Fiscal policy in developing countries: Do governments wish to have procyclical fiscal reactions?

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Abstract:

This study aimed to analyze the intentionally fiscal position of the governments of developing countries. Our results suggest that a significant proportion of developing countries adopts counter-cyclical positions. However, forecasting errors weak their positions. Results lead to conclude that if developing countries want to increase the effectiveness of their fiscal policies, they must build the skills of their forecast offices, and enhance the political and institutional framework governing the budget process.

Keywords: Fiscal policy; Real Time Data; Developing countries; Generalized moment method, revision errors

JEL Classication System: C23, E30, E62, H30, H60

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I. Introduction

The recent crisis of 2008 has led to a renewed interest in Keynesian policies. Faced with the global downturn, the cyclical policies were seen as a remedy capable of restoring growth. There is recent empirical evidence that developed countries have intentionally designed countercyclical policies. This implies that these states were sympathetic, since the purpose of such policies is to support economic activity. In developing countries, however, few studies have asked about the real intentions of governments in terms of fiscal policies. If intentional, governments of developing countries have implemented pro-cyclical policies would mean that they are ill-disposed to the image of "Leviathan" presented by political economy. The question is to know which policies were designed. Have the governments designed procyclical or countercyclical policies?

According to the literature, fiscal policy was pro-cyclical in all developing countries (Gavin and Perotti, 1997; Agenor, McDermott and Prasad, 1999; Kaminsky, Reinhart and Végh, 2004). Based on this result, it is generally accepted that the procyclicality would consciously desired by policymakers for electoral reasons. However, the lessons learned from work on the behavior of the monetary authorities could lead us to question the validity of such a belief.

The common point of the previous studies is the use of revised data. If these studies are effective in determining the meaning *"in fine"* of fiscal policy, they are not suitable for assessing the budgetary position "real" or intentional government (Orphanides, 2001; Forni and Momigliano, 2004; Cimadomo, 2008). The analysis of the government's position should be based on the information available to decision makers in real time. The position of the State could thus be understood by stakeholder changes in the budget in year t + 1, following the conditions in year t to which the government faces. However, previous studies have privileged data that revisions can be significant (see graph 1). The main consequence of these revisions is that the value of GDP could be different from one year to another. Now, governments are accustomed to adopt their position relative to their perception of the output gap[2]. This implies that if at time t the government increases spending following a negative gap in real time, a revision of GDP ex-post that would lead to a positive gap would lead to a finding of procyclical behavior of government. In this context, analyze the position of States on the revised database could be problematic because the position they would suggest, the

[2] Difference between GDP and potential GDP, relative to potential GDP

result could be *"in fine"* of institutional and macroeconomic factors, but not necessarily the intention of government. This implies that the role assigned to governments could be only a *"non-sequitur."* Another formulation of the problem may emerge if we look at the implication of the use of revised data. If the objective is to study the behavior of the government, the use of revised data implies an assumption of high availability. Indeed, this implies that the data available to the researcher are the same as those available to the government. However, as confirmed in Chart 1, this assumption is not always true.

Moreover, the difficulties associated with forecasting exercises developing countries have rarely been seen in previous models. Yet these difficulties have been identified in the literature as additional constraints to the implementation of fiscal policy (IMF, 2010)[3]. Few studies to our knowledge have examined the role of forecast errors on the position of governments. However, such a study could tell us more about the behavior of states. It would be important to know why government's position is often procyclical to design a better policy reaction.

In this study, we follow the approach of Bernoth, Hughes and Lewis (2008) to determine the position of the government and the impact of forecast errors. According to the arguments of Kaminsky, Reinhart and Végh, 2004 and Lledó, Yackovlev and Gadenne (2011), we analyze the position of the State from the total expenditure. In addition, we correct the possible endogeneity bias by using the generalized method of moments.

The article is organized as follows: Section 1 highlights the concept of real-time analysis and measurement, section 2 provides an overview of the literature on the position of States, and the final section presents the applied analysis.

