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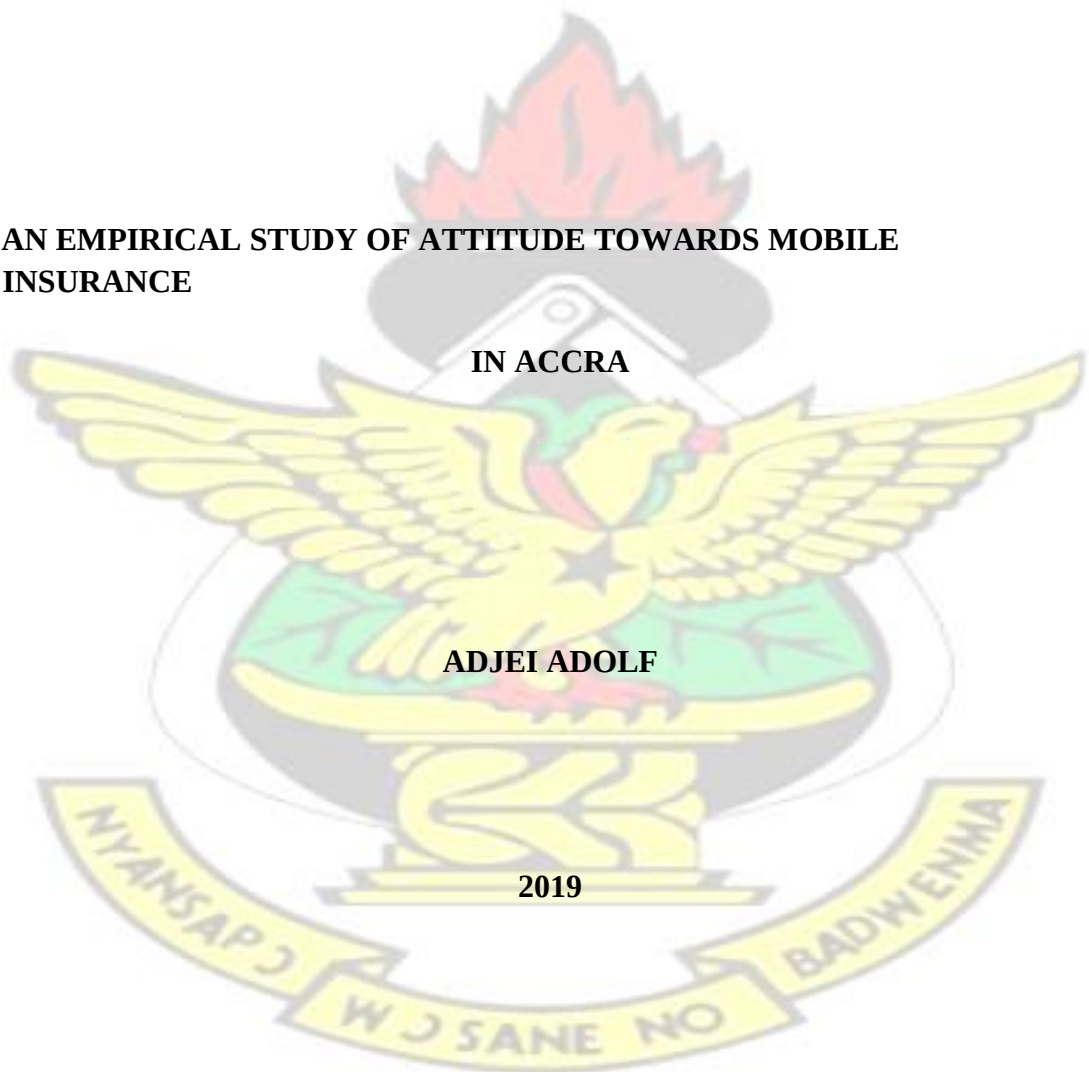
DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE

**AN EMPIRICAL STUDY OF ATTITUDE TOWARDS MOBILE
INSURANCE**

IN ACCRA

ADJEI ADOLF

2019



KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI

COLLEGE OF SCIENCE

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE

**AN EMPIRICAL STUDY OF ATTITUDE TOWARDS MOBILE
INSURANCE IN ACCRA**

By

ADOLF ADJEI

(Bsc Statistics)

A THESIS SUBMITTED TO THE DEPARTMENT OF STATISTICS AND
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AND TECHNOLOGY IN

PARTIAL FULFILMENT OF THE REQUIREMENT FOR AWARD OF

MASTER OF SCIENCE

(APPLIED STATISTICS)

October, 2019

DECLARATION

I hereby declare that this submission is my own work towards the award of the Msc degree and that, to the best of my knowledge, it contains no material previously published by another person or material which had been accepted for the award of any other degree of the university, except where due acknowledgement had been made in the text.

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ABSTRACT

Attitude towards mobile insurance products and services are influenced by socio-economic and background characteristics of the mobile phone users. This study examined possible determinants of attitude towards mobile insurance in Accra. The data for the study was obtained through the use of a questionnaire. Exploratory Factor Analysis (EFA) and Binary Logistic Regression were used to analyze and fit the data for predicting uptake or otherwise of mobile insurance. The findings of the study revealed that there are three main factors explaining the attitude towards mobile insurance products and services in Accra. These factors are the affect (feelings) attitude, cognitive and conative or behaviour. The findings of the study showed the attributes of risk, convenience, price and investment as the main (significant) predictors of attitude toward mobile insurance in Accra. Gender, age, income status, employment status, number of dependents were found to be significant at 5% level of significant as predictors of attitude towards mobile insurance in Accra. It is recommended that the insurance companies on the mobile platform take advantage of the results on the attributes and the socio-economic and background characteristics that influence attitude towards m-insurance to formulate and implement relevant marketing strategies, aimed at improving their existing marketing strategies and most importantly targeting the uninsured.

ACKNOWLEDGEMENTS

In acknowledgement of the special roles performed by the wonderful people who have contributed in diverse ways to the success of this dissertation, I first of all appreciate the motherly contributions of my supervisor, Professor (Mrs) Atinuke Olusola Adebajji, my wife Mrs. Carola Adjei for her patience and understanding.



DEDICATION

I wish to dedicate this work to my wife Mrs Carola Adjei.

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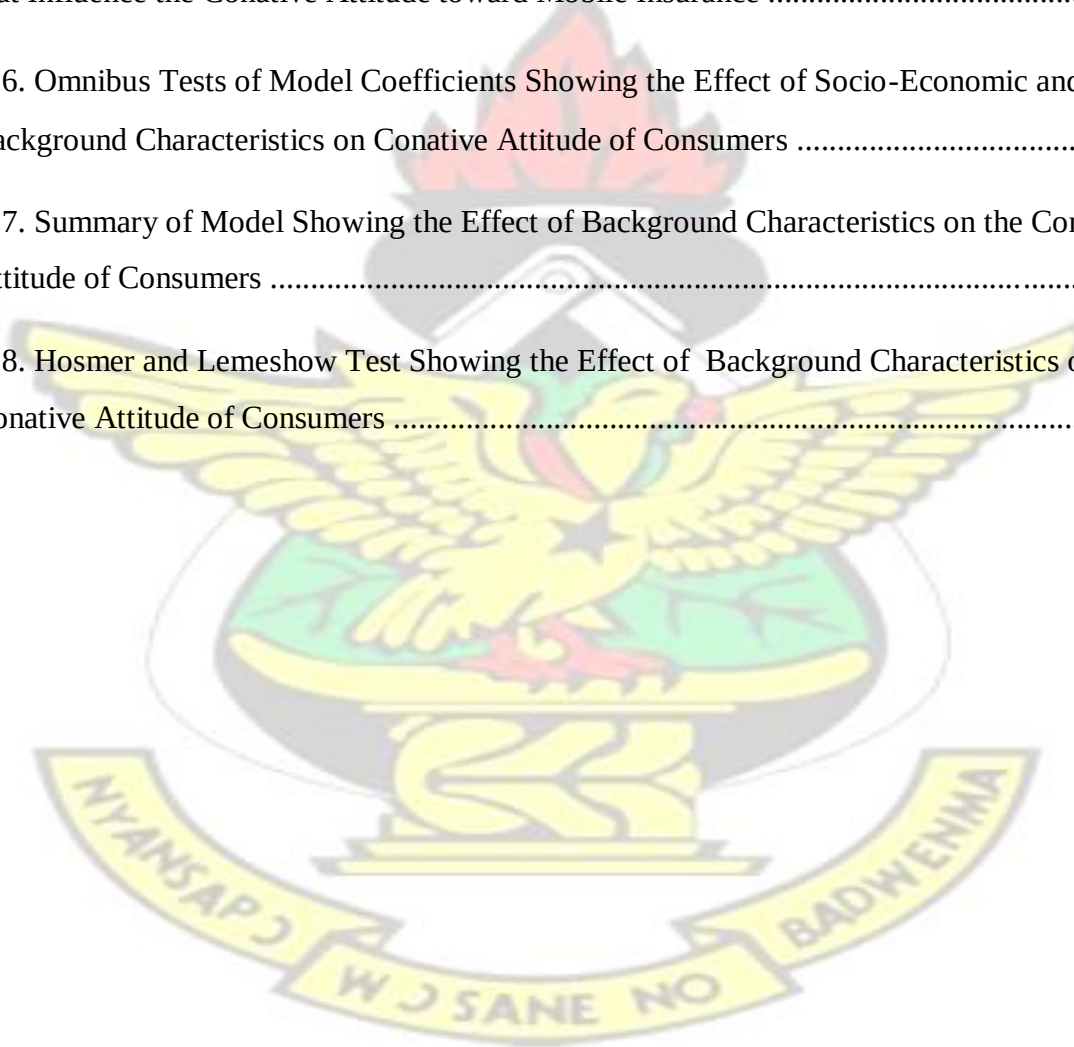
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CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Insurance is essential for every well-performing country or economy. Insurance provides payment to the insured in case of losses due to unexpected outcomes. Thus, insurance gives protection to individual and businesses in a country. Insurance also serves as an avenue for loan as no traditional banking institutions would want to give funds to customers for the buying of capital items (Yusuf, Gbadamosi, & Hamadu, 2009). Insurance products and services have long have the tradition of being offered to people and businesses by walking to individuals and businesses in their workplace and private homes and thoroughly explains the benefits of the products and services to them. This made insurance products among the most tedious items to dispose of on the market, especially in areas where individuals are not enlightened or well educated.

However, technology has made the sale of insurance products and services easy and cost effective. With the advent of technology customers can now be reached on their mobile devices without necessarily walking to them in their businesses or workplaces. Insurance companies take advantage of this technology to make their products gain tremendous benefits. Recently, one of the technologies that most insurance companies are really taking advantage of to market their product is mobile insurance or M-insurance as is usually called. By ensuring a low-value and excessive driven means to make coverage of products and services to be reached by low profits people and consequently giving them the capacity to manage their risks, m-insurance is having a crucial role to play in lowering the financial difficulties in Ghana.

M-insurance is described as any kind of coverage product, wherein mobile distribution avenues are specifically utilized to provide a selected line of insurance products or services or the large parts of the chain to the general public as well as institutions or businesses (National Insurance Commission, 2015). As indicated by the Commission, mobile insurance or m-insurance is either strategic or transactional. Strategic mobile insurance model is where the operators of the mobile networks usually possess and manages the services and give it to the people who use their network, either free or at a cost. On the other hand transactional mobile insurance model is where the mobile network provider only provides the platform for the transaction for the insurance products and services. With this model, the services as well as the products are perceived and branded as a product delivered by the insurance company itself and the only thing the MNO does is to perform a transactional role.

The consumption of insurance products and services has been found to be significantly influenced by the attitudes of the people toward the insurance products or services. Thus, insurance products or services will be patronized if the person feels the need for the products or services or if the person has a positive attitude toward the products or services. Meanwhile, it has been found that the protection of exposure to danger, savings, investing an amount, being able to be reached, quality, convenience, firm belief and the amount of money required and expected are the driving forces of consumption of insurance products and services (Omar, 2007). As noted by Schiffman and Kanuk (2000), attitude is a learning characteristic to act in a reliably good or negative way as for a given item or article. According to Gautam and Kumar (2012) attitude is a theoretical build which speaks to the level of enjoying or detesting by individual towards a specific article or thing.

Thus, the attributes and benefits of an insurance products or services to the individual affect the attitudes of the individual towards these products or services.

Mobile insurance (m-insurance) is very new in Ghana. However, the m-insurance platform has yielded positive results since its launch in 2010 by Tigo, and later in 2011 by MTN. Although, numerous research studies are found in the area of customers' attitude towards insurance products in Ghana, no research studies have been carried out examining attitude towards the mobile insurance platform, especially in Accra. Although, one research study in Ghana was found on mobile insurance, the aim of that study was to look at the risk aspects of the m- insurance and to come out with a model for assessment of m-insurance risk for regulatory purposes. This shows a gap in knowledge on the attitude toward this new insurance services platform. It is in this light that this study is being carried out to examine attitude toward mobile insurance (m-insurance) services in Accra.

1.2 Statement of the Problem

Mobile insurance (m-insurance) is among the effective and innovative ways insurance companies are using to market their insurance products and services. Mobile insurance, where telecommunication networks are specifically engaged to offer at least one products or services of insurance to people and businesses, has become the second to none avenue where insurance products and services are being sold to a larger population in Ghana. Mobile insurance (minsurance) has critical part to play in the Ghanaian insurance sector. According to National Insurance Commission (2015), approximately 60% Ghanaians as of 2014 were insured through mobile insurance.

As a result of its effectiveness in reaching larger population with insurance products or services, other mobile network operations have partnered with some insurance companies, service providers of technology and banks to provide a network for the m-insurance. Mobile money platform operated by the mobile networks has given the impetus for the development of the mobile insurance, since it has provided a platform for either premium payment or the making of claims by the insured. The National Communication Authority (2015), estimated a rate of penetration of 115%, which is about 31.2 million mobile users, as of March 2015.

Today, in Ghana, m-insurance has large coverage with about 2.7 million people covered as of June 2015 through three mobile network operators – Tigo, Airtel, and MTN. There is approximately five million Ghana Cedis paid in terms of premiums as of 2014, and more than 5 million accounts of mobile money were created through five cellular cash services at an active rate of forty percent, with excess rate of 100% penetration of cellular users. Although the mobile insurance (m-insurance) is very new in Ghana, these statistics are overwhelming, which indicates the growth of the m-insurance platform within these few years. This research study sought to identify the determinants of the high patronage of mobile insurance products and services.

1.3 Study Objectives

1.3.1 Main Objective

The main objective of this research is to examine attitude towards mobile insurance products and services in Accra and identify predictive variables that significantly affect attitude toward mobile insurance.

1.3.2 Objective-specific

The objectives that are key and specific to this study are to:

1. Determine the predictors of attitude towards mobile insurance products and services in Accra.
2. Determine the contribution of socio-economic and background characteristics that influence attitude towards mobile insurance in Accra.

1.4 Research Questions

The following research questions are addressed by this research study:

1. What is the attitude towards mobile insurance products and services in Accra?
2. What are the attributes that affects the attitude towards mobile insurance products and services in Accra?
3. What socio-economic and background characteristics that influence attitude towards mobile insurance in Accra?

1.5 Methodology

This study used a primary data, obtained via the use of a “Mobile Insurance Questionnaire”, designed by the researcher. All eligible individuals aged 18-65 years (insurable years) who patronize mobile insurance products and services and live in Accra were interviewed with the “Mobile Insurance Questionnaire”. The two main methods used to analyze the data for the study are the Exploratory Factor Analysis (EFA) and the binary logistic regression model. The EPA was applied to examine the attitude of Ghanaians towards mobile insurance, while the binary logistic

regression was for assessing attributes as well as the socio-economic and background characteristics that influence Ghanaians attitude towards mobile insurance. The R software was used to perform the analysis of the data. A 5% significance level was employed as the criteria edge for rejecting or failing to reject the significance of a statistical test.

1.6 Justification of the Study

This research study seeks to examine the attitude towards mobile insurance products and services in Accra. This result to this study will help to understand Ghanaians attitude toward mobile insurance and insurance in general. This will help stakeholders to formulate insurance policies and that will help address the need of Ghanaians.

This research study will add to the body of information on insurance consumer behavior for products in Ghana. This will assist in finding on the kind and type of attitudes Ghanaians have with respect to the consumption of insurance products, to assist marketers to devise marketing plan for that. The result of the study shall contribute to knowledge in the area of consumption of mobile insurance services for consumers by identifying predictors of mobile insurance consumption from a developing country context.

1.7 Delimitations

This research is on attitude towards mobile insurance (m-insurance) products and services in Accra. The study sought to find out the attributes and the socio-economic and background characteristics that influence the attitude toward mobile insurance products and services in Accra.

The study was conducted among mobile insurance users in Accra. Accra was selected for the study because it has the headquarters of all the registered insurance firms as well as the mobile network operators (MNOs) who provide the mobile insurance services and the platforms.

On the other hand Accra has the highest number of subscribers of mobile insurance in the country.

1.8 Study Limitations

The research has was influenced by the following limitations:

1. The research used primary data collected through the use of a questionnaire. The participants who took part in the study were not controlled as in the case of experimental research and hence the daily routine of the participants was to have had influence on the on the questionnaire response rate and fill out of the items on the questionnaire by the participants. Some of the questionnaire that were retrieved from the participants could not be used because they were half-filled out.
2. Only individuals aged 18-65 years (insurable years) who patronize mobile insurance products and services and live in Accra were eligible to take part in the study. This means that the generalization of the findings of the study must be done with care, as a result of the fact that not all the m-insurance subscribers in Ghana, as well as subscribers of all insurance products and services in Ghana took part in the study.
3. As a result of time and financial constraints this study was limited to only individuals aged 18-65 years (insurable years) who patronize mobile insurance products and services and live in Accra.

1.9 Organization of the Study

In all five chapters are considered in this study. In the first chapter, Chapter 1, the general study background and how it was carried out is presented. It includes a general introduction and background of mobile insurance in Ghana and the world as whole, statement of the problem, the study objectives- both general and specific, the questions to be answered in the research, methodology, justification, delimitations as well as the limitations of the study. In Chapter 2, theoretical review related insurance and mobile insurance, selected research works that are related to insurance consumption, attitude towards insurance, attitude models or theories, and conceptual model are presented. Chapter 3 details the design of the research, the study data and the method of data collection, size of the sample and an in depth explanation of procedures used for the data analysis. In Chapter 4 the data is analyzed and the results presented and explained. Finally, in Chapter 5, the discussions of results, conclusions based on the findings of the study, with recommendations made to answer the problem of the study, are presented.

