the deviation of the dataset from the policy makers' datasets, not the accuracy with which the data approximates the eventual outcomes of variables such as output.

[8] "Strategic" forecasts are defined as intentional (often politically motivated) decisions to bias basic macroeconomic assumptions with the objective of meeting a specific fiscal target (e.g., higher growth overestimates revenues and underestimates fiscal balances). See Beetsma, Giuliodori, and Wierts (2009) for more specific examples.

implementation via bracket creep in taxes (tax brackets are not fully adjusted or are adjusted with only a lag to inflation); seigniorage revenues; and, to the extent that it is unexpected, the effect on the real debt servicing costs when debt is nominal (see Poplawski-Ribeiro, 2009, and references within).[9] Forecast errors on terms of trade may lead to forecast errors either on total revenue in commodity-exporting-, or on total spending in commodity-importing countries. They may be even bigger than forecast errors in other macroeconomic statistics given the high volatility of commodity prices.[10]

The relationship between implementation gaps and the realized stock of debt in the previous period, $debt_{j,t}^{t-1}$, is also investigated. On one hand, a higher stock of debt may lead to larger implementation gaps $(\beta_4 > 0)$ given changes in interest rate spreads and/or abrupt changes in the debt stock itself, which could hinder a correct forecasting of fiscal variables. On the other hand, but arguably of less relevance for SSA, a larger stock of debt may reduce the gaps since it can increase liquidity in the bonds market (Gómez-Puig, 2006), easing improved fiscal implementation $(\beta_4 < 0)$.

The difference between committed and disbursed aid over GDP is also investigated because for low-income countries, volatile aid flows and the need to cushion the poor from external shocks present special challenges (Feeny and McGillivray, 2010). In some highly aid-dependent countries, aid tends to be more volatile than fiscal revenue, and shortfalls in aid and domestic revenue tend to coincide. More generally, uncertainty about aid disbursements is large, and the information content of commitments made by donors is limited (Bulíř and Hamann, 2003). A higher gap on committed versus disbursed aid over GDP may, therefore, be associated with higher implementation gaps $(\beta_5 > 0)$.

The political situation, transition after an election, and unanticipated demands from particular constituencies are other variables that may affect the implementation of planned fiscal policy. This is especially the case in African countries, where political transitions from one administration to another or even the surge of conflicts can significantly alter the implementation of fiscal policy. At the same time, lack of institutional checks and balances grants the possibility of discretion to government officials and, with that, the ability to deviate from agreed fiscal plans. Therefore, implementation gaps are expected to decline the more democratic, accountable, and competitive, the political system in a given country is $(\beta_6 < 0)$.

[9] For an analysis of the relationship between fiscal policy and inflation in SSA see Baldini and Poplawski-Ribeiro (2011). For a discussion focusing on the CEMAC countries, see Caceres, Poplawski-Ribeiro, and Tartari (2011).

[10] Accordingly, Furceri and Poplawski-Ribeiro (2009) shows for a sample of 160 countries between 1960 and 2000 that oil exporting countries have a significantly higher volatility of government consumption than other countries owing to the volatility in oil prices and, consequently, volatility in revenue. Country size is found to be one of the main significant variables in explaining government consumption volatility in their sample.

Finally, implementation gaps are also expected to decline with improved quality of institutions $(\beta_7 < 0)$, including the quality of fiscal institutions regulating different stages of the budget process (i.e., from the design to the audit of fiscal plans). Institutions may be particularly relevant to fiscal implementation in SSA countries. For instance, the quality of budgetary institutions is relevant for SSA countries because quality is on average still low, significantly affecting their fiscal planning and execution capacity (Allen, 2009).

Regarding the econometric methodology, the empirical model (5) is estimated using two estimation techniques. The first is the simple Fixed Effects Ordinary Least Squares (FE-OLS). Further, to provide consistent and efficient estimators, that model is also regressed using the Arellano-Bond2 System Generalized Method of Moments (System GMM)—see Blundell and Bond (1998), and Roodman (2006). When using this latter approach, the planned fiscal changes and the GDP growth forecast errors are treated as endogenous variables and estimated simultaneously in (5). In addition, the dependent variables and GDP growth forecast errors are instrumented by their first lag. These instruments are collapsed using stata command *collapse* to limit instrument proliferation and improve the estimations.

In the System GMM approach, the R^2 statistic is not reported because in instrumental variable (IV) estimations that statistic is no more bounded between 0 and 1 (Baum, Schaffer and Stillman, 2003). Thus, in regressions with that technique the F test of overall model fit is reported together with the Hansen test of overidentified restrictions and the Aurellano-Bond test of second-order serial correlation in first-differences (see Roodman, 2006). Moreover, we use robust standard errors to avoid heteroskedasticity owing to potential measurement errors in the fiscal implementation gaps.

A statistical procedure is also applied to identify outlier countries. With this procedure, when an SSA country has one of its (independent or dependent) variables either above the sample average plus three times the sample standard deviation or below the sample average minus three times the sample standard deviation, it is excluded from the sample. The outlier countries excluded from the econometric analysis by this procedure are Equatorial Guinea, São Tomé e Príncipe, and Zimbabwe.[11] Liberia is also excluded from the sample in most of the estimations because data on the forecast errors on terms of trade was missing for this country. In addition, for the econometric analysis of the expenditure implementation gap, besides these four countries, Guinea-Bissau is excluded as another outlier.[12]

C. Dataset

Table 1 lists all variables constructed and used in our empirical analysis. The macroeconomic variables used in the ensuing empirical analysis are calculated using the fall *World Economic*

[11] The same outliers are found by using the *dfbeta* procedure in Stata. Equatorial Guinea is an outlier on the forecast error of the nominal GDP growth rate. São Tomé e Príncipe is an outlier on the planned changes in the budget balance over GDP, and expenditure and revenues implementation gaps. As expected, Zimbabwe is an outlier on the CPI inflation forecast error. These outliers are also excluded from all figures and tables in this paper.

[12] Guinea-Bissau is an outlier on the expenditure implementation gap and on the planned changes in the expenditure over GDP.

Outlook (WEO) issues (vintages) from 2004 to 2008.[13] Fiscal implementation gaps for 177 countries are then computed for that sample period. The data on committed and disbursed aid for our sample of SSA countries is retrieved from the OECD Creditor Reporting System on Official Development database (OECD, 2007). The political variables are extracted from the Polity IV dataset. A dummy for years of election in SSA countries is constructed with the information available at http://africanelections.tripod.com/index.html.

Institutional budgetary capacity is measured by the dataset constructed by Dabla-Norris and others (2010). Their dataset comprises several time-invariant indexes of quality of budget institutions for 72 low-income and middle-income countries during 2006–2008. Governance measures come from the dataset of the World Bank World Governance Indicators—WGI (see Kaufman, Kraay, and Mastruzzi, 2010). Using this data, the main determinants of fiscal implementation gaps are then examined for a maximum of 43 and a minimum of 31 SSA countries from 2004 to 2008.

IV. Empirical Evidence

A. Descriptive Statistics

We start our empirical analysis by benchmarking fiscal implementation gaps in SSA countries against those in advanced economies and other developing countries. Table 2 reports the average, standard deviation, and number of observations for the actual and planned changes described in (3) for the three fiscal variables investigated: overall surplus, total spending, and total revenues. Implementation gaps are also displayed, but without taking their absolute values as in (4). We further split the SSA sample into the four analytical subgroups used by IMF's Sub-Saharan African Regional Economic Outlook (oil exporters, middle income, low income, and fragile countries) to better understand the driving sources of the results for all of SSA.

The results of Table 2 show that fiscal policy implementation gaps in SSA are on average comparable to other regions but subject to quite distinct intraregional patterns. As in other regions, planned fiscal consolidation in SSA sometimes ends in fiscal expansions. Average implementation gaps in the overall fiscal balance have been lower than in other regions.[14]

On the other hand, implementation gaps in spending and revenue tend to be larger in SSA than in other regions for different reasons depending on country characteristics. Revenue shortfalls among oil exporters, overspending in middle-income countries, and a combination of both in the low-income subgroup account for errors toward high deficits or lower surpluses. Fragile states instead tend to underestimate planned surpluses, possibly as a result of largely unanticipated revenue windfalls.

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[13] Fall vintages of the WEO are used because by that period most countries in the sample already have a draft of the fiscal budget for the year ahead. One reason to use the previous-year forecast vintage of the WEO for planned changes in fiscal policy is that these forecasts embody the best IMF staff estimates of national authorities' feasible and sustainable fiscal plans.

[14] Spending gaps are also larger in absolute terms than revenue spreads in most of regions/subregions analyzed in Table 2.

B. Overall Balance

Turning to the analysis of gaps in the implementation of the overall fiscal balance in SSA, Figure 1 presents some preliminary results regarding the relationship of such gaps with economic, political, and institutional variables. In this figure, the first chart shows the scatter plot of the overall balance implementation gap versus the planned change in overall balance. In line with previous analysis, the positive slope of the fitting line conveys the message that ambitious plans (large spreads in the planned budget balance) are related to large budget balance implementation gaps.

The second chart in Figure 1 presents the scatter plot of the overall balance implementation gap versus the nominal GDP growth forecast error, defined as in Equation (5), that is, $x_{j,t+1}^{t+1} - x_{j,t}^{t+1}$. This chart suggests that too optimistic or pessimistic real GDP growth projections tend to lead to a significant shortfall in implementation compared to planned fiscal policy.

The next two charts in the middle of Figure 1 investigate the effect of governance, political, and budgetary institutions in the overall balance implementation. The first in the left middle corner plots the averages of the absolute values of overall balance implementation gaps compared with the different World Bank WGI indicators and political variables. For each institutional category, the SSA countries are split in two subsamples—below and above the median sample value of that index—and the average absolute value of the implementation gap for each of these two subsamples is computed.

The chart in the right middle of Figure 1 suggests that political institutions per se are not the most important variables explaining sample differences in budget balance implementation gaps. The average budget balance implementation gap is similar whether the country is above or below the sample mean for the indexes of country democracy (*polity2*), political competition (*polcomp*), and constraints on the executive (*xconst*). However, budget balance implementation gaps are lower for countries that rank above the sample average on all WGI indicators, and on CPIA eligibility (*cpia*).

The chart in the right middle corner plots the averages of the absolute values of overall balance implementation gaps for countries above and below the mean of the different indexes of quality of budget institutions created by Dabla-Norris and others (2009). As expected, the results show that for most categories, countries with higher quality of institutions (above the median) have lower implementation gaps in absolute terms. This already suggests that solid budget procedures help reduce implementation gaps.

The last two charts on the bottom of figure 1 combine budgetary and WGI governance institutions in the analysis of budget balance implementation gaps. The first (bottom left corner) plots the ranks of the overall budget stages index in the vertical axis and of the WGI index of regulatory quality in the horizontal axis. Countries with larger values for both indexes have better overall budget procedures and regulatory systems. The size of the bubble corresponds to the overall budget balance implementation gap for each country as given in (4). The chart provides some tentative evidence that good budget procedures allied with an

efficient regulatory system complement each other when it comes to reducing budget implementation gaps.

The findings of Figure 1 are tested by a more rigorous econometric analysis. Table 3 displays the panel estimations of the econometric model (5) including the baseline regressions with economic variables and the variables for political institutions. Columns 1 and 2 show the estimations of (5) using the FE-OLS estimator including only economic variables, whereas the other columns include in addition the lagged dependent variable (baseline regression) and the political variates as well. Columns 3 through 13 also use the System GMM estimator, allowing for a consistent and efficient estimation of (5). The overall stastistics of the regressions in this table (as well as in the next ones) are satisfactory, showing (i) significant F-tests for the regression, (ii) lack of overidentified restrictions (non-significant Hansen tests), and (iii) no second-order serial correlation in first-differences (non-significant Aurellano-Bond test).

In line with Figure 1, Table 3 indicates that the more ambitious the planned changes in budget balance are, the higher the budget balance implementation gaps. This is concluded from the positive and highly significant coefficient of *bbgpro* in virtually all columns. The lagged dependent variable is also significant in all estimations in which it is included (Column 4 onward). Its negative coefficient suggests that a high budget balance implementation gap in the previous period leads to a correction (reduction) of the gap in the next period, which may be due to the correction on revenue implementation gaps discussed later. Real GDP growth forecast errors are positive in all regressions and significant in some of them. Yet, the other economic variables are not significant in any of the regressions in Table 3.[15] Thus, the overall budget balance gaps are not significantly associated with inflation forecast errors, stock of debt, the gap in committed versus disbursed aid over GDP, or terms of trade forecast errors.[16]

Political variables are not highly significant in Table 3. This may suggest that they are not relevant to explain implementation gaps in SSA.[17] Restrictions to the executive (*xconst*) is highly significant in only one estimation using FE-OLS (Column 3) and marginally significant (at 10% level) in Column 10. Its negative coefficient suggests that restrictions to the executive may reduce marginally fiscal policy implementation gaps in SSA. All other political variables are not significant or only marginally significant in few columns (*polity2* in Columns 3 and 10).

[15] For the same estimations in levels instead of absolute values, the gap between aid commitments versus disbursements is significant and positive, indicating that a large gap may increase the overall budget balance implementation gap. See the Appendix.

[16] The stock of debt also becomes significant for the estimations using the variables in levels. Its positive coefficient suggests that larger stock of debt leads to higher implementation gaps in the overall balance (see the Appendix).

[17] Fixed effects may be another reason for this result. Fixed effects are probably absorbing part of the effects of these political variables as these latter indicators move slowly over time (especially since the sample only covers four years).

Table 4 presents the results of the next econometric analysis with budget balance. There, in most of the estimations the econometric procedure used is the System GMM.[18]As estimation strategy the baseline economic variables are kept, but the political variables are replaced by WGI institutional indexes of governance. A horse race among the different governance variables is then performed to identify which institutions affect budget balance implementation gaps. As a first result, the findings for the baseline economic variables of Table 3 remain robust in Table 4.

Regarding the governance variables, the only institutional variable marginally significant in Table 4 is the WGI index of regulatory quality. In one hand, its negative sign in Columns 6 and 8 suggest that SSA countries with capacity to formulate and implement sound policies and regulations, permitting and promoting private sector development may have a lower overall balance implementation gap. In the other hand, it could simply reflect better overall implementation capacity in alternative policy areas. However, this result is not strongly robust for different specifications of the empirical model (5) using that variable.

The final econometric analysis for the overall budget balance implementation gap is with an interaction term between the latter WGI index of regulatory quality and the Dabla-Norris and others (2010) indexes of quality of budgetary institutions in the countries. Here, we follow the same approach used by Burnside and Dollar (2000) and Rajkumar and Swaroop (2008). We interact those variables given that they may be associated with the size of the implementation gaps, as the last two charts of Figure 1 convey.[19] One could expect the combination of a good regulatory system with good budgetary procedures would reduce budget balance implementation gaps in a country. Besides, the Dabla-Norris and others (2010) indexes are atemporal, largely covering 2006–2008. Therefore, this interaction term is one of the possibilities for enabling the econometric analysis of (5) using those indexes.

