FACTORS INFLUENCING SAVING BEHAVIOUR OF NIGERIANS

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Factors Influencing Saving Behaviour of Nigerians

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Abstract:

Purpose: This paper is motivated by the dearth of domestic savings required for inclusive economic growth in Nigeria. The paper examines the impact of financial literacy and socio-economic factors on Nigerians saving behaviour.

Methodology: The models are estimated with linear probability and probit estimators. There are three categories of variables in the models; the independent variables, which are the computed scores of financial literacies; control variables, which are the measures of demographic and socioeconomic factors and; the dependent variables, which are the measures of frequencies of saving in three financial institutions in Nigeria.

Findings: Our finding resonates with policy debates suggesting that improving Nigerians knowledge about finance and financial services would foster Nigerians saving behaviour. We observed also that households with 1 – 4 persons have tendency to put away more money as savings. The paper documented that the optimum household size for accelerating saving is 5-6 persons beyond which enforces financial exclusion or dissaving, among others.

Unique contributions to theory, practice and Policy: This paper provide fresh evidence on the influence of the newly financial literacy scores variables designed by the National Bureau of Statistics (NBS) on Nigerians saving behaviour. It equally, expanded the saving literature by considering differently level of household sizes to explained Nigerians saving behaviours. Consequent on the findings the paper suggested that the Federal Government of Nigeria in collaboration with the States governmant reenforce the National Financial Inclusion Strategy framework and include a finance course to be made mandatory and taught at all levels of education in Nigeria. The paper also suggested a rethink on the Nigerian population policy to an aggressive campaign on family planning aimed at reducing fertility level to about 2 – 3 children per family.

Keywords: *Financial literacy, Saving Behaviour, Financial Institutions and Households Size.*

JEL codes G_2 G_5 J_{10}

INTRODUCTION

Access to financial products and service drives economic growth and development. It is a key enabler to reducing poverty and boosting prosperity worldwide (World Bank, 2022; Ikue, et al., 2021; Keho, 2019; Soylu, 2019; Aghion, *et al.,* 2016; Najarzadeh, Reed and Tasan, 2014). It allows people to finance businesses, fund education, reduces costs associated with executing government social policies, promote financial deepening, empower women, boost capital accumulation and thus, encourages inclusive economic growth. Furthermore, the onboard cash from the financially included adult could be channel for re-investment by banks and the income earned from providing banking services form huge portion of banks' profit (Rashdan & Eissa, 2020; Wokabi & Fatoki, 2019; Soumare, *et al.*, 2016 and Mehrotra & Yetman, 2015). In addition, regulatory impulses from monetary policy tends to have greater effects given higher scores in measures of financial inclusion. To this end, it becomes necessary for financial institutions to capture the financially excluded adult citizens and onboard their factor income for effective transmission of monetary policy and financing of investment agendas.

Acknowledging these benefits of financial inclusion, National governments, researchers and the academia have devoted much of the last decade promoting initiatives to achieving greater financial inclusion for all economically active citizens through various programmes and strategies such as those termed national financial inclusion strategies (Ozili, 2020). The outcomes of these submits has not significantly improved individual access to financial products and services on the African Continent. For instance, in 2013 the African Development Bank shows that only 23% of adults on the continent had access to financial products and services in the formal financial institutions. Probing further, the inclusion rates of Nigerians was 30%, and was above Ghana by 1% and below South Africa by 24%. In another report of 2020, the Global Microscope shows that Nigeria was far below South Africa and Ghana. Within this period households' size in Ghana and south Africa has reduce due to slow rate of population growth from 2.10% to 0.84 and 2.48% to 1.96% for South-Africa and Ghana respectively. Whereas population growth rate in Nigeria marginal drop from 2.57% to 2.41%, (World Development Indicators, 2022). The Nigerian government have shown efforts to integrate more Nigerians into the financial system and increase their access to financial products and services by launching of the National Financial Inclusion Strategy (NFIS) of 2012. The effort to include the unbanked in the financial system has produced minimum results compared to neighbouring economies. It becomes imperative to gain insight into the factors influencing Nigerians saving behaviour. This paper contributes to literature by providing new evidence on the financial literacy score related variables, socio-economic and demographic variables that influences Nigerians saving behaviour. We deploy the linear probability and probit estimators to analyse the impact of the newly financial literacy scores variables designed by the National Bureau of Statistics (NBS) and other factors on Nigerians saving behaviour. We equally, expanded the literature by assessing saving behaviour of adult Nigerians across three institutions in the Nigerian financial system, that is, formal banking institutions, non-banking financial institutions and informal financial institutions. This is advantageous policy wise, as financial inclusion, strategies and policies will be specific, rather than holistic, thereby accommodating the specific features of adult Nigerians that use these financial institutions. The paper equally considered how household size, sources of income and geography, that is region of residence of adult Nigerians, influence their saving behaviours. We used four (4) categories of household size: small household size (1 – 4 persons), normal household size (5 – 6 persons), large household size (7 – 10 persons) and very large household size (above 10 persons). We also investigate how income from informal

source, employment income, business income, farming income and transfer income influence saving behaviours of adult Nigerians. In terms of geography, we investigate how residing in the Geo-political zone of Nigeria explain saving behaviours. The overwhelming evidence from our results show that the newly financial literacy scores by the NBS affected saving behaviour of Nigerians differently across the financial institutions.

The rest of the paper follows thus: section two presents the empirical findings on the drivers of financial inclusion. Presentation of the models and data for the study occupies section three while sections four and five holds the discussion of findings, conclusions and reflections on the paper's policy relevance respectively.

