Working Paper

GHANA: FISCAL POLICY RESPONSIVENESS, PERSISTENCE AND DISCRETION

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BANK OF GHANA

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Abstract

The objective of this paper is to assess how fiscal policy is influenced by output conditions, past fiscal policy measures and the discretion of fiscal authorities in Ghana. We employ Two Stage Least Squares (2SLS) to decompose fiscal policy in the context of both revenue and spending into its principal components – responsiveness, persistence and discretion. The results show that while government revenue is more responsive to output conditions than government spending, government expenditure is more persistent than government revenue.

1 Introduction

Fiscal policy involves the use of government expenditure and taxation to influence the level and direction of economic activity in an economy. In periods of economic slowdown, fiscal authorities can prop up growth in economic activity by either increasing government spending or lowering taxes or do both whereas in times of overheated economy, government expenditure is lowered or taxes increased or both.

Economists have traditionally tended to describe fiscal policy outcomes in the context of the budget balance; whether expenditures exceeds revenues, revenues are greater than expenditures or there is equality between revenues and expenditures with the outcomes described as budget deficit, budget surplus or balanced budget respectively. These outcomes may be pro-cyclical, countercyclical or a-cyclical. One of the empirical regularities in economic literature is that fiscal policy is countercyclical in developed economies but tends to be more pro-cyclical in developing economies.

In an attempt to understand these policy outcomes, many studies in the last decade or so, have analyzed the response of fiscal policy to economic activity (i.e. fiscal responsiveness) with a view to exploring the effectiveness of automatic stabilizers. Other studies looked at the role of policy discretion in smoothing the macroeconomic environment, fiscal discretion. However, Fatas and Mihov (2003) characterized discretion as representing changes in fiscal policy that does not emanate from reactions to economic conditions. Very recently, few studies have attempted to measure the degree of dependence of current fiscal behavior on its own past developments, fiscal persistence.

Fiscal policy in Ghana during the 1970s and early 1980s was characterized by fiscal imbalances in the face of spending slippages and declining economy which hindered revenue performance. Comprehensive policy reforms introduced in the 1980s improved the health of the economy resulting in budget surpluses afterward. The pre-election expenditures in 1992 meant that the deficit would return in each of the election years apart from 2004. The country's decision to access debt relief under the enhanced HIPC initiative in 2001 helped in taming the deficit. However, expenditures associated with shocks such as energy crisis have also been important in defining the path of fiscal policy in Ghana.

The questions that derive naturally from the aforesaid are many and varied. Firstly, how does fiscal policy in Ghana respond to output conditions and what is the nature of that response? Secondly, what is the level of discretion that fiscal authorities have in influencing the macroeconomic environment? Thirdly, how persistent is fiscal policy in Ghana? Finally, what are the policy implications of the above questions? The aim of this paper, therefore, is to disaggregate fiscal policy (both revenue and expenditure) into responsiveness, persistence and discretion with a view to answering these questions. The paper employs the approach adopted by Fatas and Mihov (2003, 2006) and Afonso et al (2008).

The rest of the paper is structured as follows: The next section looks at some stylized facts of fiscal policy in Ghana. This is then followed by a brief review of related literature. Section four deals with data issues and empirical methodology. Section five reports and discusses the estimation results. The last section provides concluding remarks

2 Some Stylized Facts of Fiscal Policy in Ghana

The period spanning the 1970s and early 1980s witnessed an expansionary fiscal policies reflected in growing public expenditures. With revenues lagging behind, this created sustained budget deficits which were financed mainly from the banking system. Following the economic crisis of the late 1970s and early 1980s, government spending fell dramatically below 10% of GDP in 1983.

In an effort to deal with the decaying economy, the IMF/World Bank sponsored Economic Recovery and Structural Adjustment Programs were launched in 1983. The fiscal stabilization and consolidation process that ensued ensured tax collection improved and with significant donor support, government spending picked up to about 14% of GDP by 1986; a level at which it stabilized until 1991[1]. The culmination of these measures plus the privatization policy which also raked in significant amount of money into the resource envelope was that for the first time in decades, the budget balance registered a surplus from 1986 through to 1991.

