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Willingness to pay for property insurance for people living in the rural areas of South Africa

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Willingness to pay for property insurance for people living in the rural areas of South Africa

by

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Dissertation submitted to the University of the Witwatersrand in partial fulfilment of the requirements for the Degree of Master of Business Administration (MBA)

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ABSTRACT

Developing suitable insurance products emanates from understanding the target market and using one's capabilities efficiently enough for the products to be understandable, affordable and usable; while being profitable for the insurer.

This study was motivated by the apparent slow pace in the development of property insurance products suitable for the rural areas of South Africa. The researcher sought to understand what enabled and inhibited the adoption of property insurance in the rural areas of South Africa. The study tests whether factors such as household demographics, social capital, risk awareness and risk aversion have any impact on the willingness to pay (WTP) for property insurance products.

A quantitative research methodology was adopted in conducting the study using a self-administered survey type questionnaire.

The results of the research show that there is a positive correlation between risk awareness and risk aversion and that risk aversion drives the willingness to pay (WTP) for property insurance products in the rural areas of South Africa.

DECLARATION

By submitting this research report electronically, I, Zanele Gigaba, declare that the entirety of the work contained is my own, original work, except as indicated in the references and acknowledgements. It is submitted as partial fulfilment of the requirements of the degree of Master in Business Administration (MBA) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this university or any other university.

_____

Zanele Gigaba

Signed at: ……

On this……. day of…….. 2017

DEDICATION

Firstly, I am truly thankful to God Almighty, for allowing me to find my passion of making meaningful contributions to society while pursuing my dream in the commercial environment.

I would like to dedicate this paper to my two daughters, Nandi and Naledi Gigaba, who in their tender ages, have had to understand and support my decision to go back to school full time.

Finally, I would like to dedicate this paper to the short-term insurance industry of South Africa, which is at a crossroads at this moment in time, with regards to transformation and financial inclusion. Our industry is rated at the same level as our international counterparts, we therefore have the capability and means to make a difference in the lives of the most vulnerable in our society.

ACKNOWLEDGEMENTS

I would like to extend my sincere gratitude to my supervisor, Dr Thanti Mthanti, who challenged my thought processes and raised the bar with regard to this research. It was not an easy process, but at the end of it, I realised it was all worth it.

I would also like to acknowledge industry experts such as Mr David Kirk, who took time to respond to my request for assistance, although he did not know me, and went further by connecting me with his network which assisted me in getting a deeper understanding of the microinsurance industry. I also acknowledge the late, Ms Leila Moonda, of the South African Insurance Association, for providing me with invaluable insights into how the South African short-term insurance industry operates as well as Mr Herman Moloi, for taking me through my paces with regard to what was expected of me during the research process.

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DEFINITION OF TERMS

AECF – Africa Enterprise Challenge Fund

CVM – Contingent Valuation Model

FAIS – Financial Advisory and Intermediary Act of 2004

FSB – Financial Services Board

FSC – Financial Services Sector

MFI – Microfinance Institutions

MNO – Mobile Network Operators

NCA – National Credit Act of 2006

PIH – Permanent Income Hypothesis

RSMD – Riot, Strike and Malicious Damage

SAIA – South African Insurance Institute

SASRIA – South African Special Risks Insurance Association

SCG – Savings and Credit Groups

WTP – Willingness to Pay

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CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The purpose of this study was to determine factors that drive willingness to pay (WTP) for property insurance for people in rural areas of South Africa. The study looks at how factors such as social capital, wealth, education, risk awareness and risk aversion, impact willingness to pay for property insurance products. The study further asked how much the respondents were willing to pay for selected classes of insurance.

Research results show that social capital positively moderates WTP for property insurance while risk aversion has a positive impact on WTP for property insurance in the rural areas.

1.2 Context of the study

1.2.1 *Background*

The history of insurance goes hand in hand with the emergence of risk management. As far back as 3 000 BC, Chinese merchants shared the risk of goods lost when shipping abroad, by splitting cargo into different ships (Microinsurance Network, 2015). Roman literature confirms traces of insurance contracts as early as 215 BC (Trennery, 1926). Authors discovered that the Romans had an understanding of and practiced the following methods of providing against maritime and other risks:

i. “Public indemnity to shippers against loss of ships or cargo from storm or attacks of enemies (215 BC)
ii. Private guarantee for safe delivery of goods (50 BC)
iii. Guarantee by the Emperor against the losses from storms incurred by shippers (AD 58)
iv. Contracts for indemnification, which do not appear to have been confined to losses arising from sea-risks
v. Insurance by wager” (Trennery, 1926, p. 13).

The modern definition of insurance has not changed over time, although there has been an expansion in product innovation. Insurance is still a mechanism that assists individuals, businesses, governments, etc. to manage and reduce losses that may come about because of shocks caused by certain risks like property damage, death, illness, etc. Today there are different types of insurance products provided by various players including governments, insurance companies and individuals.

1.2.2 *Overview of South African insurance industry and practices*

Insurance in South Africa is provided by the government (Brockerhoff, 2013), commercial insurance companies under various regulations, credit providers or banks under the Bancassurance model, funeral parlours who are currently not regulated for the purposes of providing insurance and furniture shops, amongst others.

Some of the well-known insurance products provided by the South African government under the Social Security Policy include the Road Accident Fund, the Unemployment Insurance Fund and Compensation for Occupational Illness & Disease (Brockerhoff, 2013). Recently, the South African government has been considering introducing funeral insurance for the social security grant beneficiaries, to protect these consumers from abuse by commercial insurers (fin24, 2016).

According to the BRICS Business Council (Molefe, 2016), the Short Term Insurance industry contributes between 2.5% and 3% to the South African GDP and is a major player in the economy by insuring billions of Rands in assets and risks as well as providing employment in the financial services sector.

For the 2015 financial year, the Short-Term Insurance industry recorded a 12% growth in Gross Written Premiums of R52.2 billion.

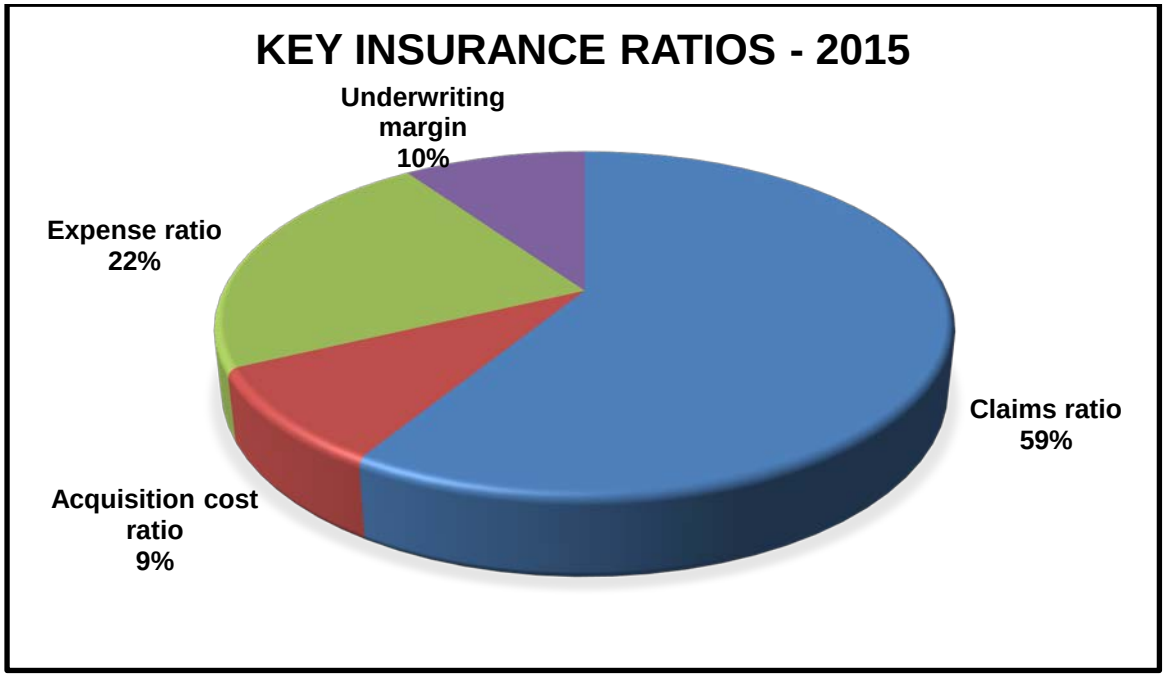

Figure 2 - Key Short Term Insurance Ratios 2015 - (PWC, 2016)

The industry also showed a 45% increase in profit margins between 2013 and 2015, mainly due to the absence of major catastrophes in 2014 and 2015. The claims loss ratios reduced from 66.6% in 2013 to 58.7% in 2015, while the expense ratio increased from 16.5% to 22.5% (PWC, 2016).

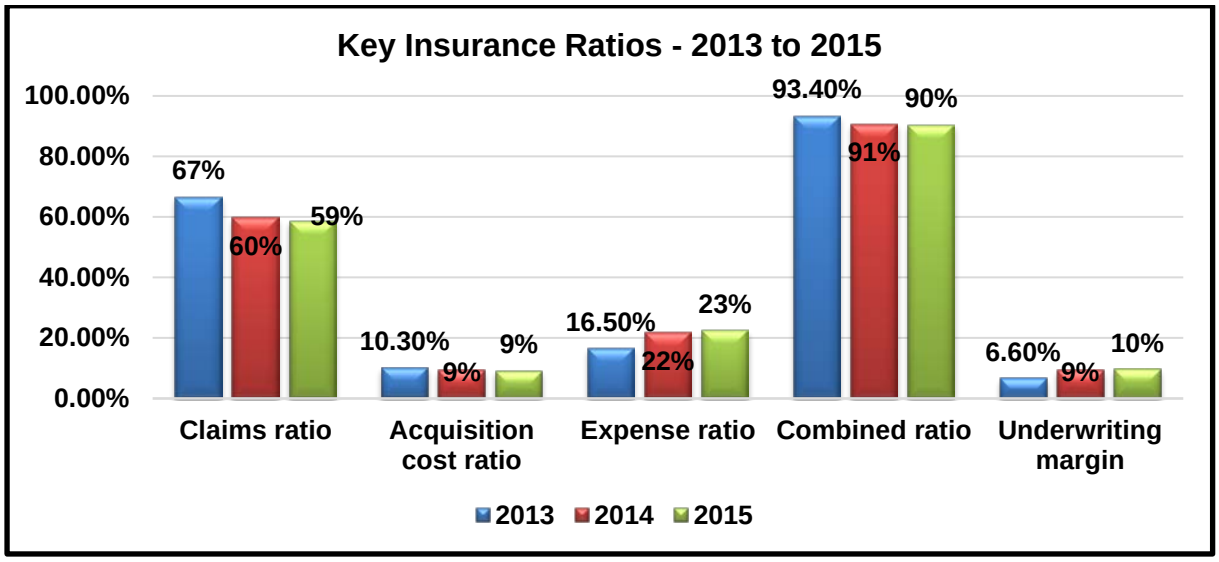

Figure 3 - Key insurance ratios 2013 – 2015 - (PWC, 2016)

1.2.3 *Access to short-term insurance in South Africa*

A 2016 report on the South African Insurance Industry (Oxford Business Group, 2016), highlights that although the industry is sophisticated, has access to mature regulation with a premium-to-GDP ratio which is one of the highest in the world; there is still limited financial inclusion in the country, with many citizens uninsured or underinsured. A recent survey by the FinMark Trust (2016) revealed that only 22% of adult South Africans had an insurance policy outside funeral cover.

Insurance has enjoyed significant technological developments over the past decade which has seen improvement in the way insurance products are designed, distributed and services are delivered to clients (Dixon, 2014). It therefore comes as a surprise that insurance is still not something that is easily accessible by all. A study by the Microinsurance Network and Munich Re, shows that there has been significant growth in this market in Africa (an emerging market), with a 31% increase in premiums between 2011 and 2014 (McCord & Biese, 2015). The report further shows that in South Africa, 64% of the population is covered through microinsurance/insurance products. A closer look at this figure provides a different picture as far as types of products being offered by insurance companies. There is a high concentration in life products which are not credit life, like funeral cover, followed by credit life policies, then accident and health policies. Only 1.3% of properties are covered by insurance (see figure 3).

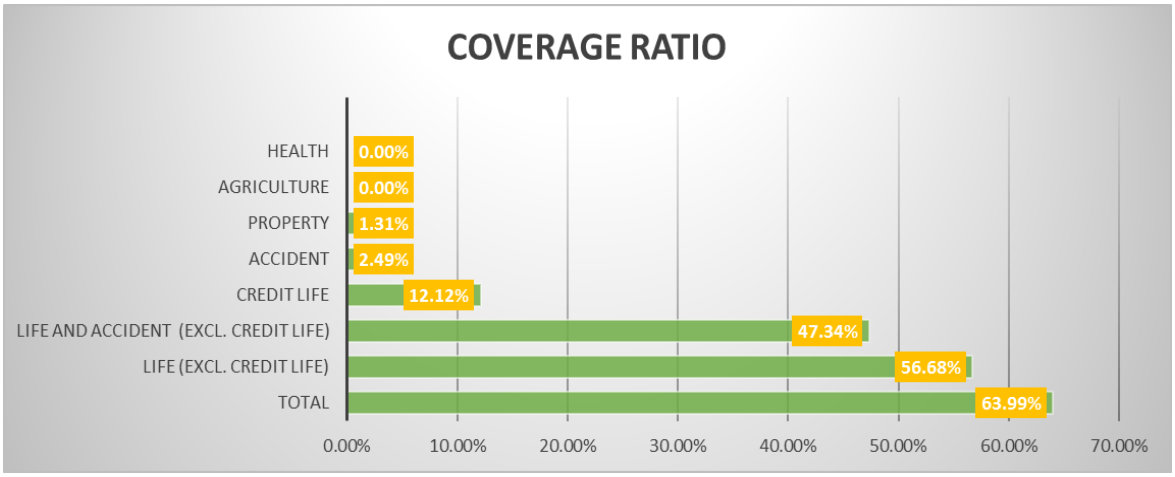

Figure 4 - Total microinsurance coverage ratio South Africa www.worldmapofmicroinsurance.org (2014)

1.2.4 *Financial Inclusion*

The basis for this study has been motivated by the global drive to promote financial inclusion, especially in the developing world. Mahendra (2006) defines financial inclusion as the provision of affordable financial services to people of low income groups. From this definition, he concludes that financial exclusion is the denying of financial access to certain households, despite their demand. The World Bank (Demirgue-Kunt & Klapper, 2012) defines financial inclusion as access to affordable financial products, including savings, credit, transactions, and management of personal risk. Institutions like the World Bank (2012) and Asian Development Bank Institute (Hannig & Jansen, 2010), estimate that of the five billion adults globally, about 2.5 billion do not have access to formal financial services like banking accounts.