EMPIRICAL LITERATURE

Financial literacy is seen in literature as a driver of financial inclusion. Using data from the Bank of Japan on survey of financial literacy and financial behaviour on some 25,000 persons aged 18 to 79, Yoshino, et al., (2017) establish a positive relationship between levels of financial literacy, general education and savings behaviour of the Japanese. In the same spirit, Adetunji & David-West (2019) investigate 22000 household members from the 2016 A2F EFInA dataset on their responses to formal and informal financial institutions. Using logistic regression model, they demonstrate that financial literacy is a major driver of financial inclusion in the formal and informal financial institutions in Nigeria. As to the role of demographics and socioeconomic factors, they observe that; older Nigerians save more in the formal financial institutions than younger Nigerians do; women are more excluded from the financial system than men are, more saving are done in the urban cities than the rural areas and that income levels only drive inclusion in the informal financial institution. Akileng, Lawino, & Nzibonera (2018) employ a regression model and show that there is a higher potential for financially literate household members to make sound financial decisions in Uganda and thus establish that financial literacy and financial innovation are the major drivers of financial inclusion there. They also observe demographic influences similar to Adetunji & David-West in that respondent age and income level significantly determine financial inclusion. However, they find that education level of the respondents and gender disparity play lesser role in the determination of financial inclusion in Uganda. Abel, Mutandwa, & Roux, (2018) use logistic regression method on a dataset of 4000 persons from the Fin Scope Consumer Survey of 2014 and observe in Zimbabwe that low proximity to financial service centre (distance of banks from household member) and documentation of account opening are factors that increase financial exclusion. Their study identifies the accelerating factors of financial inclusion as financial literacy, age, accessibility to internet connectivity, education level and income. Mose & Thomi (2021) supported the argument in the ability of network connectivity to increased financial access. Mhlanga & Dunga (2020) took aim at farmer households in Manicaland Province of Zimbabwe, and document that education level, proximity to financial institution, off-farm income, financial literacy and age are the main drivers of financial inclusion. Their finding is in line with Abel, Mutandwa, & Roux, (2018) in the area of proximity since both studies agree that the longer the distances to financial institutions, the higher the level of financial exclusion.

In trying to understand what influences the saving attitudes and behaviours of the people in the developing countires, Sodıpo, et al., (2022) expresses that financial literacy and proximity to financial products and services are the major influencers of saving in Nigeria. While Akakpo, et al (2022), with a biprobit model on their data, conclude similarly for Ghana. About the same time also, Geraldes, Gama, & Augusto, (2022) analysed data from 61 countries worldwide and

posit that financial literacy is a necessary condition for financial inclusion irrespective of the economic conditions of the countries. See also Morgan (2022) for observation in Asian countries. In America, Lusardi & Mitchell, (2014) observe that financial illiteracy is both widespread and adversely affects the quality of financial decision-making. This observation, they add, is more acute for women, minority groups and the least educated segments of the population. Still, other factors influencing financial inclusion have come under examination. More works (Baidoo, Boateng, & Amponsah, 2018; Lotto, 2018; Kodongo, 2018; Nwidobie, 2019; Kim, *et al.,* 2020; Dar & Ahmed, 2020; Esquivias, *et al.,* 2021; Kandari, et al., 2021) had argued severally, the massive role of financial literacy in promoting finacial inclusion.

One such factor is having a paid employment or not. For example; Saniya *et al.,* (2021) establish that labour force participation rate has the strongest correlation with account ownership- a measure of financial inclusion. This agrees with Arandara & Gunasekera (2020) and Demirguc-kunt & klapper (2012) with the later adding that high-growth, small and medium enterprises in Africa are less likely to use formal financing, which suggests formal financial system is not serving the needs of enterprises with growth opportunities. As regards to the European countries, Coffinet & Jadeau (2017), argue that factors responsible for financial exclusion include old age, unemployment, low-income household and low level of education. They equally show that these factors are heterogeneous across countries. Looking at 37 Africans countries, Zins & Weill (2016) use World Bank's Global Findex database to show that higher education and income, being male, and old age positively influences financial inclusion. Interestingly also, they establish evidence of differences in the determinants of inclusion in the informal and formal financial system. However, Rashdan & Eissa (2020) find a contradictory outcome for gender as a determinant of financial inclusion in Egypt. Their study, based on the Findex database of 2017, document no significant relationship between gender and level of financial inclusion. Nonetheless, they corroborate the finding by Zins & Weill (2016) that richer, more educated and older persons are more likely to be included in the financial system.

Indeed, the demographic determinants of financial inclusion have been well researched but with both converging and diverging results. For one, while literature contain evidence that financial inclusion is not gender neutral, yet such gender differences are not consistent across countries and/or income groups. For example, whereas Rashdan & Eissa (2020) document no significant relationship between gender and level of financial inclusion in Egypt, Venkatsan & Deshpande (2022) argue that gender influences people's preferences for formal vs. informal financial services in both Kenya and South Africa, (See also Chamboko, Heitmann & Van-Der-Westhuizen, 2018). Also, financial literacy, age, general education, employment, income levels, household size and geographic location are found in literature to have impact on- but with varying degrees of importance in determination of- financial inclusion (see Soumare, et al., 2016 for an analysis of Central and West Africa sub-region).

Prior to Zins and Weil (2016), Akudugu (2013) zoom in on Ghana and reveal that lack of trust in the formal financial institutions alongside age, literacy levels, poverty and social networks explain financial inclusion in Ghana. Similarly, Blackmon & Mwesigwa (2021) use an audit study and took aim at barriers to inclusion in digital financial services in Nigeria. They highlight that lack of trust is a barrier to inclusion in formal financial system. Undermining such trust, they find, are inefficient service infrastructure, lack of transparency in transaction costs and high service charges. Looking at the effect of remittances on financial inclusion, Anzoategui, Demirgüç-Kunt & Pería (2014) included numbers of adult households in their models and show that financial inclusion reduces with increasing number of adult members in a household.

Koomson, Villano & Hadley (2020) shows in Ghana that household size significantly influences financial inclusion. See also Churchill & Marisetty (2020) in India.

From the empirical review, we observe that the determinants of saving behaviour and financial inclusion have attracted attention from researchers. Previous studies have presented opposing views on how socioeconomic, demographic factors and financial literacy influence saving behaviour and the degree to which the local financial instution is inclusive. Nothwithstanding, there are current evolutions that could explain saving behaviour in Nigeria and this study tries to understand these factors. We veered from previous studies on several fronts. We tried to explain saving behaviour in Nigeria across four categories of household sizes. We expanded the fronteir of literature on saving behaviour in Nigeria by considering how income source and region of residence (that is geography) influences the saving behaviour of Nigerians. As an improvement over previous studies, we used the financial literacy scores variables newly developed by the NBS in explaining saving behaviour effect of financial literacy. In the Nigerain financial space, we touched on the unexplored area of factors influencing saving behaviour. We carried out differential analysis of these factors across the three financial institutions of formal banking institutions, non-banking institutions and informal financial institutions.

