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## SECTION A:

### Faith And Learning:

1. Business Ethics In The Book Of Amos Vis-a-vis The Nigerian Business Milieu- *Joseph Ackah-Miezah, Theodore U. Dickson, M.A. Joseph A. Olanrewaju,*
2. Accountability, Transparency And Probity And The Challenges Of Development At The Local Government Level In Nigeria- *Irewunmi Banwo A.*
3. The Effect Of Religious Conflicts On Good Governance In Nigeria- *Popoola, M. A And Alao, D.o*

## SECTION B :

### Banking, Cash, Asset And Solvency Management:

1. Exploring Alternative Approach To Solvency Management- *Enyi, Patrick Enyi*
2. Asset Quality And Bank Profitability- *Nwaobia, Appolos N.*
3. Application of Queuing Theory to Waiting Times of Customers in the Banking Industry in Nigeria. (A Case Study of First Bank of Nigeria Plc, Ikotun, Lagos State, Nigeria) - *Ogundajo, Grace Oyeyemi and Dada, Samuel Olajide*
4. Assessment Of Cash Management In Nigerian Manufacturing Companies - *Olabisi Jayeola, Olagunju Adebayo, Omoyele Oluwafemi*

## SECTION C:

### Education And Gender Studies:

1. Supervision Of Instruction: An Index For Quality Academic Performance In Nigerian Private Universities- *Nwosu, Jonathan C. Uwannah, Ngozi C.*
2. The Demand For Tertiary Education In The Nigerian Private Universities: Babcock University As A Case Study- *Awolaja, G. O*
3. The Effects Of Stress On Employees: A Case Study Of Babcock Post Graduate Students- *Victoria Ozioma,*
4. Gender Inequality In The Workplace- *Owolabi S. Ajao, Owolabi T. Joy.*
5. Evaluation Of Women's Rights In The Perspective Of Human Rights Under Democratic Government In Nigeria. (1999-2009)- *Adeogun Tolulope, Isola Abidemi Abiola*
6. The Interactive Relationship Of Gender Culture Types: A Nigerian Perspective. *Akindele, R. I. & Akindele Iyiola*

## SECTION D:

### Household Savings, Investment Decisions And Marketing Environment:

1. Comparative Analysis Of Household Savings Behaviour In Rural And Urban Area Of Nigeria- *Ajayi, M. A.*
2. Investment Decision Model: Capital Budgeting Under Certainty And Uncertainty- *Ojo-agbodu, Ayodele, Adediji Samuel Babatunji*
3. Marketing Environment As A Correlate Of Marketing Performance In Some Selected Companies - *Adefulu Adesoga, Ajike, Emmanuel*

## SECTION E:

### Corporate Governance, Motivation And Security:

1. Corporate Governance And The Policy Making Process In A Federal State: The Nigerian Situation- *Ojo. Olawole and Irewunmi. Banwo.*
2. The Role Of Motivation In Inducing Workers' Commitment In An Organisation- *Sokefun, Adeyinka .o.*
3. Towards Theoretical Re-conceptualization of Security: A critical Assessment of State and Human Security- *Ogundiwin, Aaron Ola, Ogbonna, Emmanuel Chijioke.*

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5. Evaluation Of Women's Rights In The Perspective Of Human Rights Under Democratic Government In Nigeria. (1999-2009)-  
*Adeogun Tolulope, Isola Abidemi Abiola*.....171
6. The Interactive Relationship Of Gender Culture Types:  
A Nigerian Perspective. *Akindele, R. I. & Akindele Iyiola* .....187

#### SECTION D:

##### Household Savings, Investment Decisions And Marketing Environment:

1. Comparative Analysis Of Household Savings Behaviour In Rural And Urban Area Of Nigeria- *Ajayi, M. A*.....197
2. Investment Decision Model: Capital Budgeting Under Certainty And Uncertainty- *Ojo-agbodu, Ayodele, Adedeji Samuel Babatunji*.....213
3. Marketing Environment As A Correlate Of Marketing Performance In Some Selected Companies -*Adefulu Adesoga, Ajike, Emmanuel*.....221