However, all the fiscal gains made in the preceding five years could not be sustained as the country began preparations in 1992 to return to constitutional rule in 1993. In 1992, for instance, government spending spiked to 17 percent of GDP from about 14 percent of GDP a year earlier. The emerging spending spillage was compounded by unanticipated decline in revenue to only 12 percent of GDP from 15 percent in 1991, a situation attributable mainly to shortfall in donor budgetary support. Even though revenue collection improved considerably in the ensuing years, robust expenditure growth meant the budget deficit remained widened. It is instructive to note that the

[1] Wetzel (2000) observed that foreign assistance supporting the program allowed an increase in expenditures of about 3-4% after stabilization.

burgeoning budget deficits that accompanied the pre-elections of 1992 re-emerged in the run up to the 1996 general elections[2]. This phenomenon is consistent with the fiscal illusion hypothesis which contends that politicians would normally follow expansionary fiscal policy in pre-election years since voters do not fully understand the implications of expansionary policies in post-election years (Alesina and Perrotti, 1995).

The fiscal imbalances that had characterized the previous elections re-emerged in 2000 as the country organized its third general election since returning to constitutional rule, perhaps the most open contest as for the first time the incumbent president was not contesting. The fiscal problems were compounded by the collapse of commodity prices and the resulting worsened terms of trade coupled with significant shortfall in donor budgetary support. By this time the country's external debt position had become unsustainable above thresholds established by the IMF under the enhanced HIPC initiative and debt servicing[3] was putting considerable strain on the budget. The 2001 budget, the first by the new government, had introduced significant measures aimed at boosting government revenue while taming government spending in order to achieve fiscal consolidation.

Perhaps, and in retrospect, the most important step taken by the new government was the decision to access debt relief under the enhanced HIPC initiative[4]. The fiscal space

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[2] The election related budget deficits showed up in the 2000 and 2008 general elections. It was only the 2004 general election that was not associated with the usual huge budget deficit.

[3] At end-December 2000, the NPV of debt-to exports ratio was 152 percent, while the NPV of debt-to-revenue ratio was 557 percent, both above the enhanced HIPC Initiative thresholds of 150 and 250 percent respectively, and was about 77 percent of GDP.

[4] Using a cutoff date of 31st December 2000, the IMF estimated that the potential level of debt relief for Ghana was US$2.1 billion in NPV terms, or equivalent to nominal debt service relief over time

that was created from the benefits of the HIPC initiative precipitated fast-paced fiscal consolidation process bringing the budget deficit from a high of 8.6 percent of GDP at the end of 2000 to 2 percent of GDP at the end of 2005.

Though not anticipated, the fiscal imbalances returned in 2006 as the country grappled with an energy crisis that threatened to disrupt economic activity. The pace of government spending in response to the energy crisis were significantly elevated, resulting in end of year budget deficit which was incongruous with the target envisioned by the fiscal authorities[5]. The country's fiscal position deteriorated further in 2007 with the persistence of the energy crisis, expenditures related to the country's Golden Jubilee celebrations of nationhood, and expenditures necessary to prepare the country to host the African Cup of Nations in 2008. And in the run up to the 2008 general elections, large fiscal imbalances occurred again pushing the budget deficit to 11.5 percent of GDP at the end of the year compared to a target of 4 percent of GDP.

The fiscal consolidation envisaged under the fiscal stabilization program instituted by the new administration that took over the realms of government in 2009, has not yet succeeded in achieving significant reduction in the budget deficit as the deficit climbed back to 11.1 percent of GDP at the end 2010[6] from 9.5 percent of GDP as at end 2009 in consonance with the displacement theory propagated by Peacock and Wiseman (1961) which predicted that once government spending is raised to a certain

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amounting to US$3.2 billion. The nominal debt stock at the end of December, 2000 amounted to US$5.9 billion