The signs and significance of the coefficients for the lagged dependent variable and the planned budgetary policy remain highly robust in Table 5. Moreover, the horse race with the WGI index of regulatory quality and the different budget indexes shows that the combination of a strong regulatory system and good procedures on several budgetary institutions (including budget transparency, comprehensiveness, and rules)[20] are, at least marginally, significant in explaining a reduction of the budget balance implementation gap. This effect is particularly strong (highly significant) for the combination of a good regulatory system and enhanced procedures on budget approval (see Columns 9, 12, 13, and14).[21]

[18] In Table 4 as in the next ones, the results reported are robust for estimations using the FE-OLS technique. The last column of Table 4 also shows the estimation including all variables and using FE-OLS.

[19] For a sample of 77 low- and middle-income countries, Gollwitzer and Quintyn (2010) also find that sound budgetary institutions are most likely to be established in countries with a higher degree of rule of law for the elites.

[20] Gollwitzer (2011) also finds that budget transparency significantly improves the budget balance in her sample of SSA countries.

[21] Andrews (2010) claims that African countries tend to make budgets better than they execute them. If regulatory quality, as explained above, is in fact a proxy for overall policy implementation including fiscal policy, budget execution is likely to be stronger complementing appropriate budget approval practices and leading to more effective fiscal policy implementation.

Moreover, better institutions in the different stages of budget execution (*overall_stagesq*) appear to matter more than other types of budget procedures (*overall_cagetoriesq*). They seem to decrease the budget implementation gaps, as suggested by the negative and significant coefficient of *overall_stagesq* in Columns 7 and 11. Column 12 also shows that top-down budget procedures are associated with higher overall balance implementation gaps. This may be related to weaknesses in the top-down procedures in some SSA countries, such as (i) poor accountability to budget laws, leading to disrespect of the expenditure ceilings approved in the cabinet meeting; and (ii) mismatches between de jure and de facto leadership of the finance minister relative to the head of the cabinet or other influential line ministers.[22]

C. Expenditures

Having looked at the implementation gaps of the overall fiscal balance, we next look at its components. This section looks then at expenditure implementation gaps; the next will look at implementation gaps in revenue.

Figure 2 shows the same graphical analysis as in Figure 1, but for the implementation gaps on expenditures. In Figure 2, the scatter plots convey that ambitious changes in expenditure plans are also associated with higher implementation gaps on expenditure. Likewise, larger forecast errors on real GDP growth are associated with higher expenditure implementation gaps. One reason may be an overly optimistic real GDP growth forecast and its effects on the denominator of the expenditure over GDP series. A lower than initially expected GDP may explain the higher actual spending than initially planned (see Table 2).

The two middle bar charts in Figure 2 indicate that the WGI and budgetary institutions do not affect the expenditure spreads significantly. Large differences cannot be observed in the bars whether the sample countries are below or above the average on each variable. Concerning the bubble charts, the bubble sizes already show larger implementation gaps on expenditure than on budget balance. As in the overall budget balance case, they also decrease with the combination of higher regulatory quality and better budgetary procedures in the different stages of the budget execution—*overall_stages*. Yet, for expenditure implementation gaps, better procedures during the budget implementation stage seem to be more relevant than during the approval stage.

Table 6 shows different estimates of (5) with the expenditure implementation gap as the dependent variable. The outcomes show that ambitious plans on expenditures also increase significantly the expenditure implementation gaps. The stock of debt in the previous period is also positive and significant in practically all regressions (except Column 3). This suggests that a larger stock of debt may cause difficulties in accurately implementing a planned change in expenditure. That may be due to variations in interest rates or increased risks of default, for example.

[22] See Kim and Park (2006) and Ljungman (2009) for an analysis of top-down budget procedures and possible issues for their correct implementation.

Larger terms of trade forecast errors are also significant in explaining bigger implementation gaps. This suggests that SSA authorities tend to link changes in their expenditures to changes in the terms of trade of their economies. Nevertheless, aid and the political variables are not significant to explain expenditure implementation gaps (both in levels and absolute values, see the Appendix). One reason is the high volatility of these variables for our sample of SSA countries. This hinders the inference of stable relationships between them and fiscal implementation gaps in the region.

The apparent lack of significance of aid gap in explaining expenditure gaps in either absolute values or levels is a surprise. Bulíř and Hamann (2003), for example, argue that aid volatility is much greater than revenue volatility and accounts for more spending volatility. One possibility for our result may be that countries smooth spending out of aid, anticipating this volatility, so that it does not affect much actual spending gaps (see, for example, Berndt and others, 2008). Another may be that aid volatility translates into volatility of domestic borrowing or revenues as we will see next.

The econometric analysis of the effects of different WGI institutions on expenditure implementation gaps is displayed in Table 7. It shows that more political stability and absence of violence (as measured by the WGI index *wgipsav*) is associated with higher expenditure implementation gaps.[23] This is indicated by the positive and significant coefficients of *wgipsav* in Columns 3 and 8. The direction of bias in the implementation gap is positive, though. The spread occurs because more stable SSA countries spend more than initially planned, whereas more unstable and violent countries in the sample have larger expenditures planned than actually executed. This suggests that more stable countries have higher execution rates than unstable ones.

Regulatory quality is less significant for implementation gaps in expenditure than in budget balance. That WGI index is not significant in any of the regressions of Table 7. Yet, growth forecast errors are again positive and become highly significant in explaining expenditure implementation gaps in Table 7.[24]

Using the same empirical strategy as before, Table 8 shows the regressions of the expenditure implementation gaps against the interaction terms between the WGI index of regulatory quality and the different indexes of budget procedures. There, the interaction term between regulatory quality and budget implementation has a marginally statistically significant coefficient only in the FE-OLS estimation in Column 13. Therefore, despite the observed association in Figure 2, the regressions in Table 8 do not capture the effects on expenditure gaps of the interaction term of the quality of the regulatory system with the quality of overall budget execution stages (*overall_stagesq*), and only marginally with the quality of budget implementation procedures (*implementationq*).

[23] This index measures perceptions of the likelihood the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism (Kaufmann, Kraay, and Mastruzzi, 2010).

[24] The coefficients for growth forecast errors are large since this variable is measured in logs while implementation gaps in percentage of GDP.

D. Revenues

The implementation gap on total revenues is the remaining component of the utility function (2) to be analyzed. Figure 3 displays the graphical analysis of those gaps. The two scatter plots show again a positive relationship between revenue implementation gaps and planned changes in revenue and growth forecast errors.

The middle left bar chart in Figure 3 also suggests an association between different political institutions and mean discrepancies in revenue implementation gaps among countries. This is line with IMF (2011) that shows that a common element of success in revenue mobilization in developing countries is sustained political commitment at the highest levels. In addition, better governance and budgetary institutions appear to be strongly related to lower revenue gaps. Finally, the combination of a good regulatory system with better institutions in the different stages of budget execution seems to be connected with lower revenue implementation gaps as well.

Such findings are better scrutinized in the econometric analysis of Tables 9, 10, and 11. Table 9 corroborates the finding that more ambitious plans in revenue collection causes higher implementation gaps on revenues. The lower tax bases in SSA countries allied with the lower enforcement of payments tend to lead to lower tax collections than initially planned.

Previous year implementation gaps in revenues tend to be corrected in the next year as the highly significant and negative coefficient of the lagged dependent variable shows. This finding helps explaining the same result for the budget balance implementation gaps. On the other hand, for most of the regressions in Table 9, the GDP growth forecast errors are not statistically significant and positive. Thus, contrary to Figure 3, the econometric analysis suggests that growth forecast errors do not lead to gaps in revenue collection. This is also the case for forecast errors in terms of trade. Yet, as already suggested by Figure 3, none of the political variables are significant in explaining the revenues spreads. In the case of the lagged stock of debt and the gap between aid commitment and disbursement over GDP results are somewhat ambiguous. Both variables are positive and statistically significant only when revenue gaps are defined in levels (see the Appendix).

Turning to the effect of governance institutions, the quality of the regulatory system appears again significant in Table 10 (in Columns 6, 8, 9, and 11). In accord with the budget balance, its negative sign indicates that a better regulatory system causes revenue implementation gaps to fall.

Our final econometric analysis investigates the connection between the revenue implementation gaps and the interaction terms of the WGI index of regulatory quality with the different indexes of budgetary procedures. In line with the bubble charts of Figure 3, the horse race results of Table 11 show significance for all interaction terms. Again, the interaction between a good regulatory system and enhanced institutions on budget approval is the most significant in the regressions. In Column 12, including all interaction terms at the same time shows in addition, that the interaction of regulatory system with planning stage of

the budget marginally significantly reduces revenue implementation gap, while the top-down procedures seems again to deteriorate the gap.[25]

V. CONCLUSIONS

This paper assesses how SSA countries score in terms of fiscal policy implementation compared to other country groups and tries to identify the main determinants of fiscal policy implementation in the region. It computes implementation gaps (i.e., the difference between actual and planned policy changes) on budget balance, expenditure, and revenues for 177 countries between 2004 and 2008. It then estimates the main determinants of fiscal implementation gaps for SSA for samples ranging from 31 to 41 countries.

The paper shows that fiscal policy implementation gaps in SSA tend to be on average comparable to other regions of the world. As in other regions, planned fiscal consolidations tend to be less ambitious than anticipated and in some cases end in fiscal expansions. As is usually the case in SSA, proximate causes follow quite distinct intraregional patterns. Revenue shortfalls account for the bulk of fiscal balance implementation gaps among oil exporters, overspending seems to dominate in middle-income countries, while a combination of both accounts for higher deficits or lower surpluses than planned among low-income countries. Fragile states instead tend to underestimate planned surpluses as a result of largely unanticipated revenue windfalls.

The econometric evidence suggests that planned fiscal adjustments or fiscal expansions in the region are less likely to be implemented the larger they are; and in some cases the more inaccurate the growth and terms of trade forecasts they are based on, the higher the initial stock of debt; the larger the difference between committed and disbursed aid, and the weaker the institutions and procedures regulating their budget design, approval, and implementation. Ambitious plans are subject to large implementation gaps with an extra planned adjustment of 1 percent of GDP, amounting in some cases to an additional fiscal adjustment shortfall of 0.8 percent of GDP.

Better regulatory systems are also associated with smaller implementation gaps under some specifications. They also seem to play an important role in helping budget procedures reduce implementation gaps. However, not all budget procedures matter equally. Better procedures on the approval (and implementation in the case of expenditure gaps) of the budget seems to be more effective in reducing implementation errors than other budget institutions and procedures such as a more top-down one.

For revenue and overall balance, large gaps in a previous year, moreover, lead to corrections in the implementation and reductions on the gaps in the year after. The combination of good regulatory systems with proper institutions in the planning and approval stages of the budget also diminishes those gaps. Moreover, in some cases, more politically stable and less violent countries have also higher implementation gaps on expenditure, which is due to their higher

[25] Keen and Mansour (2009) and IMF (2011) discuss several reform strategies to improve revenue mobilization in SSA and other developing countries, which could reduce their revenue implementation gaps.

fiscal execution rates, than initially anticipated. Finally, errors in forecasting inflation were not significant in explaining budget balance implementation gaps or gaps of its components, expenditure and revenue, in most of the regressions.

Together, these results further advance the case for improving the quality and timeliness of economic data; enhancing forecasting capacity; adopting realistic fiscal plans; and strengthening regulatory and budget institutions and related public financial management procedures. SSA countries should continue to invest more in the compilation and monitoring of statistical data for business cycle analysis, particularly high-frequency data and leading indicators.

They also encourage the independence of statistical agencies, which is crucial for securing additional funds, strengthening the quality and morale of staff, and sustaining reform efforts. Medium-term fiscal frameworks, including multiyear fiscal targets and aid commitments, for increasing intertemporal fiscal consistency and promoting aid predictability have potential to reduce the scope of strategic considerations that may lead to unrealistic targets. SSA countries also will need to continue to strengthen procedures at the execution stage, often hampered by delays in project execution and deficiencies in revenue collection capacity.

The current analysis offers various possibilities for further research. For example, different revenue and expenditure components, in particular capital expenditures, and government spending volatility could be analyzed in more detail. This would help to identify better the sources of fiscal implementation gaps. The impact of budgetary institutions could also be further investigated, allowing one to check further the robustness of the results.

TABLES AND FIGURES

Table 1: List of Variables of the Estimations (in alphabetical order)

Variable	Description	Source
α	Constant in the regression	Authors' computation
aid_dif	Difference between committed and disbursed aid as percentage of GDP	OECD (2007) database and authors' computation
approval	Index of budget approval stage in a country	Dabla-Norris and others (2010)
approvalq	Interaction term between approval and wgirq	Authors' computation
bbgimperra	Absolute value of the budget balance implementation gap	IMF WEO (2010) and authors' computation
bbgimperra(-1)	Lag of the absolute value of the budget balance implementation gap	IMF WEO (2010) and authors' computation
bbgpro	Absolute value of the planned overall balance changes	IMF WEO (2010) and authors' computation
comprehensiveness	Index of budget comprehensiveness in a country	Dabla-Norris and others (2010)
comprehensivenessq	Interaction term between comprehensiveness and wgirq	Authors' computation
cpia	World Bank CPIA composite, computed only for IDA elegible countries	World Bank
debt(-1)	Lag of the country debt over GDP	IMF WEO (2010) and authors' computation
ele	Dummy of years of elections	Website: http://africanelections.tripod.com/index.html.
gcenlgpro	Absolute value of the planned expenditures changes	IMF WEO (2010) and authors' computation
gcenlqimperra	Absolute value of the expenditures implementation gap	IMF WEO (2010) and authors' computation
gcenlqimperra(-1)	Lag of the absolute value of the expenditures implementation gap	IMF WEO (2010) and authors' computation
gcrggimperra	Absolute value of the revenues implementation gap	IMF WEO (2010) and authors' computation
gcrggimperra(-1)	Lag of the absolute value of the revenues implementation gap	IMF WEO (2010) and authors' computation
gcrggpro	Absolute value of the planned revenues changes	IMF WEO (2010) and authors' computation
implementation	Index of budget implementation stage	Dabla-Norris and others (2010)
implementationq	Interaction term between implementation and wgirq	Authors' computation
ngdp_rerr	Absolute value of real GDP growth forecast error	IMF WEO (2010) and authors' computation
overall_categories	Composite Index Budget Categories in a country	Dabla-Norris and others (2010)
overall_categoriesq	Interaction term between overall_categories and wgirq	Authors' computation
overall_stages	Composite index of budget stages in a country	Dabla-Norris and others (2010)
overall_stagesq	Interaction term between overall_stages and wgirq	Authors' computation
pcpierr	Absolute value of CPI inflation forecast error	IMF WEO (2010) and authors' computation
planning	Index of budget of planning and negotiation stage in a country	Dabla-Norris and others (2010)
planningq	Interaction term between planning and wgirq	Authors' computation
polcomp	Index of political competition in a country	Polity IV Project
polity2	Revised combined polity score index that measures the degree of democracy in a country	Polity IV Project
rules	Index of budget rules and controls in a country	Dabla-Norris and others (2010)
rulesq	Interaction term between rules and wgirq	Authors' computation
sustainability	Index of budget sustainability in a country	Dabla-Norris and others (2010)
sustainabilityq	Interaction term between sustainability and wgirq	Authors' computation
terms-trade_err	Absolute value of terms of trade forecast error	IMF WEO (2010) and authors' computation
top_down	Index of top-down budgeting in a country	Dabla-Norris and others (2010)
top_downq	Interaction term between top_down and wgirq	Authors' computation
transparency	Index of budget transparency in a country	Dabla-Norris and others (2010)
transparencyq	Interaction term between transparency and wgirq	Authors' computation
wgicc	Index of the degree of control of corruption in a country	World Bank Governance (WGI) Indicators
wgige	Index of the degree of government effectiveness in a country	World Bank Governance (WGI) Indicators
wgipsav	Index of the degree of political stability in a country	World Bank Governance (WGI) Indicators
wgirl	Index of the degree of rule of law in a country	World Bank Governance (WGI) Indicators
wgirq	Index of the degree of regulatory quality in a country	World Bank Governance (WGI) Indicators
wgiva	Index of the degree of voice and accountability in a country	World Bank Governance (WGI) Indicators
xconst	Index of executive constraints on decision rules in a country	Polity IV Project

