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Parametric Analysis of Mobile Money Adoption and Women Financial Inclusion in Kogi State - Nigeria

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ABSTRACT: An ever-increasing body of research and empirical evidence has demonstrated the positive impact of mobile money on individuals, households and businesses, especially in Sub-Saharan Africa, where there were almost 400 million registered accounts at the end of 2018. Mobile money reduces transaction costs for users and helps households to better manage their cash flows; it allows firms to invest and build capital over time, fostering the creation and expansion of business; and it facilitates faster and more efficient government transfers. These benefits have enabled many mobile money users to realise significant quality of life improvements.

However, the impact of mobile money on women financial inclusion has not been fully analysed or investigated. To address this evidence gap, this study assesses the impact of mobile money across twenty-on (21) local governments areas of Kogi state - Nigeria. Something which, to our knowledge no previous study has done. This study explores the parametric effect of mobile money on women financial inclusion using cross-sectional data collected from 400 women across twenty-one LGAs of Kogi state in Nigeria. The probit regression results illustrate that mobile money is significant and positively related to women financial inclusion in Kogi state. In addition, economic activity positively plays a significant role in improving women financial inclusion, while gender discrimination and family financial resilience inversely reduces women financial inclusion in the state.

Based on these empirical results, this study recommends the following. First, it is important that government at all level devise means to ensure and broaden usage of mobile money by of provision of communication networking, and internet services, especially in rural areas. This will go a long way in aiding and increasing individuals' usage of mobile phone and money, hence promotion of financial inclusion among women. Secondly, there is need to enhance women economic engagement, most especially in the rural areas. This will boost their financial transactions, savings, and financial stability, thus stimulate their financial inclusion.

Thirdly, while it may be unrealistic for gender equality but there is need to enforce gender discriminating law to give women sense of belonging and full participation to thrive their financial inclusion. Lastly, government at local level are also advised to increase and ensure financial stability and support families in building financial resilience. This can increase women financial inclusion.

KEYWORDS: Mobile Money, Financial Inclusion

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1.0 INTRODUCTION

In emerging and developing economies globally, women are often regarded as inferior and constitute a vulnerable group. The age-long practises of gender roles and gender discrimination, made women traditionally less educated and subordinates to male family members, creating a number of restrictions in terms of their economic activities (Kyungha, 2022). Women have limited property rights (Gaafar, 2014), and they face discrimination in accessing financial services compared to men (Aterido, Back, & Iacovone, 2013; Demirguc-Kunt, Klapper, & Singer, 2013). According to Fanta & Mutsonziwa (2016) financial institutions do not treat women as customers in their own right, but typically expect permission from husbands or male family members to conduct financial activities. As a result, women generally face higher barriers to financial access, which reduces their decision-making power within the household and makes them more dependent on male family members, thus they are often financially excluded.

Financial inclusion is accredited to improving welfare. For example, its positive effects on consumption, savings, foreign remittances, micro-entrepreneurs and risk mitigation (Sakyi-Nyarko, Ahmad & Green, 2022). Financial inclusion also provides increased resilience by offering an avenue to insure against negative economic shocks. There is also emerging evidence that welfare benefits of financial inclusion are particularly maximised in female-headed households (Holloway, Niazi, & Rouse, 2017; Swamy, 2014). This is because women disproportionately experience poverty, emanating from unequal divisions of labour and a lack of equal access and control over economic resources (Holloway et al., 2017). Larson, Castellanos, and Jensen (2019) find that when Honduran women have access to credit, their households are less likely to be faced with food insecurity. Similar welfare effects are

found in Tanzania (Salia, 2014); in Malaysia (Al-shami, Razali, & Rashid, 2018); and in Bangladesh (Mahmud, Shah, & Becker, 2012)

In response to the call for universal financial inclusion, the past decade has witnessed the emergence of mobile money ((Serbeh, Adjei & Forkuor, 2021; Blumenstock et al. 2015). Defined as financial services accessed through mobile devices, mobile money is hailed as a promising tool for financial inclusion (Yu and Ibtasam 2018). Out of the 2.5 billion unbanked people, about a billion have access to mobile phones (Blumenstock et al. 2015). Owing to this, mobile money is uniquely positioned to serve their savings, credit, insurance, payments, and transfers needs (Munyegera and Matsumoto 2016; Yu and Ibtasam 2018).

