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EFFECT OF VALUE ADDED TAX (VAT) ON CONSUMPTION AND SAVINGS IN NIGERIA

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DEDICATION

This dissertation is dedicated to my Parents Late Alhaji Idris Yunusa and Hajiya Hauwau Idris.

CERTIFICATION

This dissertation titled the Effect of Value Added Tax (VAT) on Consumption and Savings in

Nigeria by **IDRIS, Sani** (17210902037) has met the requirements for the award of the Master of

Science (Accounting and Finance) of the Usmanu Danfodiyo University, Sokoto, and is approved

for its contribution to knowledge.

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ABSTRACT

This study examined the effect of Value Added Tax (VAT) on consumption and savings in Nigeria using annual data from 1994 to 2018. This study divides the model into consumption base model and savings base model. In addition to consumption and savings, the variables captured in the model are VAT, interest rate and inflation rate. This study further employed Auto regressive Distributive Lag (ARDL) model in estimating the relationship among the variables. The study reveals that VAT has a positive and statistically significant impact on consumption in Nigeria. Furthermore, VAT has a positive and statistically significant impact on savings. Therefore, this study recommends the needs for government to be reviewing the VAT rate from time to time in order to serve as a technique for controlling and checkmating the level of consumption in Nigeria, and also choose appropriate rate of interest that will favor the consumers, savers and investors.

CHAPTER ONE

INTRODUCTION

1.1   Background to the Study

Value Added Tax (VAT) is unique of the major sources of government non-oil revenue in Nigeria. It is a tax that is imposed by the government on the cost of goods and services, produced and consumed inside the country, imported into the country or shipped to other countries, whose amount are usually shifted in portion or in full by the tax payer who has paid the tax to the government while the final consumer   bears it in the form of higher price. VAT is one of the components of indirect taxation in Nigeria, other components include Entertainment Tax, Import Duties, Export Duties, Excise Duties, among others. This research work intends to appraise VAT in relation to consumption and savings because from the components of indirect taxation, it is only VAT that is comparatively easy to administer and very hard to evade in Nigeria. This is however evident that through the introduction of VAT, there is increase in revenue base of the three tiers government of Nigeria, because the problem of tax avoidance and tax evasion are reduced (Naiyeju, 1996).

Similarly, VAT has shifted the burden of tax towards consumption in order to encourage savings and hence boosts investment. With the increment in investment, that could lead to increase in the level of state income. Since the final burden of the tax is borne by the final consumer, this has made VAT an indispensable tool in the hands of the government that can be used for fiscal policy control, implementation, as well as discouraging unwanted consumption, unplanned or unwanted spending and also encouraging savings, so as to bridge the savings deficit being experienced by Nigeria for quite some time.

However, VAT, or sales tax in some countries, is not necessarily a bad omen, where there is good governance; the rate is imposed to curve excessive consumption to generate revenue for national development. It is also believed that one of the main grounds for taxing consumption rather than revenue is that taxes on consumables item will change the consumers' attitude toward consuming less and encourage their savings habit, and thus create higher economic growth. Statistical records have shown that Nigerian government has generated over 7.2 billion-naira 1994 on VAT, 31 billion naira in 1996, and 36 billion naira in 1998. While in the year 2017, the amount generated from VAT stood at over 967 billion naira (CBN, 2018). On the other hand, consumption expenditure with is also for this study stood at 11.6 trillion naira in 1994, over 14.6 trillion naira in 1996 and over 14.3 trillion naira in 1998. Similarly, in the 2017 the consumption expenditure stood at over 43.8 trillion naira (WDI, 2018). Moreover, for national savings, which is also vital to the economy stood at over 110 billion naira in 1994, over 134 billion naira in 1996 and over N200 billion in 1998. Its value in 2017 stood at over 12 trillion naira (CBN, 2018).

In theory, if there is a notice that the government will increase the VAT rate, individuals will buy stuff which can be stocked before the increase of the VAT rate. After the increase in the VAT rate, the aggregate consumption will drop because people will use their stock instead of buying new stuffs. After that, the aggregate consumption will grow up gradually as individuals run out of their stock and need to buy new items, perhaps, considering the fact that the adverse or favorable income effect of the increase or decrease of the VAT rate on the change of aggregate consumption arises only in the period just after the implementation of the increase or decrease, the sign of the revenue effect is the same as the substitution effect.

VAT in addition to the above provides relief to certain goods and services. This is because goods like drugs, books, food stuff and other items necessary for existence are exempted from VAT and

because of its profitability government uses its proceeds together with other types of tax to provide public goods like roads, bridges, schools and hospitals, which will be of equal benefit to both the rich and the poor. It has also generated employment for many Nigerians. This is because the introduction of VAT encourages savings and consequently investment. With growth in the level of investment, employment level would be increased. VAT has also improved Nigeria's incessant adverse balance of payment. This is because with the introduction of VAT, export production was boosted and this has had the effect of ameliorating the deficit balance of payment. Other benefits of VAT include accelerating economic growth, moderating the volume of currency in circulation, speedy disbursement of tax revenue to all the governments in the federation, reduction in financial dependence on external loans, protecting infant industries, cost effectiveness and harmonizing the tax system and reduction of inert taxes (Okoli & Afolayan, 2015).

This research has also controlled using selected variables that have influence on consumption and savings. The variables are interest rate and inflation rate. The result of interest rate on consumption is a central concern in accounting; this is because the position of consumption may be understood as the result of a policymaking process of households over the time arrangement of the allocation of their revenue. According to popular estimation, if interest rates increase, consumption declines, meaning to say that an important demand component dec1ines. In this situation, reference is made to the replacement effect, by which future consumption becomes more attractive, in contrast with present consumption, as a result of altered relative prices (Hansen, 1996). However, the proponents of this opinion overlooked the fact that interest rate changes, besides replacement effects, also have income effects which may more than offset the substitution effects. By contrast, as cited in Hansen (1996), Keynes (1936) doubted that the interest rate really is a determinant of consumption "under

normal circumstances". Instead, he focused on current income as the most important determining factor.

On the other hand, as cited in Simon, Oke and Jolaosho (2013), Nnanna, Englama and Odoko, (2004) posits that the result of interest rate on savings is that the level of funds mobilization by banks is quite small due to a number of motives, ranging from low savings deposit rates to the poor banking conducts or culture of the people. As a matter of fact, the moneys from household savings are comparatively cheaper and steadier than government deposits that are very unstable and expensive. Conceptually, savings signify that part of revenue not spent on present consumption. When applied to capital investment, savings rise output (Olusoji, 2003).

The outcome of inflation on the consumption patterns of consumers unlike the effect of revenue on consumer expenditure has not established the needed attention both hypothetically and empirically. The result of inflation on consumer expenditure is both direct and indirect. Periods of inflation impacts consumers to save rather than to consume because of distrust and doubt in the economy. Inflation again impact consumer expenditure behavior by persuading both liquid and illiquid assets since in period of inflation, there is incentive to hold real assets and not assets fixed to nominal values or not indexed to inflation (Nyamekye & Poku, 2017).

From the foregoing, one can see that, analyzing the effect of VAT on consumption and savings in Nigeria, will no doubt provide us with the necessary information as to whether, the present rate of 5% being charged on VAT is adequate or not. It is against this background that this research investigated the effect of VAT on consumption and savings in Nigeria.

1.2 Statement of the Research Problem

Nigeria is facing so many economic problems such as; poor planning, high rate of inflation, poor management, corruption, insecurity, high interest rate and overdependence on oil wealth. It has been observed that, over the years, Nigerian revenue system has inherent problems in its structure by giving high concentration on oil revenue and trade taxes, whereas direct and broad-based indirect taxes like the VAT, Customs and exercises duties were given little attention in previous years (Odusola, 2006).

The over sixty percent drop in oil price to below $40 per barrel in the year 2016 was unanticipated by the government. This has caused to over eighty percent fall in the yield (spread) per barrel of oil produced in Nigeria. This led to decline in the country's revenue in 2016 and force the country to prepare budget deficit of over two trillion-naira (N2Trillion), continuing deflation of the naira, decelerating Gross Domestic Product (GDP) growth, increasing inflation and rising unemployment. The government also has to suspend some capital projects at the federal level and subventions to the states of the federation were reduced causing failure of many states to provide relevant infrastructural facilities. Therefore, it became necessary for the need to diversify the revenue base of the nation, and VAT is a major revenue source of advanced nations of the world, which much attention is not focused on this area by the federal government of Nigeria (Adegbie, Olajumoke & Danjuma, 2016).

The approved increase in VAT rate by 50% has been on the fiscal agenda of the Federal Government for some time now. One of the arguments of the Government in support of the increase is that Nigeria's 5% VAT rate is the lowest in Africa. However, the argument does not acknowledge the difference between the VAT regime in the other countries and Nigeria, where the VAT regime is a variant of sales tax. It will be recalled that the Government once increased the

VAT rate to 10% in 2007 but had to revert to the status quo following opposition by the organized labour (KPMG, 2019). This is however ignoring the fact that VAT is not necessary a bad omen, in countries where there is good governance, the rate is imposed to curve excessive consumption to generate more revenue for national growth. Average VAT in Europe is 21%. It is 15% in South Africa, Ghana has a VAT rate of 10%, Republic of Benin 18% while Togo has multiple rates ranging from 5% to 30% (Okoli & Afolayan, 2015).

In addition, the review of past research on VAT shows that there are several issues related to the methodology adopted in prior empirical studies. Among the issues identified in previous research include the following: give more emphasis on VAT, aggregate consumption and economic growth, limited formulation and testing of research hypothesis, Statistical procedures in testing of hypotheses not robust and small sample size used (Panayotis and Avraam (2013), Mohammad and Masoume (2016), Caroline and Joseph (2017), Vincent and David (2018) and Songra (2019)).

Consequently, based on the review of the literature and past studies, the issues that attracted the attention of this study can be summarized as: there is limited empirical research on VAT on consumption and savings in Nigeria, most of the past studies were carried out in countries like; Belgium, Greece, Hungary, and the UK. Other studies were carried out in Columbia, Malaysia, Greece, India and USA. The need to examine the study of this nature in Nigeria, that is to say, from geographical perspectives is paramount. Similarly, there is also need to explore the different methodology other than the ones used in the past studies so as to address the methodological gap found in previous studies on VAT, consumption and savings.

Studies of this nature were conducted by many authors such as Andre, Jason, Cathal and Dirk (2009) in five European countries (Belgium, Greece, Hungary, Ireland and the UK), Bumpei (2011) in Columbia, Ezat (2013) in Malasia, Panayotis and Avraam (2013) in Greece, Mohammad

and Masoume (2016) in India, Caroline and Joseph (2017) in USA, Vincent and David (2018) in USA, and Songra (2019) in India, none of the study of this nature has been conducted in Nigeria. Therefore, this study seeks to fill in the research literature gap, methodological gap, time gap and geographical gap by examining the effect of VAT on consumption and savings in Nigeria using Autoregressive Distributed Lag (ARDL) approach to cointegration. This is due to fact that the approach provides robust and reliable outcomes irrespective of the order of integration.

1.3   Research Questions

From the foregoing research problems, the following research questions have been answered:

i.   What is the effect of VAT on consumption in Nigeria?

ii.   What is the effect of interest rate on consumption in Nigeria?

iii. What is the effect of inflation rate on consumption on in Nigeria?

iv.   What is the effect of VAT on savings in Nigeria?

v.   What is the effect of interest rate on savings in Nigeria?

vi.   What is the effect of inflation rate on savings in Nigeria?

1.4   Objectives of the Study

The broad or main objective of this study is to empirically evaluate the effect of VAT on consumption and savings in Nigeria. In consistent with the main objective, this study has the following specific objectives:

i.   To examine the effect of VAT on consumption in Nigeria.

ii.   To examine the effect of interest rate on consumption in Nigeria.

iii. To examine the effect of inflation rate on consumption in Nigeria.

iv.   To examine the effect of VAT on savings in Nigeria.

v.   To examine the effect of interest rate on savings in Nigeria.

vi.   To examine the effect of inflation rate on savings in Nigeria.

1.5   Research Hypotheses

The following hypotheses were formulated in null form and were properly tested and guided the study.

H_{01}: VAT has no significant effect on consumption.

H_{02}: Interest rate has no significant effect on consumption.

H_{03}: Inflation rate has no significant effect on consumption.

$H_{04:}$ VAT has no significant effect on savings.

H_{05}: Interest rate has no significant effect on savings.

$H_{06:}$ Inflation rate has no significant effect on savings.

1.6   Significance of the Study

This study will assist as a source of vital information for policy makers This study will the relevant stakeholders, such as the regulatory bodies, consumers, researchers and other stakeholders that are directly or indirectly affected by the adverse effects of VAT, while merging its benefits on reducing excessive consumption, increasing savings and national growth. This research will also help as a resource base to other scholars and researchers in carrying out further research in this field of study. Also, they will immensely benefit from the results of this study as it adds to the empirical literature available and also serve as a reference material for researchers, educationists and student who may wish to conduct similar study in this area or to improve their knowledge on VAT, consumption and savings in Nigeria.

However, the findings from this study will be useful to the regulatory bodies in Nigeria such as Federal Inland Revenue Service (FIRS), Central Bank of Nigeria (CBN), among other relevant bodies that formulate and develop oriented policies and strategies in Nigeria.

1.7   Scope of the Study

This research work has selected VAT from the components of indirect taxation, the justification of selecting only VAT is because, from the components of indirect taxation, it is only VAT that is levied at each stage of consumption chain and borne by the final consumer of product or service. VAT is also relatively easy to administer and very difficult to avoid or evade in Nigeria. Similarly, the research have controlled for other variables such as interest rate and inflation rate which were considered to have influence on consumption and savings. The research has also covered a period of twenty three (25) years; (1994-2018). The justification for the choice of the period is to cover the inception age of VAT in Nigeria. The used secondary data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletins, World Development Indicators (WDI) a publication of World Bank, Journals, as well as other relevant sources.

1.8   Limitations of the Study

This section presents some of the constraints encountered in the course of carrying out this research work. The major constraint is sparse of empirical reviews on the relationship between VAT and savings. There is also constraint of stagnant VAT rate of 5% right from inception age, which perhaps could lead to inability to ascertain how increase or decrease of VAT rate could influence consumption and savings during the period under review.

1.9   Structure of the Study

This work has been structured into five chapters. Chapter one presents the introduction component of the study with an aim of laying the foundation for the study by providing a brief overview of the problem, providing context information on where the research will be conducted, demonstrate the researcher's view of the research problem. All these are aimed at positioning the study.

Chapter two deals with the literature review that comprise of a critique of the reference materials on VAT, interest rate, inflation rate, consumption and savings that have been identified as relevant by the researcher. This chapter analyzes the reviewed literature under each research objective. The chapter also presents the theoretical and conceptual frameworks of the study which aim at explaining the relationship between the dependent and independent variables. The chapter concludes by analyzing the gaps in the reviewed literature.

Chapter three outlines the research methodology which is the blue print on the design of the study, target population, sampling and data collection procedures. Chapter four presents the data analysis and interpretation per objective of the study. Chapter five concludes the report by providing a summary of the findings, discussions, conclusions, recommendations as well as suggestions for further studies.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

The chapter reviews literature on the concepts of VAT on consumption and savings by highlighting its short and long run effect, and also covers empirical studies that were conducted on evaluation of the both short and long run effect of VAT on consumption and savings focusing attention on the research problem, methodology, findings and limitations, In order to use the evidence from the studies to establish the gaps in the literature.

2.2   Conceptual Framework

Here the review of the literature is presented on the study were discussed. This is to situate the concept within the framework of the study.

2.2.1 The Concept of Indirect Tax

Indirect tax is a tax imposed by government on goods and services (which is incorporated into products final prices) in order to raise revenues and instruments of fiscal policy in managing the economy. Paul and Rajendran (2018) defined Indirect taxes as those taxes whose burden can be shifted to others so that those who pay these taxes to the government do not bear the whole burden but pass it on wholly or partly to others. Indirect taxes are levied on production and sale of commodities and services and small or a large part of the burden of indirect taxes are passed on to the consumers. Import duties, fuel, liquor and cigarette taxes are all considered examples of indirect taxes. Indirect taxes are defined by contrasting them with direct taxes. In the case of direct taxes, the person immediately paying the tax is the person that the government is seeking to tax. Income tax is the clearest example of a direct tax, since the person earning the income is the one

immediately paying the tax. Admission fees to a national park is another clear example of direct taxation.

However, indirect taxation can be viewed as having the effect of a regressive tax as it imposes a greater burden on the poor than on the rich, as both rich and poor pay the same tax amount for consumption of a certain quantity of a specific good. The taxpayer who pays the tax does not bear the burden of tax; the burden is shifted to the ultimate consumers. In the case of a direct tax, the taxpayer has to bear the burden of tax personally; in case of indirect tax the taxpayer and the tax bearer are not the same person. Tax levied on the goods and services sold by an intermediary to final consumers. The consumers pay the tax in the form of higher price of purchased items. Goods are broadly divided into categories such as sale of goods, imported/exported goods, offering of services and manufacture of goods. Indirect taxes are levied on clearance of goods and services from the origin, instead of actual sale of the products to the customers. What this means is that the intermediary will pay excise duties irrespective of whether they could sell the good or service to consumers (Paul & Rajendran 2018).

Taxation in Nigeria has been one of the major sources of revenue to the government contributing about 25.5% of government revenue in 2002. These revenues come mostly from indirect sources of VAT, import and export duties (custom duties). Ukpabi (2019) posits that Indirect taxes contribute up to 15% of the government income with which it brings out certain developmental expenditures; this percentage can still be improved. Indirect taxation is the kind of taxation that gives the government more control over its use of fiscal policy because it can be altered between budgets without legislative approval. In contrast, direct taxes can only be altered in the annual budget.

Ezat (2013) in his work postulates that indirect tax is a taxation imposed upon others than the person who is intended to bear the final burden. He also stated that there has been a gradual shift away from direct towards indirect taxes especially in the UK over recent years. Increased indirect tax has permitted the government to decrease the overall tax burden on income and capital. Both income tax and company tax rates have been lowered. Supply-side economists believe that indirect taxes are better to direct taxes because they create less of a disincentive to work since workers keep more of what they receive. The argument runs that employees will respond to lower marginal tax rates by increasing the hours they work and rising output.

According to Ezat (2013), there are two effects that influence change of tax from direct taxes to indirect taxes; the substitution and the income effects.

i.   Substitution effect: this means that when income tax rates are amended the return to working extra hour's increases. Meaning the opportunity cost of leisure time is higher than before.

ii.   Income effect: this is when tax rate are reduced, people can earn a specific "target" post-tax income with less working hours than before the tax cut. If they regard leisure as a normal good, they may choose to switch out of work and like more leisure time whilst still receiving the same income.

In the comparison between these two effects the results of research are ambiguous, one group where increased indirect taxation and reduced direct taxation might improve incentives are households who affected by the poverty and unemployment traps. People in low paid jobs and the currently unemployed may have little incentive to take paid work or work extra hours if the net financial benefit of doing so is very small. Extra income may be subject to income tax and national insurance and means-tested benefits may be withdrawn as additional income comes in from

working. Lower starting rates of income tax may provide a better incentive for low-paid workers to enter the active labor market. The Labor Party has brought in a 10% starting rate of tax and has also introduced the working families' tax credit as part of a strategy to boost the post-tax incomes of families in poorly paid jobs.

Ezat (2013) also highlighted some of the merits of indirect taxation which include but not limited to the following:

i. One benefit of indirect taxes is that it can be used clearly to correct for market failure triggered by environmental damage. Indeed governments across the world are upcoming to the view that indirect taxes can be used more intensively to meet environmental objectives.

ii. The use of indirect taxation is one answer to the difficult of externality: the producer or consumer is indicted the full social cost and demand will react accordingly. Environmental economists claim that the most operative way to safeguard the environment from carbon dioxide and other energy-linked pollutants is to pollute the tax.