#### SECTION E:

##### Corporate Governance, Motivation And Security:

1. Corporate Governance And The Policy Making Process In A Federal State: The Nigerian Situation- *Ojo. Olawole and Ireunmi. Banwo*.....233
2. The Role Of Motivation In Inducing Workers' Commitment In An Organisation- *Sokefun, Adeyinka. O*.....249
3. Towards Theoretical Re-conceptualization of Security: A critical Assessment of State and Human Security-*Ogundiwin, Aaron Ola, Ogbonna, Emmanuel Chijioke*.....261



# COMPARATIVE ANALYSIS OF HOUSEHOLD SAVINGS BEHAVIOUR IN RURAL AND URBAN AREA OF NIGERIA

\* Ajayi, M. A.

*Sustained economic growth is determined by domestic financial saving mobilization. The Nigerian's performance with regard to domestic financial saving mobilization has been very poor over the last three decades. To this extent, this study focused on the analysis of the Household Savings behaviour in Nigeria using micro level data of the Household Income and Expenditure Survey (HIES) for the period between 2009/2010. Three different non-linear saving functions attributed to Keynes, Klein and Landau were estimated separately for the urban and the rural households, using the Ordinary Least Squares (OLS) technique. The study observed that the average income and savings of an urban household are considerably lower than those of the rural household or overall Nigeria. Contrary to the general belief, it was observed that the propensity to save of the rural households is much higher than that of their urban counterparts. The dependency ratio and the various level of education were observed to have negative influence on household savings. There exists no statistically significant relationship between savings and the employment status and occupation of the household head. Finally, savings was found to increase with age but tend to decline when the age crosses a certain limit which is consistent with the Life Cycle Hypothesis.*

**Key words:** Household income/savings behaviour, urban & rural areas.

## I. INTRODUCTION

The government, corporate and household savings are the major component of the domestic savings of a nation. These components are influenced by various factors. Typical of developing countries is the fact that household sector contributes the largest proportion of the total national savings. The savings rate in Nigerian is very low over the last three decades both in absolute terms and in relation to other developing African countries of the world like Ghana and South Africa (Imran et al., 2010; Ahmad, 2006).

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Several reasons have been given for this trend ranging from economic to socio-cultural. The more general ones are high propensity for conspicuous consumption, increase availability of new products and negative real returns to financial savings, (Nadeem and Ashfaq, 1992; Arize and John, 2008; Singh, 2010). These factors have been considered to influence propensity to save but rather would not be able to explain various characteristics of household savings behaviour in general.

Studies on analysis of National Savings as well as household savings using time-series data and cross-sectional analysis of the household savings behaviour are well established in the literature. (Agu, 1988; Ojo, 1976; Fadhil et al., 2007). But these studies were based on information from the urban household which shares a sharp difference socio-economic and demographic feature from that of rural household.

This study was set out to analyze the household's savings behaviour in Nigeria. Specifically, it investigated the nature of income-saving relationship, and further examines the impact of economic and socio-cultural factors on household savings. These factors include education, earning status, dependency ratio, residence location and secondary earner on household savings. In addition it compared the savings behaviour of Urban Household and Rural Households, and developed separate estimates for each type (Solomon and Wet, 2004; Nwachukwa, 2007).

This paper is organized as follow: Section II describes the conceptual clarification, the functional forms of savings equation and methods of analysis are discussed in Section III. Section IV gives the reports and discussion results. The final section contains the concluding remarks.

## **II Conceptual Clarifications and Literature Review**

Saving is a sacrifice of current consumption that provides for the accumulation of capital, which in turn, provides additional output that can be used for consumption in the future (Gersovitz, 1988). In other words, savings are the difference between current earnings and consumption. It has also been defined as "deferred consumption" or part of income, which is not spent (Wilcox, 1989; Olomola and Olagunju, 2004). Savings in an economy can assume one of several forms. These include personal savings, corporate or business savings and government savings. Of these, the household savings or personal savings have been identified to be contributing the most substantial part of aggregate savings in both industrialized and developing countries (Klaus, Webb and Coresetti, 1991; Akinbobola and Oladipo, 2011).