Table 2. Fiscal Outcomes, Fiscal Plans, and Fiscal Implementation Gaps, 2004-2008 average

	Overall surplus			Total spending			Total revenue		
	Actual	Plan	Gap	Actual	Plan	Gap	Actual	Plan	Gap
				Change in percent of GDP					
Sub-Saharan Africa (SSA)									
Mean	-0.13	0.24	-0.36	1.07	-0.49	1.42	0.94	-0.25	1.07
Std	15.8	20.0	13.5	4.6	2.4	4.5	15.3	19.8	13.6
No Obs.	217	217	217	217	217	217	217	217	217
SSA Groups									
Oil Exporters									
Mean	-0.70	1.23	-1.93	-0.40	-0.71	0.31	-1.10	0.51	-1.61
Std	11.7	9.4	11.9	3.7	2.8	4.0	10.7	8.5	10.4
No Obs.	35	35	35	35	35	35	35	35	35
Middle-Income Countries									
Mean	-1.81	-0.72	-1.09	1.32	-0.31	1.62	-0.50	-1.03	0.53
Std	3.6	1.9	3.1	4.7	1.6	5.0	3.3	1.7	3.4
No Obs.	40	40	40	40	40	40	40	40	40
Low-Income Countries									
Mean	-1.45	-1.42	-0.03	1.18	-0.21	1.39	-0.27	-1.63	1.36
Std	11.4	7.1	9.2	2.3	1.6	2.7	11.4	7.2	8.9
No Obs.	75	75	75	75	75	75	75	75	75
Fragile Countries									
Mean	2.64	2.21	0.56	1.58	-0.81	1.94	4.21	1.40	2.50
Std	24.0	34.9	20.7	6.5	3.3	6.0	23.1	34.6	21.3
No Obs.	67	67	67	67	67	67	67	67	67
Advanced Countries									
Mean	-0.96	0.09	-1.06	0.63	-0.24	0.87	-0.33	-0.15	-0.18
Std	2.32	0.75	2.20	1.68	0.83	1.71	1.21	0.81	1.44
No Obs.	163	163	163	163	163	163	163	163	163
Other Developing Countries									
Mean	-0.62	0.38	-1.00	0.34	-0.68	1.00	-0.28	-0.30	0.00
Std	4.7	2.5	4.6	3.4	2.5	3.6	3.7	2.7	3.6
No Obs.	455	455	455	455	455	455	455	455	451

Source : IMF, World Economic Outlook, and IMF staff estimates.

Notes : Fiscal outcomes (*f*) defined as percent of GDP. Change in fiscal outcomes (*df*) defined as differences in *f* between years *t* and *t+1* and *t* according to data available on year *t'* (*i.e. df =f(t+1,t')- f(t,t')*).Actual changes (*dfa*) and planned changes(*dfb*) based on data available at *t+1* and *t*, respectively (*i.e. dfa = f(t+1, t+1) - f(t, t+1))* ; *dfp = f(t+1, t) - f(t, t))*). Implementation error defined as the difference between actual and planned changes in fiscal outcomes (*gap = dfa -dfp*).

Table 3. Panel Estimation of Overall Balance Implementation Gaps with Economic and Political Variables in Absolute Values (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
α	-0.91	-4.64	18.49*	0.43	-1.38	-1.62	-3.04	-0.68	-1.15	6.50	-2.80	-0.54	3.41	4.76
	(1.98)	(3.56)	(9.10)	(1.55)	(1.85)	(2.66)	(3.60)	(3.74)	(1.91)	(4.72)	(3.64)	(3.84)	(8.14)	(8.27)
bbgimperra(-1)				-0.53***	-0.49***	-0.45**	-0.45**	-0.45**	-0.49***	-0.47**	-0.45**	-0.46**	-0.47**	-0.47**
				(0.16)	(0.15)	(0.17)	(0.17)	(0.17)	(0.15)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
bbgpro	0.35**	0.37**	0.35	0.79***	0.77***	0.77***	0.76***	0.77***	0.77***	0.77***	0.76***	0.77***	0.76***	0.76***
	(0.16)	(0.16)	(0.30)	(0.15)	(0.13)	(0.16)	(0.16)	(0.16)	(0.13)	(0.16)	(0.16)	(0.16)	(0.16)	(0.16)
ngdp_rerr	25.00	40.05	21.60	68.33**	66.29**	76.68	67.79	71.82**	64.14**	66.87	68.67	73.11	53.84	57.35
	(29.35)	(34.32)	(62.95)	(30.92)	(29.87)	(50.36)	(47.61)	(49.95)	(30.58)	(45.33)	(49.55)	(52.22)	(68.62)	(68.88)
pcpi_err	85.29	109.46	108.49*	43.53	55.55*	51.81	51.21	50.26	55.18*	54.88	50.15	49.25	56.21	54.77
	(57.03)	(68.04)	(56.04)	(31.17)	(31.56)	(39.96)	(40.39)	(39.81)	(31.87)	(41.42)	(40.85)	(40.30)	(41.13)	(41.75)
debt(-1)		2.37	-0.20		1.93	1.66	1.88	1.81	1.88	2.02	1.85	1.77	2.19	2.11
		(2.10)	(2.56)		(1.27)	(1.56)	(1.61)	(1.58)	(1.24)	(1.54)	(1.59)	(1.56)	(1.59)	(1.55)
aid_dif		-0.06	-0.09		-0.15	-0.16	-0.17	-0.16	-0.12	-0.16	-0.16	-0.16	-0.17	-0.16
		(0.11)	(0.16)		(0.10)	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
terms-trade_err		4.64	2.36		5.84	7.99	7.88	7.83	5.72	8.12	7.97	7.91	8.03	8.17
		(3.53)	(4.64)		(4.25)	(5.68)	(5.67)	(5.71)	(4.17)	(5.77)	(5.71)	(5.74)	(5.87)	(5.90)
polity2			0.88*			0.05				0.77*			0.53	0.63
			(0.48)			(0.17)				(0.46)			(0.85)	(0.84)
polcomp			-0.73				0.26				0.25		0.39	0.28
			(0.96)				(0.27)				(0.27)		(0.96)	(0.94)
xconst			-3.92***					-0.15		-2.32*		-0.14	-2.03	-2.18
			(1.41)					(0.47)		(1.30)		(0.47)	(1.51)	(1.54)
ele			-2.45						-1.38		-0.85	-0.80		-1.00
			(1.46)						(1.43)		(1.85)	(1.84)		(1.83)
F-test	7.44***	6.46***	1.94*	20.89***	42.18***	7.57***	7.38***	7.11***	33.60***	6.03***	6.88***	6.62***	5.42***	5.13***
Estimation method[a]	FE-OLS	FE-OLS	FE-OLS	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
Hansen test p-value[b]				0.86	0.90	0.70	0.67	0.67	0.93	0.63	0.69	0.70	0.59	0.64
A-B AR(2) test p-value[c]				0.55	0.47	--	--	--	0.53	--	--	--	--	--
Number of instruments				36	39	26	26	26	40	27	27	27	28	29
Cross-section	41	39	36	41	39	37	36	36	39	36	36	36	36	36
Observations	202	195	143	161	156	111	108	108	156	108	108	108	108	108
R-squared (within)	0.19	0.22	0.23											
between	0.48	0.59	0.18											
overall	0.26	0.31	0.18											

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses the System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 4. Panel Estimation of Overall Balance Implementation Gaps with Economic and WGI Governance Variables in Abs. Values(2004–08)

	1	2	3	4	5	6	7	8	9	10
α	2.65	2.27	2.79	2.25	2.40	1.89	-6.64	0.06	-0.07	-10.99
	(3.36)	(3.24)	(3.48)	(3.37)	(3.49)	(3.10)	(7.85)	(3.72)	(3.52)	(6.60)
bbgimperr(-1)	-0.56***	-0.56***	-0.57***	-0.56***	-0.56***	-0.56***	-0.47**	-0.56***	-0.56***	
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.18)	(0.15)	(0.15)	
bbgpro	0.81***	0.81***	0.81***	0.81***	0.81***	0.80***	0.77***	0.80***	0.80***	0.33**
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.16)	(0.13)	(0.13)	(0.16)
ngdp_rerr	-71.98	-66.26	-73.71	-64.80	-67.85	-63.68	68.58	-13.52	-10.07	29.75
	(93.62)	(91.50)	(95.69)	(92.72)	(94.41)	(88.01)	(53.15)	(100.61)	(99.45)	(41.79)
pcpierr	55.98	55.84	55.78	55.85	55.94	54.31	54.68	50.60	50.89	142.97
	(37.07)	(37.67)	(37.05)	(37.24)	(37.53)	(37.00)	(46.27)	(37.17)	(37.65)	(84.49)
debt(-1)	1.31	1.16	1.41	1.09	1.18	0.15	1.30	-0.30	-0.28	2.43
	(2.88)	(2.82)	(2.78)	(2.96)	(2.89)	(2.90)	(1.78)	(2.74)	(2.76)	(2.79)
aid_dif	-0.10	-0.10	-0.10	-0.10	-0.10	-0.09	-0.19	-0.10	-0.10	-0.08
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.12)	(0.10)	(0.10)	(0.12)
terms-trade_err	5.20	5.15	5.21	5.08	5.09	5.05	9.31	5.84	5.77	5.47
	(4.85)	(4.81)	(4.87)	(4.81)	(4.80)	(4.78)	(6.67)	(5.22)	(5.09)	(4.09)
wgiva	-0.53							2.27	2.26	10.05
	(1.27)							(2.37)	(2.66)	(8.01)
wgirl		-0.95							-0.12	-6.41
		(1.33)							(5.30)	(13.42)
wgipsav			-0.23						0.06	-4.42
			(0.86)						(2.08)	(3.92)
wgige				-0.88				3.92	3.89	16.81
				(1.30)				(4.97)	(5.21)	(12.66)
wgicc					-0.85			-1.43	-1.44	-12.08
					(1.60)			(3.79)	(4.90)	(10.03)
wgirq						-3.01*		-9.06*	-8.94	-16.97
						(1.76)		(5.26)	(5.74)	(11.56)
cpia							1.70			
							(1.84)			
F-test	98.17***	91.94***	99.11***	90.53***	95.68***	99.56***	9.34***	82.03***	68.91***	4.96***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.65	0.62	0.63	0.64	0.65	0.67	0.73	0.40	0.38	
A-B AR(2) test p-value[c]	0.30	0.30	0.30	0.30	0.29	0.31	--	0.33	0.34	
Number of instruments	27	27	27	27	27	27	26	25	27	
Cross-section	30	30	30	30	30	30	32	30	30	30
Observations	120	120	120	120	120	120	96	120	120	150
R-squared (within)										0.27
between										0.36
overall										0.21

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 5. Panel Estimation of Overall Balance Implementation Gaps in Abs. Values with the Budget Institutions and Regulatory Quality Indexes (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
α	1.79	2.14	1.67	2.31	1.99	1.51	1.60	2.17	0.74	2.02	0.08	0.03	0.33	-10.61**
	(3.28)	(3.36)	(3.34)	(3.49)	(3.22)	(3.13)	(3.21)	(3.67)	(2.91)	(3.15)	(2.73)	(3.89)	(3.99)	(4.64)
bbgimperr(-1)	-0.56***	-0.56***	-0.56***	-0.57***	-0.56***	-0.56***	-0.56***	-0.56***	-0.55***	-0.56***	-0.55***	-0.55***	-0.56***	
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	
bbgpro	0.81***	0.82***	0.81***	0.81***	0.80***	0.80***	0.81***	0.81***	0.79***	0.81***	0.78***	0.79***	0.80***	0.36***
	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)	(0.14)	(0.12)	(0.13)	(0.16)
ngdp_rerr	-56.50	-62.56	-51.58	-68.46	-61.86	-49.19	-53.18	-64.32	-38.58	-58.40	-22.13	-26.13	-36.53	29.66
	(89.41)	(90.64)	(88.19)	(96.22)	(90.61)	(85.43)	(87.44)	(96.09)	(79.39)	(87.78)	(69.29)	(111.95)	(103.48)	(34.81)
pcpierr	53.88	52.86	57.21	53.75	52.72	55.31	53.93	54.70	54.84	53.13	55.51	62.20	66.70	140.76*
	(36.98)	(36.58)	(37.54)	(36.91)	(36.53)	(37.39)	(37.04)	(36.88)	(37.39)	(36.97)	(37.57)	(37.04)	(40.38)	(82.54)
debt(-1)	0.36	0.61	0.39	0.89	0.40	0.25	0.22	0.66	-0.29	0.62	-0.15	0.51	0.58	-0.29
	(2.71)	(2.61)	(2.70)	(2.62)	(2.92)	(2.77)	(2.70)	(2.76)	(2.67)	(2.63)	(2.55)	(2.75)	(3.14)	(2.74)
aid_dif	-0.10	-0.10	-0.10	-0.11	-0.09	-0.10	-0.10	-0.10	-0.09	-0.10	-0.08	-0.09	-0.09	-0.05
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.12)	(0.12)
terms-trade_err	5.09	5.16	4.87	5.00	5.39	4.95	5.13	5.02	5.44	5.06	5.67	6.31	5.71	5.60
	(4.77)	(4.80)	(4.70)	(4.85)	(4.90)	(4.70)	(4.76)	(4.79)	(4.74)	(4.79)	(4.64)	(5.23)	(5.32)	(4.35)
overall_categoriesq	-1.52*										21.63*			
	(0.89)										(11.33)			
transparencyq		-1.33*											-1.06	-10.39
		(0.77)											(3.62)	(19.66)
comprehensivenssq			-1.52*										0.18	-10.12
			(0.86)										(2.65)	(13.49)
sustainabilityq				-1.38									-1.23	37.83
				(1.11)									(4.02)	(24.01)
top_downq					-0.95							4.59**	5.63**	3.31
					(0.79)							(1.86)	(2.61)	(17.83)
rulesq						-1.72*							-3.52	1.65
						(0.92)							(4.62)	(25.30)
overall_stagesq							-1.69*				-23.73**			
							(0.90)				(11.53)			
planningq								-1.17						
								(0.94)						
approvalq									-2.01**			-7.12***	-6.51**	-22.23*
									(0.85)			(2.28)	(2.73)	(12.47)
implementationq										-1.38*			3.25	-5.94
										(0.78)			(7.62)	(23.78)
F-test	91.70***	89.73***	83.57***	98.82***	114.45***	89.01***	89.42***	98.42***	99.16***	89.57***	76.28***	64.42***	52.29***	7.11***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.69	0.68	0.69	0.66	0.68	0.70	0.70	0.66	0.70	0.69	0.60	0.41	0.30	
A-B AR(2) test p-value[c]	0.31	0.31	0.32	0.30	0.31	0.31	0.34	0.31	0.34	0.31	0.36	0.36	0.30	
Number of instruments	27	27	27	27	27	27	27	27	27	27	28	23	27	
Cross-section	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	120	120	120	120	120	120	120	120	120	120	120	120	120	150
R-squared (within)														0.28
between														0.21
overall														0.11