Indirect tax rises will push up prices, reduction consumption and later lessen the effects of adverse externalities such as damage to the environment. However, there is a risk that using green taxation to influence demand will damage specific industries. For example, the high rate of taxation on alcohol retailed in the UK, as opposed to continental Europe, has badly affected UK drink industries. A huge trade in introducing alcohol has grown up, causing in many jobs being lost in the UK. Indirect taxation gives the government more control over its use of fiscal policy. In theory, certain indirect taxes can be changed between budgets without parliamentary approval. In contrast, direct taxes can only be altered in the annual budget (Ezat, 2013).

Ezat (2013) also highlighted some of the demerit to include important argument against indirect taxes is that they tend to be regressive. Since each individual pays the same rate on their purchases, the poor pay a larger proportion of their incomes in indirect taxes (in comparison with direct taxes which tend to be progressive and are seen as more equitable – the proportion of income paid in taxes rises as income increases when a tax is progressive). An example of this in the UK is the high level of duty on tobacco products. Evidence from the Office of National Statistics shows, which the duty on tobacco takes up a much larger percentage of the disposable incomes of lower income groups.

2.2.2 Principles of Indirect Taxation

Following Atkinson and Stiglitz (1976), as cited in Ukpabi (2019), they define direct taxes as those taxes that may be adjusted to the individual characteristics of the tax payer and indirect taxes as those that are charged on transactions regardless of the circumstance of the consumer or the retailer. Due to the fact that direct taxes are reliant on the individual characteristics of the tax payer, it is at the compassion of the subjective assessment of the individual disbursing the tax. In such a case, certain contra principles of taxation such as tax evasion (decrease of actual income value in order to earn reduced tax) and avoidance tend to prosper. Indirect taxation on the other hand has restricted cases of evasion and avoidance as it is not subject to the individual features of the tax payer. Indirect tax sources include VAT, excise duties, customs duties and tariffs.

An indirect tax (such as sales tax, per unit tax, VAT, or goods and services tax) is a tax collected by an intermediary (such as a retail store) from a individual who tolerates the ultimate economic burden of the tax (such as the consumer). The intermediary later documents a tax return for onward delivery of the tax proceeds to government. In this sense, the term indirect tax is compared with a direct tax, which is collected directly by government from the people (legal or natural) on whom

it is enforced. Same reviewers have argued that "a direct tax is one that cannot be moved by the tax payer to someone else, whereas an indirect tax can be". The term "indirect tax" has a different meaning in the perspective of American Constitution Law: see direct tax and excise tax in the United States. In the United States, the federal income tax has been, since its commencement on July 1, 1862, an indirect tax (more specifically an excise) even though in the 1940s, its application grew from a historical average of about 8% of the population paying it to around 90% of the population paying it as am measure to support the war effort. An indirect tax is a tax on expenditure or outlay and it is possible to shift the tax burden (partly or wholly) to someone else (Anyanwu, 1997).

Abdulrazaq (1993) posits that what matters is the relationship between take home pay and prices in the shops and this seems to be understood much better by the ordinary person than by many tax experts. There are, however, two possible grains of truth in these arguments. One is that people may be more resentful of the fact that over half of the product of their extra effort goes in tax if this fact is intimated to them on their pay slip than if the same money is extracted by the shops in a slightly more roundabout way, and that this resentment itself leads them to do less work that people are willing to deprive themselves if they can also see that they are simultaneously depriving the taxman. Some people may have this psychological make-up, but a social survey found more people cited high prices than high taxes as an adverse influence on their incentive to work, and it is a weak argument for a particular tax structure that it would help to conceal the realities of the tax system from people who have pathological views about it.

The second point is that indirect taxes are generally less progressive than direct taxes, mainly, though not entirely, because there is a threshold of income, which is exempt from income tax while all expenditures, however small are vulnerable to indirect taxation. This means the marginal rate

of income tax is generally substantially above the average rate; while for indirect taxes there is little difference between the two. These indirect taxes can yield the same revenue from lower marginal rates, and hence distinctive effects (which depend on these marginal rates) would be reduced if this were done. This argument is perfectly valid, but it rests on the reduction in progressivity, not on the shift in the structure of taxation, and this reduction could equally well and more honestly achieved by altering the rates of direct tax than by changes to different kinds of tax.

The second argument for preferring indirect to direct taxes suggests that the former are voluntary in a sense in which the latter are not: this notion is reflected in an older terminology which distinguishes 'escapable' and 'inescapable' taxes. It is true that any particular indirect tax can be avoided by any particular individual who chooses not to consume the taxed good. But it is also true, given that a certain amount of revenue is required, that taxes in general cannot be avoided by individuals in general. So an 'escapable' tax leaves the person who escapes it worse if since he would have preferred, in happier circumstances, to have consumed the good which is tax and it makes everyone else worse off too, since it requires a higher rate of tax on those who continue to consume the good. Thus the tax structure to which this argument would lead is the worst possible in terms of economic efficiency – it maximizes the welfare loss, which is additional to the basic and inescapable burden of the tax (Abdulrazaq, 1993).

Customs duty is a tax charged on imports (and sometimes on exports) by the customs authorities of a country to raise revenue for the state and/or to protect local industries from more efficient or destructive competitors from abroad. Customs duty is grounded generally on the value of goods or upon the burden, scopes, or some other criteria that will be determined by the state. Customs and excise duties are the oldest methods of modern taxation and are otherwise known as import

duties. They are charged either as a percentage of the value of import or a fixed amount on specific quantity (Fasoranti, 2013).

Custom and excise duties are categorized together because they are both administered through the Nigerian Customs Services. Custom Duties are classified into two; Import duty and export duty. Custom duty in Nigeria has been traced as far back to 1860 when Nigeria started engaging in foreign trade. Then, it started as just import duties. Import duties are taxes on Nigeria' s imports from other countries, charged either as a percentage of the value of the imports or as a fixed amount contingent on quality (Akhor & Ekundayo, 2016). They also described Export Duty as a tax on the goods exported to other countries, from Nigeria. According to Ekeocha, Ekeocha, Malaolu and Odah (2012) as cited in Akhor and Ekundayo (2016), posit that excise duties are an ad-valorem tax on the output of manufactured goods and are administered by the country's custom services.

2.2.3 Basis of Burden of Indirect Tax in Nigeria

This is the tax levied indirectly on commodities afore they reach the final user, but ultimately paid by the user as part of the market price. Here the influence and incidence are of different persons. They are called indirect because the controlling authorities which levy the taxes on goods and services do not collect the taxes from the consumer but do so indirectly through importer, manufactures or other intermediaries. The shifting or passing on of the liability is effected by charging the tax clement on the selling price of the commodities sold to the next person in the commercial chain until it is finally borne by the consumer (Okechukwu, 2011) .

According to Laura (2019), indirect taxation in Nigeria may be imposed on transaction of individuals or corporate bodies. The basis of burden of indirect taxes in Nigeria is highlighted below:

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i.   VAT – levied on the net sales value of non-exempt, qualifying goods and services in Nigeria, it is 5% of the value and its collected by Federal Inland Revenue Service;

ii.   Excise Duty – levied on the manufacture of goods within the Government terrain and collected by the Nigeria Customs Service;

iii. Import Duty – levied on the import of goods into the Government terrain and collected by the Nigeria Customs Service; and

iv.   Export Duty - levied on the export of goods outside the Government terrain and collected by the Nigeria Customs Service.

2.2.4 Concept of Value Added Tax (VAT)

The VAT has been widely used in Europe for nearly four decades, and now has also been adopted in numerous other countries around the world. "Value-added" is the value that a firm adds during production to materials and services purchased from other firms. It equals the difference between a firm's gross receipts and the costs of all intermediate inputs used to produce the product (including the cost of capital goods but excluding wages). A tax on the value-added of all businesses therefore has as its base the total value of all final products, making a VAT equivalent (under some conditions) to a national retail sales tax (James & Asmaa, 2012).

According to Ebrill, Keen, Bodin and Summers (2001) as cited in James & Asmaa, (2012) disclosed that several studies have examined the various issues involved when implementing a VAT in developing and developed countries, for instance, Metcalf (1995) confers the many issues related to the strategy of a VAT, including implementation, administration, compliance costs, its effect on savings and labor supply, its distributional effects, and various transitional alarms if implemented in the U.S. With regard to its impact on saving, Metcalf (1995) also emphasizes that there is to date no strong cut answer on whether implementing the VAT would increase savings

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rate. Bird (2005) and Diamond and Zodrow (2007, 2008) also discuss VAT design issues, and similarly conclude that the effect of a VAT on consumption is an important but unsettled issue.

2.2.4.1 Value Added Tax in Nigeria

Following the problem of evasion and avoidance shocking the collection of personal income tax and Company profit tax and the subsequent need to boost government revenue and dipping government borrowing, VAT was introduced in January 1993 by the VAT decree No. 102 of 1993 and came into force on the 1st of January 1994 to substitute the pre-existing sales tax. Ochei (2010) noted that many Nigerians believed that the tax was presented as a means of dodging taking loans from international agencies. Ngex.com described VAT as a consumption tax charged at each stage of the consumption chain, and is borne by the final consumer. It requires a taxable individual upon registering with the Federal Board of Inland Revenue to control and collect VAT at a flat rate of 5% of all invoiced amounts of taxable goods and services. Since inception, VAT revenue has exceeded its projected amount. During 1994 the revenues received from VAT in Nigeria exceeded the predictions. They contributed 4% of the total income raised by the Federal Government in that year. In 1995 the rate of input was 5.39%. In 2017, VAT income accrued to the sum of over 967 billion naira (CBN Bulleting, 2018). VAT is collected by government through an agency called Federal Inland Revenue Services (FIRS).

The implementation of VAT in January 1994 with a standard rate of 5 percent. This represented one of the lowest rates in the world along with fewer other countries like Canada, Japan and Panama as at 2009. For example, Denmark, Norway and Sweden set their VAT rate up to 25 percent and above. While Bulgaria, China, Finland, Madagascar (Malagazy), Samoa and Singapore were contemporaries with Nigeria in 1994, France Urugua, Sweden, Ecuador and Norway Started since 1948, 1968, 1969, 1970 and 1970 respectively (Adebayo, 2016).

VAT simply called the Goods and Services Tax (GST). It is imposed on the value added that results from each exchange. This is an indirect tax received from someone other than the person who actually bears the cost of the tax or the tax burden. VAT has been reduced in most countries of the world on record. France is the first country that introduced or imposed VAT on April 10, 1954. Most countries of the European Economic Community (EEC) have VAT as a means of guaranteeing uniformity of trading, since goods and services more relatively freely among these countries. Due to the close fiscal relationship between France and its colonies, VAT was introduced almost immediately after 1954 in most of France phone African countries, beginning with Cote D'voire in 1957 within ten years of its administration, VAT in one form or the other was operational in most French speaking African countries (Ochei, 2010).

VAT has become a major source of revenue in many developing countries. In sub-Saharan Africa, for example, VAT has been introduced in Côte d'Ivoire Benin, Guinea, Kenya, Madagascar, Mauritius, Niger, Senegal, Togo and, lately, Nigeria. Evidence suggests that in these countries, VAT has become an significant provider to total government tax revenues (Ajakaiye,1999).

According to Ajibola and Olowolaju (2017), one of the important landmarks in tax reform in Nigeria was the adoption of the value-added tax (VAT) in January through the VAT Act No. 102 of 1993 and its implementation began in January 1994. Ajakaiye (1999) also states that since its introduction, 15 of the 42 sections of the Act have been revised. Replacing sales tax, VAT was originally imposed on 17 categories of goods and 24 service categories. Such items as basic foods, medical and pharmaceutical products, books, newspapers and magazines, house rent, commercial vehicles and spare parts and services rendered by community and people's banks, however, were VAT-free (Ajibola and Olowolaju, 2017). VAT has also been introduced in Mexico and Ecuador

since 1973 and by 1983 accounted for 12.35% and 19.71% of total government incomes in these countries, respectively (Schnepper 1996).

The introduction of VAT entails a lot of preparation because of the difficulty in the implementation of VAT which require the cooperation of the tax-payers. In January, 1994 when the implementation of the tax initiated there were no adequate machinery, public enlightenment and consumer education (Bargo, 1993). The problems created by inadequate preparation and lack of understanding of the workings of VAT coupled with administrative bottleneck. Although prices of VAT able goods are expected to rise, businesses are taking benefit of the existence of VAT to increase prices of goods and services arbitrarily. The excessive price increase has further led to higher inflation in Nigeria. The VAT rate in Nigeria at 5% is considered too low because of high cost of administration. At 5%, the cost as a proportion of revenue will be very high. Data on cost of introducing and administering VAT are not yet available but it is expected to be significant. It is believed that for most countries, a VAT is probably not worth introducing at less than 10% (Ajibola & Olowolaju, 2017).

Specifically, the traditional incidence studies tend to concentrate on the issue of who pays the tax, so that the question of who gains or losses from the tax, whose income and welfare are abridged or augmented, and whose employment opportunity is threatened or encouraged are not sufficiently measured (Ajakaiye, 1999). For efficient administration of VAT, businesses must keep proper source documents and books of accounts. Unfortunately, it is the very problem with most enterprises in Nigeria (Odusola, 2006). The invoicing of all sales, the need to compel businesses to keep records of transactions and encourage consumers to demand receipts for every purchase have become mandatory.

Ajakaiye (1999) also stated that VAT is a multistage consumption tax levied on the difference between a firm's sales and the value of its purchased inputs used in production goods. Once it is a consumption tax, it is comparatively easy to administer and hard to evade. The yield from VAT is a fairly correct measurement of the growth of an economy since purchasing power (which determines yield) rises with economic growth. VAT is a self-assessment tax that is paid when returns are being rendered. Built in this tax is the refund or credit mechanism, which culminates the cascading effect that is a feature of the retail sales tax.

Naiyeju (1993) highlighted that the basic values of VAT are simple. A supplier, manufacturer, seller or producer of VATable goods or services returns a percentage of the price he charges his customers to the VAT directorate at regular intervals. This percentage is the VAT rate which is 5%. This is called output tax. If the seller has paid VAT on the VATable goods and services when he purchased them for resale or as intermediate input in his production business, then the VAT paid by him is input tax. In this situation, the VATable person expected to deduct his input tax from output tax before remitting his tax to the directorate. But if the input tax is greater than the output tax then the VAT directorate is liable to repay him for his claim. As taxable goods and services move from person to another in the production chain till the final consumer, each VATable person in the chain pays input tax when he buys and charges output. When he sells his products and pays the difference between the two as stated earlier. The final consumer then pays the total tax burden. Naiyeju (1993) also identified certain specific inherent characteristics of VAT. Some of these characteristics are:

i. Broad Base**:** VAT has perhaps the broadest base in tax history. In most countries, it applies to both public and private consumption thus reducing the disadvantage associated with tax

holidays. Also private individuals and developing countries are in one way or another compelled to pay VAT.

ii.   Shifting: The incidence of the tax is shifted forward or dissolved in successive stages so that at the end it is final consumer that pays the tax. Since the elasticity of both demand and supply determines the degree of tax, shifting this quality of VAT prevents the substitution effect associated with direct taxes on income and profits. It thus induces the taxable business person to pay tax while encouraging the production and distribution of the taxable items as if no tax has been imposed on them.

iii.   Adaptability: The tax is flexible and has been variously adapted to the political and economic realities of different countries. For instance in developing countries, essential goods and services are exempted from VAT so as not to hamper them, while in developing countries, such goods and services are taxed.

iv.   Paper Work: The operation of VAT involves a lot of paper work. Return forms, registration forms, tax, invoices etc.

v.   Export rebate: It is a main characteristic of VAT to zero rate export i.e export has a tax rate of zero percent. The taxpayer is consequently entitled to a refund of whatever amount he might have paid as input VAT.

vi.   Favourable Rate: The tax rate of VAT when compared to other taxes is relatively low for example, Nigeria's VAT rate in 1994 was 5% while the rate of company income tax was 35% and personal income tax was 30%. VAT rate remains 5%.

2.2.4.2 Types of VAT

According to Okechukwu (2011), there are three types of VAT. The basic difference between them lies on how the purchaser of new capital inputs (example Plants and equipment, among others) is treated in the determination of tax base. The types of VAT are:

(i) Income VAT: This is the tax paid on purchase of capital inputs which to be amortized against the firm's VAT liability over the expected lives of such capital inputs.

(ii) Consumption VAT: under consumption VAT, capital purchases are treated like purchases of any other inputs and the treatment of capital inputs is equivalent to expensing.

(iii) Gross Production VAT: under the Gross Product VAT, no deduction of tax input or capital purchased is allowed against the firm's output tax: in other words, the taxable firm is treated as the final consumer of all its capital inputs. The tax paid on capital input is treated as part of cost of that capital input thereby reducing the problem of cash refunds.

2.2.4.3 Rate of VAT in Nigeria

Tax rate is very important considering ideal tax system. One of such is equitability of the tax system. Tax must not only be fair, it must also be seen to be fair, if the taxpaying public is to find them acceptable. Otherwise there is a greater tendency for tax evasion. Tax evasion is an illegal act of intentionally reducing accrued taxes or complexity skipping the payment of such taxes by under reporting income, over stating expenditure items, deductions or exceptions or avoidance. Tax avoidance does not involve legal violent but using strategic on professional tax plan to exploit loopholes in both tax laws and tax administration to reduce tax liability, the tax payer is always on the safe side to reduce taxable income to the extent of the minimum possible charged within the law. There are only two rates of VAT, 5% and zero rated. Zero- rate is the rate on all exported

items that is to say that there is no charge of tax on items exported thereby encouraging exportation, which would assist or help the development of local industries. The 5% rate is charged on all VATable items. Its only advantage is that it makes administration easy. But when compared to the other system of VAT, that is the multiple VAT rates (where there are various rates for different goods and services), it is noticed that the multiple rates is a better tool for controlling the economy because each category of VATable goods and services would have its own percentage thereby making VAT less regressive (Adebayo, 2016).

2.2.5 Concept of Consumption

Consumption is a procedure where by agents involve in appropriation and appreciation, whether for useful, expressive or contemplative purposes, of goods, services, acts, information or quality, whether purchased or not, over which the agent has some degree of choice (Warde, 2005). Consumption can be defined as the movement of materials and energy through society. Materials or energy are extracted from the environment, transformed or rearranged in some fashion, and then eventually reverted to the environment as waste. According to Tushar, (2010), Consumption, defined as spending for acquisition of utility, is a major concept in economics and is also studied in many other social sciences. It is seen in contrast to investing, which is expenditure for acquisition of future income. Different schools of economists describe consumption otherwise. According to mainstream economists, only the final purchase of newly produced goods and services by individuals for immediate use constitutes consumption, while other types of expenditure in particular, fixed investment, intermediate consumption, and government expenditure are placed in separate categories. Other economists explain consumption much more broadly, as the total of all economic activity that does not entail the design, production

and marketing of goods and services (e.g. the selection, acceptance, use, disposal and reprocessing of goods and services) (Tushar, 2010)

When we use a commodity, we really use its want-satisfying quality or utility. Hence, consumption means using up of utilities. When we drink water to quench our thirst, we are said to consume water. While sitting on chairs in the office, the workers are consuming the chairs. An individual is sick; he calls in a doctor. He has 'consumed' the doctor's service. Whenever we make use of any product or service for the satisfaction of our needs, the action is called consumption. It deals with wealth using actions of man as distinguished from wealth-getting actions, which are dealt with in Production. Thus consumption deals with the satisfaction of wants.

