An Insight into the Behavior of Nigeria's Private Consumer Spending

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Since the 1990s, there has been a resurgence of interest in the effect of fiscal policy on private consumer spending. This interest has been further fuelled by the persistent global economic crisis, which began in 2007. Past studies on the effect of Keynesian fiscal policies on private consumer spending provide mixed evidence. Some studies (e.g., Perotti: 1999, and Giavazzi et al.: 2000) point to the ineffectiveness of Keynesian fiscal policies in that contractionary fiscal policies may in fact exert expansionary pressure on consumption, investment and output. However, other studies (e.g., Hjelm: 2002, van Aarle and Garretsen: 2003, and Schclarek: 2003) do not agree with this position and caution against generalisation of this claim.

A fall out from this disagreement is the need for further research to extend the results of these studies to a developing country situation, since existing studies (except for Schclarek, 2004), relate to advanced-country situation. The study by Schclarek involves a generalised cross-country survey of 30 countries, half industrialised and half developing. This study opined that further evidence may be thrown up for a developing-country situation if the influence of fiscal policy

on private consumer spending is particularised for Nigeria.

Thus, the study extends the work by Schclarek (2004) to the Nigerian situation by determining if Keynesian or non-keynesian effects could be established from private consumption response to fiscal policy[1]. The study employs time series data obtained from the Central Bank of Nigeria (CBN) Annual Statistical Bulletin, National Bureau of Statistics (NBS), World Development Indicators 2008, database of World Bank and International Financial Statistics 2008 database of the IMF.

The remaining part of the study is laid out as follows: Section 2 surveys briefly relevant empirical literature. Section 3 discusses Nigeria's tax revenue shocks and government expenditure. Section 4 sets out model specification and estimation procedure, while section 5 discusses the results of estimation and analysis. The paper is concluded in section 6.

Survey of Relevant Empirical Literature

Keynesian fiscal policies are usually intended to stimulate economic growth. However, a growing body of empirical literature has tried to question the efficacy of Keynesian fiscal policies in stimulating economic activities. The literature tries to answer the question whether fiscal policies have Keynesian or non-Keynesian effect. In general, it contends that the response of economic aggregates to fiscal policy is determined by such factors as whether there is a budget contraction or expansion, the previous pattern of growth of the public debt, prior exchange rate and domestic credit fluctuations, the size and duration of the fiscal impulse, and changes in transfers and taxes with respect to changes in public investments, public sector consumption expenditure and social security.

The majority of the studies surveyed indicate that fiscal policies precipitate Keynesian type responses. Specifically, the study by Giavazzi and Pagano (1996) found that government spending; taxes and transfers have clear impact on private consumption expenditure. They found that a dollar rise in taxes increases private consumption by 15-20 cents. Their methodology consists of an error correction consumption model and panel regression for 19 OECD countries over the period, 1970-1992. Hjelm (2002a) found that fiscal contractions preceded by real depreciations improve private consumption growth compared to contractions preceded by real appreciations. His method involves panel regressions of structural consumption functions for 19 OECD countries over the period 1970-1997. Van Aarle and Garretsen (2003) found that public transfers have greater impact on private consumption than government spending and taxes. They utilised an error correction regression model to estimate a panel of consumption functions for 14 EU countries over the period 1990- 1998. Equally, Schclarek (2003) estimated an Euler-type consumption equation for 21 developing countries over the period 1970-2000. He found that Government consumption and taxes have Keynesian effects on private consumption expenditure. In the study by Caldara and Kamps (2006), it was found that the response of private consumption to a spending shock follows a hump-shaped pattern and is significantly positive in the medium run. Moreover, the results suggest that a spending increase stimulates the economy in the medium run, irrespective of whether it is deficit financed or tax-financed.

Apart from the foregoing, other studies that directly or indirectly lend credence to Keynesian fiscal policy effects on private consumption expenditure are summarised as follows: Positive government spending shocks in general have a negative effect on real GDP and lead to important "crowding-out" effects by impacting negatively on private consumption and investment (Chatterjee and Ghosh: 2009). Expansionary shock of public expenditures increases private consumption (Mendonca et. al: 2008 and Erdogdu: 2006). The application of the golden rule of public finance through excessive provision of public goods leads to excessive increases in private expenditure (Ghosh and Nolan: 2005). Fiscal policy is a key transmission channel through which oil boom affects private consumption (Pieschacon: 2009). Government spending produces important crowding-out effects, by negatively affecting both private consumption and investment (Sousa: 2009); and it negatively affects growth rate of GDP per capita over the business cycle, thus providing robust evidence that distortionary taxation affects growth in the medium-term through its impact on the accumulation of private physical capital (Torrijos and Strauch: 2003). Fiscal policies of pension reform adversely affect private consumption expenditure,

although moderated by appropriate and rapid taxation policies (Nickel et. al (2008).