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 6. Panel Estimation of Expenditures Implementation Gaps with Economic and Political Variables in Absolute Values (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	1.34**	-0.03	-6.12	1.02	0.09	1.00	0.72	0.68	0.13	1.60	1.58	2.68	2.65
	(0.53)	(0.85)	(9.29)	(0.72)	(0.76)	(0.82)	(1.22)	(1.17)	(0.78)	(2.05)	(2.73)	(3.07)	(3.13)
gcenlgimperra(-1)				0.06	0.05	-0.12	-0.12	-0.14	0.05	-0.11	-0.12	-0.10	-0.09
				(0.09)	(0.08)	(0.10)	(0.12)	(0.10)	(0.08)	(0.12)	(0.11)	(0.11)	(0.11)
gcenlgpro	0.24	0.34*	0.31**	0.46*	0.53**	0.60**	0.54**	0.50**	0.53*	0.59***	0.59**	0.64***	0.63***
	(0.15)	(0.17)	(0.14)	(0.26)	(0.26)	(0.23)	(0.22)	(0.23)	(0.26)	(0.20)	(0.23)	(0.21)	(0.21)
ngdp_rerr	29.76***	31.93***	28.39	25.33	27.60	34.29	22.68	30.03	27.12	26.98	26.03	27.54	29.77
	(9.84)	(8.92)	(19.81)	(17.82)	(16.99)	(21.95)	(18.06)	(18.42)	(17.47)	(20.71)	(18.04)	(18.82)	(19.62)
pcpierr	11.63	13.03	-1.17	4.88	0.19	-9.58	-9.90	-9.89	0.00	-11.02	-10.58	-11.22	-11.36
	(10.19)	(12.87)	(12.18)	(9.43)	(11.87)	(8.58)	(8.08)	(8.39)	(11.87)	(8.34)	(8.29)	(8.39)	(8.73)
debt(-1)		1.33**	0.17		1.27**	1.38*	1.57**	1.55**	1.26**	1.50*	1.51**	1.44*	1.44*
		(0.56)	(1.02)		(0.47)	(0.69)	(0.71)	(0.68)	(0.47)	(0.75)	(0.68)	(0.75)	(0.76)
aid_dif		-0.02	-0.02		-0.02	-0.04	-0.04	-0.04	-0.02	-0.04	-0.04	-0.04	-0.04
		(0.02)	(0.02)		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
terms-trade_err		0.67	0.08		1.85**	2.22**	2.24**	2.11**	1.86**	2.27***	2.23**	2.31**	2.26**
		(0.51)	(0.65)		(0.69)	(0.83)	(0.83)	(0.79)	(0.69)	(0.82)	(0.82)	(0.86)	(0.87)
polity2			-0.35			0.07				0.09	0.10	0.19	0.19
			(0.57)			(0.06)				(0.15)	(0.25)	(0.26)	(0.26)
polcomp			0.53				0.11			-0.07		-0.13	-0.14
			(0.89)				(0.13)			(0.33)		(0.29)	(0.29)
xconst			1.20					0.18			-0.10	-0.23	-0.23
			(1.10)					(0.20)			(0.79)	(0.71)	(0.72)
ele			-0.03						-0.11				0.25
			(0.40)						(0.46)				(0.42)
F-test	2.48**	2.85***	1.43	2.27**	5.83***	4.67***	5.32***	5.55***	5.23***	5.49***	5.27***	5.12***	4.51***
Estimation method[a]	FE-OLS	FE-OLS	FE-OLS	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
Hansen test p-value[b]				0.24	0.53	0.35	0.33	0.35	0.53	0.31	0.27	0.25	0.24
A-B AR(2) test p-value[c]				0.65	0.67	--	--	--	0.67	--	--	--	--
Number of instruments				33	36	24	24	24	37	25	24	26	27
Cross-section	40	38	35	40	38	36	35	35	38	35	35	35	35
Observations	197	190	139	157	152	108	105	105	152	105	105	105	105
R-squared (within)	0.11	0.16	0.11										
between	0.26	0.28	0.03										
overall	0.15	0.21	0.03										

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] P-value statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 7. Panel Estimation of Expenditures Implementation Gaps with Economic and WGI Governance Variables (2004–08)

	1	2	3	4	5	6	7	8	9	10
α	-1.79**	-1.73**	-1.58**	-1.75**	-1.74**	-1.87**	-0.17	-1.63**	-1.66**	0.81
	(0.66)	(0.79)	(0.72)	(0.74)	(0.75)	(0.68)	(3.38)	(0.68)	(0.77)	(1.06)
gcenlgimperra(-1)	-0.04	-0.04	-0.06	-0.04	-0.04	-0.03	-0.10	-0.06	-0.06	
	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.11)	(0.09)	(0.09)	
gcenlgpro	0.75**	0.72**	0.72**	0.75**	0.74**	0.75**	0.64***	0.71**	0.72**	0.44*
	(0.30)	(0.30)	(0.28)	(0.37)	(0.30)	(0.31)	(0.20)	(0.29)	(0.28)	(0.24)
ngdp_rerr	76.79***	75.23***	72.76***	76.21***	75.72***	77.37***	22.60	70.51***	68.29***	29.26**
	(22.59)	(25.20)	(23.21)	(24.38)	(25.01)	(23.74)	(47.34)	(23.61)	(23.10)	(12.86)
pcpierr	8.62	9.05	9.84	8.61	8.66	8.65	-11.16	9.67	8.76	20.12
	(16.73)	(16.96)	(16.24)	(16.72)	(16.69)	(16.99)	(8.74)	(15.93)	(17.23)	(16.31)
debt(-1)	1.00**	0.99**	1.19**	1.01**	1.00**	0.93**	1.24	0.97**	1.06**	1.17*
	(0.45)	(0.40)	(0.43)	(0.42)	(0.42)	(0.43)	(0.92)	(0.38)	(0.43)	(0.66)
aid_dif	-0.01	-0.01	-0.02	-0.01	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
terms-trade_err	3.10***	3.12***	2.95***	3.15***	3.14***	3.15***	2.50**	2.90***	3.01***	1.05*
	(0.66)	(0.69)	(0.67)	(0.69)	(0.69)	(0.68)	(1.05)	(0.69)	(0.66)	(0.61)
wgiva	0.23								0.06	-1.85
	(0.29)								(0.64)	(1.83)
wgirl		0.17							-1.69	2.80
		(0.33)							(1.59)	(3.67)
wgipsav			0.45**					0.68**	0.89	0.17
			(0.21)					(0.29)	(0.54)	(1.36)
wgige				0.20					0.20	-3.24
				(0.34)					(1.66)	(2.15)
wgicc					0.22				1.06	1.18
					(0.39)				(1.35)	(1.99)
wgirq						0.06		-0.76	-0.52	2.54
						(0.39)		(0.52)	(0.88)	(2.39)
cpia							0.45			
							(0.75)			
F-test	8.47***	11.09***	9.49***	7.94***	7.91***	7.50***	4.06***	9.73***	32.00***	1.78*
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.35	0.32	0.36	0.33	0.33	0.35	0.21	0.37	0.33	
A-B AR(2) test p-value[c]	0.90	0.91	0.91	0.88	0.90	0.81	--	0.76	0.64	
Number of instruments	22	22	22	22	22	22	18	23	27	
Cross-section	30	30	30	30	30	30	31	30	30	30
Observations	120	120	120	120	120	120	93	120	120	150
R-squared (within)										0.23
between										0.14
overall										0.17

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 8. Panel Estimation of Expenditures Implementation Gaps with the Budget Institutions and Regulatory Quality Indexes (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	-1.18*	-1.21	-1.20*	-1.19*	-1.16	-1.18	-1.18*	-1.15*	-1.18	-1.21	-1.15	-1.96**	1.26
	(0.67)	(0.66)	(0.68)	(0.66)	(0.69)	(0.68)	(0.67)	(0.67)	(0.70)	(0.66)	(0.69)	(0.92)	(1.04)
gcenlgimperra(-1)	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.03	0.01	0.02	0.02	-0.03	
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	
gcenlgpro	0.70**	0.70**	0.71**	0.70**	0.70**	0.71**	0.70**	0.70**	0.70**	0.71**	0.71**	0.73**	0.53**
	(0.32)	(0.32)	(0.32)	(0.32)	(0.31)	(0.32)	(0.32)	(0.32)	(0.31)	(0.32)	(0.32)	(0.30)	(0.24)
ngdp_rerr	56.16***	56.17***	55.98***	55.70***	56.59***	56.99***	56.36***	54.68***	57.05***	56.81***	54.27***	79.16***	33.15***
	(19.38)	(18.73)	(19.61)	(19.19)	(19.23)	(19.96)	(19.43)	(19.02)	(19.14)	(18.97)	(15.71)	(27.56)	(10.82)
pcpierr	8.78	8.87	8.32	8.89	8.97	8.52	8.75	8.79	8.62	8.76	8.85	9.97	22.22
	(16.86)	(16.84)	(16.49)	(16.86)	(17.14)	(16.77)	(16.88)	(16.68)	(16.93)	(16.91)	(16.74)	(18.71)	(15.85)
debt(-1)	0.99**	0.95**	0.96**	0.94**	1.02**	1.01**	0.99**	0.99**	0.99**	0.97**	0.97**	0.98*	1.65**
	(0.38)	(0.41)	(0.38)	(0.39)	(0.39)	(0.37)	(0.38)	(0.37)	(0.41)	(0.39)	(0.39)	(0.48)	(0.76)
aid_dif	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
terms-trade_err	3.13***	3.13***	3.17***	3.15***	3.08***	3.12***	3.12***	3.16***	3.09***	3.13***	3.19***	3.06***	1.23**
	(0.70)	(0.70)	(0.72)	(0.70)	(0.68)	(0.70)	(0.70)	(0.71)	(0.68)	(0.70)	(0.68)	(0.74)	(0.59)
overall_categoriesq	0.15										0.69		
	(0.23)										(3.42)		
transparencyq		0.11										-0.32	4.60
		(0.20)										(1.25)	(4.62)
comprehensivenssq			0.12									-0.29	-0.57
			(0.23)									(1.10)	(2.92)
sustainabilityq				0.15								-0.49	5.39
				(0.26)								(1.01)	(3.66)
top_downq					0.12							0.07	-1.22
					(0.20)							(0.72)	(3.73)
rulesq						0.17						0.01	2.51
						(0.23)						(1.03)	(4.59)
overall_stagesq							0.15				-0.54		
							(0.23)				(3.43)		
planningq								0.15					
								(0.26)					
approvalq									0.12			0.00	2.01
									(0.21)			(0.82)	(2.70)
implementationq										0.14		0.97	-9.77*
										(0.20)		(1.61)	(5.33)
F-test	7.02***	6.58***	8.16***	6.71***	6.91***	7.29***	6.94***	7.58***	6.88***	6.56***	6.70***	14.70***	1.75*
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.18	0.18	0.18	0.17	0.19	0.19	0.19	0.17	0.19	0.19	0.17	0.32	
A-B AR(2) test p-value[c]	0.54	0.54	0.55	0.53	0.55	0.56	0.55	0.52	0.57	0.56	0.50	0.76	
Number of instruments	27	27	27	27	27	27	27	27	27	27	28	28	
Cross-section	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	120	120	120	120	120	120	120	120	120	120	120	120	150
R-squared (within)													0.23
between													0.07
overall													0.09

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS and GMM uses Aurellano-Bond2 System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 9. Panel Estimation of Revenues Implementation Gaps in Levels with Economic and Political Variables (2004–2008)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	-0.34	-2.22	4.91	1.35	-1.11	-2.46	-4.41	-3.13	-1.51	-3.93	3.41	3.72	4.50
	(1.81)	(3.37)	(6.25)	(2.81)	(2.66)	(2.44)	(3.36)	(3.54)	(3.37)	(5.15)	(4.69)	(8.94)	(9.05)
gcrggimperra(-1)				-0.55***	-0.50***	-0.43***	-0.44***	-0.43***	-0.50***	-0.44***	-0.46***	-0.46***	-0.46***
				(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
gcrggpro	0.31**	0.32**	0.23	0.80***	0.76***	0.73***	0.72***	0.73***	0.76***	0.73***	0.74***	0.74***	0.74***
	(0.14)	(0.14)	(0.27)	(0.13)	(0.12)	(0.16)	(0.16)	(0.16)	(0.13)	(0.16)	(0.16)	(0.15)	(0.16)
ngdp_rerr	9.55	18.13	-10.75	33.07	37.27	104.45***	85.90**	101.78***	43.48	100.61**	97.30**	101.04*	105.15*
	(28.75)	(30.55)	(54.48)	(59.34)	(49.66)	(36.82)	(38.41)	(36.81)	(57.24)	(49.40)	(43.05)	(53.80)	(57.78)
pcpierr	84.63	111.73	111.94*	49.12	64.73*	56.72	57.58	57.14	65.77*	57.25	58.23	58.13	57.19
	(56.31)	(66.24)	(55.52)	(30.96)	(34.31)	(42.45)	(42.52)	(42.78)	(36.10)	(42.87)	(43.49)	(43.75)	(44.23)
debt(-1)		0.61	0.89		2.65**	2.11	2.38	2.17	2.66**	2.29	2.36	2.34	2.26
		(2.41)	(2.47)		(1.21)	(1.86)	(1.93)	(1.91)	(1.23)	(1.97)	(1.88)	(1.94)	(1.91)
aid_dif		-0.08	-0.05		-0.10	-0.12	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11	-0.11
		(0.09)	(0.14)		(0.09)	(0.12)	(0.12)	(0.12)	(0.09)	(0.12)	(0.12)	(0.12)	(0.12)
terms-trade_err		4.00	0.06		5.48	5.95	5.74	5.86	5.40	5.62	5.78	5.76	5.82
		(3.13)	(4.32)		(3.60)	(5.13)	(5.12)	(5.20)	(3.53)	(5.13)	(5.16)	(5.19)	(5.20)
polity2			0.70			0.17				0.06	0.68	0.71	0.77
			(0.46)			(0.17)				(0.48)	(0.43)	(0.86)	(0.87)
polcomp			0.20				0.39			0.28		-0.04	-0.12
			(0.76)				(0.28)			(0.90)		(1.01)	(1.02)
xconst			-1.91*					0.26			-1.65	-1.68	-1.77
			(1.02)					(0.51)			(1.28)	(1.52)	(1.54)
ele			-2.41						1.52				-0.24
			(1.45)						(3.94)				(1.97)
F-test	4.65***	4.13***	1.70	16.47***	49.12***	5.18***	4.79***	4.72***	56.91***	4.49***	4.73***	4.61***	4.39***
Estimation method[a]	FE-OLS	FE-OLS	FE-OLS	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
Hansen test p-value[b]				0.20	0.21	0.75	0.76	0.74	0.14	0.75	0.74	0.72	0.70
A-B AR(2) test p-value[c]				0.50	0.43	--	--	--	0.44	--	--	--	--
Number of instruments				36	39	26	26	26	39	27	27	28	29
Cross-section	41	39	36	41	39	37	36	36	39	36	36	36	36
Observations	202	195	143	161	156	111	108	108	156	110	108	108	108
R-squared (within)	0.16	0.19	0.18										
between	0.48	0.55	0.36										
overall	0.25	0.29	0.22										