[5] Though the target deficit for end 2006 was 2.1 percent of GDP, the year ended with a deficit of 7.8 percent of GDP
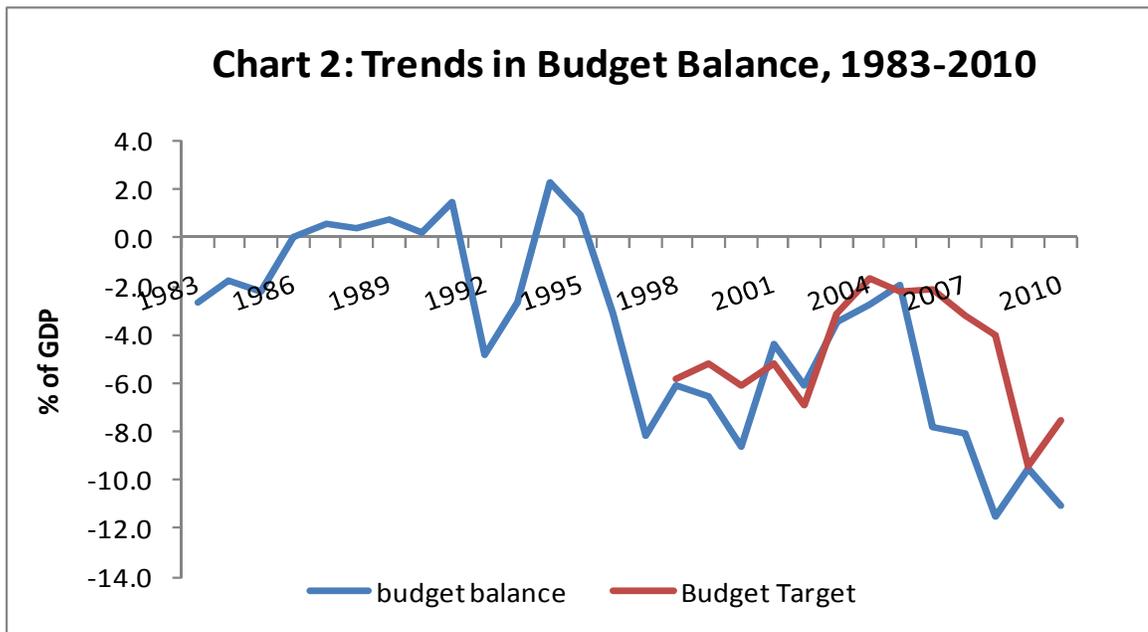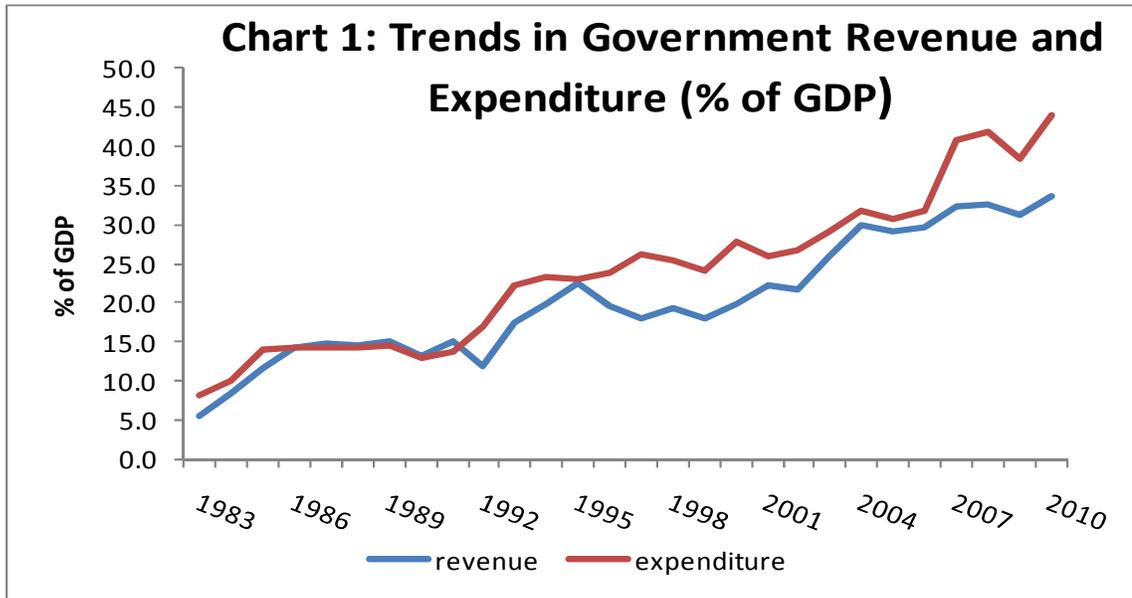
[6] The 11.1 percent of GDP is computed from the numbers available in terms of the revised national accounts.

level it becomes consistent with the tolerable level of citizens and therefore permanent rather than temporary.

