

# **Bridging the Financial Inclusion Gender Gap in Smallholder Agriculture in Nigeria: An Untapped Potential for Sustainable Development**

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## **Highlights**

- We examined the trend in financial inclusion gender gap (FIGG) in Nigeria, causes and effects on sustainable development.
- We found a significant increasing FIGG in Nigeria's smallholder agriculture and the country at large.
- Socio-economic, Socio-cultural, Institutional, Legal and regulatory factors are the major interconnected causes of FIGG.
- The FIGG in smallholder agriculture has interlinked negative effects like income inequality, food insecurity and poverty.
- Interventions targeted at closing the FIGG starting with smallholder agriculture would advance sustainable development.

## **Abstract**

The sustainable development of Nigeria is being challenged by a persistent large financial inclusion gender gap (FIGG). The same gender gap in the country's smallholder agriculture frustrates the multifunctional potentials of agriculture in achieving sustainable development outcomes. The smallholders drive the agricultural sector, comprise majority of the worlds' poor and are found in all regions in Nigeria. This study used a mixed method review from secondary sources (Global Findex Databases 2011, 2014, 2017, Nigeria - CGAP Smallholder Household Survey 2016 and literatures) to investigate the trend in FIGG in smallholder agriculture in Nigeria. The causes and effects of FIGG on sustainable development were also identified by this study and the strategies to bridge the gap. Our study found that the FIGG in smallholder agriculture was 12% in 2016, while considering the whole population; it increased from 7% in 2011 to 20% in 2014 and 24% in 2017. The causes of FIGG were ascribed to socioeconomic, socio-cultural, institutional, legal and regulatory factors which affect the demand and supply of formal financial services. The FIGG in smallholder agriculture has interlinked negative effects like high cost on agricultural productivity, income inequality, food insecurity, limited market access and poverty which retards sustainable development. This study argued that bridging the FIGG in smallholder agriculture through targeted strategies like digital financial inclusion and gender responsive agricultural finance innovations would not only advance efforts aimed at closing the FIGG in Nigeria but would also reposition the country in achieving SGD5 and other sustainable outcomes. Progress made by Nigeria would contribute to African continent's

advancement and also fast track the global realization of the SDGs by 2030 given Nigeria's highest population in Africa.

**Keywords:** Financial Inclusion, Gender gap, Smallholder Agriculture, SDGs, Nigeria

## **1. Introduction**

The role of financial inclusion (FI) in enhancing inclusive development and socio-economic potentials of the poor has led to its use as a benchmark to track the achievement of the Sustainable Development Goals (SDGs). While Nigeria could not meet some of the targets of the Millennium Development Goals (MDGs), the country's adoption of the post 2015 Sustainable Development Agenda offered opportunities to build on successes and as well, correct the failures of the MDGs (Oleribe and Taylor-Robinson, 2016). In 2011, Nigeria made commitment to the Maya Declaration to ensure the financial inclusion of those previously excluded (AFI, 2017a). Studies (Evans, 2017; Adebowale and Dimova, 2017) had shown that financial inclusion has significant positive effects on important development outcomes including agricultural economic growth and welfare. However, Nigeria is one of the seven developing economies accommodating almost 50% of the global 1.7 billion unbanked adults (Demirgüç-Kunt et al., 2018). Furthermore, majority comprise women who face multidimensional clustered deprivation in SDG related outcomes (UN Women, 2018). While it is crucial to give utmost attention to gender issues in financial inclusion, ensuring a gender balance remains a challenge (AFI, 2016a). The males are more likely to be financially included than the females because women are marginalized in ownership, access and use of productive resources (Swamy, 2014; Gosh and Vinod, 2017; Quisumbing and Pandolfelli, 2010). Moreover, those participating in agriculture face further deprivation and exclusion (World Bank, 2017).

The recognition of multifunctional roles of agriculture in achieving the SDGs compared to non-agricultural sectors had generated increased attention for sectoral transformations to provide solutions to global development challenges (AFDB, 2016). Despite Nigeria has keen interest in achieving the financial inclusion targets and SDGs, efforts may be frustrated if the financial inclusion gender gap (FIGG) in Nigeria's smallholder agriculture is not addressed. On the one hand, the agricultural sector is the highest employer of labor in Nigeria and contributes meaningfully to decent work and pro-poor economic growth (Oyetade et al. 2016). On the other hand, smallholders constitute majority of the world's poor, drive agriculture and are found in all areas in Nigeria (Cuevas and Anderson, 2016; Anderson et al. 2017). Moreover, the female smallholders make up almost half the agricultural labor force and play leading roles in all aspects of sustainable agriculture which necessitate their empowerment (FAO, 2011; Alkire et al. 2013). Therefore bridging the FIGG in smallholder agriculture would help to reduce the FIGG in Nigeria and other forms of inequalities.