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 10. Panel Estimation of Revenues Implementation Gaps in Absolute Values with Economic and WGI Governance Variables (2004–08)

	1	2	3	4	5	6	7	8	9	10	11
α	-2.94	-3.24	-2.46	-3.27	-3.10	-3.23	-15.50	-5.96	-5.94	-6.43	-11.32
	(2.77)	(3.33)	(3.21)	(3.43)	(3.36)	(3.17)	(8.93)	(4.03)	(3.99)	(3.97)	(6.92)
gcrggimperra(-1)	-0.55***	-0.54***	-0.55***	-0.55***	-0.55***	-0.55***	-0.40**	-0.54***	-0.54***	-0.54***	
	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.17)	(0.15)	(0.15)	(0.15)	
gcrggpro	0.76***	0.75***	0.75***	0.75***	0.75***	0.75***	0.77***	0.74***	0.74***	0.74***	0.27*
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.15)	(0.13)	(0.13)	(0.13)	(0.13)
ngdp_rerr	59.76	65.23	58.10	66.49	63.58	60.07	155.58***	130.36	130.14	145.88	27.61
	(83.96)	(86.27)	(86.01)	(88.49)	(86.96)	(83.92)	(48.26)	(94.31)	(93.39)	(92.46)	(39.88)
pcpierr	57.06	58.79	58.01	59.55	59.10	56.76	50.44	54.42	54.36	53.34	127.67
	(42.76)	(43.56)	(42.29)	(42.69)	(42.92)	(41.76)	(49.11)	(43.89)	(43.80)	(45.75)	(79.32)
debt(-1)	2.40	2.31	2.73	2.19	2.27	1.34	2.35	0.82	0.81	0.92	2.04
	(2.97)	(3.04)	(3.04)	(3.22)	(3.18)	(3.13)	(2.20)	(2.96)	(2.93)	(2.99)	(2.71)
aid_dif	-0.10	-0.09	-0.09	-0.09	-0.09	-0.09	-0.16	-0.08	-0.08	-0.09	-0.10
	(0.12)	(0.10)	(0.10)	(0.10)	(0.09)	(0.09)	(0.15)	(0.09)	(0.09)	(0.09)	(0.10)
terms-trade_err	7.66	5.52	5.74	5.39	5.39	5.49	7.44	5.82	5.83	5.78	3.94
	(9.10)	(3.97)	(4.10)	(4.03)	(3.96)	(4.02)	(6.84)	(4.32)	(4.35)	(3.92)	(3.44)
wgiva	-1.07							2.36	2.44	2.16	9.25
	(1.19)							(2.57)	(2.65)	(2.90)	(7.37)
wgirl		-1.94								0.20	-8.29
		(1.54)								(5.41)	(12.89)
wgipsav			-0.62						-0.10	0.70	-3.07
			(0.81)						(1.41)	(2.10)	(3.91)
wgige				-1.81						5.10	19.50
				(1.52)						(5.16)	(11.90)
wgicc					-1.96					-5.90	-13.82
					(1.67)					(5.33)	(9.53)
wgirq						-3.80**		-6.98*	-6.97*	-7.58	-21.04*
						(1.75)		(3.79)	(3.85)	(6.35)	(12.31)
cpia							3.85*				
							(2.23)				
F-test	59.31***	49.80***	59.55***	58.05***	62.00***	60.46***	8.73***	29.17***	48.55***	43.20***	3.84***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.49	0.35	0.27	0.40	0.40	0.24	0.34	0.26	0.27	0.18	
A-B AR(2) test p-value[c]	0.64	0.54	0.54	0.54	0.53	0.57	--	0.74	0.74	0.76	
Number of instruments	26	27	27	27	27	27	20	23	24	27	
Cross-section	30	30	30	30	30	30	32	30	30	30	30
Observations	120	120	120	120	120	120	96	120	120	120	150
R-squared (within)											0.24
between											0.34
overall											0.20

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table 11. Panel Estimation of Revenues Implementation Gaps in Absolute Values with the Budget Institutions and Regulatory Quality Indexes (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	-3.44	-3.05	-3.56	-3.03	-3.17	-3.71	-3.60	-3.16	-4.10	-3.14	-3.87	-5.22	-12.18**
	(3.30)	(3.39)	(3.51)	(3.26)	(3.21)	(3.20)	(3.27)	(3.44)	(3.16)	(3.27)	(3.11)	(4.26)	(4.55)
gcenlgimperra(-1)	-0.54***	-0.55***	-0.54***	-0.55***	-0.54***	-0.55***	-0.54***	-0.55***	-0.54***	-0.55***	-0.54***	-0.56***	
	(0.15)	(0.14)	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)	(0.14)	(0.15)	(0.15)	(0.15)	(0.16)	
gcenlgpro	0.75***	0.76***	0.76***	0.76***	0.75***	0.75***	0.75***	0.76***	0.74***	0.76***	0.73***	0.73***	0.29***
	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)	(0.14)
ngdp_rerr	70.63	65.26	76.05	61.32	63.66	77.17	73.25	61.88	79.54	69.53	71.35	78.94	26.55
	(87.77)	(90.44)	(93.80)	(87.30)	(84.39)	(85.51)	(86.97)	(89.89)	(81.90)	(88.95)	(78.90)	(91.73)	(31.36)
pcpierr	56.65	55.67	60.74	55.64	55.17	58.14	56.68	57.69	57.71	55.87	59.03	68.67	130.92*
	(42.26)	(41.92)	(42.65)	(41.81)	(41.83)	(42.57)	(42.32)	(42.13)	(42.61)	(42.09)	(42.94)	(47.78)	(76.02)
debt(-1)	1.56	1.98	1.66	2.08	1.62	1.40	1.45	1.62	1.09	2.02	1.28	1.27	-1.05
	(3.04)	(2.96)	(3.15)	(2.90)	(3.08)	(3.09)	(3.01)	(3.10)	(2.96)	(2.98)	(2.94)	(3.31)	(2.52)
aid_dif	-0.09	-0.10	-0.10	-0.10	-0.09	-0.09	-0.09	-0.10	-0.08	-0.10	-0.08	-0.08	-0.06
	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)	(0.10)	(0.09)	(0.09)	(0.10)
terms-trade_err	5.55	5.64	5.32	5.47	5.88	5.36	5.58	5.43	5.87	5.55	6.03	5.78	3.93
	(4.02)	(4.04)	(3.98)	(4.12)	(4.11)	(3.95)	(4.00)	(4.06)	(3.94)	(4.05)	(3.99)	(4.45)	(3.70)
overall_categoriesq	-1.99**										14.43		
	(0.86)										(13.36)		
transparencyq		-1.59**										5.01	-12.69
		(0.71)										(2.99)	(17.61)
comprehensivenssq			-1.93**									7.51	-12.83
			(0.87)									(4.97)	(20.35)
sustainabilityq				-2.03*								1.43	26.20
				(1.19)								(2.78)	(18.80)
top_downq					-1.24*							11.37*	-5.14
					(0.72)							(5.59)	(24.78)
rulesq						-2.26**						-1.61	9.42
						(0.97)						(2.75)	(16.05)
overall_stagesq							-2.12**				-16.76		
							(0.87)				(13.66)		
planningq								-2.00**				-16.25*	9.48
								(0.95)				(8.91)	(25.52)
approvalq									-2.22**			-12.76**	-22.79
									(0.92)			(6.16)	(15.81)
implementationq										-1.56**			
										(0.76)			
F-test	67.63***	71.59***	70.12***	70.02***	67.48***	53.23***	67.78***	70.24***	56.79***	60.89***	56.83***	40.90***	7.91***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.27	0.33	0.42	0.21	0.28	0.23	0.28	0.31	0.40	0.25	0.52	0.30	
A-B AR(2) test p-value[c]	0.59	0.59	0.61	0.56	0.58	0.60	0.60	0.58	0.63	0.57	0.63	0.67	
Number of instruments	27	27	27	27	27	27	27	27	27	27	28	28	
Cross-section	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	120	120	120	120	120	120	120	120	120	120	120	120	150
R-squared (within)													0.26
between													0.18
overall													0.10

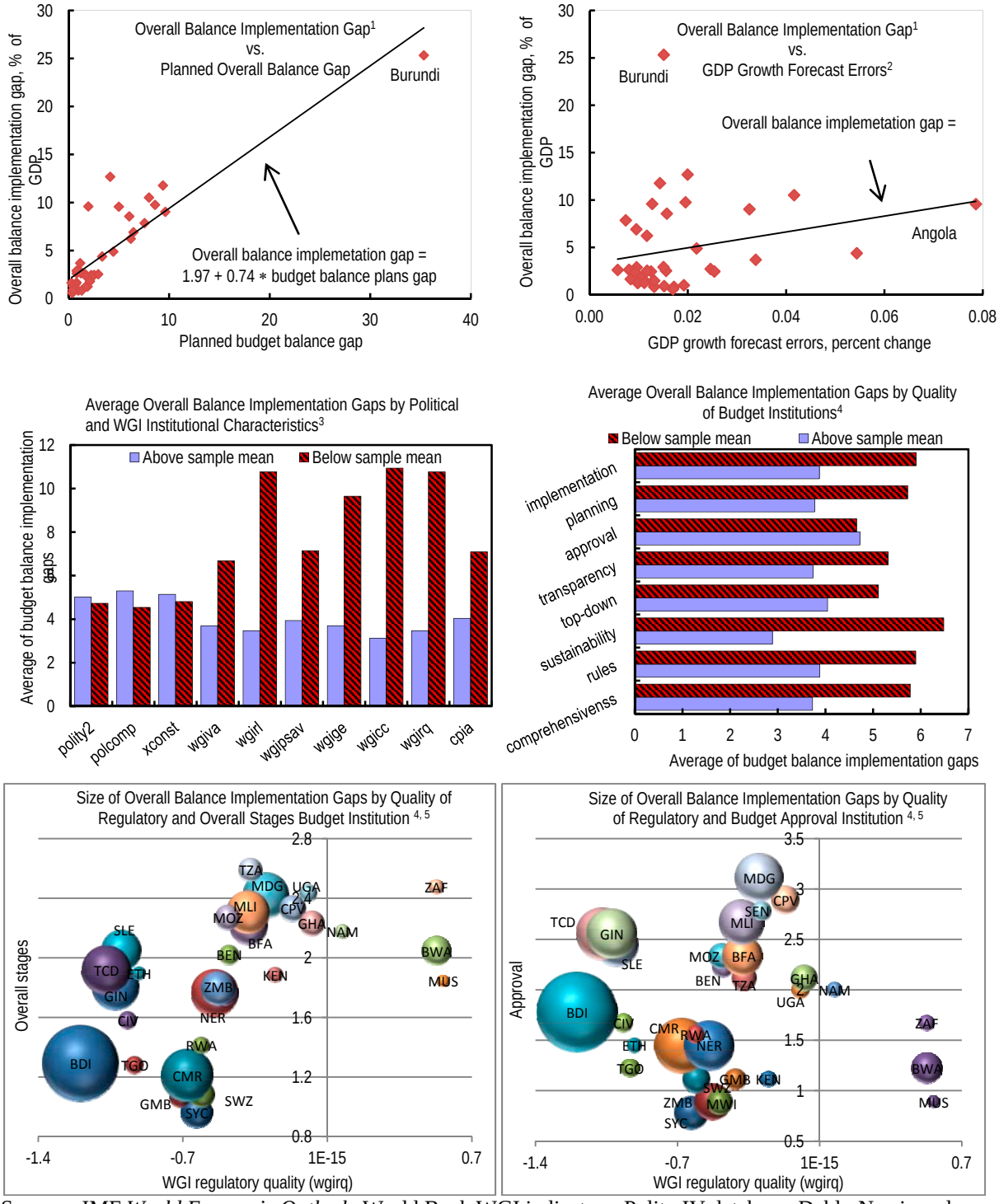
Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