II. ANALYSIS IN REAL TIME

1. Concept

The real-time analysis recently appeared in empirical work on monetary policy. This approach was implemented by Orphanides (2001), to investigate the robustness of the policy recommendations in the area of monetary authorities in the United States. In his study, he showed that when unrealistic assumptions about the data are made available opportunity, especially when it is assumed that the information updated and revised previously are

[3] Cited by Lledo and Marcos (2013)

available to policy makers, behavior analysis politicians can lead to misleading results. Since this approach has opened new avenues of research and helped many works.

The concept of real-time analysis or "Real Data" is based on exploration data available to decision makers at the time of decision making. These data are distinguished in the literature by the name of data "ex-ante". The revised data are for their data called "ex-post".

The uses of ex-ante budget analysis data in reports to a particular frame. During the financial year (t) are tabulated resources and expenditure. Based on these figures, the government conducts a screening of these indicators to the end of the year, and designs its objectives of revenue and expenditure for the next fiscal year (t + 1). These objectives are then included in the draft Finance Act, which will be submitted to the vote of Parliament.

As part of our study, we will use as a proxy for ex-ante governments GDP, GDP in the current year, published in each version of the IMF WEO[4]. This choice is justified by the fact that most of the WEO projections are the result of discussions, during which the IMF staff and national authorities agree on the projection assumptions for the end of the current year and for the following year. On many consultations[5] relating to several countries, we have not observed significant differences between the projections of the IMF and the national authorities. Instead, the IMF figures vary in the same direction as the national figures. Moreover, the IMF WEO database provides a uniform and consistent measure of output, which alleviates the differences in national accounting. Finally, according Lledo and Pibeiro-Poplawski (2011) these data are very reliable because they embody the best estimates of the IMF plans and feasible viable national authorities, even though they do not always reflect their views in full[6].

2. Notation

The use of real-time analysis uses a special notation. Let t represents time (Annual or Monthly), and V any variable. It is commonly accepted the following notation: $V_{t|t+s}$, which defined the value of the variable V to the period which is provided for the period $t + s$. If $s < 0$, $V_{t|t-1}$ corresponds to a forecast. If $s = 0$, $V_{t|t}$ corresponds to the real time value,

[4] Hughes and Lewis used a similar method in the OECD. Poplawski-Ribeiro and Lledo (2013) use the same method for sub-Saharan Africa

[5] Consultations under Article IV country reports produced by the IMF

[6] Disagreements about projection assumptions can support, but even here the differences between the projections are not drastic.

in the sense that it is the latter which is available to the decision-maker. If $s > 0$, $V_{t|t+1}$ corresponds to the value of the variable published years after the event (revised). Note that is a natural number.

III. Literary and temperature

Fiscal policy has given rise to numerous empirical studies. In developing countries, there is a consensus on the procyclicality of fiscal policy, primarily based on ex-post data. Gavin and Perotti (1997) were the first to draw attention to the fact that tax policy Latin America seems average procyclical, with recessions are associated with exaggerated collapses in public expenditure. This result is confirmed by Stein, Talvi, and Grisanti (1999), who find a way correlation coefficient of 0.52 between the cyclical component of public consumption and the cyclical component of production over the period 1970-1995 for sample of 26 Latin American countries. Similarly, from a sample of 36 developing countries from Asia, Africa, the Middle East, and Latin America Talvi and Carlos Vegh (2000) find that public consumption is very pro-cyclical, with a correlation coefficient of 0.53. However, Agenor, McDermott and Prasad (1999) note that government consumption expenditures countercyclical for a group of four middle-income countries i.e. Chile, Korea, Mexico and the Philippines.

Kaminsky, Graciela, Reinhart, and Végh (2004) will re-evaluate fiscal policy in developing countries. They find that fiscal policy is procyclical in their sub-sample of 83 low-income countries and middle income. This will be confirmed by Akitoby, Clements, Gupta and Inchauste (2004).