Despite the periodic slip in Ghana's fiscal policy management, the country's economic growth averaged more than 5 percent over the last 25 years or so compared with an average growth of about 3 percent for Sub- Saharan Africa.

One other characteristic of Ghana's fiscal policy has been the challenge of meeting fiscal targets. As chart 3 indicates, the fiscal outturn has mostly exceeded targets, in some years, significantly bringing into question the budgetary process in Ghana. However, the budget had performed considerably well in the first half of the last decade mainly due to benefits derived from the enhanced HIPC initiative.

We have thus far noted that fiscal policy in Ghana in the 1970s and early 1980s was characterized by fiscal imbalances in the face of spending slippages and decaying economy which limited revenue collection. Policy reforms in the 1980s brought sanity into fiscal operations resulting in budget surpluses later in that decade and early 1990s. The pre-election expenditures meant that the deficit would return in each of the election years except 2004. The fiscal space created following the decision to access debt relief under the enhanced HIPC initiative helped in taming the deficit. However, expenditures associated with shocks as was the case with the energy crisis have also helped in defining the path of fiscal policy in Ghana (see chart 1 and 2).

Chart 1: Trends in Government Revenue and Expenditure (% of GDP)

Chart 2: Trends in Budget Balance, 1983-2010

3 Literature Review

Until the work of Afonso et al (2008), the existing literature on fiscal policy decomposition has basically analyzed policy cyclicality (ie how fiscal policy reacts to output conditions – responsiveness), and discretionary aspect of fiscal policy. This

section therefore provides a review of existing related literature on the components of fiscal policy, namely, responsiveness, discretion, and persistence.

Responsiveness of Fiscal Policy

There are basically two strands of theoretical models on the cyclicality of fiscal policy. The first inspired by Keynes, postulated the counter-cyclicality of fiscal policy. In the standard Keynesian models, during recessions government expenditure should rise while taxes should decrease; the reverse should hold during booms. The Keynesians models therefore predict high and statistically significant coefficients on the responsiveness variable, namely output conditions.

Tax-smoothing models are based on the works of Barro (1979) that implied that government will normally smooth tax and spending by borrowing in recessions and repaying during economic prosperity. The Barro-inspired models suggest that there is positive correlation between taxes and the level of economic activity, but government expenditure is not correlated with changes in output. Another implication of the tax-smoothing models is that taxes are pro-cyclical while government spending is a-cyclical.

The empirical literature available on the cyclicality of fiscal policy revealed that most of the works are cross-country studies. The results of these studies were mixed, varying across spending and revenue types as well as across countries. For OECD countries, Gali (1994) concluded that spending is counter-cyclical, while Fiorito (1997) and Gavin and Perotti (1997) find no discernible pattern. As explained by Afonso et al (2008), the differences in these results depended on the components of

spending being measured. They pointed out that Gali (1994) studies government consumption and investment in a simple cross-country regression for a sample of 22 OECD countries and finds that both taxes and government purchases seem to be effectively working as automatic stabilizers, with government purchases following a counter-cyclical pattern, while Fioritto and Kollintzas (1994) and Fiorito (1997) studied government consumption in G-7 countries and find that the expenditures are either counter-cyclical or a-cyclical.

Other empirical studies focusing on mainly developing countries suggest that government spending tends to be pro-cyclical. In their investigation of cyclicality of fiscal policy in Latin America, Gavin and Perotti (1997a) discover that fiscal policy is vastly pro-cyclical in Latin America. Braun (2001) studied the behavior of government spending in a panel of 35 developing countries for the period 1970-1998 and concluded that government expenditure is highly pro-cyclical. In a cross-section of 83 low- and middle-income countries, Kaminsky et al (2004) find that fiscal policy is pro-cyclical.

An empirical regularity that emerged from these studies is that fiscal policy tends to be counter-cyclical or a-cyclical in most industrialized countries, but more pro-cyclical in developing countries. This conclusion is consistent with Lane's (2003) finding that the capability to implement fiscal control measures is positively correlated with the level of development, implying that wealthier economies undertake less pro-cyclical spending. Political and institutional factors have been sighted for instance by Talvi and Vegh (2005) as possible explanations of the cross-country variations in the degree of cyclicality.

