Financial inclusion in Nigeria: an overview

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Abstract

This paper analyse the level of financial inclusion in Nigeria using data from the global findex indicators. The findings reveal that Nigeria witnessed growth in several financial inclusion indicators in the early years of financial inclusion in 2014 but the benefits were not sustained in the later years especially in 2017. Nigeria's level of financial inclusion is very low compared to the World average. In the population group analysis, it was observed that the female, poorest, male, older and uneducated population were worse-off in all indicators of financial inclusion in 2017. The implication of the observed decline in the level of financial inclusion in 2017 suggest that there are barriers to financial inclusion in the post-2014 years.

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1. Introduction

This paper provides an analysis of the level of financial inclusion in Nigeria using data from the global findex indicators.

Financial inclusion is defined as the use of formal financial services (Allen et al, 2016). Another definition states that financial inclusion is the ease of access, availability and usage of the formal financial system by all members of the economy (Sarma, 2008; Sahay et al, 2015). Financial inclusion may also be defined as the provision of affordable financial services to people (Ozili, 2018). The first step to achieve financial inclusion is ensuring that each household and individuals own a bank account, which would give them access to basic formal financial services (Reddy, 2007), and such access to formal finance can build self-confidence, empower poor individuals and households, and promote social inclusion (Paramasivan and Ganeshkumar, 2013).

Financial inclusion is a policy agenda for development in many countries (Marron, 2013; Ozili, 2020a), and financial inclusion objectives are often achieved through a combination of activities, policies and programmes designed to help reach the unbanked population. Financial inclusion, when done correctly, can uplift poor people from poverty but when done incorrectly it can expose poor people to risk in the formal financial system particularly risks associated with the use of financial products and services. Such risks, when they materalise, can worsen the welfare of the poorest, increase income inequality and may lead to social exclusion which is undesirable (Ozili, 2020b).

In Nigeria, some commentators believe that financial inclusion can accelerate economic diversification in the country, yield economic gains and shared prosperity in Nigeria (Adeola and Evans, 2017). Other commentators believe that financial inclusion can promote economic development through poverty reduction, wealth creation and improved standard of living. However, there are obstacles to financial inclusion in Nigeria. On the demand side, the lack of awareness about existing financial services, rising financial illiteracy, superstitious and religious beliefs about banking services, high transaction costs and the general lack of interest in banking products and services by some segment of the rural population. On the supply side, lack of bank branch penetration, unwillingness of banks to sustain financial inclusion programs due to high costs, and the unwillingness of banks to bear the social cost of a bank-led financial inclusion programme.

To analyse the level of financial inclusion in Nigeria, data on financial inclusion was extracted from Global Findex Indicators of the World Bank database. Data from the early years of financial inclusion are compared with data of the later years of financial inclusion to identify any observed changes in financial inclusion. Using percentage change analysis (PCA), the findings suggest that majority of the population had greater access to basic financial services in the early years of financial inclusion but the benefits were not sustained in the later years.

The paper makes several contributions to the literature. Firstly, this study contributes to the financial inclusion literature. The study shows that education levels, being rich and being employed are associated with greater financial inclusion in Nigeria. These findings are consistent with the literature. Secondly, it adds to the literature that measure financial inclusion using access to finance indicators (see Grimes et al, 2010; Klapper et al, 2015; Ozili, 2021a; etc.). This study adds to this literature by analyzing a number of access to finance indicators, and show that higher access to finance benefits some group of the population at the expense of other groups in Nigeria. Finally, the study contributes to the financial inclusion policy literature (see. Langley, 2008; Montgomerie, 2008; Ozili, 2018; etc), by showing that the gains of financial inclusion diminish after some years. There are policy lessons to gained from this.

The rest of the study is structured in the following way. Section 2 discuss the theory and existing literature review. Section 3 presents some discussion on the sample data and research methodology. Section 4 report the empirical results. Section 5 presents some recommendations. Section 6 concludes.

2. Theory and literature review

2.1. Theoretical Underpinning

Buera et al (2011) argue that income differences across countries and cross-country differences in financial development affects the level of development in countries while Demirguc-Kunt et al (2012) suggest that better access to finance for everyone can spur development in a country. Demirguc-Kunt et al (2012) argue that a well-functioning financial system offers valuable savings, credit, payment and risk management products to individuals and households with diverse needs (Demirguc-Kunt et al, 2012). Such financial systems allow broad access to financial services without any significant price or non-price barriers to the use of financial services (Demirguc-Kunt et al, 2012).

