

## A NOTE ON THE MEASUREMENT OF PUBLIC SECTOR DEFICIT IN NIGERIA AND IMPLICATIONS FOR POLICY

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### Abstract

The paper underscores the necessity of adopting an appropriate measurement basis of fiscal deficits. It has been noted that the cash accounting basis tends to understate the magnitude of the deficit in a situation where financial arrears are accumulated and overestimate the size of the fiscal problem whenever arrears are being decumulated. In Nigeria, official estimates of the deficits are based on cash, even though accumulation of financial arrears appears to be a dominant feature of the fiscal profile. In the process the magnitude of the fiscal problem is understated. The implication for policy is that the amount of required adjustment is unavoidably underestimated. This partly explains why the deficits have persisted. What is appropriate in the circumstance is to treat arrears as a source of involuntary finance and to measure the deficit on an accrual basis.

### Introduction

One major determinant of success in policy formulation and evaluation is the correctness of the measures of policy variables adopted for the purpose. Economic variables unlike purely scientific variables lack precise measures. Fiscal policy variables especially are commonly measured in diverse ways. Effectiveness of policy design and evaluation are greatly tied to the appropriateness of such measures. Availability of alternative measures should ordinarily constitute an advantage to the

policy maker who is able to sieve through, and adopt the most appropriate measure given the environment of policy. Regrettably, in some countries, available official statistics on certain key policy variables offer no opportunity.

One fiscal policy variable that is frequently measured in diverse ways, and for which in some countries, official statistics based on alternative measures may be lacking is fiscal deficit. The question of which measure of fiscal stance is appropriate for a given economy, and which measurement basis will yield the most realistic picture (indication) of fiscal position are pertinent issues in the discourse about public sector resource management. These issues are crucial because of the consideration that effectiveness of policy response can only be assured if the magnitude of the fiscal gap (deficit or surplus) is correctly estimated. The underlying considerations basically are: how best should public sector solvency be measured, and which is the appropriate basis for achieving the measure? Depending on how public sector payment obligations are managed, the choice of measurement basis could be a whole lot of issue or non-issue. How the fiscal deficit is measured has an important bearing on an accurate analysis of its macroeconomic consequences, and of course the potency of the line of policy derived there from (Easterly and Schmidt-Hebbel, 1994; IMF, 1986). Between the two most popular measurement bases; cash or accrual, accumulation or 'decumulation' of payment arrears, and the timing in either case make the choice of the basis of measuring the deficit (or surplus) a key policy imperative.

In Nigeria, official measurement of fiscal stance is cash-based. The main sources of government finance statistics are the Central Bank of Nigeria (CBN) and the Federal Ministry of Finance (FMF). In this paper, we examine the implications of the measurement basis of fiscal deficits in particular, for policy. Section two of the paper reviews alternative measures of deficit. An illustration of the practical implications of both measurement bases has been provided in section three. The fourth section of the paper discusses the official measurement basis of deficits and the implications for policy. The paper is concluded in section five with some closing remarks and a recommendation.

## **Alternative Measures of Public Sector Deficit**

Deficit measures are distinguished either in terms of the measure of public sector composition or in terms of the accounting basis. Alternative measures of public sector composition span from the central government (CG) to the consolidated non-financial public sector (CNFPS) and the consolidated total public sector, CTPS (Easterly and Schmidt-Hebbel, 1994). For the purpose of measuring the public sector deficit, the first composition CG includes only the deficits of the central government. The CNFPS includes the central government, states and local governments, and also non-financial public enterprises. The third, CTPS, includes deficits of the CNFPS and those of the central bank as well as publicly owned commercial banks. The CTPS measure has the widest coverage. Deficit measures based on the widest public sector coverage provide the most accurate and economically meaningful indication of fiscal stance and public sector solvency status (Easterly and Schmidt-Hebbel, 1994; Blejer and Cheasty 1991; Buiter, 1983; 1990)

Deficit measures may also be distinguished in terms of the accounting basis. In this regard, distinction is made between cash-based deficit and accruals-based deficit. The former reflects the cash position of the public sector at the end of an accounting period. It is a one-shot measure that simply takes the difference between actual revenues and actual payments, not orders, at the end of the fiscal period. Deficits based on accruals or payment-order reflect income and expenditures measured at the time they take place, even if they do not immediately involve cash flows (Easterly and Schmidt-Hebbel, 1994). This measure includes payments due but yet to be effected and also revenues due but yet to flow into the coffers of the public sector agency in the form of cash but for which an order has been made. Whereas, deficit measurement based on accruals would include arrears accumulation on items such as wages, and interest on loans, the cash-based measure exclude such. This in practical terms tends to make deficits measured on the basis of accruals larger than those measured on the basis of cash.