Discretionary Fiscal Policy

Fatas and Mihov (2003) explained fiscal policy discretion as that component of government spending and revenue that does not represent a response to neither output conditions nor past values of government expenditure and revenue, but is instead the consequence of exogenous political processes or extraordinary non-economic circumstances. Discretion captures the trade-off between the degree of fiscal discipline and the necessary flexibility to deal with automatic stabilizers. In the empirical literature, discretionary fiscal policy is captured by the standard deviation of the error terms in expenditure and revenue models.

Using a cross-country data from 91 countries, Fatas and Mohiv (2003) find that highly volatile discretionary policy significantly destabilizes the economy. In their view, discretionary fiscal policy is explained largely such variables as the characteristics of the electoral and political systems as well as lack of political constraints. They conclude that institutional measures that limit discretion through checks and balances permit countries to achieve higher rates of economic growth and lessen volatility of the macroeconomic environment.

Fatas and Mihov (2006) explore the role of policy rules and institutions in the determination of discretionary fiscal policy, using annual data from forty-eight (48) US states over the period 1963-2000. Their key conclusions are twofold: strict budgetary restrictions leads to less discretion in conducting fiscal policy and those restrictions reduce the responsiveness of fiscal policy to output shocks and decrease the persistence of spending fluctuations. These two results, in their view, should have opposite effects on output volatility.

Persistence of Fiscal Policy

Fiscal policy persistence can be viewed as a measure of the degree of dependence of current fiscal behavior on its own past developments Afonso et al (2008) extended the work of Fatas and Mihov which enable them to estimate policy persistence from both revenue and expenditure sides of fiscal policy[7]. Their analysis covered a set of 132 developed and developing countries over the period 1980-2007 as well as data for EU-15 countries over the period 1970-2007. Employing weighted least squares (WLS), they decomposed fiscal policy into three components: responsiveness, persistence and discretion. Their results showed that fiscal policy is a-cyclical in most of the countries in the sample (that is, responsiveness is generally small and mostly not statistically significant); persistence is the dominant component, exhibiting significant trade-off with discretion. They concluded that fiscal policy tends to be more persistent than to respond to output conditions, and that while the effect of cross-country covariates is positive (negative) for discretion, it is negative (positive) for persistence thereby suggesting that countries with higher persistence have lower discretion and vice versa.

Even though some empirical works have been done in the developing world, to the best of our knowledge, no such work exists in the case of Ghana. Thus this paper seeks to add to the existing knowledge about fiscal policy decomposition in Ghana. One way in which the current study differs from the existing literature on the subject is that these studies were based on cross-country data.

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[7] Fatas and Mihov (2006) did not consider the revenue dimension of fiscal policy

4 Data and Methodology

4.1 Data

Government revenue and spending data are collected from Bank of Ghana and Ministry of Finance and Economic Planning. GDP at current prices, GDP deflator and Consumer Price Index data are collected from Ghana Statistical Service. The nominal revenue and expenditure variables are deflated by the Consumer Price Index (1993=100). In the case of the real GDP, the nominal GDP is deflated by the GDP deflator.

4.1 Methodology

Following Afonso et al (2008), we estimate the following regressions:

$$\ln G_t = \alpha^G + \beta^G \ln Y_t + \lambda^G \ln G_{t-1} + \varepsilon_t{}^G \quad \text{.................................[1]}$$

$$\ln R_t = \alpha^R + \beta^R \ln Y + \lambda^R \ln R_{t-1} + \varepsilon_t{}^R \quad \text{.................................[2]}$$

Where:

G = real government spending

R = real government revenue

Y = Real GDP

ln = natural logarithm

ε = error term

We interpret the volatility of ε_t^i as a quantitative estimate of discretionary policy. This volatility is calculated $\sqrt{\text{var}(\varepsilon_t^i)}$ and is denoted as σ^i. This parameter can be interpreted as the typical size of a discretionary change in fiscal policy for variable i. We are also interested in the persistence of changes in government revenue and spending. This persistence is captured by the coefficient on the lagged dependent

variable, λ. Another object of interest in equations (1) and (2) is the elasticity of government revenue and spending with respect to output, captured by the coefficient β^i for each fiscal variable.