METHODOLOGY

Sample Description

In this section, we examine the influencers of Nigerians' saving behaviour. Data for the study are online and collected secondarily from EFInA website, A2F 2020 Dataset. A survey conducted by Ipsos Nigeria Limited and supervised by the NBS. Some 29,407 adult Nigerians of aged 15 to 98 across 36 states and Capital of the Federation participated in the survey. There are three categories of variables used in this paper: (i) the independent variables, which are the computed scores of financial literacies, (ii) control variables, which are the measures of demographic and socioeconomic factors and (iii) the dependent variables, which are the measures of frequencies of saving in three financial institutions in Nigeria. This study examined the effects of these financial influencers (independent and control variables) to see whether the results converged along the three financial institutions in Nigeria.

Model Specification

The factors influencing financial access in Nigeria are estimated as follows;

$$\Pr\left(Y_i = \middle| X_i\right) = g(X_{1i}, X_{2i}, \dots X_n) \qquad (1)$$

Equation (1) is the conditional probability of Y_i (Y=1) occurring given X_i.

$$Y_{1,i} = \pi_{10} + \pi_{11}X_{11,i} + \pi_{12}X_{12,i} + \pi_{13}X_{13,i} + \mu_{1i} \quad (2)$$

$$Y_{2,i} = \pi_{20} + \pi_{21}X_{21,i} + \pi_{22}X_{22,i} + \pi_{23}X_{23,i} + \mu_{2i} \quad (3)$$

$$Y_{3,i} = \pi_{30} + \pi_{31}X_{31,i} + \pi_{32}X_{32,i} + \pi_{33}X_{33,i} + \mu_{3i} \quad (4)$$

Where,

$Y_i = Y_{1i}, Y_{2i}$ and Y_{3i}

Y_{1i} defines whether an individual own an account with any of Banking Financial Institutions (Savings, Current, Loan and Domiciliary accounts with Deposit Money Banks (DMBs) or of Microfinance banks or Non-Interest Banks.).

Y_{2i} defines whether an individual own an account with any of Non-Banking Financial Institutions (Mortgage Products, Insurance Products, Pension Products, and the Capital Market, Crypto-currency) and

Y_{3i} defines whether an individual own an account with any of Informal Financial Institutions.

π_{10}, π_{20} and π_{30} are the model's intercept.

$X_{11,i}, X_{21,i}$ and $X_{31,i}$ is financial Literacy scores variables and π_{11}, π_{21} and π_{31} are the models' parameters for equation (1), (2) and (3) respectively. $X_{12,i}, X_{22,i}$ and $X_{32,i}$ are demographic variables and π_{12}, π_{22} and π_{32} are the models' parameters for equation (1), (2) and (3) respectively. $X_{13,i}, X_{23,i}$ and $X_{33,i}$ are socio-economic variables and π_{13}, π_{23} and π_{33} are the models' parameters for equation (1), (2) and (3) respectively. Finally, μ_{1i}, μ_{2i} and μ_{3i} are the unforeseen variables (error term) for equation (1), (2) and (3) respectively. The models are estimated with the probit and linear probability regressions estimators.

Financial Literacy Score

Financial literacy scores as defined here is the scores of financial capability indicator, financial health indicator and financial education indicator. These measures of literacy emphasize the ability of managing liquidity, meeting financial goals and resilience.

Financial capability Score: computed as the average score of respondents' capability in financial budgeting, financial control, financial tracking, financial knowledge and financial choice. The scores for each measure are 1= low, 2= Medium and 3=high, respectively. The score of financial capability ranges from 5 to 15.

Financial Health Indicator: computed as the average score of financial resilience (ability to cope with financial risk), financial plan, financial spend and financial save. The scores for each measure are 1= low, 2= Medium and 3=high, respectively. The score of financial health ranges from 4 to 12.

Financial Education Score: computed as the score of understanding financial terms and conditions as well as financial numeracy, (EFInA, A2F 2020 Dataset).

The demographic variables are respondent age and gender. The age of the respondent was further recoded into six categorical variables or groups of: less than 30 years, people in their thirty's, Forty's, Fifty's, Sixty's and seventy and above for robust description.

The socio-economic influencers affecting financial access includes respondents' sources of income, education level, residential area and region as well as household sizes.

Respondent Income: to avoid the bias associated with self-reported income, we used 'source of income' as against income ranges. Consequently, five sources of income are identified as:
   i.   Formal sources of income: this is income from salary/wages from government and business/company in the formal sector.

ii.   Personal sources of income: this is income from profits of entrepreneurs or individual business, rent, pension, dividend, return on investments in the formal sector, less the Agro-sector.

iii. Informal sources of income: this is wages due to individual engagement in chores such as domestic chores or farm labour, services (e.g. hairdressing, tailoring, mechanic), etc.

iv.   Farming or agricultural sources of income: this is income from subsistence/small scale, commercial/large scale faming, trader of own agricultural output, etc) and;

v.   Transfer or dependent sources of income (are money from a household member, get money from family/friends, household member pays my expenses, etc.).

Respondent Education: the education of respondent is group into seven levels:
  i.   Informal Education
  ii.   Completed Primary Education (First School leaving Certificate)
  iii. Completed Secondary Education (SSCE)
  iv.   Ordinary National Diploma (OND)
  v.   Bachelor Degree/Higher-National Diploma (HND/B.Sc.)
  vi.   Post Graduates
  vii. No formal Education

Household size: following the NBS normal household size in Nigeria, the selected households are categorized into four group;

  i.   Small household size, which is household within 1-4 persons,
  ii.   Normal household size, which is household within 5-6 persons,
  iii. Large household size, consisting of 7-10 persons and
 iv.   Very large household size consisting of above 10 persons.

We generated series of dummies for the categorical variables in the models. The reference groups are very large household size, post-graduate education, informal income source, and North-Central.   Table 3 shows the summary statistics of the selected variables for the study.

RESULTS AND DISCUSSIONS

Figure 1 shows the composition ratio of the survey outcomes and the composition ratio of the 2006 Population Census, while Table 1 shows gender and sector distributions of the sample with the composition ratio of the 2006 Population Census.