In South Africa, the democratic government led by the African National Congress (ANC), realised the importance of the financial sector as a tool to connect the first world economy and the second world economy (Kirsten, 2006). A report tabled by the Development Bank of Southern Africa at the World Bank/Brookings Institute Conference, indicates that in 1994, 60% of adult South Africans were excluded from formal financial services. Developments in the financial sector have given rise to legislation like the National Credit Act (NCA) of 2006; which seeks to protect consumers from over-indebtedness, the Financial Advisory and Intermediary Act (FAIS) of 2004, which sought to formalise the financial services sector, the Financial Sector Charter set targets for financial institutions to improve financial inclusion (Kirsten, 2006).

Some of the developments and innovations in the financial sector, which were aimed at improving financial inclusion, can be summarised as follows:

a. Savings accounts – The development of a low cost national bank account, called Mzansi bank account, was one of the initiatives from the Financial Sector Charter (Kirsten, 2006). In 2012, the South African government's social welfare arm, the South African Social Services Agency (SASSA), introduced a more efficient system of paying social grants via bank cards (South African Social Security Agency, 2014).

b. Transactioning - there has been considerable development in the financial sector around affordable money transfer methods that do not require bank accounts, also known as mobile money. Most South African banks as well as some Mobile Network Operators (MNO's) have come up with mobile money solutions, like "e-wallet" by FNB. Retail stores are also offering more efficient ways of transferring money from person to person (P2P), without the need for a bank account.

c. Micro-lending – Micro-lending has become more formalised and has been exposed to more stringent regulations in South Africa, for example, the introduction of the National Credit Act (NCA) in 2006. As a result, there has been a move by low income consumers from using "loan sharks" in townships, who charge exorbitant interest rates, to using microlenders that offer cheaper forms of credit.

d. Risk transfer – insurance products specifically designed for the low-income market are now available in the South African market. Some of these products are linked to other financial products, for example, when taking a personal loan, credit life cover may be purchased. Furniture retailers also issue a property insurance policy to cover furniture bought on hire purchase. These types of insurance products are easy to offer as the consumer does not need to request for them specifically and premium payment is included as part of personal loan or hire purchase repayments. Other insurance products such as funeral, accident, and health covers have also seen significant demand in the South African market.

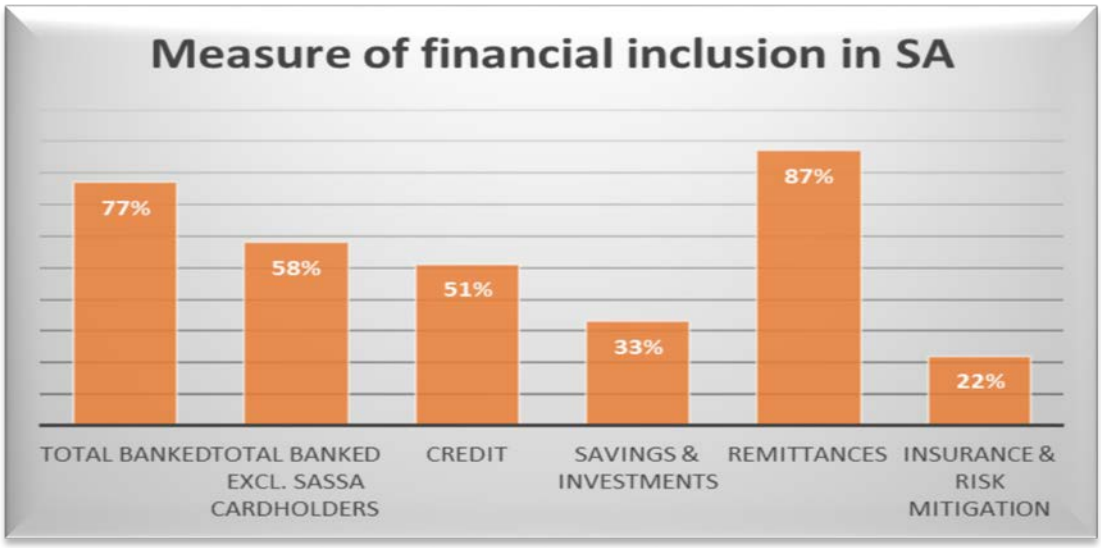

Figure 5 - Update of Financial Services & Products in South Africa - (FinMark Trust, 2016)

Where insurance products have been made available to the low-income market, consumer abuse has been rife. Some of the areas where consumer abuse has occurred is the consumer credit insurance (The Department of the National Treasury of South Africa, 2014), funeral cover products provided by funeral parlours and funeral cover products provided by insurance companies to the social security grant recipients (fin24, 2016). In a technical report released by the National Treasury of South Africa (2014), some of the poor market practices perpetrated by the insurance industry against the low-income market consumers include:

- Insurance premiums that are higher than market prices,
- Lack of transparency on the make-up of the total credit instalment,
- Insurance companies make it difficult for consumer credit products to be substituted by other products in the market,
- Cover provided by credit providers does not consider the needs of the consumer.

Insurance is being viewed by many researchers and policymakers as a basic need to help consumers manage risk (Ledgerwood , Earne, & Nelson, 2013).

Max-Neef *et al* (1991) list the need for physical and mental health, food, shelter and the need for insurance systems, savings, social security, health systems, as some of the fundamental human needs.

Table 1 - Matrix of Needs and Satisfiers - (Max-Neef, Elizalde, & Hopenhayn, 1991)

NEEDS ACCORDING TO AXIOLOGICAL CATEGORIES	NEEDS ACCORDING TO EXISTENTIAL CATEGORIES				
		BEING	**HAVING**	**DOING**	**INTERACTING**
	SUBSISTENCE	1/ Physical health, mental health, equilibrium, sense of humour, adaptability	2/ Food, shelter, work	3/ Feed, procreate, rest, work	4/ Living environment, social setting
	PROTECTION	5/ Care, adaptability, autonomy, equilibrium, solidarity	6/ Insurance systems, savings, social security, health systems, rights, family, work	7/ Cooperation, prevent, plan, take care of, cure, help	8/ Living space, social environment, dwelling
	AFFECTION	9/ Self-esteem, solidarity, respect, tolerance, generation, receptiveness, passion, determination, sensuality, sense of humour	10/ Friendship, family, partnerships, relationships with nature	11/ Make love, caress, express, emotions, share, take care of, cultivate, appreciate	12/ Privacy, intimacy, home, space of togetherness
	UNDERSTANDING	13/ cont…..	14/ cont…		

People living in poverty are more vulnerable to shocks to their income caused by events like natural hazards (Hochrainer-Stigler, Sharma, & Mechler, 2012). Poor people depend on unsustainable methods of coping with shocks to their consumption or income, including using their savings, selling their income producing assets, borrowing money from micro-lenders, waiting for assistance from donors and governments, amongst other strategies (Mechler, Linnerooth-Bayer, & Peppiatt, 2006). Mechler *et al* (2006) indicate that access to microinsurance can contribute towards breaking the cycle of poverty, by providing the poor with post disaster liquidity.

In summary, Bester *et al* (2010) propose that financial inclusion in the microinsurance sense can be achieved when low income consumers have not only access to insurance products, but they can use the products and services on a sustainable basis, and such products and services meet the needs of this market.

1.2.5 *Progress of financial inclusion in South Africa*

To improve financial inclusion in the short-term insurance industry, the South African government together with the Financial Services Sector agreed on targets to measure access to financial services, in the Broad Based Black Economic Empowerment Act. The Financial Services Charter (FSC) refers to financial inclusion for those who have been previously excluded and who are earning below the tax threshold or the double tax threshold, including black small businesses and farmers (SouthAfrica.info, 2015). The FSC targets are to be phased in over a five-year period from 2014 to 2018:

Table 2 - Five-year phase in period for Access to Financial Services Targets (FSC Council, 2013)

Date	Percentage		Target number of policies	
	Personal	Commercial	Personal	Commercial
30/6/2014	30%	50%	260 422	139 668
30/6/2015	45%	60%	390 632	170 930
30/6/2016	60%	70%	520 843	199 419
30/6/2017	75%	80%	651 054	227 907
30/6/2018	100%	100%	868 072	284 884

The access to financial services targets as per the revised FSC Charter are as follows:

Table 3 - The Scorecard for Access to Financial Services (FSC Council, 2013)

	Access to Financial Services	Weighting	Industry Targets	Maximum Sum Insured
2.1.	Appropriate Products	2		
2.2.	Insurance Policies	10		
2.2.1.	Personal Lines Policies	5	868 072	
2.2.1.	Motor vehicles			R120 000
2.2.1.	Household contents			R100 000
2.2.1.	Property / Homeowners			R500 000
2.2.1.	Other			R500 000
2.2.2.	Commercial Policies	5	284 884	
2.2.2.	Black EMEs and QSEs – equipment and contents			R250 000
2.2.2.	Black EMEs and QSEs property			R500 000
2.2.2.	Agriculture			
2	Agriculture - Property			R35 million
2	Agriculture – Equipment			R500 000
2.2.2.	Livestock			R1 million
2.2.2.	Black EMEs and QSEs – Liability			R1 million
2.2.2.	Other			R500 000
	Total	**12**		

The National Treasury published the South African Microinsurance Regulatory Framework bill in July 2011, which seeks to regulate the microinsurance industry and lower barriers to entry for new players (National Treasury Department of South Africa, 2011). The bill is set to be passed in Parliament early in 2017 (Microinsurance Network Conference South Africa, 2016).

Research done by The Microinsurance Network (Leach, Ncube, & Menon, 2014), into the availability of funders for microinsurance, shows that there are opportunities for both investors and investees. In their report, Leach *et al*, observe that the microinsurance industry accounts for 75% of impact investments, with the size of investments in 2012 amounting to US$8.9 billion. In the South African market, companies like AllLife and Assupol have received funding amounting to US$6.7 million and US$21 million respectively. In addition to the funding, investors also provide other support, like technical assistance (Leach, Ncube, & Menon, 2014). Such developments provide an opportunity to explore the viability of starting an insurance company and offering microinsurance products to the low-income market.

1.2.6 *Case for property insurance in rural South Africa*

For the purposes of this study, property refers to personal assets such as buildings, features and fittings and household contents like furniture.

Prior to 1994, development in South Africa was restricted to urban areas as well as townships. Rural households depended on water from rivers and communal taps. Electricity supply was non-existent. The general household survey of 2015 (Statistics SA, 2015), shows that 78.1% of the South African households live in formal dwellings, while 14.1% live in informal dwellings and 6.9% in traditional dwellings (huts). The general household survey also showed the percentages of the population that own household assets.

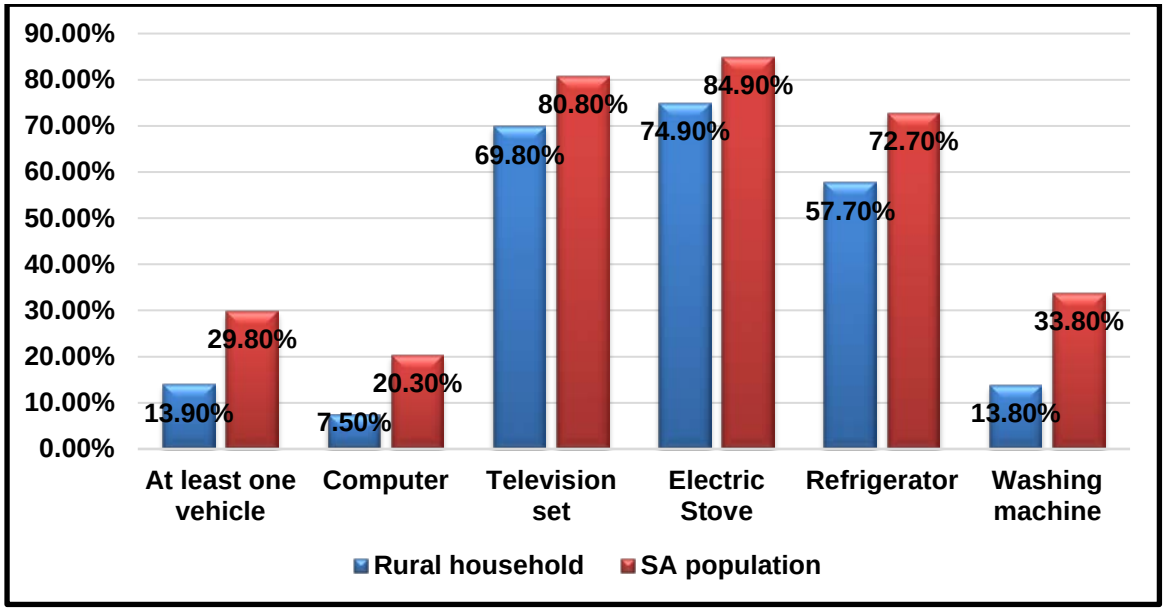

Figure 6 - % household asset ownership SA population (Statistics SA, 2015)

Access to electricity now reaches 85.5% of the households up from 77.1% in 2002. 89.4% of households in South Africa had access to piped water in 2015. The above statistics are important because studies show that access to electricity, running water, health services and education are some of the metrics that are used to measure the level of development or poverty of a community.

The availability of running water and electricity, especially in the rural areas, has encouraged the development of peri-urban areas around cities, making it possible for consumers who cannot afford to purchase properties in the urban areas to build quality houses in the rural areas, with both running water and electricity. Webster and Muller (2002) cite some of the characteristics of peri-urbanisation as changes in economic and employment structures, encompassing a shift from agriculturally based economies to manufacturing; rapid population growth characterised by in-migrants and changing spatial development patterns. Peri-urbanisation may be a more affordable alternative, since properties built in these areas may look the same as houses in the urban areas (Dlamini, 2010), but are less costly in that municipality rates are not incurred and building by-laws do not have to be followed.

