

Protecting The Poor: Using mobile technology to drive microinsurance adoption in Nigeria

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Samuel, Olugbenro

OLGSAM001

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Supervisor: Assoc/Prof, Alhassan, Abdul Latif

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ABSTRACT

Poor households throughout the world face twin disadvantages. The first is difficulty generating regular income, while the second is vulnerability to economic, political, and physical, downturns. Harder still, the two problems reinforce each other: poverty is a vulnerability source, and repeated exposure to downturns reinforces poverty. Microinsurance has been used in other countries to reduce exposure to these vulnerabilities. However, the adoption of microinsurance is at its lowest; Nigeria's insurance industry contribution as a proportion of GDP is small. Given the success rate of microinsurance in many Asian countries, it is believed that microinsurance can help the country change the tide of poverty. Hence, the purpose of this research is to identify factors that determine the adoption of microinsurance among low-income earners in Nigeria, especially with the use of mobile technology. The study used a structured questionnaire to collect data from respondents in three villages in the Karu Local Government Area of Nasarawa State, Nigeria. Out of the 500 questionnaires, only 434 were usable. The data were analysed using multiple regression, and items on the questionnaire were tested for validity and reliability using principal component analysis and other validity convergence measures.

The results from the analysed data show that trust, and perceived ease of use, of mobile technology, were highly significant in respondents' intentions to engage with microinsurance. In addition, although not as significant, family influence remained a driver of the adoption of microinsurance. Contrary to earlier beliefs, religion was not significant in the factors that influence microinsurance adoption. Therefore, policymakers and players in the insurance industry must build trust and create a new image for the sector in the country. Similarly, increased sensitisation on how microinsurance works is essential in bridging the knowledge gap about the microinsurance sector.

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GLOSSARY OF TERMS

AI	Artificial Intelligence
BOP	Bottom of the pyramid
DTPB	Decomposed Theory of Planned Behaviour
EFInA	Enhancing Financial Innovation & Access
IDT	Innovation Diffusion Theory
MNOs	Mobile network operators
MSMEs	Micro, small, and medium enterprises
NAICOM	National Insurance Commission
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
TR	Technology Readiness (Index)
TPB	Theory of Planned Behaviour
USSD	Unstructured supplementary service data

CHAPTER ONE

INTRODUCTION

1.0 Background and Context of the Study

“Poor households throughout the world face twin disadvantages. The first is difficulty generating regular income, while the second is vulnerability to economic, political, and physical downturns. Harder still, the two problems reinforce each other: poverty is a vulnerability source, and repeated exposure to downturns reinforces poverty” (Matin, Matin, Hulme, and Kirkpatrick, 1999, p. 9).

There is a general saying among insurance practitioners that insurance is not bought but sold (Rhyne and Kelly, 2018). This saying quickly reveals the nature of the insurance industry and how it is generally perceived in society, especially among people at the lower end of the pyramid. With over 200 million people, the Nigerian population has less than one percent insurance penetration. That is an alarming statistic and needs urgent attention. Unarguably, uninsured risk has enormous welfare costs both in the short run and in the long run, and if not arrested, perpetuates poverty in any society (Dercon, Bold, and Calvo, 2008).

According to Churchill (2006), “poverty and vulnerability reinforce each other in an escalating downward spiral.” (Churchill, 2006, p. 12). Families plunge into a perpetual cycle of poverty in the absence of protection against uncertainty. The demand thus for protection is as real at the lower end of the economic pyramid as it is at its tip. In the absence of formal protection among the poor, families and individuals resort to informal means of protecting themselves and their belongings. Unfortunately, this method has proven unproductive and unworkable. A single catastrophe could lead to untold hardship among these households, multiplying poverty in society.

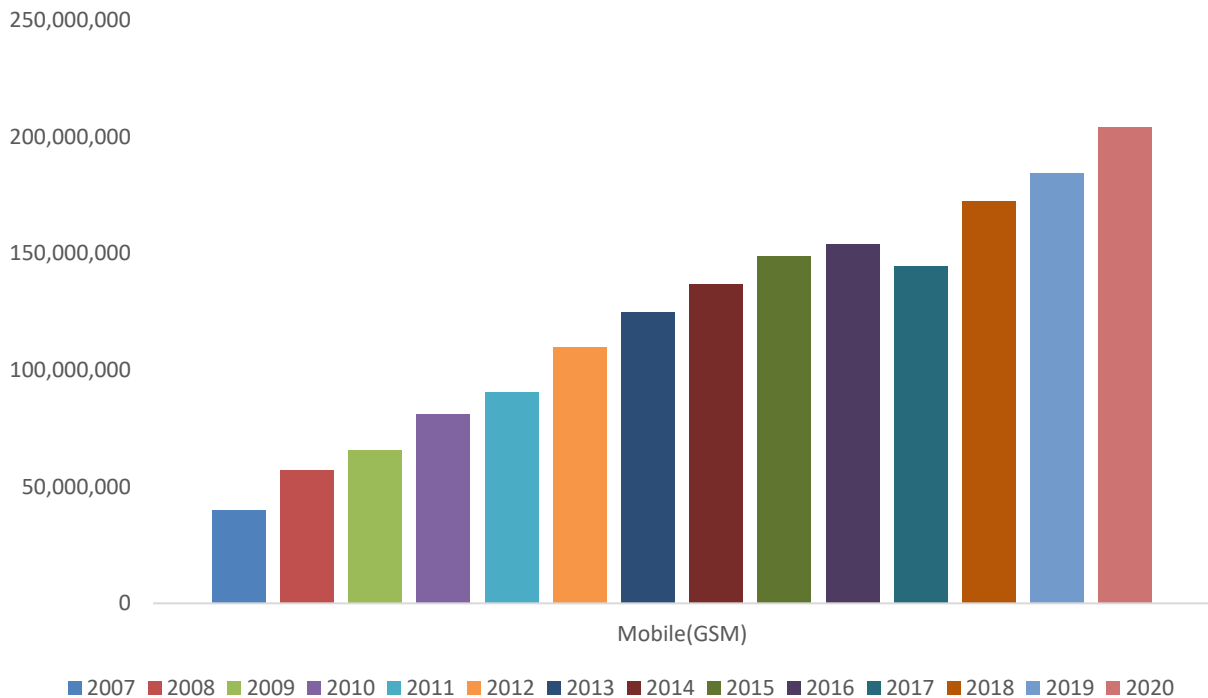
Nigerian government attempted to put in place some social safety net to ensure poverty reduction and households’ general well-being. These included “*TraderMoni*,” a social safety net that provided micro-enterprises with microcredit. While this was an excellent initiative, it had no built-in protection for micro-enterprises when disaster struck.

Using sample data from 3,643 households, Akotey and Adjasi (2016) examine the significant effects of the combination of microcredit and microinsurance on households. The study concludes that households derive substantial welfare benefits when they combine microcredit with microinsurance. While microcredit may be helpful, it is usually characterised by severe problems of inclusiveness. The benefits that come with microcredit can be enhanced and sustained if the risks are covered with microinsurance (Akotey and Adjasi, 2016; Dercon et al., 2008). Besides, studies have also revealed the nexus between economic growth and insurance (Alhassan and Fiador, 2014; Arena, 2008; Han, Li, Moshirian, and Tian, 2010; Outreville, 2015).

Nigeria has made significant progress in using mobile technology for banking services through agency banking and other mobile technology-enabled platforms. However, this feat has not been replicated in the insurance industry. It is difficult to measure poverty, but according to Adeyeye (2019) poverty needs to be understood first and foremost as a problem at the individual rather than the household level. The National Bureau of Statistics (NBS) Report on Poverty and Inequality in Nigeria of 2019 states that 40 percent of the total population, almost 83 million people in Nigeria, live below the poverty line of 137,430 Naira (\$381.75) per year (The World Bank, 2020). These statistics underscored the prevalence of poverty in Nigeria.

Given the number of mobile phone users in Nigeria and the success recorded so far with agency banking in the Nigerian banking industry, mobile technology platforms are perceived to be a tool to drive the adoption of microinsurance in the country among the poor. According to data from the Nigerian Communication Commission, the number of active mobile lines in Nigeria in 2020 stood at 204,228,678, and the number had been on a steady increase since 2007.

Active Mobile Lines In Nigeria



1

The growth in mobile technology usage showed that technology appealed to all population segments regardless of income level. It can overcome many constraints currently experienced regarding reaching the under-served with insurance and creating awareness and product adoption.

1.1 Problem statement

Brown and Churchill (2000), as cited in Dercon et al. (2008), suggest that there is scope for insurance provision only when the following criteria are met: (i) a large number of similar units exposed to risk; (ii) limited policyholder control over the insured event; (iii) the existence of insurable interest; (iv) losses can be identified and measured; (v) losses should not be catastrophic; (vi) availability of historical information on a sufficiently large number of people or property exposed to the same risk so that probability of loss can be estimated; and (vii) premiums are affordable. They propose a rule of thumb by which if the likelihood of a loss exceeds 40 percent, premiums will be too high to be affordable (Brown, Calmeadow, and Churchill, 1999).

¹ <https://www.ncc.gov.ng/statistics-reports/subscriber-data#annual-subscriber-technology-data>

One of the most comprehensive works on microinsurance determinants was done by Eling, Pradhan and Schmit (2014). The study compared various factors affecting demands for microinsurance and traditional insurance. These factors were grouped into economic, social, and religious aspects. In the economic aspect, price is considered a significant issue. According to the study, most studies on insurance demands use premiums as the price variable; however, in the real world, other costs involved in buying insurance can range from the time and effort required to purchase or renew a policy and claim filing. Factors such as distance from health facilities can even determine whether a person takes up an insurance policy or not.

In 2008, the survey results by the Enhancing Financial Innovation & Access (EFInA) group put the number of insured adults at one million out of 86.6 million adults 18 years and over. This represented approximately 1.2 percent of the adult population of Nigeria EFInA (2008). Interestingly, 0.6 million of the total insured accounts for adults with vehicle insurance because it is compulsory and punishable under the law to drive without third-party vehicle insurance. As of 2007, a year before the survey, the insurance sub-sector contributed only 0.32 percent to GDP². In addition, as pointed out by Gbadamosi and Hamadu (2009), the annual insurance premiums as a proportion of per capita GDP (which represents the level of insurance penetration) is one percent. This is very low compared to a few sub-Saharan African countries such as Namibia, Lesotho, and South Africa. The latter has an insurance penetration of 16 percent (Olaosebikan, 2013).

The EFInA survey has been a bi-annual financial inclusion survey since 2008. The latest result is the 2018 edition which puts insurance penetration in Nigeria at 1.6 percent EFInA (2018), and as usual, vehicle insurance accounts for more than 50 percent of this value. The insurance industry in Nigeria has a range of problems, and efforts were made to make the sector a viable one, but no significant progress has been made. In 2014, the Nigerian insurance industry was ranked 62nd globally in 2019³, and the vision was to make it the twentieth largest in the world by the year 2020. However, nothing significant has changed in the intervening years.

² <https://www.cbn.gov.ng/fss/tue/BSP/Insurance/FSS%202020%20-%20Insurance%20Presentation.pdf>

³ <https://www.pwc.com/ng/en/assets/pdf/nigeria-insurance-survey.pdf>

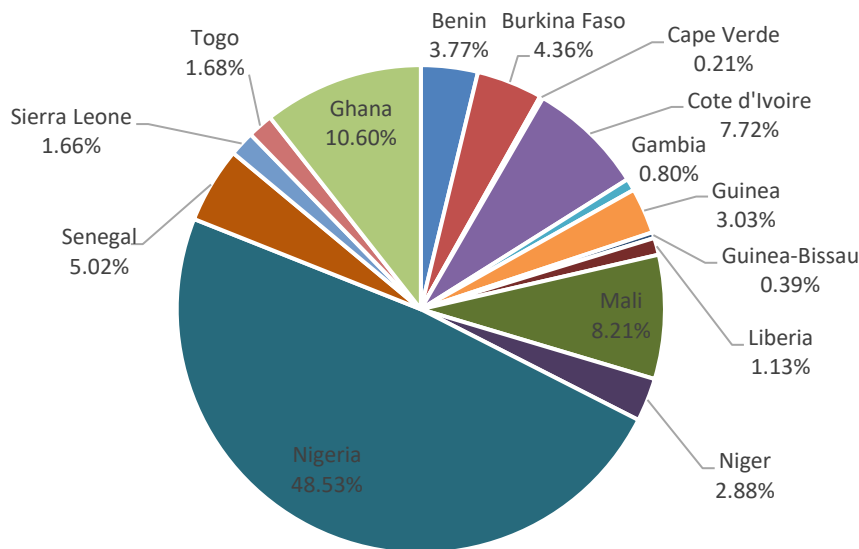
In an interview with the then-commissioner for insurance in 2014, Nigeria has all the fundamentals of a thriving insurance industry: a vast population, a dynamic economy, and a well-capitalised industry. The commissioner agreed that microinsurance had been at the vanguard of booming insurance industries in other countries. For Nigeria to achieve the quantum leap it desired in the insurance industry, microinsurance must be prioritised (Vanguard, 2014).

However, the 2018 survey of EFINA showed that 77.2 percent of the adult population survey is unaware of insurance. Around the same period, the micro, small, and medium enterprises (MSMEs) National Survey 2017 report (National Bureau of Statistics, 2017), puts the total number of enterprises in Nigeria at 41,543,028, in which 99.8 percent are micro-enterprises (i.e., less than ten employees according to Nigeria definition). These figures made it easier to conclude that a significant proportion of Nigerian micro-enterprise is not insured. In 2020 alone, every month until April has recorded many fire incidents in important markets across the country. Without insurance, these business owners would have returned to the poverty threshold. This may account for why the country had 0.17 percent and 0.004 percent of small and medium enterprises in the 2017 MSMEs survey. Micro-enterprises hardly make it to the next stage of growth.

Why were these low-income earners, households, or small business owners not patronising insurance companies as a cover against these risks? One of the answers has been given above – most were not aware of the importance of risk cover. Another was the lacklustre reputation that insurance companies have had over the years. This has made many households search for alternatives for mitigating their risks. Have insurance companies made insurance for low earners a priority? The answer is no, and this is easy to understand at face value as the insurance business for the poor is assumed unprofitable.

Despite this sad statistic regarding insurance penetration in Nigeria, Nigeria's mobile technology adoption ranks highest in West Africa. According to the African Development Bank Group, on the number of mobile cellular subscribers in West Africa in 2014, Nigeria leads the region by 48.53 percent!

Mobile Cellular Subscribers in West Africa 2014



Source: African Development Bank Group

In the EFINA, Access to Financial Services in Nigeria Survey of 2018, the sample adult population was 99.6 million. Of this population, 68.9 percent own a mobile phone. Remarkably, in the same survey, 97.9 million have no insurance (EFInA, 2018).