Furthermore, Empirical studies suggest that the introduction of a countercyclical policy would face several factors. The various budget stages and the race for power of different political factions (Buchanan and Wagner, 1977; Lane and Tornell, 1996, 1999; Woo, 2003a, b, 2005; Hallerberg, Strauch and von Hagen, 2004), difficulties in evaluation of real cycles leading to lags in the selection and implementation of fiscal policy (Akitoby et al, 2004), the low share of transfer expenditures reducing the scope of the automatic stabilizers (Lane, 2003b), financial constraints and limited access to capital markets, are all reasons that can lead to a procyclical fiscal policy (Gavin and Perotti, 1997; Kaminsky et al., 2004)[7]. When discretionary action results in a pro-cyclical stance, these factors are likely to amplify economic fluctuations.

[7] Cited by Thornton (2008)

It appears from this literature review that previous work did not provide concrete evidence of the willingness of the government. There is only that suspicions, based primarily on the use of ex-post data. In the next section, we present an analytical framework to mitigate potential bias related to data availability hypothesis before proceeding with an econometric estimation.

IV. APPLIED ANALYSIS

1. Determination of output

A consequence of the time analysis is that the estimate of the output can now be done directly from the revised GDP data. The government decided to adopt the position that according to the evolution of output (Output gap) and the level of fiscal indicators. However, it does not have the revised data as they present themselves today. To retrieve the output in real time, we must first identify the part of the final data due to revisions. Thus, the problem can be formalized according Bernoth, Hughes and Lewis (2008) by decomposing the GDP (Y) as follows:

$$Y = Y^* + \tilde{Y} \tag{1}$$

With Y^* potential value of GDP and $\tilde{Y}$ output gap. No revisions data of each vintage would be the same. The various revisions therefore imply that:

$$Y_{t|t+s} = Y_{t|f} + U_{t|t+s} \tag{2}$$

$$Y^*_{t|t+s} = Y^*_{t|f} + V_{t|t+s} \tag{3}$$

With $Y_{t|t+s}$ GDP of year t estimated at the year $t+s$, $Y_{t|f}$ the latest available GDP. $Y^*_{t|t+s}$ is the potential value of GDP calculated on the basis of the information available at $t+s$, $U_{t|t+s}$ the gap between GDP in real-time and final GDP and $V_{t|t+s}$ the gap between potential output in real time and the final potential GDP.

Finally, the combination of equations (1) (2) and (3) allows the output estimated in real time based on the final GDP and different deviations implied revisions:

$$\tilde{Y}_{t|t+s} = Y_{t|t+s} - Y^*_{t|t+s} \tag{4}$$

$$\tilde{Y}_{t|t+s} = Y_{t|f} + U_{t|t+s} - V_{t|t+s} \tag{5}$$

$$\tilde{Y}_{t|t+s} - Y_{t|f} = U_{t|t+s} - V_{t|t+s} \tag{6}$$

Knowing that the latest version (i.e. $t+s = f$) is a given and that only vary the data of previous vintages, equation (6) implies that the gap in real time and the difference between the gaps move in the same direction.

2. Construction of fiscal reaction function

The study discretionary policies require a model to capture the variations of fiscal indicator compared to the production space (output gap). Most empirical studies use the budget balance (SB) as the dependent variable and a set of control variables (X). Generally, the models used adopt the following form:

$$SB_{i,t} = \alpha + \beta gap_{i,t} + \gamma SB_{i,t-1} + \theta X_{i,t-1} + \varepsilon \quad (7)$$

In this form, however, this model has some shortcomings:

1. First, the use of the budgetary balance may be problematic in the context of sub-Saharan African countries, and in particular in the case of UEMOA countries. These countries are heavily dependent on external resource flows. These flows are unstable. As a result, the level of resources and the overall balance do not always correspond to the will of public decision-makers (Kaminsky, Reinhart and Vegh, 2004; Lledo et al., 2009).