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CHAPTER 2 **LITERATURE REVIEW**

2.1 Introduction

The literature of the study is reviewed under distinct sub-areas in connection with the main study objectives. This includes: mobile insurance, mobile insurance landscape in Ghana, consumer attitude, consumer attitude models or theories, measuring consumer attitudes, consumer attitude and insurance consumption, conceptual framework and empirical review.

2.2 The Concept of Insurance

Insurance is a contract, called a policy, between an individual and an insurance provider, under which the individual is compensated for certain losses. An individual pay a fee called a premium. In exchange, the insurance company agrees to pay the individual a certain amount of money if the event individual are insured against happens during the term of the policy. Usually, premiums are pooled with those of other policyholders at the insurance company. The money in the pool is then

used to pay policyholders' claims. Many insurance policies include a deductible. That is a portion of the claim that the individual pay up front, before the insurer pays the rest. If an individual pay a higher deductible, the individual premiums may be lower. Other insurance policies do not have a deductible, but have an initial waiting period during which an individual cover the financial costs before the coverage begins (Financial Consumer Agency of Canada, 2017).

Anderson and Brown (2005) opined that under a formal insurance arrangement, each insurance policy purchaser still implicitly pools his risk with all other policyholders. According to the authors, insurance product are for addressing the unexpected events. The two categories of insurance are the obligatory one and the non-obligatory one. Meanwhile, insurance could also be grouped into insurance that are based on life, insurance that are not based on life, and reinsurance. These categories may further be grouped into different insurance products and services including life, accident, fire, and others. The variety of insurance services and products, in combination of modern technology has given birth to the classification of insurance products and services. Basically, there are three main important stakeholders in the insurance business - the customer, who is the insured, the provider, who is the insurer, and the government, who is the regulator. There are other who provide immense assistance to these three stakeholders. They are the actuaries, who use mathematics and statistics to write the insurance policies, and the auditors, who make sure things are done in an orderly manner. (UNCTAD, 2011).

2.2 Ghana's Insurance Landscape

In Ghana, the insurance industry started during colonial rule period, wherein the transaction was carried out via foreign trading firms, who served as the agents of insurance firms located in the

UK and other foreign countries. In the year 1924, the first insurance company, called the Royal Exchange Assurance Corporation was established in the then Gold Coast. Currently, the company operates in the name of Enterprise Insurance, after many change of names. Later, many foreign insurance companies found themselves in Gold Coast, operating under different names. Gold Coast Insurance Company, in 1955, was founded, it became the pioneer of the indigenous company as far as insurance is concerned. The company later changed its name to the Ghana

Insurance Company after independence. The company offered life insurance products to Ghanaians and other African nationals, which previously were sold to only the whites (GIA, 2014).

In 1958 a second local company, Ghana General Insurance Company was established with Ghanaian and American shareholders to underwrite fire and motor insurance business.

The State after independence, in 1958, founded yet again one more company known at that time as Ghana General Insurance Company. It became the second local insurance company in Ghana, offering insurance products and services in fire and motor. Furthermore, in 1962, the State Insurance Corporation was established by an Executive Instrument. The corporation was the amalgamation of the Gold Coast Insurance Company, Ghana General Insurance Company and Co-Operatives Insurance Company. After the incorporation of the State Insurance Corporation by the Executive Instrument, a number of laws were passed to further advance the insurance industry in Ghana. The significant one among them was the NRDC 95, in 1972, which saw the establishment of reinsurance organizations, for the prevention of sending premiums outside the country in terms of reinsurance premiums. Meanwhile, in later years many insurance unions and associations have been formed to champion the industry in Ghana (GIA, 2014).

Currently, as at 2008, there were about 39 insurance companies in Ghana. According to the Business and Financial Times (2009), there were seventeen insurance companies in the life category, and twenty-two insurance companies in the other sector part from life. As at 2016, there were 135 licensed insurance companies in Ghana, comprising of 26 non-life insurance companies, 24 life insurance companies, 5 reinsurance companies, 78 insurance broking companies, 1 loss adjusting company, and 1 reinsurance broker (NIC, 2016).

However, despite the huge increase of number of insurance firms in the country, the penetration has been found to be still very low in the country, with less than 2% (NIC, 2016). According to the NIC conscious efforts should therefore be made to improve the penetration through the encouragement and development of micro insurance as well as the enforcement of compulsory insurances in the country. This submission made by the Commission therefore necessitated the interest in the study of mobile insurance in Ghana and the attitude of Ghanaians toward the products and services provided on the platform.

2.3 Mobile Insurance

Mobile insurance could be defined as any kind of insurance products or services in which mobile distribution networks are engaged to offer specific products and services to the general public, businesses and organizations (NIC, 2015). Mobile micro-insurance on the other hand can be defined as any kind of insurance products which uses the cellular channel, irrespective of whether there is a cellular platform to seek improvement of a section of the various insurance products line, such as the design of the product, pricing, sales, policy, payment of claims (Leach, 2014).

Mobile insurance aims to cover lives and protect the assets of low-income individuals and families from natural disasters, illness, death, accidents and crop failure amongst others. By doing so, it enables low-income individuals to manage their risks better by providing them with a safety net that can stop them from falling back into poverty. It often refers to the subset of insurance products that are characterized by low premiums and low coverage limits, on the assumption that these suit the needs of low-income people (Tellez, 2015).

Mobile insurance can be classified as strategic or transactional, where in the strategic mobile insurance the operators of the mobile networks have the ownership of the insurance products and as a result give them to their customers for free or at a cost. In case of the transactional mobile insurance, the operators of the mobile networks are only used as a platform to offer insurance products and services to customers. In this case the insurance products and services are owned by other stakeholders, such as an insurance company, and all that the network operators do is to provide the platform (NIC, 2013). This model is not popular in the country as due to the little level proportion of penetration and mobile usage as compared to other high penetration countries.

2.4 Ghana's Mobile Insurance Landscape

Mobile insurance in Ghana is an ingenious way of offering insurance products and services to customers and clients as well as to the general public by using mobile telecommunication networks. The sector plays a very crucial and vital role as far as the micro-insurance sector in Ghana is concerned.

2.4.1 Subscribers

National Insurance Commission estimates that as of 2014, there were approximately 60% of people insured through the mobile insurance avenue. The Commission further estimated of about 2.7 million people who were having insurance policy by means of the mobile insurance as of 2015. The three mobile networks – Tigo, Airtel, and MTN were found to be the most used telecommunication networks used for the transaction. In 2014, it was estimated that almost 5 million Ghana Cedis was collected in the form of premium payment. These staggering performance have been achieved as result of the more than 5 million accounts of mobile money, 40% mobile active rate and the over 100% rate of penetration of mobile users (NIC, 2015).

2.4.2 Mobile Network Operators (MNOs)

Presently, two telecommunication networks – Airtel-Tigo and MTN, are the main ones operating mobile insurance networks in Ghana. Airtel-Tigo offer a loyalty-based insurance service to their customers for free. However, customers who spend 5 Ghana cedis in a month is given a life insurance cover for themselves plus a member of the family who is a customer of Tigo. The insurance products the networks provides is being provided by Vanguard Life, with assistance from Bima and Micro Ensure (Tellez, 2015).

MTN, on the other hand, offers opportunity to their customers to purchase life insurance products through the use of their mobile phone. The insurance being sold on their platform is being provided by Hollard Insurance, MicroEnsure and MFS Africa. With this insurance, a customer pays a premium once, and it lasts for one month where another premium is deducted or paid. The

premium cost is low which allows more customers to patronize and as a result more uninsured are given the opportunity to be insured (Tellez, 2015).

2.5 Consumer Attitude

The attitude of consumers is regarded as one of the vital areas of study as far as consumer behaviour is concerned. It forms the bedrock for bringing out innovative products and services, as well as improving the existing ones. The attitude of consumers also helps in coming out with advertising programs, and to be able to predict brand choices and also the general purchase intention behaviour of customers ((Brunel, Tietje, & Greenwald, 2004). Most consumer behaviour studies have paid attention to the structure and determinants of attitude to brand or evaluation, and other techniques such as persuasion, to change the attitude of consumers (Coulter & Punj, 2004; Sengupta & Fitzsimons, 2004). Majority of these studies have been established on the assumption that the attitude of consumers with regards to brands are essential components to their purchase decisions.

The attitude of consumers towards a service, product design, or a brand of product have several definitions by different people in the field of marketing, advertising, purchasing, sales, as well as branding. These definitions although are different, majority of them have come to the agreement that attitude of a consumer toward a product or service is the likelihood of the consumer to respond to the product or the service either in a positive or in a negative way (Schiffman et al., 2010). According to physiologist who specialize in cognition, attitude of consumer toward a product or brand is a combination of different aspects including motivation, emotion, perception, and cognitive processes of the individual. They define consumer attitude to mean how a consumer think, feels and act toward a product or service (Schiffman et al., 2010).

Theorists in human behaviour on the other hand perceive attitude of consumer to be combination of different dimension. They are of the view that the total attitude of the consumer toward a product or service is a combination of the number of beliefs of the consumer toward the product, and how the consumer evaluates the belief to the products or service (Ajzen, 2005). Meanwhile, theorists in consumer behaviour define attitude of consumer to be a predisposition to act in a way favourable or unfavourable to a product or service (Ajzen, 2005). The consumer behaviour theorists are of the opinion that it is how the consumer evaluates the attitude toward the products or service that makes up the consumers' real attitude.

2.6 Consumer Attitude Models or Theories

Several authors (Schiffman&Kanuk 2004; Ajzen 2005; Solomon 2009; etc) have agreed that consumer attitude toward a product or service can be categorized into three distinct areas. They are the *affect* consumer attitude, the behaviour consumer attitude (also known as conation), and the cognition consumer attitude. These consumer attitude have been have found by several researchers to contribute to consumer loyalty.

Affect Consumer Attitude

According to Solomon (2009), the affect attitude of consumer depicts the feelings of the consumer toward the product or service. Schiffman and Kanuk (2004) stressed that these emotions should be evaluated using an assessment of the consumer's emotions. In this regard, a numerical scale of negative and positive feelings could be employed. The emotion of affect usually is as a result of the consumer's inner emotional experiences or outside experiences towards the product or service. For instance a consumer who is already having a positive emotion is likely to have a positive emotion toward a shop, an item or a service.

Behaviour Consumer Attitude

The behaviour consumer attitude has it that the disposition of consumer toward an item is related to the behaviour of the consumer instead of the specific act of the consumer toward the product or service. According to Schiffman and Kanuk, (2004); Ajzen, (2005); and Solomon (2009) researchers focus on the evaluation of the likelihood of the consumer to act in specific way. Behaviour consumer attitude is usually measured by using verbal interrogations to determine the likelihood of a consumer to purchase a products or service (Schiffman & Kanuk, 2004).

Cognition Consumer Attitude

The cognition consumer attitude deals with the consumer's belief towards the products or service (Solomon, 2009). The cognition consumer behaviour is mostly as a result of the consumer's predefined knowledge of the product or service. The predefined knowledge is usually on the characteristics of the product or service. The cognition consumer behaviour of a consumer is measured in research by assessing the characteristics of the product or service that is attracted to the consumer and the characteristics that the consumer think the product or service have (Schiffman&Kanuk, 2004).

2.6 Consumer Attitude and Insurance Consumption

Investment

People see insurance as an investment avenue, where people use it to invest rather than see it as a means for protection against peril (Kasule, 2011). According to Schoemaker 1980, as cited in Kasule (2011), insurance policy is seen as an investment avenue with the aim at maximizing the

payments of claims in the event of the occurrence of a peril. As a result of the fact that event of low probability are not likely to occur, the payback of an insurance policy is very low. This makes most people to insure themselves against events of high probability, with minimum loss (Kunreuther & Slovic, 1978, as cited in Kasule, 2011). Customers normally wants some returns on their investment, so as a result of that they want to invest some dollars with insurance companies so that in case a peril occurs, they will be entitled to a very large amount of premiums (Slovic, 1984, as cited in Kasule, 2011).

Savings

Insurance as a saving tool is obtained when insurance policies covering death as well as saving aspect is bought from an insurance company (Beck & Webb, 2002). These types of policies include but not limited to insurance of term life having a saving component in it (Black & Skipper, 2000). This insurance policy nature usually have greater premiums that usually have a defined component of saving in it (Black & Skipper, 2000). The saving component in the insurance is usually to assist consumers to reserve some amount aside in a systematic manner instead of at a goal (Matul, 2005). The policy holders expects to achieve a regular basis savings for the future, as well as on long term basis (Omar, 2006). The saving components help policy holders not put their hope only on their work pension for their upkeep in the future (Omar & Frimpong, 2006). Although, there are more reasons why people save, such as precautionary motives (Hubbard et al., 1995 as cited in Zakaria, et al, 2016), bequest motives, (Bernheim et al., 1985 as cited in Zakaria, et al, 2016), life cycle motives (Liebenberg et al, 2012) and wealth motives (Canova et al., 2005), policy holders of insurance undertake saving insurance to reduce life uncertainties.

Risk protection

Insurance is a method for managing risk for customers and furthermore plays significant intellectual and public jobs (Black and Skipper, 2000). As Hofstede (1995) as referred to in Kasule (2011) expressed, "the real capacity of insurance is to shield against money related misfortune from loss of property and human life. Other than covering loss of property and life, it additionally covers the risks of inability, basic disease, and superannuation". Insurance is in this way created on the idea of property and human life esteem (Sayin, 2003). Sharma (2005) in an examination into the explanations for the buy of insurance item, found that greater part (93.86%) of the purchasers considered insurance arrangements as basic for risk assurance.

Convenience and Accessibility

Convenience is seen as significant attributes in choosing a service or product. As indicated by Gofton (1995), as referred to in Kasule (2011) convenience is a result of the use of item, and identifies with a limit of shopper in utilizing specific item just as basic time accessible. Be that as it may, convenience isn't just the simplicity of procurement or snappy utilization, it likewise implies sparing of time, physical or mental vitality at least one phases of the general guaranteeing procedure, for example, arranging and buy, overhauling, settling cases and utilization, (Nguyen, 2007).

As shown by Furst et al (1996) as referred to in Kasule (2011) time as noteworthy piece of convenience. Time is also seen to be much of the verbally expressed as product to be used and saved. The straightforward accessibility of insurance is among the wanted insurance advantages that the customers look for and is critical in building up a feeling towards usage (Bank, 2007). The accessibility of insurance online firms and their methodologies has made them continuously

beneficial to the customers. In well to do economies, customers can request, consider and select their insurance preferences through the use of a computer and a mouses(Beck and Webb, 2002).

This has helped the insurance companies to continue to multiply their customers and clients. Online administrations not simply give convenience of receptiveness of insurance administrations, it also give data on the premiums insurance firms offer and which insurance firms give those premiums.

Trust

Trust absence seen in insurance firms to make payment of claims if there ought to be an event of genuine adversity (hazard or mischief), is a champion among the most huge issues raised by experts on insurance usage in well to do countries. Omar (2005) assessed purchasers' attitudes towards calamity security support and found that there is lack of trust in the insurance firms, especially in Nigeria. People do not want to buy insurance on grounds that insurance don't pay claims. Trust in insurance is unusual, and as a result any possible dreadful inclusion with the firms, which might be adequately propagated by the media or verbal, may prevent customers wanting to buy into the products and services from doing so, and this could reduce the market size extraordinarily (Matul, 2005).

Price

The chief insurance advantage in this day and age is the less proportion rate of insurance and the amount to be paid for insurance contract (Economy watch, 2008). As a result when one is choosing an insurance product or service, the first thing one looks at is the rate before going to the other issues or features. The less the proportion of rate of insurance, the greater the insurance of becoming more considerate in attending to the needs of the customers. Of all the advantages that come with insurance the less rate of insurance and premiums are the ones that endear customers to

take up insurance (Gruber, 2008). Customers are usually not prepared and willing to take up insurance that are costly but rather are willing to buy insurance products and services that are less costly and reasonable to them (Gruber, 2008). It is clear that high cost of insurance irritates customers and ward-off customers from taking up insurance. The fact of the matter is that as stated by Chernew et al. (2006) more than 60% of those not taking up insurance over the several past decades is a result of the increasing cost of medical insurance. In this situation, the increasing cost of medical insurance eventually will give rise to less insured ones. However, the rising cost of treating disease should rather prompt for more insurance coverage and not a rather less one. On the other hand, according to Leek et al (2000) and Olsen (2004), salary, family status and other financial factors are not a hinderance to insurance coverage and use. However, as per Verbeke and Vackier (2005) the rising cost of insurance prevents people, even the rich from taking up insurance.

Quality of Service

Kiyak and Pranckevičiūtė (2014) analyzed purchaser's attitude to non-life insurance products and found that shoppers, picking the insurers, focus not exclusively to the cost yet to such factors as brief service, reasonable prepared settlement of claims, the insurance service after the obtaining of insurance, personnel job. Yusufet (2009), Khan and Ghouri (2010), Ulbinaitė (2011), and Petra (201) found that the various variables that influence customer mentality for the purchase of products of insurance include: cost ; the stretch; exchanging charge; standard of service being provided; automatic exchanging; compelling advertising, media inclusion of the reasons for claims rebate, offer augmentation of insurance inclusion. Ahmad & Sungip (2008) in an investigation of service quality in Malaysian insurance industry discovered dependability and responsiveness were

the primary main thrusts of service quality issues since their examination demonstrated that the hole between clients' desire and recognition was most stretched out for unwavering quality, trailed by responsiveness. Their investigation shed some light on the service quality measurements that are basic to the insurance business in Malaysian insurance industry and gave administrative ramifications to overseeing service quality with nation explicit procedures.

Perceived Benefits

The perceived advantages of insurance products are accepted to be one of the principle empowering factors in the utilization of insurance products by customers. A person's decision of conduct depends on the likelihood that an activity will result in a particular outcome. The procedure of buyers' basic leadership on insurance utilization identifies with the outcomes or encounters and fulfillment they see with insurance. Investigation by Limayem et al. (2003) found that perceived outcomes altogether influence a person's frame of mind and expectation buy a product. At the end of the day, an individual may buy an insurance product on the off chance that he/she sees benefits (positive outcomes) or generally on the off chance that he/she sees some significant negative results. Therefore, the requirement for insurance services can prompt an assortment of explanations behind buyer demeanor, including the craving to feel safe and stress over the future, lifestyle, risk decrease or its administration mode, restricting laws and legally binding necessities, or the perspective on insurance as a venture when the speculation of insurance premiums ensures against major budgetary misfortunes later on (Kindurys, 2008).