In the absence of an inclusive financial system, poor individuals and households will rely on their own limited savings to invest in their education or become entrepreneurs while small businesses will rely on their small profit to grow their business (Demirguc-Kunt et al, 2012), and this can contribute to widen the income inequality gap and can lower economic growth (Demirguc-Kunt et al, 2012).

2.2. Literature review

Recent evidence shows some consensus that financial inclusion can improve the welfare of people. Demirgüç-Kunt and Klapper (2012) observe that only few adults in Africa own an account with a formal financial institution, and many adults use informal methods to save and borrow. They also observe that many small and medium enterprises in Africa are financially excluded and face major obstacles to obtaining funds to do business. Grimes et al (2010) examine whether economic education influences the decision to own a bank account. They use a nationwide telephone survey, and find that adults who took a course in economics and business were less likely to be unbanked and vice versa; in addition, adults who have some good understanding of economic concepts were more likely to be financially included. Klapper et al (2015) observe that financial literacy is higher among the rich and educated population. Ozili (2020a) show that the level of financial inclusion is affected by the level of financial innovation, poverty, financial literacy and regulation.

Niankara and Muqattash (2018) highlight the impact of financial inclusion on individuals' borrowing and saving decisions in the United States and the United Arab Emirates, and find that U.S. residents are more likely to save than their United Arab Emirates residents. They also find the prevalence of a gender based saving and borrowing inequality in favor of the male gender while access to a bank account and a debit card increased the likelihood to save and borrow. Dev (2006) argues that financial inclusion should be a business opportunity and a social responsibility through better regulation and the depoliticisation of the financial system. Fungáčová and Weill (2015) analyze financial inclusion in China including comparisons with the other BRICS countries, and find that the level of financial inclusion in China is high and it is manifested by greater formal account usage and formal saving than in the other BRICS countries. They also find that higher income, better education, being a man, and being older are associated with greater use of formal accounts and formal credit in China. Bachas et al (2018) assess whether debit cards help to improve the level of financial inclusion. They find that debit cards help to lower transaction costs by reducing the distance to access bank accounts in Mexico.

Few research has been done on financial inclusion in Nigeria. For instance, Efobi et al (2018) examine the impact of financial inclusion on the export capacity of firms in the manufacturing sector in Nigeria, and find that greater access to financial services increase the export capacity of firms but the impact on each manufacturing firm depends on the location of the firm. Adegbite and Machethe (2020) analyse the gender gap in financial inclusion in Nigeria, and find that there is increasing gender gap in financial inclusion in Nigeria as more men had greater access to finance than women. Adetunji and David-West (2019) show that financial literacy affects savings patterns in financial institutions in Nigeria.

Other studies focus on the effect of financial inclusion on the macro economy. Ibrahim and Aliero (2020) find a strong positive relationship between the level of financial inclusion and the size of per capita income.

Ozili (2020c) find that people with at least a secondary education and unemployed people have greater debit card ownership and greater account ownership in a financial institution. David et al (2018) examine the determinants of financial inclusion in Nigeria from 1990 to 2016, and find that financial inclusion increases GDP growth and broad money. Fowowe (2020) show that financial inclusion has a positive impact on agricultural productivity in Nigeria. Ozili (2021b) show that Fintechs are driving the growth in financial inclusion in African countries despite the political, infrastructure and structural problems hindering full financial inclusion in African countries.

However, these Nigerian studies did not examine how the financial inclusion indicators differ within several groups in the population. Therefore, this paper provides an analysis of the level of financial inclusion in Nigeria taking into account the population group characteristics.

3. Research design

3.1. Data

Financial inclusion data for Nigeria was collected from the World Bank's Global financial inclusion (FINDEX) database. The population is Nigeria. The sample period is from 2011 to 2017. The financial inclusion data in the database is reported tri-annually in 2011, 2014 and 2017. Six (6) financial inclusion indicators were used in this study. The indicators are: (i) account ownership, (ii) extent of borrowings from a formal financial institution, (iii) extent of borrowings from family and friends, (iv) credit card ownership, (v) debit card ownership, and (vi) savings in a formal financial institution. Some financial inclusion indicators were excluded in the analyses because the indicators did not have full reported data for all the three years. The total number of observation is 213 observations, that is, 71 indicators over three years. The variable description is presented in table 1.

3.2. Method of analysis

Percentage change analysis (PCA) is the method used to analyse the financial inclusion data. PCA shows how one or more indicators change as a percentage from one period to another period. Regression analysis was not used because of the short data period and small number of observations which together can bias the coefficient of the regression estimations.