In Nigeria, the size of mobile payments has risen dramatically over the last few years in response to global, domestic, market, technological, and regulatory factors. Data from the Nigeria Interbank Settlement System (NIBSS) show that while the volume of mobile transactions was 51 million in 2017, it reached 410 million in 2019 representing a growth of about 703.9 per cent. Similarly, the value of mobile transactions increased sharply from N196.3 billion in 2017 to N828.1 billion in 2019. The value of mobile transactions (N853.7 billion) recorded in the first five months of 2020 surpassed the total amount recorded in 2019 by 3.1 per cent. The phenomenal growth in the value of mobile payments, especially in May 2020 can be partly explained by the effects of the restricted human movements associated with the lockdown measures implemented in response to the Covid-19 pandemic (Omotosho, 2021).

A growing body of recent literature has argued that the rapid growth of mobile money has played an important role in strengthening women's financial inclusion by enabling them to access financial services independently without their husbands' or male family members' permission, to conduct financial transactions more easily and with greater autonomy (GSMA, 2015, 2017; Buvinic & Furst-Nichols, 2016; World Bank, 2018), and to enable more women to move out of subsistence agriculture into business (Suri & Jack, 2016). This gender gap is larger than in most other countries, and whilst financial inclusion is increasing for both men and women, the gender gap is widening. In contrast, comparator countries in Africa such as Kenya, South Africa, Tanzania, and Uganda all exhibit a decreasing gender gap. The gender gap in Nigeria represents a major issue to be resolved if the country is to achieve the targets it set in its National Financial Inclusion Strategy (NFIS).

1.2 Statement of the Problem

A number of theoretical and empirical evidence have linked financial inclusion of women to the economic uplifting of their households as a result of improved economic empowerment. Yet achieving pervasive financial inclusion for women has remained a global challenge with as much as 54.0 per cent of adults worldwide being financially excluded (without access to financial services). The situation is even worse in the developing economies where some countries have as much as 70.0 per cent financial exclusion levels and women are discriminated against.

Despite the government drive and policies to increase financial inclusion, women financial inclusion remains in its lowest level especially in the rural areas where the major economic activity is farming on subsistence level and there is low level of economic activities. One of the major challenged attributed to women financial inclusion is their level literacy level which informs their ability to employ the technology associated with mobile money services. Mobile money service requires that users own bank accounts in a formal financial institution and also possess a smart phone in order to use the mobile money services. As such one's literacy level matters.

There is also the challenge of gender discrimination in economic activities. Most economic activities are reserved for men as against women. Women are discriminated against on economic right in most societies especially in the rural areas. Thus, where one does not earn income the need for mobile money services or financial inclusion is not required. In addition, a number of financial stresses occasioned by the Some financially stressful events, such as child birth, maternity and a number of health challenges specific to the female folks tend to promote their exclusion from economic activities and eventually financial inclusion. These problems necessitated the need to investigate the impact of mobile money on women financial inclusion in Kogi State, Nigeria.

Based on the challenges discussed in the above paragraphs, the following research question arises:

i. What is the effect of economic activities on women financial inclusion in Kogi State?
ii. What is the effect of mobile money on women financial inclusion in Kogi State?
iii. Does gender-discrimination have any effect on women financial inclusion in Kogi State?
iv. Is there improvement in family financial resilience as a result of women financial inclusion in Kogi State?

1.3 Objective of the Study

The broad objective of this study is to investigate the impact of mobile money on women financial inclusion in Kogi State - Nigeria. While the specific objectives are to:

i. Examine the effect of economic activities on women financial inclusion in Kogi State.
ii. Evaluate the effect of mobile money on women financial inclusion in Kogi State.
iii. Determine the effect of gender-discrimination on women financial inclusion in Kogi State.
iv. Establish if there is improvement in family financial resilience as a result of women financial inclusion in Kogi State.

2.1 Literature Review

The traditional definition of financial inclusion is providing un banked and vulnerable people with appropriate, adequate, affordable and timely financial services, such as remittances, savings, and loans through formal financial institutions; services from informal financial providers are excluded from the standard definition of financial inclusion (Ssonko, 2010; Thingalaya, Moodithaya, & Shetty, 2010). There is growing interest in financial inclusion worldwide, which is reflected in the Global Partnership for Financial Inclusion (GPFI). At the G20 Summit in Seoul, the leaders of the G20 recognized financial inclusion as one of the main pillars of the global development agenda, endorsed a concrete Financial Inclusion Action Plan and announced the creation of the GPFI (GPFI, 2017). The World Bank (2008) also underlines the importance of encouraging the growth of financial access and financial inclusion, providing additional evidence to support claims that financial access boosts economic performance. They focus particularly on women's financial inclusion, considering it as a key enabler for gender equality and women's empowerment, which is one of the Sustainable Development Goals (SDGs).