2.7 Socioeconomic and Demographic Factors and Insurance Consumption

Demographic and socioeconomic factors are basic variables studied in insurance consumption and insurance related studies. Namasivayam et al., (2006), analyzed the socioeconomic factors that are responsible for purchase of life insurance policies and the inclination of the policyholders towards various types of policies. They found that factors such as age, educational level and sex of the policyholders are insignificant, however income level, occupation and family size are significant factors. Skinner and Dubinsky (1984) as referred to in Gautam and Kumar (2012) discovered that employment status of the wife and instruction of the husband discriminate mostly between which family member(s) is responsible for insurance purchasing decision. Other significant variables incorporate wife's educational level, husband's employment status, family income, and husband's occupation.

Gautam and Kumar (2012) found that socio demographic and economic variables have significant effect on Indian consumers' towards insurance services. All the nine variables referenced in the study specifically age, sex, marital status, level of instruction, household month to month income, method of employment, professional tendency, contract property ownership, and insurance approach ownership were observed to be significant so as to measure frame of mind with fluctuating degrees. Jain (2012) found that demographic factors has a critical role to play in the buying decisions of insurance products and services, particularly when the products or services is related to life. According to the author, the influence of economic, social political and legal has a role to play in the purchase decisions as these factors are the deciding factors of the customers' job, age, gender, married status, and salary levels.

Kirigia et al. (2005) discovered through a research on insurance ownership among ladies in South Africa that a favourable correlation is found in the medical coverage consumption as well

as in the various socio-economic and demographic characteristics of South African ladies. Ibok (2012) observed that training increase individuals' capacity to understand the benefits of the management of risk as well as savings as a pre-preventative measure and in this manner increases their risk aversion. Religious faith of the general population have been investigated and found with observational evidence to influence medical coverage consumption (Ibok, 2006; Juetting, 2003). As indicated by Ibok (2006) age has been distinguished as a statistically significant variable and has positive predictions on insurance support. Trujillo (2003), Liu and Chen (2002); Cameron and McCollum (1995) are of the conclusion that couples are bound to purchase insurance inclusion of any sort, and those profitably employed utilized insurance more than the jobless.

2.8 Empirical Review

Kasule (2011) analyzed consumer attitudes, financial literacy and consumption of insurance. The purpose of the study was to look at the degree to which consumer attitudes and financial literacy can clarify insurance consumption in Uganda insurance industry. The study was cross sectional and a structured questionnaire consisting of frame of mind, financial literacy, consumption expectation and consumption was used to acquire information from 118 respondents. The information was broke down using SPSS and regression and correlation analysis was run because of its ability to demonstrate precisely the end result for the conceptual model as various indicator variables are presented. The findings revealed that consumer attitudes and financial literacy are strong predictors of insurance consumption and they represent 34.2 percent of change in consumption. However, consumer attitudes clarified a greater amount of the change in insurance consumption. The findings revealed that consumers had a negative frame of mind towards insurance products as a result of absence of trust and trust in the insurance firms. Prices of

insurance products, overlooking risks and dependence on family and friends for assistance in emergencies are different factors observed to prevent purchase of insurance.

Zakaria et al (2016) led a study in Malaysia to decide the factors that may impact the staff of state funded colleges to purchase or not purchase an ordinary life insurance or Takaful approach. Information gathered was assessed with linear regression as well as Pearson correlation. The findings of the multiple regression analysis demonstrate that "saving motives" had the strongest impact in making a strong purchase expectation among the staff of open higher learning institutions.

Mihaela (2014) inspected the insurance and consumer impression of insurance in the Romanian insurance industry. The researcher found that there are sexual orientation differences in terms of the mentality towards insurance and the level of certainty. It was also discovered that when individuals had insurance, they were slanted to be progressively irresponsible because of data asymmetry that condition their conduct. Money related factor was also observed to be progressively restrictive one in spite of the fact that the respondents had a positive frame of mind towards insurance. It was also discovered that consumers would purchase an insurance because of the sentiment of trust and security that an insurance held creates.

A study was conducted by Yusuf, Gbadamosi and Hamadu in the year 2009 in Nigeria to find out the attitudes of Nigerians towards insurance services. Drawing from hypothetical establishment, the exact study was led among 392 members of people in general – insuring and non-insuring – to check their awareness level and general attitudes towards insurance companies and their operations. The study among others examine the cultural, social, and other circumstance that reflect the attitudes of the Nigreian population towards insurance, as well as their employment status that can have a positive effect on their insurance views. The findings of the study revealed

that demographical factors assume considerable job of changing degrees on attitudes of Nigerians to insurance services. Specifically, age, marital status, educational status, profession, household income - all had significant effect of fluctuating degrees on attitudes towards insurance.

Mahdjour and Benhabib (2017) conducted a study on the effect of sociocultural factors on Algerian consumer's attitude towards insurance services. Demographic, cultural and social factors, were reported as the independent variables while consumers' attitude was used as the dependent variable. The study sampled 260 consumers of insurance products and services from across Algeria, using the survey approach. The data for the study was fitted by applying the Structural Equation modeling (SEM). The results as revealed by the study indicated that religious affiliation of consumers had a negative influence on the purchase decision of insurance products and services. However, family factors were found to have no effect on the purchasing disposition of consumers of insurance products in the Algerian insurance market.

2.9 Conceptual Model/Framework

The establishment of the conceptual model/framework of the study was based on the expectancyvalue model (EV). From the writing review, ten variables/factors with corresponding hypotheses are determined and they are incorporated to frame the research model as shown in Figure 3. The variables/factors are socioeconomic and demographic profiles, perceived benefits, risk protection, savings, investment, accessibility, quality, convenience, trust, and price. From the research model layout, plainly the target of the study is to investigate the attitude of Ghanaians towards mobile insurance, and the factors influencing the attitude towards mobile insurance.

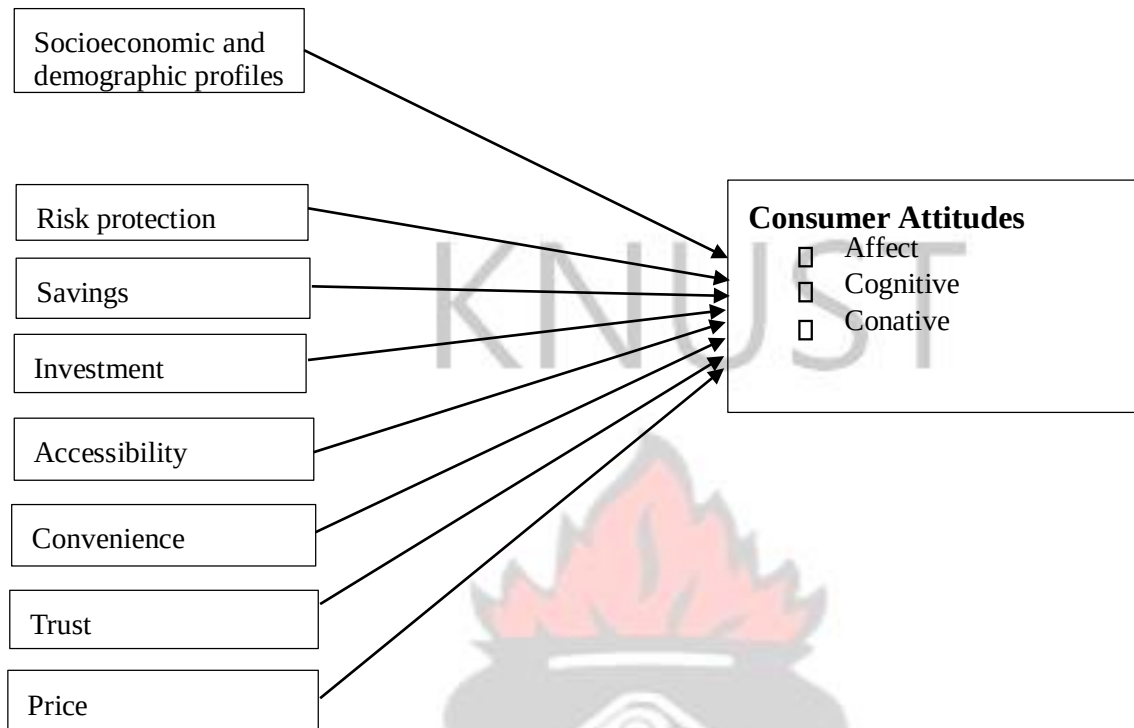


Figure 2.1: Conceptual Framework

CHAPTER 3

METHODOLOGY

3.1 Introduction

The Chapter three – which is the methodology chapter has to do with the method of data collection as well as some statistical tools used in analyzing attitude towards mobile insurance and the factors influencing the attitude of Ghanaians towards mobile insurance. The statistical tools used for this research work include factor analysis and logistic regression model.

3.2 Data Description

This study used a primary data. The data for the study was collected through the use of a “Mobile Insurance Questionnaire”, which was designed by the research. All eligible individuals aged 18-65 years (insurable years) who patronize mobile insurance products and services and live in Accra would be interviewed with the “Mobile Insurance Questionnaire”. The questionnaire contained questions on the socio-economic and demographic characteristics of the individuals - age, gender, marital status, educational status, religious status, occupation type, monthly salary income, number of dependent, geographical location, and the attitude of Ghanaians towards mobile insurance products and services. The respondents (individuals) who had never had an experience with mobile insurance and also below or above the insurable years were excluded from the study.

3.3 Study Design

The sample was selected using a simple random sampling design. A sampling frame consisting of individuals aged 18-65 years (insurable years) who patronize mobile insurance products and services and live in Accra was obtained from the mobile network operators (MNOs) that provide the platform for the mobile insurance. A total sample of 400 individuals were selected for the study, based on the Cochran’s sample size formula for continuous data

$$n = \frac{z^2 s^2}{d^2} = \frac{1.96^2 \times 1.25^2}{(5 \times 0.003)^2} = 400$$

where z is the alpha value; s is the standard deviation; and d is the margin of error

3.4 Data Analysis Methods

There are two main methods that were used in the analysis of the data- factor analysis and binary logistic regression. The factor analysis was used to determine the latent factors explaining the attitude of Ghanaians towards mobile insurance, while the binary logistic regression was applied in predicting the likelihood of signing up for mobile insurance given some determining factors.

3.5 Study Variables

To predict the probability of signing up for mobile insurance given some determining factors, attributes of mobile insurance – risk protection, savings, investment, accessibility, convenience, trust, and price, were selected as the predictor variables, and attitude chosen as the outcome variable. Meanwhile, socio-economic and background characteristics – gender, education, religious status, age, marital status, and employment status were chosen as the predictor variables and attitude was chosen as the outcome variable.

The attributes of risk protection, savings, investment, accessibility, convenience, trust, and price as the independent variable were selected because according to literature, various authors – Kasule, 2011; Beck & Webb, 2002; Black & Skipper, 2000; Nguyen, 2007; Verbeke&Vackier, 2005; and Khan &Ghour, 2010, have found that these variables influence consumers attitude towards insurance products. On the other hand, the socio-economic and background characteristics – gender, education, religious status, age, marital status, and employment status have also been found in literature to effect consumers’ attitude to products and service of insurance.

3.6 Working Definition of Attitude

In this study, the attitude toward mobile insurance was categorized under three main components. The first one was cognitive, the second one was affective, while the third one was conative. The cognitive aspect looked at the response perception as well as the statement of words of the person's belief. The affective or emotional issues includes the perception of insurance product as "good or bad to buy", "wise or unwise to buy", and "useless or important" (Omar, 2005). The affective or emotional part are the thoughtful apprehensive reactions and verbal explanations of conviction (individual's sentiments).

The cognitive traits were the; insurance risk assurance benefits, insurance as a saving avenue as well as insurance as a venture (Kabsule, 2011; Omar and Owusu, 2006; Omar, 2005; Thorsten and Ian, 2002; Black and Skipper, 2000). The behavioral or conative part took a gander at the obvious activities and verbal articulation concerning conduct (behavioral tendencies). The behavioral or conative characteristics of purchasing insurance were the; openness or comfort of insurance administrations, credence and validity of the firms, the cost of items or and administrative information (Omar, 2005).

3.7 Factor Analysis - Exploratory (EFA)

Exploratory factor analysis (EFA) is a generally used and comprehensively connected statistical strategy. An overview of an ongoing two-year time frame in PsycINFO yielded more than 1700 investigations that utilized some type of EFA. Exploratory Factor Analysis (EFA) is an exploratory system connected to a lot of observed variables that tries to discover basic factors (subsets of variables) from which the observed variables were produced (NCSS, 2015). Factor analysis endeavors to speak to a lot of observed variables regarding various 'common' factors in addition to

a factor which is one of a kind to every factor. The common factors (now and again called latent variables) are hypothetical variables which clarify why various variables are correlated with one another; it is on the grounds that they share at least one factors for all intents and purpose.

3.7.2 Exploratory Factor Analysis Model

The exploratory factor analysis may algebraically be presented as shown in (3.1). The variables observed say are, $X_1, X_2, \dots, X_n$, the factors that are common are say, $F_1, F_2, \dots, F_m$ and the factors that are unique are say, $U_1, U_2, \dots, U_n$. The variables may therefore be written in linear form representing the factors as:

$$\begin{aligned} X_1 &= a_{11}F_1 + a_{12}F_2 + a_{13}F_3 + \dots + a_{1m}F_m + a_1U_1 \\ X_2 &= a_{21}F_1 + a_{22}F_2 + a_{23}F_3 + \dots + a_{2m}F_m + a_2U_2 \\ &\vdots \\ X_n &= a_{n1}F_1 + a_{n2}F_2 + a_{n3}F_3 + \dots + a_{nm}F_m + a_nU_n \end{aligned} \quad (3.1)$$

Any of these linear functions is seen as a regression function; and as a result exploratory factor analysis aims to determine the coefficients, which greater gives the observed variables in each of the observed factors. The coefficients are weights just as the weights in regression analysis, and therefore interpreted in like manner. However, the coefficients are termed as loadings in exploratory factor analysis. In equation (3.1) above, a_{12} is the factor loading for variable X_1 on F_2 whereas, a_{22} is the factor loading for variable X_2 on F_2 , and so on.

3.5.3 Assumptions of Exploratory Factor Analysis

- Factor analysis depend on the correlation matrix, as a result the variables should be measured on interval or ratio level.
- As indicated by Field (2000), the measured variables should come from normal distribution; which enables generalization of results.
- Moore and McCabe (2002) are of the view that the sample size should also be considered, when conducting exploratory factor analysis. The sample size could have a heavy impact on the exploratory factor analysis reliability (Field 2000). Field (2005) after review on many suggestions about the sample size necessary for factor analysis concludes that over 300 observations are adequate but the communalities after extraction should be above 0.5.

3.5.4 Exploratory Factor Analysis Procedure

Exploratory Factor Analysis (EFA) includes four main procedures:

- First, computing the correlation matrix.
- Second, extracting the factors.
- Third, rotating the factors to make them easier to interpret.
- Fourth, calculating factor scores.

3.5.5 Correlation Matrix

Exploratory factor analysis is performed by inspecting the example of correlations (or covariance) between the observed measures. Measures that are profoundly correlated (either emphatically or adversely) are likely impacted by similar factors, while those that are generally uncorrelated are likely affected by various factors. So the beginning stage of Exploratory Factor Analysis is to

process correlation matrix, in which the intercorrelations between the examined variables are introduced. The dimensionality of this matrix can be diminished by "searching for variables that correlate exceptionally with a gathering of different variables, however correlate in all respects severely with variables outside of that gathering" (Field 2000). These variables with high intercorrelations could well quantify one fundamental variable, which is known as a 'factor'. The correlation matrix of the exploratory factor analysis is found by figuring the correlation correlations between each pair of the variables. At the point when the information are fitting, the correlation matrix can be processed utilizing the equation

$$R = \frac{1}{n} X_s' X_s \quad (3.2)$$

where $X_s = C'D^{1/2}$ with $C = I_n - \frac{1}{n} \mathbf{1}\mathbf{1}'$ denoting a centering matrix, and $D = \text{diag}(s_1, s_2, \dots, s_p)$ denoting a diagonal scaling matrix. The correlation matrix becomes a symmetric array of numbers, with the element of the diagonal of the correlation matrix being 1. Hence, the correlation matrix can be presented in the form of an n variables by n variables matrix such as shown

$$R = \begin{bmatrix} 1 & r_{12} & \dots & r_{1p} \\ r_{21} & 1 & \dots & r_{2p} \\ \vdots & \vdots & \ddots & \vdots \\ r_{p1} & r_{p2} & \dots & 1 \end{bmatrix}$$

$$s_{jk} = \frac{\sum_{i=1}^n (x_{ij} - \bar{x}_j)(x_{ik} - \bar{x}_k)}{\sqrt{\sum_{i=1}^n (x_{ij} - \bar{x}_j)^2} \sqrt{\sum_{i=1}^n (x_{ik} - \bar{x}_k)^2}}$$

where, $r_{jk} = s_{jk}$ is the Pearson correlation coefficient $(x_{ij} - \bar{x}_j) / \sqrt{\sum_{i=1}^n (x_{ij} - \bar{x}_j)^2}$

between x_j and x_k . The values of the diagonal of the correlation matrix, are 1s, with respect to principal component analysis (Yong and Pearce, 2013). Regarding the correlation matrix, two things are significant: the variables must be intercorrelated, yet they ought not to correlate too exceptionally (outrageous multicollinearity and singularity) as this would cause troubles in deciding the one of a kind commitment of the variables to a factor (Field, 2000). In matrix documentation, exploratory factor analysis can be portrayed by the condition

$$R = PCP' + U^2 \quad (3.3)$$

as, R = coefficients matrix, P = loading matrix, C = correlation the matrix among common factors, and U^2 = unique variances (as indicated in McDonald, 1985, and as cited in Yong and Pearce, 2013).