2. Then, this model is designed to exploit ex-post data information. But, as mentioned above, these data lead to a bias in the results.

To overcome the first problem, Kaminsky, Graciela, Reinhart, and Végh (2004) and Lledó, Yackovlev, and Gadenne (2011) advocate the use of government spending instead of the budget balance. They argue that in developing countries, spending is more telling of the will of the state.

Regarding the second problem, Forni and Momigliano (2004) and Cimadomo (2008) equation is entirely based on the data in real time:

$$\Delta SB_{i,t|t-1} = \alpha + \beta gap_{i,t-1|t-1} + \gamma SB_{i,t-1|t-1} + \theta X_{i,t-1|t-1} + \varepsilon \quad (8)$$

Their intuition is that the government provides its position according to real-time conditions. In this model, the fiscal balance (ΔSB) is adjusted for its cyclical variation, and the government's position is captured by the sign β. So if $\beta > 0$ fiscal policy is countercyclical; otherwise it is procyclical. But if $\beta = 0$, fiscal policy is acyclic. However, two observations can be made. The first point is that the equation (8) is responsive to the correction of the cyclic variations in tool. In the case of the use of Prescott filter, the smoothing parameter determines the series obtained. Several studies agree that the smoothing

of fiscal indicators would be hazardous in sub-Saharan Africa (Lledó, Yackovlev, and Gadenne, 2011). The second is that the level in real time in the dependent variable might just match what was recorded, not necessarily to decision makers (Hughes et al, 2008).

For all these reasons, we proceed as Hughes et al (2008) to establish reaction function operator information ex post data while mitigating through revision. The starting point of the model is the assumption that the budget (B) is responsive to three elements. First, a portion of the budget is supposed to automatically respond at the current production. This hypothesis is that several studies argue that automatic stabilizer ($\emptyset$) plays a role in developing countries (Chami, Hakura and Montiel, 2009; Suescun, Rodrigo, 2007; Debrun and Kapoor, 2010).

Then let some work believe that part of the budget would depend on potential output. For example, incentives for international technical assistance to increase the tax burden where to cut spending often based on the exploration of potential GDP. Thus, parameter γ capture discretionary changes following potential GDP.

Finally, the government adopts its position based on its perception of the production space. Therefore θ captures the discretionary state action. So we have:

$$B_{t|t+s} = \emptyset Y_{t|t+s} + \gamma Y^*_{t|t+s} + \theta\left(Y_{t|t+s} - Y^*_{t|t+s}\right) \quad (9)$$

When the data used are those for the latest year available, we have:

$$B_{t|f} = \emptyset Y_{t|f} + \gamma Y^*_{t|t+s} + \theta\left(Y_{t|t+s} - Y^*_{t|t+s}\right) \quad (10)$$

Substituting (2) and (3) in (9), and one obtains:

$$B_{t|f} = (\gamma + \emptyset) Y^*_{t|f} + \gamma V_{t|t+s} + (\emptyset + \theta)\tilde{Y}_{t|f} + \theta\left(U_{t|t+s} - V_{t|t+s}\right) \quad (11)$$

Equation (11) means that the real position of the government may be captured by the sign of θ. It also means that fiscal policy is based on differences between ex-ante and ex-post values of potential GDP. This equation also suggests that the coefficient of ex-post gap is composed of the position of the State and the impact of automatic stabilizers. Finally, we express all variables in ratio of final potential GDP to avoid any problems of measures and minimize the influence of ex-ante GDP[8], we get:

$$B_{t|f} = (\gamma + \emptyset) + \gamma\, v_{t|t+s} + (\emptyset + \theta)\tilde{y}_{t|f} + \theta\left(u_{t|t+s} - v_{t|t+s}\right) \quad (12)$$