The UN expects 71.3% of South Africans to reside in urban areas by 2030, with this figure increasing to 80% by 2050 (SouthAfrica.info, 2015). However, the Integrated

Urban Development Framework (Department of Cooperative Governance and Traditional Affairs, 2014) cites how the rural-urban push and pull factors keep the migration between urban and rural areas revolving.

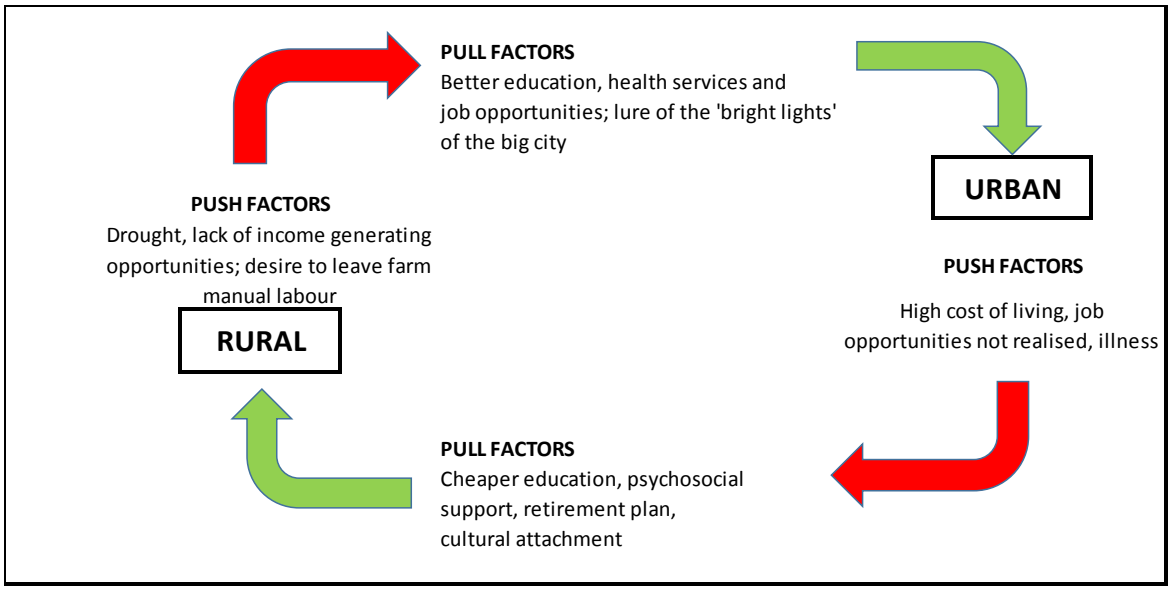

Figure 7 - Rural-Urban Linkages - Source: Action against Hunger - (2014)

1.2.7 *Conclusion*

Short term insurance products and services within the South Africa context, have been designed for the formal target markets, living in cities, urban and metro areas. As far as the researcher is aware, there has been no extensive research on the rural market. With developments in the rural areas as mentioned above together with changes in legislation and focus on financial inclusion, the insurance industry has an opportunity to consider this market. Indeed, willingness to pay for insurance products is, but one of many aspects that the industry needs to investigate, in order to ascertain its appetite to service this market.

1.3 Problem statement

1.3.1 *Main problem*

Events such as earthquakes, heavy storms, and fires can leave families financially devastated. Mechler *et al* (2006) cites that microinsurance can break the cycle of poverty by giving low-income families access to post-disaster liquidity. Ledgerwood *et al* (2013) note that microfinance institutions often focus on the provision of microloans to the mass market and small businesses, which have been proven to alleviate poor people from poverty. Yet, the economic gains, such as accumulation of assets and additional income, may be quickly wiped out by a catastrophe. Ledgerwood *et al* conclude that there needs to be a balance in wealth accumulation and risk transfer mechanisms by the poor.

When faced with a catastrophic event, the poor often turn to savings, emergency loans or money lenders and family, as forms of risk mitigation and to reconstruct their livelihoods (Mechler, Linnerooth-Bayer, & Peppiatt, 2006). Poor people may also turn to governments and donors for relief. Mechler *et al* (2006) note that insurance is a more dignified means of coping with disaster, than relying on the generosity of others.

The main problem statement this study sought to answer was to understand the determinants of demand for property insurance and willingness to pay (WTP) for people living in the rural areas of South Africa.

In their guidelines for the development of microinsurance products, the Microinsurance Centre recommends market research in four spheres for an holistic understanding of market, these are:

a. The demand side – customer needs
b. Supply side – insurers already in the market, products currently in the offering, and servicing models
c. Delivery channels – available distribution channels
d. Regulatory environment – how the regulatory environment impacts the provision of microinsurance products

This research paper looks at factors that hinder and those that drive the adoption for insurance products in the rural areas.

1.3.2 *Sub-problems*

Demographics, socio-economic characteristics of a household, attitude towards risk and past exposure to shocks have been identified as key determinants to demand for insurance products (Bendig, Giesbert, & Susan, 2008) & (Gallenstein, Mishra, Sam, & Miranda, 2015). Secondly, Carter and Maluccio (2002) found that social capital played an important role where a household experienced an idiosyncratic shock compared to when a shock was experienced by a community at large.

The first sub-problem investigated how demographic characteristics of rural households act as determinants of demand for property insurance and willingness to pay (WTP) therefor.

The second sub-problem this study investigated was the impact of social capital as a consumption smoothing mechanism after the occurrence of a shock to income.

The third and fourth sub-problems sought to examine whether risk perception and risk experience can act as determinants of demand for property insurance in the rural areas as well as WTP thereof.

1.4 Significance of the study

Various studies have been done on the impact of idiosyncratic and covariate shocks in rural settings of developing countries, like those done in Ethiopia (Porter, 2008), Thailand, southern India and Côte d'Ivoire (Townsend, 1995) and South Africa, amongst others.

Given the opportunity identified above and the developments in South Africa, in the regulatory framework as well as in the funding environment, one of the challenges that has been identified is the cost of adjusting current business models, in the insurance industry, to accommodate cheaper products for the mass market. This challenge has led to financial service providers designing products that do not consider the needs of

customers. The gap that has been identified is coming up with innovative solutions using technology to design products for the mass market (Kirsten, 2006).

The researcher hopes that the study will contribute towards existing literature on the need for more comprehensive insurance solutions and towards the designing of products and alternative business models that will result in more affordable products that provide adequate cover for people in rural areas.

1.5 Delimitations of the study

The study focuses on the short-term insurance industry and more specifically, on the low-income market. Only the property insurance products are considered in the research. The study assumes that premium rates are driven by risk exposure, probability of such risk occurring and the cost of the operating model. The study did not investigate the relationship between levels of income and consumption as has been done by other researchers, to examine need for insurance.

As mentioned above, the impact of the South African regulations and delivery channels on the microinsurance products are excluded from this research.

1.6 Assumptions

One major assumption that has informed this research project is that there are very few insurance products in the market available to cover rural properties, due to the perceived risks traditional insurance companies see in these areas. The study also assumed that South African rural areas that surround major towns and cities are going through peri-urbanisation, increasing the financial impact of losses due to weather or man-made hazards in these areas and thus the need for suitable insurance products.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The purpose of the literature review is to look at studies previously done to ascertain consumption smoothing mechanisms by people in the rural areas, whether these strategies are adequate or not. The literature review also looks at factors that drive or hinder the adoption of property insurance products in the rural areas of South Africa. Insurance adoption is not only driven by the realisation that one has risk exposures that require transferring. According to Botzen and van der Bergh (2012), consumers may have low willingness to pay for low-probability, high impact risks like flooding or earthquakes. The literature review thus looks at rural consumers' willingness to pay (WTP) for insurance products as well as behaviours that drive the demand for insurance products.

The structure of the literature review takes the following pattern:

- Elements that make up a risk
- Risk mitigation strategies that consumers take to limit risk exposure
- Drivers of insurance adoption
- Consumption smoothing mechanisms after the hazard has occurred

2.2 Definition of topic or background discussion

To understand insurance, from a product development perspective, there are several terminologies that need to be defined. Insurance has been defined generally as a process of sharing the risk of a loss occurring because of death, loss of health or damage to property, in exchange of a premium (Lepow, 2015). However, for a loss to be considered one for insurance purposes, a list of elements must coincide. For an individual or organisation to insure a risk, the following elements must be present:

2.2.1 *Exposure to hazards*

Humans, properties and even economies exist in environments that are exposed to different types of hazards on a regular basis. Gravely (2012) quotes Perry Rahn's

(1986) definition of a hazard, as an event, geological or otherwise, that poses potential danger to human life or property.

Some examples of hazards per the South African Risk and Vulnerability Atlas are:

- Earthquakes
- High winds (cyclones/hurricanes/typhoons)
- Flooding
- Volcanic eruptions
- Landslides
- Drought
- Fires, etc.

2.2.2 *Profiling hazards*

Once a hazard has been identified, an analysis of the probability of its occurrence and the severity of its impact should it occur, is required. The probability of occurrence can be rated as rare, occasional or frequent. Table 4 is an example of the probability of occurrence ranking exercise, by the Disaster Management Authority of the City of New York (2007).

Table 4 - Probability of Occurrence Ranking Factors - DMA New York City

Rating	Probability	Definition
1	Rare	Hazard event is likely to occur less than once in every 30 years
2	Occasional	Hazard event is likely to occur less than once every 5 years, but more often than once every 30 years
3	Frequent	Hazard event is likely to occur more than once every 5 years

The severity of a hazard refers to the impact of a hazard to the population, property or economy. The impact could be low, in that only a few people are affected, like an accident between two cars or could be medium or high (Disaster Management Authority - New York City, 2007).

2.2.3 *Vulnerability*

Once hazards have been defined and profiled, the focus turns to the consumer and each consumer or property is also identified and profiled. Vulnerability is defined as the susceptibility to harm of an individual or property because of exposure to an identified hazard. A house that is built on the banks of a river is more vulnerable to flooding than one built on the top of a hill. While a house built on the slope of a mountain is more susceptible to landslides than one built on a flat surface. According to the South African Risk and Vulnerability Atlas, unsafe conditions are the proximate cause of vulnerability. Unsafe conditions may include:

i. Fragile physical environment
    - Dangerous locations
    - Unprotected buildings and infrastructure

ii. Fragile local economy
    - Livelihoods at risk
    - Low income levels

iii. Vulnerable society
    - Special groups at risk
    - Lack of local institutions

iv. Publications
    - Lack of disaster preparedness
    - Prevalence of endemic disease

2.2.4 *Insurable interest*

Insurable interest is an important insurance requirement which, per Atmeh (2011), dates to 1745 for property and 1774 for life insurance. The insurable interest doctrine requires that the person taking out an insurance policy “benefit from the preservation of the subject matter of the insurance or suffer a disadvantage from the loss of the insured subject” (Atmeh, 2011, p. 97). In other words, a person cannot insure property from which he/she will not suffer a loss directly or indirectly should it suffer damage.

2.2.5 *Defining risk*

Different authors define risk in various ways. Common in the definitions however, is the probability of an exposure. While some authors focus on the probability of the occurrence of a hazard, others focus on the probability of the loss occurring because of an internal or external vulnerability.

Risk is the result of the above elements coming together. This is how the South African Risk and Vulnerability Atlas defines risk – “when hazards meet vulnerability”.

One can therefore define risk as the probability that exposure to a hazard will result in a loss occurring because of an internal or external vulnerability. Matul *et al* (2013) note that the cause of persistent poverty in the lives of the poor is vulnerability to risk.

Risks can be classified as either aggregate (common to a population), like the drought which besieged South Africa between 2015 and 2016, or idiosyncratic (peculiar to an individual or household) for example, death of a family member (Townsend, 1995). Risks such as natural hazards, disasters and civil unrest (covariate risks) could be insurable to a certain extent. In South Africa, for instance, one can buy cover for natural hazards like floods through traditional insurers. Loss resulting from acts of crime like burglaries, may also be insured. The South African government introduced insurance for civil unrest risks, following the violent uprisings of the 1970s against the apartheid government. Civil unrest and riot cover is issued by the state entity, the South African Special Risks Insurance Association (Mushai & MacGregor, 2016).

2.3 Defining insurance and microinsurance

2.3.1 *Insurance as a consumption smoothing tool*

Milton Friedman (1957) proposes that household consumption decisions are based on individuals’ and households’ overall estimation of future income, considering current and known circumstances. Such consumption will be smoothed over the lifetime earnings of a consumer, “using mechanisms to reduce and mitigate income shocks, or using their formal and informal savings and insurance to smooth consumption in the event of a shock hitting” (Porter, 2008, p. 4). The Permanent Income Hypothesis

proposes that income is not directly correlated to consumption, otherwise fluctuations in income would be evident in direct fluctuations in consumption. Such fluctuations in income may be caused by foreseen or unforeseen shocks (such as retirement or unemployment). Insurance is one of the measures that households can use to smooth fluctuations in income by absorbing future income shocks, in case such shocks occur, with a potential effect of increasing income levels, consumption and savings (Townsend, 1995). Porter (2008) cites that Friedman's Permanent Income Hypothesis (PIH) suggests that how consumption reacts to an income shock will depend on the nature of the shock (whether it is anticipated or not) and coping mechanisms thereafter (whether they are permanent or transitory).

The purpose of insurance is to share the risk of loss that could arise because of death, loss of health or damage to property (Lepow, 2015). The process of risk management ideally begins with the consumer identifying risks the household may be exposed to in the future. Once these have been identified, the consumer implements risk mitigation strategies, which may include making physical enhancements to one's property, like installing an alarm system or burglar bars. The consumer may also decide that in the event of some losses to a certain amount, he/she can absorb such losses, this is called self-insurance. Once this has been done, the consumer will be left with residual risk, which he/she may transfer to an insurer.