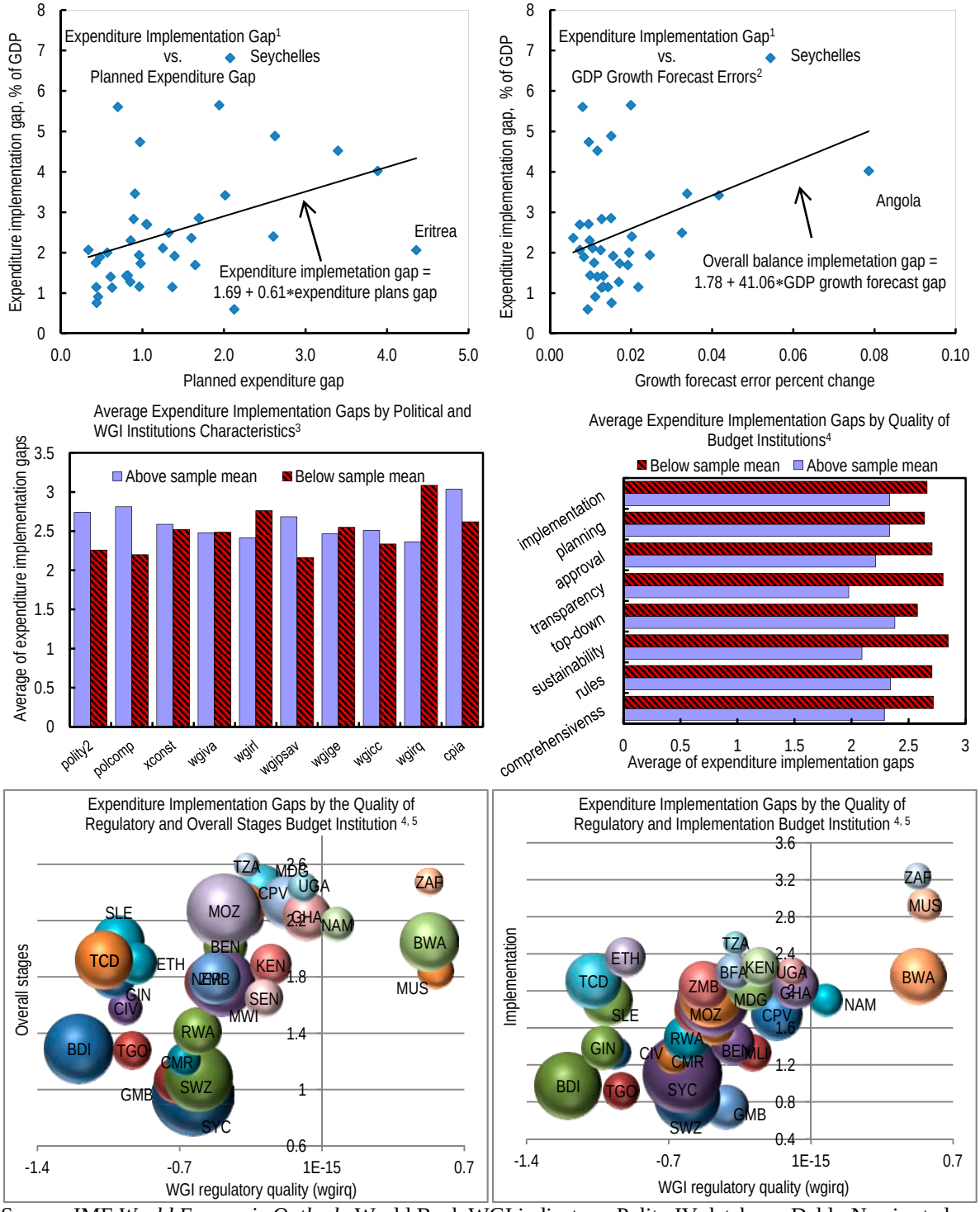
Figure 1. Sub-Saharan Africa: Graphical Analysis of Overall Budget Balance Implementation Gaps, 2004–08



Sources: IMF *World Economic Outlook*; World Bank WGI indicators; Polity IV database; Dabla-Norris and others (2010); and authors' computations.

Notes: [1] Difference between implemented and planned changes in the overall balance. [2] Difference between actual and projected real GDP growth rates. [3] See WGI and Polity IV databases for variables definition. [4] Budget procedure indices range from 0 to 4, with a higher score reflecting better performance. [5] WGI regulatory quality index ranges from -2.5 to 2.5, with a higher score reflecting better performance.

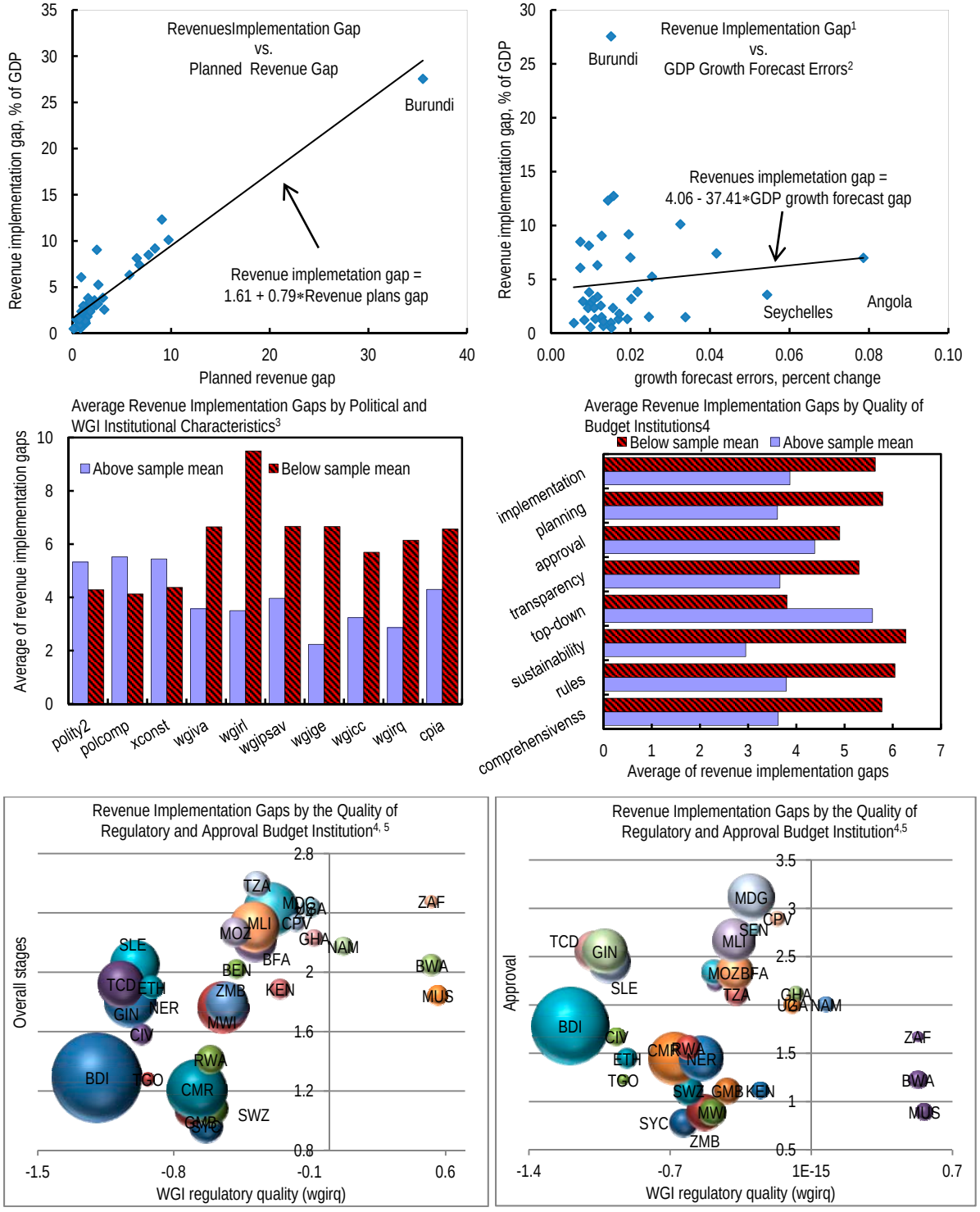
Figure 2. Sub-Saharan Africa: Graphical Analysis of Expenditure Gaps, 2004–08



Source: IMF *World Economic Outlook*; World Bank WGI indicators; Polity IV database; Dabla-Norris et al. (2010); and authors' computations.

Notes: [1] Difference between implemented and planned changes in fiscal expenditures. [2] Difference between actual and projected real GDP growth rates. [3] See WGI and Polity IV databases for variables definition. [4] Budget procedure indices range from 0 to 4, with a higher score reflecting better performance. [5] WGI regulatory quality index ranges from -2.5 to 2.5, with a higher score reflecting better performance.

Figure 3. Sub-Saharan Africa: Graphical Analysis of Revenue Gaps, 2004–08



Source IMF *World Economic Outlook*; World Bank WGI indicators; Polity IV database; Dabla-Norris et al. (2010); and authors' computations.

Notes: [1] Difference between implemented and planned changes in fiscal revenues. [2] Difference between actual and projected real GDP growth rates. [3] See WGI and Polity IV databases for variables definition. [4] Budget procedure indices range from 0 to 4, with a higher score reflecting better performance. [5] WGI regulatory quality index ranges from -2.5 to 2.5, with a higher score reflecting better performance.

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APPENDIX – ESTIMATION OF FISCAL POLICY IMPLEMENTATION GAPS IN LEVELS

Table A1. Panel Estimation of Overall Balance Implementation Gaps with Economic and Political Variables in Levels (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
α	1.02	0.49	23.79*	1.33	0.23	-2.14	-1.13	1.02	0.01	6.44	-1.11	1.03	2.00	2.62
	(0.99)	(2.60)	(14.02)	(1.61)	(1.95)	(1.92)	(2.81)	(2.78)	(1.96)	(5.96)	(2.95)	(2.88)	(9.19)	(9.96)
bbgimperra(-1)				-0.51***	-0.48***	-0.42***	-0.43***	-0.42***	-0.48***	-0.42***	-0.49***	-0.42***	-0.43***	-0.43***
				(0.11)	(0.10)	(0.11)	(0.12)	(0.11)	(0.10)	(0.12)	(0.14)	(0.11)	(0.12)	(0.12)
bbgpro	-0.52***	-0.54***	-0.51*	-0.82***	-0.87***	-0.87***	-0.87***	-0.86***	-0.87***	-0.85***	-0.88***	-0.86***	-0.85***	-0.85***
	(0.15)	(0.12)	(0.27)	(0.07)	(0.06)	(0.09)	(0.09)	(0.09)	(0.06)	(0.09)	(0.07)	(0.09)	(0.09)	(0.09)
ngdp_rerr	45.01*	52.78**	38.47	107.62**	110.44***	111.05*	101.99*	116.10*	105.36***	132.74**	73.26	114.97*	137.46*	136.84*
	(22.71)	(25.62)	(36.18)	(40.10)	(37.60)	(63.08)	(59.83)	(59.22)	(38.05)	(57.07)	(60.63)	(59.57)	(68.71)	(68.87)
pcpi_err	-6.52	-15.83	-32.61	14.10	10.22	14.48	13.28	14.35	9.94	14.25	7.60	14.45	14.52	14.52
	(33.94)	(42.60)	(36.27)	(18.10)	(21.05)	(25.22)	(25.48)	(25.57)	(20.97)	(25.79)	(24.82)	(26.03)	(25.64)	(26.26)
debt(-1)		0.62	5.03*		2.36	2.71	2.57	2.77	2.35	2.86	2.51	2.75	3.06	3.03
		(2.65)	(2.88)		(1.67)	(2.11)	(2.19)	(2.07)	(1.67)	(2.03)	(2.16)	(2.07)	(2.04)	(2.03)
aid_dif		0.26**	0.23		0.24**	0.25*	0.24*	0.24*	0.24**	0.24*	0.23*	0.23*	0.24*	0.24*
		(0.11)	(0.15)		(0.11)	(0.12)	(0.12)	(0.12)	(0.11)	(0.13)	(0.12)	(0.12)	(0.13)	(0.13)
terms-trade_err		0.53	-2.33		1.56	1.91	1.59	1.67	1.48	1.90	0.85	1.58	1.85	1.78
		(1.96)	(2.50)		(2.44)	(3.80)	(3.87)	(3.87)	(2.38)	(4.16)	(3.65)	(3.84)	(4.17)	(4.12)
polity2			2.55***			-0.21				0.56			0.23	0.28
			(0.78)			(0.18)				(0.59)			(0.89)	(0.94)
polcomp			-3.19**				-0.23				-0.23		0.53	0.48
			(1.44)				(0.32)				(0.31)		(0.88)	(0.92)
xconst			-2.93*					-0.86*		-2.43		-0.85	-2.05	-2.12
			(1.64)					(0.46)		(1.63)		(0.46)	(1.79)	(1.86)
ele			-0.92						0.37		-0.34	-0.20		-0.25
			(1.46)						(1.23)		(1.82)	(1.79)		(1.90)
F-test	9.64***	12.27***	3.28***	45.03***	107.45***	11.78***	12.28***	12.52***	99.06***	13.30***	20.34***	17.08***	13.68***	15.06***
Estimation method[a]	FE-OLS	FE-OLS	FE-OLS	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
Hansen test p-value[b]				0.27	0.18	0.27	0.29	0.33	0.24	0.34	14.33	0.31	0.45	0.44
A-B AR(2) test p-value[c]				0.55	0.40	--	--	--	0.42	--		--	--	--
Number of instruments				36	39	26	26	26	40	27	27	27	28	29
Cross-section	41	39	36	41	39	37	36	36	39	36	36	36	36	36
Observations	202	195	143	161	156	111	108	108	156	108	108	108	108	108
R-squared (within)	0.29	0.35	0.34											
between	0.65	0.61	0.10											
overall	0.36	0.39	0.21											

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses the System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A2. Panel Estimation of Overall Balance Implementation Gaps with Economic and WGI Governance Variables in Levels (2004–08)

	1	2	3	4	5	6	7	8	9	10
α	-4.05**	-3.47	-3.87**	-3.27	-3.46	-3.89**	-5.84	-1.13	-0.82	13.69**
	(1.79)	(2.19)	(1.75)	(2.15)	(2.24)	(1.86)	(7.07)	(2.07)	(2.41)	(6.11)
bbgimperr(-1)	-0.56***	-0.56***	-0.57***	-0.56***	-0.56***	-0.56***	-0.43***	-0.56***	-0.56***	
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.12)	(0.08)	(0.08)	
bbgpro	-0.89***	-0.89***	-0.90***	-0.89***	-0.89***	-0.89***	-0.86***	-0.90***	-0.91***	-0.52***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.13)
ngdp_rerr	2.73	11.70	11.18	13.29	10.71	2.94	101.83*	74.23	71.22	19.00
	(48.51)	(55.19)	(48.97)	(55.31)	(55.72)	(49.33)	(57.24)	(56.87)	(61.69)	(24.67)
pcpierr	23.18	24.92	25.35	24.33	24.40	23.49	8.49	27.89	27.54	-8.02
	(24.65)	(25.03)	(24.60)	(24.98)	(24.70)	(24.81)	(27.13)	(24.40)	(23.78)	(52.34)
debt(-1)	5.30**	5.63**	5.16**	5.92**	5.77**	5.56**	2.46	5.93**	5.62*	2.38
	(2.52)	(2.57)	(2.26)	(2.77)	(2.76)	(2.69)	(2.48)	(2.65)	(2.77)	(3.74)
aid_dif	0.22**	0.21**	0.21**	0.22**	0.21	0.21	0.25*	0.22**	0.22**	0.28**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.13)	(0.10)	(0.10)	(0.11)
terms-trade_err	0.56	0.70	0.65	0.68	0.62	0.62	2.26	0.97	0.97	2.26
	(2.14)	(2.17)	(2.18)	(2.15)	(2.12)	(2.14)	(4.11)	(2.29)	(2.39)	(2.33)
wgiva	0.41							-0.78	0.24	5.39
	(1.49)							(2.74)	(3.26)	(6.70)
wgirl		1.16							1.75	19.12
		(1.82)							(5.39)	(14.21)
wgipsav			-0.16						-2.19	-8.62*
			(0.72)						(2.59)	(4.71)
wgige				1.56				3.43	3.14	12.98
				(1.79)				(4.81)	(5.42)	(11.35)
wgicc					1.47			0.72	1.42	3.09
					(2.50)			(5.21)	(6.62)	(8.97)
wgirq						0.97		-2.38	-3.52	-4.87
						(1.92)		(4.06)	(5.28)	(8.72)
cpia							1.07			
							(1.77)			
F-test	39.62***	39.64***	39.38***	37.50***	38.84***	41.96***	12.29***	18.99***	15.51***	9.24***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.54	0.57	0.56	0.55	0.59	0.57	0.29	0.19	0.17	
A-B AR(2) test p-value[c]	0.99	0.95	0.95	0.95	0.93	0.98	--	0.84	0.71	
Number of instruments	27	27	27	27	27	27	26	25	27	
Cross-section	30	30	30	30	30	30	32	30	30	30
Observations	120	120	120	120	120	120	96	120	120	150
R-squared (within)										0.41
between										0.04
overall										0.09