[8] See Bayoumi and Masson (1995) or MARINHEIRO (2007) for a similar use

$$B_{t|f} = \alpha + \delta\, v_{t|t+s} + \rho\tilde{y}_{t|f} + \theta z_{t|t+s} \quad (13)$$

3. Estimation Method

To effectively capture the decision makers, we estimate the following equations:

$$D_{i,t|f} = \alpha + \beta gap_{i,t|f} + \gamma D_{i,t-1|f} + \theta X_{i,t-1|f} + \varepsilon \quad (14)$$

$$D_{t|f} = \alpha + \beta z_{t|t+s} + \rho\tilde{y}_{t|f} + \delta\, v_{t|t+s} + \theta X_{i,t-1|f} + \varepsilon \quad (15)$$

Where the vector Ɛ idiosyncratic errors, is a vector of relevant variables considered in the literature. We introduce the control variables from the public debt, which allows the level of spending lagged to take account of initial conditions.

We begin our analysis by pooling test. We find that the P-value of Fisher test is below the 5% threshold. We therefore conclude that there are fixed effects. We then apply the unit root test of Im, Pesaran and Shin (2003). For lags of 1 to 3, we find a lower P-value to the significance level. This implies that our variables are stationary and therefore do not need to be differentiated to perform regressions.

The presence of the lagged dependent variable in our model implies that the OLS estimator is not consistent. The literature in this case recommends the use of the generalized method of moments (GMM). We use the system GMM estimator of Blundell and Bond (1998), which uses lagged differences of the dependent variable as instruments of level equations and level lagged variables as instruments of difference equations. According to these authors, this estimator significantly improves the performance of the estimator in difference of Arellano and Bond (1991). Moreover, Bun and Kiviet (2006) and Hayakawa (2007) show that face a dynamic panel, where the individual and temporal dimensions are finished, the system GMM estimator is a safe choice compared to the estimator in difference of Arellano and Bond (1991)[9].

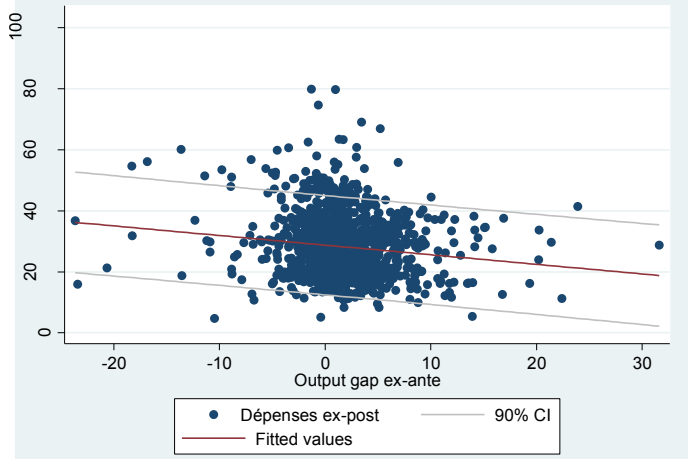
The results of the GMM are validated by three conditions. Must be an adequate number of lags, because a large number of lags reduces significance of Hansen identification test. In addition, for the building GMM involves the autocorrelation of the first order, the results are only relevant if there is no autocorrelation of order 2. Another important point is that the number of instruments should be less than the number of sample observation. Finally, the choice of the endogenous variable or not affects the quality of results. Next Kiviet and Bun (2006) and Hughes et al (2008), we choose to limit to three the number of lags in the level equations and difference. We consider the variables *v, z* and lagged expenditures (dep) as weakly endogenous and debt as endogenous in all equations.