One of the main impacts of financial inclusion on women is empowerment. First, through financial activities, women can become income-generating actors and financially and economically independent of their husbands or other male family members (Dobra, 2011; Littlefield, Murduch, & Hashemi, 2003). Similarly, a study in the early 1990s of three of the largest financial programmes for women in Bangladesh revealed that female clients increased their household's consumption after using banking services, and 5% of female clients escaped from poverty each year by participating in microfinance programs (Khandker, 1998). Financial inclusion programmes often give more benefits to women than men. Swamy (2014) studied the impact of women's participation in Self-Help Groups (SHGs) under microfinance in India between 2007 and 2012. This study shows that the impact of SHGs on income growth was much higher for women, 8.4%, as opposed to 3.97% for male participants.

Recent research finds that women and girls tend to be typically under-served by the formal financial system, an aspect which appears to have been exacerbated by the Covid-19 pandemic (UN Women, 2020). Evidence across countries consistently support the fact that financial empowerment of women increases their bargaining power. In turn, this facilitates their participation in the labour market (Field et al., 2021; Jack and Suri, 2014; Suri & Jack, 2016) and more so when financial transfers are digitally credited into their bank accounts (Arnold & Gammage, 2019). In a Report published in 2015, the Indian central bank had flagged the gender gap in financial inclusion and observed that states with greater proportion of women have lower financial inclusion (RBI, 2015). Subsequent evidence from the Indian state of Andhra Pradesh finds that digital and targeted delivery of social security benefits ensured that not only did the government make substantial savings in administrative cost but more importantly, women received larger payments, because of the rationalisation of ghost beneficiaries (Muralidharan et al., 2016).

The growth of the mobile money industry has generated research interest on its potentials for financial inclusion. The relevance of mobile money in rural areas is predicated on various factors. First, mobile money is cheaper compared to services offered by formal banks (Bongomin and Munene 2019). Given that demand for financial services is negatively related to resulting transaction costs, high transaction costs may decrease the demand for services. The cost implications underscore the growth in prominence of mobile money since the platform involves little financial outlay on the part of providers and users. Mobile money, which does not require travel to bank branches increases rural households' access to services that hitherto could only be provided by traditional banks (Yu and Ibtasam 2018).

There are limited literatures that explore the role that mobile money plays in addressing the gender gap in access to and uptake of formal financial services (CBK et al., 2016, 2019; World Bank 2018; Suri & Jack, 2016). The study of Sakanko (2020) in Nigeria using the ARDL model, indicated a positive relationship between financial inclusion and women's participation in gainful employment. Work by Suri and Jack (2016) has been influential in emphasizing the role of mobile money in promoting financial inclusion and alleviating poverty in ways that particularly benefit women. Their research, based on household panel surveys conducted in Kenya between 2008 and 2014, claims that access to M-Pesa 'increased per capita consumption levels and lifted 194,000 households, or 2% of Kenyan households, out of poverty', with the impact of mobile money most pronounced for female-headed households. This highly cited work emphasizes the role that mobile money has played in enabling women to improve their financial resilience. They argue that mobile money has facilitated an estimated 185,000 women to graduate out of subsistence agriculture into business or retail activities and reduced their reliance upon working multiple part-time jobs. As debates surrounding the impact of mobile money on addressing women's financial inclusion become increasingly contested and polarized, there is a need for fine grained empirical research that can offer more nuanced understandings into the impact of mobile money.

3.0 METHODOLOGY

This study employed a cross-sectional survey study. It builds on the Study of Suri and Jack (2016). The study employs primary data sources, and descriptive and inferential statistics was used for the empirical analysis.

The primary data was secured through questionnaires and complemented by oral interviews. The study population covered households from three local government areas in Kogi State. The local government includes one metropolitan local government area, semi-metropolitan and one rural area based on the projected population census figure published by the National Population Commission (NPC, 2016). The study employs the Yemane (1967) sampling technique to determine the sample size. The sampling

procedure used is a stratified random sampling technique to select respondents for the research study. The respondents included unorganised female retailers, female-headed household from rural and urban centres within the three local government areas in Kogi state. According to estimated population figure reported by NBS (2017), Kogi State has a total population of 4,473,490 and female population of 2,192,010.

$n = \frac{N}{1+N(e)^2}$

N is the total population, the error allow is the e, and sample size is the n.

$n = \frac{2,192,010}{1+2,192,010(0.05)^2} = \frac{2,192,010}{5,481.025}$ = 399.927 approximately 400. Therefore, the sample size of this study is 400 which is distributed to three local government in Kogi the state.