Figure 8 – Risk mitigation strategies and consumption smoothing mechanisms

2.4 Risk mitigation strategies for people in rural areas

2.4.1 *Ex ante risk mitigation strategies*

Ex ante risk mitigation strategies are strategies that households take to reduce the impact of future risk should it occur (Quinn, Dercon, & Matul, 2013). Dercon (1999) proposes that “households in risky environments have developed sophisticated (ex-ante) risk management strategies including self-insurance using savings and informal insurance mechanisms” (p. 3). Using the definitions built above, ex ante risk mitigations strategies should ideally reduce the consumer’s vulnerability to hazard, thus reducing risk.

2.4.2 *Consumption smoothing strategies*

In studies conducted in rural India, Thailand and Côte d'Ivoire, to investigate the impact of risk mitigation systems on low-income rural economies, Townsend (1995) found that in India, there was a low relationship between the level of household consumption and that of income, which meant that mechanisms existed to buffer shocks to income. Townsend observed that households used borrowing and lending to smooth present consumption. This observation is in line with the Permanent Income Hypothesis (Friedman, 1957). Friedman (1957) however, notes that in circumstances where there are liquidity constraints (permanent shocks) “people without assets would see their consumption track their income” (Porter, 2008, p. 8). Porter (2008) agrees that for shocks which can decrease or increase the earning capabilities of a household permanently, the corresponding change in consumption should be equal to the change in income.

Townsend’s observations on consumption smoothing mechanisms in the three rural economies were:

i. The use of crop inventory as buffer stock and currency, played an important role in consumption smoothing. Large landholders tended to use the buffer stock model, while small landholders resorted to currency.

ii. In India, families formed risk-sharing arrangements. Townsend (1995) cites a finding by Rosenzweig (1988), that households in India married their daughters "out over space", deliberately to open cash flows in between regions.

iii. In Côte d'Ivoire, Grimanrd (1992) found that tribes formed networks to allow consumption smoothing.

iv. In investigating whether consumption of households in Thailand between good years and bad ones, smoothed, and how, Townsend (1995) found that in one village some relatively rich households attempted to smooth consumption via buffer stock, while relatively poor households increased labour to smooth consumption. Townsend concluded that there was a network of relatively rich and poor households that exchanged loans with one another and made use of local village institutions like the rice bank, a housewife fund and health insurance fund. During hard times, flexibility was built in credit terms.

Townsend's final observation was that there seemed to be a deterioration in indigenous arrangements with increased growth, which could call for a greater need for insurance.

2.5 Drivers of insurance adoption in rural areas

Some theories are important to review in the exploration of factors that drive demand for insurance. These theories are the utility and prospect theories. The literature review also explores risk attitudes and risk perceptions, and how these determine the consumer's willingness to pay (WTP).

2.5.1 *Utility theory*

In the face of uncertainty, what motivates a consumer to pay a premium for a loss that might never occur? The term "utility" was first introduced by Daniel Bernoulli as the total satisfaction received from consuming a product or service (Investopedia). The utility theory suggests that a consumer is willing to pay an amount equal to the risk they face. For example, if a consumer has a 1% probability of losing R1 000 000, and a 99% chance of not losing anything, the consumer will be willing to pay up to R10 000 to transfer the risk.

Botzen and van der Bergh (2012) argue that consumers often neglect low-probability risks, like flood risk, thus refuting the utility theory.

The utility theory is still important in that it influences demand, and thus WTP.

2.5.2 *Prospect theory*

Kahneman and Tversky (1979) refuted the utility theory and suggested that consumers are not that rational. Kahneman and Tverky proposed that consumers base their decisions, when faced with uncertainty on perceived gains instead of perceived losses, even if such gain or loss is the same number. Botzen and van der Bergh (2012) concur with this theory as the most relevant when consumers are faced with decisions regarding the purchasing of insurance for low-probability, high-impact hazards. They suggest that individuals are more sensitive to outcomes that are framed as losses than gains due to loss aversion. As such, individuals may either neglect risk or overweigh low-probability risk, depending on how risk averse they are, resulting in an increase or decrease in willingness to pay for insurance against such risks.

This theory is important in that product developers may have to pay some attention to the way they frame risk to consumers, so that demand and thus WTP may be created from risk averse individuals.

2.5.3 *Risk attitudes and perceptions as determinants for willingness to pay (WTP)*

Results from research conducted by Botzen and van der Bergh (2012) on the WTP for flood insurance by households living on a river bank in Switzerland concluded that:

- Many of the respondents dismissed low-probability flood events altogether
- However, when the probability of occurrence increased, willingness to insure (WTI) increased, meaning fewer households neglected the risk, if the probability rose.
- Lastly, WTI increased with the absence in government compensation.

Cai *et al* (2009), in their study of demand for sow insurance in the China's farming community, proposed that the demand for insurance will be determined by two factors:

- Whether the farmers were risk averse or not, and
- How much private information farmers had regarding the probability of risk

Based on the above two factors, Cai *et al* (2009) proposed that:

- If farmers had no private information regarding the probability of risk materialising, all risk averse farmers would demand sow insurance,
- If farmers had private information regarding the probability of risk materialising, and if they perceived such probability as low, then some of the farmers would not buy insurance, even if they were risk averse,
- If farmers were risk neutral, then demand for insurance would increase if farmers had private information about the probability of risk materialising and if the probability was greater than the average perceived risk loss.

In a study done by the International Food Policy Research Institute on WTP for weather-index insurance amongst farmers in Ethiopia (Hill, Hoddinott, & Kumar, 2011), it was found that:

- Insurance markets were likely to be entered by rich, educated and proactive individuals,
- Those facing higher rainfall risk were more willing to purchase an insurance policy,
- Those that behaved in a less risk-averse manner were more likely to buy an insurance policy.

2.6 Risk coping mechanisms for people living in the rural areas

For the consumption smoothing hypothesis to be true, rural households should have adequate coping mechanisms after a shock to be able to continue with their consumption habits, with perhaps temporary or minor adjustments to their spending habits. Research done by Carter and Maluccio (2002) on social capital coping mechanisms in rural KwaZulu-Natal, found that households in rural KwaZulu-Natal

were vulnerable to economic losses because of shocks. The results of the study showed that households could diversify idiosyncratic risks in communities where there was higher social capital. In instances where covariate risks occurred, household-level losses were exacerbated due to the diminished social capital.

The Ethiopian study also found that households with good networks and the ability to access savings and credit could have lower demand for insurance, if the cost was lower than the cost of buying an insurance policy.

2.7 Conclusion of Literature Review

In conclusion, the literature reviewed above looks at various studies done in emerging economies and rural areas, to ascertain appetite for insurance. The literature first builds a case towards the definition of risk and how different individuals have different levels of vulnerability towards risk based on their risk mitigation strategies.

Risk mitigation strategies, household demographics, risk awareness and perception as well as consumption smoothing mechanisms, form an integral part of a consumer's insurance buying decisions. The literature review looks at studies conducted previously to ascertain how these behaviours and demographics of a sample, drive or inhibit the adoption of insurance products.

The literature review then ties in with the following research questions that this study seeks to answer; namely:

2.7.1 *Research Question 1:*

How do South African rural households' demographic characteristics impact demand and WTP for property insurance?

H1a – Higher levels of education have a positive correlation to WTP to rural property insurance

H1b – Lower levels of education negatively correlates to demand for property insurance in rural areas

H1c – There is a higher correlation between demand for insurance and female headed households

H1d – There is a higher correlation between WTP for rural property insurance and female headed households

2.7.2 *Research Question 2:*

Does social capital in the rural areas impact the need for insurance in the rural areas for idiosyncratic and covariant risks?

H5 – Social capital positively moderates demand and WTP for property insurance products

2.7.3 *Research Question 3:*

How does risk perception impact willingness to pay for insurance products in the rural areas?

H3a – There is a positive correlation between demand for insurance and higher risk aversion

H3b – There is a positive correlation between WTP and risk aversion

2.7.4 *Research Question 4:*

How does risk awareness impact demand and WTP for rural property insurance products?

H4a – There is a positive correlation between recent shock experience and risk perception

H4b – There is a positive correlation between demand for rural property insurance and recent shock experience

CHAPTER 3. RESEARCH METHODOLOGY

The objective of the research was to understand the drivers of demand for property insurance in the rural areas of South Africa.

The study looked at how factors such as social capital, education, wealth, risk awareness and risk aversion acted as drivers for willingness to pay (WTP) for property insurance products, in the rural areas of South Africa.

3.1 Research methodology / paradigm

The research methodology adopted for this study is quantitative research which is based on the experiential realism epistemology. This paradigm argues that the world cannot be viewed objectively due to participants' perceptions and the limited number of frames of reference used to view the world (Sukamolson, 2005).

For consumer research, a mixture of electronic and one-on-one surveys were conducted.

3.2 Research Design

The research design was in a form of a self-administered survey type questionnaire. The questionnaire was sent to respondents using electronic media such as WhatsApp, LinkedIn, Facebook, email and telephone.

The advantages of using electronic methods are that they are inexpensive, easy to administer and allow respondents to remain anonymous. According to Sukamolson (2005), the disadvantages of this method are, slow response if mailed, respondents self-select, survey requests require follow up, response may take too long, may be inappropriate for respondents that have limited literacy skills.

3.3 Population and sample

3.3.1 *Population*

According to StatsSA, rural areas in South Africa are spread across all nine provinces, with a notable concentration in Limpopo, KwaZulu-Natal and the Eastern Cape. Because of migrant workers in the major cities of South Africa, some rural property owners may reside away from their primary rural residences and closer to the cities.

The research therefore focused on a variety of people working in the South African towns and cities, which either owned properties in the rural areas or had ties in the rural areas through family or having grown up there.

3.3.2 *Sample and sampling method*

The characteristics of the sample were, people who own houses in the rural areas, whether via purchase, construction or inheritance and people who had family or grew up in the rural areas, even though such properties might not have been the primary residences. The survey was sent to 200 respondents of which 81 responded. The sample was heterogeneous.

The sampling method adopted for this part of the study was the non-probability method, with snowballing as the procedure. The non-probability method was chosen because the sample was limited to rural people of South Africa, since the researcher depended on developed contacts to refer the survey to other respondents. Acharya et al (2013) note that the advantages of this procedure are that it is cost effective and is helpful in locating specific types of respondents. The disadvantages, they continue, are the bias of the sampling, since the respondents are not independent, therefore making it difficult to project data beyond the sample.

3.4 The research instrument

For the purposes of assessing demand for insurance in the rural areas, a structured questionnaire was used. The questionnaire was developed by the researcher based on various previous studies that had been conducted in the field.

Research on the willingness to pay for insurance products identify key determinants for demand to be wealth, aversion to risk, risk perception, education level, age of respondent, risk coping mechanisms and other household characteristics (Gallenstein, Mishra, Sam, & Miranda, 2015). Bendig, Giesbert and Steiner (2008) confirm that other than demographics and socio-economic characteristics of a household, other determinants of household demand for financial services such as loans, savings accounts and insurance, are perception towards risk and past exposure to shocks.

3.4.1 *Demographics of the sample population*

To ascertain general characteristics of the sample population, questions with regard to age, gender, marital status and the relationship of the respondent to the household, were asked.

3.4.2 *Education level*

The questionnaire asked questions regarding level of schooling received by the respondent to capture education level of the research sample.

3.4.3 *Wealth*

To measure household wealth, the questionnaire sought to collect data on employment of the respondent, total household income, remittance income, household savings and characteristics of the rural property in question.

3.4.4 *Risk Perception and Aversion*

To ascertain risk perception and risk aversion of the respondents, one question was asked on the level of concern that various risks would materialise resulting in financial losses in the near future. To control for recency bias, the questionnaire included questions on respondents' experience of loss due to risk materialising over the past five years.

3.4.5 *Risk Coping Strategies and Social Capital*

To measure risk coping strategies, respondents were presented with different types of mechanisms which they would employ in the event of a catastrophe occurring. The questionnaire asked whether the strategy had already been implemented, if it was not, whether there was a plan to implement or not. To proxy social capital as a risk coping mechanism, nine questions were included in the questionnaire, asking whether gifts and help from family and community were expected or not.

3.4.6 *Willingness to Pay (WTP)*

To measure WTP, an economic valuation method known as the Contingent Valuation Method (CVM) was used in the survey. CVM is defined as a study that "asks questions that help reveal the monetary trade-off each person would make concerning the value of goods or services" (Carson, 2012, p. 28). Although the CVM method is used predominantly to ascertain values of non-economic services, however, Gyldmark and Morrison (2001) used the method to test the WTP for health insurance products in Denmark (CVM).

The purpose of the CVM is to measure how WTP for various insurance products varies with characteristics of the populations, such as gender, wealth, education, etc.

Three hypothetical questions were presented in the survey covering various hazards such as fire, burglaries and civil unrest. The questions provided South African statistics on each of the hazards, and asked respondents whether they would buy a policy to cover each hazard. As a follow-up to these questions, respondents were asked to

provide minimum and maximum premiums per month they would be willing to pay for a property with a certain value, considering their budgetary constraints.

* ***Detailed questionnaires have been included in Appendix A.***

3.5 Procedure for data collection

Data was collected electronically using electronic messaging systems and only one telephonic interview was conducted.

3.6 Data analysis and interpretation

The research data was analysed using the Probit regression model analysis. This model of analysis is used in cases where binary questions are asked, for example where the answer can only be 1 or 0 (Cottrell, 2011). In this instance, the dependant variable is the willingness to pay (WTP) for insurance, which takes the value of 1 if an individual is willing to pay and 0 if the individual is not willing to pay.

3.7 Limitations of the study

Because the study was administered electronically, lower income groups in rural areas were excluded due to perceived inaccessibility to electronic media and difficulty in finding such respondents. The study also failed to get a sizeable number of respondents (81/200), limiting its generalisation capabilities.

Although the study tested for the need or gap for insurance, it did not seek to understand the level of riskiness of this potential market. For example, moral hazard, fraud risk and adverse selection issues were not tested. Therefore, although there might be a market for insurance products, how this market would respond to the product has not been considered.

3.8 Validity and reliability

The research sought to ascertain the need for insurance in the rural areas, by understanding the level of preparedness and coping strategies of the rural property owners in dealing with income shocks, because of losses or damage to their properties. To test for validity, Hair *et al* (2010), recommend that the researcher needs to understand what is being measured and then make the measurement correct and accurate. The research is trying to measure willingness to pay for property insurance products should they be presented to the respondents. The survey questions presented, look at various characteristics, experiences and behaviours which previous studies have concluded drive the adoption of insurance products. The survey also specifically excluded respondents who were not associated with rural areas in South Africa.