Borrowing from the success recorded in the banking industry on financial inclusion through agency banking, there are huge possibilities that insurers will gain from the use of mobile technology to deploy microinsurance to low-income earners. The significant constraints have been the product's profitability, given the negligible premium that microinsurance attracts from these low-income earners and the volume that must be covered to be profitable. An essential component of microinsurance is premium affordability (Ntuli, 2012); this begs the question of whether the poor can afford a regular payment of premiums given their low income per capita? However, riding on mobile network operator (MNOs) infrastructure across the country, there is immense potential to reach the vast pool of mobile subscribers in Nigeria through various distribution channels. This will reduce the cost of distribution, increase the number of people that can be reached, and improve profitability. Besides, enrolment and claim processes are more efficient, and communication will be made more accessible. Given the vast amount of data available through mobile devices and leveraging Big Data technology, insurers can reduce the insurance market's moral hazard (Prashad, Saunders, and Dalal, 2013).

While opportunities exist for microinsurance providers to improve the quality and efficiency of their services and reach out to a large segment of the unserved population, it is apparent that mobile technology alone was by no means a panacea to user adoption of microinsurance. Therefore, this study explores the demand-side of microinsurance among the low-income earners *if* providers decide to ride on mobile technology networks in Nigeria. Specifically, this research attempts to address these research questions:

- i. How will the introduction of mobile technology in the delivery of microinsurance improve the adoption rate in Nigeria?
- ii. What other factors influence low-income earners' intention to adopt microinsurance?

1.2 Statement of research objectives

Since every available statistic shows that mobile technology adoption is high in Nigeria, irrespective of the poverty level and other limiting factors confronting the country, can this mobile technology drive microinsurance in Nigeria?

Building on the above questions, the following are the objectives of this research.

- i. To examine the impact of mobile technology on the adoption rate of microinsurance in Nigeria.
- ii. To examine other factors that influence low-income earners to adopt microinsurance in Nigeria.

1.3 Justification of the study

There have been considerable studies on the factors that increase demand for microinsurance products among the poor in many countries. Matul, Dalal, de Bock and Gelade (2013), suggest many strategies to address demand factors, especially from the supplier side, but they failed to analyse the elements from the demand-side. Similarly, in analysing the determinants of demand for microinsurance in Nigeria, Akotey, Osei and Gemegah (2011), list premium flexibility, income level, expectation, and insurance knowledge, as factors that constrain the demand for microinsurance products. These factors are not new, as they have been addressed by other

studies (M Cohen & Sebstad, 2006; Monique Cohen and Sebstad, 2005; Eling et al., 2014; Hussels, Ward, and Zurbruegg, 2005).

There is a general belief that technology can be used to overcome the constraints raised by the demands of microinsurance products by low-income earners. However, there has been little study on the *use* of mobile technology to overcome these challenges in Nigeria. The study looked at the employment of mobile phones to overcome the biases of the poor towards microinsurance.

Part of the motivation for selecting this topic is the revealing figure of Nigeria's poverty index by the Nigeria Bureau of Statistics on Nigeria. The report was given prominence by news published by CNN declaring that Nigeria has overtaken India as the world's Poverty Capital (The Guardian, 2020). Studies showed how India is leading the world to use microinsurance as a means to combat poverty, insuring low-income earners using various channels. Since India has led the way, many Asian countries have also increasingly latched onto the microinsurance drive to reduce poverty among their population. There is considerable similarity in the poverty rate in India and Nigeria; consequently, the motivation was to see if the widescale adoption of mobile phone usage in Nigeria can be translated into creating awareness and adoption for microinsurance among the low-income earners in Nigeria.

The prevalent poverty in Nigeria called for a better approach to mitigate the risks faced by the poor. In 2014, it was reported that over 40 percent of the population lived below the poverty line (McKinsey 2014), and the situation has not improved. There is a consensus among previous research on microinsurance and its capacity to help mitigate risks among the poor and consequently lift many above the poverty line; the nexus between insurance and economic growth has equally been pointed out (Alhassan and Fiador, 2014; Outreville, 2013).

Moreover, there has been a gap between the potential of microinsurance and its realities among the poor. Previous work points out reasons for the low take-up of microinsurance among the poor. These reasons range from lack of trust in the insurance companies, lack of awareness of insurance benefits, and the cost of insurance (high premium), amongst others. Furthermore, insurance companies' significant reason for not considering insurance for the poor is the transaction cost involved in reaching the poor.

A cursory look at these reasons suggested that mobile technology can be harnessed to overcome many of these issues. For example, artificial intelligence (AI) and blockchain technologies, the two most discussed transformative technologies in the last decade, are beginning to gain traction in Africa. In May 2019, Microsoft launched the Africa Development Centre with sites in Nairobi and Lagos. These centres are expected to create local developers who will engage with these transformative technologies to solve socio-economic challenges (GSMA, 2019).

Although blockchain, artificial intelligence, and machine learning are still costly technologies and may not be available to most insurance industry players, mobile technology has been around for over two decades in Nigeria. It is widely used by the poor and the rich alike. This study's motivation is to see how this mobile technology can be harnessed to break some of the limiting factors to Nigeria's microinsurance penetration. According to the Nigerian Communication Commission, as of December 2020, there are over 204 million active mobile lines in Nigeria⁴. With this vast number of mobile subscribers, insurance companies have a ready-made platform to launch profitable microinsurance awareness.

Without Internet connectivity, policy subscription can be initiated via text messages or Unstructured Supplementary Service Data (USSD) codes, with premium payment taking place through deductions from airtime. This can happen anywhere, thereby phasing out the bottleneck usually encountered by these potential subscribers. Besides, mobile network operators have registered these lines with relevant information required by the insurance companies, such as the date of birth, marital status, address, employment status, and next of kin details. Using this information streamlines the subscription process and reduces the chances of errors in the entry process. Figure 1.1 is a graphic description of some of the benefits of using mobile technology to provide microinsurance to would-be customers.

⁴ <https://www.ncc.gov.ng/statistics-reports/subscriber-data>



Figure 1. 1 Benefits of using mobile technology for microinsurance to customers
(Adapted from GSMA)

Another justification for this study is that while the poor increase their participation in other financial services using the same mobile technology platform (EFInA, 2018), insurance cannot be said to enjoy the same patronage. The penetration has remained almost static at less than two percent in the last decade. Consequently, the study seeks to investigate if mobile technology can make a difference in driving insurance adoption among Nigerians, especially the poor.

1.4 Limitations of the study

The study was limited to investigating how mobile technology can drive the adoption of microinsurance in Nigeria, especially among low-income earners. It examined some of the behavioural factors besides those identified in previous literature (Akotey et al., 2011; Cole et al., 2013; Eling et al., 2014) that can hinder the adoption of microinsurance despite the enormous benefits that mobile technology provides. And while mobile technology affects both the demand and supply sides of insurance products, the study examined the demand side of the problem. Besides, the study was limited to the role of mobile technology (mobile phones) in deepening microinsurance among low-income earners in Nigeria.

1.5 Organisation of the study

The study was presented in the following format: Chapter one serves as an introduction. It includes the research problem statement, research objectives and questions, and justification for the study. Chapter two reviewed relevant literature on the demands for microinsurance. The chapter also gave a brief overview of microinsurance in Nigeria and discussed conceptual theories. It concluded with the identification of gaps in the reviewed literature. Chapter three

presented the research methodology and the methods to be adopted, data sources, and analysis tools. Chapter four articulated the analysed results in chapter three and demonstrated how mobile technology could be used to change the microinsurance narrative in Nigeria. Finally, chapter five summarised the findings and provided policy recommendations from the research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The main thrust of this paper is to explore ways of increasing microinsurance participation in Nigeria by leveraging the sizeable mobile technology subscriber base in the country. Two of the fundamental problems that have been identified as reasons for low microinsurance takeup are trust and transaction costs. Trust on the part of the consumer and costs for the insurer. This section builds on theoretical and empirical literature to address some of these issues.

2.1 Definition of Terms and References

2.1.1 What is insurance?

The idea of insurance involves a contract under which an insurer shall pay a specific amount, which has been pre-defined as compensation in the event of damages in exchange for up-front payments of a premium by the insured (Dror and Piesse, 2014).

Traditionally, the premium is calculated based on the risk transferred by the insured, the frequency of risk; and the severity of the risk. Insurance is a trade-off between unaffordable loss, usually uncertain losses, and affordable loss, cheap and sure (Friedman & Savage, 1948). Insurance is heavily practiced in most developed countries which significantly helps reduce damages and financial loss suffered in unforeseen events. Insurance in low-income countries is rarely mandatory, except for third-party vehicle insurance, which is compulsory in some low-income countries.

2.1.2 What is microinsurance?

According to Churchill (2006), “Microinsurance is the protection of low-income people against specific perils in exchange for regular premium payments to the likelihood and cost of the risk involved” (Churchill, 2006, pp. 12–13). This definition mirrors traditional insurance descriptions except for the target market –low-income earners. The question, therefore, is how poor should people be for their insurance to be classified as micro? According to Churchill

(ibid), the answer is not straightforward, as it will vary from country to country. However, it is generally agreed that microinsurance is for individuals who are ignored by mainstream commercial and social insurance schemes and who have not previously had access to appropriate financial products.

Microinsurance approaches financial protection and inclusion differently from other conventional forms of insurance Dror (2019), and as noted by Norton (2010), it may well be the next economic revolution in Africa. India was the first to seriously define microinsurance products within its regulatory framework, assert Dror and Piesse (2014). They describe microinsurance as insurance offerings with claims of less than Rs50,000 (IRDA, 2005). India has since continued to grow its regulatory framework on microinsurance and brought many poor into the scheme.

According to Dror and Piesse (ibid), regardless of the definition used, experts agree that microinsurance has nothing to do with the size of the scheme's membership or the total value of the premium amassed from subscribers. Dror (ibid) gives the most common microinsurance features that include a system of risk pooling, insurance suited for low incomes, targeted mainly at the informal sector, and independent of the risk class.

Analysing the poor in his book, 'Fortune at the bottom of the Pyramid,' C.K Pharlad (2006) gives the characteristics of the market at the bottom of the pyramid (BOP). Contrary to popular belief, the BOP readily accepts advanced technology (Prahalad, 2006, p. 36). This underscores that exploring technology to solve the numerous challenges facing insurance penetration in Nigeria may not be as tricky as we have been led to believe. Even though Prahalad does not analyse the microinsurance industry, his analyses are very relevant to the sector. In the final reports, Prahalad emphasises the need to utilise technology to enhance the efficiency of managing large volumes of small transactions and make a significant investment in educating the market to create a demand.

2.2 Overview of the Nigerian Insurance Industry

Insurance protects against uncertain losses. It sets a contractual agreement between entities or individuals, usually referred to as a policy⁵. These entities or individuals are reimbursed for

⁵ <https://www.berkeleylegal.com.ng/2019/02/05/overview-of-the-nigerian-insurance-industry/>

mitigating the effect of unforeseen damages in case of emergency or losses. Through insurance, funds and capital that could have been lost to disaster are preserved, increasing the wealth of the insured. Insurance is one of the determinants of a thriving economy⁶.

The insurance business in Nigeria is regulated by the National Insurance Commission (NAICOM). According to the Insurance Act of 2003, NAICOM has the responsibility to establish standards, approve standards, and set conditions for all classes of insurance business in Nigeria. The Insurance Act 2003 defines two main categories of insurance in Nigeria – life insurance and general insurance. The Insurance Act 2003 provides some statutory mandatory insurance policies for individuals and entities in certain circumstances in Nigeria. These provisions are still far from being implemented in some quarters, which is one of the reasons for the low insurance penetration in Nigeria. One such provision is the Motor Third Party Liability insurance.

Section 68 of the Insurance Act, 2003 makes it compulsory for all vehicle owners to own a motor vehicle insurance policy. It protects the insured from liabilities arising from the use of the insured vehicle. These liabilities range from death, damage to third-party property, or bodily injury of a third party. The policy does not protect the insured vehicle or the individual; it covers instead the liabilities caused by the insured vehicle as per the policy agreement.

Interestingly, this third-party motor insurance accounts for a significant number of insurance owners in Nigeria. In 2008, the EFINA survey puts the number of adults with insurance at one million out of the 86.6 million adults (18 years and above). This is approximately 1.2 percent of the adult population at the time (EFInA, 2008). In the final analysis, 60 percent of this number accounts for adults with vehicle insurance because driving without third party vehicle insurance is a punishable offence.

2.3 Overview of Microinsurance in Nigeria

The microinsurance segment of the insurance industry in Nigeria is relatively new. The fact that the first fully fledged microinsurance company was licensed in Nigeria in 2019 speaks to this (NIPC, 2019). The sector is fast gaining recognition as another set of companies approach the Nigerian National Insurance Commission (NAICOM) for a license to operate as a

⁶ <https://www.berkeleylegal.com.ng/2019/02/05/overview-of-the-nigerian-insurance-industry/>

microinsurance provider in Nigeria (The Punch, 2020). The country's traditional insurance companies now provide microinsurance services as part of their other products, but with low capacity. The involvement of conventional insurance companies in the microinsurance space was incentivised by the Guidelines for Microinsurance Operation in Nigeria, released by NAICOM on 1 January 2018. The guidelines took effect on the day of the release.

However, the insurance regulator in Nigeria, NAICOM, has called on the seventeen existing insurance companies selling microinsurance products through window operations to get a new license within eighteen months of releasing the new microinsurance guidelines⁷. The guidelines set out various provisions for the operation of microinsurance in Nigeria. It is also expected that new microinsurance companies will be registered as players in this space. And while that is in process, established insurance companies are cashing in on the provisions by developing microinsurance products. The guidelines define microinsurance as “insurance developed for low-income populations, low valued policies, micro, and small-scale enterprises provided by licensed institutions, run under generally accepted insurance principles, and funded by premiums.⁸”.

The guidelines exclude social welfare benefits as premiums do not fund them. They provide a limit on the sum insured for microinsurance (two million Nigerian Naira) as well as define the types of risks covered. The guidelines classify three distinct types of microinsurance underwriting – unit micro insurer, state micro insurer, and national micro insurer. The significant difference in the requirements of these three types of insurers is the company's minimum capital base and the geographical locations where these can operate. The guidelines provide for the use of all eligible distributors to reach potential microinsurance consumers. They mention precisely three broad agents – brokers/loss adjusters, microinsurance agents, and corporate and referral agents.

The chart in **Figure 2.1** gives a typical outlook of the mechanisms adopted by the uninsured in Nigeria in order to mitigate risks. While many use savings to cater to unknown financial ‘hits,’ most people do not do anything to cover the risk. Figure 2.1 gives further credence to the low

⁷ <https://guardian.ng/business-services/insurance/naicom-orders-microinsurance-companies-to-take-fresh-licences/>

⁸ [https://www.naicom.gov.ng/docs/guidelines/MicroInsurance%20Guidelines%202018\(NAICOM\).pdf](https://www.naicom.gov.ng/docs/guidelines/MicroInsurance%20Guidelines%202018(NAICOM).pdf)

usage of insurance among the Nigerian population to handle contingent or unforeseen circumstances.