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A3. Panel Estimation of Overall Balance Implementation Gaps in Levels with the Budget Institutions and Regulatory Quality Indexes (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
α	-3.79*	-3.82**	-3.83**	-3.86	-3.67*	-3.83**	-3.82**	-3.72*	-3.98**	-3.89**	-4.26*	-1.76	-3.18	1.49
	(1.85)	(1.82)	(1.86)	(1.79)	(1.87)	(1.86)	(1.84)	(1.91)	(1.85)	(1.80)	(2.00)	(1.98)	(2.76)	(3.53)
bbgimperr(-1)	-0.56***	-0.56***	-0.56***	-0.56***	-0.56***	-0.56***	-0.56***	-0.56***	-0.56***	-0.56***	-0.57***	-0.57***	-0.57***	
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	
bbgpro	-0.89***	-0.90***	-0.90***	-0.90***	-0.89***	-0.89***	-0.89***	-0.90***	-0.90***	-0.90***	-0.92***	-0.90***	-0.93***	-0.49***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.09)	(0.13)
ngdp_rerr	7.97	6.68	7.90	11.74	7.43	7.20	8.20	9.55	8.30	5.58	2.72	75.94	66.67	5.81
	(50.19)	(50.11)	(50.91)	(46.62)	(52.19)	(50.38)	(50.00)	(51.21)	(50.82)	(49.13)	(54.87)	(54.74)	(65.03)	(22.38)
pcpierr	24.74	25.33	24.20	24.65	24.67	24.38	24.65	24.69	24.37	25.05	25.26	33.29	37.86	-19.14
	(24.76)	(24.75)	(24.74)	(24.81)	(24.86)	(24.86)	(24.75)	(24.77)	(24.72)	(24.80)	(24.72)	(24.80)	(25.26)	(58.23)
debt(-1)	5.57*	5.61**	5.50**	5.18**	5.86**	5.55**	5.50**	5.61**	5.18**	5.55**	5.34**	6.17**	5.85**	2.66
	(2.42)	(2.27)	(2.43)	(2.34)	(2.37)	(2.53)	(2.41)	(2.47)	(2.36)	(2.36)	(2.40)	(2.52)	(2.71)	(3.25)
aid_dif	0.21**	0.21**	0.21**	0.22**	0.22**	0.21**	0.21**	0.21**	0.22**	0.21**	0.21*	0.22**	0.22*	0.29**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)	(0.11)	(0.12)
terms-trade_err	0.68	0.71	0.69	0.62	0.67	0.64	0.65	0.71	0.60	0.67	0.89	1.39	1.60	1.20
	(2.12)	(2.09)	(2.09)	(2.19)	(2.13)	(2.13)	(2.13)	(2.09)	(2.18)	(2.12)	(2.03)	(2.26)	(2.19)	(2.48)
overall_categoriesq	0.49										18.69			
	(0.90)										(15.43)			
transparencyq		0.60											-0.58	-24.73
		(0.92)											(4.57)	(27.03)
comprehensivenssq			0.42										0.64	-3.88
			(0.97)										(1.86)	(10.12)
sustainabilityq				-0.08									-7.67*	-21.25*
				(0.93)									(3.86)	(11.89)
top_downq					0.61							5.91*	5.33	39.37**
					(0.55)							(3.33)	(3.46)	(18.28)
rulesq						0.48							-0.70	4.31
						(0.98)							(5.16)	(21.77)
overall_stagesq							0.39				-18.61			
							(0.90)				(15.91)			
planningq								0.55						
								(1.04)						
approvalq									-0.06			-6.80	-8.56**	-33.59*
									(0.85)			(4.31)	(3.65)	(18.39)
implementationq										0.53			9.07	29.99
										(0.77)			(7.76)	(23.95)
F-test	38.23***	36.26***	36.33***	38.72***	38.88***	40.76***	38.91***	36.86***	43.45***	39.59***	43.95***	18.12***	24.63***	15.74***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.56	0.57	0.56	0.56	0.58	0.56	0.56	0.56	0.56	0.57	0.54	0.29	0.24	
A-B AR(2) test p-value[c]	0.96	0.96	0.96	0.96	0.97	0.97	0.97	0.96	0.97	0.97	0.90	0.82	0.68	
Number of instruments	27	27	27	27	27	27	27	27	27	27	28	23	27	
Cross-section	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	120	120	120	120	120	120	120	120	120	120	120	120	120	150
R-squared (within)														0.38
between														0.30
overall														0.18

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A4. Panel Estimation of Expenditures Implementation Gaps with Economic and Political Variables in Levels (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	-0.28	-1.63	-13.17*	-0.62	-0.27	-0.06	-1.58	-1.28	-0.28	-0.66	-0.35	-1.59	-2.55
	(0.48)	(0.89)	(7.19)	(1.21)	(1.20)	(1.04)	(1.62)	(1.57)	(1.23)	(2.64)	(2.97)	(3.27)	(3.40)
gcenlgimperra(-1)				-0.08	-0.06	0.10	0.11	0.08	-0.06	0.11	0.10	0.10	0.11
				(0.11)	(0.12)	(0.11)	(0.11)	(0.12)	(0.12)	(0.11)	(0.10)	(0.11)	(0.11)
gcenlgpro	-0.53*	-0.59**	-0.43	-0.71**	-0.75**	-0.86**	-0.88**	-0.86**	-0.76**	-0.87**	-0.86**	-0.86**	-0.88***
	(0.20)	(0.23)	(0.27)	(0.27)	(0.31)	(0.33)	(0.33)	(0.32)	(0.31)	(0.32)	(0.34)	(0.33)	(0.32)
ngdp_rerr	-39.29***	-38.96***	-15.54	-48.54	-43.47	1.76	9.65	6.20	-43.89	2.13	4.34	4.38	7.03
	(8.16)	(8.10)	(14.14)	(30.89)	(31.41)	(51.07)	(50.35)	(49.87)	(31.84)	(52.94)	(50.67)	(51.31)	(50.69)
pcpierr	-6.23	-8.80	-2.47	-1.90	-4.05	7.64	8.91	9.46	-3.69	8.48	8.73	8.55	7.85
	(9.43)	(10.79)	(10.77)	(8.31)	(12.20)	(9.41)	(9.80)	(9.52)	(12.33)	(9.52)	(9.53)	(9.58)	(9.35)
debt(-1)		1.40*	0.16		-0.40	-0.45	-0.30	-0.48	-0.40	-0.39	-0.42	-0.35	-0.24
		(0.82)	(1.28)		(0.86)	(0.91)	(0.96)	(0.95)	(0.86)	(1.05)	(0.95)	(1.02)	(0.98)
aid_dif		-0.03	0.01		0.01	0.05	0.06	0.06	0.01	0.06	0.06	0.06	0.06
		(0.02)	(0.02)		(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
terms-trade_err		0.28	1.01		0.80	2.17	2.47*	2.42*	0.83	2.40*	2.45*	2.37*	2.34*
		(0.74)	(0.70)		(1.43)	(1.34)	(1.40)	(1.37)	(1.44)	(1.37)	(1.42)	(1.37)	(1.27)
polity2			-0.59			0.12				0.08	0.10	0.00	-0.06
			(0.49)			(0.08)				(0.20)	(0.24)	(0.27)	(0.28)
polcomp			1.23				0.26			0.09		0.15	0.23
			(0.78)				(0.18)			(0.46)		(0.42)	(0.42)
xconst			1.51*					0.34			0.06	0.18	0.27
			(0.89)					(0.23)			(0.74)	(0.65)	(0.66)
ele			0.09						0.04				0.66*
			(0.53)						(0.60)				(0.66)
F-test	6.05***	5.12***	1.97*	4.23***	4.76***	4.86***	5.93***	4.36***	5.05***	5.42***	4.81***	4.74***	5.34***
Estimation method[a]	FE-OLS	FE-OLS	FE-OLS	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
Hansen test p-value[b]				0.67	0.54	0.59	0.61	0.56	0.52	0.71	0.71	0.75	0.71
A-B AR(2) test p-value[c]				0.80	0.76	--	--	--	0.76	--	--	--	--
Number of instruments				33	36	24	24	24	37	25	24	26	27
Cross-section	40	38	35	40	38	36	35	35	38	35	35	35	35
Observations	197	190	139	157	152	108	105	105	152	105	105	105	105
R-squared (within)	0.19	0.23	0.14										
between	0.05	0.06	0.27										
overall	0.14	0.15	0.18										

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] P-value statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A5. Panel Estimation of Expenditures Implementation Gaps in Levels with Economic and WGI Governance Variables (2004–08)

	1	2	3	4	5	6	7	8	9	10
α	-1.11	-1.16	-1.04	-1.12	-1.10	-1.11	-4.51	-1.01	-1.03	0.80
	(1.55)	(1.63)	(1.48)	(1.64)	(1.58)	(1.56)	(4.20)	(1.43)	(1.55)	(1.40)
gcenlgimperra(-1)	0.01	0.01	0.01	0.02	0.02	0.02	-0.01	0.01	0.01	
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.16)	(0.13)	(0.13)	
gcenlgpro	-1.14**	-1.14**	-1.13**	-1.14**	-1.15**	-1.14**	-0.79**	-1.13**	-1.13**	-0.95***
	(0.43)	(0.42)	(0.41)	(0.44)	(0.43)	(0.44)	(0.32)	(0.41)	(0.41)	(0.20)
ngdp_rerr	-80.39*	-80.90*	-77.85*	-81.17*	-81.00*	-80.38*	-22.50	-77.67*	-75.60*	-35.40***
	(40.94)	(40.45)	(38.51)	(41.52)	(40.27)	(41.06)	(89.86)	(38.19)	(38.13)	(11.40)
pcpierr	-26.89*	-27.12	-26.66	-26.97*	-26.86*	-26.86*	0.73	-26.65	-26.70	-23.11*
	(15.64)	(16.07)	(15.91)	(15.83)	(15.75)	(15.52)	(15.27)	(15.96)	(16.08)	(12.03)
debt(-1)	0.10	0.05	0.10	0.11	0.14	0.11	-0.14	0.14	0.22	0.96
	(0.72)	(0.79)	(0.75)	(0.77)	(0.73)	(0.77)	(1.43)	(0.75)	(0.73)	(1.04)
aid_dif	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	0.00	-0.03	-0.03	-0.05**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)
terms-trade_err	0.28	0.27	0.29	0.28	0.28	0.28	0.92	0.30	0.19	-0.04
	(1.09)	(1.12)	(1.09)	(1.11)	(1.10)	(1.09)	(1.22)	(1.09)	(1.10)	(0.84)
wgiva	0.02								0.13	-3.48**
	(0.37)								(0.71)	(1.69)
wgirl		-0.10							-1.67	3.52
		(0.67)							(2.38)	(4.94)
wgipsav			-0.04					-0.08	0.03	0.39
			(0.46)					(0.57)	(0.72)	(1.64)
wgige				0.05					-0.19	-2.19
				(0.54)					(2.19)	(3.37)
wgicc					0.11				1.61	4.49*
					(0.57)				(2.12)	(2.39)
wgirq						0.01		0.11	0.24	-0.52
						(0.60)		(0.74)	(1.90)	(2.34)
cpia							1.59			
							(1.08)			
F-test	6.01***	9.08***	7.58***	6.77***	6.49***	6.72***	5.87***	7.02***	5.60***	6.75***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.57	0.57	0.58	0.57	0.56	0.59	0.65	0.60	0.64	
A-B AR(2) test p-value[c]	0.95	0.97	0.91	0.97	0.96	0.95	--	0.92	0.87	
Number of instruments	22	22	22	22	22	22	18	23	27	
Cross-section	30	30	30	30	30	30	31	30	30	30
Observations	120	120	120	120	120	120	93	120	120	150
R-squared (within)										0.32
between										0.04
overall										0.12