There are however, some studies which present mixed results as to whether fiscal policies produce Keynesian or non-Keynesian effects. For example, the study by Schclarek (2004) indicates that government consumption shocks have Keynesian effects for both industrial and developing countries. But in the case of tax shocks, the evidence suggests that they do not have any effect on private consumption. Schclarek used yearly data between 1970 and 2000 for 38 countries, of which half are industrialised and half are developing countries. Equally, Perotti (1999) found that government expenditure shocks have Keynesian effects on private consumption under a fiscal regime of low debt; but a fiscal regime of high debt led to non-Keynesian effect on private consumption expenditure. His methodology involves a panel of Euler-type consumption functions for 19 OECD countries over the period 1965-1994. The findings by Giavazzi et al. (2000) suggest larger non-Keynesian effects on private consumption for changes in taxes than spending, and for contractions rather than expansions. On the other hand, they found non-linear responses by private sector more likely when fiscal impulses are large and persistent. Their methodology consists of a panel regression of national savings rates for 18 OECD countries over the period 1960-1996. Jonsson (2004) revealed that Keynesian effects on private consumption are large during the period of fiscal contraction than in the period of expansion. Equally, private consumption does not respond to public transfers, especially when fiscal impulses are large and persistent. He utilised an error correction specification to estimate a panel of consumption functions for 19 OECD countries over the period 1960-2000. Giavazzi et al. (2000) also found non-Keynesian effects on private consumption to be larger for changes in taxes than spending, and for contractions rather than expansions. However, they found non-linear Keynesian effects by private consumption more likely when fiscal impulses are large and persistent.

In addition to the foregoing, other direct and indirect evidences of non-Keynesian effects in the literature are summarised as follows: Tax rebate provides very limited stimulus to aggregate demand (Shapiro and Slemrod: 2001). Social security benefit cuts have limited effects on the young because, they lie so far in the future, and the young are generally borrowing constrained. Also, eliminating tax-deferred saving will have no effect on current retirees (Carman, et. al: 2003). High debt service ratio alone does not indicate higher sensitivity of consumption to a change in income (Johnson: 2007). Consumption growth exhibits strong persistence and responds sluggishly to shocks (Sousa: 2009).

Nigeria's Tax Revenue Shocks and Government Expenditure

Uncontrolled variability of public tax revenues due to predominance of primary sectors in economic activities is one fiscal problem facing developing economies. In the case of Nigeria, the primary sector

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continues to be the major contributor to government revenues. Oil revenue share of total federal government revenue increased from 33.3% in 1970 to 80.1 % in 2003. Conversely, the share of non-oil revenue fell from 83.3% in 1970 to 19.9% in 2003. According to the CBN Annual Report 2008, oil-revenue accounted for 84.2 % of total federally-collected revenue of N3723.8 billion, while non-oil revenue accounted for the balance of 16.8%. Variability of crude oil price in the international market is a major source of shock to fiscal policy, due to the high composition of oil revenue in total public revenue.

Fiscal policy shock is also induced by variability in tax revenues from Value Added Tax (VAT), export duty, import duty and excise duty, all of which vary with the level of economic activities. For traded goods, export duty instability is a function of the export supply curve, the export demand curve and the export duty rate structure. For agricultural goods, the behaviour of the export supply curve is a function of weather, crop pests and infections, availability of inputs and prices of related substitutes. With respect to import duties, their

fluctuations depend on changes in imports, import prices, and import tariffs. Changes in these variables precipitate changes in total import duties. Equally, excise duty variability depends on changes in the inputs' supply schedules and the level of industrial unrest.

Since government capital and recurrent expenditures are greatly influenced by the pattern of public revenues, another fiscal problem facing many developing countries is the burgeoning size of public expenditures. The phenomenal growth of Nigeria's public expenditure in the face of highly variable public revenue induces fiscal shocks from budgetary deficits. The upsurge in government expenditures is traceable to the need to provide infrastructural and social facilities to drive economic growth and development. In the social sphere for example, huge resources are spent on schools, health, information, security and welfare services. In the economic services sector, larger amount of resources are spent on provision of transport facilities, urban development, building of dams and electricity projects.