[9] Quoted by Hughes et al (2008)

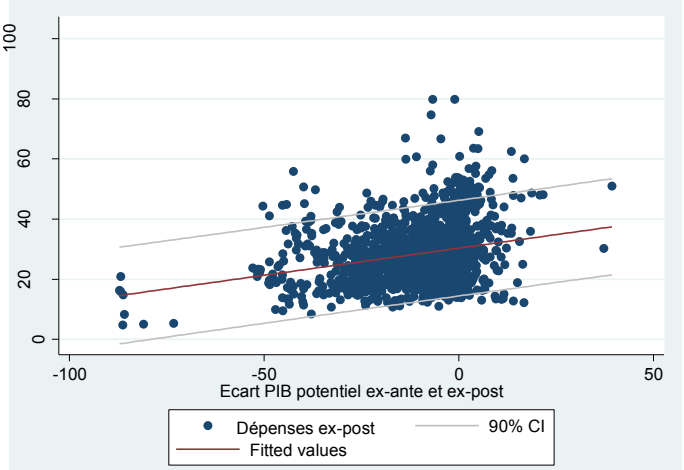
4. Descriptive Analysis

The table (1) presents the descriptive statistics of our key variables. The average debt and spending, and their dispersion seem relatively low. By cons, very high average is observed and a very strong dispersion for goodwill estimate of potential GDP (v) and the output gap (z). These high numbers may partly be explained by the revision of the calculation of GDP. Some countries have revised their method of calculating GDP, which led to strong upward revisions of GDP. Certainly, this type of review is not really a mistake, but for our purposes we assimilate to the GDP estimation error. This choice can be justified by the fact that if these changes had occurred at the time of the catch of past positions, the government's behavior would not have been the same. In addition, a new calculation suggests that the old way was not sufficiently representative of reality, and therefore was more likely to be misleading.

We build two graphs (Graph 1 and Graph 2) representing the evolution of expenditure respectively from the output then compared to ex-ante and ex-post differences in potential GDP. The two graphs confirm the strong dispersion of the variables in the output gap ex ante and the error associated with the estimate of potential GDP. Furthermore, Graph 1 shows a downward trend, implying that an increase in the output gap is followed by reduction of final expenditure. As against the Graph 2 shows an upward trend, which implies that expenses are moving in the same direction as the estimation of potential output errors.



Graph 1: Expenditure in relation to ex-ante gap



Graph 2: Expenditure compared to forecast errors of potential GDP

5. *Estimates of the position of governments*

Table (2) shows the results of the estimation in GMM system. To test the robustness of our results, we first include a dummy variable (ele) representative election years. We hope to capture the influence of electoral cycles. Overall the results remain the same in columns (3) and (4). We then perform our regressions using as instrument the time fixed effects. Intuition is to capture the influence of exogenous shocks that may have influenced the willingness of governments during the period. We find similar results in columns (5) and (6).

It is noted that the lagged expenses are significantly positive in all columns, while the debt is not significant. This underlines the importance of the level of spending in the decision making process in accordance with the literature. The insignificance of debt contrary to the predictions of the literature could be explained by the substantial debt reductions that benefited a number of developing countries

In columns (1), (3) and (5), the government's position (z) is significantly negative. These results mean that developing countries generally have designed countercyclical policies over the period. Regarding the forecast errors of potential GDP (v), we see that they are significantly negative. These results mean that the forecast errors of potential GDP have reduced spending. This implies that the government's reaction has been reduced below the optimal level over the period.

In all columns, we find that the final output gap is significantly positive. Referring to equation (11), this means that the automatic stabilizers have had a positive impact on spending. This result could be explained by weak institutions in developing countries, according to the literature that may affect the operation of automatic stabilizers.

V. Conclusion

This study aimed to define the desired position intentionally by the governments of developing countries. This analysis was based on recent literature data in real time. To achieve our goal, we first conduct a theoretical analysis of the composition of the output gap, and we have built a fiscal reaction function for capturing the intentional government position.

Our results suggest that a significant proportion of developing countries have adopted counter-cyclical positions. However, errors in assessments of potential GDP contribute to weak their positions. In other words, these governments have desired implement countercyclical policies, but have been misled by an incorrect assessment of their potential GDP.