Figure 1: *Distribution of the Survey Sample and Comparison with the 2006 Population Census (%)*
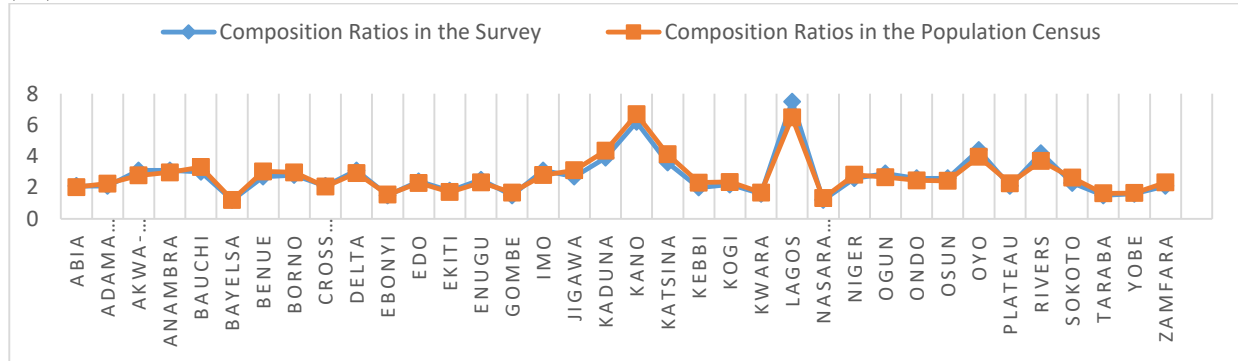
Source: Author Computation

Table 1: Strong similarities between the survey sample composition and composition of the 2006 Population Census in Nigeria.

		Frequency	Sample Ratio	Census Ratio	Difference in Ratio
Gender	Male	15264	51.9	51.0	0.9
	Female	14143	48.1	49.0	-0.9
	Total	**29407**	**100.0**	**100.0**	0.00
Sector	Urban	8047	27.4	26.8	0.6
	Rural	21360	72.6	73.2	-0.6
	Total	**29407**	**100.0**	**100.0**	0.00

Source: Authors' Computation.

Table 2: Descriptive Statistics of Household Size and Respondent Age

	Sample	Minimum	Maximum	Mean	Std. Deviation
Household Size	29407	1	20	5.00	3.286
Respondent Age	29407	15	98	36.30	14.800

Source: Authors' Computation

Table 2 is the descriptive statistics of the household size and age of the respondents. Table 3 is the frequency distribution of the categorical variables. Over thirty-seven percent (37.3%) of the sample are below thirty years and, 3.7% are 70 years and above. Table 3 shows that 52.0% of the household size are 1 to 4 persons, 6.0% are 10 persons and above. On the area of education attainments, majority of the sample completed secondary school education while only 1.4% completed a post university education. We observed that 39.2% of the sample got their income through personal business and only 7.4% were from formal sources.

Table 3: Sample Distribution

|	Frequency	Percent	Cumulative Percent
Age Group			
15-29yrs	10971	37.3	37.3
30s	7748	26.3	63.7
40s	4996	17.0	80.6
50s	2884	9.8	90.5
60s	1716	5.8	96.3
70s & above	1092	3.7	100.0
Total	**29407**	**100.0**	
Size of Household			
1-4 Person	15280	52.0	52.0
5-6 Persons	6862	23.3	75.3
7-10 Persons	5496	18.7	94.0
Above 10 Persons	1769	6.0	100.0
Total	**29407**	**100.0**	
Education Level			
Informal Education	1717	5.8	5.8
Primary Education	7184	24.4	30.3
Secondary Education	10336	35.1	65.4
OND	2592	8.8	74.2
HND/B.Sc.	1884	6.4	80.6
Post-Graduate	423	1.4	82.1
No Form of Education	5271	17.9	100.0
Total	**29407**	**100.0**	
Sources of Income			
Formal Sources	2178	7.4	7.4
Personal Businesses	11513	39.2	46.6
Informal Sources	2287	7.8	54.3
Agro-Sources	6371	21.7	76.0
Dependent/Transfer	7058	24.0	100.0
Total	**29407**	**100.0**	
Region			
North Central	5498	18.7	18.7
North East	4867	16.6	35.2
North West	5538	18.8	54.1
South East	4147	14.1	68.2
South-South	4695	16.0	84.1
South West	4662	15.9	100.0
Total	**29407**	**100.0**	
Financial Access			
Banking Financial Institutions	11849	40.3	40.3
Non-Banking Financial Institution	1735	5.9	46.2
Informal Financial Institutions	4280	14.6	60.7
Financially Excluded	11543	39.3	100.0
Total	**29407**	**100.0**	

Source: Authors' Computation

In this paper, financial inclusion means individual access to formal (Banking financial and Non-Banking Financial Institutions) or informal financial products and services. It is the ownership of an account with either of a formal or informal financial institution in Nigeria. Looking at the frequency of financial access, we observed that 60.7% of the sample are financially included. Formal financial institutions have 46.2% and informal financial institution 14.6%.