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A6. Panel Estimation of Expenditures Implementation Gaps in Levels with the Budget Institutions and Regulatory Quality Indexes (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	0.53	0.55	0.58	0.50	0.49	0.52	0.52	0.52	0.53	0.53	0.59	-1.79	-0.81
	(1.36)	(1.33)	(1.35)	(1.35)	(1.37)	(1.35)	(1.36)	(1.42)	(1.33)	(1.31)	(1.31)	(1.99)	(0.91)
gcenlgimperra(-1)	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.05	
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)	
gcenlgpro	-1.13***	-1.12***	-1.12***	-1.12***	-1.13***	-1.13***	-1.13***	-1.13***	-1.13***	-1.12***	-1.12***	-1.20**	-0.99***
	(0.37)	(0.37)	(0.37)	(0.37)	(0.37)	(0.37)	(0.37)	(0.38)	(0.37)	(0.37)	(0.39)	(0.48)	(0.20)
ngdp_rerr	-27.26	-27.06	-26.87	-26.33	-27.41	-27.27	-27.36	-27.55	-27.10	-26.74	-25.39	-91.78	-33.71***
	(41.69)	(41.20)	(41.57)	(41.37)	(42.32)	(41.77)	(41.73)	(42.80)	(42.13)	(40.89)	(43.51)	(55.12)	(11.78)
pcpierr	-22.14	-21.91	-22.13	-22.26	-22.44	-22.14	-22.15	-22.22	-22.22	-21.95	-21.97	-27.37	-21.64*
	(13.95)	(13.91)	(13.75)	(13.92)	(14.10)	(13.87)	(13.92)	(14.08)	(13.79)	(13.79)	(14.04)	(16.24)	(11.74)
debt(-1)	0.24	0.30	0.35	0.16	0.15	0.24	0.24	0.25	0.22	0.24	0.25	-0.07	1.68
	(0.59)	(0.57)	(0.54)	(0.56)	(0.66)	(0.57)	(0.24)	(0.61)	(0.64)	(0.55)	(0.60)	(0.90)	(1.22)
aid_dif	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
terms-trade_err	0.52	0.53	0.55	0.51	0.51	0.52	0.52	0.53	0.52	0.53	0.54	0.11	-0.35***
	(0.88)	(0.87)	(0.87)	(0.89)	(0.88)	(0.88)	(0.87)	(0.90)	(0.87)	(0.87)	(0.96)	(1.30)	(0.74)
overall_categoriesq	0.06										0.18		
	(0.35)										(7.77)		
transparencyq		0.15										-0.35	6.08
		(0.32)										(1.32)	(4.18)
comprehensivenssq			0.21									0.56	1.76
			(0.36)									(1.06)	(2.63)
sustainabilityq				-0.09								-2.69**	-13.58***
				(0.36)								(1.26)	(4.42)
top_downq					-0.03							-1.01	-2.40
					(0.26)							(1.00)	(3.21)
rulesq						0.05						-0.95	-7.07
						(0.33)						(1.20)	(4.78)
overall_stagesq							0.06				-0.12		
							(0.33)				(7.73)		
planningq								0.08					
								(0.45)					
approvalq									0.04			1.25	8.59***
									(0.29)			(1.68)	(2.52)
implementationq										0.06		2.79	6.45
										(0.28)		(2.14)	(4.07)
F-test	10.70***	9.45***	10.78***	8.86***	12.11***	10.18***	10.73***	10.46***	10.81***	9.67***	9.99***	16.40***	10.75***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.79	0.79	0.80	0.77	0.79	0.79	0.79	0.79	0.80	0.79	0.80	0.47	
A-B AR(2) test p-value[c]	0.24	0.24	0.25	0.24	0.24	0.24	0.24	0.24	0.24	0.25	0.23	0.88	
Number of instruments	27	27	27	27	27	27	27	27	27	27	28	28	
Cross-section	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	120	120	120	120	120	120	120	120	120	120	120	120	150
R-squared (within)													0.33
between													0.18
overall													0.13

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS and GMM uses Aurellano-Bond2 System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A7. Panel Estimation of Revenues Implementation Gaps in Absolute Levels with Economic and Political Variables (2004–2008)

	1	2	3	4	5	6	7	8	9	10	11	11	12	13
α	1.11	-0.35	18.31	3.18	0.53	-1.77	-3.14	-1.27	-1.18	-3.92	5.24	-1.94	4.19	3.66
	(0.85)	(2.77)	(12.29)	(3.17)	(2.59)	(1.63)	(2.62)	(2.73)	(3.15)	(3.76)	(4.60)	(1.70)	(7.16)	(7.42)
gcrggimperra(-1)				-0.47***	-0.46***	-0.42***	-0.42***	-0.42***	-0.47***	-0.42***	-0.41***	-0.42***	-0.41***	-0.41***
				(0.08)	(0.07)	(0.10)	(0.11)	(0.10)	(0.07)	(0.11)	(0.10)	(0.10)	(0.11)	(0.11)
gcrggpro	-0.51**	-0.52**	-0.46	-0.77***	-0.83***	-0.82***	-0.82***	-0.81***	-0.85***	-0.81***	-0.79***	-0.82***	-0.79***	-0.80***
	(0.16)	(0.13)	(0.29)	(0.06)	(0.06)	(0.10)	(0.10)	(0.10)	(0.05)	(0.10)	(0.11)	(0.10)	(0.11)	(0.11)
ngdp_rerr	10.78	18.81	27.08	85.61	70.62	28.72	28.71	31.84	51.43	13.07	43.58	31.44	30.39	37.69
	(24.14)	(26.50)	(40.38)	(68.34)	(55.49)	(84.13)	(86.41)	(85.36)	(63.59)	(86.05)	(78.34)	(82.96)	(80.60)	(80.15)
pcpierr	-17.84	-30.29	-43.37	-10.63	-16.58	2.46	1.30	2.73	-19.12	0.68	0.07	3.53	-0.58	0.70
	(31.89)	(39.29)	(33.96)	(20.67)	(19.54)	(24.01)	(23.91)	(24.36)	(19.54)	(24.35)	(24.32)	(23.83)	(24.59)	(24.30)
debt(-1)		1.48	5.51*		3.59**	3.39**	3.56**	3.49**	3.82***	3.67**	3.53**	3.38**	3.62**	3.61
		(2.94)	(2.80)		(1.34)	(1.63)	(1.70)	(1.66)	(1.35)	(1.60)	(1.62)	(1.65)	(1.54)	(1.54)
aid_dif		0.23**	0.22		0.25**	0.25**	0.24**	0.24**	0.28**	0.23*	0.24*	0.25**	0.24*	0.24*
		(0.10)	(0.15)		(0.10)	(0.12)	(0.12)	(0.12)	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)
terms-trade_err		1.14	-1.57		1.86	1.56	1.12	1.20	2.11	1.01	1.06	1.69	1.00	1.13
		(1.82)	(2.20)		(2.31)	(3.17)	(3.24)	(3.25)	(2.23)	(3.21)	(3.46)	(3.16)	(3.41)	(3.41)
polity2			1.83**			0.06				-0.08	0.67	0.06	0.60	0.57
			(0.77)			(0.18)				(0.38)	(0.48)	(0.18)	(0.73)	(0.74)
polcomp			-2.11				0.23			0.35			0.12	0.17
			(1.25)				(0.32)			(0.69)			(0.74)	(0.73)
xconst			-3.00*					-0.08			-1.95		-1.87	-1.85
			(1.49)					(0.49)			(1.30)		(1.42)	(1.47)
ele			-0.48						8.96**			0.90		0.84
			(1.51)						(3.69)			(1.83)		(1.89)
F-test	5.72***	7.06***	3.29***	37.78***	55.14***	8.90***	8.60***	9.61***	107.86***	7.37***	10.67***	10.52***	9.34***	10.86***
Estimation method[a]	FE-OLS	FE-OLS	FE-OLS	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
Hansen test p-value[b]				0.18	0.36	0.33	0.35	0.31	0.56	0.36	0.36	0.28	0.38	0.40
A-B AR(2) test p-value[c]				0.87	0.91	--	--	--	0.67	--	--	--	--	--
Number of instruments				36	39	26	26	26	39	27	27	27	28	29
Cross-section	41	39	36	41	39	37	36	36	39	36	36	37	36	36
Observations	202	195	143	161	156	111	108	108	156	108	108	111	108	108
R-squared (within)	0.29	0.33	0.32											
between	0.51	0.61	0.18											
overall	0.34	0.38	0.25											

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 System GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A8. Panel Estimation of Revenues Implementation Gaps in Levels with Economic and WGI Governance Variables (2004–08)

	1	2	3	4	5	6	7	8	9	10	11
α	-2.04	-0.65	-0.95	-0.42	-0.49	-0.82	-15.51	-3.30	-3.21	-3.21	14.51***
	(2.78)	(2.50)	(2.34)	(2.42)	(2.45)	(2.40)	(7.19)	(3.44)	(3.50)	(3.83)	(5.58)
gcrggimperra(-1)	-0.55***	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.40***	-0.54***	-0.54***	-0.53***	
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.11)	(0.06)	(0.06)	(0.07)	
gcrggpro	-0.83***	-0.84***	-0.84***	-0.83***	-0.84***	-0.84***	-0.84***	-0.84***	-0.85***	-0.85***	-0.48***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.08)	(0.09)	(0.14)
ngdp_rerr	3.97	35.12	33.43	36.07	35.82	32.59	-0.27	-41.48	-40.46	-56.23	-15.24
	(74.80)	(68.40)	(64.67)	(69.55)	(70.40)	(64.58)	(93.48)	(89.94)	(91.38)	(95.95)	(20.50)
pcpierr	-15.28	-3.63	-3.71	-4.06	-3.85	-3.59	-3.30	-10.27	-10.26	-13.34	-33.18
	(24.90)	(22.06)	(21.76)	(21.87)	(21.88)	(21.78)	(29.40)	(24.40)	(24.33)	(23.65)	(48.09)
debt(-1)	4.96*	5.03*	4.72*	5.38*	5.29*	5.12*	4.27**	4.84*	4.74*	4.59*	3.61
	(2.51)	(2.60)	(2.36)	(2.78)	(2.76)	(2.67)	(2.05)	(2.51)	(2.46)	(2.47)	(3.64)
aid_dif	0.16	0.24**	0.24**	0.24**	0.24**	0.24**	0.26**	0.23**	0.23**	0.23**	0.23*
	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.12)	(0.09)	(0.09)	(0.09)	(0.12)
terms-trade_err	-4.91	1.12	1.10	1.12	1.05	1.12	2.09	0.81	0.81	0.69	2.47
	(5.58)	(2.69)	(2.69)	(2.66)	(2.64)	(2.66)	(3.54)	(2.52)	(2.54)	(2.69)	(2.08)
wgiva	0.59							0.34	0.89	0.44	0.58
	(1.41)							(2.68)	(3.05)	(3.17)	(6.92)
wgirl		0.76								-0.41	21.99
		(1.69)								(3.17)	(14.10)
wgipsav			-0.05						-0.70	-1.45	-8.14*
			(0.89)						(1.43)	(2.42)	(4.30)
wgige				1.35						3.02	11.66
				(1.59)						(5.54)	(12.11)
wgicc					1.38					1.85	7.53
					(1.81)					(6.52)	(8.74)
wgirq						0.76		0.17	0.23	-3.26	-4.73
						(1.59)		(3.60)	(3.55)	(6.35)	(7.97)
cpia							4.07**				
							(1.85)				
F-test	17.41***	20.99***	21.22***	19.36***	19.04***	20.89***	14.23***	60.55***	93.59***	89.21***	8.34***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.37	0.45	0.38	0.45	0.46	0.45	0.19	0.34	0.34	0.30	
A-B AR(2) test p-value[c]	0.54	0.98	0.98	0.97	0.95	0.98	--	0.98	0.94	0.85	
Number of instruments	26	27	27	27	27	27	20	23	24	27	
Cross-section	30	30	30	30	30	30	32	30	30	30	30
Observations	120	120	120	120	120	120	96	120	120	120	150
R-squared (within)											0.42
between											0.03
overall											0.08

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors. [b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.

Table A9. Panel Estimation of Revenues Implementation Gaps in Levels with the Budget Institutions and Regulatory Quality Indexes (2004–08)

	1	2	3	4	5	6	7	8	9	10	11	12	13
α	-0.82	-0.78	-0.77	-0.91	-0.86	-0.91	-0.86	-0.72	-1.17	-0.84	-1.35	-5.53	1.20
	(2.36)	(2.39)	(2.40)	(2.30)	(2.34)	(2.34)	(2.35)	(2.39)	(2.29)	(2.36)	(2.42)	(3.43)	(3.45)
gcenlgimperra(-1)	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.53***	-0.54***	-0.55***	
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	
gcenlgpro	-0.84***	-0.85***	-0.84***	-0.84***	-0.84***	-0.84***	-0.84***	-0.84***	-0.85***	-0.84***	0.06***	-0.90***	-0.46***
	(0.08)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.15)
ngdp_rerr	35.71	33.38	34.77	40.44	33.47	35.02	35.91	36.59	34.70	34.75	30.92	-49.34	-27.83
	(64.51)	(63.89)	(66.04)	(60.03)	(66.15)	(64.73)	(64.23)	(65.18)	(64.02)	(63.78)	(66.33)	(78.90)	(20.48)
pcpierr	-2.96	-2.06	-3.37	-3.40	-3.33	-3.38	-3.03	-3.05	-3.04	-2.50	-1.44	-0.99	-43.14
	(21.61)	(21.40)	(21.70)	(21.71)	(21.63)	(21.79)	(21.59)	(21.67)	(21.58)	(21.60)	(21.93)	(26.55)	(53.61)
debt(-1)	4.95*	5.24**	5.17**	4.51*	5.00**	4.77*	4.84*	5.08*	4.31*	5.00**	4.50*	4.44*	4.83
	(2.44)	(2.33)	(2.48)	(2.40)	(2.36)	(2.53)	(2.42)	(2.49)	(2.34)	(2.41)	(2.24)	(2.35)	(3.42)
aid_dif	0.24**	0.23**	0.24**	0.24**	0.24**	0.24**	0.24**	0.24**	0.24**	0.23**	0.23**	0.23**	0.26**
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)	(0.12)
terms-trade_err	1.13	1.17	1.18	1.08	1.12	1.11	1.12	1.17	1.13	1.13	1.52	1.31	1.07
	(2.68)	(2.62)	(2.62)	(2.76)	(2.68)	(2.70)	(2.69)	(2.65)	(2.72)	(2.66)	(2.47)	(2.43)	(2.08)
overall_categoriesq	2.68										25.56		
	(0.70)										(18.66)		
transparencyq		0.64										8.28***	7.09
		(0.80)										(2.87)	(23.52)
comprehensivenssq			0.50									9.62**	12.14
			(0.78)									(3.97)	(13.83)
sustainabilityq				-0.58								-4.27*	-13.92
				(0.79)								(2.23)	(15.88)
top_downq					0.20							10.42**	53.71**
					(0.49)							(4.35)	(22.42)
rulesq						-0.01						3.68	13.64
						(0.78)						(3.45)	(18.28)
overall_stagesq							0.05				-25.95		
							(0.72)				(19.44)		
planningq								0.40				-17.21**	-38.73
								(0.80)				(7.30)	(25.33)
approvalq									-0.59			-14.50***	-43.91*
									(0.89)			(4.90)	(22.93)
implementationq										0.30			
										(0.62)			
F-test	19.48***	18.89***	18.65***	19.97***	19.73***	19.93***	19.56***	19.59***	20.21***	19.61***	16.57***	105.08***	12.07***
Estimation method[a]	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	FE-OLS
Hansen test p-value[b]	0.43	0.44	0.43	0.41	0.43	0.42	0.42	0.43	0.40	0.44	0.37	0.24	
A-B AR(2) test p-value[c]	0.97	0.96	0.96	0.98	0.98	0.98	0.98	0.97	0.96	0.97	0.86	0.74	
Number of instruments	27	27	27	27	27	27	27	27	27	27	28	28	
Cross-section	30	30	30	30	30	30	30	30	30	30	30	30	30
Observations	120	120	120	120	120	120	120	120	120	120	120	120	150
R-squared (within)													0.38
between													0.33
overall													0.17

Notes: ***, **, * rejection of the null hypothesis at 1%, 5%, and 10% level of significance respectively. Robust standart errors in parenthesis.

[a] FE-OLS stands for fixed effects with OLS, and GMM uses Aurellano-Bond2 GMM estimator including the lagged dependent variable and instrumenting the planned budget and GDP forecast errors.

[b] Statistic of Hansen test of overidentified restrictions. Under the null hypothesis all instruments are valid.

[c] P-value statistic of Aurellano-Bond test of AR(2) autocorrelation in first-differences. The null hypothesis assumes no second-order serial correlation.