According to Peter (2002), savings are still seen as one way of mitigating risk, especially of income variability in poor households. The risk of crop failure or of unemployment makes households to either build up



savings or attempt to gain access to loans. Saving is therefore a type of self-insurance. However, poor households are unlikely to save much. Already, they find it hard to gain sufficient income to satisfy minimum consumption needs. Mutuality in insurance provision by groups of households is a way that households can mitigate idiosyncratic risk. For very poor households, this form of insurance may not be enough to cope with shocks. Other coping strategies may involve migration, increasing supply of child labour or reduction in food intake, with obvious effects on health, especially that of children (see World Bank, 2001).

Browning and Lusardi (1996) in an article whose principal objective was to review the literature on why households save, coincidentally took note of studies that looked at behaviour in the light of announcements about changes in government policy such as an increase in social security payments (Wilcox, 1989) or changes in credit restrictions (Alessie, Devereux and Weber, 1997). Peter (2002) further considered the question of how changes in macro economic policy affected household financial decisions. One way of tackling this question has been to theorize the effects of a monetary shock on investment and saving behaviour. A standard textbook approach (e.g. Mishkin, 2001; Zahoor, et al., 2009) discusses this monetary transmission mechanism in the following way. An increase in money supply increases the amount of bank liquidity and causes interest rates to fall in order to encourage households and firms to spend more on consumption and investment goods respectively. In this case, households are expected to reduce savings and increase spending and / or borrowing. Firms are also expected to increase borrowing for investment. There is an overall increase in employment and output, especially of credit services. This liquidity effect is counterbalanced in the modern literature by an anticipated inflation effect (Li, 2000; Akinbobola and Oladipo, 2011; Jatiana et al., 2007). Here, an expansionary monetary shock leads households to expect that the rate of inflation will increase. They therefore move out of cash and increase demand for credit with the resultant increase in nominal interest rates and a reallocation of labour towards credit services. Where the liquidity effect dominates, overall real activity rises over the period following the shock.

This approach is one in which credit for household consumption, plays an important role in understanding how the credit channel works through consumer spending to deliver the desired outcomes for policy makers. Here, policy makers are grappling with ways of avoiding or smoothing business cycles and the role of consumer credit in this process is critical. For developing economies, the focus is different (Shanmugan and Swarup, 2009).

Households find other ways than saving to affect the smoothing

process such as marital ties, or changing family size (Rosenzweig, 2001). Deaton and Paxon (2000) considered that the existence of multigenerational households hides the differences between individuals within households. They develop a method of deriving individual's behaviour from household's data and then applied this to Thailand and Taiwan household survey data. They found that there were some supports for the life-cycle hypothesis that savings increase with growth as the younger age groups save more as their incomes rise.

The discussion around the above-mentioned contributions is concerned with policy effects in the presence of liquidity constraints, which result in behaviour contrary to that predicted by the standard life-cycle model. One benefit of looking at policy events in this way is that changes in consumption patterns over time can be separated out from the effects of policy changes. Given that most household surveys in most years should have estimates of income and details of consumption, it is possible in principle to look at policy effects on savings independently of changes in income and across income groups.

However, one of the most important factors that affect the saving behaviour of individuals is the type of savings products available to them. For some, the most important question however is liquidity that is how often the savings can be accessed after the account has been opened and monies deposited. Because individuals have different motives and needs for saving, they will demand different types of savings products, and since developing and maintaining many products have financial implication for the providing institution, it is important to know what the tendency in a community is. So the question is: "what saving products are most preferred in a community?" Wright (2000) observes from experiments with open access and compulsory locked-in savings systems by Bangladesh MFIs, that most rural saver prefer open access (highly liquid) savings product to the liquid locked-in savings product. Open access products do not limit the number of times a saver can carry out transactions on their account in a period. The experience observed that there is a clear preference among the poor in Bangladesh for voluntary, open access savings products. (Christen et al, 2000).