Equations (1) and (2) are estimated using Two Stage Least Squares (2SLS) because of the presence of lagged dependent variable on the right-hand side OLS estimates would be biased and inconsistent, the possibility that the real GDP variable is correlated with the error term and also because the explanatory variables may contain measurement errors. To circumvent this risk of endogeneity bias we use past values of real GDP as instruments.

5 Empirical Results and Discussion

To avoid running spurious regressions, we started the analysis by testing the stationarity properties of GDP, government revenue and spending. Using Augmented Dickey-Fuller (ADF) test, the results indicate that all the variables are integrated of the same order of one (that is, I(1)). We then estimated the coefficients of responsiveness (β^i), persistence (λ^i) and discretion ($\sqrt{\mathrm{var}(\varepsilon_t^i)}$, that is the standard deviation of the error term). The results from (1) and (2) are reported in Table 1 and 2 respectively.

Table 1: Expenditure Regression (Equation [1])

Estimation Method: Two Stage Least Squares with lags of real GDP as instruments

Parameters Probability	Value	Std. Error	t-Statistic	
C	-2.36	1.03	-2.28	0.0350**
β^G (Responsiveness)	0.64	0.26	2.43	0.0256**
λ^G (Persistence)	0.68	0.14	4.80	0.0001*
ε^G (Discretion)	0.10	NA	NA	NA
R-squared	0.97	Mean Dependent var		4.89
Adj. R-squared	0.96	S.D dependent var		0.58
S.E. of regression	0.11	Sum of squared resid		0.21
F-statistic	272.63	D.W stat		1.66
Prob (F-stat)	0.0000			

** indicates significant at 5%; *significant at 1%

Diagnostic Test

Breusch-Godfrey Ser Corr LM Test	1.13 (Prob. = 0.2887)
ARCH Test	0.16 (Prob. = 0.6963)
White Heteroskedasticity Test	1.35 (Prob. = 0.2948
Jarque-Bera	1.23 (Prob. = 0.5412)

Table 2: Revenue Regression (Equation [2])

Estimation Method: Two Stage Least Squares with lags of real GDP as instruments

Parameters	Value	Std. Error	t-Statistic	Probability
C	-4.20	1.02	-4.13	0.0014*
β^G (Responsiveness)	1.01	0.25	4.04	0.0016*
λ^G (Persistence)	0.55	0.13	4.14	0.0014*
ε^G (Discretion)	0.07	NA	NA	NA

R-squared	0.98	Mean Dependent var	4.93
Adj. R-squared	0.98	S.D dependent var	0.48
S.E. of regression	0.07	Sum of squared resid	0.06
F-statistic	317.24	D.W stat	1.88
Prob (F-stat)	0.0000		

*indicates significant at 1%

Diagnostic Test

Breusch-Godfrey Ser Corr LM Test	1.57 (Prob. = 0.4551)
ARCH Test	1.78 (Prob. = 0.7579)
White Heteroskedasticity Test	0.11 (Prob. = 0.9742)
Jarque-Bera	0.14 (Prob. = 0.9325)

The results in Table 1 and 2 indicate that the models pass the diagnostic test for serial correlation, ARCH, normality, heteroscedasticity, and model specification tests all at the conventional 5% level of significance.

Responsiveness

Looking at Table 1 and 2 it is possible to see that in terms of magnitude the coefficient of responsiveness in the revenue equation is greater than that in the expenditure model, suggesting that government revenue is more responsive to output conditions than does government spending. This is confirmed by the fact that while the coefficient of responsiveness in the revenue model is statistically significant at 1%, that of government spending is statistically significant at 5%. This result is consistent with the findings of Afonso et al (2008) that government revenue reacts relatively more to output conditions than government spending.