Consumption involves the search for, choice, acquisition, possession and disposal of goods and services. The emphasis is on the contentment of wants rather than on the damage of utility. If no want has been satisfied, it is not consumption. For practical drives, consumption means the spending of money income. Food, water, Milk, and other goods that we consume cannot be consumed free we must pay for them. Consumption, thus, involves spending of income or wealth using action of man (Hogg & Michell, 1996).

According to Trigg (2001) the lifeless cultural force that exposed consumption imposes is illustrated by the tendency to buy expensive items that are not even seen by outsiders, such as underclothing and kitchen utensils. The standards of decency spread to all types of consumption without individuals necessarily trying to impress others in their behavior, the types of consumption include the following:

  i. Consumption is recognized as direct or final consumption, when the goods satisfy human needs directly and immediately. The goods have reached their final endpoint,

example, wearing a cap or eating rice or using a furniture, in which case the act of consumption is not a single process but is of a persistent nature.

ii. On the other hand, consumption is termed indirect or productive consumption when the goods are not meant for final consumption but for creating other goods which will satisfy human wants directly, example, using a sewing machine for making clothes. The use of the tools of production is a case of indirect or productive consumption. Consumption may be valuable or wasteful. When there is destruction by fire or earthquake or by any other natural calamity, the goods are just damaged and not usefully consumed.

2.2.5 .1   Importance of Consumption

Modern economists properly emphasize the significance of consumption. It has already been described that Consumption is the beginning as well as the end of all economic activity. A man feels an aspiration and then he makes an effort to content it. When the effort has been made, the outcome is the satisfaction of the want. Want is thus the beginning and its satisfaction the end of our economic effort. Consumption is considered as the be-all and the end-all of all economic activity. In other words, consumption is the foundation as well as the end of all economic activity. It is consumption which gives the first push to production. Production, thus, is directed and inspired by consumption. Not only do the consumers provide initial push to production, but their desires govern the volume and direction of all productive activity throughout. If the consumers are contented, business grows and production increases. But if the consumers happen to dislike a commodity or think that its price is too high, its production will sooner or later come to an end. A

consumer has been equated to a king, and his influence extends over the entire realm of economic activity (Peter, 2013).

Consumption can be seen as the set of practices through which commodities become a part of the individual. The existence of wants is the driving force of all economic activity and then multiplying or increase is the secret of all economic progress. Multiplication of wants and economic growth go together. Manufacturers try to find out healthier and more profitable methods to satisfy the consumers. This leads to the finding of new products and new processes and the discovery of new machines. Every economic effort made to fulfill one want creates more wants. The more the wants are fulfilled, the more they increase. "Appetite comes with eating." Besides, human capabilities are exercised in the effort to content human wants. A group of skilled workers is, therefore, built up besides successful businessmen. The all-pervading impact of consumption can be seen in all branches of Economics. Consumers direct and guide production. It is the passion of consumers' desires which administers prices in the market. Consumption thus uses its influence on exchange also. Without consumption there would have been no exchange. Distribution, that is, the flow of incomes to landlords, organizers, capitalists and workers, is also influenced by the consumption (standard of living) of each of these classes. Standard of living defines their efficiency and on efficiency describes shares in the national income (Goodman & Cohen 2004). Therefore, the importance of consumption cannot be over-emphasized. It is all-pervasive. It affects ill economic activity and contributes to economic progress. It governs the standard of living of the people to the study of which we now turn.

2.2.5.2 Consumption and household production

The hypothetical believe is that an aggregate consumption is a component of aggregate demand, which means that consumption is defined in part by comparison to production. In the tradition of

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the Columbia School of Household Economics, also known as the New Home Economics, commercial consumption has to be analyzed in the perspective of household production. The opportunity cost of time affects the cost of home-produced alternatives and therefore demands for commercial goods and services. The elasticity of demand for consumption goods is also a task of who performs responsibilities in households and how their spouses recompense them for opportunity costs of home production (Bumpei, 2011).

Different schools of economists define production and consumption differently. According to mainstream economists, only the final purchase of goods and services by persons constitutes consumption, while other kinds of expenditure in particular, fixed investment, intermediate consumption, and government expenditure are placed in separate categories (See consumer choice). Other economists define consumption generally, as the aggregate of all economic activity that does not involve the design, production and marketing of goods and services (e.g. the selection, adoption, use, disposal and recycling of goods and services). Consumption is a method of value production which recognizes the objects as lived culture: it involves with commoditization, works on it and sometimes disrupts it (Sassatelli, 2007). The activity of consuming can be measured as the vital and necessary track to self-discovery, while the market place itself becomes vital to the process of ascertaining who we are (Campbell, 2004). The unconscious cultural force that exposed consumption forces is illustrated by the tendency to buy expensive items that are not even seen by outsiders, such as underclothing and kitchen utensils. The standards of decency extend to all kinds of consumption without persons necessarily deliberately trying to impress others in their conduct (Trigg, 2001).

2.2.5.3 The Elements of the Change of Aggregate Consumption

There are many views on the elements of the change of aggregate consumption and economic growth. William (1954) shows the aggregate consumption is determined by the income, wealth, interest rates, the age distribution of the population among others. Barro (1991) posits that there are a variety of determinant of the economic growth such as investment, human capital, among others.

According to Bumpei (2011) in his work the effect of VAT rate change on aggregate consumption and economic growth highlights some of the determinants that brings about change in aggregate consumption to include but not limited to the following factors:

a. **Change of dispensable income:** Although there are many studies of consumption function, the functional equation of individual consumption is $\mathbf{C = c_0 + c(Y - T)}$, where; C= individual consumption, $c_0 =$ necessary consumption that is independent of income, Y= income of the individual, T= tax payment of the individual and $\boldsymbol{c} =$ parameter. (Y - T) means the individual dispensable income. Since the aggregation consumption is the total of the individual consumption in the country, the aggregate consumption function includes the total of individual dispensable income which can be obtained by subtracting the total tax revenue from the GDP which is equal to the total of individual incomes. Incorporating the dispensable income change, the income effect of the change in the VAT rate is removed and there remains only the substitution effect. This regression estimates the substitution effect of the change in the VAT rate (Bumpei, 2011).

b. **Inflation rate (Expected change of the price):** An increase in the expected future price will affect current consumption positively or negatively, depending on the relative importance of the income effect to the substitution effect. On one hand, expected inflation

(the higher expected future price) makes people spend less money because the real income will decrease and people want to save money for the future. The income effect here is negative. On the other hand, inflation provides an incentive to buy things which can be stored at lower prices in the current period. The substitution effect here is positive. The effect of the change of price depends on which of these tendencies predominates. Taking into account the fact that the VAT is a component of Consumer Price Index (CPI), expected inflation rate increases [or decreases] in the period just before the government raises [or reduces] the VAT rate because people can easily expect CPI inflation from the government's announcement about the rise [or reduction] of the VAT rate (Bumpei, 2011).

c. **Change of interest rate:** As well as expected inflation rate, the effect of the change of interest rate is positive or negative depending on the relative significance of the income effect to the substitution effect. On one hand, an increase of the interest rate makes it possible to spend more currently thanks to the larger interest revenue, and the income effect is positive. On the other hand, the higher interest rate provides an incentive to raise future consumption at the expense of the current period, and the substitution effect is negative. Which of these effects predominates depends on the tastes of the consumers who must choose between current and future consumption (Bumpei, 2011).

d. **Change of VAT rate:** This is the key factor in this study. As we see so far, the rise or reduction in the VAT rate will make aggregate consumption move upward or downward. Since the larger change will have the larger effect, it makes sense to take the amount of the change into account.

2.2.6   Concept of Savings

Ayanwu & Oaikhenan (1995) defined savings as the amount of income per capital time period that is not consumed by economic units. For the household, it offered that part of disposable income not spend on domestically produced consumption goods and services. For the firm, it signifies undistributed business profits. Savings is a flow variable being measure overtime. Concisely, savings may be defined as after tax income not spent. It may rightly be referred to or assumed "deferred consumption", being income left over for the future consumption on capital investment or for precautionary and speculative motives. Succinctly, savings is summed as "disposable income less consumption". In developing countries and Nigeria in particular, private savings constitutes the main source of capital accumulation for investment drives.

Nkah (1997) sees savings as the amount of income per time that is not consumed by economic units. Accordingly, Samuelson et al (1998) defined savings as income minus consumption. Following from the above; savings can be made by persons (personal or private saving) or by corporate organizations such as firms (corporate savings or retained savings). Personal savings is that portion of disposable income that is not consumed, while corporate savings is that portion of the firm's profit that is not distributed as dividends to shareholders. Thus, for a country, the total supply of available savings is simply the sum of domestic savings and foreign savings. Smith (1976) documented the importance of savings when he perceived that capital is increased by parsimony and diminished by prodigality and misconduct. Prior to 1936, the classical economists proposed their theory on the savings, and stated that a negative relationship existed between savings and interest rates, this is also the equilibrating force between savings and investments and the decision to save or invest, depend solely on the rate of interest. Therefore, at any specific level of revenue, the amount saved will increase with any rise in the rate of interest.

The aggregate supply of available savings is simply the sum of local savings and foreign savings. However, domestic or local savings could be further broken into two components, which include government or public sector savings and private domestic savings. Amongst other things, savings serve as the main source of financing investment and associated economic activities.

Stephen and Obah (2017) also documented that higher level of national or domestic savings leads to higher investment and consequently greater output. This is so because the level of savings regulates the magnitude of capital accumulation. On the other hand, the magnitude of total earnings depends on the level of total output, thus output also regulates the level of savings (capital accumulation) and investments by households and business. Government savings initiates from the surplus budgeting, but very few countries make part of their public sector savings from savings or profit of the government owned enterprises. There are also two aspects of private domestic savings. These include corporate savings and household savings. Again foreign savings also come into two basic forms such as foreign aid, and private foreign savings.

2.2.6.1 Forms of Savings

Savings in an economy can assume one of the several forms. These includes: Personal savings, corporate savings or business savings and Government savings.

Personal Savings: are household savings of individuals in the economy (Christopher, 2008).

Corporate Savings: are businesses savings as a component of the private savings which are reinvest by business owners, (Aron & Muellbauer, 1999).

Public Savings: are savings by the government due from increased tax or reduced spending (Eregba & Irugbe, 2009).

2.2.6.2   Sources of Savings in Nigeria

There are different sources and methods of savings in Nigeria which they include putting money aside in, for example, a deposit account, a pension account, an investment fund, or as cash. Stephen and Obah (2015) posit that the Nigerian economy comprises of the public and private sectors, with both involved in investment spending. Both sectors have to save and to borrow in other to meet their investment requirements. The immediate source of resources is own savings. The government, which embodies the public sector, collects revenue from both tax and non-tax sources. After meeting its spending requirements on purchases of goods and services, the government uses whatever surplus to increase its stock of capital that is investment. This is also true of economic agents in the private sector. When investment spending exceeds the level of savings, the private and the public sectors mainly borrow from financial institutions. The financial institutions that actually involve in providing funds or credits for investment in Nigeria include deposit money banks, mortgage institutions and development financial institutions.

Other sources include non-bank financial institutions like the insurance companies, the capital market, mutual trust funds, pension funds, equipment leasing companies, cooperative and thrift societies, etc. all these are regarded as formal sources of investment finance in Nigeria because they are well organized with appropriate records and their operations are relatively open and regulated. Altogether, they provide the largest portion of the domestic funds for investment. There are a large number of informal providers of domestic funds for investment in Nigeria. They are termed informal because of their mode of operations and for lack of enough documented information about them. They provide investment funds for individuals and small enterprises operating in the informal sector of the economic. As a result of lack of information on their

operations, it is difficult to know the exact proportion of the total domestic funds for investment that are made available by the so called informal providers of funds. Though, for a country like Nigeria whose informal sector is declared to be large, the informal providers of investible funds are playing a important role in the process of capital accumulation in the country. The informal providers for investment funds in Nigeria include individuals, groups, town unions, occupational groups "esusu", religious organizations, among others (Stephen and Obah, 2015)

2.2.6.3   Determinants of Savings in Nigeria/Africa.

Determinants of savings in Nigeria and other African countries should include population share of children of per capita income (PCI) and the growth of PCI, accessibility to credit markets, the institutional factor and the reliability of financial institution. While the determinants of personal savings are income earned, age distribution and wealth holding. Income earned is the disposable income that can either be saved or spent by an individual. This is the direct money owned by individual as the reward for labor supplied. It can be wages or salaries. Age distribution is the age of an individual among varying ages, ranging between 0 and 17 and 60 upward for the dependent; also 18 and 59 for the independent-working class. Wealth holding includes individuals, assets in forms of building(s) and/ or shares among other investments. This comprises of private apartment and rental apartment which can be relied upon in future as well as dividend returns-yielding investment and other properties (Stephen and Obah 2017). The debt; inflation; interest rates and fiscal policy are some determinants of personal savings. So as a constant, they were not used as variables or factors determining personal savings. (Stephen & Obah, 2015)

2.2.6.4   Constraints to Savings

Stephen and Obah (2015) also shape the basic constraints to savings to comprise low level of formal institution, fragmented financial markets and low patronage, patronage to holding physical

goods than cash, informal savings more acceptable than formal ones, financial reforms, inflation and currency devaluation, high transaction cost and low or no return on small savings, and, external debt services.

2.3   Review of Empirical Studies

Andre et al (2009) conducted a study on Incidence and Welfare Effects of Indirect Taxes. They did some preliminary and experimental calculations for the countries using budget surveys which allowed them to investigate and apply detailed imputation methods. Engel curves were estimated to have the coefficients and pragmatic matching strategy was also adopted. The study suggests that majority of micro simulation models are narrowed to ex ante assessments of reforms in the personal income tax system or in social security contributions and benefits. Their paper reports on an incorporation of indirect taxes, mainly VAT, excises and other consumption taxes, in the EUROMOD-micro simulation model. They sharpen the distributional image of the overall tax and benefit system by conveying the indirect tax incidence for five European countries into the image. They investigate explanations for the progressivity, and study the distributional effect of an integrated simulation of changes in social security contributions and indirect taxes as compensating channels of collecting government revenue. Their results revealed that a rise of social security contributions, followed by a rise in standard VAT rate to keep neutrality of the government budget. The results also showed that the weaker groups in society are adversely affected by this measure, while richer households benefit from it. This was true even while keeping savings constant.

Bumpei (2011) in his studied the of effect of the VAT rate change on aggregate consumption and economic development. He empirically assessed the effect of a change in a country's Value VAT

rate on its total consumption and its economic development. As for the effect on aggregate consumption, his study removes the income effect and discusses only the substitution effect. He used a panel data models on a samples that covered fourteen (14) developed countries, including Japan, and quarter periods from the second quarter in 1980 (1980 Q2) to the third quarter in 2010 (2010 Q3) and picking up 53 entries of the change of the VAT rate, this paper shows empirically that total consumption and economic development display three classes of trends when the VAT rate is changed. The first class is that total consumption and economic development rises [or declines] just before the rise [or reduction] of the VAT rate. The second trend is that they drop [or rise] relatively dramatically as soon as the rise [or reduction] is implemented. The third trend is that after the dramatic fall [or rise] they increase [or decrease] gradually.

Panayotis and Avraam (2013) also investigated the effect of indirect taxes on consumer prices with empirical evidence for Greece. Using data of Harmonized Index of Consumer Price (HICP) and Harmonized Index of Consumer Price with Constant Taxes (CT_HICP), it is projected in the study that the effect of CT_HICP of the imposition of indirect taxes regulates the degree of tax incidence and the support of indirect taxes to inflation. The time series of CT_HICP and the dummy variables techniques in regression analysis are used to infer about the change of the trend in inflation with constant taxes during the period after the imposition of the indirect taxes. Their findings revealed that the 2-digit groups through which indirect taxes displayed the highest contribution to the general index inflation rates was: For 2010 to the total tax contribution 4.18% (out of 5.11% inflation) the transport donated 1.55%, alcoholic beverages- tobacco 0.52%, restaurants and hotels accounts for 0.36%, food and non-alcoholic beverages accounts for 0.31%, clothing and footwear also donates (0.31%) and miscellaneous goods and services 0.31%. In 2011, to the total tax contribution 1.39% (out of 2.29% inflation) the categories taking the higher part in this total tax

contribution are: Restaurants and hotels (0.95%), Food and non-alcoholic beverages (0.35%), Housing - water- electricity- gas and other fuels (0.13%). The study found that the significance of the tax incidence is obvious both for academics and for policymakers

Ezat (2015), conceptually examined the impact of direct and indirect taxation on consumer, he discovers that taxes have macro and micro economic effects in a modern economy. The financial effects of taxation may be encouraging as well as adverse. Due to heavy burden of tax, the ability of tax –payer to work may be affected negatively or he may be reluctant to work more since his extra income is taxed. This is turn, may affect production poorly. There are also direct and indirect effects on the distribution of income. Taxation also affects the allocation of production and income of the community. Such changes caused by different taxes have far-reaching effects on the economic welfare of the society. Therefore, the government should not keep only revenue consideration in mind but the economic effects of taxation should also be considered. Economics is alarmed with the production and distribution of wealth. Taxation has either direct or indirect effects on almost every aspect of production and distribution in modern economies and is therefore a significant aspect in economic research. Economic efficiency is about maximizing economic output given the resources available to the community. This is not just maximizing production but also producing the goods and services that consumers value most. It is possible to show that, in certain circumstances, markets are economically efficient. If a tax changes an otherwise well-organized market this is known as the excess load of taxation, which means the extra economic cost levied on the community because taxes have caused people to create economic resolutions they would not otherwise have made.

Ahmed, Zaman and Samaduzzaman (2013) examined how increased standard VAT influence customer's satisfaction and consumption habit in North Wales area. There has been lively debate

between the government and the opposition party, the government has asserted that it is progressive, as those with higher incomes spend more and will therefore pay more VAT. Opposition claims, however, that as low earners have to spend a much bigger share of their income than high earners in order to meet their basic needs. A total of 80 respondents participated in the survey. Reliability test analysis was used to analyzed the reliability of each questions in the questionnaire. Data collected were analyzed by using correlation analysis and t-test to determine the relationship between variables and test the hypothesis. The findings reveal that VAT increase has significant impact on consumers' consumption habit. This case study could fill the gap in the literature for consumers' consumption habit on VAT increase.

Assefa and Rao (2017) examined the effect of value added tax on consumption and saving patterns of Wolaita Sodo Town households. Descriptive research design has been implemented to undertake this study. The two most commonly used data collecting mechanisms (questionnaire and interview) have been used for this study by taking a sample size of 391, out of 18,837 households using stratified random sampling .One of the main rationales for taxing consumption rather than income is that it is believed that consumption taxes discourage consumption, encourage savings, investment and trade by modernizing the tax administration and thus generate higher economic growth. In addition to primary data collected so far, both theoretical and empirical evidence were reviewed whether VAT affects the consumption behaviour, thus VAT has a negative effect on consumption behaviour of Wolaita Sodo town households because of the fact that it discourages consumption and saving.

Ajibola and Olowolaju (2017) examined taxation and its influence on household consumption; The Nigerian experience for the period of 1994-2014. Secondary data were sourced from CBN Statistical Bulletin and was used for analysis in the study. The operational variables for the study

work were household consumption being the independent variable and taxation being the dependent variable. Ordinary Least Squares regression (OLS) was used in analyzing the relevant data via the use of E-View software. The OLS findings revealed that the household consumption was influenced by inflation rate negatively company income tax positively and value added tax positively. It is therefore recommended that the government should ensure that inflation is managed and kept at its minimum so as to increase household consumption. Also, the government should implement and maintain an effective and efficient taxation system to increase revenue, so the government can provide the essentials for the economy needed for production.