Although previous studies had investigated the role of FI in achieving the SDGs (Klapper et al. 2016); the position of gender equality in sustainable development (UN, 2014; World Bank, 2012; Agarwal 2012) and the need to close gender disparity in agriculture (Huyer, 2016; Alkire et al. 2013). Only few studies had investigated gender differences in financial inclusion without relevance to agriculture (Reynolds et al. 2017; Abebe et al., 2017; AFI, 2016a; Abdu et al. 2014; Aterido et al. 2013) or gender differences in agricultural production (Mukasa and Salami, 2016; Oseni et al. 2014a). Despite the roles of smallholder agriculture and the need for adequate financing for sustainable outcomes (HLPE, 2013), dearth of evidence exist on how the causes of

gender disparities in financial inclusion among smallholders in Nigeria could be linked to its consequences on the country's sustainable development. Most studies that addressed various concepts of financial inclusion, gender gaps or perspectives in smallholder agriculture were in fragments without any specific positioning with Nigeria's sustainable development. Therefore the aim of this study is to examine the development of FIGG in smallholder agriculture in Nigeria and identify the interlinked causes and effects on sustainable development. Furthermore this study identified the need to close the FIGG in Nigeria's smallholder agriculture and strategies for improving policy and practice interventions based on evidences. The rest of the paper is organized into four sections. Section two outlines the concepts used in this study. Section three describes the methods while section four presents the findings and discussion. We conclude in section five.

## **2. Definition of Concepts in the Study**

**2.1 Financial Inclusion:** refers to a condition in which everyone has access to financial services provided by formal institutions and is able to use at least one formal account to perform financial transactions at an affordable cost (World Bank, 2017). Such formal accounts could include a bank account, nonbank account or mobile money account to save, borrow, access insurance products, make payments, transfers or receive remittances (Demirgüç-Kunt et al. 2018). In this study, FI is referenced as the proportion of people having access to formal financial services (defined as the percentage of those who have a formal account).

**2.2. Gender:** Gender refers to socially constructed characters and opportunities available to men and women based on cultural beliefs or norms which are different from their biological

characters (Agwu and Okhimamhe, 2009). On the other hand, gender parity refers to having equal sociocultural and power relations between the males and the females (World Bank, 2011). Gender equality presupposes that the different behaviors, aspirations and needs of women and men are equally valued and favored.

**2.3 Financial Inclusion Gender Gap (FIGG):** refers to the percentage unequal access to and usage of broad range formal financial services (credit, savings, Insurance and remittances) between the males and females (AFI 2016b). The trend in financial inclusion gender gap in Nigeria referenced in this study is based on two quantitative data sources: the Nigeria- Global Findex 2011, 2014 and 2017 and the Nigeria-CGAP smallholder Household survey, 2016.

**2.4 Smallholder Agriculture:** may be referred to as subsistence or traditional agriculture. However smallholder agriculture in this study refers to agricultural economic activities carried out by farming households having about five hectares of land and depending mainly on agriculture as source of living or those not having up to 50 heads of cattle or 100 goats, sheep or pigs or 1000 chickens (Anderson et al. 2017).

**2.5 Sustainable Development:** Various interpretations of sustainable development had been adopted in literature but this study adopts the concept of UN Women, (2014). According to them, sustainable development refers to the socio-economic, human and environmental development that ensures economics opportunities and social inclusion, gender equality and ecological conservation without leaving anyone behind.

### **3. Method**

This study used a mixed method review from secondary sources that addressed key issues on FI and gender gaps, smallholder agriculture and the sustainable development goals (SDGs) in Nigeria. The country is currently the most populous (196 million) African country with diverse socio-cultural groups distributed across six geopolitical zones (UNFPA, 2018). The trend of FIGG in Nigeria's smallholder agriculture was investigated quantitatively by reviewing two major secondary databases. They include Nigeria - Global Financial Inclusion (Global Findex) Time series Data collected in 2017 2014 and 2011 (Demirgüç-Kunt et al. 2018; 2014; Development Research Group, Finance and Private Sector Development Unit 2011). The Global Findex is a nationally representative sample comprising of 1000 individuals aged 15+ and living in Nigeria as at time of time data collection. Sex disaggregated data on FI and selected indicators (formal account ownership, savings and borrowings at a financial institution and mobile money account ownership) were gathered from the Nigeria Global Findex. Similarly, the 2016 Nigeria – Consultative Group to Assist the Poor (CGAP) Smallholder Household Survey (Anderson, 2016) was utilized to investigate the pattern of FIGG in Nigeria's smallholder Agriculture. The Nigeria-CGAP smallholder dataset is a nationally representative sample of smallholder households comprising 3026 households, 5128 multiple and 2773 single respondents. However the smallholders' information utilized for this study was gathered through the single respondents. The same variables gathered in the Global Findex in addition to information on mobile phone ownership and mobile money awareness were gathered from the Nigeria-CGAP data set. While descriptive (tables and graphs) statistics was used to quantitatively establish the pattern of the FIGG, inferential statistics (chi-square test) was used to make scientific conclusions based on the test of the associations.