The research variables were consistent in that they should produce the same response if administered at a later stage. Therefore, there was an appropriate level of reliability of the research instrument.

3.8.1 *External and internal validity*

The research may not have met external validity due to the fact that the non-probability sampling method was used, this method is known to be biased, Acharya et al (2013), since the respondents are not independent, therefore making it difficult to generalise data back to the population of rural dwellers. Also, the sample size was not large enough for the research results to be reliably generalised to other people living in the rural areas of South Africa, however, the research instrument provides insights on what South African short-term insurers could look at when researching this market. Calder (1982) confirms that if the sample (rural people of South Africa) is relevant to the theory (rural people in other emerging markets), it meets the external validity test.

The research results should assist in concluding whether there is a need for property insurance in the rural areas of South Africa. The research was designed to test this, using variables, such that the responses prove whether there was a need for property

insurance products in the rural areas and what should be taken into consideration when developing property insurance products for this market.

3.8.2 *Reliability*

A pilot study was conducted on a sample of students selected at the Wits Business School to test the reliability of the research instruments. Feedback from the pilot study was used to enhance the research instrument.

CHAPTER 4. DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The purpose of this chapter is to present the results of the survey questionnaire that was administered. The first part of the chapter presents the characteristics of the respondents to the survey. The second section of the chapter presents the results of the survey conducted and the last section details the results of the regression analysis conducted.

4.2 Sample characteristics

The sample size as discussed in chapter 3 was estimated at 200 respondents of which only 81 attempted the survey. Of the 81 only 73 (90%) completed the survey, with 70 (90%) of the 73 passing the qualifying question whether they are associated with a house in the rural areas of South Africa.

54% of the respondents that completed the survey were women while 47% of the sample was between the ages of 31 and 40 followed by the age group 41 to 50 years (39%) with the age group 18 to 30 forming 12% of the sample.

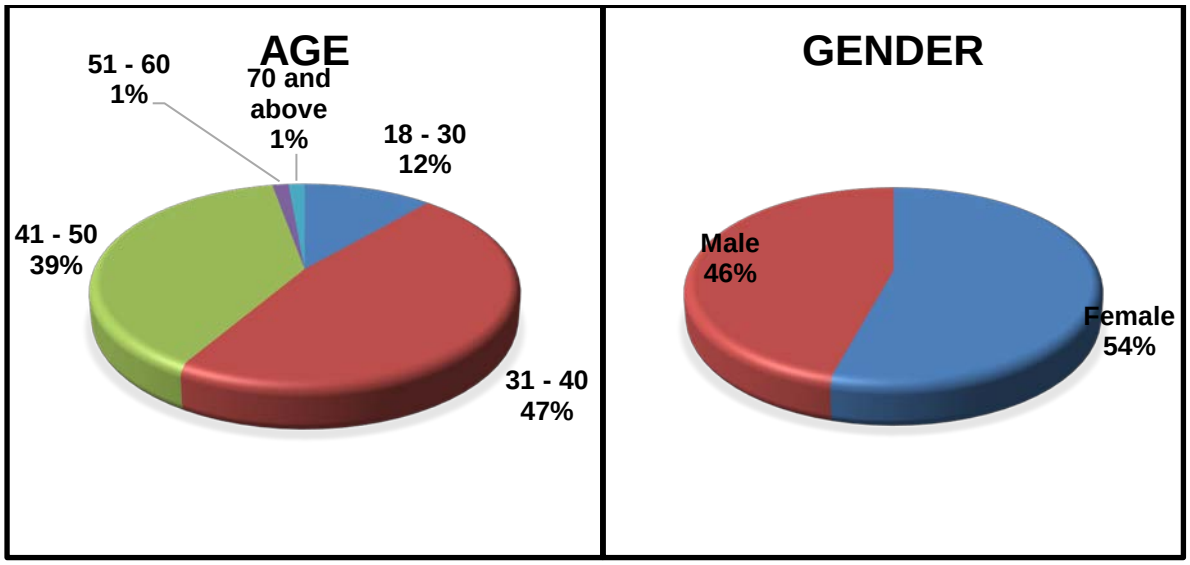

Figure 9 - Age distribution of respondents

More than half of the respondents (53%) had an honours degree or above, with only 10% of them possessing a matric certificate. National Diploma and Degree holders were 17% and 20% respectively.

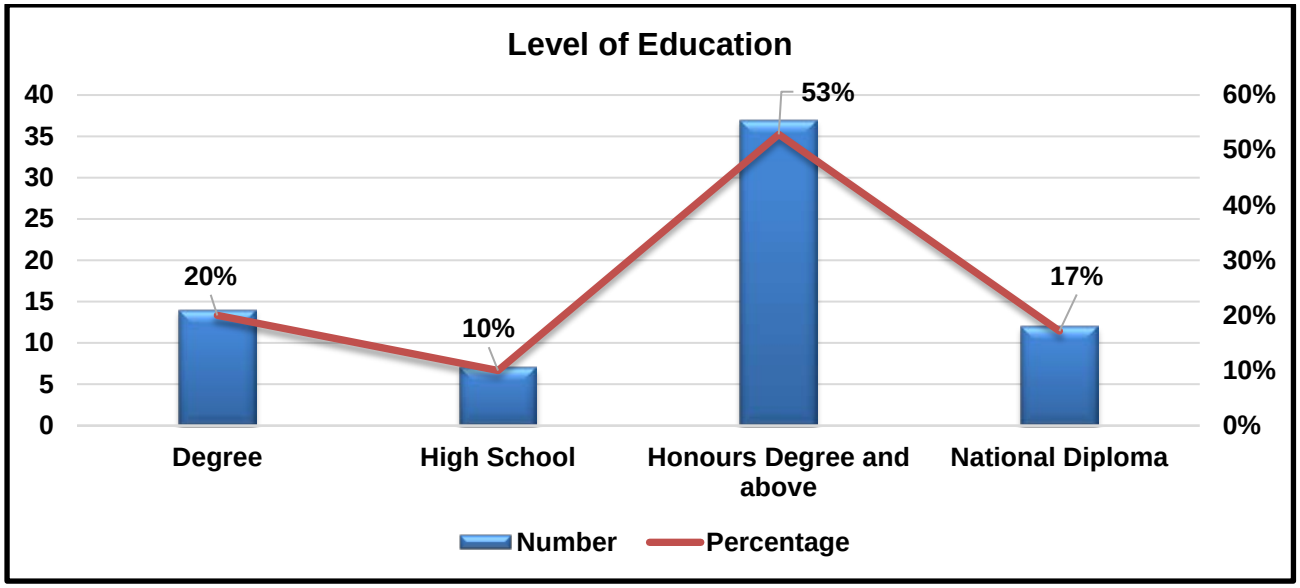

Figure 10 - Level of education of respondents

When asked in which province the rural property was situated, 89% of the respondents confirmed that the rural properties they were associated with were from KwaZulu-Natal, Eastern Cape and Limpopo. Thirty-eight respondents were from KwaZulu-Natal, followed by the Eastern Cape and Limpopo provinces at 12 each.

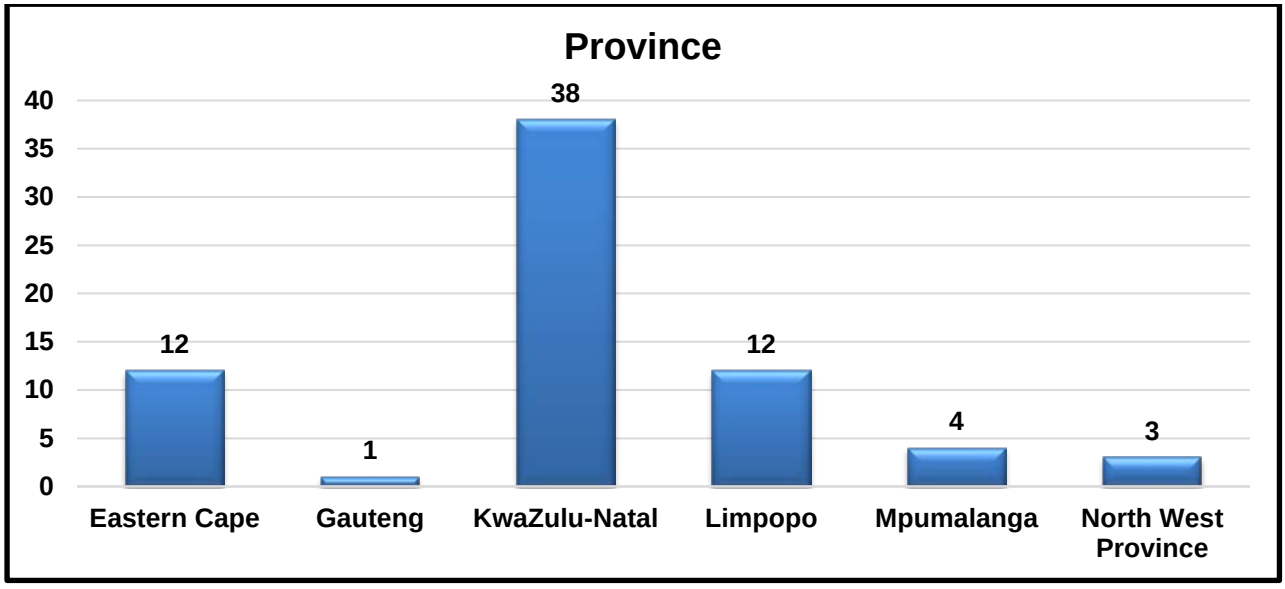

Figure 11 - Provinces from which respondents reside

To estimate wealth of the respondents, the questionnaire included two questions, the first one requesting the total amount of disposable income the household earned per month, second, the questionnaire requested the value of the rural property (house). 66% of the respondents' households earned R25 601 and above per month.

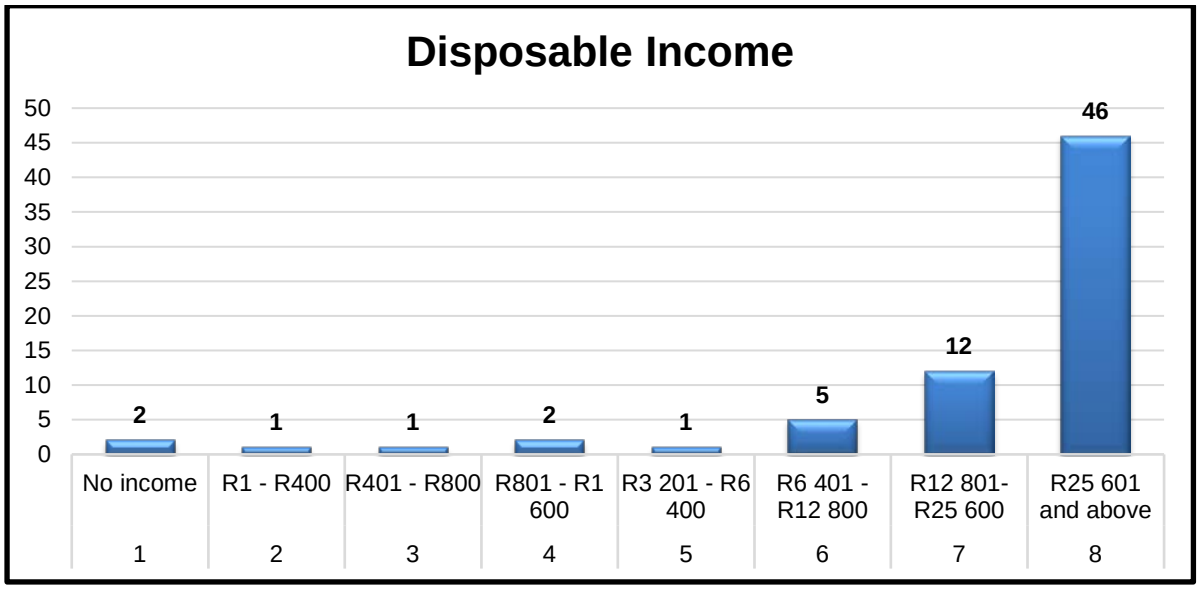

Figure 12 - Total income per household

71% of the respondents indicated that their rural properties (houses) were worth R200 000 and above.

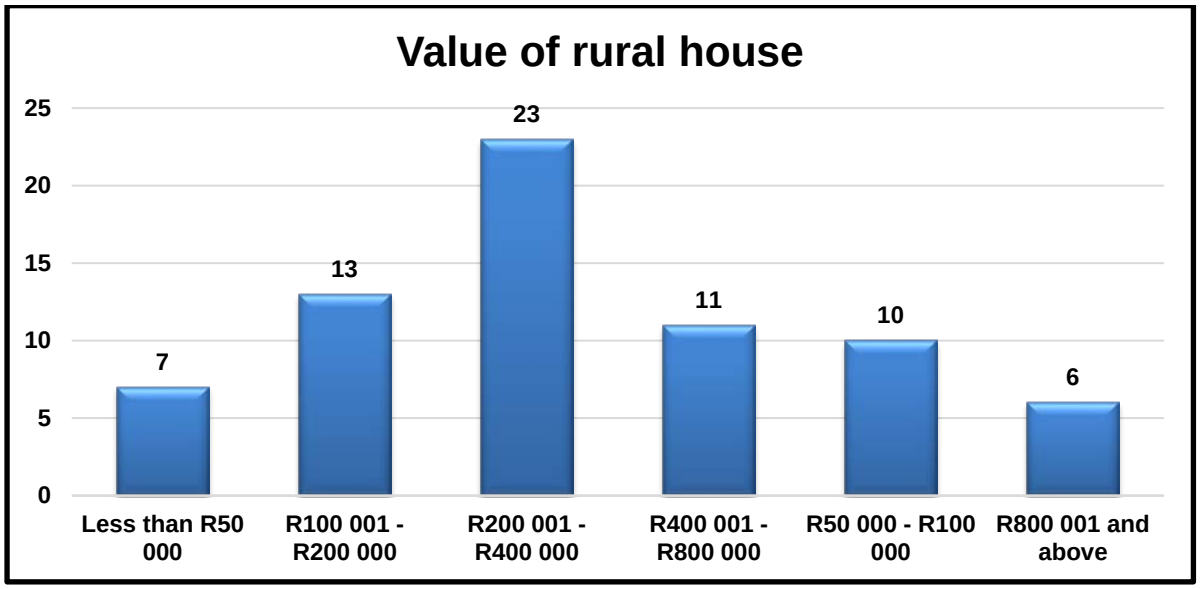

Figure 13 - Value of property in the rural areas

4.3 Results of the survey

As mentioned in Chapter 3, research on the willingness to pay (WTP) for insurance products identified key determinants for demand to be wealth, risk version, risk perception, level of education, age of respondent, risk coping mechanisms and other household characteristics (Gallenstein, Mishra, Sam, & Miranda, 2015). Bendig, Giesbert and Steiner (2008) confirm that other than demographics and socio-economic characteristics of a household, other determinants of household demand for financial services such as loans, savings accounts and insurance, are perception towards risk and past exposure to shocks.