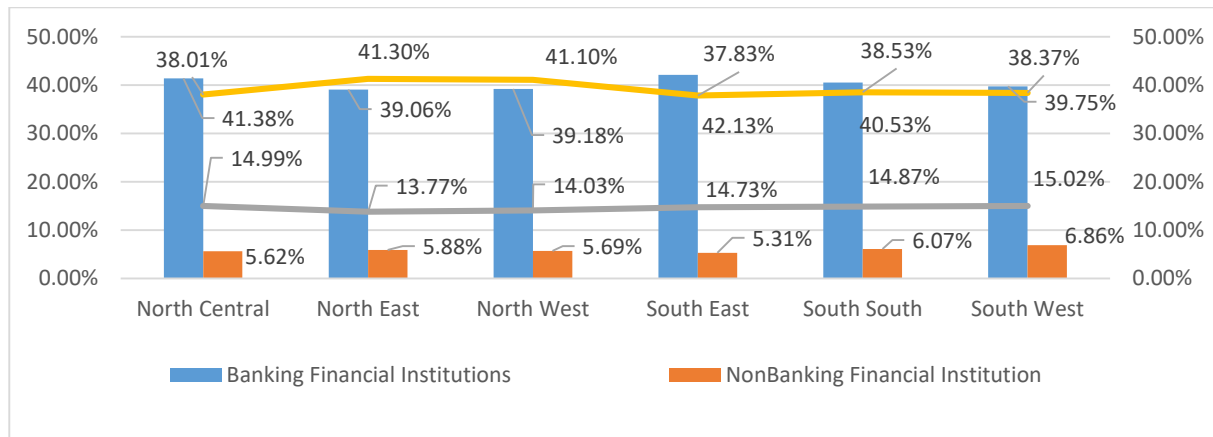*Figure 2: Owning at Least a Financial Product with Financial Institutions by Gender.*
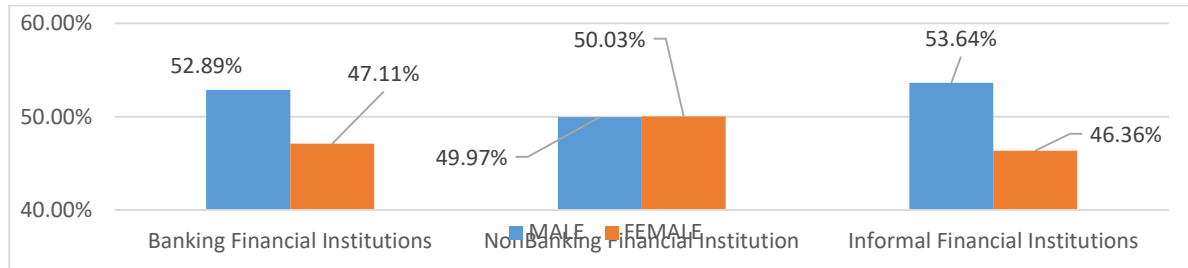
Source: Authors' Computation. Note: The right-hand-side is the scale for informal Financial Institution.

Figure 3: Owning at Least a Financial Product with Financial Institutions by Age group. Inclusion in any of the three types of financial institution tend to diminish with age.
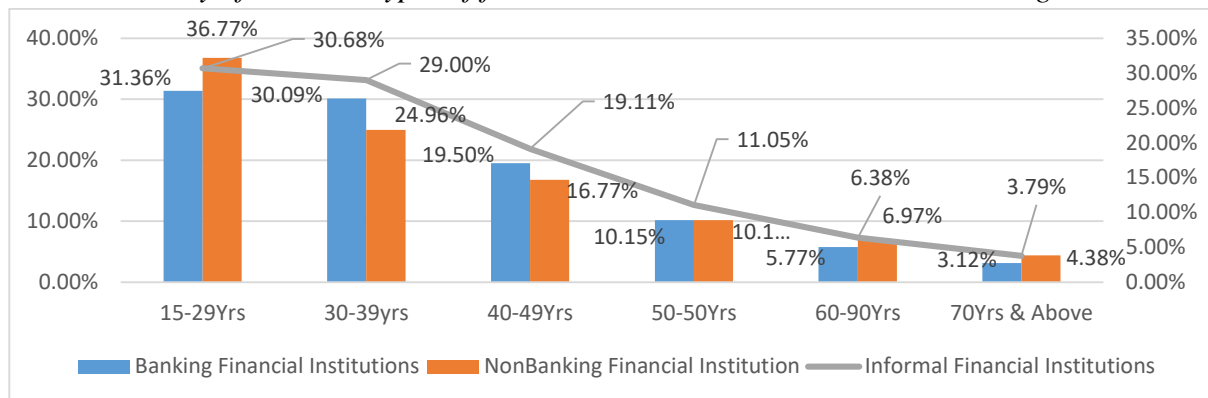
Source: Authors' Computation. Note: The right-hand-side is the scale for informal financial institution

Figure 4: Owning at Least a Financial Product or Service by region

Source: Authors' computation. Note: The right-hand side is the scale of informal Financial Institution and Exclusion

Figure 2 shows gender access to financial products and services of the three types of financial institutions (Banking, Non-Banking and Informal). Figure 3 shows the relationship between age group and the likelihood of owning at least a financial product or service with formal or informal financial institutions. The figure shows that only 31.36% of persons within the age range of 15-29 and 3.12% of persons between the age range of 70 years and above owned an account with the banking financial institution respectively. This pattern is seen in the other two financial institutions (non-banking and informal financial). Figure 4 shows the access to financial products and services by regions and reveal that the northern parts of Nigeria had the most excluded persons with 41.3%, the North-East as highest and lowest of 37.83% in Southeast. We also observed that southeast had the highest rate of inclusion in the banking financial institution, South-West in the Non-Banking and informal financial institutions.

We estimated nine models in this paper. Table 4 is the model of the factors influencing Nigerians' saving in a banking financial institution. Table 5 is the model for factors influencing Nigerians' ownership of non-banking financial products and services and Table 6 is the model of the factors that influence Nigerians' ownership of an account with an informal financial institution.

Having an account with the formal financial sector remains the doorway to accessing financial services and products or conducting transactions in the local and international ecosphere. Therefore, determining Nigerians saving behaviour is essential to improving economic development. The results on Table 4-6 shows that financial literacy indexes significantly affected saving behaviours of Nigerians. However, the outcome was not universal for the various financial institutions examined. The results revealed that a point increase in Nigerians' ability to understanding financial terms and conditions (financial education) increases the desire to save in the banking financial institution by 1.5 percentage points from 5.1 to 6.6 percent and saving in non-banking financial institution by 0.67 percentage points from 1.46 to 2.13 percent. Whereas a point increase in financial education reduces saving in the informal financial institutions (see Table 6). Similar result was observed in the findings of Adetunji & David-West (2019) in Nigeria, they showed that financial literacy impacted saving in institutions other than formal financial institution negatively. The negative response of financial education to saving in the informal instititon in Nigeria implies the desire of savers to move to formal sectors with an increase in their understanding of the formal financial terms and conditions.

