Value Added Tax and Consumption Expenditure Behaviour of Households in Nigeria: An Empirical Investigation

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Abstract

In one way or the other, value added tax has been perceived to influence consumption expenditure behaviour of households as well as consumer price index. This study employed ex-post facto research design to investigate the effects of value added tax on consumption expenditure pattern and consumer price index in Nigeria. The study considered value added tax revenue, house hold consumption expenditure on durable and non-durable goods as well as consumer price index for the period 1994 - 2014. Data used for analysis were extracted from National Abstract of Statistics of the National Bureau of Statistics and the Statistical Bulletin of the Central Bank of Nigeria. The tools of analysis were multiple regression models on households' durable and non-durable goods consumption expenditures and consumer price index with lagged valued variants. Results showed that value added tax and one-period lagged consumption expenditure on durable goods significantly affected households' consumption expenditure on durable goods. Further, positive significant effects were established for value added tax in relation to households' consumption expenditures on non-durable goods; and VAT, its variants and previous spending levels did not discourage households' consumption expenditures; and value added tax did not bear significant relevance on consumer price index. Consequently, the study recommended that the current 5% value added tax rate should be maintained, since any increase would most likely affect the households negatively and escalate consumer price index to undesired levels.

Key Words: Value Added Tax, Households' Consumption Expenditures, Durable And Non-Durable Goods, Consumer Price Index, Empirical Investigation.
JEL Classifications: D2, E2, F38, H21, P24, R2.

Introduction

The world over, a significant attention has been given to value added tax (VAT) in terms of reforms and restructuring. Perhaps, this has been owing to its sizeable contributions to government revenue, growth and development of many economies (Owolabi & Okwu, 2011). As a veritable source of government revenue, many countries have shifted and a few others are considering a shift toward a higher indirect taxation. Since VAT increases consumption expenditure, it is expected to influence the behavioural pattern of consumers.

This implies that VAT changes price and consumption behaviour of the consumer. Thus, price effects of VAT and the attendant consumers' consumption behaviour is an issue of relevance to countries and their VAT policy.

Although most theoretical considerations and the experience of countries that already apply value added tax may suggest that VAT rate brings about a one-time change in prices and nothing else, the attendant uncertainty to the economy and ripple effects are of significant study interest. Ajakaiye (1995) notes that relevant VAT law in Nigeria stipulates a refund to manufacturing firms in situations where VAT input exceeds output. Moreover, Ajakaiye (2000) opines that VAT should not have a cascading or cumulating affect whatsoever, and identified the need for government to know the macroeconomic impact of VAT on prices, output, income and consumption. However, Tomety (2009) observes that most often no refund is made and such costs often increases running costs for firms, which ultimately are passed to the customer by higher price or they are borne by the firms if they are afraid of losing market share. Concern over the economy-wide effect of value added tax is of importance because of the possibility that tax may cause consumer to cut consumption of certain commodities, hence affecting productivity. In this regard, Ajakaiye (2000) argues that value added tax has impact on consumer price, causes production cost to increase, complicates problem of unemployment, inflation and increases the growth of the informal sector. However, James and Asaama (2012) argue that one of the rationale for taxing consumption rather than income is that consumption taxes discourage consumption, encourage savings, and thus generate higher economic growth.

Some studies have focused on the contribution of VAT to economic growth and development with little empirical evidence on the effect on consumption behaviour (Ebiringa &Yadirichukwu, 2012; Unegbu & Irefin, 2011; Adereti, Sanni & Adesina, 2011; Williams & Benjamin, 2010). Further, Bird (2005) and Diamond and Zodrow (2007, 2008) explain that VAT the effect of VAT on consumption is an important but unresolved issue. Owolabi and Okwu (2011) investigate the contribution of VAT to the development of Lagos State economy, and emphasise the need to plough VAT revenue back to various sectors for development. James and Asaama (2012) investigated the impact of VAT on the aggregate consumption of fifteen European Union countries over the period 1961-2005 and found that a one percentage point increase in the VAT rate leads approximately to a one percent reduction in the level of aggregate consumption in the short run and to a somewhat larger reduction in the long run.

The need to examine the effects of VAT on prices and consumption expenditure behaviour in Nigeria, especially in the face of persistent inflationary situation and paucity of empirical evidence provoked this research interest. Specifically, the study examined VAT in relation to household consumption expenditure behaviour for non-durable goods and durable goods as well as consumer price index.