### III. Methodology

This study is based on micro level data of the Household Income and Expenditure Survey (HIES) for the year 2009-2010, compiled by the Federal Bureau of Statistics of Nigeria. The Survey, based on national sample on State by State from the six geo-political zones, covered 14,245 households and contains information on the household's income, expenditure, savings, age, sex, education and employment status of the household members. The



data on household saving in Nigeria are beset with various problem like other developing countries (Deaton, 1989); gravity of which can be judged by the fact that if financial savings plus net change in assets, when adjusted for repayments of loans and additional borrowing is taken as a measure of household savings, then it is found that all the households reported either negative or zero savings (see table I below).

Therefore, household savings are derived using the residual approach i.e. taking the difference between the household's Income and Expenditure, since, in household surveys, both income and expenditure are measured "with errors". To overcome the problem associated with the use of residual approach household savings are defined in five different ways as used in the study of Nadeen and Ashfaq (1992).

- $Sav_1$  = Household Income minus his consumption expenditure  
 $Sav_2$  = Household Income minus his expenditure on non-durables  
 $Sav_3$  = Household Income minus his expenditure on non-durables (durables include appliances only)  
 $Sav_4$  = Household Income minus household expenditure on non-durable (durables include appliances and education) and  
 $Sav_5$  = Financial Savings Net Changes in Asset Net of Repayments and Borrowing

Based on the definition above the characteristics of household savings pattern in the rural, urban and Nigeria as a whole are shown in table I below

**Table I: Characteristics of Household Savings Patterns**

S/No.	Saving Definitions	SavD <sub>1</sub>	SavD <sub>2</sub>	SavD <sub>3</sub>	SavD <sub>4</sub>	SavD <sub>5</sub>
1.	Mean Savings					
	Rural *	103.41	184.81	119.24	129.27	- 0.49
	Urban **	321.51	371.26	343.42	399.62	- 0.29
	Total ***	207.92	332.78	257.17	314.56	- 0.38
2.	Mean Income					
	Rural *	2,241.86	2,241.86	2,241.86	2,241.86	2,241.86
	Urban**	4,037.59	4,037.59	4,037.59	4,037.59	4,037.59
	Total ***	3,204.31	3,204.31	3,204.31	3,204.31	3,204.31
3.	Negative /zero Savers (%)					
	Rural *	51	41	46	41	100
	Urban **	51	42	47	46	100
4.	Average Propensity to Save (%)					

Rural *	4.61	8.24	5.32	5.77	-
Urban **	7.96	9.20	8.51	9.90	-
Total ***	6.49	10.39	8.03	9.82	-

Sources: Author's Computation 2011

Note \*5,678 Rural Households\*\*8,567 Urban Households \*\*\*14,245  
Total Households

From table I above, the income reported by the data shows those urban households earn higher average income than the rural and overall Nigerian household i.e. 80% and 26% higher respectively. Likewise, the average household savings is considerably higher in the case of the urban as compared with the rural and Nigeria as a whole. Also, the average savings of household is higher in the case of the urban household as compared with that of rural and overall Nigerian household. The Average Propensity to Save (APS) for Nigerian household range from 6.49% to 10.39% depending on the choice of the saving definitions. While the APS varies from 4.61% to 8.24% in the case of rural household and ranged between 7.96% and 9.90% in the case of urban households. Lastly, it worthy of note that more than two fifth of the sampled household in both rural and urban reported negative and zero savings irrespective of the survey definition.

To find out a savings function which is simple, but which at the same time, has been widely used in analyzing household savings behaviour; our analysis began with Absolute Income Hypothesis, whose empirical application leads to the following sample forms:

$$S = \alpha_0 + \alpha_1 Y + \alpha_2 Z \dots\dots\dots 1$$

Where, S and Y are household saving and income respectively and Z is an aggregation of other socio-economics variables. Equation 1 above lack non-linearity's which a common feature of household behaviors is. Therefore, the equation which includes non-linearly is given as follows:

$$S = \alpha_0 + \alpha_1 Y + \alpha_2 Y^2 + \alpha_3 Z \dots\dots\dots 2$$



Equation 2 is not suitable because of the present of heteroscedasticity in the estimation of the parameters. Therefore, savings are expressed as a percentage of income as follows:

$$S/Y = \beta_0 + \beta_1 Y + \beta_2 (1/Y) + \beta_3 Z \dots\dots\dots 3$$

The alternative formular suggested by klevin (1951) which takes care of non-linearity is as follows:

$$S/Y = \gamma_0 + \gamma_1 \log Y + \gamma_2 Z \dots\dots\dots 4$$

Lanhau (1971) suggested a better equation that takes into account the shape of the saving function and testing of linear versus non-linear relationship between savings and income, He suggested equations 5:

$$S/Y = \lambda_0 + \lambda_1 Y + \lambda_2 (\log Y)^2 + \lambda_3 Z \dots\dots\dots 5$$

Note that a positive and statistically significant coefficient L2 would support the hypothesis of non-linearity.