Overall, these results are perplexing as to the effectiveness of fiscal policies. Indeed, although the intentional position of developing countries appears to be countercyclical, the ex-post

outcome of procyclical policies is found in most studies. This leads us to believe that the causes mentioned in the literature probably prevent the stabilization budgetary measures so that their performances are not made on time, or not do against the economic cycle.

Finally, this study leads to think that if developing countries want to increase the effectiveness of their policies, they must build the skills of their forecast offices, and enhance the political and institutional framework governing the budget process.

REFERENCES

Agenor, PR, McDermott, J., and Prasad, ES, 1999. "Macroeconomic Fluctuations in Developing Countries: Some Stylized Facts," IMF Working Paper 99/35 (Washington: International Monetary Fund).

Akitoby, B., B. Clements, Gupta and G. Inchauste S. (2004) 'The Cyclical and Long-Term Behavior of Government Expenditures in Developing Countries', International Monetary Fund, Working Paper No. WP / 04/202.

Andrews (2010), "How far public financial management-have come Reforms in Africa?" Research Working paper RWP10-018. Cambridge: Harvard Kennedy School

Arellano, M. and O. Bover (1995), "Another look at the instrumental variable estimation of error-components models", Journal of Econometrics, No.68, 29-52.

Beetsma, Giuliodori, & Wierts (2009), Planning to cheat: EU tax policy in real time, Economic Policy, 60 (2009), pp. 753-804

Blundell, R. and S. Bond (1998), "Initial requirements and time restrictions in dynamic panel data model", Journal of Econometrics, No.87, 115-143.

Ralph Chami, and Dalia Hakura Montiel, Peter (2009) Remittances: An automatic stabilizer output ?, IMF Working Papers. Available at SSRN: http://ssrn.com/abstract=1394811

Carmignani (2010), "Cyclical fiscal policy in Africa", Journal of Policy Modeling, 32 (2010), pp. 254-267

Cimadomo (2008), "Fiscal policy in real time", European Central Bank, Working Paper Series 0919

Cimadomo (2011), "Real-time data and fiscal policy analysis: a survey of the literature" Working Paper Series 11-25, Federal Reserve Bank of Philadelphia

Forni, M. and S. Momigliano (2004), "Cyclical sensitivity of fiscal policies were based real-time data," Applied Economics Quarterly 50

Gavin, M. and R. Perotti (1997), "Fiscal Policy in Latin America", in B. Bernanke and Rotemberg J. (eds), NBER Macroeconomics Annual 12, Cambridge, MA: MIT Press, pp. 11-70.

Ilzetzki & Vegh (2008), "Tax policy in developing countries Procyclical: Truth or fiction" NBER working paper no. 14191

Im, K., H. Pesaran, and Y. Shin (2003), "Testing for Unit Roots in Heterogeneous Panels", Journal of Econometrics 115, 53-74.

John Thornton (2008), "Explaining Procyclical Fiscal Policy in African Countries" Journal of African Economies, Volume 17, No. 3, pp. 451-464

Kaminsky, Graciela, Carmen Reinhart and Carlos A. Vegh, 2004, "When It Rains, It Pours: Procyclical Capital Flows and Macroeconomic Policies," in *NBER Macroeconomics Annual,* ed. by Kenneth Rogoff and Mark Gertler (Cambridge, MA: MIT Press).

Kerstin Bernoth, Andrew Hughes Hallett and John Lewis (2008), "Did tax policy makers know what They Were doing? Reassessing tax policy with real-time data ", De Nederlandsche Bank., Working Paper No. 169

Orphanides, A. (2001), "Monetary Policy Rules Based on Real-Time Data", American Economic Review, No.91, 964-985.