Conceptual/Theoretical Issues, Brief History of Tax in Nigeria and Empirical Evidence

Conceptual/Theoretical Issues

The act of taxing can be traced to the time of existence of man. The Romans were collecting taxes throughout their vast empire at the time of the birth of Jesus more than two thousand years ago. Even before then, the Egyptians recorded information about taxes in their hieroglyphics. More so, in the early days of Western Europe, a tax was a voluntary contribution towards the cost of running the government (Barbara, 1986). However, in modern times, taxation has gone beyond voluntary contribution as it constitutes sizeable sources of revenues of government. While Odoh (2010) conceptualises taxation as compulsory levy imposed by government, Okoye and Gbegi (2013) explain that it must be for the common good and benefit of the citizens. To Odoh (2010), VAT is a replacement of the existing sales tax, which has been in operation under Federal Government Legislated Decree Number 7 of 1986 but is operated on the

basis of residence. According to Warren (2008) notes that final consumers of products and services cannot recover VAT on purchases, but businesses are able to recover VAT (input tax) on the products and services that they buy in order to produce further goods or services that will be sold to yet another business in the supply chain or directly to a final consumer. In this way, the total tax levied at each stage in the economic chain of supply is a constant fraction of the value added by a business to its products, and most of the cost of collecting the tax is borne by business, rather than by the government. Owolabi and Okwu (2011) explain that the yield from VAT is a fairly accurate measurement of the growth of an economy since purchasing power (which determines yield) increases with economic growth.

Consumption, on the other hand, may be viewed as the total demand for all consumer goods and services. While Tim (1996) conceptualises it as the total quantity of goods and services that people in the economy wish to purchase for the purpose of immediate consumption, Anyanwu (1995) sees consumption as the spending by households on goods and services such as clothing, food items, entertainment, health services and acquisition of assets among others. Arising from this definition is the concept of consumption function which shows the relationship between consumption and disposable income. In this regard, Fasoranti (2009) links the term "consumption" to the Lord Maynard Keynes' psychological law which says that men are disposed as a rule and on the average, to increase consumption as income increases but not by as much as the increase in their income. Following from this are investigations into determinants of consumption behaviour. Ajakiaye (2002), Colander (2001), Jhinhjan (2003), and Iyoha (2001) have identified interest rate, relative prices, capital gains, value added tax, wealth, liquid assets, attitude and expectation and availability of consumer credit among others as determinants of consumption expenditure. Consumption therefore is a major component of aggregate demand. A little disturbance in this component will have a far reaching effect on the nation's aggregate demand.

To measure living standards, income and consumption are the most popular approaches. Income refers to earnings from productive activities and current transfers. Measuring consumption over a week or month provides an indication of a household's consumption habits over a year. Hence, consumption is a better indicator of living standards. In this regard, the Harmonized Nigeria Living Standard Survey (2009, 2010) explains that the consumption pattern of a country depicts the aggregate demand of goods and services in the country, and in most cases it constitutes about 60 percent of the country's total GDP. It further explains that the consumption pattern also depicts the level of welfare and poverty that a nation is experiencing. It is worth noting that when a country is experiencing a downturn, aggregate consumption declines; poverty incidence increases, unemployment rate rises, investment falls and prices of goods and services will most likely rise. On the other hand, when the aggregate consumption is high, firms will invest and be ready to employ idle resources; prices will fall as the firms supply more goods and services. Other economies of scale will accrued to the nation as a result of the large size of its aggregate demand. It can therefore be inferred that, since VAT is added cost to the consumer, it is expected that the consumption pattern of the individual or household will change in the opposite direction with VAT rate.

From the above, it is obvious that for any payment to be tax it must be a compulsory levy; not a voluntary contribution or donation to the government and the revenue from tax is to enable the government finance public sector expenditures without reverting to excessive public sector borrowing. Such revenue is used for administrative running cost, provision for internal security and defense, provision for social amenities as well as regulating the economy. It is also obvious that there is a link between tax and consumption expenditure behaviour of consumers.

Adam (1776), in the Wealth of the Nations, outlined some cannons of taxation to include Equity, which requires an equal tax charged for people in the same circumstance; Economy, which is the principle that requires the cost of administering tax to be less than the associated tax revenue; Convenience, which requires that tax payment should not inconvenient the taxpayer; Certainty, which requires that the amount to be paid as tax should clearly defined and made known to the taxpayer, and that the associated revenue be

predictable with high degree of certainty; Neutrality, which requires that tax not to distort economic activities. It its purview, VAT satisfies these and other cannons of taxation.