The EFInA survey result is also an indication of financial inclusion, generally. The Global Partnership for Financial Inclusion gave an updated working definition of financial inclusion as a state where all working-age adults have adequate access to financial services provided by a formal financial institution. These products include investments, credit, savings, and insurance products (Global Partnership for Financial Inclusion, 2016). The microinsurance landscape in many parts of the world, especially Asia, has developed into various specialisations. There is agricultural microinsurance, health microinsurance, and climate index microinsurance. These products specifically target different individuals based on the risks they are exposed to. Nigeria’s microinsurance space is still at the infancy stage, and there is no relevant data to measure the sector’s impact currently.

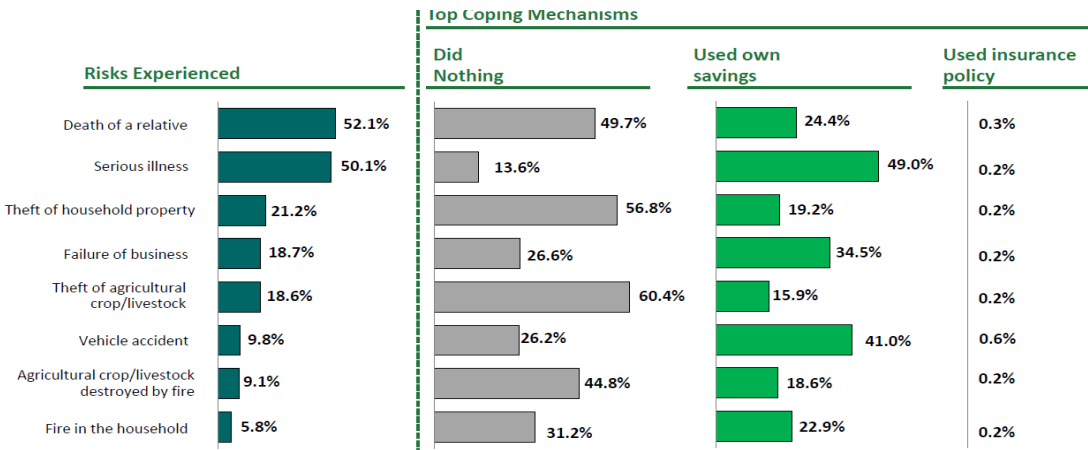


Figure 2. 1 Typical risk coping mechanism

Source: EFInA Access to Financial Services in Nigeria 2010 Survey

2.3 Theoretical Framework

This section gives a brief overview of the theoretical framework to guide and inform the study. In predicting the intention to adopt technology as a means of delivering services that are hitherto rendered traditionally, researchers have borrowed intention models from social psychology to form the foundation of their research (Nor and Pearson, 2009). Given the low take-up of microinsurance which hitherto has been attributed to factors such as trust, liquidity of the consumers, and premium and claims channels (Cohen and Sebstad (2006); Eling, Pradhan, and

Schmit (2014); Matul, Dalal, de Bock, and Gelade (2013), it is pertinent to investigate the adoption rate and what factors will influence this adoption if delivered through mobile technology available to most households in Nigeria regardless of income level.

Adopting new technologies in delivering services has been researched extensively in different fields. The literature review shows that several competing models have been employed to predict intention to adopt these new ways of doing things. The models include Theory of Reasoned Action (TRA) Fishbein and Ajzen (1975), Technology Readiness Index (TR) Parasuraman and Grewal (2000), Technology Acceptance Model (TAM) Davis (1989), Theory of Planned Behaviour (TPB) Ajzen (1991a), Decomposed Theory of Planned Behaviour (DTPB) Taylor and Todd (1995), and Innovation Diffusion Theory (IDT) Rogers (1983). These theories examine various social control and attitudinal factors influencing the intention to use new technologies in delivering products or services.

The study employed the Theory of Reasoned Action (TRA) with various extensions as the theoretical framework. Public decision-making on issues related to technology adoption can be defined as behavioural intention since a decision can be explained as an intention to perform the behaviour (Fishbein and Ajzen, 1975). Many reasons influenced the choice of the model. The first is that the Theory of Reason Action (TRA) is a general model. It does not specify the beliefs that are operative for a particular behaviour (Ngoasong, 2016). The implication is that researchers can extend TRA to incorporate beliefs that are salient for subjects regarding behaviour under investigation (Davis, Bagozzi, and Warshaw, 1989a).

The second, occasioned by the general model of the TRA, is the opportunity to extend the theory and include other models that can aid the incorporation of relevant constructs aimed at determining the intention to adopt microinsurance delivered through technology. For example, the Perceived Ease of Use in TAM and Innovativeness in TR. The other reason is Nigeria's significant religious and social belief system that affects much decision-making regarding microinsurance. Societal norms, values, and the group to which one belongs largely influence the choice of behaviour in most cases. These identified variables are the compound composition of the Theory of Reasoned Action.

The study focuses on adopting microinsurance delivered through mobile technology; hence, it is essential to think that attitude and other social variables will significantly influence potential

buyers towards the adoption of microinsurance since either of both social norms, culture, or religion, play a significant role in decision making in the country.

Furthermore, behavioural intention in insurance has been examined in the following articles and journals: Fletcher and Hastings, (1984); Ogenyi Ejye Omar and Owusu-Frimpong, (2007); Wiener, Gentry, and Miller, (1986). For example, a study by Ejye Omar and Owusu-Frimpong (2007) on the attitude of Nigerians towards the adoption of life insurance highlights the knowledge gap about insurance products, lack of trust, and negative previous experience of consumers as factors responsible for slow adoption.

Another study by Nosi, D'agostino, Pagliuca and Pratesi (2014) employed the TRA to explore the intention of young Italian adults in buying a longevity annuity. The study concludes that there is a positive relationship between users' attitudes and their subjective beliefs. The TRA is a general model that can accommodate salient beliefs that affect the subject under investigation (Fishbein and Ajzen, (1975), p. 218, (1980), p. 68). Therefore, it is easy to extend TRA to incorporate those beliefs that affect microinsurance uptake among low-income earners in Nigeria.

Nigeria is the largest poor population in sub-Saharan Africa (79 million extremely poor)⁹. However, the distribution of poverty within Nigeria is geographically unequal. Poverty is more prevalent in the northern part of the country than in the south. A prominent politician in Nigeria once remarked: "In Nigeria, poverty wears a northern cap; if you are looking for a poor man, get somebody wearing a northern cap."¹⁰

The poverty rate in the northern part of the country can be attributed to the low levels of education, which has helped various religious biases to thrive. This has not helped the acceptance of many financial inclusion programs in that part of the country compared to the south. The TRA, when extended with TR, significantly addresses these attitudinal and behavioural biases that can affect technology adoption without the need for the nine constructs as seen in the UTUAT model (Venkatesh, Thong, and Xu, 2012).

⁹ <https://blogs.worldbank.org/opendata/african-countries-show-mixed-progress-towards-poverty-reduction-and-half-them-have-extreme>

¹⁰ <https://www.cgdev.org/blog/poverty-nigeria-understanding-and-bridging-divide-between-north-and-south>

2.3.1 Theory of Reasoned Action (TRA)

Studies have used various technology acceptance models to examine factors influencing a user's adoption of a particular technology in delivering services or products (Al-Ajam and Md Nor, 2015). One of the most extensively used theories is the Theory of Reasoned Action (TRA). The theory was popularised by Fishbein and Ajzen (1975) and has become of the most used in the attempt to use attitude as one of the factors influencing behaviour Frishman (2008), and has achieved proper recognition as a fundamental model in explaining social action (Bagozzi, 1992).

The theory was developed to understand and predict people's behaviour, which is key to society in formulating decisions and determining the society's reaction when such policies are implemented (Fishbein and Ajzen, 1980). The theory asserts "that the most important predictor of behaviour is behavioural intention evaluated from two perspectives: attitudes and subjective norms" (Dragos, Dragos, and Muresan, 2020 p. 5). The theory hypothesises that behaviour is determined by one's intention to perform the behaviour. Finally, the intention is determined or influenced by both attitude and subjective norms.

Fishbein and Ajzen (1980) explained that attitude is the positive or negative evaluation of performing the target behaviour (evaluative effect). Moreover, attitude is closely related to the subjective norm, which is the pressure that emanates from society. This pressure determines the cause of a particular behaviour. In other words, it is a "person's perception that most people who are important to him think he should or should not perform the behaviour in question" (Fishbein and Ajzen, 1975, p. 302).

In the final analysis, the consequences of performing or not performing the behaviour will affect both attitude and subjective behaviour (Ajzen and Fishbein, 1974; Bagozzi, 1992). In summary, according to TRA, behavioural intention (BI) determines whether a person will perform a particular behaviour, and BI is determined jointly by a person's attitude (A) and subjective norm (SN) concerning the behaviour in question. The relative weights of the attitude and subjective norm can be measured by regression (Venkatesh, Morris, Davis, and Davis, 2003).

$$BI = A + SN \quad (1)$$

Where **BI** = Behavioral intention
A = Attitude
SN = Subjective norm

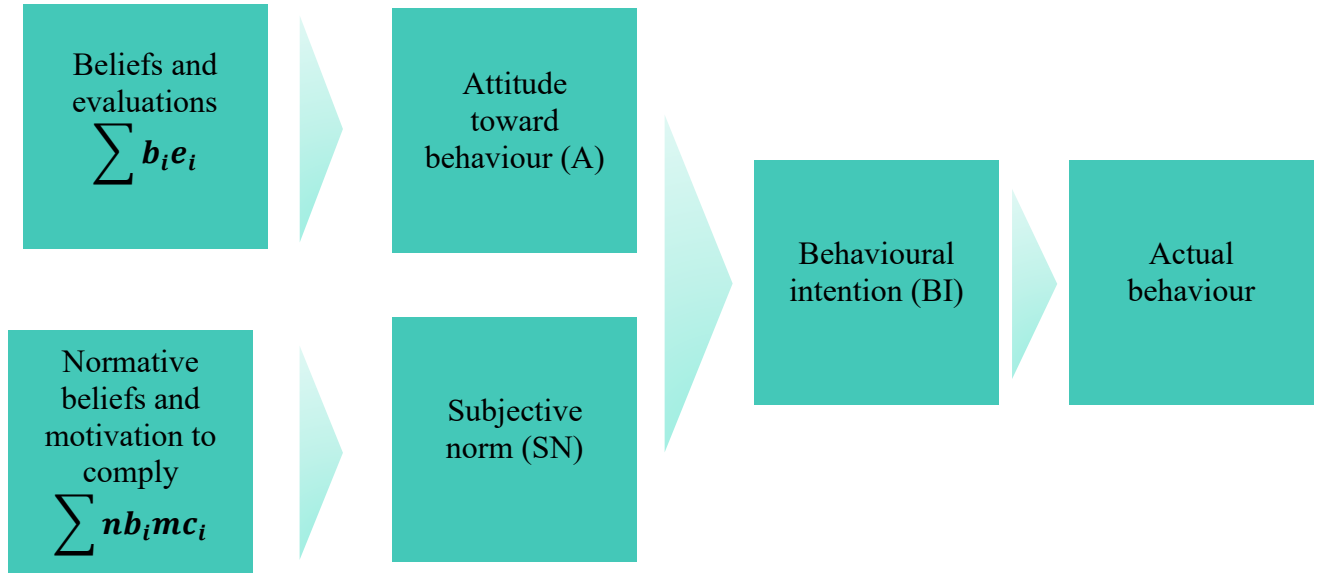


Figure 2. 2 Theory of Reasoned Action (TRA)

Source: (Davis, Bagozzi, and Warshaw, 1989b)

The TRA asserts that a “person’s attitude toward a behaviour is determined by their salient beliefs (b_i) about the results of performing the behaviour multiplied by the evaluation (e_i) of those consequences”(Davis *et al.*, 1989b):

$$A = \sum b_i e_i \quad (2)$$

According to the theory, “beliefs(b_i) are defined as the individual’s subjective probability that performing the target behaviour will result in consequences i , while the evaluation term (e_i) refers to “an implicit evaluative response” to the consequence” (Davis *et al.*, 1989b).

Furthermore, the theory explains that an individual’s subjective norm (SN) is determined by a multiplicative function of his or her normative beliefs ($n b_i$) that is, the perceived expectation of people and the motivation of such individuals to comply ($m c_i$) with these expectations (Davis *et al.*, 1989b).

$$SN = \sum nb_i mc_i \quad (3)$$

Since the TRA is a general model, salient beliefs that affect the subject under investigation can be incorporated. (Fishbein and Ajzen, 1975, p. 218, 1980, p. 68) suggest eliciting five to nine relevant beliefs using free-response interviews with affected members of the subject population. With this room for extension, it is possible to investigate other salient beliefs that influence A, SN, or relative weights (Davis *et al.*, 1989b).

According to Ajzen and Fishbein (1974); Bagozzi (1992); Fishbein and Ajzen (1975), the model was developed with behaviour and not outcomes or events that result from a range of behavioural pointers (Sheppard, Hartwick, and Warshaw, 1988). A fundamental assumption of the TRA is that it addresses behaviour performed under voluntary control. This means actions that are in part determined by other factors outside the volition of the individual fall outside the boundary of this theory.

TRA has been used extensively in applied research settings spanning various subject areas (Davis *et al.*, 1989b). While at the same time stimulating other theoretical studies to unravel its limitations, test key assumptions, and analyse various refinements and extensions (Bagozzi, 1985, 2018; Saltzer, 1981).

2.3.2 Technology readiness (TR)

The last decade has witnessed tremendous technological advancement, impacting many consumers' lives. However, studies have shown that the use of such technology is not a given (Blut and Wang, 2019; Claudy, Garcia, and O'Driscoll, 2014; Parasuraman and Grewal, 2000). People will avoid technology in delivering any service if they are not comfortable with the usage and are not ready to use it (Al-Ajam and Md Nor, 2015). In addition to other factors considered in the adoption of microinsurance using mobile technology, it is essential to explore the readiness of potential consumers to use this technology to get microinsurance delivered to them. According to Blut and Wang (2019), technology readiness (TR) aims to comprehend users' tendency to embrace and adopt technologies to achieve their goals. It is generally used in marketing to gauge areas like the types of technology to introduce, how to introduce it, the support requirement, and the consequent end-user-company relationship (Parasuraman and Grewal, 2000).