Caroline and Joseph (2017) studied the effects of border-adjusted consumption taxes (mainly VAT) in a sample of 34 advanced economies from 1970 through 2015. They discover that the real exchange rate tends to increase by the full amount of any consumption tax rise, with little influence on the current account balance and modest offsetting effects on the trade and income balances. Case studies propose that adjustment comes initially through prices. they note that the border-adjusted cash flow tax of the House Republicans varies in important ways from consumption taxes used in their study, which raises the possibility of a slower modification process with temporarily larger trade effects.

Adegbite (2018) examined the effects of Value added tax on household consumption expenditure in Nigeria from 1994 to 2016. The relevant data for the study were obtained from Central Bank of Nigeria (CBN) Statistical Bulletins and Federal Inland Revenue Services Bulletin. Regression analysis technique was used to measure the effects of independent variables on dependent variable while Units root test, Johansen co-integration, Vector Error-Correction Model, and Granger causality tests were employed to determine the long run relationship and causality links among the variables. Results also showed that DPDY has positive significant impact on HCEXP (β =

.3711207; t=4.21; P>|t|= 0.000). DPDY granger causes HCEXP. HCEXP also granger causes DPDY. VAT has negative significant effect on HCEXP (β = - .0914035; t=-4.03; P>|t|= 0.000). VAT does not granger- causes HCEXP but HCEXP granger- cause VAT. Interest rate has negative insignificant effect on HCEXP (β = -.3071204; t=-1.61; P>|t|= 0.000). INTR does not granger – cause HCEXP and HCEXP does not granger- cause INTR. In conclusion, value added tax had negative significant effect on household consumption expenditure in Nigeria both in the short run and long run. Value added tax affected the prices of goods and service which invariably affected consumption of households. Unidirectional causality existed between Value added tax and household consumption expenditure in Nigeria.

2.3.1 Relationship between Interest Rate and Savings

The literature on the relationship between interest rate and savings is found to be scarce; amongst the few researchers that worked on the subject matter was Onwumere, Okore, and Ibe (2012) investigated the Impact of Interest Rate Liberalization on Savings and Investment in Nigeria. It covers the period 1976 to 1999. Simple linear regression technique was adopted using SPSS statistical software. The study reveals that interest rate liberalization had negative nonsignificant impact on savings and negative significant impact on investment in Nigeria. Thus, interest rate liberalization, though a good policy, was counterproductive in Nigeria. This might probably be as a result of improper pace and sequencing. Another study was carried out by El-Seoud (2014). His study concluded that the interest rate in Bahrain, just like inflation, has a favorable and substantial effect on the national saving rate in the short run. However, in the long run, El-Seoud (2014) found that while the interest rate has a favorable relationship on Bahrain's saving rate, this effect is now insignificant. On the other hand, in the results developed from the study of Syden (2014) on South Africa, it indicated that interest rate has an adverse relationship and significantly influences the

saving behavior of South Africa. In a study on the Turkish economy, the researchers discovered that there was no important relationship between interest rates and saving rate found in the long run (Er, Tugcu & Coban, 2014).

Raza, Hena and Saeed (2017) examined the effects of interest rate on savings and deposits of scheduled banks (registered in the list of State Bank of Pakistan) & other financial institutions in Pakistan, during 2002 to 2016. The data was mainly based on secondary sources which have been taken from World Bank and annual reports of State Bank of Pakistan (SBPF). Savings & deposit are considered as dependent variable in two different models and deposit interest rate as explanatory variable; the amount of deposits has been taken that is explained in local currency in the financial statements of SBP. Ordinary least square regression method has been applied to investigate the relation between interest rate and savings &deposits in Pakistan with the help of E-views statistical software. The result shows that deposit rate is positively affected by interest rate whereas savings is adversely influenced by interest rate but comparatively interest rate is strongly significant for savings.

2.3.2 Relationship between Inflation Rate and Savings

The relationship between inflation rates on savings is that savings help moderate the business cycle as the economy faces hard economic situations (Syden, 2014). To have a justifiable economic growth, there is a need for sustainable resources to support it. That is why savings are required to finance capital expenditure. These high savings rate levels have permitted the economy to attain high levels of investment (Horioka & Terada-Hagiwara, 2011). China's domestic savings rate is one of the highest in the world (Loayza, Schmidt-Hebbel, & Serven, 2000). Inadequate savings would leave the economy exposed to shocks in income uncertainty and unexpected increase in prices.

Almost all the previous literatures that were found concerning the relationship of the variables inflation rate and savings rate concluded that the relationship between the two are positive and significant. In a cross-sectional data on inflation rates and savings rates of many nations in the world, both advanced and developing, the results gotten in the recent study indicated that inflation rates of all the nations positively impacts each of the nations' savings rate (Cheng & Li, 2014). El-Seoud (2014) however conducted a study on the effect of Gross Domestic Product, interest rate, and inflation rate on the national saving rate in the kingdom of Bahrain over the past 20 years. The researcher discovered that empirically inflation rate has a favourable relationship and significant influence on Bahrain's saving rate in both the long run and short run.

Similarly, Syden (2014) also established that in their study of South Africa's 48 years of household savings data, inflation significantly generates a positive impact on the continent's saving rate. As for the case of Turkey, Er, Tugcu, & Coban (2014) used the ARDL approach and the study's results indicated that the inflation favorably affects inflation rate and savings but there was no relationship of significance between inflation and savings in the short run. Using two stage least squares model, the study of Chaturvedi, Kumar & Dholakia (2009) on the relationship between economic growth, inflation, and saving rate in Asia exposed that inflation rate has a positive effect on the interest rates of the Asian countries as well. On the other hand, Heer & Suessmuth (2006) exploited data of the inflation and saving rates from United States postwar period in order to investigate the monetary policy regimes of the three eras, namely the Pre-Volcker Era ('65-'78), Volcker Era ('79-'87), and the Greenspan Era ('88-'98). There appeared to be vague results on the effect of inflation on the saving rates. In the Pre-Volcker Era and Greenspan Era, inflation negatively affected the saving rates. In the Volcker Era, on the other hand, inflation is positively related with saving rates (Heer & Suessmuth, 2006).

2.4   Theoretical Framework

2.4.1   The Benefit Theory of Taxation: This theory describes that every citizen should be called upon to pay taxes in proportion to the benefits derived by him from services provided by the Government. Impliedly, it means that the state provides certain services to its residents who should, therefore, give to the cost or value of these services in proportion to benefits received by them. The more the benefit a resident derives, the more taxes he should bear, is the main notion of the theory. Milton (1957) posits that the relation between aggregate consumption or aggregate savings and aggregate income, generally termed the consumption function, has occupied a key role in economic philosophy ever since Keynes made it a foundation of his theoretical structure in the General Theory.

Keynes took it for granted that current consumption spending is a highly reliable and stable function of current revenue that "the amount of aggregate consumption mainly depends on the amount of aggregate income (both dignified in terms of wage units)." He named it a "fundamental psychological rule of any modern community that, when its real income is improved, it will not increase its consumption by an equal complete amount," and stated somewhat less definitely that "as a rule, a greater proportion of income is saved as real income rises. Milton (1957) suggested that a consumer unit's consumption depends not on its total income but on its position in the distribution of income among consumer units in its community.

Milton (1957) also postulated some of the severe criticism of benefit theory on the following grounds; Firstly, the assumption that the levy should be paid by an individual in proportion to welfares conferred by the State on that individual is quite improbable because the benefits derived cannot be correctly measured in terms of money. Benefit is purely a subjective matter and there is no scientific way to measure the magnitude of benefit and its money value. Secondly, If benefits

accumulated to an individual are the basis of taxation, the poor must pay higher taxes because in a welfare State the poor get more benefits than the rich from the spending of the Government. This is clearly unjust and as such an unacceptable proposition. Thirdly, it is also very difficult to determine under this theory what proportion of the general benefits accrues to particular individuals. Government is for civilized survival and there is, therefore, no basis for quantifying the services which the State renders. Fourthly, most of the services rendered by the State are indivisible and beneficiaries are unknown. For example, it is not possible to divide the benefits of national defense, among others. Fifthly, certain benefits accumulate only to definite persons and in definite proportion. If this principle is trailed, the whole of the benefit, they should return to the State as taxes. For example; pension paid to retired servants, definite and clear enough and therefore, they should offer the whole of their pension as taxes, and finally, the equitable distribution of wealth, the main objective of most of the modern Governments, will be defeated if this principle is followed.

2.4.2 Modern Consumption Theory: This theory begins with Keynes theory of (1936) which focused on analysis of psychological foundation of consumption behavior in his general theory. Ajibola and Olowolaju (2017) stated that modern consumption theory is the fundamental psychological law upon which they are eligible to depend with great sureness from the knowledge of human nature and from the detailed truths of experience, is that men are disposed as a rule and on the average, to increase their consumption, as their income rises, but not by as much as the rise in their income. The famous features of Keynes' analysis are that the Marginal Propensity to Consume (MPC) falls with income, as does the Average Propensity to Consume (APC). From a policy perspective, this indicates that redistributing income from high to low income households increases aggregate consumption since low-income households have a higher MPC.

In General Theory, Keynes's theory of aggregate consumption expenditure was quickly adopted, but it was soon challenged by an empirical dilemma. Using five year moving medians of consumption spending, Kuznets (1946) indicated that long run time series consumption data for the U.S. economy are considered by a constant aggregate APC, a finding that is inconsistent with Keynesian consumption theory. At the same time, short sample total consumption time series estimates and cross-section individual household consumption regression estimates both confirm Keynes' theory of a diminishing APC.

Ajibola and Olowolaju (2017) finally observed that the theory had important implications for fiscal policy. First, since all households have similar MPC it undermined the Keynesian demand incentive argument for progressive taxation. Second, it introduces a difference between permanent and temporary tax cuts; with only the previous having a significant impact on consumption since only permanent tax cuts significantly change permanent income. At the same time that Friedman was developing his PI theory of consumption, Modigliani and Brumberg (1955) as mentioned in Ajibola and Olowolaju (2017) were developing their lifecycle model. According to lifecycle theory persons choose a lifetime pattern of consumption that maximizes their lifetime efficacy subject to their lifetime budget constraint.

The lifecycle method makes a number of significant contributions; Firstly, it introduces utility expansion, thereby introducing agency into consumption theory. This treatment reconciled macroeconomic consumption theory with microeconomic choice theory. Secondly, lifecycle consumption theory is also up-to-date since it includes lifetime income expectations in the lifetime budget constraint. Third, the constrained utility maximization structure presents credit markets and borrowing and lending. Fourth, this also presents the effects of interest rates and time preference on consumption. Fifth, lifecycle theory includes a sociological dimension, openly recognizing that

consumption spending may vary by stage of life. At the empirical level this is established by evidence that population age distribution affects aggregate consumption (Fair & Dominguez, 1991).

In many regards Modigliani and Brumbergh's lifecycle model can be regarded as a compromise between the theories of Keynes and Friedman. Thus, firstly, the lifecycle approach Produces permanent income consumption function if one the borrowing rate lend in grate and rate of time preference all equivalent to zero and two there are no restrictions on borrowing. Secondly, if households are credit constrained, their MPC is unity. The reason is that credit constrained households would like to borrow to finance additional consumption but they cannot. Consequently, they view all additional income as calming this constraint and spend it. Since constrained households frequently tend to be low-income households who have a higher MPC, this lends a Keynesian quality to the lifecycle model. Third, like the PIH model, the lifecycle approach forecasts a smaller influence of tax cuts than the Keynesian consumption function since tax cuts are smoothed and spent over an individual's entire residual lifespan. However, this impact of tax cuts can be great for liquidity constrained households whose MPC is unity.

2.4.3 Fiscal Federation Theory

The basic foundations for the initial theory of Fiscal Federalism were placed by Kenneth Arrow, Richard Musgrave and Paul Sadweh Samuelson's two important papers (1954, 1955) on the theory of public goods, Arrow's discourse (1970) on the roles of the public and private sectors and Musgrave's book (1959) on public finance delivered the structure for what became accepted as the suitable role of the state in the economy (Ola, 1981). Within is framework, three roles were acknowledged for the government sector. These were the roles of state in correcting various kinds of market failure, ensuring an equitable distribution of income and seeking to maintain steadiness

in the macro-economy at full employment and steady prices. The theoretical structure in question was basically a Keynesian one which canvassed for an activist role of the state in economic affairs.

Thus the government was anticipated to step in where the market mechanism failed due to various types of public goods features. Economics clarifies us that public goods will be underprovided if left to private market mechanisms since the private provider would under invest in their provision because the benefits accruable to her or him would be far lower than the total benefit to society. Governments and their officials were seen as the custodians of public interest who would seek to maximize social welfare based on their compassion or the need to ensure electoral achievement in democracies. Once we permit for a multi-level government setting, this role of the state in maximizing social welfare then delivers the basic ingredients for the theory of fiscal federalism. Each tier of government is then seen as pursuing to maximize the social welfare of the citizens within its jurisdiction. This multi-layered quest develops very important where public goods occur, the consumption of which is not national in character, but localized. In such conditions, local outputs aimed at local demands by respective local powers clearly provide higher social welfare than central provision. This Decentralization Theorem" constitutes the basic foundation for what may be referred to as the first generation theory of fiscal decentralization (Ojo, 2000).

The theory focused on circumstances where different levels of government delivered efficient levels of outputs of public goods for those goods whose special forms of benefits were included by the geographical scope of their jurisdictions. Such condition came to be known as "perfect mapping" or "fiscal equivalence" (Soyode and Kajola, 2006).Nevertheless, it was also acknowledged that, given the multiplicity of domestic public goods with varying geographical forms of consumption, there was hardly any level of government that could produce a perfect mapping for all public goods. Thus, it was acknowledged that there would be domestic public

goods with inter-jurisdictional spill-overs. The local authority may then under-provide for such a good. To avoid this, the theory then resorts to traditional Pigouvian subsidies, requiring the central government to deliver matching grants to the lower level government so that it can internalize the full benefits. Based on the following, the role of government in maximizing social welfare through public goods provision came to be allocated to the lower tiers of government. The other two roles of income distribution and stabilization were, however, viewed as appropriate for the central government.

To understand the justification for the assignment of the redistribution function to the central government, there is need to examine what the implications of allocating this responsibility to the lower tier would imply. Given that citizens are freely mobile across local or regional dominions, a lower level jurisdiction that embarks on a programme of reallocation from the rich to the poor would be faced with the out-migration of the rich to non-redistributing jurisdictions and in-migration of the poor from such jurisdictions to the redistributing one. If on the other hand, the powers to redistribute were vested in the central government, a redistribution policy would apply equally to citizens resident in all jurisdictions. There would therefore be no induced migration. The central government is anticipated to ensure equitable distribution of income, maintain macroeconomic stability and provide public goods that are national in character. Decentralized levels of government on the other hand are anticipated to concentrate on the provision of local public goods with the central government providing targeted grants in cases where there are jurisdictional spill-overs related with local public goods.

Despite several theories reviewed, this work will hinge on all the theories. This is because, for modern consumption theory, it is good in predicting long run time series data, short run time series estimates as well as cross section regression estimates as earlier confirmed in Keynes theory as

showed by Kuznets (1946). Similarly, the benefit theory of taxation also describes that every citizen should be called upon to pay taxes in proportion to the benefits derived by him from services provided by the Government. Impliedly, revenue derived from VAT in particular as one of the variables to this study provides certain services to its residents who should, therefore, give to the cost or value of these services in proportion to benefits received by them. The more the benefit a resident derives, the more taxes he should bear, is the main notion of the theory. However, the fiscal federation theory has three roles within its framework, which includes; the roles of state in correcting various kinds of market failure, ensuring an equitable distribution of income and seeking to maintain steadiness in the macro-economy at full employment and steady prices. Meaning that, VAT can serve as a control tool in reducing excessive consumption so as to have more savings for economic growth.

2.6   The Research Gaps

Based on the review of related empirical studies on effect of VAT on consumption, the following have been identified as the existing gap in knowledge in the form of:

i.   **Literature Gap**: There have been number of studies on effect of indirect taxation both at local and international level. No study has covered for both consumption and savings in Nigeria. However, this study intends to provide empirical evidence on studies related to consumption and savings.

ii.   **Methodological Gap**: Previous studies have used ordinary regression or least square method. This work will use a more sophisticated technique of data analysis that gives more robust and reliable analysis which is ARDL model.

iii.   **Geographical**: Most of the studies reviewed are conducted in the developed economies, like USA, UK, Malaysia, Greece, Iran etc. with only few conducted in developing economy

like Nigeria, South Africa, Kenya, Ghana, among others. and the research findings from these developed economies may not be applicable in developing economies because of difference in economic policy, Socio- Cultural factor, political factors and so on.

iv.   **Time Gap:** From the empirical studies reviewed, none of the studies has covered up to a period of twenty-three years. However, this study will use twenty three years to bridge the gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains the research methodology adopted in examining the VAT on consumption and savings in Nigeria. The chapter is structured into six sections. Section one deals with the research design of the study area. Section two explains the population of the study. Variables of the study and their measurement is presented in section three. Section four consist model specification, while techniques of data analysis and estimation procedure are presented in section five and six respectively.

3.2 Research Design

This study adopted the longitudinal method based on the existence of data needed for analysis, on one hand and given the time series data the relevant variables for the years 1994-2018. Adams and Schvaneveldt (1991) point out that longitudinal method of data analysis is best in observing events over time the researcher is able to exercise a measure of control over variables being studied, provided that they are not affected by the research process itself. This research used secondary data which was collected from more than one variable at a single point in time with the purpose of examining the effect of VAT on consumption and savings in Nigeria.

3.3 Population of the Study

The population of this study was designed in terms of content, extent and time. To this end the population related to the VAT and consumption in Nigeria from 1994 to 2018. The data were obtained mainly from secondary sources, made up of VAT generated for the period under review (1994 – 2018), consumption expenditure, from 1994-2018, and national savings were collected

from the Central Bank of Nigeria, National Bureau of Statistics, World Bank, and other relevant sources.

3.4   Sample Size and Sampling Technique

The sample size was derived via data for the period of 1994 to 2018, the justification of the selected period is to cover the inception age of VAT, that is 1994. The series was fairly long and was also conformed to the ARDL approach which generates better results irrespective of the number of samples. The central limit theory that requires a sample size to be greater than or equal to thirty observations for the result to be reliable and robust here does not apply. This is because ARDL technique is capable of handling both small and large samples of data.

3.5   Sources of Data

The source of data used for this study were secondary, covering the period of 1994 to 2018. The data were sourced from the statistical bulleting of the Central Bank of Nigeria (CBN) and World Development Indicators (WDI).

3.6 Variables and their Measurement

3.6.1 Dependent Variables

Consumption: This is the spending for acquisition of utility, Consumer price index replicates changes in the cost to the average consumer of attaining a basket of goods and services that may be fixed or changed at identified intervals, such as yearly it can also be a flow of materials and energy through society. Materials or energy are extracted from the environment, transformed or rearranged in some fashion, and then eventually returned to the environment as waste (Black et al.,2009).

Final consumption expenditure (formerly total consumption) is the sum of household final consumption expenditure (formerly private consumption) and general government final consumption expenditure (formerly general government consumption). (WDI, 2018)

Savings: This is defined as income minus consumption. Savings is also the amount of income per capital time period that is not consumed by economic units. For the household, it presented that part of disposable income not spend on domestically produced or imported consumption goods and services. For the firm, it represents undistributed business profits (Ayanwu & Oaikhenan, 1995). Savings are also measured as gross national income less total consumption, plus net transfers. Data are in current local currency (WDI, 2018)

3.6.2. Independent Variables

Value Added Tax: This is the consumption tax charged at each stage of the consumption chain and borne by the final consumer of the product or service. It requires a taxable person upon registering with Federal Inland Revenue Service (FIRS) to charge and collect VAT at a flat rate of 5% of all billed amounts of taxable goods and services (Ochei, 2010).