This outcome is not surprising in the specific case of Ghana, as the automatic stabilizers are known to work more on the revenue side. For instance, until the 2009 upward revision of rates, fees and user charges on a range of publicly provided services and other vehicle related charges, tax revenues averaged more than 90 percent of total domestic revenue. Even though, nontax revenue, on average, accounts for about 15 percent of total domestic revenue after the 2009 revision, we think that a further upward adjustment which raises nontax revenue above 20 percent of domestic revenue would help reduce the responsiveness of government revenue to output conditions. Evidence also suggests that our budgetary process tracks spend-tax hypothesis as discovered by Amoah and Loloh (2008). This finding implies that the budget deficit will be negatively correlated with the business cycle.

Persistence

Table 1 and 2 also reveal that government expenditure is more persistent than revenue evidenced by the fact that the magnitude of the coefficient of persistence in the expenditure model is greater than that in the revenue model. The higher spending persistence is a reflection of the dominance of statutory payments in the budget, and the low revenue persistence is a confirmation of the high revenue responsiveness. This behavior of fiscal policy in Ghana points to the existence of conditions for fiscal deterioration. We think that a downward revision of some statutory payments especially the District Assemblies Common Fund (DACF)[8] and a thorough review of others such as GETFund and NHIL with a view to removing any overlaps between these funds and budgetary allocation to the relevant ministries would help curb the high spending persistence and improve the flexibility in the management of the budget.

Discretion

As stated earlier, our measure of discretion estimates are computed as the standard deviation of the residuals from both government expenditure and government revenue equations (that is, equations [1] and [2]). Hence, this approach suggests that the higher and more significant are the coefficients of persistence and responsiveness, the lower will be the component of discretion.[9] Results reported in Table 1 and 2 confirm that in Ghana discretion is generally low from both sides of fiscal policy.

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[8] It is believed that a significant number of district assemblies invest their share of the DACF in government treasury bills rather than undertake development projects for which the Fund has been set up. Ring-fencing of DACF arrears are also not uncommon in recent years.
[9] It is also true that the higher the significance of those coefficients, the higher the R-squared of the regression, and the lower the variance of the residuals.

6. Concluding Remarks

We employ Two Stage Least Squares (2SLS) to decompose fiscal policy in the context of both revenue and spending into its principal components – responsiveness, persistence and discretion. The following conclusions can be drawn based on the results. Firstly, government revenue is more responsive to output conditions than government spending implying that the budget deficit would be negatively correlated with the business cycle. Secondly, government spending is more persistent than government revenue, an indication of the existence of conditions for fiscal deterioration. Finally, the low discretion of fiscal policy especially in the context of government spending suggests limited room for tweaking fiscal policy to response adequately to emerging challenges without significantly breaching established fiscal targets.

We think that while an upward adjustment in rates, fees and user charges that raises nontax revenue above 20 percent of domestic revenue would help reduce the responsiveness of government revenue to output conditions, a downward revision of some statutory payments especially the District Assemblies Common Fund (DACF) and a thorough review of others such as GETFund and NHIL could help in introducing some dynamism in fiscal policy setting with the possibility of reducing the existence of fiscal deterioration in the long term.

References

Afonso, A. (2005). "Fiscal Sustainability: the Unpleasant European Case", *FinanzArchiv*, 61 (1), 19-44.

Afonso, A. (2008). "Ricardian Fiscal Regimes in the European Union", *Empirica*, 35 (3), 313–334.

Afonso, A. and Rault, C. (2007). "What do we really know about fiscal sustainability in the EU? A panel data diagnostic", ECB Working Paper n. 820.

Afonso, A., Agnello L. and Furceri D. (2008) "Fiscal Policy Responsiveness, Persistence and Discretion", ECB Working Paper Series No. 954.

Akitoby, B., Clements, B., Gupta S., and Inchauste, G. (2004). "The cyclical and longterm behavior of government expenditures in developing countries", IMF Working Paper 04.202.

Alesina, A., Campante, F. and Tabellini, G. (2008). "Why is Fiscal Policy Often Procyclical?" *Journal of the European Economic Association*, 6(5).

Alesina A. and Tabellini G. (2005). "Why is fiscal policy often procyclical?" mimeo, July.

Amoah, B. and Loloh, F.W. (2008) "Causal Linkages Between Government Revenue and Spending: Evidence from Ghana", Staff Working Papers, Bank of Ghana.

Alesina, A. and Wacziarg, R. (1998). "Openness, country size and government", *Journal of Public Economics*, 69 (3), 305-321.