Table 1: Variable description		
Indicator	Meaning	Source
Account ownership	Households/adults who report having an account (by themselves or together with someone else) at a bank or another type of financial institution, or report personally using a mobile money service in the .past 12 months.	Global Findex Database
Formal borrowing (or borrowing from a financial institution)	Households/adults who report borrowing any money from a bank or another type of financial institution in the past 12 months.	Global Findex Database
Borrowing from family or friends	Households/adults who report borrowing any money from family, relatives, or friends in the past 12 months.	Global Findex Database
Credit card ownership	Households/adults who report owning a credit card in the past 12 months	Global Findex Database
Debit card ownership	Households/adults who report owning a debit card in the past 12 months	Global Findex Database
Formal savings (or savings at a formal financial institution)	Households/adults who report saving any money at a bank or another type of financial institution in the past 12 months.	Global Findex Database
Population category:		
All adults (% age 15+)	All adult population	Global Findex Database
out of labor force (% age 15+)	Unemployed adult population	Global Findex Database
female (% age 15+)	female adult population	Global Findex Database
in labor force (% age 15+)	Employed adult population	Global Findex Database
income, poorest 40% (% age 15+)	Poor adult population	Global Findex Database
income, richest 60% (% age 15+)	Rich adult population	Global Findex Database
male (% age 15+)	Male adults population	Global Findex Database
older adults (% age 25+)	Older adult population	Global Findex Database
primary education or less(% age 15+)	Uneducated adult population	Global Findex Database
rural (% age 15+)	Rural adult population	Global Findex Database
secondary education or more (% age 15+)	Educated adult population	Global Findex Database
young adults (% age 15-24)	Young adult population	Global Findex Database
Real GDP growth	Macroeconomic indicator	World Bank

4. Discussion of results

4.1. Account ownership

Table 2 shows that account ownership in Nigeria increased between 2011 and 2014 in all population category. The largest increase in account ownership was recorded among the poorest, male and adult population.

The observed increase in all the population categories of account ownership in 2014 was caused by the effective implementation of the national financial inclusion strategy led by the Central Bank of Nigeria. The implementation of the strategy led to the expansion of account opening services across the country. A major part of the national financial inclusion strategy required the opening of more bank branch networks, introduction of mobile money service, mobile banking, banking agents and the issuance of operating license to payment service providers. The implication of these efforts is that government intervention through increase bank branch networks and the issuance of license to agents made it possible for banks and agents to reach the unbanked adults that need to open an account in Nigeria.

The level of account ownership decreased in 2017 in all population category. The largest decrease in account ownership was recorded among the poorest, uneducated and female population. The decrease in all the categories of account ownership was caused by the effect of the 2016 recession as well as the slow recovery from the recession. The economic difficulty brought about by the recession led to the merger of weak banks and the closure of some bank branches, which led to a reduction in account opening activities across the country in the years after the 2016 recession such as in 2017. The implication is that a recession usually has a negative effect on the level of financial inclusion in Nigeria, and the effects tend to extend beyond the crisis year.

Comparing Nigeria with the global average, table 2 shows that the level of account ownership in Nigeria is low compared to the global average in all population category in 2011, 2014 and 2017. The implication is that, despite the government’s effort to increase the number of citizens that own an account, the government’s effort to increase the level of account ownership is still very low. This means the government needs to do a lot more. Finally, the values for real GDP growth and the growth in account ownership are positive in 2014. This suggest that the level of account ownership in Nigeria tend to be higher during periods of economic prosperity. In 2017, real GDP growth remained positive, although lower in magnitude due to the after-effects of the 2016 recession, while the growth in account ownership is negative across all categories of account ownership in 2017. Interestingly, Nigeria’s real GDP growth was higher than the global average in 2011 and 2014.

Table 2: Account ownership								
Indicator / Country	Nigeria			World (Average)			% change / growth (Nigeria)	
	2011	2014	2017	2011	2014	2017	(2014)	(2017)
All adults (% age 15+)	29.6	44.4	39.7	50.6	62.0	68.5	49.8	-10.7
female (% age 15+)	25.9	34.0	27.2	46.6	58.4	64.8	30.9	-19.8
in labor force (% age 15+)	34.1	52.6	42.9	55.9	68.6	73.8	54.3	-18.4
income, poorest 40% (% ages 15+)	13.9	30.5	24.5	41.3	54.6	60.5	118.5	-19.5
income, richest 60% (% ages 15+)	40.1	53.7	49.7	57.1	66.9	73.8	33.8	-7.4
male (% age 15+)	33.2	54.3	51.4	54.7	65.5	72.3	63.3	-5.4
older adults (% ages 25+)	33.8	48.8	44.0	54.4	66.2	71.9	44.6	-9.9
out of labor force (% age 15+)	17.6	29.01	30.1	38.4	49.3	59.3	64.7	4.1
primary education or less (% ages 15+)	12.2	28.1	16.1	37.03	48.4	55.9	130	-42.8
rural (% age 15+)	23.5	38.7	33.3	43.9	57.9	65.9	64.2	-13.9
secondary education or more (% ages 15+)	44.1	56.02	59.2	66.1	73.2	78.6	26.9	5.8
young adults (% ages 15-24)	21.4	35.7	32.5	37.1	46.9	56.2	66.4	-8.8
Real GDP growth rate	5.31	6.31	0.81	3.13	2.83	3.11		