3.4 Model Specification and Technique of Analysis

The specified model is expressed as:

$WFI = \alpha + \beta + \gamma ECO + \pi UMM + \varphi GD + \vartheta FFR + \mu$ ……3.1

Where:

WFI: Women financial inclusion

ECO: Level of economic activities

UMM: Usage of mobile money services

GD: Discrimination

FFR: Family financial resilience

In view of the qualitative nature of this study and the response variables, the study was analysed using descriptive and inferential statistics. The descriptive statistics comprises of tables, percentages, and charts, while the inferential statistics was analysed using the Probit model regression owing to its obvious advantage in addressing qualitative or categorical response variables.

4.0 Estimation and analysis of the results

4.1 Descriptive Statistics

The descriptive statistics of the characteristics of the respondents were computed and the results is summarised in Table 1. The results illustrate that 36 percent of the total respondents age between 31 to 50, while the rest 31 percent between 18 to 30, 20 percent between 51 to 60, and above 61 are 12.75 percent. Also, 49.5 percent of the respondents (equivalent to 198) are married, single are 26.5 percent, divorced or separated from husband 19.25 percent, and 4 percent are widowed. The result also affirms that majority of these women are literate (can read and write), representing 66.75, while 33.25 percent could neither read nor write in among women in Kogi state.

Table 1: Descriptive Statistics

Variable	Obs. = 400	Percentage
Respondents' Age		
18 – 30	124	31
31 – 50	145	36.25
51 – 60	80	20
Above 61	51	12.75
Respondents' Marital status		
Single	106	26.5
Married	198	49.5
Divorced/Separated	77	19.25
Widowed	19	4.75
Respondents' Literacy		
Read/write/Literate	267	66.75
Can't read/write/Illiterate	133	33.25
Respondents' Educational Status		
None	44	11
Primary leaving Certificate	21	5.25
Vocational Certificate	33	8.25
WAEC/NECO Certificate	27	6.75
NCE/OND	120	30
B.A./B.Sc./HND	155	38.75
Respondents Employment Status		
Employed	128	32
Unemployed	172	43
Self employed	100	25

Source: Author's compilation (2023) using Stata 14.

In addition, about 38.75 and 30 percent (equivalent to 155 and 120 respondents) holds tertiary institutions certificate, while 11 percent are none, 5.25 owned primary leaving school certificates, 33 and 27 are various vocational and WAEC/NECO certificates holders. Moreover, majority of the respondents (about 43 percent) are unemployed, 32 percent are either federal or state or local government employees, and 25 percent are self-employed.

Table 2: Respondents' Bank Account Ownership

Variable	Frequency	Percent
Yes	236	59
No	164	41
Total	**400**	**100**

Source: Author's compilation (2023) using Stata 14.

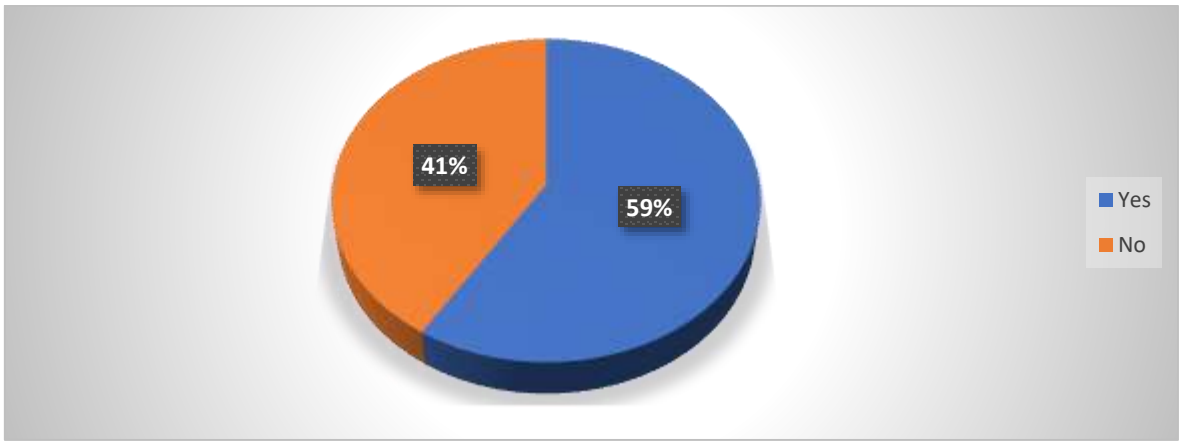

Figure 1: women financial inclusion (account ownership

To explore the understanding and perception of the respondents on what financial inclusion entail, the respondents were asked whether they own an account with any financial institutions such as commercial banks, microfinance banks, etc. The result is presented in Table 2, and the pictorial illustration is displayed in Figure 1. most of the respondents, corresponding to 236 respondents (equivalent to about 59 percent of the respondents), indicate ownership of an account with a financial institution. However, 164 respondents (representing about 41 percent of the respondents) indicate that they do not have an account with any financial institution. This suggest that majority of the women are financially included in Kogi state.