In nominal term, Nigeria's federal government expenditure has grown tremendously, particularly since the early 1970s, following the huge revenues realised from oil. It increased from N903.9 million in 1970 to N1223.7 million in 1986. From then on, except in 1994 and 2000, total nominal expenditure increased consistently and peaked at N1,018,155.8 million by 2002, and by 2006 it became N1,938,000 million. During this period, the growth in total expenditure in absolute term was on the average, about 29.1%. But much of the growth in government expenditure (especially during the military era) went into unproductive investment and transfer payments, especially, debt service payment and less productive activities. As a percentage of GDP, total federal government expenditure during the period ranged between the lowest level of 10.2% in 1996 and the highest level of 29.4% in 1980, averaging 19.6 % for the period, 1970 and 2004. The increase in the level of government expenditure, particularly during the period after the adoption of SAP, is exaggerated partly by the accelerated Naira depreciation resulting from market based system for exchange rate determination that came into operation then, and the resultant rapid growth in the price level.

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Between1970-1973, recurrent expenditure, in nominal term, accounted for about 70 % of total expenditure, while capital expenditure accounted for about 30 %. However, with the oil boom of the early 1970s, the share of recurrent expenditure reduced to about 40%, while that of capital expenditure increased to about 60% on the average between 1974 and 1986. The relative increase in the share of capital expenditure in total expenditure during the oil boom of the 1970s reflects the increased concern of government on capital formation. With the huge revenues realised from oil during this period, governments' intention was to translate the oil revenues into investment in physical, social and economic infrastructure. The outcome of this included the massive capital investments by governments in almost all sectors of the economy; but most of the investments were adjudged unproductive. On the average, recurrent expenditure accounted for a larger proportion of total expenditure during the reference period. But the periods, 1974-1980 and 1996-1999 stand out as periods with predominant capital expenditures. The first period was the time of direct massive government involvement in economic activities through several public enterprises, as made possible by the oil boom. The second period was the era of political transition of the country to democratic governance, which necessitated the provision of physical infrastructure to facilitate the transition programme.

Model Specification and Estimation Procedure

The model is specified as a vector auto reagressive system as follows:

$$C_t = \alpha_0 + \sum_{n=1}^{4} \alpha_{1,n} C_{t-n} + \sum_{n=1}^{4} \beta_{1,n} G_{t-n} + \sum_{n=1}^{4} \lambda_{1,n} T_{t-n} + \varepsilon_{1,t}$$

$$G_t = \mu_0 + \sum_{n=1}^{4} \alpha_{2,n} C_{t-n} + \sum_{n=1}^{4} \beta_{2,n} G_{t-n} + \sum_{n=1}^{4} \lambda_{2,n} T_{t-n} + \varepsilon_{2,t}$$

$$T_t = \lambda_0 + \sum_{n=1}^{4} \alpha_{3,n} C_{t-n} + \sum_{n=1}^{4} \beta_{3,n} G_{t-n} + \sum_{n=1}^{4} \lambda_{3,n} T_{t-n} + \varepsilon_{3,t}$$

Where C_t is private consumption expenditure, G_t is government expenditure, and T_t is tax revenue. t indicates time and $\varepsilon_{i.t}$ are the innovations or shocks to the system, which are assumed to be uncorrelated with their lagged values and with the endogenous variables of the system.

The model is specified under the null hypothesis that fiscal policies have Keynesian effects. The impulse response of consumption to shocks in government expenditure and taxation are examined. A positive impulse response of consumption to shocks from government expenditure indicates Keynesian effects, and negative responses shows non-Keynesian effects. On the other hand, negative impulse responses of consumption to tax revenue shocks indicate Keynesian effects, while positive responses indicate non-Keynesian effects.

Since the model is to be estimated from time series data spanning the period 1980- 2004, the variables will be first tested for their orders of integration. Where they are stationary, the VAR is estimated as given above. Otherwise, a test for cointegration needs to be performed to determine the long run stability of the variables. A cointegrated series imply long run stability and will require the application of a Vector Error Correction Model (VECM). The model will be estimated with the aid of Eviews 6.0. On the other hand, where the series are non-stationary and non-cointegrated, this merely requires the running of a Vector Autoregressive regression in first differences, so that the estimated model provides only short-run information of the effect of fiscal policy on private consumption expenditure.