4.2. Formal borrowing (or borrowing from a financial institution)

Table 3 shows that the level of formal borrowings in Nigeria increased between 2011 and 2014 in all population category. The largest increase in formal borrowings was recorded among the uneducated, unemployed, male and older population.

The observed increase in formal borrowings in all the population categories in 2014 was caused by the proliferation of banks with many branch networks across the country. The presence of many bank branch made it easier for citizens to access formal credit in 2014. This achievement is partly attributed to the implementation of the national financial inclusion strategy led by the CBN. The implication is that the expansion of bank branch network is crucial to expand access to formal credit for Nigerian citizens.

The level of formal borrowings decreased in 2017 in some population category, while the largest decrease in formal borrowings was recorded among the poorest, uneducated and unemployed population. The decrease in formal borrowings in some population category was caused by the effect of the 2016 recession as well as the slow recovery from the recession. The economic difficulty brought about by the recession led to a reduction in bank credit supply. Banks reduced the amount of credit given to retail borrowers due to concerns about rising nonperforming loans. The implication is that the level of formal borrowing falls in a crisis year in Nigeria, and the effect tend to extend beyond the crisis year, such as in 2017. The level of formal borrowings increased in 2017 in only in few population categories, such as in the rich and educated population categories. The increase in formal borrowings by these two groups is due to their superior ability to manage risks, and their good financial management skills during the crisis.

Comparing Nigeria with the global average, table 3 shows that the level of formal borrowings in Nigeria is very low compared to the global average in all population category in 2011, 2014 and 2017. The implication is that, despite the government's effort to increase the size of formal credit through the expansion of bank branch network, the country's effort to increase the level of formal borrowing is still very low.

Finally, the values for real GDP growth and the growth in formal borrowings are positive in 2014. This suggest that the level of formal borrowings in Nigeria tend to be higher during periods of economic prosperity. In 2017, real GDP growth remained positive, although lower in magnitude due to the after-effects of the 2016 recession, while the growth in formal borrowings is negative in most population category and positive in other population category in 2017. Interestingly, Nigeria's real GDP growth was higher than the global average in 2011 and 2014.

Table 3: Formal Borrowings

Indicator / Country	Nigeria			World (Average)			% change / growth (Nigeria)	
	2011	2014	2017	2011	2014	2017	(2011-2014)	(2014-2017)
female (% age 15+)	1.9	4.1	3.7	8.3	9.7	9.4	111.9	-8.8
in labor force (% age 15+)	2.3	5.8	4.6	10.9	13.1	13.4	154.3	-20.5
income, poorest 40% (% age 15+)	1.7	6.1	2.8	8.8	9.1	9.1	246.4	-54.0
income, richest 60% (% age 15+)	2.2	4.7	4.7	9.6	12.1	11.9	109.4	0.2
male (% age 15+)	2.1	6.3	4.1	10.2	12.1	12.2	193.4	-34.6
older adults (% age 25+)	2.03	5.7	3.8	10.6	12.4	12.1	183.2	-33.4
out of labor force (% age 15+)	1.3	4.1	1.9	6.2	6.8	6.2	200.5	-53.3
primary education or less (% age 15+)	1.1	5.9	1.7	7.4	7.4	7.4	412.8	-71.4
rural (% age 15+)	1.8	5.4	2.8	9.0	9.6	10.3	193.3	-48.7
secondary education or more (% age 15+)	2.8	4.8	5.9	11.4	13.7	13.5	71.1	22.6
young adults (% age 15-24)	2.1	4.4	4.3	4.7	5.4	6.3	109.7	-1.2
Real GDP growth	5.31	6.31	0.81	3.13	2.83	3.11		

4.3. Borrowing from family or friends

Table 4 shows that the level of borrowing from family or friends in Nigeria decreased between 2011 and 2014 in all population category. The largest decrease in formal borrowings was recorded among the rural, educated and young adults population.

The observed decrease in borrowing from family or friends was caused by the presence of banks with many branch networks across the country. The presence of many bank branch provided an alternative source of borrowing to citizens. It reduced the reliance on family and friends for borrowing. The implication is that the expansion of bank branch network is crucial as it provides an alternative source of borrowing to citizens, thereby reducing their reliance on family and friends for borrowings in Nigeria.