Technology readiness defines four dimensions of users based on personality and traits. These are optimism, innovativeness, discomfort, and insecurity (Parasuraman and Colby, 2015). Both optimism and innovativeness are grouped together, and they are referred to as the positive drivers of technology readiness. These two encourage customers to hold a favourable view of technology. In the second grouping, discomfort and insecurity are the negative drivers, and these make customers unenthusiastic about technology (Lin and Hsieh, 2006). The optimistic group defines a cheerful disposition toward technology to increase control, flexibility, and efficiency. A tendency to be the first to use new technology is the trait of the innovativeness group, and lack of trust in technology for security and privacy reasons are the traits of the insecurity group. Finally, the discomfort group is generally overwhelmed by the concept of technology (Erdogmus and Esen, 2011).

2.3.3 Technology acceptance model (TAM)

The technology acceptance model (TAM) is another widely used theory to predict human intention to use technology. It was popularised by Davis (1989) and was adapted from the Theory of Reasoned Action (TRA). Just like TRA, TAM predicts that attitude predicts intention, and intention, in turn, predicts behaviour. The intention to use a system, according to TAM, is determined by two constructs – perceived usefulness and perceived ease of use. One advantage of the model is its simplicity, and unlike TRA, the subjective norm has been removed as a determinant of intention.

2.3.4 Decomposed theory of planned behaviour (DTPB)

The DTPB uses different aspects of the Theory of Planned Behaviour, which extends TRA with some aspects of Innovation Diffusion Theory as proposed by Rogers (1983). The theory stressed the perceived behavioural control in TPB, how consumers buy into innovations through information diffusion, and other constructs in TRA to postulate intention to use technology. However, the strength of DTPB lies in the further decomposition of attitudes, subjective norms, and perceived control into other multi-dimensional constructs that help provide higher explanatory power to understanding intention and, ultimately, behaviour (Nor and Pearson, 2008).

2.3.5 Innovation diffusion theory (IDT)

The IDT was popularised by Rogers (1983). The model explains how innovation is perceived and adopted by intended users of the technology. Two terms were prominent in the theory – innovation and diffusion. Rogers (ibid) defines innovation as “idea, practice, or object that is perceived as new by an individual or other units of adoption,” and diffusion as the “process by which an innovation is communicated through certain channels over time among the members of a social system” (p.26).

The theory defines and explains the perceived attributes of innovations from the user’s perspective. These attributes include relative advantage, which is how innovation is perceived as better than the idea before it. The second is compatibility, and it is defined as the degree to which an innovation is considered in tandem with existing values, past experiences, and the needs of would-be users. The third attribute is complexity. This is the degree to which an innovation is perceived to be challenging to understand. The fourth and fifth attributes are trialability and observability, which are the degree to which an innovation can be experimented, and the result of the innovation is visible to others, respectively.

2.4 Hypotheses Development

The hypotheses to be tested in this study were influenced mainly by previous studies on technology adoption by consumers in delivering products and services comparable with microinsurance. A substantial amount of literature has been published on using the Theory of Reason Action (TRA) framework either directly or by extending the theory through the addition of relevant variables. The TRA has been widely used in different technology adoption studies ranging from consumer adoption of mobile payment services (Schierz, Schilke, and Wirtz, 2010) to the prediction of online grocery intention (Hansen, Jensen, and Solgaard, 2004). In addition to the two study areas above, the theory has been used by researchers to predict an individual’s intention to buy insurance (Dragos et al., 2020; Nomi and Sabbir, 2020; O.E. Omar, 2007).

In this particular study, the TRA will be extended with ‘technology readiness’ (TR) to assess the readiness of low-income earners to adopt microinsurance if delivered through mobile technology. Besides the extension of the original TRA with TR, other variables relevant to

determining an individual’s intention have been incorporated in the overall model of this research using the general purpose nature of the TRA (Fishbein and Ajzen, 1975, p. 218, 1980, p. 68). The study uses behavioural intention as the dependent variable as against the actual behaviour stated in the TRA model.

The reason for this approach is that adoption of microinsurance is still shallow in Nigeria and delivering the same product through mobile technology is currently insignificant. Consequently, the choice of behavioural intention as the dependent variable is considered appropriate for a study of this nature. The other independent variables have been selected based on previous studies on demand for microinsurance (Asmare and Worku, 2018; Ito and Kono, 2010a; Lee, Kwon, and Chung, 2010; Ogenyi Ejye Omar and Owusu-Frimpong, 2007; Platteau, de Bock, and Gelade, 2017). Therefore, the current study derives its hypotheses based on the TRA model in adopting microinsurance through mobile technology. The theoretical model of the study is presented graphically in **Figure 2.3**

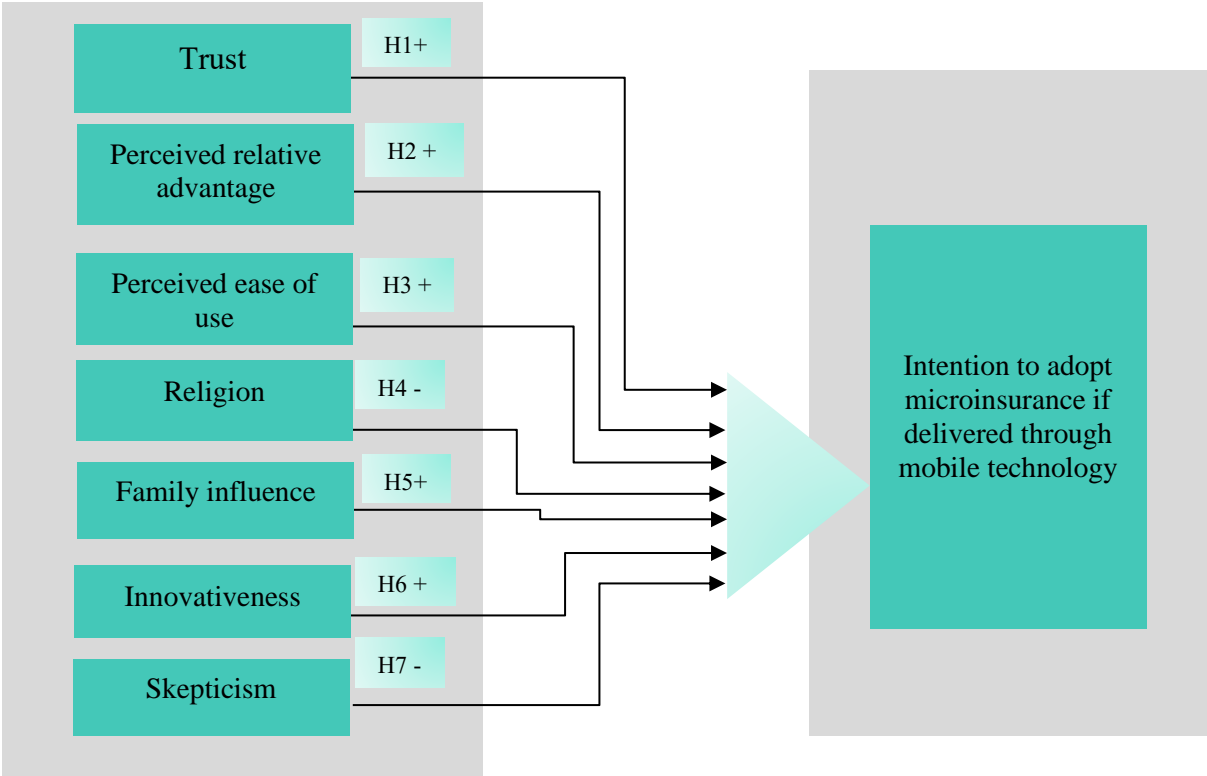


Figure 2. 3 The proposed model for this study

The following hypotheses are developed from the theoretical framework for this study and the proposed model of the study.

Trust and intention to adopt microinsurance if delivered by mobile technology

The TRA suggests attitude towards a behaviour as a critical indicator of an individual's behavioural intention (Nomi and Sabbir 2020); attitude is defined as “the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question” (Ajzen, 1991b, p. 188). Although the literature on purchasing microinsurance via mobile technology is limited, similar research has examined the adoption of technology in delivering traditional services using technology in other domains. For instance, the effect of attitude on internet banking has been reviewed by Al-Majali, Kamariah, and Kedah (2010); Kuisma, Laukkanen, and Hiltunen (2007); Suh and Han (2002); Tan and Teo (2000).

Given the evidence from the literature, it can be concluded that attitude plays a significant role in adopting technology for service delivery. Literature has it that trust has been a significant factor inhibiting the adoption of microinsurance and that building trust has significantly increased the take-up of microinsurance (Cole, Sampson, and Zia, 2011; Dercon, Kirchberger, Gunning, and Platteau, 2008; Gine and Townsend, 2007). As pointed out by Maimbo and Ratha (2005), trust becomes more critical when transactions are to be performed online, where personal contacts may be reduced to the barest minimum. These minimal contacts for microinsurance transactions occasioned by mobile technology raise the degree of risk and uncertainty in the mind of potential buyers. Trust has been identified as a critical success factor in conducting a successful e-commerce business (Torkzadeh and Dhillon, 2002). Since trust is so essential in adopting the traditional insurance product, in this study, it can be hypothesised that an individual's trust in the insurance company or product will ultimately affect their intention to adopt mobile microinsurance.

Hypothesis 1 (H1): Trust positively affects the attitude and intention toward adopting microinsurance using mobile technology.

Perceived relative advantage and intention to adopt microinsurance if delivered by mobile technology

The Innovation Diffusion Theory (IDT) by Rogers (1983) explains factors responsible for adoption. The theory specified some characteristics of innovations that largely determine the rate of adoption. One of these characteristics is relative advantage. Relative advantage refers to

how innovation is considered better than the idea it supersedes (Rogers, 2003, p. 29). This degree of perceived relative advantage may be measured in terms of many factors, including social, economic, and convenience. Whatever the measurement terms, what is critical is whether the individual perceived the innovation as beneficial. In summary, the higher the perceived relative advantage, the more the adoption rate.

Traditionally, there is a general lack of usefulness for insurance products among low-income earners; this has been attributed to the low level of education and awareness among these groups of people (Cole, 2015). As pointed out by S Dercon et al. (2008), understanding of insurance product is key to improving policy take up, using, and appreciating, this type of financial product. Consequently, if the introduction of mobile technology helps to improve the perceived usefulness of the microinsurance product, then it can be hypothesised that perceived relative advantage will positively affect the intention to buy a microinsurance product.

Hypothesis 2 (H2): perceived relative advantage significantly and positively influences attitude and intention to use mobile technology for microinsurance adoption.

Perceived ease of use and intention to adopt microinsurance delivered through mobile technology

Perceived ease of use refers to the “degree to which a person believes that using a particular system would be free of effort” (Davis, 1989). This construct from the Technology Acceptance Model (TAM) theory postulates that all else being equal, a more straightforward application to use is more likely to be adopted by users. In this context, the degree of ease that the introduction of mobile technology brings to the business of microinsurance may largely determine adoption. The impact of perceived ease of use on attitude and adoption has been theorised and validated by previous studies in domains other than microinsurance (Bhattacharjee, 2000; Morris and Dillon, 1997). Therefore, in this study, it is safe to hypothesise that individuals who perceive mobile technology as easy to use for microinsurance will have a positive attitude toward adoption.

Parasuraman (2000) defines technology readiness as “people’s propensity to embrace and use new technologies for accomplishing goals in home life and at work”. He mentions the inhibitors and accelerators in technology adoption by the intending users. He concludes that a high TR person has a more significant percentage of embracing new technologies in

accomplishing their tasks. From Parasuraman's (ibid) submission, it can be concluded that the prevalence of mobile phones in Nigeria, and the assumption that low income earners who are already in possession of these mobile phones may not be ready technologically to use such tools to buy microinsurance. In contrast, a person with high technology readiness might willingly accept introducing this service through mobile technology.

Hypothesis 3 (H3): Perceived ease of use will positively affect the adoption of mobile technology for microinsurance delivery.

Religion influences intention to adopt microinsurance if delivered by mobile technology

The subjective norm is defined as “the perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991b, p. 188). In other words, it is the way the behaviour is viewed by the people that influence our decision. Studies have shown that social influence has a significant role in the behaviour of individuals towards the adoption of any technology for service delivery.

The following studies indicate that a subjective norm is a significant factor in the adoption of various technologies; e-commerce (Herrero Crespo and Rodriguez Del Bosque, 2010), e-learning (Karaali, Gumussoy, and Calisir, 2011; Lee, 2010), m-commerce (Tsu Wei, Marthandan, Yee-Loong Chong, Ooi, and Arumugam, 2009), mobile payment (Schierz *et al.*, 2010). These past studies clearly show the positive effect of subjective norms on an individual's intention to adopt various types of technology. In this present study, religion is used as a proxy for measuring subjective norms.

Nigerians are predominantly Muslims and Christians, with a small percentage of the population following African traditional beliefs. According to Zelizer (1983), religion has historically provided a vital source of cultural opposition to life insurance. Many religious adherents believe that purchasing insurance is evidence of distrust in God's protection. For example, in many Islamic countries, life insurance has been traditionally disapproved of, as it is seen as a means of 'hedging' and not trusting the will of Allah (Beck and Webb, 2003).

Moreover, Zelizer (1983) states that until the nineteenth century, European nations, who were predominantly Christians, banned the purchase of life insurance on religious grounds.

Henderson and Milhouse (1987), as cited in Browne and Kim (1993), argued that an individual's religion could provide insights into an individual's behaviour. As claimed by François Outreville (1996), countries with an Islamic background are more likely to purchase less insurance than non-Muslim countries. Hence, the relationship between religion and the subjective norms can be hypothesised thus:

Hypothesis 4 (H4): Influence of religion on microinsurance prospective consumers will significantly and negatively affect their intention to adopt microinsurance if delivered through mobile technology

Family influence and intention to use microinsurance when delivered through mobile technology

According to Bearden, Calcich, Netemeyer and Teel (1986), social influences cause a normative influence that happens when individuals conform to the expectations of others. In Nigeria, family members' expectations play a significant role in determining many of our behaviour patterns. In a Nigerian cultural setting where respect for elders is greatly enshrined in our tradition, it is not unexpected when specific actions of an individual are directly influenced by what other family members think.

Literature has shown a significant positive relationship between family's influence and the subjective norm in adopting new products. For example, in the use of internet banking, the influence of family members has led to the use of the product (Nor and Pearson, 2008; Shih and Fang, 2004). Generally, social pressure has been a significant driving factor in the initial adoption of many products (Parthasarathy and Bhattacharjee, 1998). Hence, from these previous studies, it is safe to hypothesise that a family's influence can positively affect the adoption of microinsurance.