3.5.6 Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin Measure

Given that the diverse starter conditions are sensible, a p by p ordered zero matrix of correlation is prepared from the data. Because the methodology is exploratory, a beginning feature is to take a look at the factorability of R , to confirm that the structure among the variables is alright for the progress of the investigation. This phase is defended as various assessments have seemed interpretable yet outlandish results have been conveyed from absolutely selfassertive data (as indicated in Gorsuch, 1983, as referred to in Hill, 2011). A glance audit of the ordered zero matrix of correlation coefficients among the factors offers a supportive hint of the factorability of R .

Exploratory Factor Analysis may not be a fitting methodology as far as majority of the correlations values are less than .30, as indicated by Tabachnick and Fidell (2001). Bartlett's (1950) preliminary test of sphericity is an estimation which we use to assess whether the correlation matrix

is factorable. This estimation tests the conjecture that the correlation matrix is equivalent to a matrix of identity. Regardless, this test is known to be unimaginably unstable and should be used with just tolerably little sample of data (Tabachnick and Fidell, 2001).

Kaiser (1981) in alluding to the psychometric problem of factorability, instead used the term sampling adequacy to define the situation of finding the variables appropriate to identify the important basic structure of the matrix. The Kaiser-Meyer-Olkin measure of sampling adequacy is an index that compares the sizes of the observed correlation coefficients to the sizes of the partial correlation coefficients. The KMO test value is computed by

$$KMO = \frac{\sum \sum r_{ij}^2}{\sum \sum r_{ij}^2 + \sum \sum q_{ij}^2} \quad (3.4)$$

The numerator is the sum of all of the squared correlation coefficients. The denominator is the sum of all of the squared correlation coefficients plus the sum of all the squared partial correlation coefficients. When the KMO figure is determined, it should then be contrasted with some measure. A couple of sources such as Tabachnick and Fidell (2001), and Mulaik, (2010) suggest that a KMO value of atleast .60 is demonstrative of factorability. Be that as it may, the .60 is a discretionary, which has no statistical support. Hence, Kaiser initially suggested that the standard measure for factorability ought to be .50 in light of the fact that a KMO of that worth would infer $\sum \sum r_{ij}^2$ $\sum \sum q_{ij}^2$ (as indicated in Cerny and Kaiser, 1970, and as cited in Hill, 2011).

3.5.7 Factor Extraction

Factor analysis is based on the ‘common factor model’ which postulates that observed measures are affected by underlying common factors and unique factors, and the correlation patterns need to be determined. Once it has been established that linearly the variables have relationship with each other, as depicted in the correlation matrix, we are ready to look for factors that explain the observed correlations. According to Watson (2017), there are a number of factors extraction techniques available. They include principal components analysis, unweighted least squares factoring, generalized least squares factoring, maximum likelihood factor extraction, principal axis factoring (PAF), alpha factoring, and image factor extraction. However, principal components analysis and principal axis factoring are used most commonly in studies (Tabachnick and Fidell 2001; Thompson, 2004; Henson and Roberts, 2006). At the point when multivariate normality may be risky, the PAF approach is liked. Moreover, when analysts are hoping to recognize latent factors fundamental variables in the investigation, the PAF extraction technique has been appeared to produce dependable solution whether communalities are high or low (Kahn, 2006).

Principal Component Analysis (PCA) Extraction Method.

The least complex technique for factor extraction is the principal components analysis. Principal components analysis of a correlation matrix is frequently the beginning stage for factor analysis notwithstanding when different strategies are utilized to extricate the last factors. In principal components analysis, linear combinations of the observed variables are shaped. The primary principal part is the blend that represents the biggest measure of variance in the sample. The second principal segment represents the following biggest measure of variance, and is uncorrelated with

the first. Progressive components clarify dynamically littler parts of the all-out sample variance, and all are uncorrelated with one another (Norusis, 2009).

Principal axis factoring.

Principal axis factoring is fundamentally the same as principal components analysis, then again, actually the diagonals of the correlation matrix are supplanted by assessments of the communalities, dissimilar to in principal components where the underlying communalities are every one of the 1. At the initial step, squared numerous correlation coefficients are utilized as beginning assessments of the communalities. In view of these, the imperative number of factors is removed. The communalities are re-assessed from the factor loadings, and factors are again extricated with the new collection gauges supplanting the old. This proceeds until irrelevant change happens in the commonness gauges. This proceeds until unimportant change happens in the collection gauges (Norusis, 2009). Principal axis factoring is prescribed when the information damage the suspicion of multivariate normality (Costello and Osborne, 2005).

3.5.8 Factor Numbers to Extract

The most critical advance in exploratory factor analysis concerns the best possible amount of factors to separate for a particular data, as indicated by Hayton, Allen, and Scarpello (2004). As exploratory factor investigation is fundamentally a movement in miserliness, the amount of elements to remove is ideally not exactly the amount of watched factors. However this stinginess must be tempered with credibility. In spite of the fact that an answer with just a couple of factors is looked for, Fabrigar et al., 1999, as referred to in Hill,

(2011), reported that there must in any case be sufficient factors so as to sensibly represent the correlations of the variables. Henceforth, over-extraction and under-extraction can both affect an answer (Fava and Velicer, 1996, as referred to in Hill, 2011).

Regardless, it has been seemed different Monte Carlo research ponders that isolating too small factors is by a wide edge the more harmful circumstance since it can twist those components that have been held (Gorsuch, 2003). A number of systems are there for choosing the most appropriate number of elements to remove for a given watched dataset, going from the measurable to the just visual.

Percentage of Variance Explained.

The first step in choosing what number of factors to keep is to take a gander at the percentage of the total variance in the sample explained by every one of the factors. Velicer et al., (2000), opined that this strategy relies upon the model of the component matrix, so the method begins by extricating the orchestrated arrangement of all eigenvalues of p from the correlation matrix that is not unreduced by the method. The eigenvalue represented by (d_j) , in this case, is proportional to the total of the squared loadings for a given part of the component from the underlying (unrotated) enhanced arrangement. It in this manner speaks to the measure of difference in the arrangement of all p factors that can be associated with the given part of the component. Because of the fact that the component are removed from the correlation matrix with a diagonal matrix of ones, the total variance suggests the aggregate of the variance of all p variables observed in the matrix. Tolerating that the factors are of truly standard, the total variation will at that point ascend to p , the amount of variables. In this line, the proportion of variance removed for a solution including the first t components is represented by

$$P_t \leq \sum_{j=1}^t d_j \quad (3.5)$$

Kaiser Greater-Than-One Rule Criterion. Another criterion, named the Kaiser-greater-than-one criterion, gives an indication that just factors that account for variances greater than 1 ought to be incorporated. Kaiser (1960) as referred to in Watson (2017) is of the opinion that just those factors with eigenvalues greater than 1.0 ought to be maintained for interpretation. Eigenvalues indicate the information contributed by a specific factor. The freedom to maintain 1.0 as the criterion might appear to be a random choice, however, according to Nunnally and Bernstein (1994) the greater-than-one criterion depends on the conviction that factors must account for at least as much variance as any individual variable. Since the normal of all eigenvalues is one, those factors with eigenvalues greater than unity are for factors accounting for a larger than normal percentage of the communal variance and should there be maintained.

Scree Test Plot. Another approach used by authors has to with scree test (Cattell, 1966), which includes constructing a plot of extracted factors against their eigenvalues in slipping request of magnitude (DeVellis, 2012). The scree plot begins by arranging set of eigenvalues belonging to p that were obtained from the matrix of correlation that was not reduced. The values are plotted on the graph with the eigenvalues on the y-axis and the components or the number of factors on the x-axis. When this is done, the authors look for a gap, or elbow, where the steep slope of bigger eigenvalues closes and the trailing off of littler eigenvalues starts. Factors found at the left of the breakpoint are maintained while those to the right are discarded (as indicated in Cattell and Jaspars, 1967, and also cited in Watson, 2017).

3.5.9 Rotation of Factors

The first factors extracted and maintained using the procedures explained above are usually cumbersome for interpretation. In order to solve this issue, analysts will rotate these factors to increasingly alluring positions to boost high loadings, limit low loadings, and create the easiest possible factor structure (Dimitrov, 2012). In a perfect world, a simple structure would rise in which every item has a loading of 1.0 on a solitary factor and a loading of 0.0 on some other factors inferred. Since this situation is more aspirational than plausible, the objective of factor rotation is to get the nearest value to the simple structure as could be expected under the circumstances. This reduced structure is shown in the factor-loading matrix. This procedure was initially propounded by Thurstone (1947) and Cattell (1978), who considered it to be a method for simplifying factor structures in order for more dependably interpreted, just as DeVellis (2012) and Hair, (Anderson, Black, and Babin, 2010), who perceived its ability to create a theoretically increasingly significant factor solution.

Basically, two main kinds of rotational arrangements are there. We have the orthogonal as well as the oblique rotation methods. Despite the fact that these two rotation methodologies have altogether different basic suspicions, they share a similar generally speaking objective of looking for a basic structure (Pett et al., 2003). In an orthogonal rotation, factors are thought to be measurably free of each other; in this manner, factors are kept in a fixed position, opposite to each other, and the recently turned factors likewise are relied upon to be uncorrelated (Watson, 2017). In this way, in orthogonal rotation the factors are turned 90° from one another. Three regular orthogonal rotation calculations are varimax, quartimax, and equamax. Of the three, the varimax choice is the most broadly utilized, as it expands the change over all factors (Dimitrov,

2012) and is most effectively deciphered (DeVellis, 2012). In any case, when the analyst presumes that the substance being contemplated contains a solitary generally factor, quartimax and equamax may be increasingly suitable decisions.

Oblique rotation saves the communalities of the factors, so as the orthogonal rotation method. At the point when oblique rotation is utilized, notwithstanding, the factor loading and factor structure matrices are never again indistinguishable (Norusis, 2009). The choice of an oblique rotation technique results in the generation of three factor matrices: a factor design network with the loadings that relate the factors and the factors, a factor structure framework with the relationship coefficients between the factors and the factors, and a factor connection grid which tells how much factors are corresponded (Watson, 2017). Two oblique rotation calculations are direct oblimin and promax. Of these two methodologies, direct oblimin is the one most utilized by scientists. Eventually, the criteria for the reasonable rotation technique to utilize relies upon the estimated relationship expected among the factors and ought to have convincing proof (i.e., hypothesis, inquire about). Running numerous investigations utilizing both oblique and orthogonal rotations to locate the best fit is viewed as poor practice, as these choices ought to be made prior to performing the factor analysis (Watson, 2017).

3.5.10 Evaluation and Interpretation of Factors

When factors have been pivoted and the nearest guess to the straightforward structure has been resolved, the researcher can start settling on items to each of the factor. A few criteria exist for deciding if to incorporate or evacuate a thing dependent on statistical result. To begin with, the researcher ought to analyze the communalities of every factor. Communality figures demonstrate the measure of fluctuation in every factor clarified by the removed factors. Issues exist when

communality figures are either excessively high or excessively low. Communality figures equivalent to or surpassing 1.0 regularly demonstrate a circumstance where the researcher either separated such a large number of factors or the underlying sample from which information were gathered was excessively little. At the point when communality figures are near zero, the related variable may be an anomaly and diverting from the model. Communality figures somewhere in the range of .40 and 1.0 show that these factors ought to be held, as a significant part of the regular change in them can be clarified by the separated factors (Pett et al., 2003).

Next, the researcher ought to translate the factor loadings related with every factor. For orthogonal rotations, the factor design lattice ought to be analyzed. Albeit no firm model establishing a solid loading exists, a general rule utilized is for factors to stack on a factor when their factor loading is more noteworthy than .32 (Tabachnick and Fidell, 2013). Factors with loadings under .32 ought to be erased from the factor. At the point when a variable loads unequivocally on at least two factors (i.e., crossloading) the variable ought to be doled out to the factor related with the most astounding loading, expecting that factor loading is no less than .10 more prominent than the following most noteworthy loading for the variable; generally the variable is expelled from all factors (Tabachnick and Fidell, 2013). This progression builds up discriminant legitimacy for each factor. The items that has problems with loadings ought to be disposed of each one in turn, with another factor solution pursued at every end, as model parameters will change (Pett et al., 2003).

Notwithstanding analyzing factor loadings, researchers likewise should take a gander at the squared loading estimations of every factor. Squared loading figures speak to the measure of change every individual variable adds to the factor on which it loads. Despite the fact that factors

with less than three factors loading on them ought to be dropped from further investigation (Pett et al., 2003), Mvududu and Sink (2013) recommended 4 to 10 things for each factor to be an increasingly sensible sum. Analysts should take note of that factors can't rise except if fitting items were made and are incorporated (Lambie et al., 2017, and Peterson et al., 2017). Therefore, researchers should give cautious thought to the choices made with respect to the consideration and evacuation of individual factors.

In the wake of loading factors on factors, subsequently uncovering the interior structure of the test, the researcher can start naming the factors. The naming of factors is an abstract procedure and researchers ought to deliberately survey the factors on each factor to guarantee that the factor they make enough portrays the data evaluated by every factor.

3.5.11 Computation of Scores of Factor

A factor score can be viewed as a variable portraying how much a respondent would gain on a factor. There are a few techniques for assessing factor scores. The three strategies for the most part utilized by specialists are the regression, Anderson-Rubin, and the Bartlett. Each of the three outcomes in scores with a mean of 0. The Anderson-Rubin strategy dependably delivers uncorrelated scores with a standard deviation of 1, regardless of whether the first factors are connected. The regression factor scores have a fluctuation equivalent to the squared different relationship between the assessed factor scores and the genuine factor values. Regression strategy factor scores can be corresponded notwithstanding when factors are orthogonal. Bartlett factor scores limit the total of squares of the special factors over the factors. They can likewise be connected when factors are orthogonal. The technique that you pick will rely upon your

examination question, however the Bartlett strategy is the most effectively comprehended (Tabachnick and Fidell, 2007). The factor score for case j for factor k is

$$\hat{F}_{jk} = \sum_{i=1}^p W_{ji} X_{ik} \quad (3.6)$$

Factor scores can be treated as variables for further statistical analyses of variables (e.g., ANOVA) or can be used to overcome the issue of multicollinearity as uncorrelated variables can be produced.

3.6 Logistic Regression

Logistic regression once in a while called the logistic model or logit model, breaks down the connection between different independent variables and a categorical dependent variable, and appraisals the likelihood of event of an occasion by fitting information to a logistic curve. Generally, logistic regression are of two categories – binary logistic and multinomial. The binary is for two dichotomous outcome variables, while the multinomial is for more than two dichotomous variables (Hyeoun-Ae, 2013).

3.6.1 Logistic Regression Model

Regressions involving logistic curve work with odds rather than proportions. The odds are simply the ratio of the proportions for the two possible outcomes. If p is the proportion for one outcome, then $1 - p$ is the proportion for the second outcome:

$$\text{ODDS} = \frac{p}{1 - p} \quad (3.7)$$

In simple linear regression we model the mean μ of the response variable y as a linear function of the explanatory variable: $\mu = \beta_0 + \beta_1 X$. With logistic regression we are interested in modeling the mean of the response variable p in terms of an explanatory variable X . We could try to relate p and X through the equation $p = \beta_0 + \beta_1 X$. Unfortunately, this is not a good model.

As long as $\beta_1 \neq 0$, extreme values of X will give values of $\beta_0 + \beta_1 X$ that are inconsistent with the fact that $0 \leq p \leq 1$. The logistic regression solution to this difficulty is to transform the odds

$(p_k / (1 - p_k))$ using the natural logarithm. We model the log odds as a linear function of the explanatory variable

$$\text{Logit}(y) = \log \frac{p_k}{1 - p_k} = \log \frac{p_k}{1 - p_k} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k \quad (3.8)$$

Where p = the probability of outcome, X = the independent variable. This is the simple logistic model. Taking the antilog of equation (3.8) on both sides, one can derive an equation for the prediction of the probability of the occurrence of interested outcome as

$$\hat{p} = E(y) = \frac{\exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}{1 + \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)} \quad (3.9)$$

where

² if exposed to outcome variable y

³ if not exposed to outcome variable

$$1 + \exp(\beta_0 + \beta_1 x_1)$$

Now, extrapolating the simple logistic regression to multiple explanatory variables, the logistic regression model can be written as

$$p^k = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)} \quad (3.10)$$

where k is the index of the k th parameter estimates associated with the k th predictor. Once we have estimated the parameters of the model we can back-transform to obtain estimates for p^k using

$$\hat{p}^k = E(y) = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}$$

$E(y) = p^k$ (If exposed to outcome variable) =

$x_1, x_2, \dots, x_k$ are numeric or categorical predictors.

3.6.2 Least Squares Estimation of Logistic Regression

One technique for fitting the logistic regression model includes a change on the mean reaction

$E(y)$. In binary logistic regression, the response, $E(y)$, where π = the probability that $y = 1$.

The binary logistic regression model is then given by

$$\pi = \frac{\exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}{1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}$$

which implies that

$$\ln \frac{\pi}{1 - \pi} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$$

Set

$$\ln \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

The changed binary logistic regression model written as

$$p = \frac{\exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)}{1 + \exp(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k)} \quad (3.11)$$

is in this case the linear in the β 's, which can be analyzed by using the least squares procedure.

Because of the fact that $\Pr(y=1) = p$, and also $\Pr(y=0) = 1-p$, hence this relation holds

$$\frac{\Pr(y=1)}{1 - \Pr(y=1)} = \frac{p}{1-p}$$

This relation is called the odds of the events, $y=1$ occurring.

3.6.3 Interpretation of Parameters in the Logistic Regression Model

$$\ln \frac{p}{1-p} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

where

$$\ln \frac{p}{1-p} = \ln \frac{P(y=1)}{P(y=0)}$$

$P(y=1)$

β_i represent a change in log-odds for a one-unit change in x_i , where all other remaining x 's are

fixed.

$e^{\beta_i} - 1$ represents a percent change in odds for a one-unit change in x_i , where all other remaining x 's

are fixed.

(Source: William and Terry, 2003)

3.6.4 Odds Ratio (OR)

The regression coefficient in the population model is the $\log(OR)$, hence the OR is obtained by exponentiating β_i ,

$$OR = \exp(\log OR) = \exp(\beta_i) \quad (3.12)$$

The OR can be used to determine whether a particular exposure is a risk factor for a particular outcome, and to compare the magnitude of various risk factors for that outcome.