Further on the theoretical front, Kanyip (2002) as cited in Nwobia (2013) presents two models of taxation, which are the Classical Model and the Imputation Model. The classical model postulates that it is important to separate completely the incorporation incidence between the company and its shareholders where tax is levied on the profits of the company, any distribution made to shareholders and capital gains realized are treated as separate income in the hand of the recipient and are charged to tax at the appropriate rates although at this level Value added tax must have been remitted since it is outside the power the company agents. Kanyip (2002) as cited Nwaobia (2013) argue that it is a strong incentive for companies to plough back more of their earnings for expansion purposes. The model also encourages companies to raise capital by loan issue, through debentures rather than by share issue. Interest payments are tax deductible and thus provide the needed tax shield as opposed to dividends. On the other hand, the imputation model posits that at least part of the tax paid by a company on its profits is "imputed" or credited against the tax liability of shareholders in receipt of income distributions paid by the company out of those profits, thereby eliminating or reducing double taxation of distributed profits. Thus, unlike the classical model, the imputation model insists on integration with the corporate-source earnings taxed at the shareholder level only (Kanyip, 2002). By comparison, imputation theory best fit the concept of value added tax since company is credited the proportion where the input VAT is higher than the output VAT.

Economists have attempted to explain consumption behaviour of households within four competing theories. These are Keynes' (1936) Absolute Income Hypothesis (AIH), Duisenberg's (1948, 1949) Relative Income Hypothesis (RIH), Modigliani and Brumberg's (1954) Life Cycle Hypothesis (LCH) and Friedman's (1957) Permanent Income Hypothesis (PIH).

The AIH explains that consumption will rise as income rises, but not necessarily at the same rate. Keynes (1936) identified the relationship between income and consumption as a key macroeconomic relationship, and argued that the average propensity to consume (APC) out of current income would exceed the marginal propensity to consume so that the income elasticity of consumption pattern would be less that unity. Hence, in the long run one would expect income elasticity to be unity. The Hypothesis emphasizes short run rather than long run. The implication of the theory is that an increase in aggregate income (after tax) will yield an increase in consumption, nothing else affect consumption expenditure.

On the other hand, the RIH developed by Duesenberry (1948, 1949) postulates that an individual's attitude to consumption and saving is dictated more by his income in relation to others in the same general vicinity than by abstract standard of living. That is, the percentage of income consumed by an individual depends on his percentile position within the income distribution. It further hypothesises that the present consumption is not influenced merely by present levels of absolute and relative income, but also by levels of consumption attained in previous period. Thus, it is difficult for a household to reduce a level of consumption once attained. It assumes that aggregate ratio of consumption to income depend on the level of present income relative to past peak income. Thus, it emphasises long run rather than short run consumption behaviour.

The LCH pertains to the spending and saving habits of people over the course of a life time. The theory presumes that individuals base consumption on a constant percentage of their anticipated lifetime income. It postulates that people save for retirement while they are earning a regular income rather spending it all when it is earned. The theory segments life time into early stage when consumption exceeds income and the individual augments consumption by 'borrowing', middle stage when income exceeds consumption and the individual offsets 'borrowing' and also save for retirement, and late stage when consumption once again falls short of income. But at this stage, the individual desaves and depend more on investment (savings) income. Thus, the LCH concludes that the average propensity to consume is greater in both early and late

stages since they are 'borrowing' against future income or using up savings (investment income). During the middle stage, the individuals have greater propensity to save and lower propensity to consume, enhanced by a typically higher income. Thus, the LCH also emphasises long run rather than short consumption behaviour.

The PIH states that people will spend money at a level consistent with their expected long run average income. It considers the level of expected long run income as the level of 'permanent' income that can be spent with depleting the individual's wealth. The theory explains that the consumption spending choices made by consumers are largely determined by a change in permanent income rather than change in temporary income. Specifically, the main determinant of consumption is the individual's real wealth not the current real disposable income. The hypothesis implies that changes in consumption behaviour are not predictable because they are based on individual expectations. Another implication is that even if economic policies such as reduction in VAT rate, succeeds in increasing income in the economy, it may not kick off a multiplier effect from increased consumer spending. Rather, the theory predicts that there will not be an increase in consumer spending until individuals reform expectations about their future incomes. Thus, the PIH also emphasises long run rather than short run consumption behaviour.