Hypothesis 5 (H5): Family's influence on microinsurance prospective consumers will significantly and positively affect their intention to adopt microinsurance if delivered through mobile technology

Innovativeness and intention to adopt mobile microinsurance

A study by Rogers (2003) suggests differences in people's disposition towards using technology. According to Rogers, the determinant of this disposition is the technology-readiness index of the individual. The TR framework categorises technology users into four,

based on their prevailing personality traits: Optimism – a positive view of technology; innovativeness – a tendency to be the first to use new technology; discomfort – a feeling of being overwhelmed by new technology; and insecurity – a distrust in technology for security and privacy reasons. The stronger a trait in an individual, the better the person fits into any of these categories, and the more the person can be influenced significantly by the introduction of technological products or services. Previous literature on innovativeness and TR has shown a significant positive relationship between innovativeness and individuals' TR regarding technology adoption (Berndt, Saunders, and Petzer, 2012; Lai, 2008; Theotokis, Vlachos, and Pramataris, 2017). From these previous studies, this present study hypothesises the relationship between innovativeness and individuals' technology readiness as follows:

Hypothesis 6(H6): Innovativeness will positively affect the adoption of mobile technology

Skepticism and intention to use microinsurance when delivered through mobile technology

It was Berndt et al. (2012) that linked the word 'skepticism' with technology readiness to describe the fourth dimension (insecurity) of the Technology Readiness Index as described by Parasuraman and Grewal (2000). It refers to the distrust of technology and the ability to work correctly. Based on the customer's technological readiness level, Parasuraman and Colby (2007) describe five types of customers, one of which is the skeptic. Although, according to Parasuraman *et al* the least technologically ready on the ladder are the laggards, the skeptics begin the trend of non-usage of new technology.

There has been established literature on trust as a factor that negatively affects the demand for microinsurance before the arrival of mobile technologies. It is not out of place to test what the disposition of the consumer will be when technology is a channel to distribute microinsurance products. Therefore, the following hypothesis will be tested:

Hypothesis 7 (H7): Skepticism towards new technology will negatively affect the adoption of mobile technology by microinsurance consumers

2.5 Empirical Literature

Although there has been considerable literature on the factors responsible for the low adoption of microinsurance among the low-income earners (Akotey, Osei, and Gemegah, 2011; Cole et al., 2013; Eling et al., 2014), many treat the subject from the supply-side and a sizeable number from the demand-side. Interestingly, there is still limited empirical research that addresses the adoption of mobile technology as a means of delivering microinsurance to low-income earners in sub-Saharan Africa, especially in Nigeria. Studies are available on mobile technology for banking and other micro-credit facilities, but few have addressed factors that can hinder the adoption of mobile technology for insurance delivery.

The fact that the poor are exposed to various forms of risks should suggest that a product purposely designed to mitigate such risk will generally be accepted by these low-income earners. Available literature proves the opposite. The reasons for the low take-up of microinsurance products have been identified in the literature. The most re-occurring are lack of trust in the insurer, awareness about the insurance products, premium payments flexibility, and liquidity (Basaza, Criel, and van der Stuyft, 2008; Eling et al., 2014).

Cole et al. (2013), in a series of randomised field experiments in two rural Indian states - Andhra Pradesh and Gujarat, found that 89 percent of the sample in the experiment cited drought as the significant risk. The absence of rainfall goes a long way to determining the level of their income variability. Despite this risk exposure, the level of insurance demand among these villages was deficient. Cole et al. (2013) observe that even if the insurance was given for free, the take-up rate could not be compared to what is obtainable in other developed countries.

Given the inelasticity of insurance take-up to the premium price, the study further examines other nonprice factors responsible for demand barriers. The study concludes that insurance demands are significantly affected by trust and lack of understanding of the insurance products by these rural dwellers. Another empirical evidence from 20 randomised experiments, Chemin (2018) reports that providing information through respected local elders or offering participants part subsidies did not increase insurance take-up. However, a full subsidy increases the take-up to 45 percent in year one and zero percent in year two. Nevertheless, the study discovered that when the same information was shared on social networks (among informal groups) without subsidies, the take-up increased by 12 percent and remained at 7 percent by the second year.

This contrasts with another randomised experiment on health insurance in rural areas in Burkina Faso, where the level of information dissemination did not improve the take-up of health insurance (Bocoum, Grimm, Hartwig, and Zongo, 2019).

A survey of 100 informal workers in Ghana by Akotey *et al.* (2011) underscores trust as a significant factor in microinsurance demands. Results from the survey show that 71 percent of the respondents are potential buyers of microinsurance. Factors influencing the demand for microinsurance were identified as premium flexibility, the extent and level of formal education, low-income level, marital status, and insurance knowledge. Because of these factors, these buyers remained just potential buyers.

A similar study by Lee *et al.* (2010) concludes that formal education is not a significant factor in the demand for insurance. According to Giesbert, Steiner and Bendig (2011), “risk-averse households and households who consider themselves more exposed to risk than others are found to be less likely to participate in insurance” (Giesbert *et al.*, 2011 p. 27). These households consider insurance to be risky. Some respondents in Kenya gave a similar opinion. They describe insurance as a “risky proposition – if the insured event does not occur, we are not getting any money back.” Other literature suggests that price (premium), payment flexibility, and premium collection determine how the informal sectors respond to insurance take-up. It suggests that premiums should be structured to coincide with these informal workers. (Guha-Khasnobis and Ahuja, 2004)

Moreover, Douglas and Wildavsky (1983) brought a new twist to these factors that influence insurance demands. According to them, the demand for insurance is highly influenced by its culture to the extent that it affects the population’s risk aversion. This view was corroborated by Ejye Omar and Owusu-Frimpong (2007) that the level of insurance within an economy depends on the national culture and the willingness of individuals to use insurance to deal with risk. In addition, an individual’s religion can provide insight into an individual’s behaviour, and it is noted that historically, religion has provided a significant opposition to insurance. According to this set of beliefs, many religious people believe that the purchase of insurance connotes distrust in God’s ability to protect them (Browne and Kim, 1993). For instance, Wasow and Hill (1986) tested the effect of Islam on the demand for life insurance in some Muslim nations. The results indicate that predominantly Islamic countries purchase less insurance than non-Muslim nations.

As Omar and Owusu-Frimpong (2007) indicate, it is not all about the consumers. According to them, the macroeconomic development of a country also affects the consumption or purchase of insurance products; in other words, the demand for insurance is positively correlated with income.

In addition to suggesting an effective collaboration between government and private sector to drive microinsurance adoption, Cole (2015) stresses the role of behavioural biases in the low adoption of microinsurance. Among the behavioural biases discussed are loss-aversion, difficulties understanding compound interest, and self-control. However, he suggests that insurance product designs can help overcome some of these biases, as evidenced in the study by Anagol, Cole and Sarkar (2017). Furthermore, in their analysis of what drives the demand for financial services, Cole et al. (2011) conducted a field experiment in Indonesia to examine essential barriers to accessing financial services. The choice of Indonesia is key given the low level of financial education among the poor in that country. The study finds a strong correlation between financial literacy and behaviour and that the household's financial choices correlate with their level of knowledge on financial products available. According to the study, financial literacy is one of the most decisive factors in predicting the demand for financial services.

Similarly, in trying to investigate the low rate of microinsurance take-up among rural dwellers in India, Ito and Kono (2010b), using prospect theory, hyperbolic preference, and adverse selection, carried out a study of 209 households who were randomly selected from three villages in rural Bangalore, Karnataka, India. The study concludes that there is no empirical evidence to support the fact that a risk-loving attitude towards losses explains the low take-up of microinsurance. Besides, as with Cole's (2015) assertion, households with hyperbolic preference were more likely to purchase insurance, and that adverse selection is a factor in the reason why people might want to take up microinsurance, as households with a higher number of sick members were more likely to buy insurance.

Despite considerable effort to determine the reasons for the low take-up of microinsurance in Nigeria, not so much research into how technology can be used to overcome the identified challenges appears to have been undertaken. The study by Stephen Ajemunigbohun, Sulaiman Oreshile and Samuel Iyun (2015) examines the level of awareness of the benefits of microinsurance and what insurance companies are doing to drive adoption. The study

concludes with evidence that insurance companies are creating awareness. Nevertheless, the level of participation did not reflect the level of awareness created. The research suggests aggressive campaigns should be maintained to drive the culture of insurance in Nigeria.

Another piece of research in this field is by Mukhtar (2016). This research investigates the prospects of microinsurance in some selected areas in northern Nigeria. The study highlights factors that can enhance the demand for microinsurance in rural areas. Some of these include insurance education and ensuring that premium payment matches the rural dwellers' income level. The study further proposes agricultural microinsurance as a start going by the country's northern area's nature. Ime and Ikechukwu (2017) took the recommendations of Mukhtar (2016) further, detailed some of the benefits of microinsurance and how different methods such as innovative product design can meet the needs of low-income earners and better distribution channels for broader reach.

The adoption of microinsurance in Nigeria using technology, specifically mobile technology, has not been addressed by literature. Furthermore, just as banks have been able to tap into this mobile infrastructure prevalent in Nigeria, insurance can do the same. Another essential gap, equally related to technology, is that none of these previous works emphasised the *policy* framework to enhance mobile technology as a means of strengthening microinsurance distribution through modern channels. This study will do so, looking at technology as a tool for driving adoption and suggesting a regulatory framework to guide adoption based on the research outcome.

2.6 Chapter Summary

The chapter has given a thorough overview of the microinsurance landscape in Nigeria, using numbers to establish how the insurance sector has underperformed in the country. A cross-sectional analysis of the Nigeria insurance sector with other countries reveals that the country is not performing. The chapter went further to review previous studies in this area of study. It examined various theoretical frameworks to give a proper footing to the study. The Theory of Reasoned Action (TRA) was thoroughly examined as a means of reviewing those factors that aid the adoption of technology in the delivery of products or services to potential consumers. With TRA, an idea of the psychological factors that aid adoption was examined. However, there appears to be a need to assess the ease of use of mobile technology and perceived relative

advantage and the technological readiness of potential users of mobile microinsurance, considering the demographic setup of the study's unit of analysis. To achieve this, other models like the theory of Technology Readiness (TR), Decomposed Theory of Planned Behaviour (DTPB), and Innovation Diffusion Theory (IDT) have been examined.

The chapter further examined previous studies to establish empirical evidence on factors that determines the demand for microinsurance. The factors mentioned range from trust to liquidity issues. Each of these factors has been tested for significance in the previous literature. The current study goes beyond these factors to examine what would change if, despite these factors, microinsurance gets delivered through the mobile platforms that are already available to most Nigerians.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the research methodology adopted in examining the factors that can increase the uptake of microinsurance in Nigeria using mobile technology. It selected the type of research purpose based on the research problem and questions. The chapter describes the sampling and data collection method and defines the variables that make up the research elements.

3.1 Research Approach

Creswell and Creswell (2018) describe quantitative research as a research method approach for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured typically on instruments, so that numbered data can be analysed using statistical procedures. According to O'Leary (2017), the quantitative method is apt for this kind of research because there is an underlying belief in the power of numbers and their ability to represent the world with vigour and accuracy. A significant challenge with the quantitative method is the complexity of the statistical analysis involved in analysing the data collected. Many researchers do not have this level of sophistication to analyse data (Obadan, 2012). However, the challenge has been overcome by the almost infinite availability of statistical packages that can be used to analyse the data with little effort. Therefore, to address the research questions, the research will adopt a quantitative approach to gauge these potential microinsurance consumers' dispositions if all the benefits mobile technology brings are made available by microinsurance providers.

Furthermore, research can be classified as exploratory, descriptive, or explanatory. These approaches are targeted toward the different conclusions of the subject under investigation. For example, causal or explanatory research seeks to identify cause-and-effect relationships (Zikmund, Babin, Carr, & Griffin, 2012). According to Saunders *et al.* (2019), causal research emphasises investigating a problem to establish the cause-effect relationship among them. In a general sense, these different types of research are building blocks for each other. For example,

exploratory research builds the foundation for descriptive research, which is usually the basis for causal research. The main objective of this study is to examine the factors that will influence the adoption of microinsurance among low-income earners if delivery by mobile technology is introduced. The attendant problem statements were derived from this objective. Reviewed literature and theoretical frameworks used in the research suggest that this type of research is explanatory since it seeks to *explain* the effect of mobile technology on microinsurance.

3.2 Research Design

3.2.1 Sample size and data collection

The study will make use of primary data collected through a structured questionnaire. The questionnaires will be administered face-to-face to the target respondents because of their education level. Personal interviews were deemed appropriate as they allow a broader communication channel (Vanderstoep and Johnson, 2008, p. 88). According to Vanderstoep *et al.* the in-person arrangement may enable the interviewers to ask follow-up questions where necessary and clarify answers provided by the respondents. Although the significant disadvantage of this method is the cost and time involved in execution, the educational background and status of respondents make the disadvantage inconsequential when compared to the benefits that can be derived from face-to-face interviewing.

The target respondents are informal workers such as artisans, subsistence farmers, *penny* traders, and low-wage labourers in Jeje community, Barkin Uza, and Zhipe in the Karu Local Government Area of Nasarawa State, Nigeria. The Karu Local Government enjoys proximity to the Federal Capital Territory of Nigeria. The area was initially built to accommodate many displaced original inhabitants of the Federal Capital Territory when it was created in 1978. Consequently, the Local Government is home to many low-income families burdened by inadequate infrastructure and facilities. Many of the families live below the national poverty line of 137,430 Naira per year as defined by the Nigeria Bureau of Statistics (NBS), and the research respondents, drawn from this group, form the unit of analysis of this study. According to Nueman (2013): “Unit of Analysis is the units, cases, or parts of social life that are under consideration. They are key to developing concepts, empirically measuring, or observing concepts, and using data analysis” (p. 74).

This study uses the probability sampling method for its data collection. According to Saunders, Lewis, and Thornhill (2019), sampling techniques can be divided into probability or representative sampling and non-probability sampling. Probability sampling is commonly used in survey-based research where the researcher attempts to make inferences from the sample about a population to answer the research questions. Probability sampling is a more representative approach to sampling as the result can be generalised. The study specifically made use of the cluster sampling technique in arriving at the sample to be interviewed.

3.2.2 Data collection process

Three localities in the Karu Local Government Area of the Nasarawa State of Nigeria were identified for the data collection exercise. The communities are representative of the typical definition of low-income earners in Nigeria as described by the NBS report. These communities are led by community chiefs who helped mobilise residents for the questionnaire. A typical community chief is knowledgeable enough to understand and interpret the questionnaire. An on-the-spot response approach was adopted to increase the response rate and reduce ambiguity in understanding the reading and interpretation of the questionnaire.

3.2.3 Questionnaire

Previous studies on demand for microinsurance and the adoption of new technologies in delivering services aided the development of the questionnaire for this study. The questionnaire consists of two sections: The first contains general information about respondents, which include age, gender, educational status, and income level. The second part of the questionnaire collects responses on the various constructs specified in the model of this study. The dependent variable, the intention to use microinsurance, was measured using four items. Responses were measured using a seven-point Likert Scale anchored by “Very unlikely” (1) to “Very likely” (7) with “Neutral” (4) as the middle point. Other items on the second part of the questionnaire use a seven-point Likert Scale anchored by “Strongly Disagree” (1) to “Strongly Agree” (7) with “Neither Agree nor Disagree” (4) as the middle point. The full set of questionnaires is included as Appendix 1.