- If β_i is positive, the odds ratio is greater than 1, which means that the odds of the event are increased.
- If β_i is negative, the odds ratio is less than 1, which means that the odds are decreased.
- If β_i is 0, the factor equals 1, and the odds are unchanged

3.6.5 Postulations of Logistic Regression

The logistic regression is not of the same postulates as of the least squares ordinary regression— especially with respect to linearity, normality, homoscedasticity, and measurement level. Right off the bat, it needn't bother with a straight line between the two variables – predictors and outcome variables. The regression – logistic, can deal with a wide range of connections, since it applies a non-direct log change to the anticipated chances proportion. Besides, the independent variables don't should be multivariate ordinary – albeit multivariate normality yields a progressively steady arrangement. Additionally the mistake terms (the residuals) don't should be multivariate regularly circulated. Thirdly, homoscedasticity isn't required. The regression excludes the testing of heteroscedasticity of the variance, to ensure constant variance, as in the case of the least squares regression. In conclusion, the regression can be used for all the four levels of measurements of variables - ordinal and nominal, interval and ratio, as predictor variables. That is unlike the least regression could table any of the four levels of measurement, without necessarily have to be interval or ratio.

Be that as it may, some different suppositions still apply (Bewick, Cheek, and Ball, 2005; Peng and So, 2002). The regression ought to have the predicted variable as dichotomous while that of the ordinal type of regression ought to have the predicted variable as ordinal variable. Changing ordinal or scaled one to dichotomous one will results in ahuge loss of amount of information, and hence is not advised when carrying out logistic regression.

Likewise, as a result of the fact that the regression anticipate that $P(Y=1)$ be the likelihood of occurrence of an event, it will be fundamental for the result variable to be given a code as necessities be.

Thirdly, the regression model should be precisely fitted to the data. There should not be any room for over as well as under fitting. In other words, it is only the noteworthy factors that should be considered, although all the initial variables ought to be incorporated. A more convenient and a better way to deal with this to use step-wise regression method or the use of chi-square to the test the significance of the variables to be included in the regression model.

Fourthly, the regression anticipate that the predictors should be related in a straight line, and as well as the odds of the log. Although it is not a requirement for the predicted variables to be in a straight line relationship, it requires that the predictor variables be in a straight line relationship, as also in the case of the log of the odds. When linearity assumption of the predictors is violated type I and type II errors may be committed. To solve this problem include the categorizing the predictors, the transformation of the scaled variables into categorical ones, and the utilization of discriminant analysis.

Finally, the regression should have a quiet more sizes of samples. Since maximum likelihood estimates are not as powerful as the least squares regression, where the OLS needs 5 members for each predictors in the examination, ML will require something close to 10 members for each indicator variable. Meanwhile, a few data analysts suggests something like 30 members for every parameter to be assessed.

3.6.4 Diagnostics of the logistic Regression Model

Subsequent to evaluating the regression equation parameters utilizing ML estimation technique, a careful assessment of the variables concerning anticipating the outcome variable is required. There are various approaches which could be utilized to do the evaluation. Harrell (2001) suggested the use of deviance, likelihood ratio, Wald test and score test.

Deviance

The deviance is computed and interpreted by comparing the model with the predictors (full model) and the model without the predictors (null model). The log-likelihood function on which the deviance is computed and assessed is given as;

$$-2 \sum_{i=1}^n \{y_i \ln[\pi(x_i)] + (1 - y_i) \ln[1 - \pi(x_i)]\} \quad (3.13)$$

Assessment should be made between the saturation and the present models. The model of saturation is one that has the same number of parameters as the quantity of information focuses while the present model is that of the variables in the sample only. The current to present model represented by the ratio of likelihoods as shown in equation 3.14.

$$D = -2 \ln \frac{\text{Likelihood of the saturated model}}{\text{Likelihood of the current model}} \quad (3.14)$$

Combining the two equations (3.13) and (3.14), the test statistic can be obtained to be

$$-\frac{1}{n} \sum_{i=1}^n \left[x_i \ln(x_i) + (1-x_i) \ln(1-x_i) \right] \quad (3.14)$$

$$D = -2 \sum_{i=1}^n y_i \ln(y_i) - \sum_{i=1}^n (1-y_i) \ln(1-y_i) \quad (3.15)$$

Hosmer and Lemeshow (2000) pointed out that the deviance measures the goodness of fit of the model, as in the case of the sum of squares residual in least square regression.

Logistic Regression R-Square

Not at all like linear regression where the r-square measures the variation in the predicted that is accounted for by the predictors, r-square in this particular regression has different interpretation as indicated by (Harrell, 2001). Cox and Snell estimates the R^2 in logistic regression using the equation:

$$R^2 = 1 - \frac{LL_0}{LL_k} \quad (3.16)$$

where

LL_0 = loglikelihood of null model, LL_k = loglikelihood of present model. The figure cannot be

equal to 1 as a result the Nagelkerke formula made an improvement for the value to attain 1. The

Nagelkerke formula is shown as:

$$R^2 = \frac{1 - \frac{LL_0}{LL_k}}{1 - \frac{LL_0}{LL_0}}$$

$$R^2 = 1 - \frac{2(LL_0 - LL_k)}{n} \quad (3.17)$$

LL_0 = loglikelihood of null model, LL_k = loglikelihood of present model (Hosmer and Lemeshow, 2000).

Test of Likelihood Ratio

This test computes all the variables that are significant in the regression equation. The test statistic of the likelihood ratio test for the logistic regression is shown as:

$$-2 \ln \frac{L_0}{L_1} = -2 \ln \frac{\ln(L_0)}{\ln(L_1)} = -2 \ln \left(\frac{L_0}{L_1} \right) \quad (3.18)$$

L_0 = maximum value for the likelihood function of a null model, L_1 = maximum value for the likelihood function of a current model. According to Hosmer and Lemeshow (2000), the full model will have every one of the parameters whereas the null model has a single of the parameters excluded from the model to test its relevance in the model. Prempeh (2009) pointed out that the test has a chi-square distribution and therefore the significance of the test is known by examining the chi-square test results.

Hosmer – Lemeshow Goodness-of-fit-test

This test statistic as indicated by Hosmer-Lemeshow is used to assess the fit of the logistic regression model. The test is performed by comparing the values of the predicted variables and that of the real estimations of the outcome variable. Strategically, the test has similarity with the chi-square goodness of fit. Hosmer-Lemeshow goodness-of-fit test is determined utilizing the formula;

$$\text{Hosmer-Lemeshow Test} = \sum_{i=1}^n \frac{(O_i - \hat{\pi}_i)^2}{\hat{\pi}_i(1 - \hat{\pi}_i)} \quad (3.19)$$

n_i is the quantity of observations belonging to group i

O_i is the outcomes observed in the group i .

Akaike's Information Criterion (AIC)

The AIC computes the relative importance of a model. AIC is usually used to select a better model. However, its usage is meaningless when it is alone as it does not have any theoretical or hypothetical background except in finding out which model is better. Hence, it is used in comparison with other models. AIC is computed by using the formula:

$$AIC = -2L(\hat{\beta}) + 2(p) \quad (3.20)$$

p is the number of parameters including 1, L is the models' log-likelihood. Meanwhile, statistic give reward for a good fit and punishes for fitting excessively. The model with the least value of AIC will be the choicest one.

Wald Test

The Wald statistic is also a test that can be utilized to evaluate the importance of each of the coefficients of the logistic regression. The formula is given by;

$$W = \frac{\hat{\beta}_i^2}{SE(\hat{\beta}_i)^2} \quad (3.21)$$

$\hat{\beta}_i$ = independent variable coefficient estimate, $SE(\hat{\beta}_i)$ = standard error of $\hat{\beta}_i$. According to Rana,

Midi and Sarkar, (2010), the squared value of the Wald statistics is given by:

$$W = \frac{\hat{\beta}_i^2}{[SE(\hat{\beta}_i)]^2} \quad (3.22)$$

3.7 Data Analysis Software

The analysis of the data was done using the R-software package for windows.

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CHAPTER 4 DATA ANALYSIS AND RESULTS

4.1 Introduction

This Chapter shows the findings of the results of the research according to the research objectives as well as the research questions. Exploratory Factor Analysis (EFA) and Logistic Regression were used to analyze the data for the study, obtained through the Mobile Insurance Questionnaire, developed by the researcher. The EFA was utilized to assess the attitude towards the attributes of mobile insurance products and services in Accra, and the Logistic Regression was used to determine the attributes as well as the socio-economic and background characteristics that influence the attitude toward Mobile Insurance.

4.2 Socio-Economic and Demographics

Table 1 depicts the demographics of the participants of the study. As shown in the table, 53.0% of the respondents were female, while 47.0% were male. This finding is in line with the findings of Giesbert et al. (2011) who found out that most women in Ghana are more risk averse. This is a

result of their household duties. That makes them have a high likelihood of patronizing insurance products and services.

With respect to age, 36.5% of the respondents were below 30 years, and 48.1% were 30-40 years. On the other, 7.7%, 5.4%, and 2.3% were respectively in the age group of 41-50, 51-60, and above 60. This finding shows that mobile insurance subscription increases with decreasing age, which is contrary to the findings of Fofie (2016) who found that insurance subscription increases with age increase.

Table 4.1. Socio-Economic and Background Characteristics of the Respondents

	N	%
Gender		
Male	206	53.0%
Female	183	47.0%
Age group		
Below 30	142	36.5%
30-40	187	48.1%
41-50	30	7.7%
51-60	21	5.4%
Above 60	9	2.3%
Marital status		
Single	178	45.8%
Married	211	54.2%
Educational status		
Not-Educated	128	32.9%
Educated	261	67.1%
Employment status		
Not-Employed	134	34.4%

Employed	255	65.6%
Religious affiliation		
Christian	218	56.0%
Muslim	69	17.7%
Traditional/Other	102	26.2%
Income status		
BelowGHC500	200	51.4%
GHC500-1000	116	29.8%
Above GHC1000	73	18.8%
Number of Dependents		
None	77	19.8%
1-5	186	47.8%
Above 5	126	32.4%
Geographical location		
Rural	113	29.0%
Urban	276	71.0%

This result could be attributed to the fact that the insurance products is being sold through the use of mobile phone technology, which is more familiar with the younger ones than the older ones. Hence the high subscription rate of the younger ones than the older ones who are not accustomed to the use of mobile phones.

In terms of marital status, 54.2% of the respondents were found to be married, while 45.8% were found to be single. This finding is in line with the findings of Trujillo (2003) that married ones are more likely to patronize insurance products and services than the unmarried ones, as result of their parental duties.

In terms of education, 67.1% of the respondents were found to be educated, while the remaining 32.9% were found to be uneducated. This finding comes as no surprise as, the insurance products and services need a level of education to be able to understand the terms and conditions. It also requires some level of education to be able to understand some concepts of insurance.

Meanwhile, in terms of employment, 65.6% of the respondents were employed while the 34.4% were not employed. Of course, gainfully employed people have the resources or the money to subscribe to insurance than those who are not employed. This finding therefore supports that of Wright and Sawage (1999) who found that individuals who have employment subscribe to insurance products and services unlike those who are unemployed, because of their lack of stable income.

On the other hand, 56.0% of the respondents were found to be Christians, 17.7% were found to be Muslims, while 26.2% were found to belong to the traditional or other religious groups. This finding shows that religion plays a role as far as insurance consumption is concerned in Ghana, with majority of insurance consumers being the Christians. This results support the findings of Juetting (2003) whose study found a relationship between Christians and health insurance utilization.

With respect to the income status of the respondents, 51.4% of the respondents had an income below GHC500, 29.8% had an income of GHC500-1000, and 18.8% had an income of above GHC1000. This results shows that majority of those who use mobile insurance are those with low level of income. That is a result of the fact that those with low level of incomes patronize insurance

against unforeseen occurrences, so that when those events happen they would not have to fall on others for assistance, which they might not get. This result supports that Giesbert et al. (2011) who found that individuals as well as households with low income levels normally take insurance against unforeseen occurrences.

Furthermore, 19.8% of the respondents had no body depending on them, 47.8% had 1-5 people depending on them, and 32.4% had at least 5 individuals relying on them for livelihood. It therefore suggest that people with low income and more people depending on them, it will be difficult to save subscribe to insurance products and services.

In terms of coverage of the mobile insurance, majority (71.0%) of the respondents were found to be in the urban areas, while the remaining 29.0% were found in the rural areas. This is so as result of the fact that those in the urban areas are exposed to the mobile technology more than those in the rural areas, where in some cases there is no coverage of a mobile network.

4.3 Determining the Latent Factors Explaining the Attitude towards Mobile Insurance Products and Services.

The first objective of the study was to determine the latent factors explaining the attitude towards mobile insurance products and services in Accra. To achieve this objective Exploratory Factor Analysis was used to analyze the data. The results is discussed as follows:

Evaluating the Factorability of the Intercorrelation Matrix

To determine the sampling adequacy of the collected data, the KMO sampling adequacy and the Bartlett's Test of Sphericity were computed. Table 2 shows the results of the KMO and the Bartlett's Test of Sphericity.

Table 4.2. Sampling Adequacy - Bartlett's and KMO

KMO Sampling Adequacy.		.820
	Approx. Chi-Square	4086.321
Bartlett's Test of Sphericity	Df	325
	Sig.	.000

As in Table 2, a Kaiser-Meyer-Olkin value .820 was observed. According to Tabachnick and Fidell (2001) a $KMO \geq .60$, indicates that at least a single common factor is involved in measuring the variables observed. This result therefore shows that there is one common factor measuring the variable and therefore given evidence of EFA. Furthermore, the Bartlett's test of Sphericity was also found to be significant $\chi^2(325) = 4086.321, p < .01$, showing the factorability of the items.

Determining the Factors for Extraction

To identify the total number of factors to extract, two main methods were applied, The Total Variance Explained and the Scree Plot. Table 3 shows the total variance in the sample explained by each of the factors. As shown in the table (Initial Eigenvalues) three factors had eigenvalues

exceeding 1.0, with factor 1 having an eigenvalue of 3.822, factor 2 having an eigenvalue of 1.776 and factor 3 having an eigenvalue of 1.339. The rest of the factors had eigenvalues less than 1.0. This results shows that three factors are appropriate and should be retained. The three factors in all explained 52.394% of the variation. Factor 1 explained 29.402% of the variation, Factor 2 explained 13.660% of the variation, while Factor 3 explained 9.332% of the variation.

Table 4.3. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.82	29.402	29.402	3.82	29.402	29.402	3.82	29.402	29.402
2	1.77	13.660	43.062	1.77	13.660	43.062	1.77	13.660	43.062
3	1.33	9.332	52.394	1.33	9.332	52.394	1.33	9.332	52.394

Extraction Method: Principal Component Analysis.

Figure 1 shows the Scree Plot (See Appendix A) of the number of items to be retained or extracted. As shown in the Figure the plot begins to flatten after factor component number 3, showing that three factors are to be retained.

Rotation of Factor

The extracted variables evaluated by the utilization of the Total Variance Explained and the Scree Plot techniques were rotated for effectively understanding utilizing the varimax orthogonal rotation

strategy. The orthogonal rotation technique has three regular rotation calculations: varimax, quartimax, and equamax, and of these three the varimax choice is the most broadly utilized, as it augments the variance over all components (Dimitrov, 2012) and is most effectively understood by interpretation (DeVellis, 2012). In that capacity the varimax rotation technique was utilized to turn the extracted components for simple understanding.

Evaluating and Interpreting Factors

Table 4 shows the rotated component matrix of the factors. As shown in the table Items 1 to 15 are loaded on Factor 1, Items 16 to 23 are loaded on Factor 2, and Items 24 to 26 are loaded on Factor 3.

Table 4.4. Rotated Component Matrix showing the Factors that Influence the Attitude towards Mobile Insurance Products and Services

	Factor		
	1	2	3
Mobile insurance helps to provide same standards of living for my dependents in case of death or disability (Item 1)	.670		

Mobile insurance gives monetary compensation should peril occurs (Item 2)	.665
Mobile insurance provides me security in case of death of policy holder (Item 3)	.650
Mobile insurance alleviates money problems to dependents in the event of death or any peril (Item 4)	.791
Mobile insurance gives me the chance to receive a bulk of money in the event of serious illness (Item 5)	.681
Mobile insurance gives me risk protection (Item 6)	.646
Mobile insurance help in regular future savings (Item 7)	.656
Mobile insurance helps in saving for long term plans (Item 8)	.572
Mobile insurance prevents me from borrowing from others in case of emergencies (Item 9)	.638
Mobile insurance act as an avenue to make money in the event of peril (Item 10)	.604
Mobile insurance gives me the chance to earn money in the future time (Item 11)	.683
Mobile insurance provides me with an opportunity to series of periodic payments (Item 12)	.652
Mobile insurance serves as a basis of credit for investment (Item 13)	.538
Mobile insurance is a dependable avenue for investment because the savings is free from tax (Item 14)	.587
Mobile insurance has security content for individual and commercial situations (Item 15)	.602

Mobile insurance is easy to buy (Item 16)	.601
Mobile insurance is easily accessible (Item17)	.800
The policies of mobile insurance are not difficult to understand (Item 18)	.678
Mobile insurance is trustworthy (Item 19)	.646
Mobile insurance maintain successful customer relations (Item 20)	.596
Mobile insurance is not expensive (Item 21)	.709
There is value for money by buying mobile insurance (Item 22)	.718
Mobile insurance gives consideration to everyone's budget (Item 23)	.652
Whenever I consumer mobile insurance services, I feel bad (Item 24)	.538
Whenever I consumer mobile insurance services, I feel foolish (Item 25)	.818
Whenever I consumer mobile insurance services, I feel useless (Item 26)	.688

The extracted items loaded on Factor 1 based on the shared characteristics are named as “Cognitive”, the extracted items loaded on Factor 2 based on the shared characteristics are named as “Conative”, and the extracted items loaded on Factor 3 are named as “Affect”. The first factor named Cognitive is shown by risk protection; saving and investment benefits of mobile insurance. These consist of 16 items, with very high loadings on its dimension. The second factor named Conative reveals trust of mobile insurance firms and price of mobile insurance and it consist of eight items which have high loadings on its dimension. The third factor named Affect is represented by the general attitude and is composed of three items of emotional expression. These 26 items are the crucial underlying variables in determining the attitude toward mobile insurance.