On the other hand, qualitative evidences on the causes of FIGG in Nigeria's smallholder agriculture, the country at large and effects on sustainable development were gathered through literature reviews. Studies on the various concepts to be addressed by this study were searched from electronic resources like Science Direct, Google, Research gate and websites of the Food and Agriculture Organization of the United Nations (FAO), United Nations (UN) Women and the International Food Policy Research Institute (IFPRI). The studies were screened based on their relevance to Nigeria in order to specifically relate to the country's context. However, studies that addressed issues on the concepts related to Africa were retained where dearth of evidences exist. As a result, studies that addressed the concepts without relation to Nigeria or Africa despite being published in high quality journals were screened out. Similarly studies which adequately addressed the concepts in relation to Nigeria or Africa but published in suspected predatory were also screened out. Following Nowell et al. (2017) and Saldaña, (2016) themes were developed from clustering codes in open coding of the causes and effects of FIGG on Sustainable Development using Atlas.ti 8. To avoid repetition of reviews, codes with similar concepts were merged. The themes were represented in a network (visual representation of the causes and effects) to establish the interconnections. To improve policy and practice interventions in closing the FIGG, we considered it important to also review Nigeria's revised National financial inclusion strategy (NFIS), (CBN, 2018). Based on the synthesis of reviews, specific strategies to bridge the FIGG in smallholder agriculture in Nigeria were identified by the study.

In Nigeria, previous studies (AFI, 2016a; Akin-Fadeyi, 2016) had computed gender gaps as percentages differences in financial inclusion between the males and females. While others that investigated the determinants or correlates of gender gaps used either a decomposition technique (Abdu et al. 2015; Mukasa and Salami, 2016) or descriptive statistics and regression models (Reynolds et al. 2017). A mixed method review was adopted for this study due to the need to synthesize evidences on the existing FIGG situation quantitatively from sex disaggregated data and qualitatively from studies. Furthermore, we considered it important to examine whether issues are being adequately addressed by NFIS and to improve strategies for interventions necessitate the approach. According to Harden, (2010) mixed method approach to reviews help to improve understanding of interlinked review questions, make the best use of mixed findings and the ability of the integrated evidences to inform practice and policy interventions.

## **4. Results and Discussion**

### **4.1 Trend in Financial Inclusion Gender Gap in Nigeria**

The significance of increasing the access and usage of financial services to enhance development is not new in Nigeria (World Bank, 2008). More important is the need to recognize the role of gender, women's challenges in accessing productive resources and efforts aimed at their empowerment. However, lack of sex disaggregated demand-side data on FI which could be compared across countries existed not until 2011, when the Global Findex database was launched (Demirguc-Kunt and Klapper, 2012). As a follow up the second Global Findex data was collected in 2014 and the third in 2017 (Demirguc-Kunt et al., 2018).

The results (table 1) revealed Nigeria's financial inclusion increased from 30% to 44% between 2011 and 2014 but decreased to 40% in 2017. According to the Nigeria Inter-Bank Settlement

System (NIBSS) industry statistics, the Bank Verification Number (BVN) exercise carried out in the country during the period to curb corruption decreased the number of people with active formal accounts from 65 million in 2016 to 63.5 million accounts in 2017. Therefore, the BVN might have contributed to the decrease in the country's FI in 2017. The percentage of financially-included women increased between 2011 (26%) and 2014 (34%) but decreased in 2017 (20%). However, FI gender gap persistently increased from 7% in 2011 to 20% in 2014 and 24% in 2017 (Fig 1). When the pattern was investigated across the selected FI indicators, it was found the increase in FI gender gap was mainly contributed by gender gaps in account ownership (7%, 21% and 24%) and savings (5%, 11% and 14%) at a financial institution in 2011, 2014 and 2017 respectively.

**Table 1: Trend in Financial Inclusion Gender Gap in Nigeria (2011, 2014 & 2017)**

Year		% Financial Inclusion	% account at a financial institution	% Saved at a financial institution	% Borrowed from a financial institution	% Mobile account ownership
<b>2011</b>	Pooled	30	30	24	2	-
	Male	33	33	26	2	-
	Female	26	26	21	2	-
	Gender Gap	7*** (0.001)	7*** (0.001)	5*** (0.001)	0 (0.482)	
<b>2014</b>	Pooled	44	44	27	5	2.3
	Male	54	54	32	6	2.5
	Female	34	33	21	4	2.1
	Gender Gap	20*** (0.000)	21*** (0.000)	11*** (0.008)	2 (0.206)	0.4 (0.905)
<b>2017</b>	Pooled	40	39	21	4	6
	Male	51	51	27	4	7
	Female	27	27	13	4	4
	Gender Gap	24*** (0.000)	24*** (0.000)	14*** (0.000)	0 (0.678)	3*** (0.003)

Source: Authors' calculation

Note: Figures in parentheses are  $X^2$  p-values

\*, \*\*, \*\*\* indicates level of significance at 10%, 5% and 1% respectively

Though data for mobile account ownership was not available in 2011, subsequent data revealed the gender gap in mobile account ownership also increased from 0.4% in 2014 to 3% in 2017. Result of the chi2 test revealed gender differences across the indicators were highly significant at 1% except in borrowing at a financial institution. While account ownership at financial institutions facilitates the access and usage of formal financial services, mobile account ownership facilitates direct access to financial services through digital financial inclusion (Efobi et al. 2014; Albert, 2018). Furthermore, having a formal savings account had been found to facilitate inclusive development, women empowerment and better control over financial decisions (Demirgüç-Kunt et al. 2017). Therefore results imply Nigerian women lagged behind in the access and usage of formal and digital financial services in addition to the benefits of having a savings account. This may contribute to one of the reasons Nigeria ranked 118 with a score of 0.643 out of 144 countries in Gender gap (WEF, 2016).