#### IV Results and Discussion

The functional forms of the savings function as propounded by Keynes, Klein and Landau were used to estimate separately for urban and the rural households using the Ordinary Least Square estimation technique. The report for the rural area of Nigeria is presented in table 2 while, that of the urban area is reported in table 3.

**Table 2: Ordinary Least Square Estimate of the Savings Equations for Rural Household in Nigeria**

S/No.		Keynesian	Klein	Landau
i.	Household Income	0.0000521 (0.971)	-	-0.0000621
ii.	Inverse of Household Income	-726.42(3.82)*	-	-
iii.	Log of Household Income	-	1.381(4.752)*	-
iv.	Log of Household Income Square	-	-	0.142(4.921)*
v.	Dependency Ratio	-0.623 (4.42)*	-0.347(5.34)*	-0.339(1.76)*
vi.	Employment Status of Household Head	-0.041 (1.69)**	-0.038 (1.74)**	-0.039(1.76)**
vii.	Earnign Status of Household Head	0.031 (0.79)	0.029 (0.49)	0.028 (0.47)
viii.	Secondary Earners in Household	-0.009 (1.55)	-0.011 (0.59)	0.018 (2.42)*

ix.	Age of Household Head	-0.021 (3.31)*	-0.020 (3.81)*	-0.020 (3.82)*
x.	Age of Household Head Square	0.00003 (3.57)*	0.00003 (3.79)*	0.00003 (3.72)*
xi.	Constant Term	0.864 (4.01)	-3.418 (4.99)*	-1.357 (5.31)*
	R-Square	0.348	0.124	0.105
	Adjusted R-Square	0.343	0.121	0.101
	F-Statistic	201.89	84.32	59.71
	Educational Status of Household Head			
	Incomplete Primary School	-0.372 (4.12)*	-0.327 (4.32)*	-0.323 (5.37)*
	Primary School Graduate	-0.132 (2.31)*	-0.122 (3.21)*	-0.117 (3.42)*
	Junior Secondary School Graduate	-0.131 (3.21)*	-0.123 (3.74)*	-0.103 (3.52)*
	Senior Secondary School Graduate	-0.081 (2.43)*	-0.062 (3.01)*	-0.058 (3.27)*
	University or Polytechnic Graduate	-0.312 (4.32)*	-0.301 (3.41)*	-0.397 (4.01)*

**Sources: Author's Computation 2011**

**Note:** *t-Statistics are given in parentheses*

*\* denotes significance at 5 percent level.*

**Table 3: Ordinary Least Square Estimate of the Savings Equations for Urban Household in Nigeria**

S/No.		Keynesian	Klein	Landau
i.	Household Income	0.0000743 (0.781)	-	-0.000024 (0.569)
ii.	Inverse of Household Income	-768.35 (5.94)*	-	-
iii.	Log of Household Income	-	1.431 (7.62)*	-
iv.	Log of Household Income Square	-	-	0.201 (6.43)*
v.	Dependency Ratio	-0.632 (10.23)*	-0.581 (9.35)*	-0.427 (9.16)*
vi.	Employment Status of Household Head	-0.124 (4.51)*	-0.091 (4.83)*	-0.083 (4.414)*
vii.	Earnign Status of Household Head	0.317 (3.14)*	-0.241 (1.31)	-0.195 (1.29)
viii.	Secondary Earners in Household	-0.012 (1.31)	0.006 (1.12)	0.002 (0.09)
ix.	Age of Household Head	-0.103 (6.72)*	-0.101 (5.43)*	-0.101 (5.08)*
X.	Age of Household Head Square	0.00005 (5.63)*	0.00010 (1.21)	0.00010 (1.18)
xi.	Constant Term	3.187 (6.32)*	-5.134 (7.58)*	-3.013 (8.64)*
	R-Square	0.483	0.218	0.192
	Adjusted R-Square	0.481	0.215	0.190