Ernesto Stein, Ernesto Talvi, and Alejandro Grisanti, 1999 "Institutional Arrangements and Fiscal Performance: The Latin American Experience," NBER Working Paper No. 6358

Suescun Rodrigo, Size and Effectiveness of Automatic Fiscal Stabilizers in Latin America (June 1, 2007). World Bank Policy Research Working Paper No. 4244. Available at SSRN: http://ssrn.com/abstract=991436

Carlos Ernesto Talvi and Végh, 2000 "Tax Base Procyclical Variability and Fiscal Policy," NBER Working Paper 7499 (Cambridge, MA: National Bureau of Economic Research).

Victor Lledó, Irene Yackovlev, and Lucie Gadenne (2011), "A Tale of Procyclicality, Aid and Debt Flows: Government Spending in Sub-Saharan Africa", African Journal of Economics, 20 (5), 823-849

Victor Lledo, and Marcos Poplawski-Pibeiro (2011) Fiscal policy implementation in Sub-Saharan Africa, IMF Working Paper 11/172, www.imf.org / external / pubs / ft / wp / 2011 / wp11172.

Xavier Debrun Radhicka and Kapoor (2010), "Fiscal Policy and Macroeconomic Stability: Automatic Stabilizers Work, Always and Everywhere", IMF Working Paper WP / 10/111

Annexe

Table 1: Descriptive statistics

Variable		Mean	Std, Dev,	Min	Max	Observations
dep	overall	27,06588	9,913545	7,641634	69,08222	N = 967
	between		8,969172	12,0718	54,94913	n = 88
	within		4,310777	9,219536	51,63324	T-bar = 10,9886
z	overall	8069,405	218652,7	-1044613	6195050	N = 872
	between		70746,52	-0,2720785	663803,8	n = 88
	within		206906,4	-1700347	5539316	T-bar = 9,90909
v	overall	248881,2	4268711	-52,90131	7,73E+07	N = 960
	between		2221736	-44,16213	2,08E+07	n = 88
	within		3646440	-2,06E+07	5,67E+07	T-bar = 10,9091
dette	overall	53,46672	57,6111	0,7218315	685,1997	N = 946
	between		44,39315	4,817206	333,9763	n = 86
	within		37,00191	-253,2897	404,6901	T = 11

Table 2: Results

	Baseline model		Election dummy		IV Time dummy	
VARIABLES	Ex-ante (1)	Ex-post (2)	Ex-ante (3)	Ex-post (4)	Ex-ante (5)	Ex-post (6)
z	-1.28e-06***		-1.18e-06***		-1.43e-06***	
	(2.33e-07)		(2.60e-07)		(2.48e-07)	
v	-6.32e-08***		-5.65e-08***		-6.29e-08***	
	(1.71e-08)		(1.71e-08)		(1.29e-08)	
gapf	0.272***	0.237***	0.300***	0.245***	0.235***	0.270***
	(0.0488)	(0.0526)	(0.0606)	(0.0615)	(0.0586)	(0.0576)
dette	-0.00720	0.00314	-0.0157	0.00400	-0.00211	0.0101*
	(0.0104)	(0.00483)	(0.00991)	(0.00630)	(0.0166)	(0.00537)
L.dep	0.999***	0.775***	0.967***	0.798***	1.016***	0.719***
	(0.0910)	(0.120)	(0.0966)	(0.133)	(0.0652)	(0.0844)
ele			0.00525*	0.00484		
			(0.00305)	(0.00401)		
Constant	0.00725	0.0611*	0.0189	0.0542	0.000102	0.0796***
	(0.0231)	(0.0329)	(0.0266)	(0.0369)	(0.0230)	(0.0250)
Observations	768	859	768	859	768	859
Number of i	86	86	86	86	86	86
Time dummy	NO	NO	NO	NO	YES	YES
Hansen	0.227	0.355	0.0607	0.0686	0.0720	0.681
AR1	0.000255	7.06e-05	0.000210	0.000115	0.000170	7.86e-06
AR2	0.0749	0.404	0.104	0.504	0.0602	0.479

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1