Brief History of VAT in Nigeria

In 1991, the Federal Government of Nigeria set up a Study Group to review the existing tax system in the country. Report of the Group formed the basis for the introduction of VAT in Nigeria. VAT was proposed and a committee was set up to carry out a feasibility study on the implementation. In January 1993, Federal Government decided to introduce VAT by the middle of the year, but the actual implementation came into effect on 1st January 1994. In this regard, registered entities were allowed up to the last quarter of 1993 to adjust their accounts, particularly the incorporation of VAT information in their general ledgers, in order to comply with the requirements of the tax. At present, the tax is charged at 5% value added.

Review of Empirical Studies

While several studies have examined the determinants of consumption, a few have studied tax, particularly value added tax, in relation to consumption expenditure behaviour of households. In their respective studies, Deaton (2001), Hall (2001), Flavin (2003), Zeldes (2005), Eswaran and Kotwal (2006) identified interest rate, investment, savings, unanticipated shocks, attitude of consumers, and presence of liquidity constraints as important determinations of consumption behaviour. Eric and Joseph (2010) studied the effects of value added tax, as a substitute for payroll or corporate taxes, in the United States and found that VAT could be regressive, raising tax burdens proportionately more on lower income than on higher income taxpayers. Sekwati & Malema (2011) investigated the potential impact of VAT increase from 10% to 12% in Botswana on households' consumption expenditure behaviour, and found that the increase in VAT rate increased prices of goods and services, and that the poor households were more adversely affected owing mainly to their higher marginal propensity to consume. The impact was negligible on the middle and upper income classes because these income groups have relatively degrees of freedom to adjust their consumption patterns in response to the increase in VAT.

There are few studies on the effect of VAT on consumer retail spending behaviour or consumption pattern. Barrel and Weale (2009) employed quarterly data to investigate the impact of VAT rate reduction on retail price in Europe. They established a weak evidence of changes in consumer expenditure behaviour with the reduction in VAT rate in the European countries. Keen and Syed (2006) studied the ways in which the tax structure affects exports and, after defining a theoretical model, estimated a panel model using 27 OECD countries over the 1967-2003 period. They addressed directly the issue of the tax mix, and estimated the relationship between net exports and both VAT and corporate taxes. The results generally confirm the view that VAT is inherently trade neutral, whereas corporate taxes affect net exports. Alexander and Gelardi

(2012), expecting a behavioural change by consumer after the introduction, investigated whether consumer in UK and Canada altered their consumption expenditure behaviour when those countries introduced their VAT. Both retail volume and the percentage change from the prior year were used in the graphical depiction. Their analysis showed consumer adaptation behaviour to take advantage of changes in VAT via arbitrage behaviour. Khan (2014) investigated consumption function under relative income hypothesis among households in Northern Pakistan. The study found that household current level of income, family size, education of household head and social status were the significant determinants contributing positively to household consumption. The study confirmed that households follow Duesenberry's relative income hypothesis, and that household consumption is not only affected by household current level of income but by the highest level of income previously attained as well as the consumption patterns of other households.

In a study of determinants of consumption pattern among rural dwellers in Ondo State, Nigeria, Fasoranti (2009) showed current income, expected pension fund, shares and durable assets to be positively related to consumption while expected future income and deposits in banks exhibited negative relationship. By means of regression analysis techniques, the study showed expected future income, deposits at banks and shares to be significant determinants of consumption among households in the study area. Adedotun (1978) as cited by Fasoranti (2009) in Nigeria showed positive correlation between consumption expenditure and per capita income. On the other hand, Uwujaren (1977) related consumption in Nigeria to Friedman's permanent income Hypothesis and his findings showed that consumption to be a function of current and permanent income. Similarly, Fasoranti (2009) showed a positive correlation between consumption expenditure and per capita income. Uwujaren (1977) related consumption in Nigeria to Friedman's permanent income hypothesis.
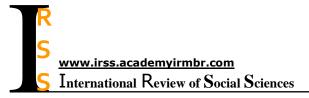
PriceWaterhouse Coopers (2006) as cited in European Commssion (2011) Studied 22 financial services firms and finds that between 0% and 74% of VAT on inputs is recovered, depending on the location of the firm, the nature of the customer base, etc. On average, according to PWC, financial firms recover about 20% of the VAT paid on inputs, so the amount of really irrecoverable VAT is 80%. In comparing the effect of VAT based on the input-output mechanism, the study found out that the largest effect on output prices arises for France. This result does not seem to depend only on the statutory VAT rates but also on a higher burden of irrecoverable VAT on output. Tait, Gratz & Eichengreen (1979) found that in 22 out of 35 cases evaluated, the introduction of the VAT had little or no effect on the consumer price index. In 8 cases the introduction of VAT was associated with a once-and-for-all upward shift in the consumer price index. In only one of these cases could this shift be said to contribute to acceleration in the rate of increase of the consumer price index (Tanzi & Zee, 2000).