Table 3: Respondents' economic activities

Variables	Frequency	Percent
Job	75	18.75
Trade	115	28.75
Farmer	101	25.25
Entrepreneurs	109	27.5
Total	**400**	**100**

Source: Author's compilation (2023) using Stata 14.

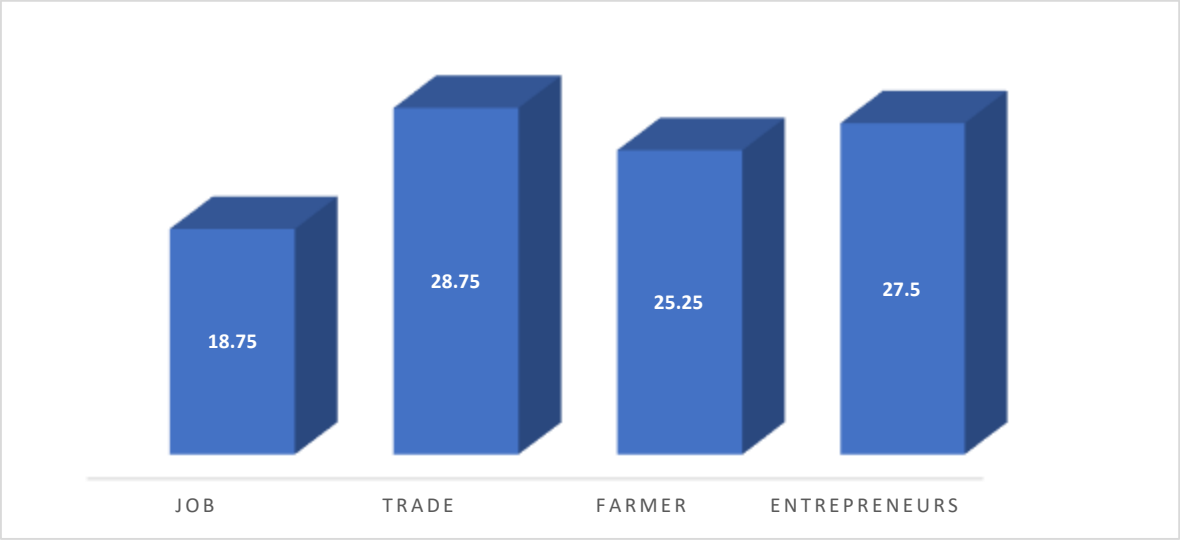

Figure 2: *respondent's economic activity*

Table 3, and its graph given in Figure 2 illustrate the economic activities of respondents. The outcome indicates that 75 respondents (equivalent to about 18.75 percent of the respondents) main economic activity is job, 115 respondents (representing about 28.75 percent of the respondents) are traders, 101 and 109 respondents (equivalent to about 25.25 and 27.5 percent of the respondents) are farmer and entrepreneurs.

Table 4: Respondents' mobile money usage

Variable	Frequency	Percent
Yes	326	81.5
No	74	18.5
Total	**400**	**100**

Source: Author's compilation (2023) using Stata 14.

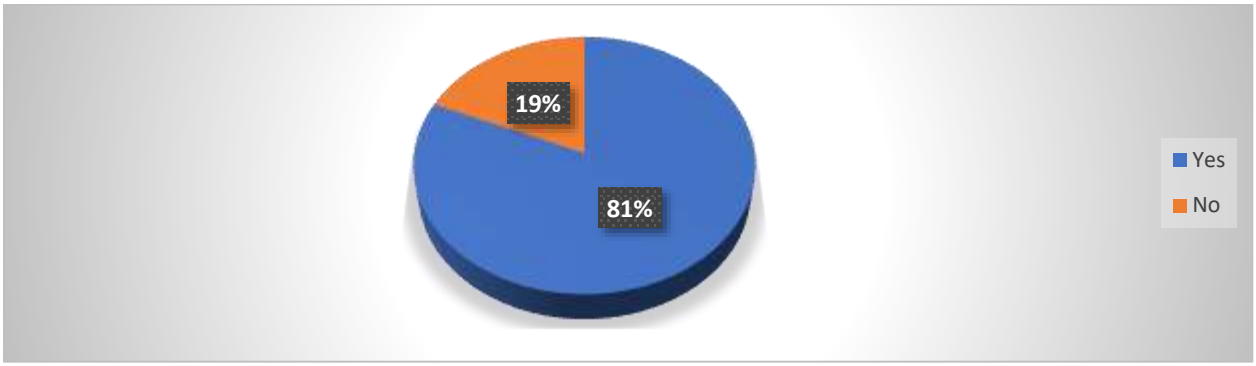

Figure 3: respondent's mobile money usage

In Table 4, and the corresponding graphical depiction in Figure 3, the mobile phone ownership status of respondents is illustrated. Especially, it is shown that majority of the respondents, corresponding to 326 respondents (representing about 81.5 percent of the respondents) used mobile money, however, 74 respondents (equivalent to about 18.5 percent of the respondents) used no mobile money.