In testing whether the above factors impacted the demand for insurance for people in the rural areas, ten questions were asked in the survey.

4.3.1 Social capital as a determinant for WTP

70 respondents answered questions on social capital, of which 66% agreed or strongly agreed with statements that positively related to the presence and importance of social capital in their rural communities. The statement most agreed with, was the supporting of a project that will benefit the rural community with 96% of the respondents agreeing or strongly agreeing with the statement. Respondents disagreed or strongly disagreed (53%) with the statement that community members in their village take advantage of people to achieve their goals, while they were most neutral on the statement about lending money to their neighbour who had experienced a loss.

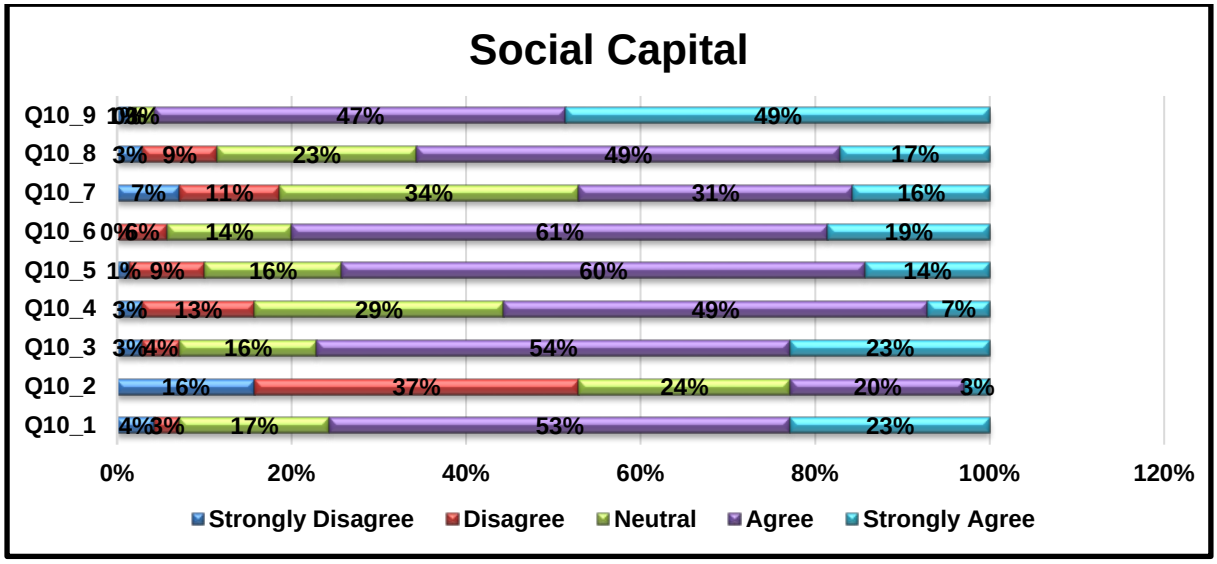

Figure 14 - Responses to social capital questionnaire

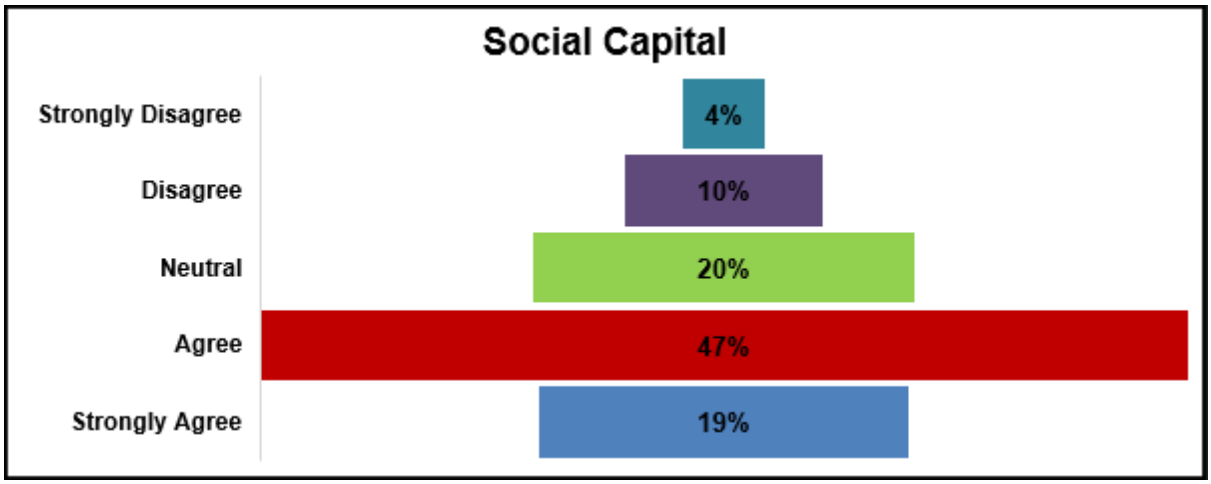

Figure 15 - Social capital responses

4.3.2 Risk Aversion

Respondents were asked to rate their level of concern that one of the hazards listed in the questionnaire would materialise and they would thus experience a loss. 52% of the respondents on average were concerned or very concerned that one of the hazards would occur. Burglaries had the highest rate of respondents very concerned (29%), although the fire hazard received the highest rate of concerned and very concerned respondents at 69%, followed by storms and then burglaries. Respondents were least concerned about civil unrest (70% not concerned or slightly concerned) and earthquakes (75% not concerned or slightly concerned).

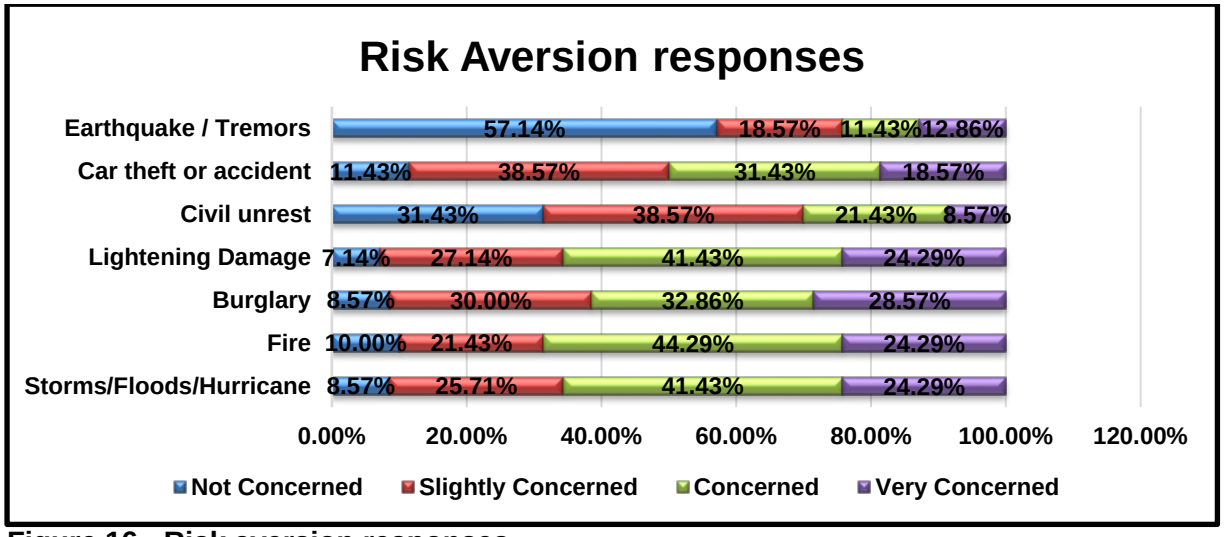

Figure 16 - Risk aversion responses

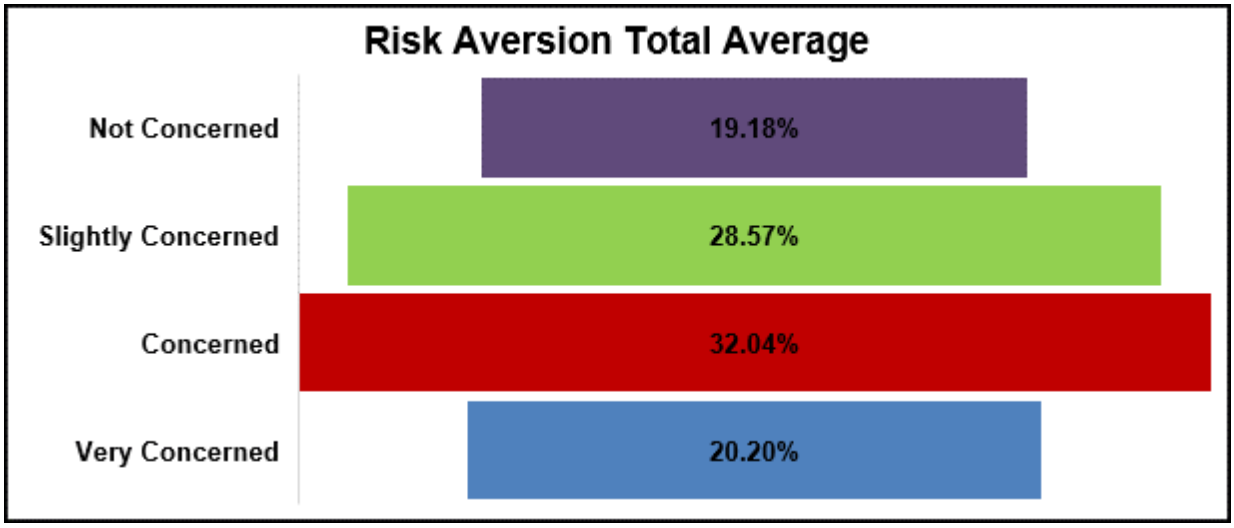

Figure 17 - Risk aversion total average responses

4.3.3 Risk Awareness

70 respondents answered the question on whether they or someone close to them had experienced one or more of the losses listed over the preceding five years. 43% of the respondents agreed with the statements while 57% indicated that they did not experience or know someone who had experienced one of the losses in the last five years. 74% of the respondents answered yes for burglaries followed by storms with 67%. Earthquakes received the least affirmative answers at 7% followed by civil unrest at 11%.

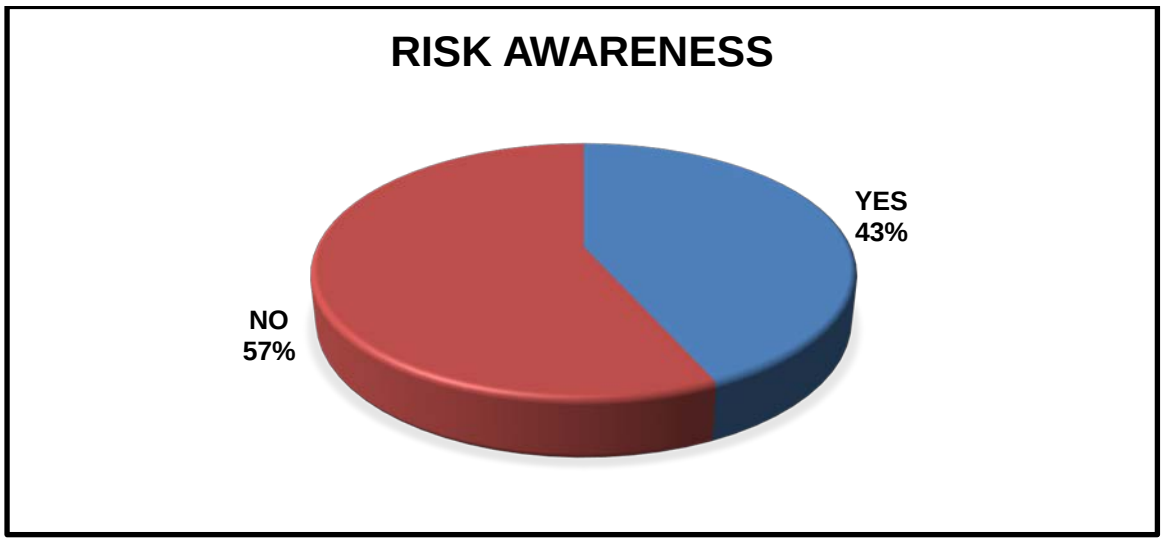

Figure 18 - Average responses for risk awareness

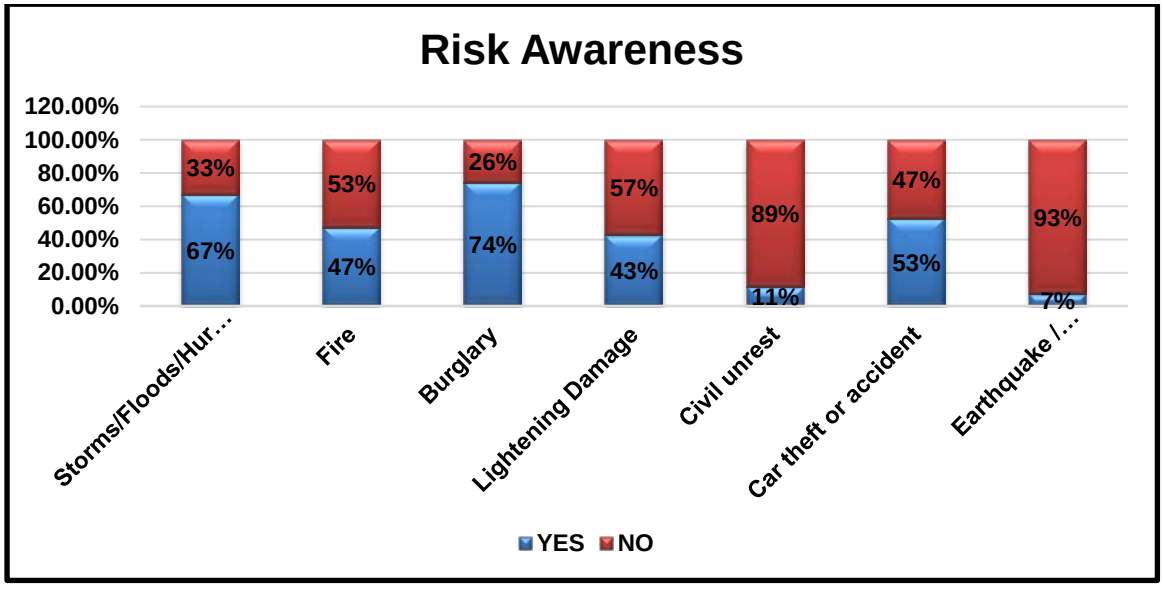

Figure 19 - Responses for risk awareness per hazard

4.3.4 Recency Test

Bias towards a hazard may be caused by having recently experienced a loss. To control for this, the research compared survey results from risk awareness questions to risk perception (aversion) questions. The survey compared the number of respondents who were concerned or very concerned that a risk might materialise to the number of respondents that indicated that they or someone they knew had recently experienced a risk. Except for the fire hazard, respondents seemed to be generally biased towards hazards they had recently experienced.