Interest Rate: This is measured as the difference between average prime lending rate and consumer price index (inflation). It represents the cost of capital in Nigeria. Similarly, it is the rate at which the commercial banks in Nigeria lend out money to public) following Umar (2014) and Nmadu (2014).

Inflation Rate: This is the rise in price of goods and services within a particular period of time. Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly (WDI, 2018).

It is measured by the annual rate of growth of the Consumer Price Index (CPI), which is the most commonly used index in Nigeria. The National Bureau of Statistics (NBS) computes the CPI for Nigeria (Fatukasi, 2005).

3.7   Techniques for Data Analysis

There are different econometrics techniques that can be used in the analysis of empirical effect of VAT on consumption and savings. These include Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models used by Mahmod et al. (2011) and Zakaria (2012), autoregressive conditional heteroskedasticity (ARCH) models utilized by Adeoye and Atonda (2010), vector error correction model (VECM) as used by Al-samara (2009), vector autoregressive (VAR) model employed by Englama et al. (2010), Johnson cointegration approach used by Sanusi (2009) and Kia (2013) and autoregressive distribution lag (ARDL) model applied by Villavicenco and Bara (2008) and Saed et al. (2012).

However, all the econometrics approaches stated above work well when all the variables are integrated to the order of zero or one i.e (I (0)) or (I (1)) except ARDL model. Therefore, this study employs autoregressive distribution lag (ARDL) bound testing approach to cointegration proposed by Pesaran, Shin and Smith (2001) to analyze the effect of indirect taxation on consumption and savings in Nigeria. The advantage of this technique over traditional econometrics techniques of the analysis of level relationship between dependent variables and a set of independent variables are; first, ARDL is a more robust approach that allow testing for cointegration regardless of whether the regressors are individually I(0) or I(1) or a mixture of both, second, unlike other cointeration approaches (e.g Johnson's procedure) which require certain pre-testing for unit roots and that the underlying variables to be integrated are the same order, the ARDL model provides an alternative test to examining a long run relationship regardless of whether the underlying

regressors are purely I(0) or I(1) or even fractionally integrated. Thus pre-testing for unit roots becomes unnecessary. Lastly, ARDL approach generates better results for small sample data compared to conventional econometrics techniques to cointegration like Engle and Granger (1987), Johnson and Juselius (1990) and Phillips and Hansen (1990) approaches (Pesaran et al.2001 and Ahmed et al. 2013).

3.7.1 Model Specification

This study adapted the model from the works of MacDonald and Ricci (2003), Asiama and Kumah (2010) and Gummi, Hassan and Mu'azu, (2018) to specify the model for estimating the effect of VAT on consumption and savings in Nigeria. The variables are consumption, savings, VAT, inflation rate and interest rate. However, the choice of variables was based on the consideration of the economic condition of the country under study (Nigeria). The model is given as:

$$CONS_t = \beta_0 + \beta_1 VAT_t + \beta_2 INT_t + \beta_3 INF_t + \mu_t \qquad (3.1)$$

$$SAV_t = \beta_0 + \beta_1 VAT_t + \beta_2 INT_t + \beta_3 INF_t + \mu_t \qquad (3.2)$$

Where;

CONS = consumption

VAT= value added tax

INT= interest rate

INF= inflation rate

$\beta_0 - \beta_7$ = coefficients

3.7.2 Estimation Procedure

This study applies ARDL approach to test the effect of indirect taxation on consumption and savings in Nigeria. This approach has the following advantages: first, pesaran et al. (2001) advocated it uses of estimation of level relationship once the order of the ARDL is recognized, then ordinary least square can be used to estimate the relationship between the variables (Umar, 2014). Second, this approach is useful irrespective of whether the underlying regressors are purely integrated to the order of zero I(0) or I(1), or mixture of both. Finally, ARDL is capable of handling series data of small or finite sample size (Pesaran, 2001 and Umar, 2014).

Even though ARDL approach does not require pre-testing of series variables, nevertheless the series cannot go beyond integration to the order of one (I(1)) for the study to be valid. Therefore unit roots testing will be necessary in order to ensure that none of the variables is integrated to the order of two (I (2)) (Umar, 2014). Ouattara (2004) recommended the need to conduct unit roots test for ARDL model. He further argues that the approach is invalid in the presence of integration to the order of two (I (2)) variables (see also Umar, 2014). Therefore conducting unit roots test for all cointegration techniques become necessary in order to avoid spurious results. Accordingly, this study starts its estimation process with unit roots (stationary) test using Augmented Dickey Fuller (ADF) and Phillip Perron (PP) unit root testing techniques. The reason behind the use of these testing approaches is that, in empirical analysis ADF and PP tests involve running a regression of the first difference of a series against the series lagged once difference terms and optionally with a constant and time trend (Anoyochukwe, 2012 and Umar, 2014).

3.7.3 Unit Root Test

3.7.3.1 Augmented Dickey Fuller Unit Root Test

According to Hassan et al. (2013) augmented dickey fuller (ADF) test is used to check the problem of non-stationary or unit root in the series variables. Similarly, ADF test has becomes widely used in testing the stationary of financial time series. The ADF model is given below:

$$y_t = \beta D_t + \alpha y_{t-1} + \sum_{j=1}^{\rho} \alpha_j \Delta y_{t-1} + \mu_t \qquad (3.3)$$

Where;

$y_t =$ the time series

$D_t =$ the vector of deterministic terms (constant and trend),

β and $\alpha =$ the parameters of the variables

$\Delta =$ the difference operator

$\rho =$ the optimal lag length of the variables on which unit root is applied, and

$\mu_t =$ error terms.

According to Elder and Kennedy (2001) inclusion of constant or trend or both is necessary in order to allow the alternative hypothesis to compete with null hypothesis if series variables are non-stationary. Similarly, inclusion of too much of the deterministic terms may lessen the power of alternative hypothesis (see also Umar, 2014).

However, the existence of unit root can be determined via the following hypotheses below:

Null hypothesis is defined as $H_0: \alpha = 0$ (series variables have unit root). While alternative hypothesis is given as $H_1: \alpha < 0$ (series variables are stationary or series variable does not have unit root).

3.7.3.2 Phillips Perron Unit Root Test

Another alternative test to ADF that has become most frequently used in the analysis of financial time series is PP test developed by Phillips Perron (1988). PP test modifies the test statistics so that no additional lags of the dependent variable are needed in the presence of serially-correlated error. One of the great merit of PP test is that it assumes no functional form for the error process of the variable (non-parametric test) which means that it is applicable to a very wide set of problems (Mahadeva and Robinson, 2004). The PP test model is given below:

$$\Delta y_t = \beta D_t + \lambda y_{t-1} + \mu_t \qquad \text{.........} \qquad (3.4)$$

Where;

y_t = the series variable

β and λ = the parameters of variables

D_t = the vector of the deterministic terms (constant and trend)

Δ = the difference operator

y_{t-1} = the lag value of a series variable

μ = the error term

t= time trend within the study period.

3.7.4 Specification of Autoregressive Distributed Lag (Bound Testing) Model

Autoregressive Distribution Lag Model (ARDL) otherwise known as bound testing approach to cointegration, developed by Pesaran et al. (2001) will be used to estimate the effect of indirect taxation on consumption and savings in Nigeria. The ARDL is valuable because it permit us to describe the presence of an equilibrium or relationship in terms of long run and short run dynamics without missing long run information. It also involves in the estimation of unrestricted error correction model (UECM) (Umar, 2014). The ARDL models for testing the effect of indirect taxation on consumption and savings in Nigeria can be written as:

$$\Delta CONS_t = \beta_0 + \sum_{i=1}^{m} \beta_1 CONS_{t-1} + \sum_{i=1}^{m} \beta_2 VAT_{t-1} + \sum_{i=1}^{m} \beta_3 INT_{t-1} + \sum_{i=1}^{m} \beta_4 INF_{t-1} + \alpha_1 CONS_{t-1} + \alpha_2 VAT_{t-1} + \alpha_3 INT_{t-1} + \alpha_4 INF_{t-1} + \mu_t$$
.......(3.5)

$$\Delta SAV_t = \beta_0 + \sum_{i=1}^{m} \beta_1 SAV_{t-1} + \sum_{i=1}^{m} \beta_2 VAT_{t-1} + \sum_{i=1}^{m} \beta_3 INT_{t-1} + \sum_{i=1}^{m} \beta_4 INF_{t-1} + \alpha_1 SAV_{t-1} + \alpha_2 VAT_{t-1} + \alpha_3 INT_{t-1} + \alpha_4 INF_{t-1} + \mu_t$$
........(3.6)

Where;

m = the optimal lag length which will be determined using Akaike Information Criteria (AIC) and Schwartz Information criteria (SIC)

Δ = the difference operator

β_0 = the constant parameter

β_1 to β_4 = the vectors of the coefficients of the first difference lagged values of the variables controlled in models, while

α_1 to α_4 = the coefficients of the level lagged values of variables captured in models.

Although, the ARDL model consist two parts, the first part of the equations with β_1 to β_4 stand for the short-run dynamics of the models, while the coefficients α_1 to α_4 represents the long-run relationship (Abubakar & Danladi, 2018).

However, the Granger Causality theorem states that when the variables under control are cointegrated (evidence of cointegration or long run relationship), then there must be an error correction model (ECM) that describes the short-run relationship. The rationale behind ECM is that it specifies the speed of adjustment from the short-run equilibrium to the long-run equilibrium level (Nmadu, 2014 and Ajao and Igbokoyi, 2013). The ARDL-ECM models are specified as follows:

$$\Delta CONS_t = \beta_0 + \sum_{i=1}^{m} \beta_1 CONS_{t-1} + \sum_{i=1}^{m} \beta_2 VAT_{t-1} + \sum_{i=1}^{m} \beta_3 INT_{t-1} + \sum_{i=1}^{m} \beta_4 INF_{t-1} + \beta_5 ECM_{t-1} + \mu_t$$

$$\text{..... (3.7)}$$

$$\Delta SAV_t = \beta_0 + \sum_{i=1}^{m} \beta_1 SAV_{t-1} + \sum_{i=1}^{m} \beta_2 VAT_{t-1} + \sum_{i=1}^{m} \beta_3 INT_{t-1} + \sum_{i=1}^{m} \beta_4 INF_{t-1} + \beta_5 ECM_{t-1} + \mu_t$$

$$\text{......... (3.8)}$$

Where ECM is the error correction model

Cointegration is concerned with the analysis of long run relations between integrated variables and reparametrizing the relationship between the considered variables into an Error Correction Model (ECM). Under the conventional Granger (1981) and, Engle and Granger (1987) cointegration analysis is not applicable in cases of variables that are integrated of different orders (i.e., series-A is I(1) and series-B is I(0)) while in Johansen and Juselius (1990), and ARDL cointegration procedure it is applicable. The ARDL cointegration technique is used in determining the long run relationship between series with different order of integration (Pesaran et al. 2001). The reparametrized result gives the short-run dynamics and long run relationship of the considered variables.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1:   Introduction

This chapter is divided into four sections beside this introduction. Section two provides descriptive statistics while section three provides inferential statistics results. Section four discusses the findings of this study in relation to the findings of literature reviewed in chapter two.

4.2:   Descriptive Statistics

Table 4.1: Summary Statistics of Variables under Study

	LCONS	LSAV	LVAT	INT	INF
Mean	30.89	7.28	12.06	18.62	16.71
Median	30.97	7.32	12.19	17.87	11.89
Maximum	31.49	9.46	13.69	24.77	72.83
Minimum	30.08	4.68	8.89	15.13	5.38
Std. Dev.	0.51	1.70	1.39	2.36	15.87
Skewness	-0.28	-0.14	-0.53	0.94	2.63
Kurtosis	1.46	1.53	2.20	3.37	9.04
Jarque-Bera	2.68	2.23	1.78	3.68	64.31
Probability	0.26	0.32	0.41	0.15	0.00
Sum	741.55	174.78	289.57	447.04	401.11
Sum Sq. Dev.	6.05	66.70	44.93	128.95	5793.56
Observations	24	24	24	24	24

Source: *Author's computations using Eviews 9. (See appendix I)*

Table 4.1 shows the descriptive characteristics of the variables estimated in the model. It indicated that the means of all the variables are positive, meaning to say that it will have more of increase than decrease in the changes in all of the variables. The standard deviation of inflation is higher among the variables, while consumption is having lower which suggest that the degree of variability of inflation is higher than that of the interest rate, Value Added Tax, savings and consumption, meaning to say that the dispersion of the data point of consumption is closer to its mean.

However, the returns of the consumption, savings and VAT are negatively skewed which suggests that the majority of the distribution is concentrated to the right, meaning to say that the low values

in the distribution are relatively few, whereas the returns of the interest rate and inflation rate are positively skewed which suggests that the majority of the distribution will be to the left, and the high values in this distribution are relatively few. The inflation rate returns has a higher excess kurtosis than interest rate, VAT, savings and consumption which suggests that more of the inflation rate variance might be as a result of infrequent high deviations. The Jarque-Bera suggests the inflation rate departure from normality is high and that the variable is not normally distributed.

4.3   Inferential Statistics Result

4.3.1   Unit Root Tests Result

Table 4.2   Unit Root Tests (Augmented Dickey-Fuller and Phillips-Perron)

Variables	Augmented Dickey-Fuller		Phillips-Perron	
	Level	1st Diff.	Level	1st Diff.
LCONS	-1.553151	-3.403453***	-1.367457	-6.345414*
LSAV	-0.407179	-4.124932**	-0.824924	-4.124281**
LVAT	-3.420492***	-6.106052*	-3.247225***	-6.106052***
INT	-2.202114	-4.492923*	-2.315475	-4.492786*
INF	-2.796691	-5.666068*	-4.012150**	-5.519539*

Source: *Author's computations using Eviews 9. (see appendix II)*

Note: *, ** and *** indicates significant at 1%, 5% and 10% respectively (the coefficients without asterisks signified evidence of non-stationary)

To confirm whether the variables are stationary or not a unit root tests were carried out using Augmented Dickey-Fuller and Phillips-Perron testing approaches and the results is presented in Table 4.2. Result from the ADF test demonstrated that consumption and savings are stationary after first difference (I(1)), while VAT is stationary at level value (I(0)). However, interest rate is stationary after first difference as indicated by ADF test. Consequently, the P-P test shows that; consumption, savings and interest rate are all stationary after first difference, while VAT and inflation rate are stationary at level value. From the results we can deduce that the series exert different order of integrations with some are stationary at level value and others are stationary after first difference. This is also proving to us that the best method that is suitable to handle the result of this nature is ARDL approach. The study further conducted bound test in order to find the presence of cointegration among the variables. The bound test result is presented in Table 4.3.

4.3.2   ARDL Bounds Tests for Consumption Model

Table 4.3: ARDL Bounds Test (Consumption)

Test Statistics		
F-statistics	4.59	
Critical Value Bounds		
Significance Level	I(0)	I(1)
10%	2.37	3.2
5%	2.79	3.67
1%	3.65	4.66

Source: *Author's computations using Eviews 9. (see appendix III)*

From the Table 4.3, it is evident that there is an existence of long run relationship at 5% level of significance between consumption, VAT and other variables (Interest rate and inflation rate). This is because; the F-statistic (4.59) is greater than the lower and upper critical value bounds at 5% or 10%. Therefore, the null hypothesis of no long run relationship (cointegration) cannot be accepted. While the alternative hypothesis of existence of long run relationship can be accepted. The presence of long run relationship permitted the study to generate the long-run and short-run relationships among the variables. The result of long run relations is summarized and tabulated in Table 4.4.

4.3.3 Long Run Coefficients of the ARDL for Consumption Model
Table 4.4: Long Run Coefficients of the ARDL (Consumption)

Dependent Variable: Consumption				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
LVAT	0.374575	0.023193	16.150616	0.0000
INT	-0.019123	0.012533	-1.525776	0.1444
INF	0.002059	0.001753	1.174661	0.2554
C	26.688754	0.458606	58.195365	0.0000

Source: *Author's computations using Eviews 9. (See appendix V)*

The result in Table 4.4 shows that, there is positive and statistically significant relationship between VAT and consumption. An increase in VAT lead to increase in consumption in Nigeria.

This means that a 1% increase in VAT will lead to 0.37 increase in consumption expenditure in Nigeria. From the result, it is also indicated that the null hypothesis will be rejected, this is because VAT has a significant effect on consumption in the long run.

Furthermore, there is negative and statistically insignificant relationship between interest rate and consumption, meaning to say that an increase in interest rate will lead to decrease in consumption in Nigeria in the long run. This means that a 1% increase in interest rate will lead to 0.019% decrease in consumption expenditure in Nigeria. Thus, the relationship is not statistically significant. From the result, it is also indicated that the null hypothesis cannot be rejected, this is because the interest rate has no significant effect on consumption in Nigeria.

In the case of inflation rate, there is positive but statistically insignificant relationship between inflation rate and consumption. This means that an increase in inflation rate will lead to insignificant increase in consumption in Nigeria in the long run, meaning to say that a 1% increase in inflation rate will lead to 0.002% increase in consumption expenditure in Nigeria. From the result, it is indicated that the null hypothesis can be rejected, this is because the inflation rate has positive effect, despite the fact that it is insignificant.

4.3.4 Short Run Coefficients of ARDL for Consumption Model

Table 4.5: Short Run Coefficients of the ARDL (Consumption)

Dependent Variable: D (Consumption)				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
D(LVAT)	0.347819	0.071748	4.847805	0.0001
D(INT)	-0.015019	0.013518	-1.111071	0.2812
D(INF)	0.000765	0.001774	0.431066	0.6715
ECM(-1)	-0.997315	0.227112	-4.391299	0.0004

Source: *Author's computations using Eviews 9. (See appendix IV)*

The result in Table 4.5 shows that there is positive and statistically significant relationship between VAT and consumption in the short run. This means that an increase in VAT will lead to increase in consumption in Nigeria in the short run, meaning to say that a 1% increase in VAT will lead to 0.34% increase in consumption expenditure in Nigeria. From the result, it is also indicated that the null hypothesis will be rejected, this is because VAT has a significant effect on consumption in the short run.

Additionally, there is negative and statistically insignificant relationship between interest rate and consumption. This indicates that an increase in interest rate will lead to decrease in consumption in Nigeria in the short run, meaning to say that a 1% increase in interest rate will lead to 0.015% decrease in consumption expenditure in Nigeria. From the result, it is also indicated that the null hypothesis cannot be rejected, this is because Interest rate has insignificant effect on consumption in the short run.

Moreover, with regards to inflation rate, there is positive but statistically insignificant relationship between inflation rate and consumption in the short run. This shows that an increase in inflation rate will lead to insignificant increase in consumption expenditure in Nigeria in the short run, meaning to say that a 1% increase in inflation rate will lead to 0.000765% increase in consumption

in Nigeria. From the result, it is also indicated that the null hypothesis will be rejected, this is because inflation rate insignificant effect on consumption in the short run.

However, the result shows that the coefficient of Error Correction Model (ECM) has the correct sign that is negative, less than one, and statistically significant. This explains that when there is any distortion in the economy, the system will correct itself from the short run to the long run at the speed of 99%.