Model Estimation and Analysis of Results

Order of Integration

The order of integration of each variable is examined using both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The ADF did not indicate stationarity of the variable, even in their second differences (with the exception of government expenditure). The PP test (reported below) provided more consistent results and all the variables were found to be stationary in their first differences, indicating they are integrated of order 1.

Given that the variables are integrated of order 1, there is a possibility of cointegration. The Johansen test for cointegration is applied using four lags of the VAR. The test assumes only constants but no trends in both the cointegrating equation and the test VAR. The results for both the trace statistic and the maximum eigen value test indicate one cointegrating relation.

Vector Error Correction Model

Based on the results of the cointegration test, we estimate a Vector Error Correction Model (VECM) for the three variables as follows:

Where Δ denotes the first difference of a variable and $E_{1,t-1}$ is the cointegrating equation error correction term. The estimated cointegrating equation (normalised on consumption expenditure) is presented in table 3.

The estimated cointegrating equation reflects a significant and positive long-run equilibrium relationship between private consumption expenditure and government expenditure. The coefficient of tax revenue in the normalised cointegrating equation is also statistically significant and carries the expected sign.

Impulse Responses

The impulse responses are derived from the VEC specification above. The impulse responses are computed using a Cholesky decomposition to identify the orthogonalized shocks ε_t. A recursive structure with the ordering tax revenue (T), government expenditure (G) and private consumption expenditure (C) is used. This ordering implies that: (i) tax revenue is not contemporaneously affected by shocks to government expenditure and private consumption but tax revenue shocks contemporaneously affect both government expenditure and consumption; (ii) shocks to government expenditure (G) contemporaneously affect private consumption, but not tax revenue; (iii) shocks to consumption do not contemporaneously affect any of the other variables.

The response of private consumption expenditure to a one Standard Deviation (SD) shock or innovation in government expenditure and tax revenue, traced over five periods, is as shown in the table 4 and figure 1.

The impulse responses indicate that a shock to government expenditure has an immediate positive effect on private consumption and increases steadily

Order 1: **Phillips-Perron Unit Root Test Results**

Variable	Test Statistic	Test in	Order of Integration
C	-4.144 (-2.972)	1st difference	I(1)
G	-6.763 (-2.948)	1st difference	I(1)
T	-3.240 (-2.948)	1st difference	I(1)

Note: 5% critical values are enclosed in parentheses

Table 2: **Cointegration Test Results**

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.764542	49.98374	29.79707	0.0001
At most 1	0.382763	13.82813	15.49471	0.0878
At most 2	0.068186	1.765560	3.841466	0.1839

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.764542	36.15561	21.13162	0.0002
At most 1	0.382763	12.06257	14.26460	0.1083
At most 2	0.068186	1.765560	3.841466	0.1839

* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

$$\Delta C_t = \alpha_0 + \delta_1 E_{1,t-1} + \sum_{n=1}^{4} \alpha_{1,n} \Delta C_{t-n} + \sum_{n=1}^{4} \beta_{1,n} \Delta G_{t-n} + \sum_{n=1}^{4} \lambda_{1,n} \Delta T_{t-n} + \varepsilon_{1,t}$$

$$\Delta G_t = \mu_0 + \delta_2 E_{2,t-1} + \sum_{n=1}^{4} \alpha_{2,n} \Delta C_{t-n} + \sum_{n=1}^{4} \beta_{2,n} \Delta G_{t-n} + \sum_{n=1}^{4} \lambda_{2,n} \Delta T_{t-n} + \varepsilon_{2,t}$$

$$\Delta T_t = \lambda_0 + \delta_3 E_{3,t-1} + \sum_{n=1}^{4} \alpha_{3,n} \Delta C_{t-n} + \sum_{n=1}^{4} \beta_{3,n} \Delta G_{t-n} + \sum_{n=1}^{4} \lambda_{3,n} \Delta T_{t-n} + \varepsilon_{3,t}$$

thereafter. On the other hand, a shock to tax revenue has a negative effect on consumption expenditure that declines steadily. The finding of a positive response of consumption expenditure to shocks in government expenditure and a negative response to shocks in tax revenue supports the Keynesian effects of fiscal policy on private consumption expenditure for Nigeria. In the findings of Caldara and Kamps (2006), the positive response of private consumption to a government spending shock actually follows a hump-shaped pattern.