Barlevy G. (2004). "The Cost of Business Cycles and the Benefits of Stabilization: A Survey", NBER Working Paper 10926.

Barro R. (1979). "On the Determination of the Public Debt", *Journal of Political Economy*, 87 (5), 93-110.

Braun M. (2001). "Why Is Fiscal Policy Procyclical in Developing Countries", Harvard University.

Drazen, A. (2000). *Political Economy in Macroeconomics*, Princeton: Princeton University Press.

Epaulard, A. and Pommeret, A. (2003). "Recursive Utility, Endogenous Growth, and the Welfare Cost of Volatility", *Review of Economic Dynamics*, 6(3), 672-684.

Fatás, A. and Mihov, I. (2001). "Government Size and Automatic Stabilizers", *Journal of International Economics*, 55, 3-28.

Fatás, A. and Mihov, I. (2003). "The Case for Restricting Fiscal Policy Discretion", *Quarterly Journal of Economics*, 118, 1419-1447.

Fatás, A. and Mihov, I. (2005). "Policy volatility, institutions and economic growth", CEPR Discussion Paper 5388.

Fatás, A. and Mihov, I. (2006). "The Macroeconomics Effects of Fiscal Rules in the US States", *Journal of Public Economics*, 90, 101-117.

Ferejohn. (1986). "Incumbent performance and electoral control", *Public Choice* 30, 5-25.

Fiorito R. (1997). "Stylized Facts of Government Finance in the G-7", *IMF Working Paper* 97/142.

Fiorito R. and Kollintzas T. (1994). "Stylized Facts of Business Cycles in the G7 from a Real Business Cycles Perspective", *European Economic Review*, Vol. 38, pp. 235-69.

Furceri, D. (2007). "Is Government Expenditure Volatility Harmful for Growth? A Crosscountry Analysis", *Fiscal Studies*, 28 (1), 103-120.

Furceri, D., and Poplawski, M. (2008). "Fiscal Volatility and the size of Nations", Mimeo.

Gali J. (1994). "Government Size and Macroeconomic Stability", European Economic Review, 38 (1), 117-32.

Galí J. (2005). "Modern perspective of fiscal stabilization policies", CESifo *Economic Studies*, 51 (4), 587-599.

Galí J. and Perotti R. (2003). "Fiscal policy and monetary integration in Europe", *Fiscal Policy*, 533-572 (October).

Gavin M. and Perotti R. (1997a). "Fiscal policy in Latin America", *NBER Macroeconomics Annual*, (12), 11-71.

Gavin M. and Perotti R. (1997b). "Fiscal policy and saving in good times and bad times", in Hausman R., Reisen H. (Eds.), Promoting Savings in Latin America, IDB and OECD.

Hallerberg, M. and Strauch, R. (2002). "On the Cyclicality of Fiscal Policy in Europe", *Empirica*, 29, 183-207.

Imbs, J. (2007). "Growth and volatility", *Journal of Monetary Economics*, 54 (7), 1848-1862.

IMF and IDA (2001), "Ghana: Enhanced Heavily Indebted Poor Countries (HIPC) Initiative – Preliminary Document",

Kaminsky, G., Reinhart, C. and Végh, C. (2004). "When It Rains, It Pours: Procyclical Capital Flows and Macroeconomic Policies", NBER Working Pape*r* 10780.

Lane, P. (2003). "The cyclical behaviour of fiscal policy: evidence from the OECD", *Journal of Public Economics*, 87 (12), 2261-2675.

Loloh, F.W. (2005), "Wagner's Law: Evidence from Ghana, 1961-2002", Mphil Thesis, University of Ghana, Legon

Persson, T. and Tabellini, G. (2001). "Political Institutions and Policy Outcomes: What are the Stylized Facts ? " CEPR Discussion Papers 2872.

Ramey and Ramey (1995). "Cross-Country Evidence on the Link between Volatility and Growth", *American Economic Review*, 85 (5), 1138-51.

Rand, J., and Tarp, F. (2002). "Business cycles in developing countries: Are they different?" *World Development*, 30 (12), 2071-2088.

Talvi E. and Vegh, C. (2005). "Tax base variability and procyclical fiscal policy", *Journal of Economic Development*, 78 (1), 156-190.