However, Randall (2010) argued that there are number of variables influencing price changes, and therefore it is difficult to empirically assess the effect of VAT on prices. He further explained that the net effect of VAT would be nil if it is an equal-yield tax. Hence, there would not be any effect on the overall price change although there may be changes in relative price.

From the foregoing, it is important to note here that what affects prices, will affect demand and supply, and consequentially affect consumption. Since VAT rate is an added cost to the consumer, we can imply that the consumption will reduce, hence the intended revenue accruing from the consumption of such goods and services will also reduce.

Methodology

This study adopted ex-post facto research design to investigate the effects of value added tax on consumption expenditure pattern in Nigeria. This is premised on the presumed suitability of the design to show the effect of the predictor variables on each of the response variables.

Data and Sources

The data are value added tax revenue (VATR), house hold consumption expenditure on durable goods (HHCE$_{DG}$), household consumption expenditure on non-durable goods (HHCE$_{NDG}$) and consumer price index (CPI). The data were extracted from National Abstract of Statistics by the National Bureau of Statistics (NBS) and the Statistical Bulletin by the Central Bank of Nigeria (CBN) for the period 1994 – 2014 (see Appendix A).

The Analytical Models

For data analysis, we adapted the model specified by Obiakor and Okwu (2011) in their study of the impact of capital market development in relation to the growth of the Nigerian economy for the period 1981 – 2008. From the perspective of a functional relationship, we disaggregated and specified multiple regression models to suit the peculiarities of our analysis in this study. To render the models dynamic, we analysed household consumption expenditures on durable and non-durable goods as well as consumer price index in relation to VAT, lagged values of VAT and HHCE since the household do not respond to variations in VAT rates spontaneously. That is, any variation in VAT rate reflects in the consumption behaviour of the households as well as the price index after some time lag. Thus, the functional relationships are:

$HHCE_{DGt} = f(VAT_t, VAT_{t-1}, HHCE_{DGt-1})$
$HHCE_{NDGt} = f(VAT_t, VAT_{t-1}, HHCE_{NDGt-1})$
$CPI_t = f(VAT_t, VAT_{t-1}, CPI_{t-1},)$

where,

HHCE$_{DGt}$ and HHCE$_{NDGt}$ are house consumption expenditures on durable and non-durable goods respectively in year t, CPI$_t$ is consumer price index in year t, VATR$_t$ is the VAT revenue in year t, VAT$_{t-1}$, HHCE$_{DGt-1}$, HHCE$_{NDGt-1}$, and CPI$_{t-1}$ are the values of value added tax, household consumption expenditure on durable and non-durable goods and consumer price index in the immediate preceding years. That is, each is a one period lagged value. f denotes functional or dependency relationship.

We considered these variables relevant in determining the effects of VAT on consumption expenditure behaviour of households in Nigeria. Therefore, the associated regression models are:

$$HHCE_{DGt} = \alpha_0 + \alpha_1 VAT_t + \alpha_2 VAT_{t-1} + \alpha_3 HHCE_{DG\,t-1} + \mu_1$$
$$HHCE_{NDGt} = \beta_0 + \beta_1 VAT_t + \beta_2 VAT_{t-1} + \beta_3 HHCE_{NDG\,t-1} + \mu_2$$
$$CPI_t = \lambda_0 + \lambda_1 VAT_t + \lambda_2 VAT t_{-1} + \lambda_3 CPI_{t-1} + \mu_3$$

where,

α_0, and β_0 are fixed household consumption levels irrespective of changes in VAT and spending on durable and non-durable goods, λ_0 is the component of CPI that does not respond to VAT and CPI changes. They express the constant terms in the regression equations. $\alpha_1, \alpha_2, \alpha_3, \beta_1, \beta_2$ and β_3 respectively are the measures of responses of household consumption expenditure behaviours to changes in VAT and consumption expenditures. Each measures how a change in the associated variable affects the consumption expenditure pattern of the household. Similarly, for λ_1, λ_2 and λ_3. μ_i (i = 1,2,3) are stochastic terms introduced in the models to accommodate the influence of other determinants of household consumption expenditures behaviours of the household and consumer price index that may have been left out in the regression models.