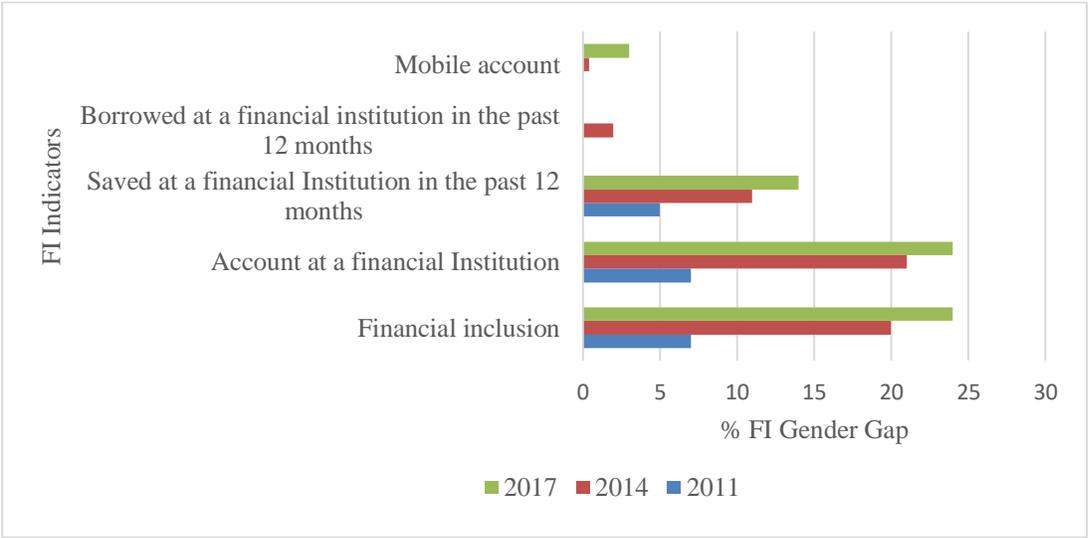


Figure 1: Trend in Financial Inclusion Gender Gap in Nigeria

Source: Authors' (Nigeria - Global Findex (2011, 2014 & 2017))

## 4.2 Financial Inclusion Gender Gap in Smallholder Agriculture in Nigeria

The primary goal of meeting increasing food demands had called for adequate financing and investments in smallholder agriculture (HLPE, 2013). However, one of the major constraints to women's participation in Nigerian agriculture had been inadequate finance (Ngodoo, 2014). Furthermore, lack of an inclusive sex disaggregated data that could provide basis for the agrarian and economic lives of smallholders existed not until 2016 when the first nationally representative data was collected (Anderson, 2016). Findings revealed although only 26% of the smallholders were financially included (Anderson et al. 2017), a gender gap of 12% exist at 1%.

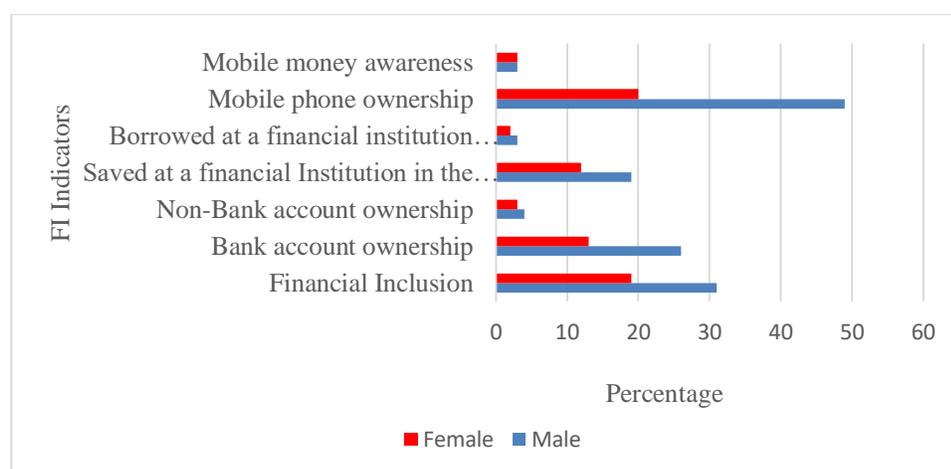


Figure 2: Financial Inclusion Gender Differences in Smallholder Agriculture in Nigeria

Source: Authors' (Nigeria - CGAP Smallholder Household Survey, (2016)

Following the financial inclusion gender gap in Nigeria, , the financial inclusion gender gap in smallholder agriculture in Nigeria (Fig 2) was contributed majorly by gender differences in bank account ownership (13%) and savings (7%) at a financial institution. By considering digital financial inclusion, the gender gap in personal mobile phone ownership accounted for the most (29%). Though only 0.3% of the smallholders had a mobile money account which was not significantly different from zero (Anderson et al. 2017), there was no gender gap in mobile

money awareness as both gender were equally aware at 3%. The large gender gap in mobile phone ownership among smallholders in Nigeria may hinder the role of digital financial inclusion in enhancing the inclusiveness of female smallholders. Earlier findings (Iskendrian, 2015), indicated that although digital financial services offer great potentials in addressing women's financial concerns such as confidentiality, convenience and security; majority own less mobile phones compared to men. Based on the quantitative evidence that FIGG significantly exist in Nigeria, this study found it important to qualitatively investigate the causes of FIGG and consequences on sustainable development.