4.3.5 Post Estimation Tests for Consumption

Table 4.6: Post Estimation Tests (Consumption)

Tests	F-statistics	Prob.
Autocorrelation Test	0.220261	0.8047
Heteroscedasticity	1.030418	0.4185
Normality	1.000061	0.606512

Source: *Author's computations using Eviews 9.*

Post estimation test were conducted using three technics, namely; Breusch Godfrey Serial Correlation LM test, Heteroscedesticity test of Breusch Pegan Godfrey and Normality test of Jarque Bera in order to find out the reliability of the result. The result of the autocorrelation test in Table 4.5 indicates that the series or model is free from the problems of serial correlation or autocorrelation. This is because; the p-value of f-statistics is not statistically significant even at 10%. Therefore, the null hypothesis of no serial correlation will be accepted. Similarly, the result of heteroscedasticity test also shows that the null hypothesis of non-constant variance will be accepted, because the p-value of f-statistics in hetroscedasticity test is not statistically significant. Finally, the normality test result indicates that the p-value of f-statistics is not statistically significant because the variables in the models are normally distributed, as such the null will be accepted.

4.3.6 Stability Tests for Consumption Model

To ensure the stability of the model, this study conducted stability tests through the use of cumulative sum of recursive residual and cumulative sum of square of recursive residual.

4.3.6.1 The Cumulative Sum of Recursive Residual Test

The result of the test from Figure 4.1 shows that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM test.
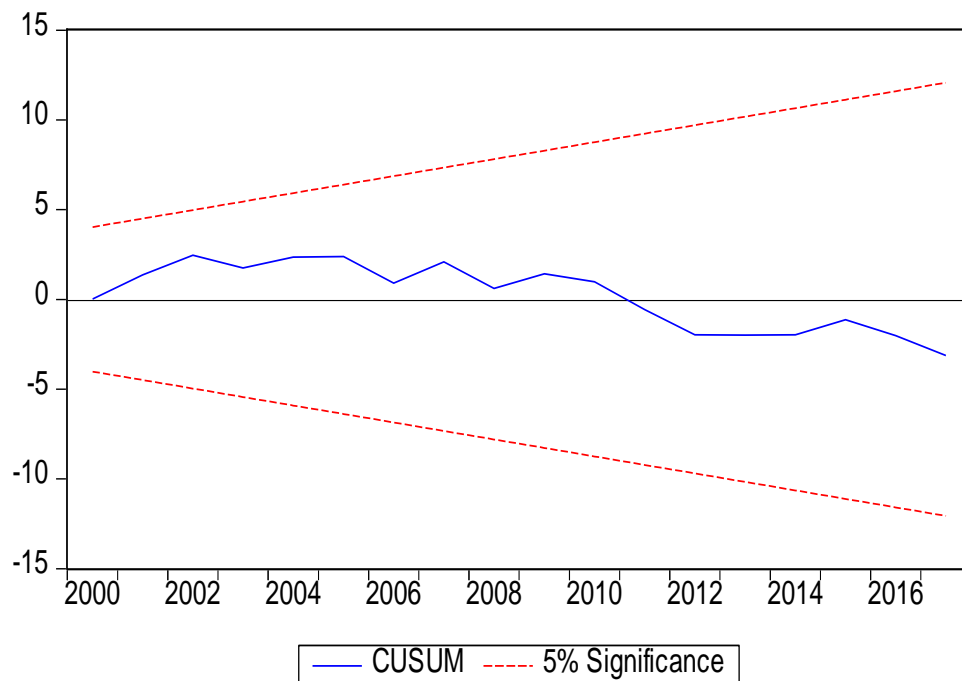
Figure 4.1 Stability Test for Consumption CUSUM

4.3.6.2 The Cumulative Sum of Square of Recursive Residual Test

The result of the test from Figure 4.2 displays that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM of Squares test.
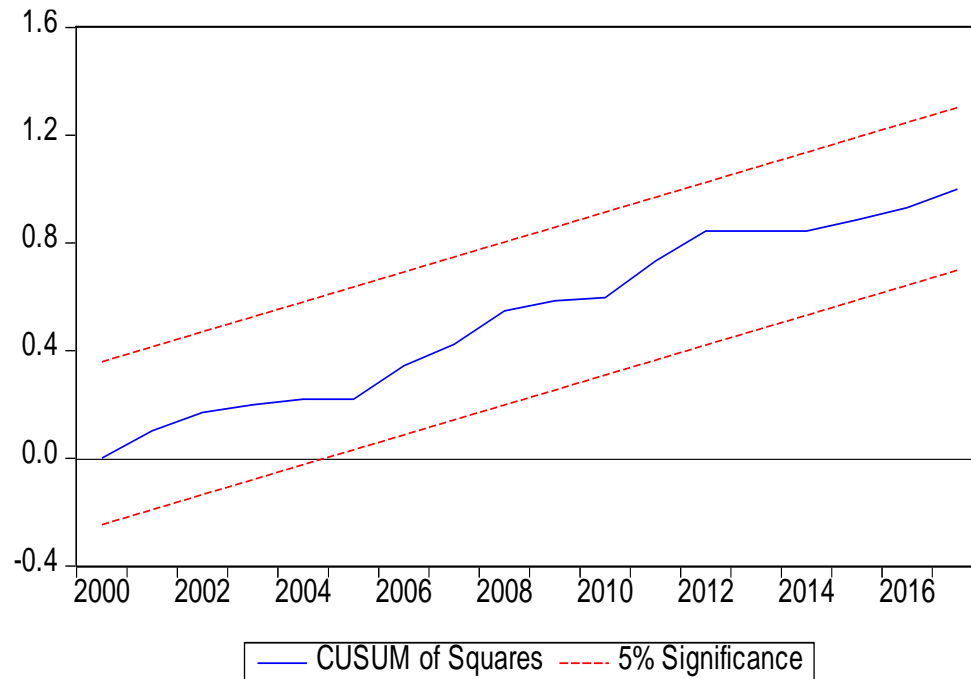
Figure 4.2 Stability Test for Consumption CUSUM Square

4.3.7   ARDL Bounds Test for Savings Model

Table 4.7: ARDL Bounds Test (Savings)

Test Statistics		
F-statistics	18.4	
Critical Value Bounds		
Significance Level	I(0)	I(1)
10%	2.37	3.2
5%	2.79	3.67
1%	3.65	4.66

Source: *Author's computations using Eviews 9. (see appendix VI)*

From the Table 4.6, it is evident that there is a presence of long run relationship at 1% level of significance between savings, VAT and other variables (Interest rate and inflation rate). This is because; the F-statistic (18.4) is greater than the lower and upper critical value bounds at 1%, 5% and even 10% level. Therefore, the null hypothesis of no long run relationship (cointegration) can be rejected. While the alternative hypothesis of existence of long run relationship can be accepted. The presence of long run relationship permitted the study to generate the long-run and short-run relationships among the variables. The result of long run relations is summarized and tabulated in Table 4.7.

4.3.8 Long Run Coefficient of the ARDL for Savings Model

Table 4.8: Long Run Coefficients of the ARDL (Savings)

Dependent Variable: Savings				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
LVAT	1.183434	0.051527	22.967193	0.0000
INT	-0.082854	0.025506	-3.248401	0.0045
INF	-0.003542	0.004198	-0.843935	0.4098
C	-5.193596	1.065142	-4.875965	0.0001

Source: *Author's computations using Eviews 9.(see appendix VII)*

The result in Table 4.7 shows that, there is positive and statistically significant relationship between VAT and savings. An increase in VAT will lead to increase in savings in Nigeria in the long run. That is to say, a 1% increase in VAT will lead to 1.18% increase in savings in Nigeria. From the result, it is also indicated that the null hypothesis will be rejected, this is because VAT has a significant effect on savings in the long run.

Furthermore, there is negative and statistically significant relationship between interest rate and savings. This means that a 1% increase in lending interest rate will lead to 0.082% decrease in savings in Nigeria. The result explains that an increase (decrease) in interest rate will lead to decrease (increase) in savings in Nigeria in the long run. In the case of inflation rate, there is negative and statistically insignificant relationship between inflation rate and savings. This means that an increase in inflation rate will lead to decrease in national savings in Nigeria in the long run, meaning to say that a 1% increase in inflation rate will lead to 0.0035% decrease in savings in Nigeria.

4.3.9 Short Run Coefficient of the ARDL for Savings Model
Table 4.9: Short Run Coefficients of the ARDL (Savings)

Dependent Variable: D (Savings)				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
D(LVAT)	0.543243	0.059100	9.191882	0.0000
D(INT)	0.006543	0.011159	0.586349	0.5649
D(INF)	-0.000642	0.001656	-0.387538	0.7029
ECM(-1)	-0.460194	0.043655	-10.541496	0.0000

Source: *Author's computations using Eviews 9.(see appendix VIII)*

The result in Table 4.8 shows that there is positive and statistically significant relationship between VAT and savings in the short run. This means that an increase in VAT will lead to increase in savings in Nigeria in the short run, meaning to say that a 1% increase in VAT will lead to 0.54% increase in savings in Nigeria. Additionally, there is positive and statistically insignificant relationship between interest rate and savings. This indicates that an increase in interest rate will lead to increase in savings in Nigeria in the short run, meaning to say that a 1% increase in interest rate will lead to 0.0065% increase in savings in Nigeria. Moreover, with regards to inflation rate, there is negative but statistically insignificant relationship between inflation rate and savings in the short run. This shows that an increase in inflation rate will lead to insignificant decrease in savings in Nigeria in the short run, meaning to say that a 1% increase in inflation rate will lead to 0.000642% decrease in savings in Nigeria. However, the result shows that the coefficient of Error Correction Model (ECM) has the correct sign that is negative, less than one, and statistically significant. This explains that when there is any disequilibrium in the economy, the system will correct itself from the short run to the long run at the speed of 46%.

4.3.10 Post Estimation Tests for Savings

Table 4.10: Post Estimation Tests (Savings)

| Tests	F-statistics	Prob.
Autocorrelation Test	0.143278	0.8676
Heteroscedasticity	0.968045	0.4632
Normality	0.270993	0.873282

Source: *Author's computations using Eviews 9.*

Post estimation tests were conducted using three approaches namely; Breusch Godfrey Serial Correlation LM test, Heteroscedesticity test of Breusch Pegan Godfrey and Normality test of Jarque Bera in order to find out the consistency of the result. The result of the autocorrelation test in Table 4.9 indicates that the series or model is free from the problems of serial correlation or autocorrelation. This is because; the p-value of f-statistics is not statistically significant even at 10%. Therefore, the null hypothesis of no serial correlation will be accepted. Similarly, the result of heteroscedasticity test also shows that the null hypothesis of non-constant variance will be accepted, because the p-value of f-statistics in hetroscedasticity test is not statistically significant. Finally, the normality test result indicates that the p-value of f-statistics is not statistically significant because the variables in the models are normally distributed, as such the null will be accepted.

4.3.11 Stability Tests for Savings Model

To confirm the stability of the model, this study conducted stability tests through the use of cumulative sum of recursive residual and cumulative sum of square of recursive residual.

**4.3.11.1 The Cumulative Sum of Recursive Residual Test**

The result of the test from Figure 4.3 shows that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM test.
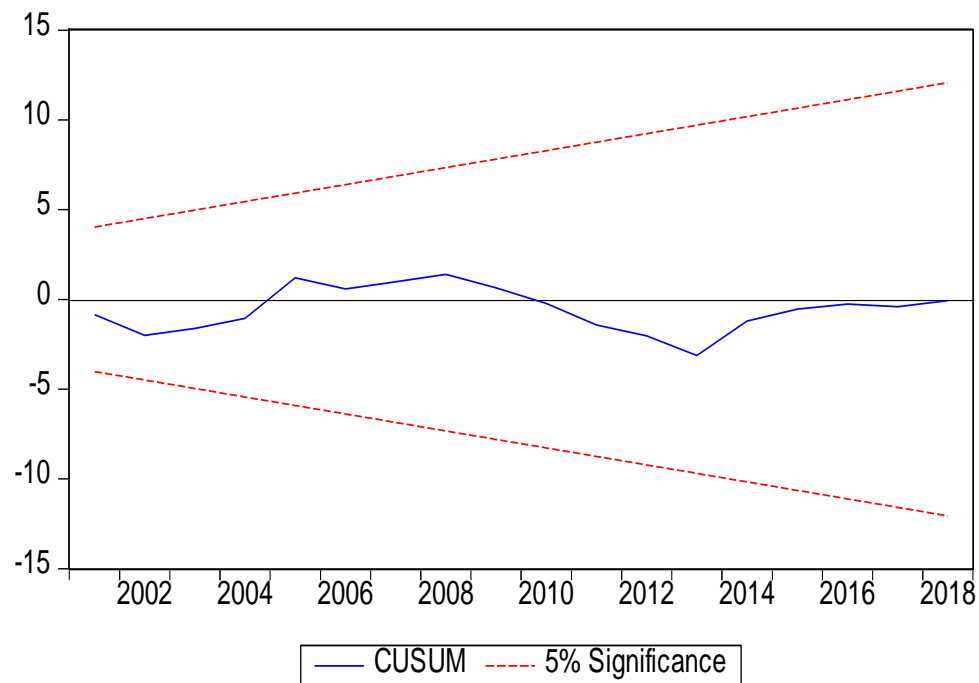
Figure 4.3 Stability Test for Savings CUSUM

4.3.11.2 The Cumulative Sum of Square of Recursive Residual Test

The result of the test from Figure 4.4 displays that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM of Squares test.
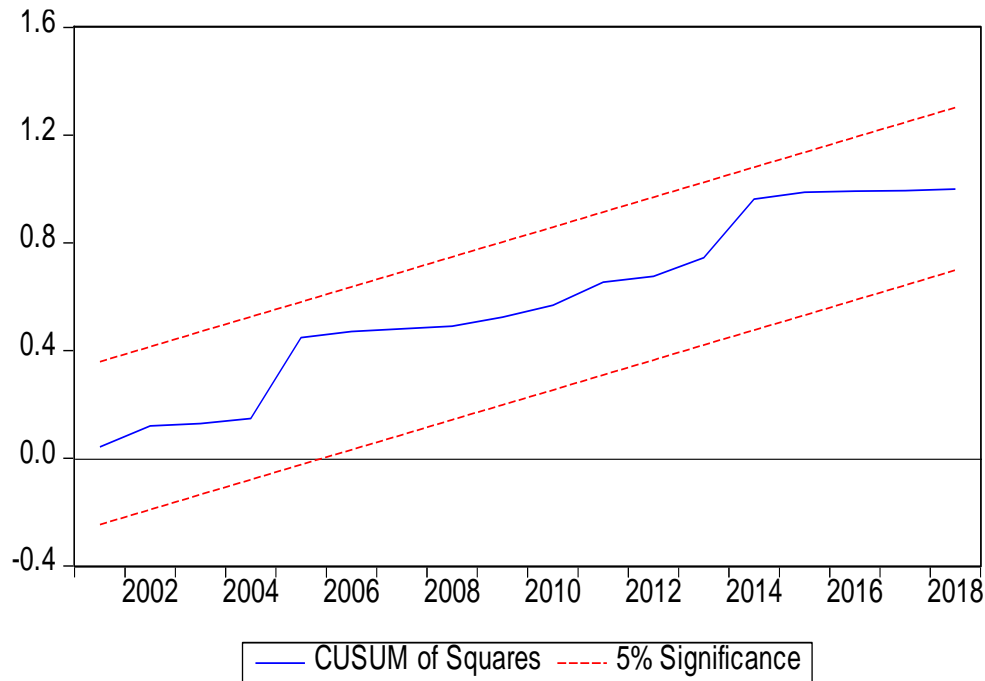
Figure 4.4 Stability Test for Savings CUSUM Square

4.4 Discussion of Findings

This section discusses the findings of this study in relation to the findings of literature reviewed in chapter two and explains the extent to which the findings is in line or otherwise with the studies reviewed.

4.4.1   Relationship between VAT and Consumption

The estimated results obtained from Autoregressive Distributed Lag (ARDL) approach confirmed the presence of cointegration among the variables (Consumption, Savings, VAT, Interest rate and Inflation rate). Consequently, the ARDL results reveal that there is statistically positive relationship between VAT and consumption. This is in consistent with the work of Ahmad et al. (2015). However, the result is not in line with the findings of Bumpei (2011), James and Asmaa (2012), and Temesgen and Madhusudhana (2017), where they found out a negative relationship between VAT and consumption.

4.4.2   Relationship between Interest Rate and Inflation Rate on Consumption

The estimated results on interest rate and consumption shows that there is negative relationship between interest rate and consumption in Nigeria. This is in line with the findings of Hansen (1996), Kapoor and Ravi (2009), Anthony, Osei and Mensah (2014) and Hammed et al. (2017). However, with regards to the relationship between inflation rate and consumption, the estimated results show a positive impact on the two variables in Nigeria. This is in conformity with the works of Nyamekye and Poku (2017) and Sulekha and Mary (2019).

4.4.3   Relationship between VAT, Interest Rate and Inflation Rate on Savings

The estimated results on the relationship between VAT and Savings showed a statistically positive relationship between the variables. With regards to the relationship between interest rate and savings, the estimated results show a negative relationship. This is in line with the findings of

Simon-oke and Jolaosho (2013) and Raza, Hena and Saeed (2017). Similarly, on the estimation of inflation rate and savings, the results showed a negative relationship between the variables. This is perhaps contrary with the findings of Abou El-Seoud (2014), Syden (2014) and Er, Tugcu and Coban (2014), in which they found out that the relationship between the variables is positive.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

This chapter is organized into five sections including this introduction. Section two and three presents summary and conclusion respectively. Whereas recommendations and suggestion for further study are presented in sections four and five of this chapter accordingly.

5.2   Summary of the Study

The aim of this study was to explore the effect of VAT on consumption and savings in Nigeria. In doing so, data was obtained from CBN statistical bulletin. Descriptive and inferential form of analysis was carried out in order to have an estimated result. The econometrics analysis began with unit roots using Augmented Decay Fuller (ADF) and Phillips-Perron (P-P) testing approach. The nature of the results obtained led to the adoption of ARDL as technique of analysis. ADF test results show that consumption, savings, interest rate and inflation rate were stationary after first difference (1(1), whereas VAT was stationary at level value (1(0). On the other hand, consumption, savings and interest rate were stationary after first difference, whereas VAT and inflation rate were stationary at level value using P-P. The existing gaps identified in the literature include; literature gap, methodological gap, geographical gap and time gap.

Consequently, the study revealed that the series have different order of integrations; some are stationary at level value, while others are stationary after first difference. Moreover, the study conducted bound tests for cointegration, short run and long run parameters, diagnostic tests and stability tests. The results obtained are summarized as follows:

The bound test results for consumption revealed that there is an existence of long run relationship at 5% level of significance between consumption, VAT, interest rate and inflation rate. On the other hand, the ARDL bound test for savings evident that there is presence of long run relationship at 1% level of significance between savings, VAT, interest rate and inflation rate. The presence of long run relationship allowed the study to generate long run and short run relationship among the variables. The results revealed the following:

i. For VAT and consumption, the results revealed the presence of positive and statistically significant relationships in both the long run and the short run.

ii. There is negative and statistically insignificant relationship between interest rate consumption in the long run. While in the short run, there is negative and statistically insignificant relationship between interest rate consumption

iii. For inflation rate and consumption, there is positive and statistically insignificant relationship in both the long run and the short run.

iv. For VAT savings, the results showed the presence of positive and statistically significant relationship in both the long run and the short run.

v. There is negative and statistically significant relationship between interest rate savings. While in the short run, there is positive and statistically insignificant relationship between interest rate savings.

vi. There is negative and statistically insignificant relationship between inflation rate savings in the long run, and, in the short run there is negative and statistically insignificant relationship between inflation rate savings.

The error correction term has the correct sign, negative, less one and statistically significant. For the post-estimation tests, it shows that the model is stable and free from any problem.