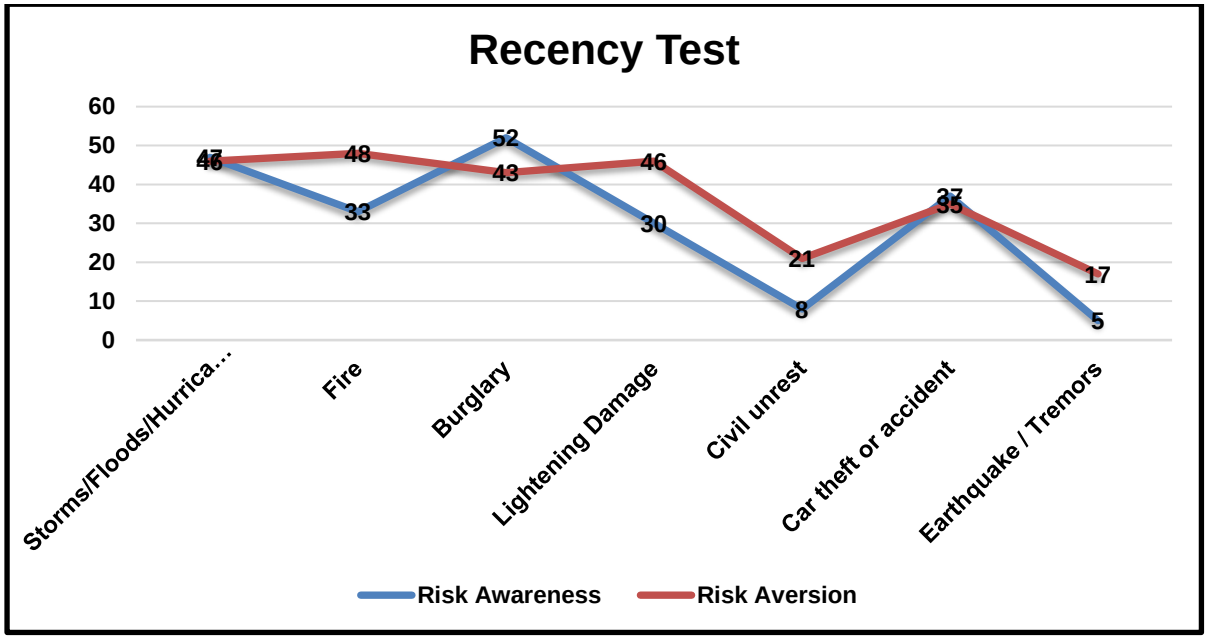

Figure 20 - Recency test results

4.3.5 Ex-post Risk Coping Mechanisms

To ascertain how people in the rural areas planned to cope with losses, ex post, the survey included a question on how they prepared to deal with the loss should it occur. 23% of the respondents had some form of risk coping mechanism in place. Depending on family and creating a savings account were the most preferred risk coping mechanisms, at 43% and 40% respectively. While depending on a stokvel was the third preferred method with 23% of the respondents indicating that they have this in place. Relocating to another area, and purchasing insurance was least preferred at 10% and 14% respectively.

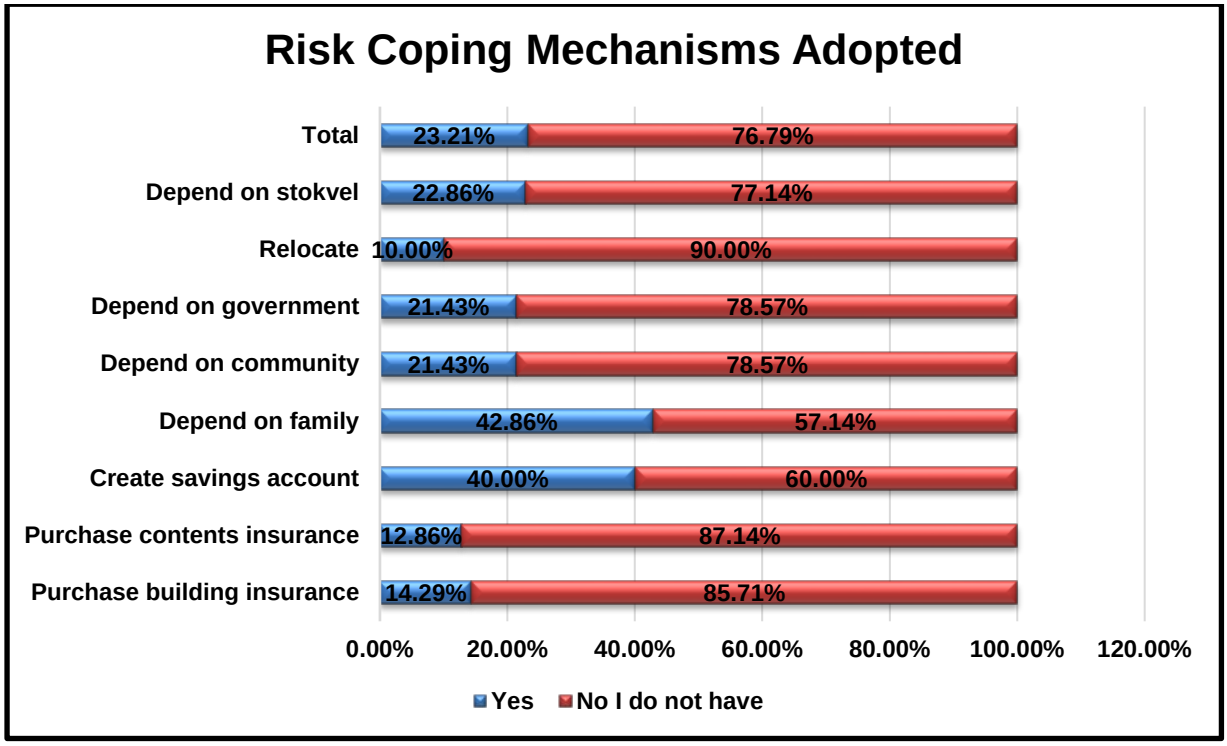

Figure 21 – Risk Coping Mechanisms Adopted

4.3.6 *Ex-post Risk Coping Mechanisms Intended to Adopt*

The survey posed the same questions as in 4.3.5 for respondents that had answered that they did not have one of the risk coping mechanisms in place. The follow-up question was whether they were intending to employ such risk coping mechanism in the future. Of the 77% of the respondents that had answered that they did not have a risk coping mechanism in place, 28% said they were planning to adopt such mechanism in the future, with 72% saying they were not planning to. 45% of the respondents that indicated they did not have house contents insurance, indicated that they were planning to purchase such cover, followed by 40% of respondents that indicated they did not have building insurance, saying they were planning to purchase such policy. The risk coping mechanism respondents were least intending to adopt, was relocating (91%), while respondents that had not adopted a stokvel as a current mechanism were not intending to do so in future (83%).

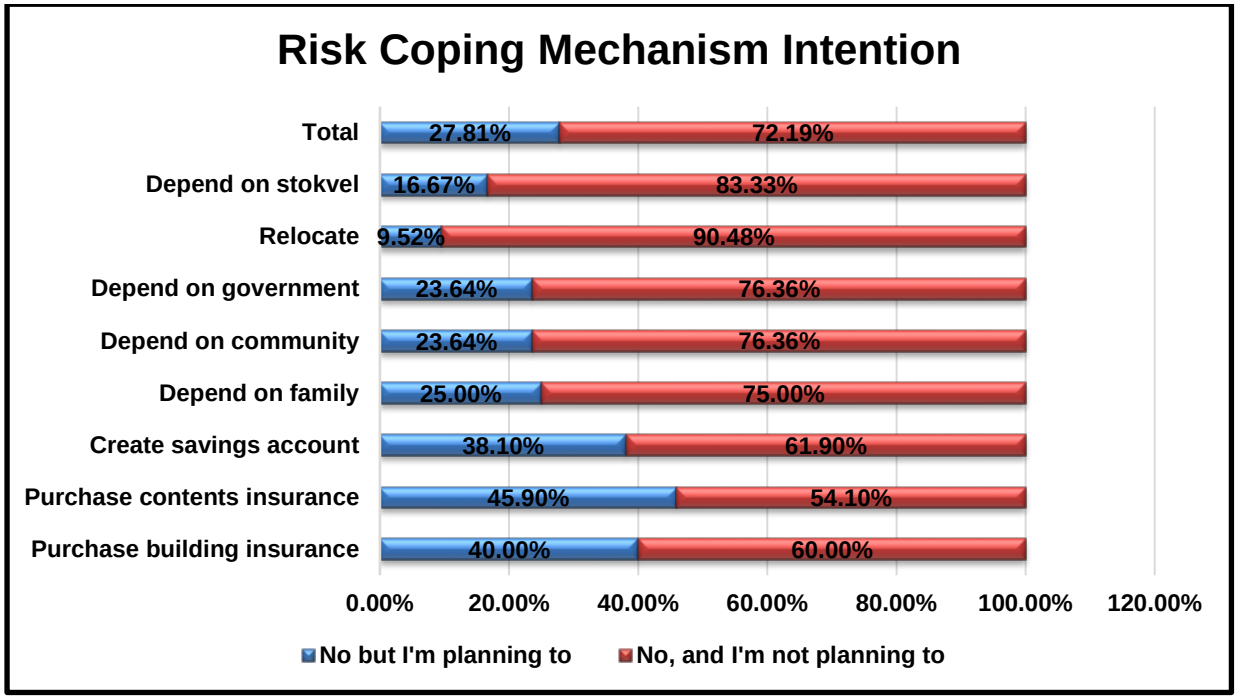

Figure 22 - Number of respondents intending to adopt a risk coping mechanism

4.3.7 *Experience with ex post risk coping mechanisms*

The survey instrument also requested respondents to think back on an event whether man-made or natural, that had occurred in their community in the last five years, to ascertain what coping mechanisms the community employed after the loss had occurred. 44% of the respondents indicated that their community had experienced a catastrophe over the past five years. 87% of catastrophes experienced were storm related.

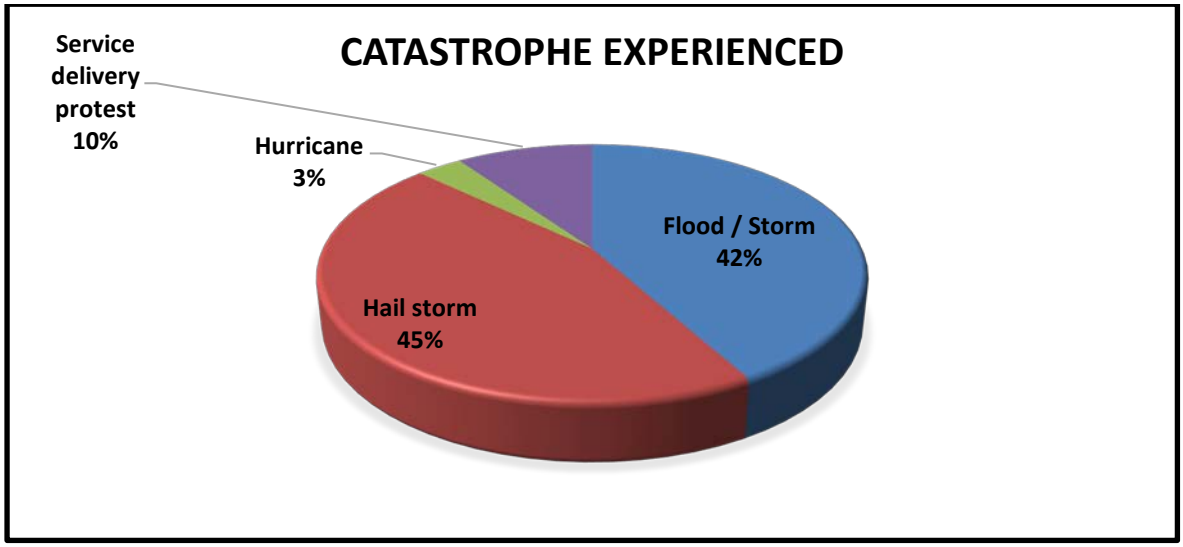

Figure 23 - Catastrophe community experienced

A third of the respondents indicated that after the loss had occurred the community did not need any help. 29% of the respondents indicated that help came from government and donors while almost 19% of the respondents indicated that help came from churches and community based organisations and another 19% said help came from friends.