F-Statistic	297.14	201.31	153.42
Educational Status of Household Head			
Incomplete Primary School	-0.417 (3.31)*	-0.254 (4.31)*	-0.382 (5.123)*
Primary School Graduate	-0.531 (2.89)*	-0.519 (3.03)*	-0.482 (4.32)*
Senior Secondary School Graduate	-0.131 (3.21)*	-0.123 (3.74)*	-0.103 (3.52)*
University or Polytechnic Graduate	-0.254 (4.31)*	-0.222 (3.81)*	0.209 (3.98)*

Sources: Author's Computation 2011

Note: *t*-Statistics are given in parentheses

\* denotes significance at 5 percent level.

From tables 2 and 3, the  $R^2$  Statistics show that Keynesian model fits Nigeria data better than the other two models. The Explanatory Capacity of the models are higher in the urban than in the rural estimates (i.e. Keynes 34.8%, Klein 12.4%; Landau 10.5, in rural while Keynes 48.3%, Klein 21.8%; Landau 19.2%). In both the urban and rural areas, Household savings were found to be significantly influenced by income and other sound economic factors like age, dependency ratio, education and secondary earners (Zahoor, et al., 2009).

The non-linearity of saving function in Nigeria was confirmed by the statistical significant of the coefficients of inverse of household income in Keynesian, Klein's; and Landau functions. The sizes of the coefficients of the different variants of income variables are relatively larger for the urban household as compared to their rural counterpart (Singh, 2010).

The dependency ratio was found to have inverse relationship with the household savings, i.e. the higher the dependency ratio the lower the savings. Those coefficients are relatively larger for urban areas in Nigeria given the social mentality that households in cities must help in training their relations in rural areas. These coefficients are statistically significant across all the functional forms with a negative sign (Olomola and Olagunju, 2004; Verma and Wilson, 2005; Solomon and Wet, 2004).

The coefficient of the earner status in the urban area of Nigeria was statistically significant and has positive sign with its size larger than the one reported in the case of rural households which were statistically insignificant. Therefore, households in urban area that is an earner will lead to an increase in saving all other things being equal.

Different levels of educational attainment of head of household were found to have a negative statistically significant impact on saving in Nigeria. Though, the influence is smaller in rural when compared to urban households. This finding suggests that as level of education increases, the savings are reduced. The reason for this is not far fetched, that educated parents will definitely want to educate their children irrespective of the cost and this will impair on saving of such households (Burney and Irfan, 1991; Solomon and Wet, 2004).

The presence of secondary earner in the household in Nigeria was found to have positive influence on Household savings. The Household savings was found to decrease with the age at a decreasing rate because the coefficient of the age of the household head and its square are statistically significant with the negative and positive signs respectively for both rural and urban households.

## **V Conclusions and Recommendations**

The focus of this paper has been to analyze the household saving in Nigeria, using the data available from the Household Income and Expenditure Survey (HIES) for the year 2009-2010. The non-linear saving functions developed by Keynes, Klein, and Landau were estimated for the urban and the rural household respectively, using the Ordinary Least Square (OLS) method. The variables used in this research include Household Savings (Dependent) while, Household income and other socio-economic variables like education, secondary earners, age, employment and dependency ratio (as independent).



The study concludes that the propensity to save of the rural households is much higher when compared with their urban counterpart. The educational status of Household heads was found at various levels to have negative influence on Household Savings and is statistically significant. This shows that the consumption expenditure of highly educated household's head is relatively higher, which in turn reduces their savings. There exist a systemic relationship between the employment status of household head and their respective saving level. The Life Cycle Hypothesis was supported by these findings because Savings tend to increase with age but decline when age crossed a certain unit.

Finally, the dependency ratio has a negative relationship with Household Savings both in the rural and urban location in Nigeria.