Table 5: Gender-discrimination of respondent's

Variable	Frequency	Percent
Yes	276	69
No	124	31
Total	**400**	**100**

Source: Author's compilation (2023) using Stata 14.

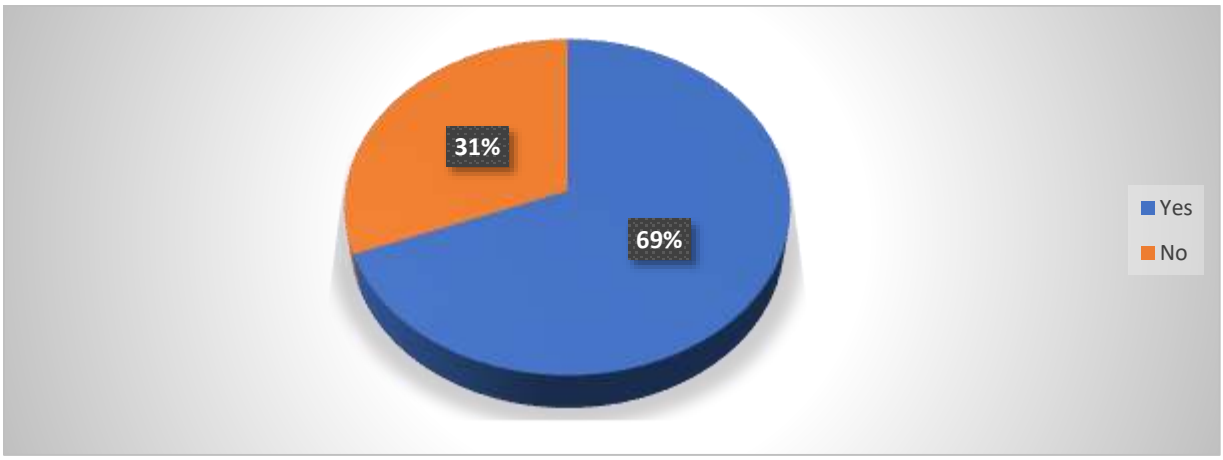

Figure 4: respondent's gender discrimination

The status of the respondents' gender discrimination illustrated in Table 5 and its corresponding graphical depiction is also shown in Figure 4. The outcome demonstrates that while 276 respondents (representing about 69 percent of the respondents) indicate their experienced of gender discrimination among their men counterparts. However, 124 respondents (equivalent to about 31 percent of the respondents) indicate their gender discrimination inexperienced.

Table 6: Family financial resilience of the respondent's

Variable	Frequency	Percent
Yes	152	38
No	248	62
Total	**263**	**100**

Source: Author's compilation (2023) using Stata 14.