4.4 Attributes that Influence the Attitude towards Mobile Insurance

To predict the probability of signing for mobile insurance using the attributes of mobile insurance, binary logistic regression, with the attributes as the independent continuous variable and each of the cognitive, conative, and affect attitude toward mobile insurance as the dependent dichotomous variables was applied. The results of the binary logistic regression are discussed below:

4.4.1 Logistic Regression Model of the Influence of the Attributes of Mobile Insurance on the Affect Attitude

The affect attitude towards an object deals with how an individual feels about the object. The affect attitude are normally of emotional feeling towards the item. These emotional experiences are usually expressed as a dichotomous variable, which is either a negative emotional experience or a positive emotional experience (Schiffman & Kanuk, 2004). As a result the binary logistic regression model of the affect attitude is specified as:

$$\log \frac{p_i}{1-p_i} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + e$$

Where:

X_1 = risk, X_2 = savings, X_3 = investments, X_4 = accessibility, X_5 = quality, X_6 = convenience, X_7 = trust, and X_8 = price.

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = parameters to be estimated.

p_i = the probability of expressing a positive affect attitude towards mobile insurance.

$1 - p_i$ the probability of expressing a negative affect attitude towards mobile insurance.

p_i the odds of expressing a positive affect attitude towards mobile insurance.

$1 - p_i$

Thus the binary logistic regression model showing the influence of the attributes of mobile insurance on the affect attitude is: $\log(\text{odds of a positive affect attitude}) = \beta_0 + \beta_1 \text{risk} + \beta_2$

$\beta_3 \text{savings} + \beta_4 \text{investment} + \beta_5 \text{accessibility} + \beta_6 \text{quality} + \beta_7 \text{convenience} + \beta_8 \text{trust} + \beta_9 \text{price} + e$

Table 4.5. Parameter Estimates (Standard Errors) and P-Values of Significant variables in the Binary Logistic Equation Showing the Attributes that Influence the Affect Attitude toward Mobile Insurance

Attributes	B	S.E.	Wald	df	P-Value	Exp(B)
Constant	-9.669	1.706	32.133	1	.000	.000
Risk	.199	.070	8.079	1	.004*	1.220
Savings	-.050	.077	.422	1	.516	.951
Investment	.031	.068	.203	1	.653	1.031
Accessibility	.032	.097	.107	1	.744	1.032
Quality	-.053	.094	.321	1	.571	.948
Convenience	1.696	.178	90.326	1	.000*	5.453
Trust	-.093	.090	1.061	1	.303	.911
Price	.070	.072	.957	1	.328	1.073

*shows a significant p-value at 5%

Table 5 shows the estimated parameters and the p-values of the binary logistic regression equation of the attributes that influence the affect attitude towards mobile insurance. As shown in the estimated parameters in Table 5, the log odds of expressing a positive affect attitude towards mobile insurance is negatively related to savings, quality and trust. On the other hand, the log odds of expressing a favourable affect attitude to m-insurance is positively related to risk, investment, accessibility, convenience, and price. The estimated binary logistic regression model showing these relationships is therefore indicated as: $\log(\text{odds of a positive affect attitude}) = -9.669 + .199\text{risk} - .050\text{savings} + .031\text{investment} + .032\text{accessibility} - .053\text{quality} + 1.696\text{convenience} - .093\text{trust} + .070\text{price}$

Odds Ratio Analysis

As shown in Table 5, the odds ratio of risk is 1.220, which means that risk attribute is much more likely to influence a customer in Accrato express a positive affect attitude towards mobile insurance. On the other hand, investment (OR=1.031), accessibility (OR=1.032), convenience (OR=5.453), and price (OR=1.073) attributes are much more likely to influence a customer in Accrato express a positive affect attitude towards mobile insurance. Meanwhile, savings (OR=.951), quality (OR=.948), and trust (OR=.911) attributes are less likely to influence a customer in Accrato express a positive affect attitude towards mobile insurance.

Model Diagnostics

Omnibus Tests of Model Coefficients

Table 6 shows the Omnibus Tests of the model coefficients for the attributes that influence the affect attitude toward mobile insurance. The chi-square value was found to be significant as

depicted by the p-value ($\chi^2(8) = 239.208, p < .05$). This means that as the predictor variables

were added the probability of the model to predict well was improved.

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Table 4.6. Omnibus Tests of Model Coefficients for the Attributes that Influence the Affect Attitude toward Mobile Insurance

		χ^2	df	p-value
Step 1	Step	239.208	8	.000
	Block	239.208	8	.000
	Model	239.208	8	.000

Likelihood Ratio Test

Table 7 shows the model summary of the attributes that influence the affect attitude toward mobile insurance. As shown in the table, the -2 LL value by the full and the null model were 287.756 and 298.456, respectively, indicating a decrease of 10.7. This indicates the inclusion of the predictor variables brought improvement to the predictive power of the model.

Table 4.7. Model Showing the Attributes that Influence the Affect Attitude toward Mobile Insurance

Model	-2 LL	Snell and Cox R^2	Nagelkerke R^2
Null	298.456		
Full	287.756	.459	.619

R Square - Cox & Snell and Nagelkerke

The R-Square by Cox & Snell with its equivalence of the coefficient of determination in multiple regression, as shown in Table 7 was found to be 45.9% indicating a good model fit. On the other hand, the R-Square by Nagelkerke, which is an improvement of the R Square by Cox & Snell, because Cox & Snell R Square value cannot reach 1, was found to be 61.9% indicating a good model fit.

Hosmer and Lemeshow Test

Table 8 shows the Hosmer and Lemeshow Test of the attributes that influence the affect attitude toward Mobile Insurance. The model is a good fit if p-values > 0.05 (Hosmer and Lemeshow, 2000). The results in Table 8 shows a poor fit ($\chi^2(8) = 24.294, p = .05$) of the model

Table 4.8. Test Statistic of Lemeshow and Hosmer Showing the Attributes that Influence the Affect Attitude toward Mobile Insurance

Chi-square			
Step		df	Sig.
1	24.294	8	.002

4.4.2 Logistic Regression Model of the Influence of the Attributes of Mobile Insurance on the Cognitive Attitude

The cognitive attitude towards is identified as the person's convictions around the object, (Solomon, 2009). The convictions are typically made by encounters or the person's apparent learning of the item. The convictions are fixated on the characteristics of the item. Ordinarily, the cognition of the clients' are distinguished by surveying qualities that are appealing and what traits

the clients' trust the item has (Schiffman and Kanuk, 2004). The cognitive part according to Ajzen and Fishbein (2005), relates to the ability to interpret or become aware of both the visual and verbal senses. It is that attitude, which focusses on the inclination to like or abhorrence to that object. The binary logistic regression model of the cognitive attitude is specified as:

$$p_i = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8}}$$

Where:

X_1 = risk, X_2 = savings, X_3 = investments, X_4 = accessibility, X_5 = quality, X_6 = convenience, X_7 = trust, and X_8 = price.

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = parameters to be estimated.

p_i = the probability of expressing a predisposition of like towards mobile insurance.

$1 - p_i$ = the probability of expressing a predisposition of dislike towards mobile insurance.

$\frac{p_i}{1 - p_i}$ = the odds of expressing a predisposition of like towards mobile insurance.

Thus the binary logistic regression model showing the influence of the attributes of mobile insurance on the cognitive attitude is: $\log(\text{odds of a predisposition of like}) = \beta_0 + \beta_1 \text{risk} + \beta_2$

$\beta_3 \text{savings} + \beta_4 \text{investment} + \beta_5 \text{accessibility} + \beta_6 \text{quality} + \beta_7 \text{convenience} + \beta_8 \text{trust} + \beta_9 \text{price} + e$

Table 9 shows the estimated parameters and the p-values of the binary logistic regression equation of the attributes that influence the cognitive attitude towards mobile insurance. As shown in the estimated parameters in Table 9, the log odds of having a predisposition of like attitude towards mobile insurance is negatively related to risk, savings, quality, convenience and trust. On the other hand, the log odds of expressing a predisposition of like attitude towards mobile insurance is positively related to investment, accessibility and price. This means that the attributes of investment, accessibility and price are more likely to increase a predisposition of like attitude towards mobile insurance in Accra. The estimated binary logistic regression model showing these relationships is therefore indicated as: $\log(\text{odds of a predisposition of like}) =$

$$-.477 - .062\text{risk} - .007\text{savings} + .041\text{investment} + .027\text{accessibility} - .158\text{quality} - .071\text{convenience} - .045\text{trust} + .416\text{price}$$

Table 9. Parameter Estimates (Standard Errors) and P-Values of Significant variables in the Binary Logistic Equation Showing the Attributes that Influence the Cognitive Attitude toward Mobile Insurance

Attributes	B	S.E.	Wald	df	P-Value	Exp(B)
Constant	-.477	1.203	.157	1	.692	.621
Risk	-.062	.055	1.266	1	.260	.940
Savings	-.007	.061	.013	1	.911	.993
Investment	.041	.054	.563	1	.453	1.041
Accessibility	.027	.079	.122	1	.727	1.028
Quality	-.158	.078	4.090	1	.043*	.854
Convenience	-.071	.075	.901	1	.343	.931
Trust	-.045	.074	.370	1	.543	.956
Price	.416	.067	38.335	1	.000*	1.517

*shows a significant p-value at 5%

Odds Ratio Analysis

The odds ratio of risk (OR= .940), as shown in Table 9 indicates that risk attribute is less likely to influence a predisposition of like attitude towards mobile insurance. On the other hand, savings (OR=.993), quality (OR=.854), convenience (OR=.931), and trust (OR=.956) attributes are less likely to influence a predisposition of like attitude towards mobile insurance. However, the attributes of investment (OR= 1.041), accessibility (OR=1.028), and price (OR=1.517) are more likely to influence a predisposition of like attitude towards mobile insurance.

Model Diagnostics

Omnibus Tests of Model Coefficients

Table 10 shows the Omnibus Tests of the model coefficients for the attributes that influence the cognitive attitude toward mobile insurance. The test was found to be significant as illustrated by the value of the chi-square ($\chi^2(8) = 50.114, p < .05$), indicating that the inclusion of the predictor variables brought improvement to the power prediction of the model.

Table 10. Omnibus Tests of Model Coefficients for the Attributes that Influence the Cognitive Attitude toward Mobile Insurance

		χ^2	df	p-value
Step 1	Step	50.114	8	.000
	Block	50.114	8	.000

Model	50.114	8	.000
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Likelihood Ratio Test

Table 11 shows the model summary of the attributes that influence the cognitive attitude toward mobile insurance. As shown in the table, the -2 Log likelihood value for both the full and null model shows a decrease of 17.12. This shows that there is a better model as a result of the inclusion of the predictors. This therefore alludes to the fact that the inclusion of the predictors makes the power prediction of the model better.

Table 11. Model Showing the Attributes that Influence the Cognitive Attitude toward Mobile Insurance

Model	-2 LL	Snell and Cox R^2	Nagelkerke R^2
Null	435.820		
Full	418.700	.121	.173

R Square - Cox & Snell and Nagelkerke

The R-Square value of 12.1%, as shown in Table 11 indicates a poor model fit. The Nagelkerke R Square value of 17.3% also shows a poor model fit.

Hosmer and Lemeshow Test

Table 12 shows the Hosmer and Lemeshow Test showing attributes that affect the attitude of cognitivetoward Mobile Insurance. As shown in Table 12, the Hosmer and Lemeshow test

statistics was significant ($\chi^2(8) = 17.483, p = .05$) indicating a poor data fit.

Table 12. Hosmer and Lemeshow Test Showing the Attributes that Influence the Cognitive Attitude toward Mobile Insurance

Step	Chi-square	df	Sig.
1	17.483	8	.025

4.4.3 Logistic Regression Model of the Influence of the Attributes of Mobile Insurance on the Conative Attitude

Behavioral or conative segment of attitude suggests plain activities and verbal proclamations with regards to behavior of conduct (Ajazen and Fishbein, 2005). It alludes to the essential inspirational or behavioral results of attitude. As a rule, we endeavor to gauge conation by verbal inquiries to assess the clients' probability. For instance the buying of an item or enthusiasm for an administration (Schiffman and Kanuk, 2004). Subsequently, the model showing the conative demeanor has it as:

$$p_i = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8}}$$

Where:

X_1 = risk, X_2 = savings, X_3 = investments, X_4 = accessibility, X_5 = quality, X_6 = convenience, X_7 = trust, and X_8 = price.

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = parameters to be estimated.

p_i = the probability of having an interest towards mobile insurance.

$1 - p_i$ = the probability of having no interest towards mobile insurance.

_____ p_i = the odds of having an interest towards mobile insurance.

$1 - p_i$

Thus the binary logistic regression model showing the influence of the attributes of mobile insurance on the conative attitude is: $\log(\text{odds of an interest}) = \beta_0 + \beta_1 \text{risk} + \beta_2 \text{savings} + \beta_3$

$\beta_4 \text{investment} + \beta_5 \text{accessibility} + \beta_6 \text{quality} + \beta_7 \text{convenience} + \beta_8 \text{trust} + \beta_9 \text{price} + e$

Table 13 shows the estimated parameters and the p-values of the binary logistic regression equation of the attributes that influence the conative attitude towards mobile insurance. As shown in the estimated parameters in Table 13, the log odds of having an interest towards mobile insurance is negatively related to risk, savings, accessibility, quality, and price. This means that the attribute of risk, savings, accessibility, quality, and price are less likely to increase an interest towards mobile insurance in Accra. However, the log odds of having an interest towards mobile insurance is positively related to investment, convenience and trust. This means that the attributes of

investment, convenience and trust are more likely to increase an interest towards mobile insurance in Accra. The estimated binary logistic regression model showing these relationships is therefore indicated as: $\log(\text{odds of an interest}) = 1.107 - .026\text{risk} - .038\text{ savings} + .030\text{investment} - .014\text{accessibility} - .060\text{quality} - .127\text{convenience} - .140\text{trust} - .061\text{ price}$

Table 13. Parameter Estimates (Standard Errors) and P-Values of Significant variables in the Binary Logistic Equation Showing the Attributes that Influence the Conative Attitude toward Mobile Insurance

Attributes		S.E.	Wald	df	Sig.	Exp(B)
Constant	1.107	1.153	.922	1	.337	3.025
Risk	-.026	.047	.308	1	.579	.974
Savings	-.038	.065	.342	1	.559	.963
	B					
Investment	.030	.046	.410	1	.522	1.030
Accessibility	-.014	.077	.034	1	.853	.986
Quality	-.060	.074	.648	1	.421	.942
Convenience	.127	.090	1.980	1	.159	1.135
Trust	.140	.078	3.232	1	.072	1.150
Price	-.061	.065	.871	1	.351	.941

*shows a significant p-value at 5%

Odds Ratio Analysis

The odds ratio of the attribute of risk (OR= .974), savings (OR=.963), accessibility (OR=.986), quality (OR=.942), and price (OR=.941) are less likely to influence an interest towards mobile insurance (As shown in Table 13). However, the attributes of investment (OR= 1.030),

convenience (OR=1.135), and trust (OR=1.150) are not less likely to have influence on the attitude toward m-insurance.

Model Diagnostics

Omnibus Tests of Model Coefficients

Table 14 shows the Omnibus Tests of the model coefficients for the attributes that influence the conative attitude toward mobile insurance. The chi-square value of the model was found to be non-significant as depicted by the p-value ($\chi^2(8) = 7.616, p = .05$), giving an indication of lack of predictive power by adding the predictor variables.

Table 14. Omnibus Tests of Model Coefficients for the Attributes that Influence the Conative Attitude toward Mobile Insurance

		χ^2	df	p-value
Step 1	Step	7.616	8	.472
	Block	7.616	8	.472
	Model	7.616	8	.472

Likelihood Ratio Test

Table 15 shows the model summary of attributes that have effect on attitude of conative toward m-insurance. As shown in the table, the -2 LL value for the full and the null model were 382.251 and 383.240, respectively, indicating that the inclusion of the predictor variables did not yield any improvement to the model predictive power.

Table 15. Summary of Model Showing the Attributes that Influence the Conative Attitude toward Mobile Insurance

Model	-2 LL	Snell and Cox R^2	Nagelkerke R^2
Null	383.240		
Full	382.251	.019	.031

R Square - Cox & Snell and Nagelkerke

The R-Square value of value of 1.9%, as shown in Table 15 indicates a poor model fit, while the Nagelkerke R Square value of 3.1% also shows a poor model fit.

Hosmer and Lemeshow Test

Table 16 shows the Hosmer and Lemeshow Test of the attributes that influence the conative attitude toward Mobile Insurance. As shown in Table 16, the Hosmer and Lemeshow test statistics

was significant ($\chi^2(8) = 24.432, p = .05$), indicating a poor fit of the model to the dataset.

Table 16. Hosmer and Lemeshow Test Showing the Attributes that Influence the Conative Attitude toward Mobile Insurance

Step	Chi-square	df	Sig.
1	24.432	8	.002

4.5 Socio-Economic and Background Characteristics that Influence the Attitude towards Mobile Insurance

The third objective of the study was to predict the probability of signing for mobile insurance using the socio-economic and background characteristics. To achieve this objective, binary logistic regression, with the socio-economic and background characteristics as the independent variable and each of the cognitive, conative, and affect attitude toward mobile insurance as the dependent dichotomous variables. The results of the binary logistic regression are discussed below:

4.5.1 Logistic Regression Model Showing the Effect of the Socio-Economic and Background Characteristics on the Affect Attitude

Table 17 shows the estimated logistic regression equation of the background characteristics influence on affect attitude toward mobile insurance. As shown in the estimated parameters in Table 17, the log odds of expressing a positive affect attitude towards mobile insurance with female, compared to male increases by .053. This means that being a female increases the log odds of expressing a positive affect attitude towards mobile insurance, as compared to being a male. On the other hand, the log odds of expressing a positive affect attitude towards mobile insurance with married persons, as compared to single ones increases by .227. This implies that being a married person increases the log odds of expressing a positive affect attitude towards mobile insurance, compared to being a single person. Also, the log odds of expressing a positive affect attitude towards mobile insurance with educated individuals, compared to uneducated ones increases by .060. This means that having a formal education increases the log odds of expressing a positive affect attitude towards mobile insurance, as compared to not having a formal education. On the

other hand, the log odds of expressing a positive affect attitude towards mobile insurance with employed individuals, compared to unemployed ones increases by .232. This means that having a regular employment increases the log odds of expressing a positive affect attitude towards mobile insurance, as compared to not having a regular source of employment.