5.3   Conclusion

The study examined the effect of VAT on consumption and savings in Nigeria. It also controlled for other variables such as interest rate and inflation rate which were considered to have influence on consumption and savings. This study adopted quantitative research design covering a period of twenty-five (25) years from 1994 – 2018. The data were sourced from the statistical bulleting of the Central Bank of Nigeria (CBN) and World Development Indicators (WDI). From the results, the following conclusions were drawn:

The ARDL results conclude that VAT has positive influence on consumption and savings in both long run and short run, while interest rate and inflation rate have negative and positive effect on consumption and savings respectively in both short run and long run. Similarly, interest rate has negative effect in the long run and positive effect in the short run on savings, whereas inflation rate has negative relationship with consumption and savings.

5.4   Recommendations

From the results, it has been empirically revealed that VAT has significant favorable influence on consumption and savings in Nigeria. This is however not in conformity with what is recorded in the theory which states that an increase in VAT will lead to decrease in consumption. In view of the foregoing, this study recommends the needs for government to be reviewing the VAT rate from time to time in order to serve as a technique for controlling and checkmating the level of consumption in Nigeria.

Additionally, the results also revealed that the interest rate has negative influence on consumption in both the short run and long run. This study recommends that government should choose appropriate rate of interest that will favor the consumers, savers and investors. This will foster savings, investment and stabilize the level of consumption in the economy.

5.5   Suggestion for Further Studies

The major limitation of this study is that the empirical studies are very scarce on the relationship between VAT and savings. Thus, there is need for further investigation on the relationship between VAT and savings. Furthermore, there is also need for others to conduct studies on the causal linkages and shocks of VAT on consumption and savings in Nigeria by adding other variables such as population growth, increase in poverty among others.

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APPENDICES

Appendix I

DESCRIPTIVE STATISTICS
CONSUMPTION AND SAVINGS MODEL

	LCONS	LSAV	LVAT	INT	INF
Mean	30.89829	7.282828	12.06572	18.62693	16.71329
Median	30.97868	7.322257	12.19936	17.87167	11.89788
Maximum	31.49161	9.469408	13.69393	24.77083	72.83550
Minimum	30.08881	4.686658	8.890273	15.13583	5.382224
Std. Dev.	0.513238	1.703013	1.397674	2.367821	15.87117
Skewness	-0.285929	-0.140097	-0.537406	0.941164	2.633806
Kurtosis	1.464617	1.531991	2.209552	3.370342	9.047020
Jarque-Bera	2.684422	2.233560	1.780028	3.680309	64.31419
Probability	0.261267	0.327332	0.410650	0.158793	0.000000
Sum	741.5589	174.7879	289.5772	447.0463	401.1190
Sum Sq. Dev.	6.058500	66.70581	44.93030	128.9513	5793.565
Observations	24	24	24	24	24

Appendix II
UNIT ROOT TESTS
LCONS- ADF

Null Hypothesis: LCONS has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-1.553151**	0.7799
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LCONS)
Method: Least Squares
Date: 08/01/19   Time: 09:42
Sample (adjusted): 1995 2017
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCONS(-1)	-0.304676	0.196166	-1.553151	0.1361
C	9.239723	5.885136	1.570010	0.1321
@TREND("1994")	0.018748	0.014829	1.264336	0.2206

R-squared	0.139818	Mean dependent var	0.057545
Adjusted R-squared	0.053800	S.D. dependent var	0.125106
S.E. of regression	0.121694	Akaike info criterion	-1.253511
Sum squared resid	0.296187	Schwarz criterion	-1.105403
Log likelihood	17.41537	Hannan-Quinn criter.	-1.216262
F-statistic	1.625451	Durbin-Watson stat	2.220721
Prob(F-statistic)	0.221769		

Null Hypothesis: D(LCONS) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	**-3.403453**	0.0778

Test critical values:	1% level		-4.467895	
	5% level		-3.644963	
	10% level		-3.261452	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LCONS,2)
Method: Least Squares
Date: 08/01/19   Time: 09:43
Sample (adjusted): 1997 2017
Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LCONS(-1))	-1.377319	0.404683	-3.403453	0.0034
D(LCONS(-1),2)	0.020173	0.245603	0.082137	0.9355
C	0.131167	0.077807	1.685798	0.1101
@TREND("1994")	-0.004300	0.004783	-0.899030	0.3812

R-squared	0.679228	Mean dependent var	-0.008945
Adjusted R-squared	0.622621	S.D. dependent var	0.210082
S.E. of regression	0.129056	Akaike info criterion	-1.087496
Sum squared resid	0.283143	Schwarz criterion	-0.888540
Log likelihood	15.41871	Hannan-Quinn criter.	-1.044318
F-statistic	11.99905	Durbin-Watson stat	1.910176
Prob(F-statistic)	0.000184		

P-P TEST

Null Hypothesis: LCONS has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-1.367457**	0.8433
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.012878

HAC corrected variance (Bartlett kernel)   0.011164

Phillips-Perron Test Equation
Dependent Variable: D(LCONS)
Method: Least Squares
Date: 08/01/19   Time: 09:44
Sample (adjusted): 1995 2017
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCONS(-1)	-0.304676	0.196166	-1.553151	0.1361
C	9.239723	5.885136	1.570010	0.1321
@TREND("1994")	0.018748	0.014829	1.264336	0.2206

R-squared	0.139818	Mean dependent var	0.057545
Adjusted R-squared	0.053800	S.D. dependent var	0.125106
S.E. of regression	0.121694	Akaike info criterion	-1.253511
Sum squared resid	0.296187	Schwarz criterion	-1.105403
Log likelihood	17.41537	Hannan-Quinn criter.	-1.216262
F-statistic	1.625451	Durbin-Watson stat	2.220721
Prob(F-statistic)	0.221769		

Null Hypothesis: D(LCONS) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-6.345414**	0.0002
Test critical values:	1% level	-4.440739	
	5% level	-3.632896	
	10% level	-3.254671	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.013074
HAC corrected variance (Bartlett kernel)	0.013074

Phillips-Perron Test Equation
Dependent Variable: D(LCONS,2)

Method: Least Squares
Date: 08/01/19   Time: 09:44
Sample (adjusted): 1996 2017
Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LCONS(-1))	-1.357897	0.213997	-6.345414	0.0000
C	0.143453	0.061722	2.324160	0.0314
@TREND("1994")	-0.005125	0.004186	-1.224123	0.2359

R-squared	0.679693	Mean dependent var	-0.003194	
Adjusted R-squared	0.645976	S.D. dependent var	0.206786	
S.E. of regression	0.123038	Akaike info criterion	-1.226531	
Sum squared resid	0.287627	Schwarz criterion	-1.077752	
Log likelihood	16.49184	Hannan-Quinn criter.	-1.191483	
F-statistic	20.15904	Durbin-Watson stat	1.968953	
Prob(F-statistic)	0.000020			

LSAV ADF

Null Hypothesis: LSAV has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-0.407179**	0.9811
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LSAV)
Method: Least Squares
Date: 08/01/19   Time: 09:45
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LSAV(-1)	-0.051001	0.125254	-0.407179	0.6880
C	0.481671	0.542917	0.887190	0.3850

@TREND("1994")	0.007551	0.030166	0.250303	0.8048

R-squared	0.055882	Mean dependent var	0.204625
Adjusted R-squared	-0.034034	S.D. dependent var	0.147779
S.E. of regression	0.150273	Akaike info criterion	-0.836263
Sum squared resid	0.474219	Schwarz criterion	-0.689006
Log likelihood	13.03516	Hannan-Quinn criter.	-0.797196
F-statistic	0.621495	Durbin-Watson stat	1.385999
Prob(F-statistic)	0.546732		

Null Hypothesis: D(LSAV) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-4.124932**	0.0183
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LSAV,2)
Method: Least Squares
Date: 08/01/19   Time: 09:46
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LSAV(-1))	-0.808710	0.196054	-4.124932	0.0005
C	0.266473	0.081234	3.280293	0.0037
@TREND("1994")	-0.007043	0.004355	-1.617328	0.1215

R-squared	0.468461	Mean dependent var	0.007542
Adjusted R-squared	0.415307	S.D. dependent var	0.177259
S.E. of regression	0.135542	Akaike info criterion	-1.037968
Sum squared resid	0.367431	Schwarz criterion	-0.889860
Log likelihood	14.93663	Hannan-Quinn criter.	-1.000719
F-statistic	8.813299	Durbin-Watson stat	2.097525
Prob(F-statistic)	0.001800		

P-P

Null Hypothesis: LSAV has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-0.824924**	0.9488
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.019759
HAC corrected variance (Bartlett kernel)	0.027784

Phillips-Perron Test Equation
Dependent Variable: D(LSAV)
Method: Least Squares
Date: 08/01/19   Time: 09:46
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LSAV(-1)	-0.051001	0.125254	-0.407179	0.6880
C	0.481671	0.542917	0.887190	0.3850
@TREND("1994")	0.007551	0.030166	0.250303	0.8048

R-squared	0.055882	Mean dependent var	0.204625
Adjusted R-squared	-0.034034	S.D. dependent var	0.147779
S.E. of regression	0.150273	Akaike info criterion	-0.836263
Sum squared resid	0.474219	Schwarz criterion	-0.689006
Log likelihood	13.03516	Hannan-Quinn criter.	-0.797196
F-statistic	0.621495	Durbin-Watson stat	1.385999
Prob(F-statistic)	0.546732		

Null Hypothesis: D(LSAV) has a unit root
Exogenous: Constant, Linear Trend

Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	**-4.124281**	0.0184
Test critical values: 1% level	-4.416345	
5% level	-3.622033	
10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.015975
HAC corrected variance (Bartlett kernel)	0.015131

Phillips-Perron Test Equation
Dependent Variable: D(LSAV,2)
Method: Least Squares
Date: 08/01/19   Time: 09:47
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LSAV(-1))	-0.808710	0.196054	-4.124932	0.0005
C	0.266473	0.081234	3.280293	0.0037
@TREND("1994")	-0.007043	0.004355	-1.617328	0.1215

R-squared	0.468461	Mean dependent var	0.007542
Adjusted R-squared	0.415307	S.D. dependent var	0.177259
S.E. of regression	0.135542	Akaike info criterion	-1.037968
Sum squared resid	0.367431	Schwarz criterion	-0.889860
Log likelihood	14.93663	Hannan-Quinn criter.	-1.000719
F-statistic	8.813299	Durbin-Watson stat	2.097525
Prob(F-statistic)	0.001800		

LVAT ADF

Null Hypothesis: LVAT has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	**-3.420492**	0.0722
Test critical values: 1% level	-4.394309	
5% level	-3.612199	
10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LVAT)
Method: Least Squares
Date: 08/01/19   Time: 09:52
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LVAT(-1)	-0.347787	0.101677	-3.420492	0.0026
C	3.773697	0.985259	3.830156	0.0010
@TREND("1994")	0.050471	0.020098	2.511272	0.0203

R-squared	0.524837	Mean dependent var		0.208284
Adjusted R-squared	0.479584	S.D. dependent var		0.225742
S.E. of regression	0.162850	Akaike info criterion		-0.675504
Sum squared resid	0.556923	Schwarz criterion		-0.528248
Log likelihood	11.10605	Hannan-Quinn criter.		-0.636437
F-statistic	11.59770	Durbin-Watson stat		1.079639
Prob(F-statistic)	0.000404			

Null Hypothesis: D(LVAT) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	**-6.106052**	0.0003
Test critical values: 1% level	-4.416345	
5% level	-3.622033	
10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LVAT,2)
Method: Least Squares

Date: 08/01/19   Time: 09:52
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LVAT(-1))	-0.881955	0.144440	-6.106052	0.0000
C	0.229547	0.088461	2.594883	0.0173
@TREND("1994")	-0.006349	0.004915	-1.291716	0.2112

R-squared	0.682160	Mean dependent var	-0.037191
Adjusted R-squared	0.650376	S.D. dependent var	0.222716
S.E. of regression	0.131690	Akaike info criterion	-1.095627
Sum squared resid	0.346844	Schwarz criterion	-0.947519
Log likelihood	15.59971	Hannan-Quinn criter.	-1.058378
F-statistic	21.46239	Durbin-Watson stat	2.143295
Prob(F-statistic)	0.000011		

P-P

Null Hypothesis: LVAT has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-3.247225**	0.0993
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.023205
HAC corrected variance (Bartlett kernel)	0.036783

Phillips-Perron Test Equation
Dependent Variable: D(LVAT)
Method: Least Squares
Date: 08/01/19   Time: 09:54
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LVAT(-1)	-0.347787	0.101677	-3.420492	0.0026
C	3.773697	0.985259	3.830156	0.0010
@TREND("1994")	0.050471	0.020098	2.511272	0.0203

R-squared	0.524837	Mean dependent var		0.208284
Adjusted R-squared	0.479584	S.D. dependent var		0.225742
S.E. of regression	0.162850	Akaike info criterion		-0.675504
Sum squared resid	0.556923	Schwarz criterion		-0.528248
Log likelihood	11.10605	Hannan-Quinn criter.		-0.636437
F-statistic	11.59770	Durbin-Watson stat		1.079639
Prob(F-statistic)	0.000404			

Null Hypothesis: D(LVAT) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-6.106052**	0.0003
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	0.015080
HAC corrected variance (Bartlett kernel)	0.015080

Phillips-Perron Test Equation
Dependent Variable: D(LVAT,2)
Method: Least Squares
Date: 08/01/19   Time: 09:54
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LVAT(-1))	-0.881955	0.144440	-6.106052	0.0000
C	0.229547	0.088461	2.594883	0.0173
@TREND("1994")	-0.006349	0.004915	-1.291716	0.2112

R-squared	0.682160	Mean dependent var -0.037191
Adjusted R-squared	0.650376	S.D. dependent var 0.222716
S.E. of regression	0.131690	Akaike info criterion -1.095627
Sum squared resid	0.346844	Schwarz criterion -0.947519
Log likelihood	15.59971	Hannan-Quinn criter. -1.058378
F-statistic	21.46239	Durbin-Watson stat 2.143295
Prob(F-statistic)	0.000011	

INT ADF

Null Hypothesis: INT has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-2.202114**	0.4672
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INT)
Method: Least Squares
Date: 08/01/19   Time: 09:55
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT(-1)	-0.377436	0.171397	-2.202114	0.0390
C	7.808646	3.688108	2.117250	0.0463
@TREND("1994")	-0.074185	0.057394	-1.292553	0.2102

R-squared	0.187731	Mean dependent var -0.149143
Adjusted R-squared	0.110372	S.D. dependent var 1.634698
S.E. of regression	1.541849	Akaike info criterion 3.820310
Sum squared resid	49.92325	Schwarz criterion 3.967567
Log likelihood	-42.84372	Hannan-Quinn criter. 3.859377
F-statistic	2.426754	Durbin-Watson stat 1.716784
Prob(F-statistic)	0.112680	

Null Hypothesis: D(INT) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-4.492923**	0.0085
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INT,2)
Method: Least Squares
Date: 08/01/19   Time: 09:56
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INT(-1))	-1.007355	0.224209	-4.492923	0.0002
C	-0.174585	0.806040	-0.216595	0.8307
@TREND("1994")	0.002222	0.055137	0.040305	0.9682

R-squared	0.502526	Mean dependent var	-0.017367
Adjusted R-squared	0.452778	S.D. dependent var	2.369404
S.E. of regression	1.752753	Akaike info criterion	4.081360
Sum squared resid	61.44286	Schwarz criterion	4.229468
Log likelihood	-43.93564	Hannan-Quinn criter.	4.118609
F-statistic	10.10155	Durbin-Watson stat	1.996431
Prob(F-statistic)	0.000928		

P-P

Null Hypothesis: INT has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

	Adj. t-Stat	Prob.*
Phillips-Perron test statistic	**-2.315475**	0.4105

Test critical values:	1% level	-4.394309
	5% level	-3.612199
	10% level	-3.243079

*MacKinnon (1996) one-sided p-values.

| Residual variance (no correction) | 2.080135 |
| HAC corrected variance (Bartlett kernel) | 2.373305 |

Phillips-Perron Test Equation
Dependent Variable: D(INT)
Method: Least Squares
Date: 08/01/19   Time: 09:56
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT(-1)	-0.377436	0.171397	-2.202114	0.0390
C	7.808646	3.688108	2.117250	0.0463
@TREND("1994")	-0.074185	0.057394	-1.292553	0.2102

R-squared	0.187731	Mean dependent var	-0.149143
Adjusted R-squared	0.110372	S.D. dependent var	1.634698
S.E. of regression	1.541849	Akaike info criterion	3.820310
Sum squared resid	49.92325	Schwarz criterion	3.967567
Log likelihood	-42.84372	Hannan-Quinn criter.	3.859377
F-statistic	2.426754	Durbin-Watson stat	1.716784
Prob(F-statistic)	0.112680		

Null Hypothesis: D(INT) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-4.492786**	0.0085
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	2.671429
HAC corrected variance (Bartlett kernel)	2.669113

Phillips-Perron Test Equation
Dependent Variable: D(INT,2)
Method: Least Squares
Date: 08/01/19   Time: 09:57
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INT(-1))	-1.007355	0.224209	-4.492923	0.0002
C	-0.174585	0.806040	-0.216595	0.8307
@TREND("1994")	0.002222	0.055137	0.040305	0.9682

R-squared	0.502526	Mean dependent var	-0.017367
Adjusted R-squared	0.452778	S.D. dependent var	2.369404
S.E. of regression	1.752753	Akaike info criterion	4.081360
Sum squared resid	61.44286	Schwarz criterion	4.229468
Log likelihood	-43.93564	Hannan-Quinn criter.	4.118609
F-statistic	10.10155	Durbin-Watson stat	1.996431
Prob(F-statistic)	0.000928		

INF ADF

Null Hypothesis: INF has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-2.796691**	0.2116
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 08/01/19   Time: 09:58

Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.412454	0.147479	-2.796691	0.0108
C	5.810538	6.099801	0.952578	0.3516
@TREND("1994")	-0.063156	0.331020	-0.190793	0.8505

R-squared	0.315328	Mean dependent var		-1.872374
Adjusted R-squared	0.250121	S.D. dependent var		11.28764
S.E. of regression	9.774600	Akaike info criterion		7.513920
Sum squared resid	2006.399	Schwarz criterion		7.661177
Log likelihood	-87.16704	Hannan-Quinn criter.		7.552987
F-statistic	4.835802	Durbin-Watson stat		1.842121
Prob(F-statistic)	0.018731			

Null Hypothesis: D(INF) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=5)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-5.666068**	0.0007
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF,2)
Method: Least Squares
Date: 08/01/19   Time: 09:58
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-1.125791	0.198690	-5.666068	0.0000
C	-12.15713	4.988181	-2.437186	0.0243
@TREND("1994")	0.714975	0.337712	2.117112	0.0470

R-squared	0.618394	Mean dependent var		-0.879678
Adjusted R-squared	0.580234	S.D. dependent var		15.91883

S.E. of regression	10.31371	Akaike info criterion	7.625933
Sum squared resid	2127.452	Schwarz criterion	7.774040
Log likelihood	-84.69822	Hannan-Quinn criter.	7.663181
F-statistic	16.20506	Durbin-Watson stat	0.822315
Prob(F-statistic)	0.000065		

P-P

Null Hypothesis: INF has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 17 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-4.012150**	0.0224
Test critical values:	1% level	-4.394309	
	5% level	-3.612199	
	10% level	-3.243079	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	83.59995
HAC corrected variance (Bartlett kernel)	9.057070

Phillips-Perron Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 08/01/19   Time: 09:58
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.412454	0.147479	-2.796691	0.0108
C	5.810538	6.099801	0.952578	0.3516
@TREND("1994")	-0.063156	0.331020	-0.190793	0.8505