Table 4: Factors Influencing Nigerians' Saving in the Banking Financial Institutions (Dependent Variables is owning Account with either of DMBs or Microfinance Banks)

	(1) OLS	(2) Probit (Marginal Effects)	(3) Probit (Marginal Effects)
Fin_Education_Score	0.0509*** (0.0024)	0.0662*** (0.0030)	0.0660*** (0.0030)
Fin_Capability_Score	0.1987*** (0.0054)	0.2083*** (0.0065)	0.2089*** (0.0065)
Fin_Helath_Score	0.0366*** (0.0036)	0.0448*** (0.0043)	0.0450*** (0.0043)
Resp.Age (*in Log*)	0.1015*** (0.0070)	0.1302*** (0.0087)	0.1189*** (0.0084)
Gender	0.0173*** (0.0054)	0.0103 (0.0066)	0.0052 (0.0015)
Household Size (*Very_Large_hhs_Size*)			
Small_hhs_Size	0.1311*** (0.0112)	0.1630*** (0.0138)	0.1479*** (0.0135)
Normal_hhs_Size	0.0856*** (0.0117)	0.1108*** (0.0152)	0.1003*** (0.0150)
Large_hhs_Size	-0.0519** (0.0119)	-0.0615*** (0.0153)	-0.0616*** (0.0153)
Respondent confidence in Banking Financial Institutions	0.0012 (0.0061)	0.0007 (0.0074)	0.0010 (0.0074)
Respondent Confidence Network_Provider	0.0002 (0.0066)	-0.0004 (0.0080)	0.0002 (0.0080)
Sources of Income (*Informal_Source*)			
Income_Employment	0.0067*** (0.0005)	0.0165*** (0.0063)	0.0169*** (0.0063)
Income_Business	0.0219** (0.0100)	0.0283** (0.0122)	0.0274** (0.0121)
Income_Farming	0.0193* (0.0108)	0.0254* (0.0132)	0.0279** (0.0132)
Transfer_Income	-0.0014 (0.0108)	-0.0031 (0.0132)	-0.0014 (0.0131)
Education (*Post Graduate_Education*)			
No_formal_education	-0.0127 (0.0226)	-0.0130 (0.0273)	-0.0271 (0.0271)
Primary_education	0.0169** (0.0073)	0.0208* (0.0113)	0.0206* (0.0098)
Secondary_education	0.0298*** (0.0020)	0.0347*** (0.0151)	0.0325** (0.0151)
Post Secondary_education	0.0328*** (0.0029)	0.0381** (0.0179)	0.0379** (0.0180)
University_education	0.0296*** (0.0023)	0.0346*** (0.0015)	0.0332*** (0.0022)
Sector	0.0140** (0.0063)	0.0170** (0.0077)	0.0219*** (0.0073)
Regional Group Dummies (North_Central)			
North_East	-	-0.0117 (0.0105)	-
North_West	-	-0.0090 (0.0106)	-
South_East	-	0.0326*** (0.0109)	-
South_South	-	0.0394*** (0.0104)	-
South_West	-	0.0468*** (0.0107)	-
Constant	-0.6941*** (0.0387)	-	-
y = Pr(Bank) (predict)	-	0.3797	0.3799
$R^2/PseudoR^2$	0.2229	0.1815	0.1806
No_Observation	29407	29407	29407

Source: Author Computation

The results equally show that a point increase in respondent's capability in making financial budgeting, control, finance-tracking, sound financial knowledge and choice- financial capability score- increases the desire to save. For the banking financial institution, it increases by one percentage point from 19.89% to 20.89%. For the non-banking financial institution, it increases by 0.99 percentage point from 12.69% to 13.68%, and for the informal financial institution, it increases by 0.24 percentage point from 12.57% to 12.81%. The later observation, though seemingly puzzling, is actually counter intuitive for the mere rationale that membership in informal savings or loan groups provide interest-free credits and so its appeal is literacy-neutral. Interestingly, our data (see Figure 3) demonstrate that the appetite for informal financial products or services remain very popular among the most economically active age-groups from as early as 15 to late 50s. For people in these age groups, various sources of income provide the funds for the self-help transactions common in informal financial institutions. This trend is also noticed in the relationship between financial health and owning financial products either in a formal or an informal financial institution in Nigeria. Our findings agree with the universal observation of massive impacts of financial literacy score on saving behaviours in the ecosphere. See Ndanshau & Njau, (2012), Lotto, (2018), Abel, Mutandwa, & Roux, (2018), Akileng, Lawino, & Nzibonera, (2018), Kodongo, (2018), Nwidobie, (2019), Adetunji & David-West, (2019), Mhlanga & Dunga, (2020), Mose & Thomi, (2021), Akakpo, et al., (2022) and Sodipo, et al., (2022) for studies on african countires. Altarawneh, Al-Nimri, & Al-Nuaimi, (2020) for stuies on European and South America countries. Morgan & Long, (2020), Esquivias, Sethi, Ramandha, & Jayanti, (2021), Dar & Ahmed, (2020), Kandari, Bahuguna, & Salgotra, (2021) for studies on Asian countries, and Geraldes, Gama, & Augusto, (2022) for 61 cross country analysis.

Table 5: Factors Influencing Nigerians' saving in the non-banking financial institutions (Dependent variables: owning of Insurance, Pension, Stocks products/services, etc.)