Increases in preceding year's VAT rates and consumption expenditures are expected to dampen current household expenditure, and vice versa. Similarly for current consumer price index.

Analysis, Results and Discussion

Regression Results and Estimated Models 1, 2 & 3

Method: Least Squares
Sample (adjusted): 1995 2014
Included observations: 19 after adjustments

Dependent Variable: HHCE$_{DG}$					Dependent Variable: HHCE$_{NDG}$					Dependent Variable: CPI				
Regression Model 1					Regression Model 2					Regression Model 3				
Determinants of HHCE$_{DG}$	Effect (α_i)	Std. Error	t-stat	Prob	Determinants of HHCE$_{NDG}$	Effect (β_i)	Std. Error	t-stat	Prob	Determinants of CPI	Effect (λ_i)	Std. Error	t-stat	Prob
VATR$_t$	5.4870	0.2487	22.0570	0.0000	VATR$_t$	2.0409	0.1612	12.6560	0.0000	VATR$_t$	0.0002	1.10E-05	16.0883	0.0000
VATR$_{t-1}$	-1.5372	0.9455	-1.6257	0.1248	VATR$_{t-1}$	0.3717	0.6129	0.6064	0.5533	VATR$_{t-1}$	-1.05E-05	6.11E-05	-0.1719	0.8656
HHCE$_{DGt-1}$	0.5944	0.1489	3.9903	0.0012	HHCE$_{NDGt-1}$	0.0676	0.0965	0.7002	0.4945	CPI$_{t-1}$	0.0821	0.3337	0.2460	0.8088
R-squared 0.9708		F-stat 166.3004			R-squared 0.9172		F-stat 55.4116			R-sqrd 0.9494		F-stat 100.1027		
Adjstd R-sqrd 0.9649		Prob(F-stat) 0.0000			Adjstd R-sqrd 0.9006		Prob(F-stat) 0.0000			Adjstd R-sqrd 0.9399		Prob(F-Stat) 0.0000		

Source: EViews8-Enhanced Regression Output (See the Appendix)

Discussion

Estimated regression Model 1 shows that consumption expenditure of the households increases in the same year with VAT revenue resulting probably from VAT rate increase or more spending on durable goods by the households. The effect of VATR$_t$ is significant at 0.05 as indicated by the p-value of 0.0000 of the t-statistic associated with the coefficient. Levek. However, this increase is not sustained in the succeeding period as indicated by the negative coefficient of VATR$_{t-1}$(-1.5372), which shows that households respond by reducing consumption expenditure on durable goods as a result of the VAT. But the reduction in consumption spending of the households on durable goods is not significant at the 0.05 level as shown by the relevant p-value which is 0.1248. A possible explanation for declining consumption expenditure of household in the succeeding periods is that as the households acquire more and more of the durables goods, they need for such goods are met and hence the demand for them decline. This will, in turn exert negative effect on associated the VAT revenue. Thus, the effect is declining durable goods VAT revenue as the years progress. However, this depends also on the population dynamics. The previous period's consumption expenditure of the household shows marginal positive effect (0.05944) on the current consumption expenditure on durable goods, which is statistically significant at the 0.05 level as indicated by the p-value of 0.0012. We infer from these that while value added tax in the current period (VATR$_t$) and one-period lagged consumption expenditure on durable goods (HHCE$_{DGt-1}$) significantly affect households' consumption expenditure on durable goods, one-period lagged value added tax reduces the consumption expenditure, though insignificantly. ,

Estimates of regression Model 2 shows positive significant effects for the current value added tax (VATR$_t$) with p-value of 0.0000, which is less than the conventional 0.05 level, and positive but not significant effects of VATR$_{t-1}$ and HHCE$_{NDGt-1}$ for the consumption expenditures of the households on non-durable goods during the study period as shown by p-values of 0.5533 and 0.4945 respectively. These shows that while the households' spending on non-during goods changed in same direction with VAT, its one-period lagged value and that of the consumption expenditure on non-durable goods, it is significant only for VAT. This suggests that the goods must be necessities such that price changes occasioned by VAT did not deter consumption spending. From these, we infer that VAT, its variants and previous spending levels did not discourage consumption expenditure of the households in the succeeding years during the study period.