3.3 Analytical Framework

3.3.1 Regression model

Based on a thorough literature review, this study models the intention to use microinsurance using Ordinary Least Square Multiple Linear Regression. The choice of multiple regression is based on the nature of the research questions and objectives. According to Allison (1998), “Multiple regression is a statistical method for studying the relationship between a single dependent variable and one or more independent variables” (Allison, 1998, p. 21). This study wants to know if mobile technology will aid the adoption of microinsurance. The adoption is proxied by the intention of these potential consumers to buy microinsurance, given all other factors that may influence the adoption apart from technology. The outcome of the research question is continuous, thus the reason for multilinear regression. The model was used to examine the relationship between the independent and dependent variables based on the theoretical frameworks employed in this study.

The seven explanatory variables which are moderated by age, gender; education, occupation, income level, and whether a respondent is aware of microinsurance, are trust; perceived relative advantage; religious influence; family influence; perceived ease of use; innovativeness; and skepticism. These factors are expected to influence the intention of low-income earners to adopt microinsurance. The regression model for the study is as shown below:

$$ium_i = \beta_0 + \beta_1 tru_i + \beta_2 pra_i + \beta_3 peu_i + \beta_4 irl_i + \beta_5 fmi_i + \beta_6 inv_i + \beta_7 skp_i + \varepsilon_i$$

Where ium_i denotes the intention to adopt microinsurance of respondent i , used as a proxy for adoption or usage of microinsurance. $tru_i, pra_i, peu_i, irl_i, fmi_i, inv_i$ and skp_i represents trust, perceived relative advantage, perceived ease of use, religious influence, innovativeness, and skepticism.

3.3.2 Measurement and definition of variables

The study has adapted instruments and measurement scales from previous literature that have been developed and validated. These items were modified for adaptation to the microinsurance subject. Furthermore, the study uses a seven-point Likert Scale for each item on the questionnaire.

3.3.2.1 Intention to use microinsurance (IUM)

Intention is defined as “the strength of conscious plans to perform the target behaviour” (Harrison, Mykytyn, and Riemenschneider, 1997). In the absence of other external factors,

intention should be the best predictor of behaviour. The intention to buy microinsurance is the dependent variable in this study. Since microinsurance is still in its infancy in Nigeria, the intention to use microinsurance is chosen to examine the adoption of mobile microinsurance instead of the 'actual use' in this study. In the original TRA model (Fishbein and Ajzen, 1975), intention to use is determined by the behavioural intention (BI) of the individual, which determines whether a person will perform a particular behaviour, and behavioural intention (BI) in turn is determined jointly by a person's attitude (A) and subjective norm (SN). Items to measure intention to use microinsurance were adapted from the measurements developed by (Shih and Fang, 2004) and (Nor and Pearson, 2008), containing four items for intention.

3.3.2.2 Trust (TRU)

It is challenging to define trust. Previous studies have suggested that trust should be viewed as a multi-dimensional construct. According to McKnight and Norman (2001), "trust has been defined as both a noun and a verb, a personality trait and a belief, and a social structure and a behavioural intention" (McKnight and Chervany Norman, 2001, p. 30).

However, in the context of microinsurance, trust has largely been viewed by the consumer as the willingness of the insurer to make good their promises as stipulated in the microinsurance policy statement (Ito and Kono, 2010). This is what McKnight and Norman (ibid) referred to as institutional trust. Consumers rely on the integrity of the insurance companies to keep to their word during claims and redemption. As mentioned by Schneider (2005), the other dimension of trust is the provider's technical and interpersonal competence. This gauge the ability of the microinsurer to act in the best interest of the insured all the time.

In a study on the uptake of microinsurance in Kenya, the study shows that the decision to purchase insurance depends on the insurer's credibility. Similarly, a study by Liu, Chen, Hill, and Xiao (2013) on the demand and impact of insurance in China reveals that the rate of insurance take-up tripled when buyers are given the option to pay at the end of the insured period. Items to measure trust and integrity were adapted from the measurement developed by Pavlou (2003); Suh and Han (2002); Lee and Turban (2001); McKnight and Norman (2001) containing ten items of trust and integrity.

3.3.2.3 Perceived relative advantage (PRA)

According to Rogers (2003), perceived relative advantage is the degree to which an innovation is regarded as superior to what was previously obtainable. It is the reflection of some extrinsic

benefits that come with such innovation. In the case of microinsurance (relatively new in Nigeria and has an obviously low adoption compared to other financial products), mobile technology for the distribution of the product comes with apparent benefits that can drive adoption. In previous studies (Akotey and Adjasi, 2016; Akotey, Osei, & Gemegah, 2011; Auriol, Lassébie, Amma Panin, Raiber, and Seabright, 2020; Churchill and Matul, 2012; Cole, 2015), premium collection and claim payment were major factors inhibiting adoption.

The use of mobile technology promises relative ease in these areas, as consumers can pay premiums via various provisions on their mobile phones, and claims can be verified and approved with little or no physical contact. Items to measure perceived relative advantage were adapted from Moore and Benbasat (1991), Tan and Teo (2000) containing five items for perceived relative advantage.

3.3.2.4 Perceived ease of use (PEU)

The Technology Adoption Model (TAM) pioneered by Davis (1989) contains two main components that help predict technology adoption by individuals. One of these components is perceived ease of use, defined as the degree to which the use of a particular system will be free of effort. Consequently, the less effort potential adopters put into using new technology, the higher the adoption (Davis, 1989). The effect of perceived ease of use on adoption has been tested and validated by other studies (Bhattacharjee, 2000; Morris and Dillon, 1997). Items to measure perceived ease of use were adapted from (Davis, 1989; Davis, Bagozzi, and Warshaw, 1989), containing three items.

3.3.2.5 Influence of religion (IRL)

Religion is sometimes considered to be related to risk attitudes and a sense of cohesion within a community setting (Eling, Pradhan, and Schmit, 2014). Studies have shown that those with a strong faith in God tend to rely more on God when venturing into more risky activities, without any formal insurance in place (Gheysens and Günther, 2012).

An extensive study on why people prefer to give money to religious organisations rather than buy formal insurance by Auriol *et al.* (2020) is revealing: a widely held belief that religious organisations will take care of them if there is any disaster and by giving money to the church, members expect God to intervene in the event of any disaster(!) The lab-in-the-field study

conducted by researchers in the urban area of Ghana, Auriol et al. (2020), reveal a significant drop in donation to church when enrolment in formal insurance policy increases.

To substantiate the above, studies have shown that a considerable number of people turn to God or other spiritual engagements as a means of protection against disasters rather than turning to formal insurance. For example, Bentzen (2019), finds that religious activities increase after every earthquake as many victims of such disasters turn to God for help rather than any formal insurance for compensation. Moreover, many other studies examining insurance demand in Muslim countries find a negative correlation between insurance demand and religion (Beck and Webb, 2003; Browne and Kim, 1993). Items to measure the influence of religion were adapted from Taylor and Todd (1995) containing three items for the influence of family, but adequately adapted for the influence of religion.

3.3.2.6 Family influence (FMI)

In Nigeria, families exercise a great deal of influence in decision making. Family influence is defined as the influence or pressure from known sources (Al-Ajam and Md Nor, 2015). The influence of family is particularly true in rural Nigeria as many dwellers maintain a close bond with their relations, and actions are jointly carried out. Previous studies show a significant positive relationship and subjective norms (Nor and Pearson, 2008; Shih and Fang, 2004). In other words, the bias of many people in making decisions is positively influenced by the family or relationship they find themselves in.

The northern part of Nigeria may be significantly influenced by family inclination as both family and religion create room for bias, and the tendency to follow a line of decisions made by senior members of that community. Items to measure the influence of family were adapted from Taylor and Todd, (1995), containing three items for family influence.

3.3.2.7 Innovativeness (INV)

Technology Readiness index (TRI) addresses consumer attitudes towards technology. The TRI is defined as “people's propensity to embrace and use new technologies for accomplishing goals in home life and at work” (Parasuraman 2000, p. 308). The theory has four dimensions that define consumer attitudes towards the use of technology. Two of these drivers are called motivators, while the other two are referred to as inhibitors. The motivators are optimism and innovativeness; of these two motivating drivers, innovativeness stands out.

In measuring innovativeness, consumer tendency to accept and use new technologies come in as the criteria (Cruz-Cárdenas, Guadalupe-Lanas, Ramos-Galarza, and Palacio-Fierro, 2021). Previous studies established a positive connection between consumer satisfaction with technology usage and their intention to buy technology-based products and services (Cruz-Cárdenas et al., 2021; Gutenberg, Ernst, Pfeiffer, and Rothlauf, 2013). Nevertheless, a few studies differ on this conclusion and suggest that there is no significant influence of innovativeness on adopting new technologies (Doong, Wang, and Law, 2012). Items to measure innovativeness were adapted from Parasuraman and Colby (2015), containing four items as measures.

3.3.2.8 Skepticism (SKP)

Of the four drivers of technology readiness components two are inhibitors – discomfort and insecurity. Insecurity refers to the distrust of technology, and this distrust stems from skepticism over the ability of such technology to work correctly and its potentially harmful consequences (Parasuraman and Colby, 2007). Previous studies examined the linkages between skepticism and consumer readiness to adopt technology in the delivery of services. These studies suggest that the psychological factor otherwise known as skepticism is the main reason why specific individuals do not use any technology self-services (Berndt, Saunders, and Petzer, 2012; Lai, 2008). These studies show a negative relationship between skepticism and the readiness of individuals to use new technologies. Items to measure skepticism were adapted from Parasuraman and Colby (2015), containing five items for measurement.

Table 3. 1 Description of Variables

Variables	Symbol	Measurement
Dependent variable		
Intention to use microinsurance	IUM	(Shih and Fang, 2004) and (Nor and Pearson, 2008),
Independent variables		
Trust	TRU	(Pavlou, 2003; Suh and Han, 2002) and (Lee and Turban, 2001; McKnight and Chervany Norman, 2001)
Perceived relative advantage	PRA	(Moore and Benbasat, 1991; Tan and Teo, 2000)
Perceived ease of use	PEU	(Davis, 1989 ; Davis et al., 1989)
Influence of religion	IRL	(Taylor and Todd, 1995)
Family influence	FMI	(Taylor and Todd, 1995)
Innovativeness	INV	(Parasuraman and Colby, 2015)
Skepticism	SKP	(Parasuraman and Colby, 2015)
Control Variables		
Age	AGE	Age of respondent in years

Gender	GENDER	Gender of the respondent, 1 for females and 0 otherwise
Level of education	EDU	Level of education of the respondent, 1 for primary school, 2 for secondary school, 3 for bachelor/OND/HND, and 0 for no education
Occupation	OCCU	Occupation of the respondent, 1 for student, 2 for low-Skilled labourer, 3 for farmers, 4 for artisan, 5 for trader, and 0 others
Income	INC	Income of respondent 1 for less than 10,000 Naira, 2 for between 10,000 and 30,000, 3 for Above 30,000.

3.3.2 Estimation approach

This study uses the multiple linear regression model, using the Ordinary Least Squares (OLS) method to estimate the unknown parameters. In that method, the values of β_0 and β_1 are chosen to minimise the sum-of-squared deviations of the observed values of the outcome y from the predicted values based on the model. The multiple regression model is valid when five basic assumptions have been met. According to Kennedy (2008), when these basic assumptions have been met the ordinary least squares (OLS) estimator is guaranteed to be the optimal estimator. The specification of the linear regression model is:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_k x_{ik} + \varepsilon_i \quad i = 1, 2, \dots, n \quad (3.1)$$

In the expression in equation (3.1), y_i is regarded as the dependent variables whose values depends on the explanatory variables x_{ik} . The parameters β_k are unknown and will be estimated from the data. To meet basic assumptions, the error terms denoted as ε_i are normally distributed. The estimate of the OLS is denoted with a *hat*; for instance, the estimate of β is denoted as $\hat{\beta}$. The value of $\hat{\beta}$ obtained by the OLS estimate method is the estimated value that minimises the sum of the squared errors (Kennedy, 2008). This value is derived by equating the sum of the squared errors with respect to $\hat{\beta}$ to zero.

The sum of the squared errors is shown in equation (3.2) below:

$$\sum_{i=1}^n \hat{\varepsilon}_i^2 = \sum_{i=1}^n (y_i - \hat{y}_i) \quad (3.2)$$

$$\begin{aligned}
&= y - X\hat{\beta})^T (y - X\hat{\beta}) \\
&= y^T y - X\hat{\beta} - \hat{\beta}^T X^T y + \hat{\beta}^T X^T X\hat{\beta}
\end{aligned} \tag{3.3}$$

The derivative of (3.3) with respect to β :

$$\begin{aligned}
\frac{\partial(y^T y - X\hat{\beta} - \hat{\beta}^T X^T y + \hat{\beta}^T X^T X\hat{\beta})}{\partial \hat{\beta}} &= 0 \\
-2X^T y + 2X^T X\hat{\beta} &= 0 \\
X^T y &= X^T X\hat{\beta}
\end{aligned} \tag{3.4}$$

Equation (3.4) can be transformed as follows:

$$\hat{\beta} = (X^T X)^{-1} X^T y \tag{3.5}$$

The OLS method is an unbiased estimator of β and thus $E(\hat{\beta}) = \beta$. (Cohen, Cohen, West, and Aiken, 2002).

3.3.3 Convergent validity

According to Yin (2017), the aim of reliability is to minimise the errors and biases in a study, such that if another researcher follows the same process as described by an earlier researcher and conducts the same study all over again, the outcome of the new research should end with the same conclusion. The survey instrument was designed to ask different related subjects for every construct. To ensure internal consistency, Cronbach's Alpha (also known as the coefficient of Alpha) value was used to assess the questionnaire's reliability. According to George and Mallery (2019), the assessment rule is in **Table 3.2**.

Table 3. 2 Range of Cronbach's Alpha

<i>Cronbach's Alpha (α)</i>	<i>Rules</i>
Cronbach's Alpha ≤ 0.5	Unacceptable
$0.5 < \text{Cronbach's Alpha} \leq 0.6$	Poor
$0.6 < \text{Cronbach's Alpha} \leq 0.7$	Questionable
$0.7 < \text{Cronbach's Alpha} \leq 0.8$	Acceptable
$0.8 < \text{Cronbach's Alpha} \leq 0.9$	Good
Cronbach's Alpha > 0.9	Excellent

Source: George and Mallery (2019)

Besides, Cronbach's Alpha (α) value of 0.70 and above is considered reliable (Nunnally and Bernstein, 1994), and an α value of 0.70 and above shows that the items are homogeneously measuring the same construct. According to Hair, Black, Babin, and Anderson (2013), an α value of 0.6 would be regarded as poor in measuring the internal consistency of the items.