### **Cash Based vs Accruals Based Measurement of Deficit (Some Illustrations)**

Deficit measured on cash basis tends to underestimate the fiscal gap for the simple reason that it ignores such items as interest arrears on debt (foreign or local), and non interest bearing debt such as wage arrears and supplier or contractor finance. A simple illustration will clarify the issue. Let us suppose the government achieves current revenue of ₦200b. Assuming the ₦200b is to split between three items: wage bill, interest due on outstanding debt and expenditure on goods and services. Suppose further that the government decides to spend ₦100 on procurement of goods and services; ₦60b part-payment of total interest due of ₦100b; and ₦60billion on wages. The fiscal account of the government measured on an accrual basis will show total revenue of ₦200 billion and total expenditure of ₦240b (i.e. ₦100 on goods and services; ₦40b on wages and salaries; ₦60b interest payment and a deficit of ₦40b). The below –the –line financing requirement of the government will show a financing item in the form of accumulated interest arrears of ₦40b.

On the other hand, the cash-based measurement of fiscal stance (or official presentation as is the case in Nigeria) would show total revenue of ₦200b and total expenditure of ₦200 (ie ₦100b on goods and services; interest payment of ₦60b; wage payment of ₦40b), reflecting a zero deficit. In this presentation, the deficit is understated by ₦40b, the magnitude of interest accumulation. Cash-based measurement of deficit can be misleading when the monetary authorities resort to use of financial arrears to cope with increasing financial difficulties (Faini, 1994). The ₦40b deficit shown is the payment-order presentation should in actual fact add to the debt stock at the beginning of the period, reflecting an increase in liability. The cash-based method of presentation does not show such changes (Zanini, 1994)

Deficit measure based on the cash accounting technique ignores the arrears problem. Ordinarily the part of interest and wage, due but not yet paid should be added to the stock of debt at the beginning of the next period. That would translate to as increase in liability on the government's balance sheet. Reporting fiscal stance on the cash basis gives an unsteady picture of government's solvency status by understating the magnitude of the liability



## **Official Measurement of Fiscal Stance in Nigeria and Implications for Policy**

As mentioned earlier, deficit measures based on the widest public sector coverage provide the most economically meaningful indication of fiscal stance. Although this is a very important matter related to the determination of fiscal stance and public sector solvency status, the primary focus of this paper, however, is the basis of measurement.

In Nigeria, the measurement of fiscal deficit is (officially) done on the cash-accounting basis by the relevant agencies of government, the Central Bank of Nigeria (CBN), the Federal Ministry of Finance (FMF) and (not too often) the National Planning Commission (NPC). The figures obtained by these agencies which are coincidentally directly responsible for macroeconomic management in Nigeria thus form the basis of policy evaluation and design.

Deficit measured on a cash-accounting basis offers (often) a more brilliant picture of government's fiscal stance as it tends to understate the expenditure side of government's fiscal operations (Zanini, 1994). For this very reason, it is often more attractive to government. But this measurement basis does not portend the same implication for policy as would payment-order basis, especially in an economy that is characterized by heavy accumulation of trade, debt, interest and wage arrears. As a result, deficits measured on cash basis fail to reflect the full pressure fiscal actions exert on available resources. Conversely, this measurement basis overstates the size of the fiscal problem whenever arrears are being decumulated (Faini, 1994).

In Nigeria because the official basis for measuring fiscal deficits is cash, accumulated arrears or forced loans (technically) do not reflect as below-the-deficit line financing items, (see appendix). It is however important to note that when even arrears are reduced to intangible levels, both the payment-order (accruals) based deficit and cash-based deficit tend to converge. In the circumstance no discrepancies in term of policy implications (arising from the choice of measurement basis) are to be expected. Cash basis however tends to reflect wide swings in government's fiscal accounts between when arrears are accumulated (for example through series of debt rescheduling arrangements), and when the arrears are paid (Fiani, 1994). Such swings surely portend negative consequences for policy. Apart from understating the deficit