For regression Model 3, the estimates exhibited similar behaviour as in Model 1. However, Model 3 shows very marginal positive effects of VATR$_t$ with coefficient of 0.0002 and CPI$_{t-1}$ with coefficient of 0.0821 on consumer price index (CPI$_t$), and VAT$_{t-1}$ with negligible coefficient of -1.05E-05. Interestingly, the negligible positive coefficient of VATR$_t$ was of significant effect on consumer price index during the

period under consideration. The negative effect of the one-period lagged value added tax on consumer price index, though negligible also, was not statistically significant as indicated by the p-value of 0.8656. Further, the one-period lagged valued of consumer price index, exhibited positive but not significant effect on current year consumer price index as shown by the associated p-value of 0.8088. These suggest that value added tax did not bear significant relevance on consumer price index during the study period.

Interestingly, the regressors in each of the models jointly exerted significant effects and explained very high proportions of the variations in the response variables. In models 1, 2 and 3, the determinants showed significant aggregate effects on consumption expenditure behaviour of the households on durable and non-durable goods and consumer price index as indicated by the p-value of 0.0000 associated with the F-statistic in each model. They also explained about 96%, 90% and 94% variations in the households' consumption expenditure behaviours and consumer price index, respectively during the study period. From these, we infer that each of the models is a good fit.

Summary, Conclusion and Recommendations

This study employed expo-facto design to investigate the effects of value added tax on households' consumption expenditure behaviour as well as consumer price index in Nigeria. The study considered households' expenditure on durable and non-durable goods as well as consumer price index vis-à-vis value added tax revenue and its one-period lagged values with those of consumption expenditures on the goods. A survey of available literature supported the purpose of the study in terms of currency and to fill knowledge gap. With the tools of multiple regression analysis, the study established the effects of value added tax, its one-period lagged values as well as those of households' consumption expenditures on goods and consumer price index on households' consumption expenditure behaviours towards durable and non-durable goods as well the consumer price index in Nigeria during 1994-2014 period.

From the analysis and discussion, the study concluded that while value added tax and one-period lagged consumption expenditure on durable goods significantly shaped households' consumption expenditure on durable goods, one-period lagged value added tax reduces the consumption expenditure, though insignificantly. Further, value added tax, its variants and previous spending levels did not discourage consumption expenditure of the households in the succeeding years during the study period, and value added tax did not bear significant relevance on consumer price index during the study period. The study recommended that the current 5% value added tax rate in Nigeria be maintained owing mainly to the significant effects on households' consumption expenditure on durable and non-durable goods, and the not significant relevance on consumer price index in Nigeria. Any increase in the rate will most likely affect the households negatively and escalate consumer price index to undesired levels.
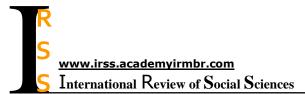
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Appendix A