The level of borrowing from family or friends decreased in 2017 in some population categories. The largest decrease in borrowing from family and friends was recorded among the poorest, uneducated and older population. The observed decrease was also caused by the expansion of bank branch network which provided an alternative source of borrowing for citizens. The implication is that it reduced the dependence on family and friends for borrowings.

Comparing Nigeria with the global average, table 4 shows that the level of borrowings from family and friends in Nigeria was higher than the global average in all population category in 2011. In 2014, the level of borrowings from family and friends in Nigeria was also higher than the global average in all population category except in the young adult population category. In 2017, the level of borrowings from family and friends in Nigeria was higher than the global average in the young adult, educated, rural, unemployed, older, male, rich, employed and female population category. The implication is that a large number of Nigerians still rely on family and friends for borrowings. Despite the presence of many bank branch in Nigeria, the reliance on family and friends for borrowings in Nigeria is still very high relative to the world.

Finally, the value for real GDP growth is positive while the growth in borrowings from family and friends is negative in 2014. This suggest that the level of borrowings from family and friends in Nigeria tend to decline during periods of economic prosperity. In 2017, real GDP growth remained positive, although lower in magnitude due to the after-effects of the 2016 recession, while the growth in borrowing from family and friends is negative for most population category. Interestingly, Nigeria's real GDP growth was higher than the global average in 2011 and 2014 but not in 2017.

Table 4: Borrowings from family and friends								
Indicator / Country	Nigeria			World (Average)			% change / growth (Nigeria)	
	2011	2014	2017	2011	2014	2017	(2011-2014)	(2014-2017)
Adults (% age 15+)	44.1	37.5	28.2	23.0	26.4	25.7	-14.8	-24.6
female (% age 15+)	42.1	37.2	27.8	21.8	25.3	24.4	-11.7	-25.2
in labor force (% age 15+)	48.6	42.3	30.7	26.1	29.2	28.5	-12.8	-27.3
income, poorest 40% (% age 15+)	43.6	37.7	26.2	25.1	28.8	28.9	-13.5	-30.3
income, richest 60% (% age 15+)	44.3	37.4	29.5	21.5	24.8	23.6	-15.6	-20.8
male (% age 15+)	45.9	37.8	28.7	24.2	27.5	27.1	-17.6	-24.2
older adults (% age 25+)	47.8	42.2	26.6	22.4	25.7	25.6	-11.6	-37.1
out of labor force (% age 15+)	31.8	28.5	21.1	18.1	21.5	20.9	-10.4	-26.1
primary education or less (% age 15+)	46.1	44.6	26.8	24.5	29.5	29.1	-3.2	-39.9
rural (% age 15+)	45.4	36.0	28.7	24.1	28.1	27.6	-20.7	-20.1
secondary education or more (% age 15+)	42.3	32.5	30.4	21.2	23.9	23.2	-23.1	-6.8
young adults (% age 15-24)	36.5	28.1	31.8	25.1	28.9	26.5	-23.2	13.2
Real GDP growth	5.31	6.31	0.81	3.13	2.83	3.11		

4.4. Credit card ownership

Table 5 shows that credit card ownership in Nigeria increased between 2011 and 2014 in all population category. The largest increase in credit card ownership was recorded among the unemployed, male and rich population.

The observed increase in credit card ownership was due to citizens' awareness of available overdraft facilities, and easy access to overdraft facilities linked to a credit card which were offered by financial institutions in 2014. The implication is that Nigerian citizens were able to use credit cards to meet their basic subsistence and emergency expenditure with the expectation of repayment from future income, thereby improving their access to short term formal credit in 2014.

In 2017, credit card ownership decreased in many population categories, such as in the female, poor, male, older, unemployed, uneducated, and young adult population categories. The largest decrease in credit card ownership was recorded among the poorest, uneducated and unemployed population. The observed decrease in credit card ownership in 2017 was caused by rising interest rate on credit card repayment as well as banks' refusal to increase the supply of credit cards due to low demand during the 2016 recession. Meanwhile, the richest, rural and educated population witnessed an increase in credit card ownership in 2017.

Comparing Nigeria with the global average, table 5 shows that credit card ownership in Nigeria is significantly lower than the global average in all population category in 2011, 2014 and 2017. The implication is that credit cards are not used extensively in Nigeria compared to other countries of the World. One reason for this might be because credit cards are not very popular in Nigeria.