### **4.3 The Causes of Financial Inclusion Gender Gap in Nigeria**

To identify the various causes of gender-gaps in financial inclusion, this study qualitatively reviewed literatures sources. Synthesized evidences revealed the causes could be ascribed to themes which include: socioeconomic, socio-cultural, institutional, legal and regulatory factors which influence the demand and supply of formal financial services.

#### **4.3.1 Socio-economic factors**

While gender considerations matter in financial inclusion outcomes and economic impact, socio-economic factors significantly determine gender variations in financial inclusion (Reynolds et al. 2017). In Nigeria, Abdu et al. (2015) analyzed the drivers of financial inclusion gender gap using the probit regression model and Fairlie decomposition. They found that, while youthful age, higher levels of income and education increases the probability of having a formal account; age squared, being a female and lower income levels reduced the chances. On the other hand, the decomposition technique revealed a significant FIGG with 53% of the FIGG being explained by socio-economic characteristics. Furthermore, secondary education (63%) and income levels

(18%) accounted for the explained FIGG. Reynolds et al. (2017) also investigated how socioeconomic factors influence the awareness, adoption and usage of mobile money across eight countries including Nigeria with specific interest on women. While Nigeria was found among the countries with the lowest levels of awareness, adoption and usage of mobile money, women in Nigeria persistently showed lower levels across the indicators compared to men. This also supports the findings of Efobi et al. (2014) that women in Nigeria have a lower the likelihood of using bank financial services. The causes were attributed to the poor socioeconomic characteristics (poverty, literacy, education, numeracy, bank account, lack of formal identification, mobile phone and sim card ownership) of women. Furthermore, CBN, (2015) indicated in their baseline report on financial literacy that rural women in Nigeria (who are mostly involved in smallholder agriculture) had the poorest socio-economic condition and constitute the most susceptible to financial exclusion. The socioeconomic characteristics of women in Nigeria there affect their demand for financial services and inclusion which limit their participation in economic opportunities (FAO and ECOWAS Commission 2018; Ajani, 2008).

#### **4.3.2 Socio-cultural factors**

Nigeria has a diverse population, patrilineal ethnicity and traditions that make women susceptible to socio-cultural norms (AFI, 2016a; FAO and ECOWAS Commission 2018). Such norms are more pronounced in land inheritance, ownership and transfer from older males to the younger ones since it is believed, any family asset given to the female would be lost through marriage to her husband (Olomola, 2013). Anyoha et al. (2015) found in their study that socio-cultural factors contributed greatly to women's discrimination in Nigeria especially in their ability to make decisions, own lands, get educated or employed. On the other hand in Nigeria's

smallholder agriculture, majority of the households are headed by the males who take most decisions in all agricultural activities (Anderson et al. 2017). While only few households were female headed, about 51% had no education compared to 38% in male headed smallholder households. As a result most female smallholders rely on the decisions of the male head in having access and using financial services irrespective of their financial needs. Most times such male heads support their spouses or the females only when they also stand to benefit from loans which may contribute to the financial inclusion gender gap. In some northern parts of Nigeria, the female smallholders were restricted from marketing agricultural commodities with high returns even if the females produced the crops (Olomola, 2013). As a result the male smallholders earn higher incomes than the females which constitute some of the significant drivers of being financially included in Africa (Zins and Weill, 2016; Aterido et al. 2013). As a result, women are constrained in their socio-economic abilities to access or use financial services. This confirms the findings of Demirguc-kunt et al. (2013) that in countries with female restrictions on household headship, jobs, mobility, or asset ownership, women have a lower likelihood to have an account, borrow or save in a formal financial institution.

#### **4.3.3 Institutional factors**

Financial inclusion necessitate giving utmost attention to institutional issues like ensuring gender responsive finance innovations, quality, affordability, accessibility and sustainability (Abebe et al. 2017; Kama and Adigun, 2013). However, most institutional efforts on FI are concentrated on the urban reachable in Nigeria which comprise mostly men (AFI, 2016a). Nigeria's smallholder agriculture is dominated in the rural areas and are long distances to the urban areas which increases transaction cost of financial access for smallholders (Olomola, 1992). Similarly,

Downie, (2017) reported that Agricultural loans accounted for only 1.4% of total lending from Bank institutions in Nigeria This indicate the female smallholders would have little or no access to formal finance due to socioeconomic and socio-cultural restrictions. Furthermore, property rights are the most acceptable collateral to guarantee loans from financial institutions in Nigeria. A comparison of land owners and holders across Nigeria, Tanzania and Uganda (FAO, IFAD and WFP, 2015) revealed that, Nigeria had the highest male land holders (90%) and owners (96%). As a result, most female smallholders are disadvantaged in obtaining formal loans (Olomola, 2013). Furthermore, it was reported by FAO, (2011) that only 5% of females in Nigeria were able to obtain credit from formal financial institutions compared to the males (14%). Although most institutions may perceive high loan default among women, Ogunleye, (2017) used a panel data framework (2011 to 2014) to investigate how 752 microfinance institutions grant loans to females in Nigeria and the effect on loan repayment. The study found that although fewer females were provided loans by the microfinance institutions, a higher loan repayment rate was found among the women which necessitate a rethink. Although some institutions in Nigeria had adopted the collateral diversification (Access Bank) and agent banking (Diamond Bank) models to enhance female's FI (AFI, 2016b; Finnegan, 2015), more is still required to specifically address the FIGG in Nigeria's smallholder agriculture. .