Table 17. Parameter Estimates, Standard Errors and P-Values of Significant Variables in the Binary Logistic Equation Showing the Socio-Economic and Background Characteristics that Influence the Affect Attitude toward Mobile Insurance

	B	S.E.	Wald	df	Sig.	Exp(B)
			8.424	4	.047*	
Gender						
Male (reference)						
Female	0.053	0.218	0.059	1	0.809	1.054
Age group						
Below 30 (reference)						
30-40	-1.625	1.112	2.138	1	0.144	0.197
41-50	-1.466	1.110	1.744	1	0.187	0.231
51-60	-1.160	1.172	.980	1	0.322	0.313
Above 60	-0.137	1.238	.012	1	0.912	0.872
Marital status						
Single (reference)						
Married	0.227	0.236	0.927	1	0.336	1.255
Educational status						
Not-Educated (reference)						
Educated	0.060	0.253	0.057	1	0.812	1.062
Employment status						
Not-Employed (reference)						
Employed	0.232	0.238	0.944	1	0.331	1.261

Religious affiliation			4.595	2	0.101	
Christian (reference)						
Muslim	-0.603	0.282	4.572	1	0.032*	0.547
Traditional/Other	-0.464	0.348	1.782	1	0.182	0.629
Income status			2.590	2	0.274	
BelowGHC500 (reference)						
GHC500-1000	-.340	.331	1.055	1	.304	.712
Above GHC1000	-.540	.336	2.588	1	.108	.583
Number of Dependents			11.692	2	.003*	
None (reference)						
1-5	.084	.344	9.933	1	.002*	1.087
Above 5	.801	.287	7.776	1	.000*	2.228
Geographical location						
Rural (reference)						
Urban	.084	.268	.098	1	.755	1.087

*shows a significant p-value at 5%

Meanwhile, the log odds of expressing a positive affect attitude towards mobile insurance with individuals with 1-5 dependents, and also those with above 5 dependents, compared to those with no dependents increases by .084 and .801, respectively. This means that having 1-5 dependents and more than 5 dependents increases the log odds of expressing a positive affect attitude towards mobile insurance, as compared to none dependents. Also, the log odds of expressing a positive affect attitude towards mobile insurance with individuals in the urban areas, compared to those in the rural areas increases by .084. This means that being in an urban area increases the log odds of expressing a positive affect attitude towards mobile insurance, as compared to being in a rural area.

On the contrary, the log odds of expressing a positive affect attitude towards mobile insurance with individuals aged 30-40 years, 41-50 years, 51-60 years, and above 60 years, compared to those who are below 30 years decreases by -1.625, -1.466, -1.160, and -.137 respectively. This means that being in the age group of 30-40 years, 41-50 years, 51-60 years, and above 60 years, as compared to below 30 years decreases the log odds of expressing a favourable mobile insurance affect attitude. Also, the log odds of expressing a favourable mobile insurance affect attitude with Muslims, and Traditionalist/other religious groups, as compared to Christians decreases by -.603, and -.464, respectively. This means that being a Muslim or Traditionalist or belonging to other religious group decreases the log odds of expressing a positive affect attitude towards mobile insurance. On the other hand, the log odds of expressing a positive affect attitude towards mobile insurance with those with income GHC500-1000, and above GHC1000, as compared to those with regular income which is below GHC500 decreases by -.340, and -.540 respectively. This implies that having a regular income of GHC500-1000, and above GHC1000 decreases the log odds of expressing a favourable mobile insurance affect attitude.

Odds Ratio Analysis

The odds of expressing a favourable mobile insurance affect attitude ($OR = 1.054$) was 1.054 times higher among the female compared to the males. This means females are not less likely to show a favourable mobile insurance affect attitude, as compared to their male counterparts. The odds of showing a favourable mobile insurance affect attitude ($OR = 1.255$) was 1.255 times higher among the married individuals compared to single ones. This means that married individuals are not less

likely to express a favourable mobile insurance affect attitude, as compared to the single ones. On the other hand, individuals with formal education are not less likely to express a favourable mobile insurance affect attitude compared to those without formal education (OR=1.062). Also, individuals with regular employment are not less likely to express a favourable mobile insurance affect attitude as compared to those without regular employment (OR=1.261). Meanwhile, individuals with 1-5 dependents (OR=1.087), and more than 5 dependents (OR=2.228) are not less likely to express a favourable mobile insurance affect attitude as compared to those with no dependents. On the other hand, individuals in the urban areas are more likely to express a positive attitude towards mobile insurance as compared to those in the rural areas (OR=1.087). On the contrary, individuals who are 30-40 years (OR=.197), 41-50 years (OR=.231), 51-60 years (OR=.313), and above 60 years (OR=.872) are not more likely to express a favourable mobile insurance affect attitude as compared to those who are below 30 years. Moreover, individuals who are Muslims (OR=.547) or Traditionalist/other (OR=.629) are not more likely to express a favourable mobile insurance affect attitude compared to individuals who are Christians. On the other hand, those with income GHC500-1000 (OR=.712) and those with income above GHC1000 (OR=.583) as compared to those with income below GHC500 are not more likely to express a favourable mobile insurance affect attitude.

Model Diagnostics

Omnibus Tests of Model Coefficients

Table 18 shows the Omnibus Tests of the model coefficients for the socio-economic and background characteristics that influence the affect attitude toward mobile insurance. The chisquare

value of the model was found to be significant as depicted by the p-value ($\chi^2(15) = 35.776$, $p < .05$), giving an indication of a better predictive power by adding the predictor variables.

Table 18. Omnibus Tests of Model Coefficients Showing the effect of Socio-Economic and Background Characteristics on Affect Attitude of Consumers

		χ^2	df	p-value
Step 1	Step	35.776	15	.002
	Block	35.776	15	.002
	Model	35.776	15	.002

Likelihood Ratio Test

Table 19 shows the model summary of the socio-economic and background characteristics of the affect attitude toward mobile insurance. As shown in the table, the -2 LL value for the full and the null model were 491.189 and 512.089, respectively indicating model improvement after the inclusion of the predictor variables.

Table 19. Summary of Model Showing the Effect of Background Characteristics on the Attitude of Affect of Consumers

Model	-2 LL	Snell and Cox R^2	Nagelkerke R^2
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Null	512.089		
Full	491.189	.588	.618

R Square - Cox & Snell and Nagelkerke

The R-Square value of 58.8%, as shown in Table 19 indicates a good model fit, while the Nagelkerke R Square value of 61.8% also shows a good model fit.

Hosmer and Lemeshow Test

The Hosmer and Lemeshow Test of socio-economic and background characteristics that influence the affect attitude toward Mobile Insurance is shown in Table 20. As shown in Table 20, the Hosmer and Lemeshow test statistics is not significant ($\chi^2(8) = 7.752, p = .05$) indicating a better fit of the model to the dataset.

Table 20. Hosmer and Lemeshow Test Showing the Effect of Background Characteristics on Affect Attitude of Consumers

Step	Chi-square	df	Sig.
1	7.752	8	.458

4.5.2 Logistic Regression Model of the Influence of the Socio-Economic and Background Characteristics on the Cognitive Attitude

Table 21 shows the estimated logistic regression equation of the influence of background characteristics on cognitive attitude toward mobile insurance. As shown in the estimated parameters

in Table 21, the log odds of having a predisposition of like attitude towards mobile insurance with female, compared to male decreased by .741. This means that being a female decreases the log odds of having a predisposition of like attitude towards mobile insurance, as compared to being a male. On the other hand, the log odds of having a predisposition of like attitude towards mobile insurance with married persons, as compared to single ones increased by .053.

Table 21. Parameter Estimates, Standard Errors and P-Values of Significant Variables in the Binary Logistic Equation Showing the Socio-Economic and Background Characteristics that Influence the Cognitive Attitude toward Mobile Insurance

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender						
Male (reference)						
Female	-.741	.272	7.395	1	.007*	.477
Age group			11.354	3	.010*	
Below 30 (reference)						
30-40	-2.109	.641	10.804	1	.001*	.121
41-50	-1.714	.634	7.298	1	.007*	.180
51-60	-1.781	.868	4.210	1	.040*	.168
Above 60	-2.109	.641	10.804	1	.001*	.121
Marital status						
Single (reference)						
Married	.053	.257	.043	1	.836	1.055
Educational status						
Not-Educated (reference)						
Educated	.090	.275	.109	1	.742	1.095
Employment status						
Not-Employed (reference)						
Employed	.019	.259	.005	1	.942	1.019

Religious affiliation			4.208	2	.122	
Christian (reference)						
Muslim	-.658	.321	4.207	1	.040*	.518
Traditional/Other	-.468	.386	1.466	1	.226	.626
Income status			8.421	2	.015*	
BelowGHC500 (reference)						
GHC500-1000	-.836	.471	3.154	1	.076	.434
Above GHC1000	-1.314	.471	7.777	1	.005*	.269
Number of Dependents			2.607	2	.272	
None (reference)						
1-5	.290	.370	.614	1	.033*	1.336
Above 5	.239	.316	.571	1	.000*	1.270
Geographical location						
Rural (reference)						
Urban	.616	.296	4.349	1	.037*	1.852

*shows a significant p-value at 5%

This implies that being a married person increases the log odds of having a predisposition of like attitude towards mobile insurance, compared to being a single person. Also, the log odds of having a predisposition of like attitude towards mobile insurance with educated individuals, compared to uneducated ones increased by .090. This means that having a formal education increases the log odds of having a predisposition of like attitude towards mobile insurance, as compared to not having a formal education. On the other hand, the log odds of having a predisposition of like attitude towards mobile insurance with employed individuals, compared to unemployed ones increased by .019. This means that having a regular employment increases the log odds of having a predisposition of like attitude towards mobile insurance, as compared to not having a regular

source of employment. Meanwhile, the log odds of having a predisposition of like attitude towards mobile insurance with individuals with 1-5 dependents, and also those with more than 5 dependents, compared to those with no dependents increased by .290 and .239, respectively. This means that having 1-5 dependents and more than 5 dependents increases the log odds of having a predisposition of like attitude towards mobile insurance, as compared to no dependents. Also, the log odds of having a predisposition of like attitude towards mobile insurance with individuals in the urban areas, compared to those in the rural areas increased by .616. This means that being in an urban area increases the log odds of having a predisposition of like attitude towards mobile insurance, as compared to being in a rural area. However, the log odds of having a predisposition of like attitude towards mobile insurance with individuals who are 30-40 years, 41-50 years, 51-60 years, and over 60 years, compared to those who are below 30 years decreased by -2.109, -1.714, -1.781, and -2.109 respectively. This means that being in the age group of 30-40 years, 41-50 years, 51-60 years, and over 60 years, as compared to being below 30 years decreases the log odds of having a predisposition of like attitude towards mobile insurance. On the other hand, the log odds of having a predisposition of like attitude towards mobile insurance with Muslims, and Traditionalist/other religious groups, as compared to Christians decreased by -.658, and -.468, respectively. This means that being a Muslim or Traditionalist or belonging to other religious group decreases the log odds of having a predisposition of like attitude towards mobile insurance. Also, the log odds of having a predisposition of like attitude towards mobile insurance with those with regular income of

GHC500-1000, and more than GHC1000, as compared to those with regular income of below GHC500 decreased by -.836, and -1.314 respectively. This implies that having a regular income

of GHC500-1000, and more than GHC1000 decreases the log odds of having a predisposition of like attitude towards mobile insurance.

Odds Ratio Analysis

The odds of having a predisposition of like attitude towards mobile insurance (OR =.477) was lower among the female compared to the males. This means that females are less likely to have a predisposition of like attitude towards mobile insurance, as compared to their male counterparts. The odds of expressing a favourable mobile insurance affect attitude (OR = 1.055) was found to be higher among married individuals compared to single ones. This means that married individuals are not less likely to have a like predisposition attitude to m-insurance. On the other hand, individuals with formal education are not less likely to have a like predisposition attitude to m-insurance compared those without formal education (OR=1.095). Also, individuals with regular employment are not less likely to have a like predisposition attitude to m-insurance as compared to those without regular employment (OR=1.019). Meanwhile, individuals with 1-5 dependents (OR=1.336), and more than 5 dependents (OR=1.270) are not less likely to have a like predisposition attitude to m-insurance as compared to those with no dependents. On the other hand, individuals in the urban areas are not less likely to have a like predisposition attitude to m-insurance as compared to those in the rural areas (OR=1.852).

On the contrary, individuals who are 30-40 years (OR=.121), 41-50 years (OR=.180), 51-60 years (OR=.168), and above 60 years (OR=.121) have less probability to have a like predisposition attitude to m-insurance as compared to those who are below 30 years.

Moreover, individuals who are Muslims (OR=.518) or Traditionalist/other (OR=.626) have less probability to have a like predisposition attitude to m-insurance compared to individuals who are Christians. On the other hand, those with income of GHC500-1000 (OR=.434) and those with income of more than GHC1000 (OR=.269) as compared to those with income of less than GHC500 are less likely to have a predisposition of like attitude towards mobile insurance.

Model Diagnostics

Omnibus Tests of Model Coefficients

Table 22 shows the summary of omnibus test for the socio-economic and background characteristics that influence the cognitive attitude toward mobile insurance. The value of the chi-square value was found to be significant ($\chi^2(14) = 44.642, p = .05$), indicating that the inclusion of the predictor variables helped improved the model predictive power.

Table 22. Omnibus Tests of Model Coefficients Showing the Effect of Socio-Economic and Background Characteristics on Cognitive Attitude of Consumers

		Chi-square	df	Sig.
Step 1	Step	44.642	14	.000
	Block	44.642	14	.000
	Model	44.642	14	.000

Likelihood Ratio Test

Table 23 shows the model summary of the socio-economic and background characteristics of the affect attitude toward mobile insurance. As shown in the table, the -2LL value for the model (full

- 424.172 and null – 453.197) indicate that the inclusion of the predictor variables helped improve the model predictive power.

Table 23. Model Summary Showing the Effect of Background Characteristics on Cognitive Attitude of Consumers

Model	-2 LL	Snell and Cox R^2	Nagelkerke R^2
Null	453.197		
Full	424.172	.482	.519

R Square - Cox & Snell and Nagelkerke

The R Square value of 48.2%, as shown in Table 23 indicates a good model fit, while the Nagelkerke R Square value of 51.9% also shows a good model fit.

Hosmer and Lemeshow Test

The Hosmer and Lemeshow Test of the socio-economic and background characteristics that influence the cognitive attitude toward Mobile Insurance is shown in Table 24. As shown in Table 24, the Hosmer and Lemeshow test statistics is not significant ($\chi^2(8) = 11.333, p = .05$) indicating better fit of the model to the dataset.

Table 24. Hosmer and Lemeshow Test Showing the Effect of Background Characteristics on the Cognitive Attitude of Consumers

Step	Chi-square	Df	Sig.
1	11.333	8	.184

4.5.3 Logistic Regression Model of the Influence of the Socio-Economic and Background

Characteristics on the Conative Attitude

Table 25 shows the estimated logistic regression equation of the influence of background characteristics on conative attitude toward mobile insurance. As shown in the estimated parameters in Table 25, the log odds of having an interest towards mobile insurance with female, compared to male increased by .275. This means that being a female increases the log odds of having an interest towards mobile insurance, as compared to being a male. On the other hand, the log odds of having an interest towards mobile insurance with married persons, as compared to single ones increased by .177. This implies that being a married person increases the log odds of having an interest towards mobile insurance, compared to being a single person. Also, the log odds of having an interest towards mobile insurance with educated individuals, compared to uneducated ones increased by .188. This means that having a formal education increases the log odds of having an interest towards mobile insurance, as compared to not having a formal education. On the other hand, the log odds of having an interest towards mobile insurance with individuals who are employed, compared to individuals who are not unemployed increased by .405. This means that having a regular employment increases the log odds of having an interest towards mobile insurance, as compared to not having an employment. Also, the log odds of having an interest towards mobile insurance with Muslims and Traditionalist/other religious groups, as compared to Christians increased by .109 and .035, respectively. This means that being a Muslim or Traditionalist or belonging to other religious group increases the log odds of having an interest towards mobile insurance.

Table 25. Parameter Estimates, Standard Error and P-Values of Significant Variables in the Binary Logistic Equation Showing the Socio-Economic and Background Characteristics that Influence the Conative Attitude toward Mobile Insurance

	B	S.E.	Wald	df	Sig.	Exp(B)
Gender						
Male (reference)						
Female	0.275	.251	1.205	1	.272	1.317
Age group			4.838	3	.184	
Below 30 (reference)						
30-40	-0.949	0.443	4.599	1	.032*	.387
41-50	-0.727	0.425	2.932	1	.087	.483
51-60	-0.544	0.496	1.204	1	.272	.580
Above 60	-0.949	0.443	4.599	1	.032*	.387
Marital status						
Single (reference)						
Married	.177	0.268	0.436	1	.509	1.194
Educational status						
Not-Educated (reference)						
Educated	.188	0.278	0.455	1	.500	1.206
Employment status						
Not-Employed (reference)						
Employed	.405	0.247	2.691	1	0.031*	1.499
Religious affiliation			0.319	2	0.852	
Christian (reference)						
Muslim	.109	.296	.137	1	.712	1.115
Traditional/Other	.035	.318	.012	1	.911	1.036
Income status			6.311	2	.043*	
BelowGHC500 (reference)						

GHC500-1000	.616	.278	4.916	1	.027*	1.852
Above GHC1000	.686	.326	4.425	1	.015*	1.986

Number of Dependents

None (reference)

1-5	.340	.434	.612	1	.043*	1.405
Above 5	.137	.264	.267	1	.031*	1.146

Geographical location

Rural (reference)

Urban	.016	.339	.002	1	.962	1.016
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*shows a significant p-value at 5%

The log odds of having an interest towards mobile insurance with those with regular income of GHC500-1000 and more than GHC1000, as compared to those with regular income of less than GHC500 increased by .616 and .686 respectively. This implies that having a regular income of GHC500-1000 and more than GHC1000 increases the log odds of having an interest towards mobile insurance. Also, the log odds of having an interest towards mobile insurance with individuals with 1-5 dependents, and also those with more than 5 dependents, compared to those with no dependents increased by .340 and .137 respectively. This means that having 1-5 dependents and more than 5 dependents increases the log odds of having an interest towards mobile insurance, as compared to no dependents. Also, the log odds of having an interest towards mobile insurance with individuals in the urban areas, compared to those in the rural areas increased by

.016. This means that being in an urban area increases the log odds of having an interest towards mobile insurance, as compared to being in a rural area. On the contrary, the log odds of having an interest towards mobile insurance with individuals who are 30-40 years, 41-50 years, 51-60 years, and over 60 years, compared to those who are below 30 years decreased by -.949, -.727, -.544 and -.949 respectively. This means that being in the age group of 30-40 years, 41-50 years, 51-60 years, and over 60 years, as compared to being below 30 years decreases the log odds of having an interest towards mobile insurance.