Finally, the value for real GDP growth is positive, and the growth in credit card ownership is also positive in 2014. This suggest that credit card ownership in Nigeria tend to increase during periods of economic prosperity. In 2017, real GDP growth remained positive, although lower in magnitude due to the after-effects of the 2016 recession, while the growth in credit card ownership is negative for most population category. Interestingly, Nigeria's real GDP growth was higher than the global average in 2011 and 2014 but not in 2017.

Table 5: Credit card ownership

Indicator / Country	Nigeria			World (Average)			% change / growth (Nigeria)	
	2011	2014	2017	2011	2014	2017	(2011-2014)	(2014-2017)
All adults (% age 15+)	0.8	2.7	2.5	14.9	17.5	18.3	248.7	-6.2
female (% age 15+)	0.8	1.7	1.7	13.4	16.1	16.9	111.3	-2.2
in labor force (% age 15+)	0.9	2.4	3.1	16.4	20.5	22.2	165.6	28.2
income, poorest 40% (% age 15+)	0.7	1.4	0.7	10.7	11.5	12.1	91.2	-48.1
income, richest 60% (% age 15+)	0.8	3.6	3.8	17.7	21.5	22.5	346.2	4.9
male (% age 15+)	0.7	3.7	3.4	16.4	19.0	19.8	392.6	-8.0
older adults (% age 25+)	0.91	3.2	3.04	17.0	19.8	21.2	244.2	-3.6
out of labor force (% age 15+)	0.4	3.3	0.9	10.6	11.5	11.5	684.3	-71.4
primary education or less (% age 15+)	0.6	2.3	0.1	4.1	5.1	6.5	295.9	-94.3
rural (% age 15+)	0.8	1.7	1.7	9.2	12.0	13.9	122.4	4.8
secondary education or more (% age 15+)	0.9	3.1	4.5	27.2	27.8	27.7	221.3	47.1
young adults (% age 15-24)	0.5	2.0	1.8	7.4	9.2	8.2	275.7	-9.3
Real GDP growth	5.31	6.31	0.81	3.13	2.83	3.11		

4.5. Debit card ownership

Table 6 shows that debit card ownership in Nigeria increased between 2011 and 2014 in all population category. The largest increase in debit card ownership was recorded among the uneducated, male and poor population.

The observed increase in debit card ownership was due to citizens' awareness of available debit cards, which offered convenience when making cash withdrawals. The implication is that Nigerian citizens increased their use of debit cards to access their cash deposits at any time without having to visit their physical bank branch. This reduced the number of customers visiting a bank, reduced the waiting hours on long queues, and improved efficiency in customer satisfaction in banks in 2014.

In 2017, debit card ownership decreased in many population categories, such as in the female, poor, male, older, employed, uneducated, and young adult population categories. The largest decrease in debit card ownership was recorded among the uneducated, employed and rural population. The observed decrease in debit card ownership in 2017 was caused by a fall in household income. The 2016 recession led to a fall in households' disposable income, which reduced the bank account balances of households, thereby leading to a less frequent use of debit cards during the 2016 and 2017 period. Meanwhile, the unemployed and educated population witnessed an increase in debit card ownership in 2017.

Comparing Nigeria with the global average, table 6 shows that the debit card ownership in Nigeria was lower than the global average in all population category in 2011. In 2014, debit card ownership was also lower than the global average in all population category except in the male population category. In 2017, debit card ownership was lower than the global average in all population category. The implication is that, despite the popularity of debit cards in Nigeria, a large number of Nigerian citizens do not use debit cards extensively compared to citizens in other countries.

Finally, the value for real GDP growth is positive, and the growth in debit card ownership is also positive in 2014. This suggest that debit card ownership in Nigeria tend to increase during periods of economic prosperity. In 2017, real GDP growth remained positive, although lower in magnitude due to the after-effects of the 2016 recession, while the growth in debit card ownership is negative for most population category. Interestingly, Nigeria's real GDP growth was higher than the global average in 2011 and 2014 but not in 2017.