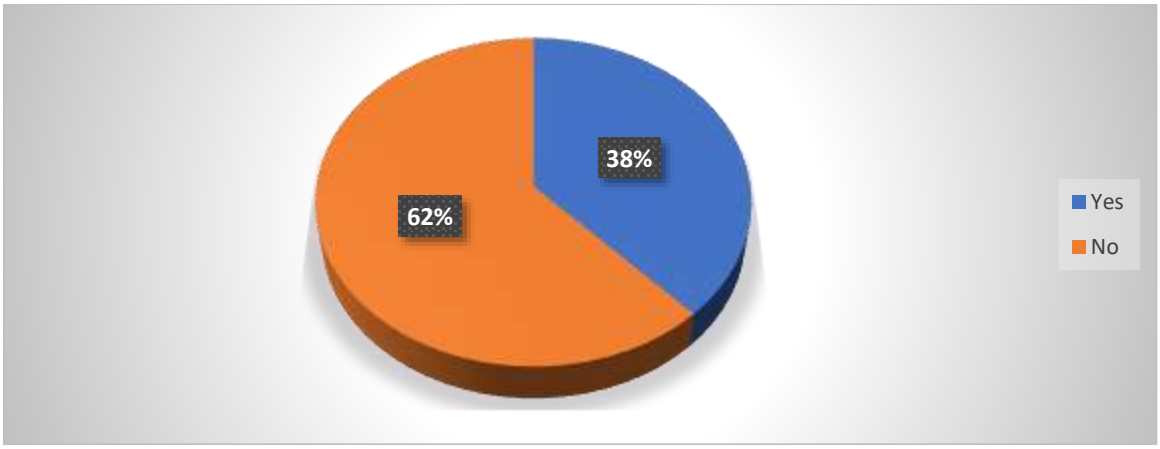

Figure 5: respondent's family financial resilient

The outcome of the answers of respondents with regards to their family financial resilience presented in Table 6, and its corresponding graphical diagram is given in Figure 5. The outcome demonstrates that 152 respondents (equivalent to about 38 percent of the respondents) said yes. However, 248 respondents (representing about 62 percent of the respondents) said no to family resilient.

4.2 Estimation and Discussion

The inferential statistics to test equation 3.1 is presented in Table 4. The outcomes of the Probit estimation expose that economic activity (ECO) and mobile money (UMM), positively and statistically improve women financial inclusion in Kogi state at 1%. Gender discrimination and family financial resilient reduce women financial inclusion in Kogi state and statistically significant at 1% and 10% respectively.

Table 7: The Probit regression results for Women financial inclusion.

Dependent Variable (WFI)	$Coefficient$	$Statistics$	$Probability$
ECO	*0.257*	*4.11****	*0.000*
UMM	*0.629*	*4.60****	*0.000*
GD	*-0.026*	*-5.35****	*0.000*
FFR	*-0.207*	*-1.47**	*0.141*
$X^2LR = 86.57$ *Prob. 0.000*	$R^2P = 16\%$	$X^2P = 235.71$ *Prob. 0.75*	$X^2HL = 5.56$ *Prob. 0.70*

Source: Authors' compilation extracted from STATA 14.

$X^2LR, X^2P, X^2P, \chi^2HL$ are LP chi-square, Pseudo coefficient of determination, Pearson, and Hosmer-Lemeshow goodness-of-fit test statistic testes for model diagnostic.

Particularly, a unit increase in the economic activity would lead to a probability of 0.26% improvement in women financial inclusion in Kogi state. Implying that women participation in economic activity promote their financial inclusion. The find also in conformity with aprior expectation of this study and corroborated the empirical result of Sakanko (2020), that women participation in gainful employment considerably influence their financial inclusion.

Similarly, a level increase in mobile money would result in a probability of 0.63% increase in women financial inclusion in Kogi state. Signifying that improvement in mobile money usage in Kogi state stimulate women financial inclusion. That is a growing mobile money can play a significant part in reinforcing women's financial inclusion by allowing them to access financial services and product independent, conduct financial transactions easily, and with greater autonomy. This outcome affirms the aprior expectation of the study and in conformity with (GSMA, 2017; Buvinic & Furst-Nichols, 2016; Suri & Jack, 2016; World Bank, 2018). They established that mobile money significantly influence women financial inclusion.

However, gender discrimination and family financial resilient are found to reduce financial inclusion in Kogi state. A percentage increase in gender discrimination would decline women financial inclusion by a probability of 0.03%. Gender discrimination can play a major role in limiting access to financial services, especially for women. In some cases, women are denied access to bank accounts or loans due to cultural or legal restrictions. This can further contribute to the cycle of poverty, as women are unable to access the resources necessary to build financial stability. The find affirms this study aprior expectation.
Similarly, a proportional rise in family financial resilient would decline women financial inclusion by a probability of 0.21% . Families with higher financial resilience are more likely to have access to financial services, such as bank accounts and credit cards, which can help them save money and manage their finances more effectively. Conversely, families with less financial resilience will likely have fewer financial services and may be more vulnerable to financial shocks and risks. This lack of access can lead to long-term financial insecurity, creating a cycle of poverty that is difficult to break. To ensure financial stability, it is important to support families in building financial resilience.

5.0 Conclusion and Recommendations

This study explores the parametric effect of mobile money on women financial inclusion using cross-sectional data collected from 400 women across three LGAs of Kogi state in Nigeria. The probit regression results illustrate that mobile money is significant and positively related to women financial inclusion in Kogi state. In addition, economic activity positively plays a significant role in improving women financial inclusion, while gender discrimination and family financial resilience inversely reduces women financial inclusion in the state.
Based on these empirical results, this study recommends the following. First, it is important that government at all level devise means to ensure and broaden usage of mobile money by of provision of communication networking, and internet services, especially in rural areas. This will go a long way in aiding and increasing individuals' usage of mobile phone and money, hence promotion of financial inclusion among women.
Secondly, there is need to enhance women economic engagement, most especially in the rural areas. This will boost their financial transactions, savings, and financial stability, thus stimulate their financial inclusion.
Thirdly, while it may be unrealistic for gender equality but there is need to enforce gender discriminating law to give women sense of belonging and full participation to thrive their financial inclusion.
Lastly, government at local level are also advised to increase and ensure financial stability and support families in building financial resilience. This can increase women financial inclusion.