Year	TTR$_t$	VATR$_t$	HHCE$_{DGt}$	HHCE$_{NDGt}$	CPI$_t$	VATR$_{t-1}$*	HHCE$_{DGt-1}$*	HHCE$_{NDGt-1}$*	CPI$_{t-1}$*
1994	201910.80	7,260.80	23409.00	226538.30	0	-	-	-	-
1995	459987.30	20,761.00	15753.60	201982.90	17.63	13500.20	-7655.40	-24555.40	17.63
1996	523597.00	31,000.00	25371.50	291772.30	20.23	10239.00	9617.90	89789.40	2.60
1997	582811.00	34,000.00	25960.00	300633.40	25.65	3000.00	588.50	8861.10	5.42
1998	463608.80	36,900.00	31049.60	313919.00	27.13	2900.00	5089.60	13285.60	1.48
1999	949187.90	47,100.00	36670.41	410529.15	31.41	10200.00	5620.81	96610.15	4.28
2000	1906159.70	58,500.00	50998.47	570934.10	35.57	11400.00	14328.06	160404.90	4.16
2001	2231532.90	91,800.00	50353.42	606490.16	37.72	33300.00	-645.05	35556.06	2.15
2002	1731800.00	108,600.00	55895.63	616546.54	42.42	16800.00	5542.21	10056.38	4.70
2003	2575100.00	138,400.00	58659.90	698189.48	53.93	29800.00	2764.27	81642.94	11.51
2004	3920500.00	159,500.00	621932.58	549298.23	62.28	21100.00	563272.70	-148891.30	8.35
2005	5457500.00	178,100.00	662856.58	789893.90	67.75	18600.00	40924.00	240595.70	5.47
2006	6069180.00	221,600.00	756859.33	839496.45	76.42	43500.00	94002.75	49602.55	8.67
2007	5727500.00	289,600.00	1382145.22	879596.23	83.42	68000.00	625285.9	40099.78	7.00
2008	7866600.00	315,000.00	1429413.69	690481.70	87.69	25400.00	47168.47	-189114.50	4.27
2009	4844600.00	401, 000.00	2238590.49	1063199.18	95.78	86000.00	809176.80	372717.50	8.09
2010	7844700.00	481,000.00	2929655.00	1500156.45	95.78	80000.00	691064.50	436957.3	0.00
2011	7212000.00	564,890.00	2206333.37	1399492.07	120.26	83890.00	-723321.60	-100664.40	24.48
2012	6699080.00	410298.00	2037227.56	1106585.13	96.59	-154592.00	-169105.80	-292906.90	-23.67
2013	6893396.00	434437.60	2168244.02	1151982.91	99.22	24139.60	131016.50	45397.78	2.63
2014	6698755.20	458325.12	2316010.08	1244283.15	101.53	23887.52	147766.10	92300.24	2.31

Sources: Annual Abstract of Statistics, National Bureau of Statistics (NBS); Statistical Bulletin, Central Bank of Nigeria (CBN) (various years).

* Our Own Computations.

Appendix B

Dependent Variable: HHCE$_{DG}$
Method: Least Squares
Date: 03/14/15   Time: 11:20
Sample (adjusted): 1995 2014
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-307639.5	69780.40	-4.408681	0.0005
VATR	5.487023	0.248765	22.05709	0.0000
VATR$_{t-1}$	-1.537265	0.945570	-1.625755	0.1248
HHCE$_{DGt-1}$	0.594422	0.148965	3.990352	0.0012

R-squared	0.970812	Mean dependent var	887441.6
Adjusted R-squared	0.964974	S.D. dependent var	1001968.
S.E. of regression	187521.1	Akaike info criterion	27.30583
Sum squared resid	5.27E+11	Schwarz criterion	27.50466
Log likelihood	-255.4054	Hannan-Quinn criter.	27.33948
F-statistic	166.3004	Durbin-Watson stat	0.618139
Prob(F-statistic)	0.000000		

Dependent Variable: $HHCE_{NDG}$
Method: Least Squares
Date: 03/14/15   Time: 11:31
Sample (adjusted): 1995 2014
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	294705.1	45236.26	6.514799	0.0000
VATR	2.040991	0.161266	12.65609	0.0000
VTR_{t-1}	0.371727	0.612981	0.606425	0.5533
$HHCE_{NDGt-1}$	0.067619	0.096569	0.700217	0.4945

R-squared	0.917234	Mean dependent var		745382.3
Adjusted R-squared	0.900681	S.D. dependent var		385734.2
S.E. of regression	121563.6	Akaike info criterion		26.43893
Sum squared resid	2.22E+11	Schwarz criterion		26.63776
Log likelihood	-247.1698	Hannan-Quinn criter.		26.47258
F-statistic	55.41164	Durbin-Watson stat		1.163303
Prob(F-statistic)	0.000000			

Dependent Variable: CPI
Method: Least Squares
Date: 03/14/15   Time: 11:34
Sample (adjusted): 1995 2014
Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.08908	3.254054	7.402790	0.0000
VATR	0.000177	1.10E-05	16.08834	0.0000
VTR_{t-1}	-1.05E-05	6.11E-05	-0.171978	0.8656
CPI_{t-1}	0.082129	0.333795	0.246047	0.8088

R-squared	0.949416	Mean dependent var		63.92050
Adjusted R-squared	0.939932	S.D. dependent var		32.46853
S.E. of regression	7.957640	Akaike info criterion		7.162998
Sum squared resid	1013.185	Schwarz criterion		7.362145
Log likelihood	-67.62998	Hannan-Quinn criter.		7.201874
F-statistic	100.1027	Durbin-Watson stat		0.451371
Prob(F-statistic)	0.000000			

Source: EViews8-Enhanced Regression Output.