#### **4.3.4 Legal and regulatory factors**

Various studies had defined the legal and regulatory factors affecting women's FI to include: mobile technology distribution channels for financial services; collateral requirements and registries Know Your Customer (KYC) regime and contract enforcement mechanisms for loan default (AFI, 2017b). It could also refer to the requirements for formal account opening or means

of identification, codification of property rights, lack of gender inclusive credit reporting structures and consumer protection framework (World Bank, 2017; AFI, 2017b). In Nigeria, EFlnA, (2014) also identified some of the earlier factors including: interest rate caps, poor level of infrastructures, complex political structures and poor policy implementation. During policy enactment, Olomola, (2013) reported that smallholders in Nigeria are mostly discriminated on land, finance and input supply issues. Furthermore, the female smallholders face greater challenges in terms of socioeconomic status, property rights, high interest rates and requirement to get a male's signatory to support their application for formal loans. Even though the national laws permit gender equality in property rights and the country has also witnessed significant progress in addressing legal barriers to women's financial inclusion (Ngodoo, 2014). These include: the use of movable collateral to access formal loans, issuance of regulations for Secured Transaction and National Collateral Registry, deployment of ATMS to the rural areas, developing frameworks for branch less banking and consumer protection amongst others (AFI, 2016a; AFI, 2017b). The effectiveness of existing regulations in tackling FIGG are limited majorly by the intractable sociocultural factors, coupled with financial sector traditions and poor socioeconomic characteristics of female smallholders.

In summary, evidences from the themes arising from the reviews indicated the causes of FIGG in Nigeria's smallholder agriculture are strongly interrelated. Furthermore the FIGG in Nigeria's smallholder agriculture constitute a key part of the country's overall FIGG. This assertion is based on evidences that agriculture is the highest employer of labor in Nigeria, the sector is dominated in the rural areas and the females constitute the majority of the agricultural and rural labor force (Anderson et al. 2017; Olomola, 2013; Oseni, 2013).

#### **4.4 Effects of Financial Inclusion Gender gap on Sustainable Development**

Having established the existence of complex interlinked causes of FIGG in Nigeria, we found it important to further synthesize qualitative evidences on the effects of financial inclusion gender gap on sustainable development which resulted in the following themes.

##### **4.4. 1. High cost on agricultural productivity**

While assets and productive resources are crucial for sustainable production systems, agricultural productivity is negatively influenced by women's less access to productive resources especially finance which contribute to higher socio-economic cost (FAO, 2011). An evaluation of gender differences in Nigeria's agricultural production focusing on the northern and southern geopolitical zones used the Blinder-Oaxaca decomposition technique (Oseni et al. 2014a). They found the gender gap was mainly contributed by lack of access to productive resources in the southern zone. Furthermore unequal access to productive resources also persisted in the Northern zones and as a result, the females were 28% less productive compared to the males even after controlling for other factors. A further evaluation of gender differentials in productivity across three countries (Nigeria, Tanzania and Uganda) revealed Nigeria had the highest gender productivity gap (30.6%), and that female managed lands were the least productive (18.6%) but closing the gap would yield a production gain of 2.8% Mukasa and Salami, 2016). Limited access to financial resources further constrain the capabilities of female farmers in Nigeria to hire labor during peak agricultural activities or buy modern inputs, despite the prevalence of male control over most agricultural resources (FAO and ECOWAS Commission, 2018; Anyoha et al. 2015). Furthermore the lack of capabilities negatively influence the females' aspirations to meet

quality output standards that could enable them earn higher economic returns (Olomola, 2013). The evidences therefore reflect the multi-functional roles of agricultural productivity in Nigeria's sustainable development. Thus it is crucial to ensure women smallholders are financially included to increase agricultural output and also reduce cost of enhancing productivity.

#### **4.4.2. Food insecurity and malnutrition**

While adequate financing of smallholder agriculture had been identified as a veritable tool to improve food security and malnutrition (FSN), most smallholder food producers in Nigeria are females (HLPE, 2013; Oseni, 2013). Women play active roles in children, household, and national food needs from production to food preparation and consumption. In Nigeria, Alade and Eniola, (2012) found that women contribute to food availability by 29.3% compared to men (17.9%) while ensuring the sustainability of food access by 22.4% against men's 12.5%. However, a study on the gender perspective of food security status of households in Nigeria (Fawehinmi and Adeniyi, 2014) revealed, a higher severity of food insecurity among female headed households (0.37) compared to the males (0.71). One of the major reason was attributed to greater access to financial resources through higher socioeconomic status and cooperative membership among the male headed households which enabled them to smoothen consumption. Similarly, Ousmane et al (2017) used a panel data (2012-2013) to assess the impact of FI on household consumption. They found that while FI enhances food consumption among Nigerian households, significant gender disparities exist as female headed households were associated with lower levels of per capita food consumption. Food insecurity is further exacerbated by the gender gaps in agricultural productivity as more females are involved in unpaid family labor and constrained with lower incomes to purchase the food items not produced (Ngodoo, 2014).