at one time and overestimating the size of the surplus at another, the amount of required adjustment is likely to be underestimated at times of arrears accumulation and overestimated at the turn of event (i.e. when arrears are decumulated). Secondly, judgmental errors can hardly be avoided in term of the source(s) of macroeconomic disturbance. For example, between 1995 and 1997, official statistics (table) show that federal government fiscal operations in Nigeria resulted in surpluses (overall), yet during the same period, inflation, one of the empirically ascertained consequences of rising government expenditures in Nigeria, averaged 36% (Okpanachi, 2002). Although inflation during the period *might not have been caused by government's fiscal actions alone*, it may have played a prominent role. If properly measured, the surpluses of the period would turn to deficits of some high proportions of the GDP. This is because certain expenditure components such as foreign-financed expenditures and arrears on salaries, interests, and contractor finance were apparently missed in the estimation of total expenditures of the government. Underestimation or overestimation of fiscal gap could cause a misdirection of policy just as it could lead to the choice of wrong instruments. The negative consequences of persistent deficits tend to be concealed when as a result of the measurement basis; the magnitude of the deficit is understated or overstated. This same condition could precipitate a wrong perception of the solvency status of government. Depending on the situation, restrictive or expansionary measures could be carried farther than necessary.

Between 1989 and 1993 (the period over which we have statistics on interest due to be paid on loans), officially reported deficits of the federal government fell below our estimates of the same (see appendix). These differences arose because official statistic report the deficit based on cash. We estimate the deficit based on accrual (payment-order). The difference between the later and those reported officially represent the magnitude by which the deficits of the federal government were under estimated. Due to data limitations, we are unable to calculate accruals-based deficits over the period after 1993. Going by trends however, it is unlikely that the surpluses reported between 1995-1997 would survive a payment-order measure unless in the exceptional (unlikely) circumstance that government undertook massive decumulation of payment arrears during the same period. Between 1989 and 1993 over which period we have complete information, the

computations in the appendix indicate that deficits of the federal government were clearly understated. Except in 1993 the magnitudes by which official statistics understate the deficits are all in excess of 50%.

### **Concluding Remarks**

As can be seen in the appendix, accumulation of financial arrears has been a stable feature of fiscal management at the level of the central government in Nigeria. Even though it has not been shown here, it will not be out of place to presume that other levels of government also accumulated financial arrears on interest, goods, expenditure and perhaps wages. In effect the overall fiscal outlook of the public sector makes it obvious that the choice of measurement basis of fiscal stance matters. Deficit measured on cash basis will in the circumstance represents gross underestimation of the magnitude of the fiscal gap, and could therefore lead to underestimation of the amount of adjustment necessary to bring the budget back to the path of balance. Contractionary measures are in essence unable to fully realize the amount of effect expected of them, ostensibly due to the judgment error inherent in the choice of measurement basis of the deficit. Corrective measures generally fall short of their targets as a consequence. The payment order (accruals) basis effectively overcomes this limitation. It offers a more realistic picture of the fiscal position of government given the habit of arrears accumulation. Corrective measures are in the event able to cope with the challenge of attaining the desired fiscal position. This measurement basis is therefore more appropriate in any economy in which the practice of accumulating financial arrears is frequent, and/or a stable feature of public sector fiscal management as it seems in Nigeria.

**Appendix**  
**Federal Fiscal Profile, 1989-1998**

In Billions of ₦	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
(1) Fed. Rev.	258	380	300	530	830	906	2497	3250	3510	3100
(2) Federal Exp.	41	60	66	927	191	1608	2487	288	3560	4435
(3) Interest due of which	224	295	331	608	801	NA	NA	NA	NA	NA
(a) Amount paid	13	168	132	304	584	4100	5500	5600	5600	6600
(b) Acc. Int. Amers	94	127	199	404	217					
(4) Balance (Deficit/Surplus)										
(a) Cash-Based	-1500	-22	-397	-395	-1077	-7000	100	3700	-500	-13300
(b) Payment-Order Based	-244	347	556	799	1294	-	-	-	-	-
(5) Financing Items										
(a) Cash-Based	-1500	-22	-357	-395	-1077	7000	-100	-3700	-500	-13300
All sources excepting Financial Amers	-1500	-22	-357	395	-1077	-7000	+100	+37		
(b) Accrual or Payment-Order Based	244	347	556	799	1294	-	-	-	-	-
(i) Interest Amers	-94	-127	-199	-404	-217	7000	1	3700	-500	-13300
(ii) All other Sources	15	-22	-357	-395	-1077					

**Source:** CBN Statistical Bulletin and authors' Computations

**Notes:** i. (NA) - not available; ii. (-) can not be computed because of (i)

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