Table 6: Debit card ownership

Indicator / Country	Nigeria			World (Average)			% change / growth (Nigeria)	
Debit card ownership	2011	2014	2017	2011	2014	2017	(2011-2014)	(2014-2017)
All adults (% age 15+)	18.5	35.6	31.5	30.7	40.6	47.6	91.9	-11.3
female (% age 15+)	17.7	25.2	22.5	28.1	37.2	43.3	41.9	-10.7
in labor force (% age 15+)	21.3	43.6	34.1	35.1	46.8	54.6	104.9	-21.7
income, poorest 40% (% age 15+)	6.5	22.5	19.6	23.1	31.9	36.3	245.5	-12.6
income, richest 60% (% age 15+)	26.5	44.3	39.4	36.1	46.3	55.2	66.7	-10.9
male (% age 15+)	19.3	45.4	40.1	33.4	44.1	52.1	135.3	-11.8
older adults (% age 25+)	20.6	39.3	35.6	32.6	43.1	51.3	91.1	-9.5
out of labor force (% age 15+)	11.1	20.4	23.9	19.4	28.6	35.6	84.1	17.4
primary education or less (% age 15+)	4.1	18.1	9.6	16.5	22.7	29.3	341.5	-46.6
rural (% age 15+)	13.9	30.6	25.8	23.4	34.5	41.8	119.2	-15.6
secondary education or more (% age 15+)	30.5	48.0	49.5	46.8	55.5	62.4	57.1	3.2
young adults (% age 15-24)	14.5	28.1	25.1	23.7	31.4	34.9	93.5	-10.5
Real GDP growth	5.31	6.31	0.81	3.13	2.83	3.11		

4.6. Formal savings (or savings at a formal financial institution)

Table 7 shows that the level of formal savings in Nigeria increased between 2011 and 2014 in all population category except in the educated population category that witnessed a decrease in formal savings. The decrease in formal savings by the educated population may be due to their preference for investing rather than saving their money in a financial institution.

The largest increase in formal savings in 2014 was recorded among the uneducated, poor and rural population. The observed increase in formal savings borrowings in most of the population categories in 2014 was caused by the general preference for savings than investing. The implication is that such formal savings provided sufficient liquidity to banks and other financial institutions, as they used the saved money as loan for business purposes.

In 2017, the level of formal savings decreased in all population category, while the largest decrease in formal savings was recorded among the female, uneducated and employed population. The decrease in formal savings in all population category was caused by the effect of the 2016 recession as well as the slow recovery from the recession. The economic difficulty brought about by the recession led to the withdrawal of saved monies, for the purpose of consumption in 2016 and in 2017. The implication is that it reduced the liquidity of banks, and subsequently affected loan supply. This suggests that the level of formal savings falls in a crisis year in Nigeria, and the effect tend to extend beyond the crisis year, such as in 2017.

Comparing Nigeria with the global average, table 7 shows that the level of formal savings in Nigeria was lower than the global average in most population category except in the employed, rich, male, older adult, educated and young adult population categories in 2011. In 2014, the level of formal savings in Nigeria was lower than the global average in most population category except in the employed, rich, male, older adult, and young adult population categories. In 2017, the level of formal savings was lower than the global average in all population category. The implication is that a large number of Nigerians still rely on savings to escape poverty rather than using investment as a tool to increase wealth.

Finally, the values for real GDP growth and the growth in formal savings are positive in 2014. This suggest that the level of formal savings in Nigeria tend to be higher during periods of economic prosperity. In 2017, real GDP growth remained positive, although lower in magnitude due to the after-effects of the 2016 recession, while the growth in formal borrowings is negative in all population category. Interestingly, Nigeria's real GDP growth was higher than the global average in 2011 and 2014.

Table 7: Formal savings								
Indicator / Country	Nigeria			World (Average)			% change / growth (Nigeria)	
	2011	2014	2017	2011	2014	2017	(2011-2014)	(2014-2017)
All adults (% age 15+)	23.5	27.1	20.6	22.3	27.3	26.6	14.7	-24.1
out of labor force (% age 15+)	11.9	13.7	12.3	13.9	17.7	17.8	15.02	-10.7
female (% age 15+)	20.9	21.4	13.4	20.9	25.7	24.1	2.4	-37.3
in labor force (% age 15+)	27.8	34.1	23.4	26.1	32.4	31.7	22.4	-31.4
income, poorest 40% (% age 15+)	9.5	17.8	13.4	15.4	19.1	16.6	87.7	-25.4
income, richest 60% (% age 15+)	32.9	33.1	25.3	27.1	32.8	33.4	0.6	-23.6
male (% age 15+)	26.2	32.5	27.3	23.8	29.0	29.3	23.7	-15.8
older adults (% age 25+)	26.7	30.5	22.03	24.5	29.9	29.01	13.9	-27.7
primary education or less(% age 15+)	8.2	17.5	7.5	14.5	19.1	15.7	113.7	-57.5
rural (% age 15+)	18.7	24.5	17.2	18.8	24.6	23.8	31.2	-29.9
secondary education or more (% age 15+)	36.3	33.6	31.3	31.3	34.3	35.4	-7.4	-6.9
young adults (% age 15-24)	17.2	20.02	18.5	15.1	18.1	18.3	15.7	-7.2

4.7. Population-specific effect: cluster analyses

Table 8 shows that all adults/households (age 15+) enjoyed greater levels of financial inclusion. In the population group, Table 8 shows that most of the population groups enjoyed greater account ownership, greater formal borrowing, higher levels of credit card ownership, higher levels of debit card ownership, reduced borrowing from family and friends, and greater formal savings in 2014. The only exception is the young adult population that witnessed negative benefit in formal savings in 2017. Overall, this indicates that Nigeria had high levels of financial inclusion in 2014.