Odds Ratio Analysis

The odds of having an interest towards mobile insurance (OR =1.317) was higher among the females as compared to the males. This means that females are not less likely to have an m-insurance interest as compared to their male counterparts. The odds of having an interest towards mobile insurance was found to be higher among married individuals (OR=1.194) compared to single ones. This means that married individuals are more likely to have an interest towards mobile insurance compared to being an unmarried individual. On the other hand, individuals with formal education are not less likely to have an m-insurance interest compared to those without formal education (OR=1.206). Also, individuals with regular employment are not less likely to have an m-insurance interest as compared to those without regular employment (OR=1.499). Moreover, individuals who are Muslims (OR=1.115) or Traditionalist/other (OR=1.036) are not less likely to have an m-insurance interest compared to individuals who are Christians. On the other hand, those with income of GHC500-1000 (OR=1.852) and those with income of more than GHC1000 (OR=1.986) as compared to those with income of less than GHC500 are not less likely to have an

m-insurance interest. Meanwhile, individuals with 1-5 dependents (OR=1.405) and more than 5 dependents (OR=1.146) are not less likely to have an m-insurance interest as compared to those with no dependents. On the other hand, individuals in the urban areas are not less likely to have an m-insurance interest as compared to those in the rural areas (OR=1.016). On the contrary, individuals who are 30-40 years (OR=.387), 41-50 years (OR=.483), 51-60 years (OR=.580) and above 60 years (OR=.387) are less likely to have an interest towards mobile insurance as compared to those who are below 30 years.

Model Diagnostics

Omnibus Tests of Model Coefficients

Table 26 shows the summary of omnibus test for the socio-economic and background characteristics that influence the conative attitude toward mobile insurance. The chi-square value was shown to be significant ($\chi^2(14) = 27.031, p < .05$), indicating that the inclusion of the predictor variables brought about improvement to the predictive power of the model.

Table 26. Omnibus Tests of Model Coefficients Showing the Effect of SocioEconomic and Background Characteristics on Conative Attitude of Consumers

		χ^2	df	p-value
Step 1	Step	27.031	14	.011
	Block	27.031	14	.011
	Model	27.031	14	.011

Likelihood Ratio Test

Table 27 shows the model summary of the socio-economic and background characteristics of the affect attitude toward mobile insurance. As shown in the table, the -2 LL value for the model (full -478.248 and null - 491.034) indicates that the inclusion of the predictor variables helped improve the model predictive power.

Table 27. Summary of Model Showing the Effect of Background Characteristics on the Conative Attitude of Consumers

Model	-2 LL	Snell and Cox R^2	Nagelkerke R^2
Null	491.034		
Full	478.248	.401	.562

R Square - Cox & Snell and Nagelkerke

The R Square value of 40.1%, as shown in Table 27 indicates a good model fit, while the Nagelkerke R Square value of 56.2% also shows a good model fit.

Hosmer and Lemeshow Test

The Hosmer and Lemeshow Test of the socio-economic and background characteristics that influence the conative attitude toward Mobile Insurance is shown in Table 28. As shown in Table

28, the Hosmer and Lemeshow test statistics is not significant ($\chi^2(8) = 12.640, p = .05$)

indicating a better fit of the model to the dataset.

Table 28. Hosmer and Lemeshow Test Showing the Effect of Background Characteristics on the Conative Attitude of Consumers

Step	Chi-square	df	Sig.
1	12.640	8	.125

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DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This research was to examine the attitude towards mobile insurance products and services. Specifically of this research was to determine attitude to mobile insurance, the attributes that influence the attitude towards mobile insurance, as well as socio-economic and demographic characteristics which impacts on the attitude towards mobile insurance. This chapter therefore presents the discussions of the results after which conclusions and recommendations based on the findings of the study are made.

5.2 Discussions of Results

Attitude towards mobile insurance

The EFA revealed applied to assess the attitude towards mobile insurance revealed three main attitudes in determining the attitude toward mobile insurance. These are the affect attitude, the cognitive attitude, and conative or behavioural attitude. The affect attitude has to do with feelings such as the feeling bad to buy insurance products, feeling foolish to buy mobile insurance product and feeling useless to buy mobile insurance product. The cognitive attitude has to do with risk protection, saving, investment, benefits of mobile insurance products. The conative or the behavioural attitude has to do with trust of mobile insurance firms and the price of mobile insurance policies. This revelation is in harmony with the observation of Omar (2005) that the behavioural factors influence the buying of insurance. This finding is also in line with that of Kabsule (2011) whose study revealed that cognitive, affect and conative are the main attitudes underlying the consumption of insurance products and services in Uganda. Thus, this finding of the study supports

the theory of the Tricomponent attitude model, which states that the three components of attitudes: affect, conation and cognition are interconnected, and as such to be able to see through and as well predict the attitude of buyers all the components of the attitude must be established (Schiffman and Kanuk, 2004).

Attributes that influence the attitude towards mobile insurance

The findings of the study revealed that the log odds of expressing a positive affect attitude towards mobile insurance is significantly positively related to risk and convenience. This means that the attributes of risk and convenience increase a favorable attitude of affect for m-insurance in Accra. Thus, risk and convenience attributes are much more likely to influence a customer in Accra to express a positive affect attitude towards mobile insurance. This finding is in line with the discoveries of Black and Skipper (2000) and Sharma (2005). For instance, Sharma (2005) in a study into the reasons behind the purchase of insurance product, found that majority of the consumers considered insurance policies as indispensable for risk protection. The standard bank (2007), also in study brought out that as far as convenience is concerned, the simple availability of protection is viewed as a standout amongst the most protection advantage that clients search for, and which is crucial in building up a favorable attitude to utilization.

The findings of the study also revealed that the log odds of having a predisposition of like attitude towards mobile insurance is significantly positively related to price. This means that the attributes of price is more likely to increase a predisposition of like attitude towards mobile insurance. Thus, price is more likely to influence a customer in Accra to have a predisposition of like attitude towards mobile insurance. This finding is in line with the findings of previous studies (Gruber, 2008; Verbeke & Vackier, 2005). Gruber (2008) found that the low proportion of insurance

price and amount paid as premiums are some of the insurance benefits that the people who patronize insurance would like to have (Gruber, 2008). On the other side, high price has been found by Verbeke and Vackier (2005) to have an unfavorable effect of peoples' attitude utilization. Their finding was confirmed by Chernew et al. (2006) who found that two-thirds of the increase in the number of uninsured over the past decade can be traced to the rising insurance costs. Kabsule (2011) additionally discovered that costs of protection items, disregarding dangers and dependence on family and companions for assistance in crises are different elements observed to avert buy of insurance.

The findings of the study also revealed that the log odds of having an interest towards mobile insurance, although not significant, is positively related to investment, convenience and trust. This means that the attributes of investment, convenience and trust are more likely to increase an interest towards mobile insurance. That is to say, the attributes of investment, convenience, and trust are not less likely to influence the interest for m-insurance, than the other attributes. As for trust, this finding is predictable with that of Omar (2005) who found that trust assume a critical job in the attitude of individuals towards protection, and the general population dismiss insurance on grounds that insurers don't pay with regards to claims settlement. This means that once people see that insurers are living up to their word and pays claims promptly it increases the trust of the people and hence increase their interest towards the insurance products of that insurer. As far as investment, this finding is predictable with that of Kasule (2011), who found that purchasers see insurance as a speculation, as opposed to as hazard assurance. People who patronize insurance would want to have a return on their investment as far as they perceive insurance as a form of investment (Beck & Webb, 2002).

Socio-economic and background characteristics that influence attitude towards mobile insurance.

The findings of the study revealed that being a female increases the log odds of expressing a favourable attitude of affect to m-insurance, as compared to being a male. Thus, females are not less likely to express a favourable attitude of affect to mobile insurance in comparison with their male counterparts. This revelation is the same way with that of Gautam and Kumar (2012) who found that among the nine demographic variables, gender was a significant factor in Indian consumers' attitude towards insurance services. This finding is also in line with the findings of Giesbert et al. (2011) who found out that most women in Ghana are more risk averse. This is a result of their household duties. That makes them have a high likelihood of patronizing products and services that are insurance based. The findings of the research also depicted that individuals with 1-5 dependents, and more than 5 dependents are not less likely to express a favourable attitude to m-insurance compared to individuals with no dependents. This finding is also consistent with that of Sarkodie&Yusif (2015) who found that the number of dependents has a significant effect with the odd of insurance purchase. This is a result of the fact that individuals with high number of dependents have a greater responsibility and commitment, and will therefore take insurance as security or risk protection in case of emergencies.

The findings of the study also revealed that gender, age, income status, and geographical location employment are more likely to influence individuals to express a predisposition of like attitude towards mobile insurance as compared to their counterparts. This finding is in support of the results of Akotey et al. (2011) as well as Saaty (2012), who all found that age, income, and geographical location have an influence with the buying of insurance products.

The study indicated that individuals with regular employment are not less likely to possess an interest for m-insurance as compared to those without regular employment. On the other hand those with higher income compared to those with lower income are not less likely to possess an interest for m-insurance. Meanwhile, individuals with at least one dependent person are not less likely to possess an interest for m-insurance compared to those with no dependents. This results is consistent with that of Yusuf, Gbadamosi and Hamadu (2009), who found that demographics play a crucial role of varying degrees on attitudes to insurance services. Specifically, age, profession, and household income - all have a significant impact of varying degrees on attitudes towards insurance.

5.3 CONCLUSION

Conclusion can therefore be made that three main factors explains the attitude towards mobile insurance products and services in Accra. These factors are the affect, cognitive and conation or behaviour. On the other hand, the results of the study confirmed that the attributes of risk and convenience are not less likely to increase a favourable (*affect*) attitude for m-insurance in Accra. That is, risk and convenience attributes are much more likely to influence a customer in Accra to express a positive attitude towards mobile insurance. Moreover, the result of the study gives empirical reason to say that attribute of price is more likely to increase a predisposition (*cognitive*) of like towards mobile insurance. That is to say that the price is more likely to influence a predisposition of like towards mobile insurance. Meanwhile, it can be concluded that although not significant investment, convenience and trust is positively related to having an interest (*conation or*

behaviour) towards mobile insurance. This means that the attributes of investment, convenience and trust are more likely to increase an interest towards mobile insurance in Accra. That is to say, the attributes of investment, convenience, and trust are not less likely to influence an interest for m-insurance.

In terms of the influence of socio-economic and background characteristics, it can be concluded that gender and the number of dependents increases the log odds of expressing a favourable (*affect*) attitude for m-insurance. That is, gender is more likely to influence a customer in Accra to express a favourable attitude of affect for m-insurance while the number of dependents is also more likely to influence a customer in Accra to express a favourable attitude of affect for m-insurance. On the other hand, it can be concluded based on the results of the study that gender, age, income status, geographical location, and employment status are more likely to influence a customer in Accra to express a predisposition (*cognitive*) of like towards mobile insurance. Moreover, it can also be said that employment status, as well as number of dependents increases the log odds of interest (*conation or behavioural*) towards mobile insurance.

5.4 RECOMMENDATIONS

Informed by the conclusion of the research, these recommendations below are made:

1. The first recommendation is that the insurers in the mobile insurance industry, should take into consideration the affect, cognitive and conation or behavioural attitude toward insurance in coming out with mobile insurance products and services that will attract Ghanaians. By taking advantage of the attitude towards mobile insurance, the insurers will be able to provide tailored need products and service to maximize profit.

2. The insurers on the mobile insurance platform should also take advantage of the results on the attributes of mobile insurance – risk, convenience, price and investment, which were found to be significant predictors of attitude toward mobile insurance, to formulate and implement relevant marketing strategies, aimed at improving their existing marketing strategies and most importantly targeting the uninsured.
3. The information on the socio-economic and background characteristics that influence the attitude towards mobile insurance should also be critically looked at the insurance companies on the mobile platform, as it would go far to assist them with adopting techniques to comprehending a portion of the difficulties discouraging individuals from buying mobile insurance items. For instance the insurance companies could take advantage of the variables such as gender, marital status, income, age, location, and type of employment in determining premium to be paid but not on the degree of risk exposure only.
4. The study was conducted to determine the attitude towards mobile insurance based on the Tricomponent Attitude Model, where the attitude towards mobile insurance was determined from the users of the mobile insurance only. However, a similar study could be carried out to include 1) subjective norms, and 2) instances of behavior on the tricomponents that make up attitudes. This is on the grounds that to comprehend and foresee the disposition of a client, it is imperative to comprehend what sentiments the significant others would have, just as the client's inspiration as to conform to the important others.

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APPENDICES



KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

MOBILE INSURANCE QUESTIONNAIRE

Purpose of study: This study is being conducted to “*evaluate the attitude of Ghanaians towards mobile insurance*” for the purpose of a Master Degree at the Kwame Nkrumah University of Science and Technology. You are kindly requested to complete this questionnaire which forms part of the study.

Confidentiality of information: The information provided for this study as a result of your completing this questionnaire will be used for *only academic research purposes. No one will*

disclose any information you will provide or try to sell any information to any institution or competitor.

Voluntary Participation: Your participation in this study is *voluntary*. By completing the questionnaire and handing it over to the Researcher, you are voluntarily agreeing to participate in the study. You are free to decline to answer any particular question you do not wish to answer for any reason.

Section A: Socio-Economic Background

PLEASE KINDLY SUPPLY INFORMATION ON YOUR SOCIO-ECONOMIC BACKGROUND BY TICKING AGAINST EACH OF THE OPTIONS PROVIDED TO THE QUESTIONS.

A1. What is your gender?	Tick
Male	
Female	
A2. What is your age group?	Tick
Below 30	
30-40	
41-50	
51-60	
Above 60	
A3. What is your marital status?	Tick

Single	
Married	
A4. What is your educational status?	Tick
Educated	
Not-Educated	
A5. What is your employment status?	Tick
Employed	
Not-Employed	
A6. What is your religious affiliation?	Tick
Christian	
Muslim	
Traditional/Other	
A7. What is your income status?	Tick
Below GHC 500	
GHC500-1000	
Above GHC1000	
A8. How many people depend on you?	Tick
None	
1-5	
Above 5	
A9. What is your geographical location?	Tick

Rural	
Urban	

Section B: Consumer Attitude

PLEASE EXPRESS YOUR FEELINGS TO FOLLOWING ASPECT OF MOBILE INSURANCE IN GHANA.

Scale: SD=Strongly Disagree, D = Disagree, A= Agree, SA = Strongly Agree

Affect Attitude

Statements	SD	D	A	SA
1 Whenever I consumer mobile insurance services, I feel bad				
2 Whenever I consumer mobile insurance services, I feel foolish				
3 Whenever I consumer mobile insurance services, I feel useless				

Cognitive Attitude

Statements	SD	D	A	SA
1 Mobile insurance helps to provide same standards of living for my dependents in case of death or disability				
2 Mobile insurance provides me financial compensation in case of actual loss/hazard/damage				

3	Mobile insurance provides me security in case of death of policy Holder				
4	Mobile insurance prevents financial hardship to dependents in case of death or disability				
5	Mobile insurance gives me an opportunity to receive lump sum money in case of critical illness				
6	Mobile insurance gives me risk protection				
7	Mobile insurance help me in saving regularly for the future				
8	Mobile insurance helps me in making a long term saving				
9	Mobile insurance prevents me from borrowing from others in case of emergencies.				
10	Mobile insurance is an investment aimed at maximizing claim payments in case of hazard occurrence.				
11	Mobile insurance provides opportunity to earn returns on premiums in the future				
12	Mobile insurance provides me with an opportunity to series of periodic payments				
13	Mobile insurance serves as a basis of credit for investment				
14	Mobile insurance is a reliable investment as it is tax free saving				
15	Mobile insurance introduce security into personal and business Situations				

Behavioral or Conative Attitude

Statement		SD	D	A	SA
1	Insurance is easy to buy				
2	Insurance services are easy to access				
3	It is not difficult to understand policies and premiums offered by mobile insurance				
4	Mobile insurance is easy to trust				
5	Mobile insurance maintain successful customer relations				
6	Mobile insurance is not expensive				
7	Buying mobile insurance is good value for money				
8	Buying mobile insurance is suitable for my budget				

Section C: Attributes That Affect Purchase of M-Insurance PLEASE INDICATE THE EXTENT TO WHICH YOU DISAGREE OR AGREE TO THE

FOLLOWING ATTRIBUTES THAT AFFECT YOUR PURCHASE OF M-INSURANCE.

Scale: SD=Strongly Disagree, D = Disagree, A= Agree, SA = Strongly Agree Risk Protection

Statement		SD	D	A	SA
1	Mobile insurance prevents financial hardship to dependents in case of death or disability of policy holder				
2	Mobile insurance Provides security in case of death of policy Holder				

3	Mobile insurance reduces risks				
4	Mobile insurance provides financial compensation in case of actual loss/hazard/damage				

Savings

Statement		SD	D	A	SA
1	Mobile insurance helps policy holders in making a long term Saving				
2	Mobile insurance help s policy holders in saving regularly for the Future				
3	Mobile insurance prevents policy holders from borrowing from friends, money lenders and relatives in case of emergencies.				

Investment

Statement		SD	D	A	SA
1	Mobile insurance is an investment aimed at maximizing claim payments in case of hazard occurrence				
2	Mobile insurance provides opportunity to earn returns on premiums in the future				
3	Mobile insurance is a reliable investment				
4	Insurance serves as a basis of credit for investment				

Accessibility

Statement		SD	D	A	SA
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1	Mobile insurance is easy to buy				
2	Mobile insurance services are easy to access				

Quality

Statement		SD	D	A	SA
1	Mobile insurance firms maintain successful customer relations				
2	Mobile insurance offer quality of service				

Convenience

Statement		SD	D	A	SA
1	Mobile insurance is convenient				
2	It is not difficult to understand policies and premiums offered by mobile insurance				

Trust

Statement		SD	D	A	SA
1	Mobile insurance firms are easy to trust				
2	Insurance agents are easy to trust				

Price

Statement		SD	D	A	SA
1	Mobile insurance is not expensive				
2	Buying mobile insurance is good value for money				
3	Buying mobile insurance is suitable for my budget				

Thank you for your time and cooperation

KNUST