However closing the gender gap in Nigeria's Agricultural productivity would increase food consumption by 2.9% (Mukasa and Salami, 2016; AFDB, 2016). Based on the aforementioned, financial inclusion gender gap in Nigeria, will not only affect women's food and nutrition security but the entire household, nation and Africa at large.

#### **4.4 3. Limited market access and non-inclusive agricultural value chains**

Although many smallholder farmers in Nigeria have poor market access for their crops due to underdeveloped agricultural value chain and finance (Downie, 2017), the females are more vulnerable. This could be one of the reasons having access to mobile market information was indicated as one of the greatest desires of smallholders in Nigeria (Anderson et al. (2017). Digital financial inclusion has the potentials to enable women access markets, price information, extension services, trainings and adopt technologies for improved productivity (Deichmann et al. 2016; AFI, 2016a). However, gender disparities in financial access among smallholders in Nigeria are more evident in the exploration of market opportunities as the males dominate the high value crop sales in bigger markets (Olomola, 2013). Sometimes, the market access of female smallholders is subject to the approval of the male household head which is often limited to community markets (Ngoodo, 2014). As a result, the female smallholders have less income to manage the high transaction cost associated with crop sales even if they wished to participate in the bigger markets which are long distances away. The limited market access further contribute to non-inclusive agricultural value chains as women have less interaction with other value chain actors that could influence their access to finance (Triki and Faye, 2013). This is evident in the dominance of male ownership (84%), staffing (65%) and clients (70%) of agribusinesses in

Nigeria when compared with the females (16%, 35% and 30%) respectively (FAO and ECOWAS Commission, 2018).

#### **4.4.4. Low adoption of production technologies and vulnerability to climate change**

Undoubtedly, Nigeria is one of the countries facing severe climate change impact (Abraham, 2018). While the agricultural sector is the most prone to climate change impacts, digital financial inclusion could afford smallholders in Nigeria the opportunities to access weather information on their mobile phones (Anderson et al. 2017). Enhancing the financial resilience of smallholders in Nigeria is therefore important as agriculture is only sustainable when farming becomes resilient to climate change effects. While the adoption of improved production technologies could help to minimize the effects of climate change, female farmers in Nigeria are less likely to adopt improved technologies due to their level of poor socioeconomic characteristics and financial situation (Ajani, 2008; Oluwatayo, 2014; FAO and ECOWAS Commission, 2018). Similarly, Abraham and Fonta, (2018) indicated in their study that majority of the farmers (mostly females) vulnerable to climate problems in Northern Nigeria are financially excluded despite they need finance to mitigate production risks. On the other hand, enhancing the financial access of the farmers in the lowest income groups (mostly females) will reduce their susceptibility to climate risks (Abraham, 2015). Furthermore, Agwu and Okhimamhe, (2009) indicated that while the males have a higher likelihood of migrating out of agriculture, the female are restricted to staying back at home without access to credit or information to cope with climate risks. The evidence therefore imply the sustainable livelihoods and food security of households would be threatened as women become more susceptible to climate change impacts in Nigeria.

#### **4.4.5. Income inequality, poor socio-economic status and human capital development**

In Nigeria, Income inequality and poverty remain persistent problems and the rural females compromise the most affected (AFI, 2016a). Evidences in Nigeria revealed, women in agricultural households lagged behind the males in all socioeconomic indicators like multidimensional poverty, human development, employment and education (FAO and ECOWAS Commission 2018). While FIGG could be attributed to poor socioeconomic characteristics such as income, education and poverty, Abraham (2018) indicated that most female farmers who do not have access to finance belong to the poorest income groups. Furthermore, Anderson et al. (2017) indicated that about 51% of female heads of smallholder households in Nigeria have no formal education compared to the males (38%). However, (Adebowale and Dimiva, 2017; Adedoyin et al. 2017) found that FI could reduce poverty and income inequality but increase capital development. Although a significant negative relationship was reported between poverty and agricultural productivity in Nigeria, closing the gender productivity gap would enable households with females managed land escape poverty by 1.2%.

#### **4.4.6. Overall retardation in agricultural economic growth and sustainable development**

On the one hand, Adedoyin et al, (2017) examined the relationship between FI, economic development and income. They found that financial inclusion granger cause real economic growth and income in Nigeria and not the other way. Likewise, Evans, (2017) assessed the effect of FI on Nigeria's agricultural growth using a time series analysis (ARDL bounds testing). He found that usage of financial services had a significant positive effect on Nigeria's agricultural growth both in the long and short period dynamics. Similarly, Oyetade et al. (2016) used a multivariate co-integration analysis to examine the correlation between Nigerian's agriculture and macro-economic indicators and found that, formal finance (agricultural credit) will increase

Nigeria’s agricultural productivity. Oseni, et al. (2014b) indicated that increase in Nigeria’s agricultural productivity by 10% would significantly reduce poverty (2.5 – 3%). However, Ijeh et al. (2015) reported in their study that gender disparity in Nigeria’s agriculture had a significant negative influence (-0.79) on sustainable economic development in Nigeria. The results therefore indicate that FIGG could reinforce other forms of inequalities. Based on the evidences, this study established that majority of the agricultural labor force (mostly female smallholders) are highly vulnerable to the interlinked causes of FIGG (Fig 3) but the consequences would retard the sustainable development of the country at large.