Table 8: Population summary matrix for growth in 2014 from 2011						
	Account ownership	Formal borrowing	Borrowing Family/friends	Credit card	Debit card	Formal saving
Population category:						
All adults (% age 15+)	+	+	-	+	+	+
out of labor force (% age 15+)	+	+	-	+	+	+
female (% age 15+)	+	+	-	+	+	+
in labor force (% age 15+)	+	+	-	+	+	+
income, poorest 40% (% age 15+)	+	+	-	+	+	+
income, richest 60% (% age 15+)	+	+	-	+	+	+
male (% age 15+)	+	+	-	+	+	+
older adults (% age 25+)	+	+	-	+	+	+
primary education or less(% age 15+)	+	+	-	+	+	+
rural (% age 15+)	+	+	-	+	+	+
secondary education or more (% age 15+)	+	+	-	+	+	-
young adults (% age 15-24)	+	+	-	+	+	+

In sharp contrast, table 9 shows that all adults/households (age 15+) witnessed negative growth in all indicators of financial inclusion. In the population group, Table 9 show that the female, poorest, male, older uneducated population recorded negative growth in all indicators of financial inclusion in 2017. Also, in the unemployed, employed, rich, and educated population recorded a few positive growth in some financial inclusion indicators, and negative growth in other indicators of financial inclusion indicators as shown in table 8. Overall, this indicates that Nigeria witnessed a decrease in the level of financial inclusion in 2017.

Table 9: Population summary matrix for growth in 2017 from 2014

	Account ownership	Formal borrowing	Borrowing Family/friends	Credit card	Debit card	Formal saving
Population category:						
All adults (% age 15+)	-	-	-	-	-	-
out of labor force (% age 15+)	+	-	-	-	+	-
female (% age 15+)	-	-	-	-	-	-
in labor force (% age 15+)	-	-	-	+	-	-
income, poorest 40% (% age 15+)	-	-	-	-	-	-
income, richest 60% (% age 15+)	-	+	-	+	-	-
male (% age 15+)	-	-	-	-	-	-
older adults (% age 25+)	-	-	-	-	-	-
primary education or less(% age 15+)	-	-	-	-	-	-
rural (% age 15+)	-	-	-	+	-	-
secondary education or more (% age 15+)	+	+	-	+	+	-
young adults (% age 15-24)	-	-	+	-	-	-

5. Conclusion

This paper analysed the level of financial inclusion in Nigeria using data from the global findex indicators. The findings reveal that Nigeria witnessed growth in several financial inclusion indicators in the early years of financial inclusion in 2014 but the benefits were not sustained in the later years especially in 2017. In the population groups, the female, poorest, male, older and uneducated population were worse-off in all indicators of financial inclusion in 2017. The implication of the observed decline in the level of financial inclusion in 2017 suggest that there are barriers to financial inclusion in the post-2014 years.

One implication of the findings for policy is that the Nigerian government should use appropriate policies that promote sustained financial inclusion. There is no doubt that the Nigerian government has made efforts to increase the level of financial inclusion to ensure that all households have access to appropriate financial services they need to improve their lives. However, the efforts made so far are not enough especially when compared to the global average. To increase financial inclusion, the government should first remove all existing barriers to financial inclusion. Then, the government should use appropriate policies to solve existing supply and demand problems in the market for formal financial services in Nigeria. The government should also implement financial policies, and adopt financial literacy programs, that help to make people know that they can access formal credit and other basic financial services. Also, banks should be encouraged to simplify the process of obtaining formal credit and they should look at financial inclusion as a social responsibility not just as a profit making opportunity. Apart from banks, other players should also be allowed to play an important role in improving the level of financial inclusion. Finally, given the impact of financial inclusion on the economy, the government may need more funds or use foreign borrowings to create supporting infrastructure for sustained financial inclusion. This will help to extend financial inclusion programs to a large segment of the population.

One limitation of the study is its focus on financial inclusion at the household levels. It did not examine financial inclusion for small and medium scale enterprises (SMEs). Future studies can investigate other dimensions of financial inclusion in Nigeria particularly how small businesses are affected by lack of access to basic financial services. Also, future studies can identify how the level of financial inclusion can be enhanced through digital finance channels and Fintech innovations.

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