Conclusion

The estimated results indicate that both government consumption shocks and tax revenue shocks have Keynesian effects on private consumption in Nigeria. While the result for government consumption shocks agrees with that of Schclarek (2004), the one for tax revenue shocks differs, in that there are no evidences that suggest Keynesian effect of tax revenue shocks on private consumption for developing countries. The findings indicate that an understanding of the composition of fiscal policy shocks is essential to any effort by the regulatory authorities to stimulate private consumption.

It should be noted that the persistent global economic crisis, which began in the later part of 2007 led to the introduction of economic stimulus packages by various economies of the world in their quest to stimulate consumer demand and economic growth. The United States government, for example, distributed $168 billion worth of direct-to-consumer stimulus payments in

Table 3: Estimated Cointegrating Equation

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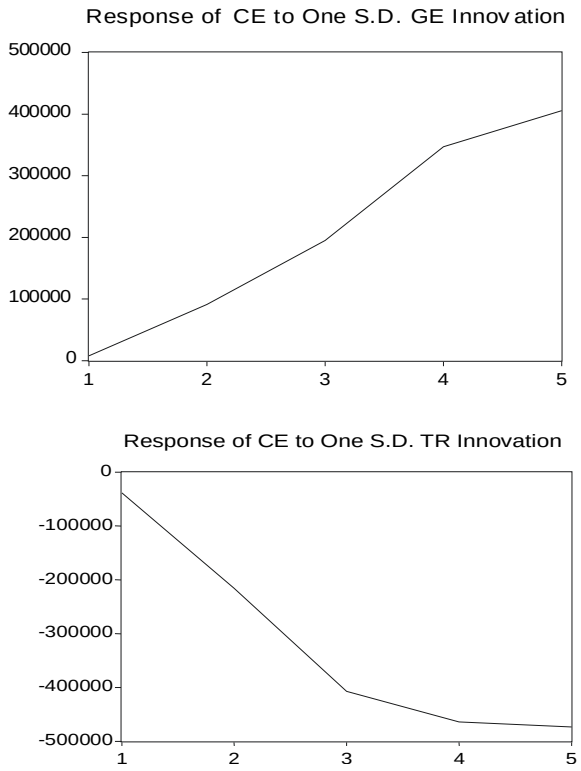
Sample (adjusted): 1980 2004
Included observations: 25 after adjustments
Standard errors & t-statistics in parentheses

Cointegrating Eq:	CointEq1
CE(-1)	1.000000
GE(-1)	-9.236673 (1.63878) (-5.63630)
TR(-1)	3.663203 (2.58050) (1.41957)
C	668717.0

Table 4: Response of Consumption to One S.D Shock (Innovation) to TR and GE

Period	GE	TR
1	7959.420	-38927.36
2	91030.40	-215807.9
3	194770.0	-407520.6
4	347121.4	-464219.1
5	405716.5	-473465.0
Ordering: TR GE CE		

Figure 1: Response of Private Consumption Expenditure (CE) to One S.D Shock (Innovation) in Government Expenditure (GE) and Tax Revenue (TR)



2008. By 2009, she voted $232,426 billion for individual tax cut and $24,749 billion for individual aid. Other nations like Japan, China, France, Britain and Germany also introduced various economic stimulus packages targeted at increasing aggregate demand. Equally, Central Banks across the world had to cut interest rates at various times.

The findings of this paper suggest that, for a developing economy like Nigeria, well planned tax cuts and targeted government expenditure are crucial to stimulating private consumption expenditure in the bid to ward off the negative impact of the global economic crisis. However, judging from the lessons of Nigeria's past budget failures (typified by cost-inflated and abandoned projects), government capital expenditures must be properly evaluated and monitored. They should be directed at critical economic sectors like roads, power, education, health, housing and urban development to generate that required catalyst to economic growth, wealth and employment creation, as envisaged in governments Vision 20:20:20: strategy. It is wealth creation and employment creation that will reduce the pervasive poverty in the land and generate private consumption expenditure. epr

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Note

[1] Schclarek (2004) also sought to determine if the Keynesian or non-Keynesian effects of fiscal policy on private consumption is affected by the prevailing condition of the economy which he defined as either good or bad. He used two variables- bonds issued by the government and the rate of unemployment - to determine the prevailing condition of the economy at an initial period.

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