	(4) OLS	(5) Probit (Marginal Effects)	(6) Probit (Marginal Effects)
$Fin\_Education\_Score$	0.0146*** (0.0023)	0.0213*** (0.0025)	0.0213*** (0.0025)
$Fin\_Capability\_Score$	0.1368*** (0.0051)	0.1269*** (0.0053)	0.1269*** (0.0053)
Fin_Helath_Score	0.0363*** (0.0034)	0.0370*** (0.0036)	0.0371*** (0.0036)
$Resp.Age\ (in\ Log)$	0.0807*** (0.0065)	0.0901*** (0.0071)	0.0886*** (0.0070)
$Gender$	0.0021 (0.0051)	0.0043 (0.0054)	0.0037 (0.0054)
Household Size ($Very\_Large\_hhs\_Size$)			
$Small\_hhs\_Size$	0.0280*** (0.0105)	0.0334*** (0.0115)	0.0327*** (0.0113)
$Normal\_hhs\_Size$	0.0202* (0.0011)	0.0248** (0.0123)	0.0244** (0.0123)
$Large\_hhs\_Size$	0.0170 (0.0113)	0.0210* (0.0126)	0.0206 (0.0125)
Respondent confidence in NonBanking Financial Institutions	-0.0015 (0.0050)	-0.0024 (0.0053)	-0.0024 (0.0053)
Respondent Confidence Networt_Provider	-0.0051 (0.0061)	-0.0047 (0.0064)	-0.0046 (0.0064)
Sources of Income ($Informal\_Source$)			
$Income\_Employment$	0.0216*** (0.0028)	0.0121** (0.0134)	0.0225** (0.0133)
$Income\_Business$	0.0090 (0.0095)	0.0074 (0.0099)	0.0075 (0.0098)
$Income\_Farming$	-0.0185 (0.0103)	-0.0175 (0.0104)	-0.0171 (0.0104)
$Transfer\_Income$	-0.0083 (0.0102)	-0.0088 (0.0107)	-0.0095 (0.0106)
Education ($Post\ Graduate\_Education$)			
$No\_formal\_education$	-0.0181** (0.0214)	-0.0069 (0.0225)	-0.0079 (0.0223)
$Primary\_education$	0.0238 (0.0213)	0.0227 (0.0226)	0.0231 (0.0225)
$Secondary\_education$	0.0205 (0.0209)	0.0221 (0.0219)	0.0211 (0.0219)
$Post\ Secondary\_education$	0.0226 (0.0218)	0.0238* (0.0235)	0.0280* (0.0235)
$University\_education$	0.0304** (0.0122)	0.0309** (0.0134)	0.0304** (0.0139)
$Sector$	0.0073 (0.0057)	0.0097 (0.0063)	0.0077 (0.0060)
Regional Group Dummies (North_Central)			
$North\_East$	-	-0.0154* (0.0085)	-
$North\_West$	-	-0.0041 (0.0086)	-
$South\_East$	-	0.0163 (0.0089)	-
$South\_South$	-	0.0095 (0.0086)	-
$South\_West$	-	0.0062 (0.0090)	-
$Constant$	-0.4413*** (0.0368)	-	
y = Pr(Bank) (predict)		0.2307	0.2307
$R^2/PseudoR^2$	0.0984	0.0908	0.0907
$No\_Observation$	29407	29407	29407

Source: Author Computation

Studies (Baidoo, Boateng, & Amponsah, 2018; Lotto, 2018; Adetunji & David-West, 2019; Kim, *et al.,* 2020; Dar & Ahmed, 2020; Mhlanga & Dunga, 2020; Esquivias, *et al.,* 2021; Kandari, et al., 2021) on the influence of demographic factors on saving behaviours had argued a positive influence of the relationship between age and saving behaviour. They posited that people are more likely to save, as they get older in age. The assertion is not different from our finding; the present study observed that an increase in the age of our respondents increases their saving behaviour by 2.87 percentage point from 10.15% to 13.02% in the banking financial institution. Whereas we observed 1.03 percentage point from 8.07% to 9.10% in the non-banking financial institution and 1.69 percentage point from 11.59% to 13.28% in the informal financial institution. We noticed also that Nigerians tend to save more in the informal financial institution as they become older. Most studies agree that being a female influence saving negatively whereas others supported that being a male positively influences saving behaviours. We observed that being a female slightly negate saving in the informal financial sector and positive in the formal financial institutions. The positive impact on saving behaviour of being a female in Nigeria is significant in the banking financial institution model and insignificant in the non-banking financial institution. Also, the percentage impact of gender on saving behaviours is mostly less than 1% in the models estimated. Thus, we infer that gender disparity played little role in the determination of Nigerians saving behaviour. We noted however that this observation contrasts widely with Venkatesan & Deshpande (2022) who documented a non-neutral gender role in peoples' preferences for formal vs informal financial services in Kenya and South Africa.

Table 6: Factors Influencing Nigerians Saving in the Informal Financial Institutions (Dependent Variables: owning Account with either of savings group, village/community association, savings/thrift collector/merchant and moneylender, etc).

	(7) OLS	(8) Probit (Marginal Effects)	(9) Probit (Marginal Effects)
$Fin\_Education\_Score$	-0.0193*** (0.0025)	-0.0197*** (0.0026)	-0.0197*** (0.0026)
$Fin\_Capability\_Score$	0.1257*** (0.0057)	0.1278*** (0.0059)	0.1281*** (0.0059)
Fin_Helath_Score	0.0259*** (0.0038)	0.0263*** (0.0039)	0.0265*** (0.0039)
$Resp.Age\ (in\ Log)$	0.1159*** (0.0072)	0.1328*** (0.0078)	0.1263*** (0.0076)
$Gender$	-0.0027 (0.0056)	0.0020 (0.0059)	-0.0010 (0.0059)
Household Size ($Very\_Large\_hhs\_Size$)			
$Small\_hhs\_Size$	0.0421*** (0.0116)	0.0541*** (0.0124)	0.0458*** (0.0121)
$Normal\_hhs\_Size$	-0.0038 (0.0122)	0.0032 (0.0130)	-0.0021 (0.0129)
$Large\_hhs\_Size$	-0.0001 (0.0125)	0.0043 (0.0132)	0.0014 (0.0131)
Respondent confidence in the informal financial institutions	0.0144** (0.0056)	0.0145** (0.0057)	0.00146** (0.0057)
$Respondent\ Confidence\ Networt\_Provider$	0.0025 (0.0068)	0.0024 (0.0070)	0.0027 (0.0070)
Sources of Income ($Informal\_Source$)			
$Income\_Employment$	0.0023** (0.0012)	-0.0138** (0.0145)	0.0137** (0.0145)
$Income\_Business$	0.0099** (0.0039)	0.0130** (0.0108)	0.0131** (0.0108)
$Income\_Farming$	0.0046** (0.0013)	0.0138** (0.0117)	0.0132** (0.0117)
$Transfer\_Income$	-0.0191 (0.0113)	-0.0253** (0.0116)	-0.0241** (0.0116)
Education ($Post\ Graduate\_Education$)			
$No\_formal\_education$	0.0301 (0.0236)	0.0241 (0.0247)	0.0297 (0.0245)
$Primary\_education$	0.0180 (0.0235)	0.0142 (0.0242)	0.0145 (0.0242)
$Secondary\_education$	0.0226 (0.0231)	0.0233 (0.0238)	0.0220 (0.0238)
$Post\ Secondary\_education$	0.0389 (0.0240)	0.0393 (0.0255)	0.0402 (0.0255)
$University\_education$	0.0184 (0.0245)	0.0187 (0.0256)	0.0184 (0.0256)
$Sector$	0.0040 (0.0063)	-0.0005 (0.0069)	0.0046 (0.0065)
Regional Group Dummies (North_Central)			
$North\_East$	-	0.0005 (0.0095)	-
$North\_West$	-	0.0029 (0.0095)	-
$South\_East$	-	-0.0214** (0.0098)	-
$South\_South$	-	-0.0071 (0.0095)	-
$South\_West$	-	-0.0287*** (0.0096)	-
$Constant$	-0.3490*** (0.0406)	-	
$y\ =\ Pr(Bank)\ (predict)$		0.3136	0.3137
$R^2/PseudoR^2$	0.0501	0.0423	0.0419
$No\_Observation$	29407	29407	29407