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Dear Respondent,

We are seeking for your compliance on the above topic. We will be very grateful if you can spare your precious time to complete this questionnaire. Your responses will be treated with confidence and used for this research work only.

SECTION A: PERSONAL DATA

Instruction: Please fill the blank spaces and tick (✓) in the box to indicate your choice

Age group: 18 – 40 ( ) 45 – 70 ( )

Level of education: SSCE/O Level ( ) NCE ( ) OND ( ) HND/B.Sc. ( ) PhD ( )

Others, please specify _____

Religion: Islam ( ) Christianity ( ) Others ( )

Employment Status: Employed ( ) Self-Employed ( ) Unemployed ( )

Please indicate your economic activity for livelihood: Proprietor ( ) Farmer ( ) Trader ( ) Businessperson/Entrepreneur ( )

Do you expend up to ₦579.5 equivalent to $1.90 daily? Yes ( ) No ( )

SECTION B: FINANCIAL INCLUSION STATUS

Instruction: Please fill the blank spaces and tick (✓) in the box to indicate your choice

Do you understand/know what financial inclusion/exclusion entails?

Yes ( ) No ( )

Do you have a bank account in any financial institution (bank, MFB, co-operative)?

Yes ( ) No ( ) Can't say ( )

If yes, among the following what was the reason for opening it?

Loan ( ) Salary ( ) Savings/Deposit ( ) Others, please specify _____

If no, why do you choose not to have an account?

Distance of financial institutions ( ) Cost of financial services ( ) Absence of necessary document ( ) Lack of trust in financial institutions ( ) Because of religion/culture ( ) Lack of enough money to deposit in financial institutions ( ) Because someone else in the family already has an account ( )

Is there any visible/physical presence of a financial institution in your community?

Yes ( ) No ( ) Can't Say ( )

If yes, how often do you use it?

Every day ( ) Once in a week ( ) Monthly ( ) Not at all ( )

How accessibility are/is Automated Teller Machine (ATM) and/or Point-of Services (POS) facilities in your community?

Very accessible/close by ( ) Not accessible/very far ( ) Can't say ( )

In the last 12 months, have you received money for the sale of your agricultural products, crops, livestock, or from your business, family, relatives, or friends?

Yes ( ) No ( )

Do you mobile money? Yes ( ) No ( )

If yes, which of the following reasons led to the choice?

Transfer of money ( ) Pay bills ( ) Buy goods and services online ( ) Others, please specify_____

For any reason have you ever been restricted, either by your family or husband or anyone from been engage in any economic activity?

Yes ( ) No ( )

Have you, personally received any financial support (social benefits) from the government?

Yes ( ) No ( ).

15. Are you or your family ok with your current financial situation? Yes ( ) No ( ).

```
. probit wfi eco umm gd ffr

Iteration 0:   log likelihood =  -272.1168
Iteration 1:   log likelihood = -228.87759
Iteration 2:   log likelihood = -228.83023
Iteration 3:   log likelihood = -228.83023

Probit regression                                 Number of obs     =        400
                                                  LR chi2(4)        =      86.57
                                                  Prob > chi2       =     0.0000
Log likelihood = -228.83023                       Pseudo R2         =     0.1591

------------------------------------------------------------------------------
         wfi |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         eco |   .2572078   .0625641     4.11   0.000     .1345843    .3798312
         umm |   .6291885   .1367838     4.60   0.000     .3610972    .8972798
          gd |  -.0259718   .0048545    -5.35   0.000    -.0354864   -.0164572
         ffr |  -.2065569   .1404184    -1.47   0.141     -.481772    .0686582
       _cons |   .1429532   .2530142     0.57   0.572    -.3529455    .6388518
------------------------------------------------------------------------------

. estat gof

Probit model for wfi, goodness-of-fit test

       number of observations =       400
 number of covariate patterns =       257
            Pearson chi2(252) =       235.71
                  Prob > chi2 =         0.7618

. estat gof, group(10)

Probit model for wfi, goodness-of-fit test

  (Table collapsed on quantiles of estimated probabilities)

       number of observations =       400
             number of groups =        10
     Hosmer-Lemeshow chi2(8) =         5.56
                  Prob > chi2 =         0.6958
```