Figure 3: The Financial Inclusion Gender Gap Network in Nigeria: Causes and Effects on Sustainable Development

#### **4.5 The Need to Bridge the FIGG Nigeria's Smallholder Agriculture and Strategies**

Despite Nigeria has recorded various achievements in enhancing FI (CBN, 2018), Nigeria's FIGG is significantly on the rise which necessitate toggling the switch to a bottom up strategy. According to Efobi, et al. (2014) insights on the causes and effects of financial exclusion are necessary to bridge the gap between policy and practice interventions. Nigeria's National Financial Inclusion Strategy (NFIS) was launched in 2012 with the broad target to reduce the percentage of financially excluded adults (+15 years) from 46.3% in 2010 to 20% by 2020. However, the NFIS had no gender differentiation by targets (AFI, 2016a). While a revised NFIS launched in 2018, the strategy identified FIGG as one of the gaps confronting the potentials of FI in enhancing sustainable development (CBN, 2018). In order to track the progress of policy implementation, some key performance indicators (KPIs) were identified to replace those in the previous strategy. However, there was no KPI with special focus on female smallholders in agriculture. The KPI's with focus on women or rural areas were found only in:

- i. Percentage of women with financial access
- ii. Percentage of Micro Small and Medium Enterprises (MSMEs) female credit to total MSME credit.
- iii. Percentage of MSMEs owned by females with access to formal financial services.
- iv. Percentage of registered digital accounts (mobile money) in the rural areas.
- v. Percentage of adults using digital financial services in the rural areas
- vi. Percentage of females with unique formal identification enrollment.

The findings revealed the FIGG in Nigeria's smallholder agriculture was not adequately addressed. A broad focus on women implies the urban females (mostly not involved in agriculture) are likely to be reached. Similarly, a general focus on rural adults implies the rural males are more likely to be reached given the causes of the FIGG identified by this study. Based on the aforementioned, urgent interventions are necessary to bridge the gap between policy and practice if FIGG would be closed in Nigeria. This study therefore identified the following strategies to improve closing the FIGG in Nigeria's smallholder Agriculture.

**1. Development of gender responsive agricultural finance innovations.**

Broad range of innovative financial services at affordable cost is required in Nigeria to address the interlinked causes (socio-economic, socio-cultural, institutional and legal and regulatory factors) of FIGG in smallholder agriculture. Developing such financial services require understanding the complex livelihoods of female smallholders since majority of the unbanked in Nigeria are the rural women and female smallholders. While no single stakeholder can achieve this, there is need for the Multi-Stakeholder partnerships (Public, Private and Civil Societies) to establish and finance clear cut blue-prints on closing the FIGG in smallholder agriculture in Nigeria.

**2. Specify National Targets for financial inclusion of female smallholders in Nigeria**

**Female smallholders in Nigeria.**

There is need for the country's NFIS to integrate gender differentiated targets in Nigeria's smallholder agriculture. Not until when this is done will the negative consequences of FIGG on sustainable development and economic growth be adequately

addressed. Digital financial access (DFA) targeted at female smallholders, would enhance women's direct access, freedom and control over financial services and agricultural information. This also requires the targeted promotion of financial literacy to drive positive attitudinal change in the financial behaviors of both male and female smallholders and financial instructions in Nigeria. Furthermore, it is very crucial for the NFIS to address the root causes of FIGG in smallholder agriculture so that the potentials of agriculture and financial inclusion can be maximized for sustainable development.

**3. Adoption of successful models that had enhanced women's financial inclusion and integration into Nigeria's agricultural and rural livelihoods.**

Although the existing successful models aimed at enhancing women's FI in Nigeria were not developed specifically to target women in agriculture, they could be integrated to address the financial livelihoods of female smallholders. Some of these models include the Diamond Bank beta savings (agent banking) model; the United Nations (UN) one woman, one identification (ID) card project; access bank diversification of collaterals and the stellar project mobile money service. Similarly Nigerian Incentive-Based Risk-Sharing System for Agricultural Lending (NIRSAL) in 2012 should be empowered to equitably integrate smallholders into their agricultural value chain financing models for sustainable outcomes.

## 5. Conclusion

This study synthesized both quantitative and qualitative evidences to establish the need to bridge the financial inclusion gender gap in smallholder agriculture in Nigeria as an important strategy to achieve sustainable development outcomes. The quantitative evidences revealed a significant rising trend in FIGG both in Nigeria's smallholder agriculture and the country at large despite the country's achievement in FI over the years. Likewise, qualitative evidences revealed although Nigerian women are affected by the causes of FIGG, female smallholders are the most vulnerable. Our study found that FIGG has negative interlinked consequences on sustainable development. Although the revised NFIS identified some KPIs to enhance women or rural FI, there was no specific strategy to address the FIGG in smallholder agriculture in Nigeria. Our study identified the need for the NFIS to integrate specific national targets for female smallholders in Nigeria in order to close the FIGG. Furthermore digital FI and gender responsive agricultural finance innovations shall go a long way to reposition the role of Nigeria's smallholder agriculture in sustainable development.

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