R-squared	0.315328	Mean dependent var	-1.872374
Adjusted R-squared	0.250121	S.D. dependent var	11.28764
S.E. of regression	9.774600	Akaike info criterion	7.513920
Sum squared resid	2006.399	Schwarz criterion	7.661177
Log likelihood	-87.16704	Hannan-Quinn criter.	7.552987
F-statistic	4.835802	Durbin-Watson stat	1.842121

Prob(F-statistic)   0.018731

Null Hypothesis: D(INF) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.519539	0.0009
Test critical values:	1% level	-4.416345	
	5% level	-3.622033	
	10% level	-3.248592	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	92.49789
HAC corrected variance (Bartlett kernel)	124.3821

Phillips-Perron Test Equation
Dependent Variable: D(INF,2)
Method: Least Squares
Date: 08/01/19   Time: 09:59
Sample (adjusted): 1996 2018
Included observations: 23 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-1.125791	0.198690	-5.666068	0.0000
C	-12.15713	4.988181	-2.437186	0.0243
@TREND("1994")	0.714975	0.337712	2.117112	0.0470

R-squared	0.618394	Mean dependent var	-0.879678
Adjusted R-squared	0.580234	S.D. dependent var	15.91883
S.E. of regression	10.31371	Akaike info criterion	7.625933
Sum squared resid	2127.452	Schwarz criterion	7.774040
Log likelihood	-84.69822	Hannan-Quinn criter.	7.663181
F-statistic	16.20506	Durbin-Watson stat	0.822315
Prob(F-statistic)	0.000065		

Appendix III

ARDL BOUND TEST FOR CONSUMPTION

ARDL Bounds Test

Date: 08/01/19   Time: 10:02

Sample: 1995 2017

Included observations: 23

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.599144	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Test Equation:

Dependent Variable: D(LCONS)

Method: Least Squares

Date: 08/01/19   Time: 10:02

Sample: 1995 2017

Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	24.28705	6.492032	3.741055	0.0015
LVAT(-1)	0.330356	0.091130	3.625101	0.0019
INT(-1)	-0.012967	0.012537	-1.034276	0.3147
INF	0.006053	0.002404	2.517643	0.0215
LCONS(-1)	-0.908167	0.241398	-3.762122	0.0014

R-squared	0.463813	Mean dependent var	0.057545
Adjusted R-squared	0.344660	S.D. dependent var	0.125106
S.E. of regression	0.101277	Akaike info criterion	-1.552259
Sum squared resid	0.184626	Schwarz criterion	-1.305412
Log likelihood	22.85097	Hannan-Quinn criter.	-1.490177
F-statistic	3.892595	Durbin-Watson stat	1.588473
Prob(F-statistic)	0.018954		

Appendix IV
SHORT-RUN AND LONG-RUN COEFFICIENTS OF ARDL

ARDL Cointegrating And Long Run Form
Dependent Variable: LCONS
Selected Model: ARDL(1, 0, 0, 0)
Date: 08/01/19   Time: 10:04
Sample: 1994 2018
Included observations: 23

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LVAT)	0.347819	0.071748	4.847805	0.0001
D(INT)	-0.015019	0.013518	-1.111071	0.2812
D(INF)	0.000765	0.001774	0.431066	0.6715
CointEq(-1)	-0.997315	0.227112	-4.391299	0.0004

Cointeq = LCONS - (0.3746*LVAT -0.0191*INT + 0.0021*INF + 26.6888)

Appendix V

<div align="center">Long Run Coefficients</div>

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LVAT	0.374575	0.023193	16.150616	0.0000
INT	-0.019123	0.012533	-1.525776	0.1444
INF	0.002059	0.001753	1.174661	0.2554
C	26.688754	0.458606	58.195365	0.0000

DIAGNOSTIC TESTS

AUTOCORRELATION

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.220261	Prob. F(2,16)	0.8047
Obs*R-squared	0.616281	Prob. Chi-Square(2)	0.7348

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 08/01/19   Time: 10:07
Sample: 1995 2017
Included observations: 23
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCONS(-1)	0.177651	0.387332	0.458653	0.6527
LVAT	-0.067962	0.147269	-0.461479	0.6507
INT	0.003009	0.016591	0.181344	0.8584
INF	-0.000253	0.001845	-0.137080	0.8927
C	-4.706953	10.36051	-0.454317	0.6557
RESID(-1)	-0.250696	0.434445	-0.577050	0.5719
RESID(-2)	0.039135	0.293631	0.133281	0.8956

R-squared	0.026795	Mean dependent var	-2.16E-15
Adjusted R-squared	-0.338157	S.D. dependent var	0.087606
S.E. of regression	0.101341	Akaike info criterion	-1.494858
Sum squared resid	0.164321	Schwarz criterion	-1.149272
Log likelihood	24.19086	Hannan-Quinn criter.	-1.407944
F-statistic	0.073420	Durbin-Watson stat	1.848324
Prob(F-statistic)	0.997996		

HETEROSCEDASTICIITY

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.030418	Prob. F(4,18)	0.4185
Obs*R-squared	4.285319	Prob. Chi-Square(4)	0.3688
Scaled explained SS	1.857590	Prob. Chi-Square(4)	0.7619

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/01/19   Time: 10:07
Sample: 1995 2017
Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.052397	0.629731	1.671187	0.1120
LCONS(-1)	-0.038027	0.023111	-1.645355	0.1172
LVAT	0.013508	0.008584	1.573601	0.1330
INT	-0.001853	0.001358	-1.364266	0.1893
INF	-9.60E-05	0.000158	-0.609094	0.5501

R-squared	0.186318	Mean dependent var	0.007341
Adjusted R-squared	0.005500	S.D. dependent var	0.008930
S.E. of regression	0.008906	Akaike info criterion	-6.414589
Sum squared resid	0.001428	Schwarz criterion	-6.167743
Log likelihood	78.76778	Hannan-Quinn criter.	-6.352508
F-statistic	1.030418	Durbin-Watson stat	2.353058
Prob(F-statistic)	0.418521		

NORMALITY
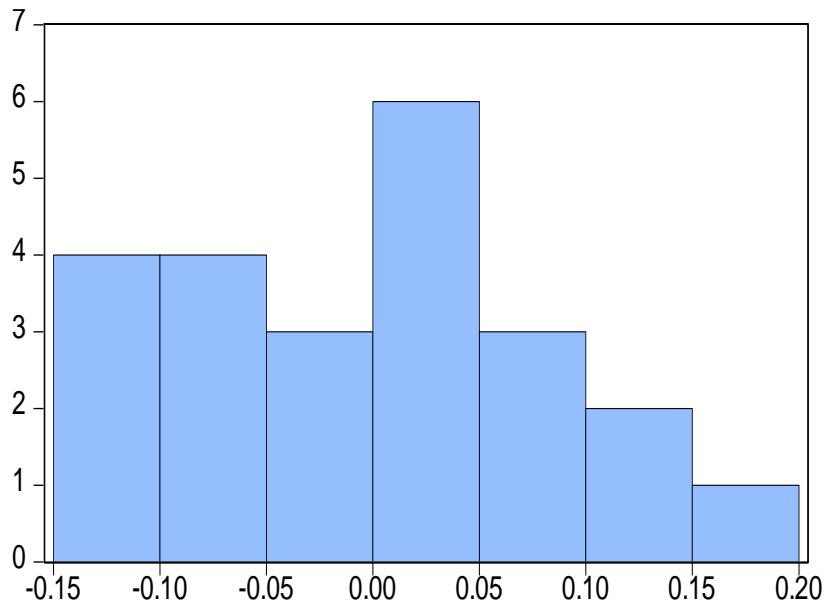
Series: Residuals	
Sample 1995 2017	
Observations 23	
Mean	-2.16e-15
Median	0.002380
Maximum	0.195795
Minimum	-0.139344
Std. Dev.	0.087606
Skewness	0.418895
Kurtosis	2.415492
Jarque-Bera	1.000061
Probability	0.606512

STABILITY TESTS
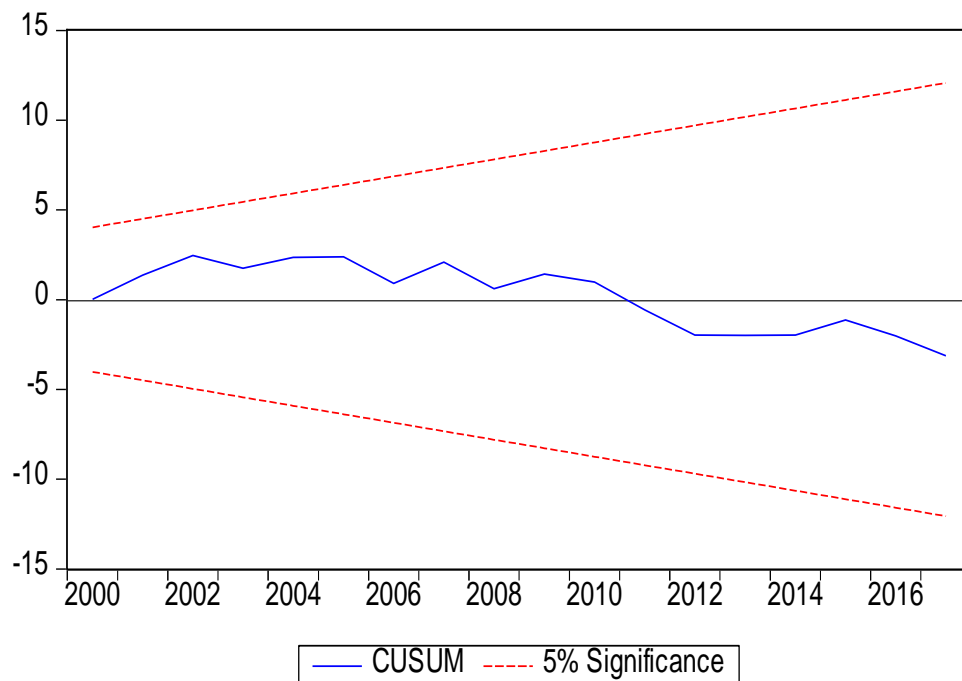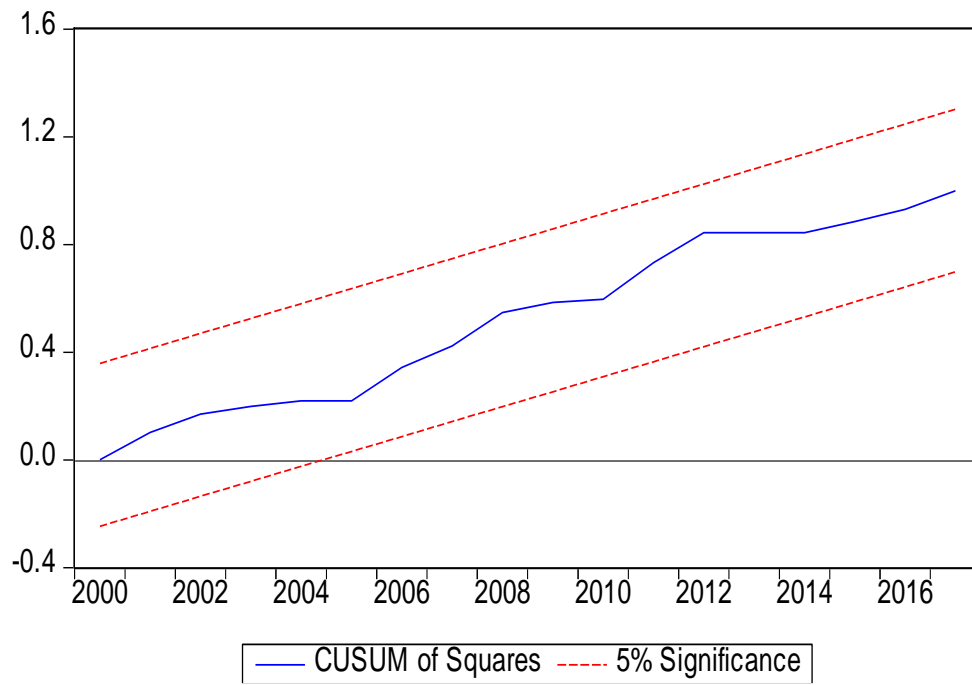
Appendix VI
ARDL BOUND TESTS FOR SAVINGS AND VAT

Dependent Variable: LSAV
Method: ARDL
Date: 08/01/19   Time: 10:10
Sample (adjusted): 1995 2018
Included observations: 24 after adjustments
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): LVAT INT INF
Fixed regressors: C
Number of models evalulated: 8
Selected Model: ARDL(1, 0, 1, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LSAV(-1)	0.545996	0.089129	6.125942	0.0000
LVAT	0.537284	0.118088	4.549864	0.0002
INT	0.007444	0.013201	0.563914	0.5798
INT(-1)	-0.045060	0.014209	-3.171169	0.0053
INF	-0.001608	0.001751	-0.918353	0.3706
C	-2.357913	0.818569	-2.880529	0.0100

R-squared	0.997624	Mean dependent var		7.487454
Adjusted R-squared	0.996964	S.D. dependent var		1.675154
S.E. of regression	0.092301	Akaike info criterion		-1.715198
Sum squared resid	0.153352	Schwarz criterion		-1.420685
Log likelihood	26.58238	Hannan-Quinn criter.		-1.637064
F-statistic	1511.536	Durbin-Watson stat		2.243463
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model
    selection.

Appendix VII

ARDL Bounds Test
Date: 08/01/19   Time: 10:11
Sample: 1995 2018
Included observations: 24
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	18.40442	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Test Equation:
Dependent Variable: D(LSAV)
Method: Least Squares
Date: 08/01/19   Time: 10:11
Sample: 1995 2018
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INT)	0.008864	0.017042	0.520118	0.6093
C	-1.402915	1.086444	-1.291290	0.2129
LVAT(-1)	0.401471	0.162959	2.463623	0.0241
INT(-1)	-0.033249	0.015456	-2.151273	0.0453
INF	0.002553	0.003752	0.680243	0.5050
LSAV(-1)	-0.364381	0.127222	-2.864126	0.0103

R-squared	0.509098	Mean dependent var		0.204625
Adjusted R-squared	0.372736	S.D. dependent var		0.147779
S.E. of regression	0.117041	Akaike info criterion		-1.240269
Sum squared resid	0.246574	Schwarz criterion		-0.945755
Log likelihood	20.88323	Hannan-Quinn criter.		-1.162134
F-statistic	3.733435	Durbin-Watson stat		1.840281
Prob(F-statistic)	0.017071			

Appendix VIII

SHORT-RUN AND LONG-RUN

ARDL Cointegrating And Long Run Form
Dependent Variable: LSAV
Selected Model: ARDL(1, 0, 1, 0)
Date: 08/01/19   Time: 10:12
Sample: 1994 2018
Included observations: 24

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LVAT)	0.543243	0.059100	9.191882	0.0000
D(INT)	0.006543	0.011159	0.586349	0.5649
D(INF)	-0.000642	0.001656	-0.387538	0.7029
CointEq(-1)	-0.460194	0.043655	-10.541496	0.0000

Cointeq = LSAV - (1.1834*LVAT -0.0829*INT -0.0035*INF - 5.1936)

Appendix IX

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LVAT	1.183434	0.051527	22.967193	0.0000
INT	-0.082854	0.025506	-3.248401	0.0045
INF	-0.003542	0.004198	-0.843935	0.4098
C	-5.193596	1.065142	-4.875965	0.0001

POST ESTIMATION TESTS

AUTOCORRELATION TEST

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.143278	Prob. F(2,16)		0.8676
Obs*R-squared	0.422272	Prob. Chi-Square(2)		0.8097

Test Equation:
Dependent Variable: RESID
Method: ARDL
Date: 08/01/19   Time: 10:14
Sample: 1995 2018
Included observations: 24
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LSAV(-1)	0.013051	0.098008	0.133165	0.8957
LVAT	-0.016735	0.130307	-0.128430	0.8994
INT	0.000473	0.014310	0.033084	0.9740
INT(-1)	0.000380	0.015042	0.025286	0.9801
INF	-6.33E-05	0.001875	-0.033739	0.9735
C	0.095309	0.907134	0.105066	0.9176
RESID(-1)	-0.133932	0.259190	-0.516732	0.6124
RESID(-2)	0.021079	0.264892	0.079577	0.9376

R-squared	0.017595	Mean dependent var		1.90E-15
Adjusted R-squared	-0.412208	S.D. dependent var		0.081655
S.E. of regression	0.097035	Akaike info criterion		-1.566283
Sum squared resid	0.150654	Schwarz criterion		-1.173598
Log likelihood	26.79539	Hannan-Quinn criter.		-1.462103
F-statistic	0.040937	Durbin-Watson stat		1.975979
Prob(F-statistic)	0.999867			

HETEROSCEDASTICITY

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.968045	Prob. F(5,18)	0.4632
Obs*R-squared	5.086002	Prob. Chi-Square(5)	0.4055
Scaled explained SS	2.146122	Prob. Chi-Square(5)	0.8286

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/01/19   Time: 10:14
Sample: 1995 2018
Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.049457	0.071150	-0.695106	0.4959
LSAV(-1)	-0.011146	0.007747	-1.438777	0.1674
LVAT	0.013556	0.010264	1.320668	0.2032
INT	-0.001309	0.001147	-1.140753	0.2689
INT(-1)	-0.000259	0.001235	-0.209462	0.8364
INF	-2.38E-05	0.000152	-0.156149	0.8777

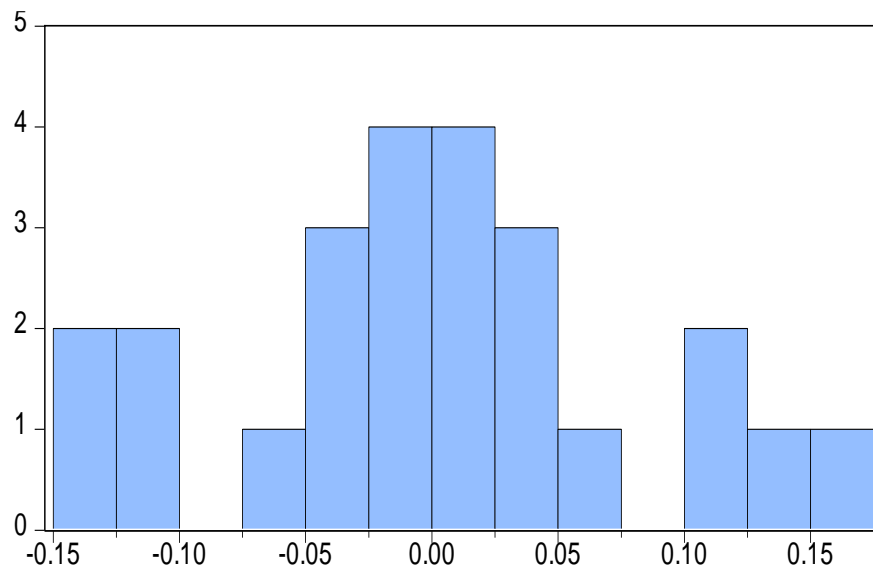|			
R-squared	0.211917	Mean dependent var	0.006390
Adjusted R-squared	-0.006995	S.D. dependent var	0.007995
S.E. of regression	0.008023	Akaike info criterion	-6.600743
Sum squared resid	0.001159	Schwarz criterion	-6.306230
Log likelihood	85.20892	Hannan-Quinn criter.	-6.522609
F-statistic	0.968045	Durbin-Watson stat	2.079198
Prob(F-statistic)	0.463182		

NORMALITY

Series: Residuals	
Sample 1995 2018	
Observations 24	
Mean	1.90e-15
Median	-0.003888
Maximum	0.156516
Minimum	-0.146290
Std. Dev.	0.081655
Skewness	0.073002
Kurtosis	2.500325
Jarque-Bera	0.270993
Probability	0.873282

STABILITY TESTS