Factor analysis as a data reduction method assumes that all variables are correlated to some degree. Child (2006) refers to it as "an orderly simplification of a number of interrelated measures" (Child, 2006, p. 35). The technique, therefore, concludes that those variables that share similar underlying dimensions should be highly correlated (Ho, 2006). Factor analysis includes principal component analysis and common factor analysis to obtain a factor solution. The objective of factor analysis is the orderly reduction of large sets of intercorrelated items to a few representative constructs without loss of information (Hair *et al.*, 2013). This study uses principal component analysis (PCA) to reduce the items using the resulting factor loading. According to George and Mallery (2019), factors that load more than 0.5 are assumed high loading and will have excellent validity in measuring the underlying construct.

The essence of validity analysis is to detect whether each item on the questionnaire accurately expresses the meaning of each research variable (Carrasco and Jover, 2003). A high degree of internal consistency among the questions results in high data validity. To analyse convergence validity, the study measured both the composite reliability (CR) and average variance extracted (AVE). According to Srinivasan, Lilien, and Rangaswamy (2018), CR measures the inherent consistency of all measurements in questions. A value of 0.6 and above is a good measure of high CR. Similarly, the AVE of the factors ensures practical significance for the factors derived in the factor analysis. The factors explain a significant amount of variance accounted for by the constructs compared to the variance, due to error. An AVE greater than 0.5 indicates that the measurement questions reflect the characteristics of each research variable in the model (Srinivasan *et al.*, 2018).

However, prior to factors extraction for analysis, tests are carried out to evaluate the suitability of the survey data for factor analysis. These tests include Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity (Kaiser, 1970; Kaiser and Rice, 2016). The KMO measures the sampling adequacy, and its index ranges from 0 to 1. An index of 0.50 and above is considered suitable for factor analysis (Tabachnick, Fidell, and Ullman, 2018). Similarly, Bartlett's Test of Sphericity is expected to be significant at $p < 0.05$ for the data to be suitable for factor analysis (Bartlett, 1950).

3.3.4 Chapter summary

The chapter describes a research approach for the study. It gives a brief background on the type of research and the research design. Given the nature of the research, the chapter concludes that this study is explanatory in nature. The chapter describes the sample and data collection approach and thoroughly defines the unit of analysis. In conclusion, the analytical framework and the estimation approach were also discussed.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.0 Introduction

This chapter presents the research findings and analysis of the data collected from four hundred and thirty-four artisans, subsistence farmers, penny traders, and low-wage labourers from the Jeje community, Barkin Uza, and Zhipe in Karu Local Government Area of Nasarawa State, Nigeria. The analysis is grouped under four sections. The first section, the descriptive statistics is outlined under the following subsections - the demographic profiles of the respondent and reasons for not having microinsurance. The second part of the analysis examines the reliability analysis of the response items. The third part of the analysis examines the statistics of regression variables. Lastly, the regression results and the effect of the variables on the intention of respondents to adopt microinsurance equations are discussed.

4.1 Demographics Profile

The gender distribution of the respondents was almost equal: 244 males (56.2 percent) and 190 females (43.8 percent). Of the respondents, 53.5 percent fall between 30 and 40 years of age. Educationally, undergraduates (bachelors), Ordinary National diploma or Higher National diploma holders comprise 114 (26.3 percent) of the respondent population; secondary school leavers form the bulk of the respondents – 270 (62.2 percent). A total of 24 respondents (5.5 percent) are primary school leavers, and respondents without any form of formal education – 26 (6 percent).

Most respondents (59.7 percent) earn incomes of between 10,000 to 30,000 naira per month. Most respondents are traders – 205 (47.2 percent), followed by 103 (23.7 percent) – farmers. A significant number of the respondents are artisans – 48 (10.6 percent). Of the respondents who have mobile phones – 97.7 percent, thus, a mere 2.3 percent are without a mobile phone. Analysis of data on awareness of microinsurance – 36.6 percent of the respondents are aware of microinsurance, while 63.4 percent have not heard about microinsurance. Of the group that are aware of microinsurance, 282 (65 percent) do not have microinsurance because they do not know how it works. The results also show that 86.4 percent of the respondents have a bank account with a financial institution.

Table 4. 1 Demographics Profile of Respondents

Variables	Category	Frequency	%
Gender	Male	244	56.2
	Female	190	43.8
Age	18 – 20 years	42	9.7
	20 – 30 years	121	27.9
	30 – 40 years	232	53.5
	40 – 50 years	37	8.5
	50 years and above	2	0.5
Education	Primary School	24	5.5
	Secondary School	270	62.2
	Bachelor/OND/HND	114	26.3
	No Education	26	6.0
Occupation	Student	55	12.7
	Low-Skilled Labourer	23	5.3
	Farmer	103	23.7
	Artisan	46	10.6
	Trader	205	47.2
	Others	2	0.5
Income	< 10,000	129	31.9
	10,000 – 30,000	259	57.3
	More than 30,000	46	10.8
Mobile phone	Yes	424	97.7
	No	10	2.3
Microinsurance awareness	Yes	159	36.6
	No	275	63.4
Have microinsurance	Yes	7	1.6
	No	427	98.4
Bank account	Yes	375	86.4
	No	59	13.6

Source: Research data

The result reveals that an overwhelming 63.4 percent of the survey respondents do not know about microinsurance, which likely accounts for almost 100 percent of these respondents not having microinsurance. Even though the respondents have access to mobile phones, which should make access to financial products more accessible, the results reveal that having a mobile phone does not necessarily translate into having access to, or having knowledge of, financial products such as microinsurance. Interestingly, 86.4 percent of the respondents have bank accounts and most likely use their phones for basic financial transactions using unstructured supplementary service data (USSD). Moreover, results show that 98.4 percent of the respondents do not have microinsurance, and 65 percent of these number do not know how microinsurance works (**Table 4.2**).

Table 4. 2 Reason for Not Having Microinsurance

Reasons	Frequency	Percentage (%)
Too expensive	87	20.0
Too many forms	18	4.1
Do not know how it works	282	65.0
Do not trust the insurer	22	5.1
Not important to me	18	4.1
My religion does not support it	4	0.9
My family does not support it	3	0.7

Source: Research data

Furthermore, 63.4 percent of the respondents with bank accounts are not aware of insurance. This speaks to the level of awareness of these low-income earners concerning this type of financial product. Another important insight from the data is that only 10.6 percent of the respondents earn more than 30,000 (about USD70) naira per month, thus substantiating the poverty level across the target population.

4.2 Convergent Validity Results

Various reliability and validity tests were carried out to ensure the validity and reliability of the items and constructs. Firstly, factor analysis was applied to the items to reduce cross-loading problems. As shown in Table 4.3, the factor loadings (FL) of the items on each construct were observed to be greater than the 0.5 thresholds, indicating the high explanatory power of each item on the constructs.

The survey instrument was designed to ask different related questions on a subject for every construct to ensure internal consistency. Overall, both the Cronbach's Alpha α (also known as the coefficient of Alpha) and Composite Reliability (CR) for the various items are more significant than 0.7, suggesting internal consistency. Besides, an α value of 0.70 and above shows that the items homogeneously measure the same construct (Nunnally & Bernstein, 1994).

In addition, the values of the average variance extracted (AVE) were calculated for each construct. The AVE measures the amount of variance accounted for by the construct compared to the amount of variance due to errors in the measurement Fornell and Larcker (1981). According to Fornell and Larcker (ibid), if the average variance extracted value is less than 0.50, the variance due to measurement error is larger than the variance captured by the

construct, and the validity of the individual indicator, as well as the construct, is questionable. The result of the reliability and validity is in **Table 4.3**.

Table 4.3 Result of Reliability and Validity

<i>Constructs</i>	<i>Factor loadings</i>	<i>(AVE)</i>	<i>CR</i>	<i>Cronbach's Alpha (α)</i>
TRUST		0.607	0.883	0.887
I think microinsurance providers are honest with their customers	0.825			
I think microinsurance insurance providers keep their promises	0.573			
When I need to conduct insurance activities, I would feel comfortable when doing it on my phone	0.805			
I can always rely on my phone to carry out microinsurance activities	0.826			
I think microinsurance providers keep their agreements	0.833			
FAMILY INFLUENCE		0.605	0.821	0.967
I will buy microinsurance because my family uses it.	0.764			
I have to buy microinsurance because my family thinks I should use it.	0.767			
I will have to use microinsurance if my family has already used it.	0.802			
INFLUENCE OF RELIGION		0.755	0.925	0.935
I will buy microinsurance because my religion supports it	0.876			
I will have to use microinsurance if my Pastor/Imam/Alfa supports it	0.918			
I will have to use microinsurance because members of my religion are already using it	0.896			
Generally speaking, I want to do what my religion says regarding insurance	0.778			
PERCEIVED RELATIVE ADVANTAGE		0.837	0.962	0.991
I think mobile phones makes it easier for me to do my microinsurance activities	0.876			
I think mobile phone is useful in conducting microinsurance activities	0.923			
I think mobile phones will enable me to manage my microinsurance activities efficiently	0.926			
I think mobile phones will enable me to complete my microinsurance activities quickly	0.929			
I think the use of the mobile phone for microinsurance will enable me to complete my insurance activities conveniently	0.919			
PERCEIVED EASE OF USE		0.723	0.887	0.960
I think it will be easy to learn how to use mobile phones for microinsurance	0.852			
I think it is easy to remember how to use mobile phones for microinsurance	0.844			

I think using mobile phones is easy	0.855			
INNOVATIVENESS		0.648	0.879	0.958**
Other people come to me for advice on new technologies	0.615			
I can usually figure out new high-tech products and services without help from others	0.867			
I find I have fewer problems than other people in making technology work for me	0.860			
I find new technologies to be mentally stimulating	0.850			
SKEPTICISM		0.706	0.921	0.916***
I worry that information I make available over the Internet may be misused by others	0.953			
The human touch is very important when doing business with a company	0.933			
I do not feel confident doing business with a place that can only be reached online	0.928			
Any business transaction you do electronically should be confirmed later with a separate communication	0.597			
Whenever something gets automated, you need to check carefully that the system is not making mistakes	0.730			
INTENTION TO USE MICROINSURANCE		0.843	0.955	0.970
It is likely that I will use microinsurance in the future	0.874			
Given the opportunity, I predict I will use microinsurance in the future	0.940			
I will use microinsurance in the future	0.916			
I intend to use microinsurance in the future	0.941			

Note: **The number of items were four initially, and the Cronbach's Alpha was 0.774; results showed that with INV22 removed, Cronbach's Alpha was 0.958

*** The number of items were five initially, and the Cronbach's Alpha was 0.681, results showed that with SKP29 removed, Cronbach's Alpha was 0.916

4.3 Test of Multicollinearity

“Multicollinearity refers to the situation in which the independent predictor variables are highly correlated” (Ho, 2006, p. 248). It results in an ‘overlap’ in the predictive power of the independent variables. In this situation, the regression model fits the data well, but none of the predictors has significant power in predicting the dependent variables; in other words, the independent variables essentially present the same information. According to Ho (ibid), these independent variables may together explain variances in the dependent variables but may not individually contribute significantly to the model.

There are three suggested testing methods for multicollinearity (ibid). The first is the correlation analysis between the independent variables. If the correlation between the variables tends to one, then multicollinearity is suspected. Another method is the “tolerance” and “variance inflation factor (VIF) values for each predictor” The tolerance value indicates the proportion of variance in the independent variables that cannot be accounted for by other independent variables in the model. A small value shows that more than one predictor explains the same thing and shares the predictive power in the model. According to Ho (ibid), tolerance values that are less than 0.10 may suggest the presence of multicollinearity. The third test is the VIF. The VIF is the inverse of tolerance, and predictors whose values are greater than 10 may need further investigation.

Table 4. 4 Pearson Correlation Results

		IUM	FMI	IRL	PRA	PEU	INV	SKP	TRU
Pearson Correlation	IUM	1.000	0.297	0.252	0.333	0.359	0.164	-0.043	0.417
	FMI	0.297	1.000	0.656	0.230	0.234	0.112	-0.006	0.433
	IRL	0.252	0.656	1.000	0.167	0.154	0.047	-0.034	0.262
	PRA	0.333	0.230	0.167	1.000	0.863	0.502	-0.038	0.622
	PEU	0.359	0.234	0.154	0.863	1.000	0.508	0.014	0.571
	INV	0.164	0.112	0.047	0.502	0.508	1.000	-0.010	0.343
	SKP	-0.043	-0.006	-0.034	-0.038	0.014	-0.010	1.000	0.070
	TRU	0.417	0.433	0.262	0.622	0.571	0.343	0.070	1.000

Notes: Trust (TRU), perceived relative advantage (PRA); perceived ease of use (PEU); influence of religion (IRL); family influence (FMI); innovativeness (INV); skepticism (SKP).

Table 4. 5 Collinearity Statistics

	Tolerance	VIF
FMI	0.492	2.032
IRL	0.565	1.769
PRA	0.221	4.530
PEU	0.244	4.104
INV	0.723	1.383
SKP	0.974	1.027
TRU	0.512	1.953

Notes: Trust (TRU), perceived relative advantage (PRA); perceived ease of use (PEU); influence of religion (IRL); family influence (FMI); innovativeness (INV); skepticism (SKP).

The tests from **Tables 4.4 and 4.5** indicate no multicollinearity among the independent variables. According to Ho (2006), tolerance values in the predictors that are less than 0.10 may suggest the presence of multicollinearity. The results in Table 4.5 show that none of the tolerance values of the predictor is less than 0.10. Similarly, since the VIF is the inverse of tolerance, the VIF values in Table 4.5 show that none of the values are greater than 10. Finally, the third test identified by Ho (ibid) is the correlation between the predictors; from the results of the correlation matrix in **Table 4.4**, none, except PEU and PRA, has a high correlation value. A regression was carried out without one of the two variables, and the result did not significantly change the regression outcome.