Source: Author Computation

As mentioned earlier, small household-size is defined here as a family of 1-4 persons. The results on Table 4 to table 6 shows some levels of differences of the influence of household's size on the different financial institutions examined in this paper. In the banking financial institution models, we observed that small household size significantly influences saving behaviour of Nigerians positively with a higher percentage contribution. Four-person household saving possibilities increase by 3.19 percentage points from 13.11% to 16.30%, and by 2.52 percentage points from 8.56% to 11.08% for saving possibilities of a normal sized household. Beyond this size, our results show that any addition of persons beyond the normal-sized household significantly enforces exclusion or negates saving possibilities by 1.59 percentage points from -5.19% to -6.78%. These trends are also observable in the results of the non-banking financial institution models and informal financial institution models as well. However, the percentage contribution of the above-normal household size to financial exclusion in the non-banking and informal financial institutions is very low as compared to its contributions to exclusion in the banking financial institution models. Again, this observation is interesting as it aligns with the practical and observable experiences of the financially excluded. Large and very large household sizes cannot exclude the excluded any further than they already are. Extreme informality (without access to the cheapest of the informal financial products or services) becomes a lifeline and all hands must be on deck. This extreme case of informality in Nigeria is christened: 'living from hand-to-mouth'. In most cases, the results are highly statistically insignificant for the non-banking and informal financial institutions. The finding of this paper agree no less with Baidoo, Boateng & Amponsah (2018) whose study observed a negative influence of increasing numbers of household members on savings behaviour of Ghanians. See also Anzoategui, Demirgüç-Kunt & Pería (2014), Koomson, Villano & Hadley (2020) and Churchill & Marisetty (2020) in other Africans counties and India.

Looking at how respondents' confidence in the banking institutions influences saving behaviours, the results show that the trust Nigerians had in the formal financial institutions contributed very little to their saving behaviour. The percentage contribution is below 1% for the formal financial institutions (Banking and Nonbanking) but ranges from negative trust to positive trust in the non-banking financial institution. The results equally show that respondent confidence significantly contribute to saving in the informal financial institution. It shows that a step increase of respondents' confidence increases saving in the informal financial institutions by 1.2 percentage points from 4.21% to 5.41%. This finding is in line with the observation of Adetunji & David-West (2019) that adult Nigerians save more in the informal financial institution than with banks and other formal financial institutions because informal financial institution tend to offer more benefits than the formal financial institutions. Another reason given in support of Nigerians' confidence/trust in the informal financial institutions are the ease of accessibility of the institutions and savings, simplicity of usage, and mutual benefits.

In literature, the accessibility to internet, which is the responsibility of network providers, is key to promoting financial inclusion. We measured the influence of network availability as respondent's trust/confidence in network provider in Nigeria. The results show that the confidence Nigerians had in the network connectivity insignificantly contributed to saving behaviors. Nigerians' confidence in network providers erodes or negatively influences their savings behaviours in the non-banking and informal financial institutions. This finding contradicts both Abel, *et al.,* (2018) in Zimbabwe and Mose & Thomi (2021) whose arguments supported strong relationship between internet connectivity and financial inclusion. However,

the difference in findings could arise from the mode of internet connectivity and usage in the study.

When our analysis was extended to the influencing role of geography, we found link between region of residence and saving behaviours of adult Nigerians. Table 4-6 shows residing in the Southern region of Nigeria increases the likelihood of saving in the formal banking institutions whereas residing in Northern region of Nigeria insignificantly influence saving behaviour of adult Nigerians in the formal financial institutions.

Conclusion and Policy Relevance

The paucity of domestic savings and the huge investment spending required to achieve inclusive economic growth motivated this study. The thinking is that, if we can scale up domestic savings by highlighting the factors influencing saving behaviour of Nigerians, then we can bridge the savings-investment gap and stir the Nigerian economy on the path to sustainable growth. By using the linear probability and probit estimators, the paper is able to establish these main points; First, saving behaviour of adult Nigerians in the three financial institutions is influenced largely by the newly design financial literacy indexes. Our finding resonates with policy debates suggesting that improving Nigerians knowledge about finance and financial services would foster financial inclusion. Second, we observed that living in the Southern region of Nigeria increases the likelihood of adult Nigerians to save more in formal institutions, while dissaving in informal financial institutions. We were unable to match this conclusion when considering the Northern Region. Third, though rich with empirical evidence, we noticed that gender disparity is inconsequential in explaining saving behaviour. We did find age important in explaining saving behaviour, noticing that the propensity to save increases as Nigerians grow older. Fourth, households with 1 – 4 persons (small household size) have tendency to put away more money as savings. The paper documented that the optimum household size for financial inclusion is the normal size of 5-6 persons beyond which additional members to the household negates saving possibilities or enforces exclusion especially in the banking financial institution.

In summary, we were able to pinpoint specific saving-influencers where policies favouring higher financial inclusion should lean towards. Consequent on these, the paper put forward the following recommendations. The Federal Government of Nigerian in collaboration with the Federal Ministry of Education and its counterparts at the States level should design a finance course to be made mandatory and taught at all levels of education in Nigeria (especially the secondary education). This knowledge will boost Nigerians saving behaviour from the early age of secondary schooling. The expansion in population size occuring at 2.60% annually since 2000 – 2020 may make higher the dependency ratio, thwarting efforts to prop up domestic savings. The paper therefore recommend an aggressive campaign on family planning aimed at reducing fertility level to about 2 – 3 children per family should be considered.

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