4.4 Regression Results

The results of the multiple regression analysis to examine the relationship between trust, family influence, the influence of religion, perceived relative advantage, perceived ease of use, innovativeness, skepticism, and the respondents' intention to use microinsurance is presented in **Table 4.6**. The multiple regression analysis models were significant ($p < 0.05$) with an F-value of 17.746. The R^2 , also known as the coefficient of determination, is 22.6 percent, while the adjusted R^2 is 21.3 percent. The value of the R^2 indicates that only 22.6 percent of the variation in the respondents' intention to use microinsurance is explained by the seven independent variables (trust, family influence, the influence of religion, perceived relative advantage, perceived ease of use, innovativeness, skepticism). The standardised β -values for each of the independent variables, which shows the estimated effect on the respondents' intention to use microinsurance, are provided in **Table 4.6**:

Table 4. 6 Regression Results

	<i>Coef.</i>	<i>Std. Err.</i>	<i>t-statistic</i>	<i>p-value</i>
Constant		0.369	9.498	< 0.001***
TRU	0.281	0.059	4.707	< 0.001***
PRA	-0.077	0.060	-0.850	0.396
PEU	0.250	0.058	2.894	0.004***
IRL	0.107	0.048	1.883	0.60
FMI	0.067	0.049	1.108	0.269
INV	-0.033	0.037	-0.657	0.512
SKP	-0.065	0.045	-1.498	0.135
<i>F</i>	17.798***			
<i>R</i> ²	22.6			
<i>Adjusted R</i> ²	21.4			
<i>Observations</i>	434			

*Notes: Trust (TRU), perceived relative advantage (PRA); perceived ease of use (PEU); influence of religion (IRL); family influence (FMI); innovativeness (INV); skepticism (SKP). *** Denotes significance at 5%*

From the result in **Table 4.6**, trust was found to have the most significant effect on the intention to use microinsurance. This is closely followed by perceived ease of use. Trust has been a significant element in many discussions on the adoption of microinsurance or any insurance-related product (Matul *et al.*, 2013). The regression result shows that trust significantly affects the intention to use microinsurance, supporting **Hypothesis 1**. In fact, trust has the highest coefficient, emphasising the fact that trust plays a significant role in determining whether the respondents will adopt microinsurance or not. The result supports Dercon *et al.*, (2008) that trust is a significant factor inhibiting the adoption of microinsurance. The issue of trust becomes more pronounced when transactions are to be performed online. There is an underlying trust problem with dealing with insurers; conducting the insurance business online creates more problems when it comes to trust.

The relationship between perceived relative advantage and intention to use microinsurance is insignificant and does not support **Hypothesis 2**. The use of the mobile phone for insurance products, according to Hypothesis 2, is expected to improve adoption based on the Innovation Diffusion Theory (Rogers, 1983). The result of the regression, however, does not agree with this position. The result can be compared to the result of **Table 4.2** – Reason for not having microinsurance. The table shows that 65 percent of the respondents aware of microinsurance do not have microinsurance because they do not know how it works. It is not easy to understand

how technology will be advantageous to product delivery when respondents do not know it traditionally works.

However, the path between the perceived ease of use and the intention to use microinsurance was significant and supported, supporting **Hypothesis 3**. This result may be attributed to the number of people with mobile phones (97.4 percent) and those who have access to a bank account (84.5 percent). In Nigeria, this general knowledge of USSD has aided banking transactions among the locals. Translating this ease of use of mobile phones for bank transactions can give respondents the impression that mobile phones for insurance products can follow the same ease of use.

Contrary to the belief that religion provides a vital source of cultural opposition to life insurance Zelizer (1983), the regression reveals that religion is not significant in the intention of the respondents to adopt microinsurance, thereby not supporting **Hypothesis 4**. However, family influence on the intention to use microinsurance is still supported, although not significant, (**Hypothesis 5**). This is not far-fetched; family ties in Nigeria are still stronger than religion, and other family members directly influence specific actions by some individuals. The result agrees with Parthasarathy and Bhattacharjee (1998) that social pressure has been a significant driving factor in the initial adoption of many products. Since there is a problem of trust regarding insurance products in Nigeria, the study shows that intention to use microinsurance products could be improved if respondents perceive that most people who influence their lives subscribe to the product.

The path between innovativeness and intention to use microinsurance failed to support **Hypothesis 6**. The result of **Hypothesis 7** can generally explain this. Although the path between skepticism and intention to use microinsurance is not significant, the result supports **Hypothesis 7** that *skepticism towards new technology will negatively affect the adoption of mobile technology by microinsurance consumers*. The underlying trust issues on insurance generally affect the respondents' thinking about using technology for the product. Consequently, respondents would prefer to transact offline or in-person, than deal with insurance dealers online or on any other mobile technology.

4.6 Chapter Summary

The chapter gave the results of the data collected from the survey respondents on the various variables as specified in the survey instrument. The purpose is to measure the effect of these variables on respondent intention to use microinsurance. The chapter begins with the descriptive statistics of the control variables in the survey. The results show the demographic profile of respondents and other details as they help answer the questions the study aims to answer. Furthermore, the reliability of the variables was tested to ensure internal consistency of the items on the survey instrument. Multiple regression analysis was conducted to show the validity of the model and the relationship between the explanatory variables and the dependent variable. The chapter ended with a discussion on the outcome of both multiple regression and the demographic profile. The summary of the results of the hypotheses examined from the regression analysis is presented in **Table 4.7**.

Table 4. 7 Results Of Hypothesis Testing

<i>Hypotheses</i>	<i>Path</i>	<i>Path Coefficient</i>	<i>t-statistic</i>	<i>p-value</i>	<i>Results</i>
H1	TRU → IUM	0.281	4.706	< 0.001**	supported
H2	PRA → IUM	-0.077	-0.843	0.396	not supported
H3	PEU → IUM	0.250	2.908	0.004**	supported
H4	IRL → IUM	0.107	1.882	0.60	not supported
H5	FMI → IUM	0.067	1.119	0.269	supported
H6	INV → IUM	-0.033	-0.690	0.512	not supported
H7	SKP → IUM	-0.065	-1.517	0.135	supported

*Notes: Intention to use microinsurance (IUM); trust (TRU), perceived relative advantage (PRA); perceived ease of use (PEU); influence of religion (IRL); family influence (FMI); innovativeness (INV); skepticism (SKP). ** denotes significance at 5%*

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter provides a summary and conclusion to the study. Given the results obtained from chapter four of this report, conclusions and recommendations are intended to help further research and formulation of relevant policies to strengthen insurance adoption in Nigeria, specifically, microinsurance. In addition, areas of future research to accelerate the rate of adoption of microinsurance in Nigeria have been identified and suggested.

5.1 Summary and Conclusions

The study significantly contributes to the literature, primarily as it affects the Nigeria insurance market. First, the current study contributes to the adoption of microinsurance by providing clear insights into factors that influence the adoption of microinsurance in Nigeria. The study reveals that trust is still a primary concern for insurance products in Nigeria. Other previous literature has cited trust as a significant inhibitor (Platteau *et al.*, 2017), and this study confirms the same.

One significant factor responsible for the high prevalence of distrust is the lack of knowledge of how insurance works. While the banking industry in Nigeria has embraced the use of mobile technology to drive financial inclusion across the country, respondents to the survey were not willing to use the same technology to purchase insurance. The study reveals that respondents acknowledge the ease of use of mobile technology for the delivery of insurance products as the factor *perceived ease of use* is significant, and positively influences the intention to use microinsurance. The success of the banking industry may be due to a considerable awareness created among the consumers of these banking products and frequent innovation that goes into the delivery of such products. Analysis of the survey response in chapter four shows that 65 percent of the respondents do not know how microinsurance works, and most of these respondents fall between the ages of 30 and 40 years old.

The study shows that religion is not a significant inhibitor of microinsurance adoption in Nigeria. The influence of religion was not significant and did not negatively influence the use of mobile technology for microinsurance. As shown in the survey analysis, family influence is still a significant factor in using a financial product like microinsurance. For example, consumers can decide to open an account with a Deposit Money Bank¹¹ on the advice of family and friends. Similarly, the same influence still exists in the insurance space and largely determines decisions.

Furthermore, as with the trust issue, skepticism about technology is still a significant concern regardless of the success recorded in the banking sector. The result in chapter four shows that respondents still doubt technology as a means of delivering financial products. It shows that users are still not comfortable sharing their financial information online and prefer physical contacts to online transactions. This suggests that technological skepticism will still be a significant inhibitor in driving microinsurance adoption in Nigeria via mobile technology.

5.2 Policy Recommendations

One of the objectives of this study is to help players in the insurance industry uncover some of the inhibitors of microinsurance adoption. In addition, it is to help to quantify the construct concerning the present state of belief toward the use of mobile technology for microinsurance. Following the results of this study and to answer the research questions, the following are recommendations for policymakers and opinion shapers in the insurance industry in Nigeria.

- a. Findings indicate that trust remains an essential factor in the drive for microinsurance adoption. What fuels this distrust is the knowledge gap on how microinsurance works. Therefore, regulators and players in the insurance industry need to bridge the knowledge gap first and foremost to build the required trust. The level of comfort that users have with insurance might determine the trust and confidence in the industry. Demystification of the insurance process must be cascaded to the rural areas if microinsurance adoption will be successful. In addition, advertisements and jingles aimed at educating the populace should be much more inclusive by being translated to all local languages to achieve a broader understanding.

¹¹ Commercial banks in Nigeria that take customers' deposits are called DMBs (Deposit Money Banks)

- b. The use of mobile technology for microinsurance adoption might not automatically translate into an improved adoption without a concerted effort. Hence, a policy framework needs to integrate mobile network operators (MNO) into the schema of work in the insurance industry. This partnership has been shown to work well in the banking sector of Nigeria and can work in the insurance sector with the right policies and efforts.
- c. Nevertheless, despite the seeming success of technology in the banking sector, many rural people are still skeptical about technology for their financial transactions. Therefore, regulators and players need to build confidence in users of these products by reassuring them of their information and transactional safety.
- d. Finally, there is a need to incorporate the concept of microinsurance into the school curriculum from the secondary school level. This is important because the survey showed that 65 percent of the respondents were secondary school leavers, and a significant number of them did not know anything about microinsurance. The Nigeria Insurance Commission (NAICOM) should spearhead an education campaign and encourage other players in the insurance industry to follow suit.

5.3 Limitation of the Study and Future Research Direction

There are a few limitations in the study that should be considered. The research was conducted in a rural location where most respondents were secondary school leavers. This may significantly affect their understanding of the use of technology for microinsurance and the insurance industry generally. The implication of this is that a different result could be obtained in a more enlightened environment than the one obtained in this research. In addition, the items on the survey were translated into a language the respondents understood during the survey. The problem here is the probable loss of meaning of the original intention during translation. Researchers with rural respondents must ensure that questions are framed in such a way that interpretation will not cause a loss of meaning. The present study looked at the location in a northern state in Nigeria and identified a limited number of factors that may be responsible for low microinsurance adoption. Therefore, it is proposed that future studies explore the following areas:

- a. A similar study covering the southern part of the country using the same set of factors. The study will be essential to enable a reasonable comparison between the southern and the northern regions of Nigeria because of the southerners' higher level of education and sophistication.
- b. Similarly, the number of factors to be tested may be increased to accommodate risk and level of income. These factors have been considered in other literature and may be an excellent opportunity to compare the results from Nigeria with other previous studies.
- c. A study of this nature for selected countries in sub-Saharan Africa can significantly aid the understanding of these factors. This will also provide an excellent cross-country analysis of findings.

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APPENDIX I

Questions

Section 1: Demographic information

1. Gender of respondent Female Male
2. Age of respondent
- 18 - 20 years old
 - 20 – 30 years old
 - 30 – 40 years old
 - 40 – 50 years
 - Older than 50 years old
3. Highest education level
- Primary school
 - Secondary school
 - Bachelor/OND/HND
 - No education
4. Occupation
- Student
 - Low-skilled labourer
 - Farmer
 - Artisan
 - Trader
 - Others (.....)
5. Income
- less than 10,000 naira per month
 - between 10,000 – 30,000 naira per month
 - Above 30,000 naira per month
- Do you have a bank account? Yes No

Do you have a mobile phone ? Yes No

Are you aware of microinsurance? Yes No

Do you have Microinsurance? Yes No

If No, reasons for not having microinsurance

- Too expensive
- Too many forms
- Do not know how it works
- Do not trust the insurer
- Not important to me
- My religion does not support it
- My family does not support it
- I do not support the use of phone for microinsurance

Section 2: Interview/survey questions

Please select the appropriate responses that best describe your perceptions of microinsurance and its delivery through mobile technology

		<i>Strongly disagree</i>	<i>Disagree</i>	<i>Somewhat disagree</i>	<i>Neither agree nor disagree</i>	<i>Somewhat agree</i>	<i>Agree</i>	<i>Strongly agree</i>
		1	2	3	4	5	6	7
Trust (TRU)								
TRU1	I think microinsurance providers are honest with their customers							
TRU2	I think microinsurance insurance providers keep their promises							
TRU3	When I need to conduct insurance activities, I would							

	feel comfortable when doing it on my phone							
TRU4	I can always rely on my phone to carry out microinsurance activities							
TRU5	I think microinsurance providers keep their agreements							
Family influence (FMI)								
FMI6	I will buy microinsurance because my family uses it.							
FMI7	I have to buy microinsurance because my family thinks I should use it.							
FMI8	I will have to use microinsurance if my family has already used it.							
Influence of religion (IRL)								
IRL10	I will buy microinsurance because my religion supports it							
IRL11	I will have to use microinsurance if my Pastor/Imam/Alfa supports it							
IRL12	I will have to use microinsurance because members of my religion are already using it							
IRL13	Generally speaking, I want to do what my religion says regarding insurance							
Perceived relative advantage (PRA)								
PRA14	I think mobile phones makes it easier for me to do my microinsurance activities							
PRA15	I think mobile phone is helpful in conducting microinsurance activities							
PRA16	I think mobile phones will enable me to manage my microinsurance activities efficiently							
PRA17	I think mobile phones will enable me to complete my microinsurance activities quickly							
PRA18	I think the use of mobile phone for microinsurance will enable me to complete my insurance activities conveniently							
Perceived ease of use (PEU)								
PEU19	I think it will be easy to learn how to use mobile phones for microinsurance							
PEU20	I think it is easy to remember how to use mobile phones for microinsurance							
PEU21	I think using mobile phones is easy							
Innovativeness (INV)								
INV22	Other people come to me for advice on new technologies							
INV23	I can usually figure out new high-tech products and services without help from others							

INV24	I find I have fewer problems than other people in making technology work for me							
INV25	I find new technologies to be mentally stimulating							
Skepticism (SKP)								
SKP26	I worry that information I make available over the Internet may be misused by others							
SKP27	The human touch is very important when doing business with a company							
SKP28	I do not feel confident doing business with a place that can only be reached online							
SKP29	Any business transaction you do electronically should be confirmed later with a separate communication							
SKP30	Whenever something gets automated, you need to check carefully that the system is not making mistakes							
Intention to use microinsurance (IUM)								
		<i>Very unlikely</i>	<i>unlikely</i>	<i>Somewhat unlikely</i>	<i>Neutral</i>	<i>Somewhat likely</i>	<i>likely</i>	<i>Very likely</i>
		1	2	3	4	5	6	7
IUM31	It is likely that I will use microinsurance in the future							
IUM32	Given the opportunity, I predict I will use microinsurance in the future							
IUM33	I will use microinsurance in the future							
IUM34	I intend to use microinsurance in the future							