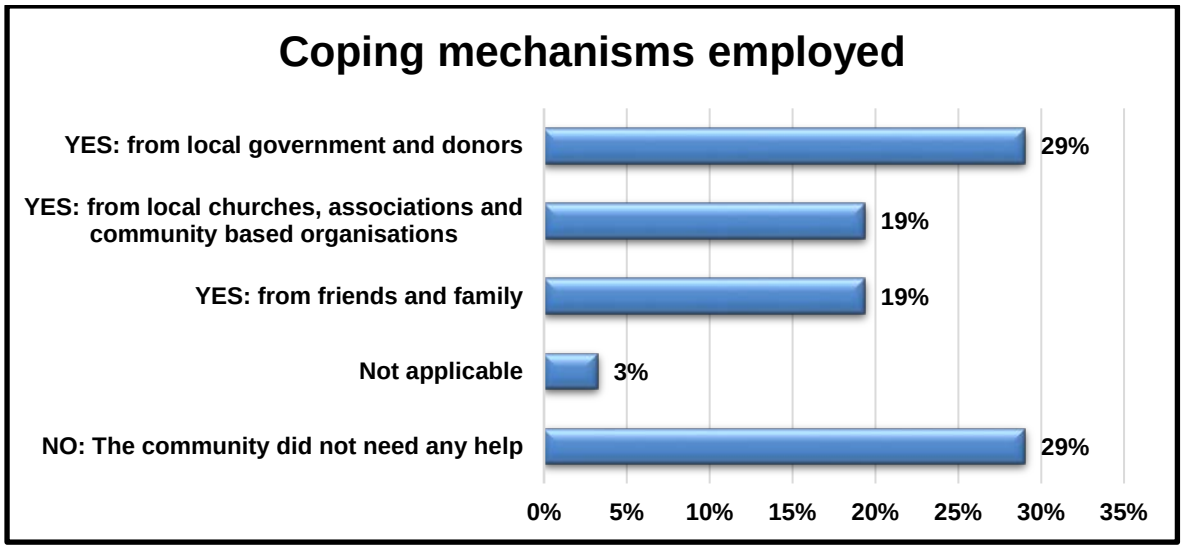

Figure 24 - Ex post coping mechanisms employed by community

4.3.8 *Willingness to Pay for Insurance Products*

When presented with various insurance products, an average of 68% of the respondents indicated that they would buy the insurance product. 77% of the respondents said they would purchase burglary cover, while 76% indicated they would buy fire cover. Riot cover had the lowest percentage of respondents opting for it at 51%.

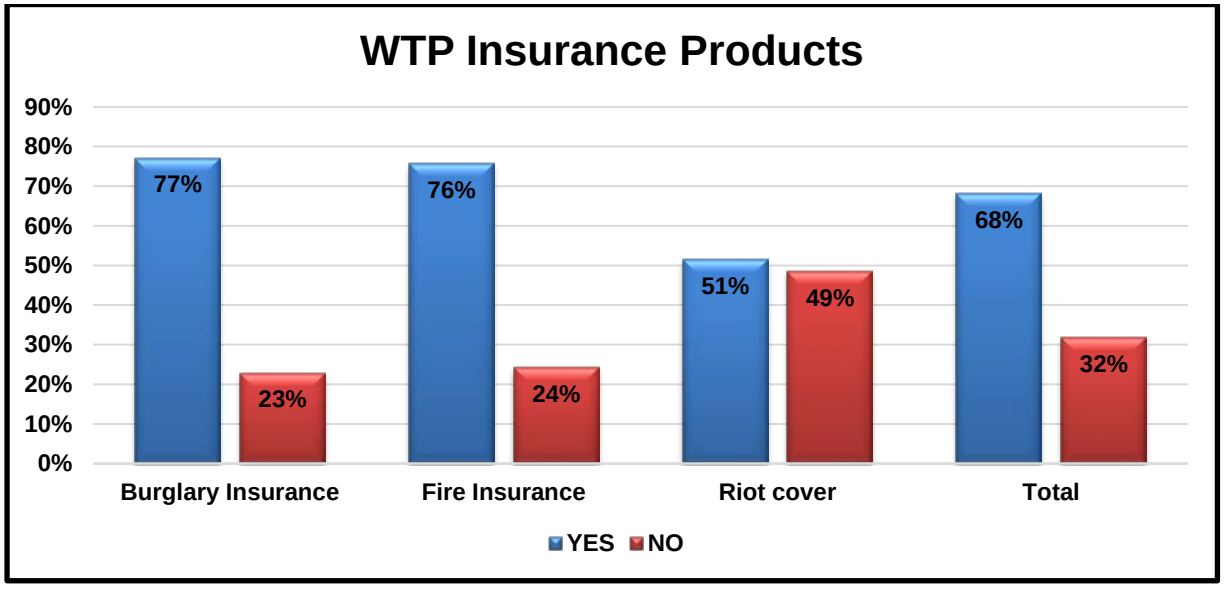

Figure 25 - WTP responses

Table 5 - Average amount willing to pay overall and by sub-groups

	SOCIAL UNREST	FIRE	ROBBERY
Panel A: Overall case			
Mean	172,01	256,21	245,07
Median	2,75	88,75	200,00
Maximum	3 750,00	3 750,00	2 000,00
Minimum	0,00	0,00	0,00
Std. Dev.	484,55	556,69	327,46
Panel B: Group cases			
Mean Male	227,67	288,05	244,92
Mean Female	125,13	229,41	245,20
Diploma	98,64	397,73	353,86
Degree	390,93	403,57	205,00
Honours	108,58	174,86	226,42

4.4 Analysis of the results

4.4.1 *Introduction*

In measuring WTP, binary questions were asked, as per guidelines for CVM (Glydmark & Morrison, 2001). A binary dependent variable is one that can "only take on values 0 or 1 at each observation" (Cottrell, 2011). In this instance, the dependant variable is the willingness to pay (WTP) for insurance, which takes the value of 1 if an individual is willing to pay and 0 if the individual is not willing to pay. Probit model is a type of regression that is used for binary dependent variables. The analysis below adopts Probit models.

4.4.2 *Probit Model*

The data was analysed to test how various factors such as social capital, risk aversion, risk awareness, gender, education, etc. influenced one's willingness to pay for certain insurance packages using Probit model.

The following are the three models that were estimated.

$WTP_{\text{civil unrest}} = \beta_1+\beta_2 X_i+U_i$	(1)
$WTP_{\text{Fire Insurance}} = \beta_1+\beta_2 X_i+U$	(2)
$WTP_{\text{Burglary Insurance}} = \beta_1+\beta_2 X_i+U$	(3)

Figure 26 - Probit Model equations

Where X_i is a set of independent variables, including social capital, risk aversion, risk awareness, gender, education level. WTP =1 if respondent is willing to pay for insurance and 0 if respondent is not willing to pay.

4.4.3 *Probit Model Table definitions*

For each model a dependant variable is identified, for instance, in Model 1 the dependant variable is WTP for civil unrest insurance (**WTP_CUNREST**), while in Model 2 it is WTP for fire insurance (**WTP_FIRE**) and Model 3 WTP for burglary insurance (**WTP_BURGLARY**).

SOCIAL_CAP – The social capital score is the composite score for social capital based on the summation of all the responses to the nine questions asked, forming one score for each respondent.

RISK_AVERSION – The risk aversion score is the composite score for risk aversion constructed following a similar approach for social capital, summation of all seven questions to form a single score for each respondent.

RA_CIVIL_UNREST - risk awareness is a dummy variable based on a risk awareness question referring to civil unrest.

DEG = is a dummy variable where 1=respondent has a degree; 0=otherwise

DIP = is a dummy variable where 1=respondent has a diploma; 0=otherwise

HONS = is a dummy variable where 1=respondent has honours; 0=otherwise

SEX = is a dummy variable where 1=respondent has a male; 0=female

Q13 = is a dummy variable where 1=whether there has been any natural or man-made disaster that has affected respondents' rural community; 0=otherwise.

Table header

The header contains basic information regarding the estimation technique (ML for Maximum Likelihood) and the sample used in estimation, as well as information on the number of iterations required for convergence, and on the method used to compute the coefficient covariance matrix.

Coefficient - These are the regression coefficients. A positive coefficient means that an increase in the predictor leads to an increase in the predicted probability. A

negative coefficient means that an increase in the predictor leads to a decrease in the predicted probability.

Std. Error - These are the standard errors of the individual regression coefficients. They are used in both the calculations of the z test statistic

z-Statistic - The test statistic z is the ratio of the Coef. to the Std. Err. of the respective predictor. The z value follows a standard normal distribution which is used to test against a two-sided alternative hypothesis that the Coef. is not equal to zero.

Prob. - This is the probability the z test statistic (or a more extreme test statistic) would be observed under the null hypothesis that a particular predictor's regression coefficient is zero, given that the rest of the predictors are in the model. For a given alpha level, Prob. determines if the null hypothesis can be rejected or not. If Prob. is less than alpha, then the null hypothesis can be rejected and the parameter estimate is considered statistically significant at that alpha level.

4.4.4 *Probit Model Results*

In general, one cannot interpret the coefficients from the output of a probit regression (not in any standard way, at least). One needs to interpret the marginal effects of the regressors, meaning, how much the (conditional) probability of the outcome variable changes when you change the value of a regressor, holding all other regressors constant at some values. This is different from the linear regression case where one is directly interpreting the estimated coefficients. This is so because in the linear regression case, the regression coefficients are the marginal effects.

Impact of various factors on the willingness to pay using Probit models.

The correlation matrix displayed in Appendix C, shows correlation of 0.56 between WTP for fire and WTP for burglary insurances; and 0.52 between WTP for fire and civil unrest insurance policies.

4.4.5 *Model 1. Willingness to Pay for Civil Unrest Insurance*

Table 6 – Model 1 - WTP for civil unrest insurance

Dependent Variable:	WTP_CUNREST (CIVIL UNREST)			
Method:	ML - Binary Probit (Quadratic hill climbing)			
Sample:	1 70			
Included	70			
Convergence achieved after 4 iterations				
Covariance matrix computed using second derivatives				
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
C	-2,90	1,69	-1,72	0,09
SOCIALCAP	0,01	0,04	0,32	0,75
RISK_AVERSION	0,14	0,05	3,03	0,00
Q13	0,12	0,34	0,37	0,71
RA_CIVIL_UNREST	-0,07	0,58	-0,12	0,91
DEG	0,76	0,66	1,16	0,25
DIP	-0,37	0,69	-0,53	0,59
HONS	-0,09	0,56	-0,16	0,88
SEX	-0,19	0,35	-0,53	0,60
McFadden R-squared	0,17	Mean dependent var		0,51
S.D. dependent var	0,50	S,E, of regression		0,47
Akaike info criterion	1,40	Sum squared resid		13,53
Schwarz criterion	1,69	Log likelihood		-40,16
Hannan-Quinn criter.	1,52	Deviance		80,31
Restr. deviance	96,98	Restr, log likelihood		-48,49
LR statistic	16,67	Avg, log likelihood		-0,57
Prob(LR statistic)	0,03			
Obs with Dep=0	34	**Total obs**		70
Obs with Dep=1	36			

Willingness to pay for civil unrest insurance (based on question Q20_1. This is the dependent variable for model 1.

Willingness to pay for civil unrest insurance (based on question Q20_1). This is the dependent variable for model 1.

SOCIAL_CAP = the composite score for social capital based on Q10_1 to Q10_9 (i.e. summation of all the responses to form one score for each respondent).

RISK_AVERSION = composite score for risk aversion. Constructed following a similar approach for social capital (summation of Q11_1 to Q11_7 to form a single score for each respondent).

RA_CIVIL_UNREST = risk awareness (dummy variable based on Q12_5).

In Model 1, Risk Aversion is the only factor that shows statistical significance.

The coefficient is 0.141191 which means that an increase in risk aversion increases the probability of paying for an insurance to cover damages due to civil unrest.

This is statistically significant because its prob. (0.0024) is less than 0.05 while the prob. for the remaining variables are all greater than 0.05, which means they are not statistically significant.

4.4.6 *Model 2. Willingness to Pay for Fire Insurance*

Table 7 – Model 2 - WTP for fire insurance

Dependent Variable:	WTP _FIRE			
Method:	ML - Binary Probit (Quadratic hill climbing)			
Sample:	1 70			
Included observatior	70			
Convergence achieved after 5 iterations				
QML (Huber/White) standard errors & covariance				
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
C	0,17	1,69	0,10	0,92
SOCIALCAP	-0,05	0,05	-0,98	0,33
RISK_AVERSION	0,11	0,05	2,04	0,0411
RA_FIRE	0,71	0,40	1,76	0,08
Q13	-0,11	0,38	-0,28	0,78
DEG	1,11	0,75	1,48	0,14
DIP	0,02	0,68	0,03	0,98
HONS	-0,20	0,51	-0,40	0,69
SEX	-0,05	0,38	-0,12	0,90
McFadden R-squared	0,19	Mean dependent var		0,76
S.D. dependent var	0,43	S,E, of regression		0,41
Akaike info criterion	1,16	Sum squared resid		10,40
Schwarz criterion	1,45	Log likelihood		-31,46
Hannan-Quinn criter.	1,27	Deviance		62,92
Restr. deviance	77,61	Restr, log likelihood		-38,80
LR statistic	14,69	Avg, log likelihood		-0,45
Prob(LR statistic)	0,07			
Obs with Dep=0	17	Total obs		70
Obs with Dep=1	53			

Willingness to pay for fire insurance (based on question Q18_1).

SOCIAL_CAP = the composite score for social capital based on Q10_1 to Q10_9 (i.e. summation of all the responses to form one score for each respondent).

RISK_AVERSION = composite score for risk aversion. Constructed following a similar approach for social capital (summation of Q11_1 to Q11_7 to form a single score for each respondent).

RA_CIVIL_FIRE = risk awareness (dummy variable based on Q12_2).

Similar to Model 1, in Model 2 Risk Aversion shows statistical significance. The coefficient is 0.107040 and it is statistically significant because its prob. (0.0411) is less than 0.05. The positive coefficient means that an increase in risk aversion increases the probability of paying for an insurance to cover damages due to fire.

4.4.7 *Model 3. Willingness to Pay for Burglary Insurance*

Table 8 - Model 3 - WTP for Burglary Insurance

Dependent Variable:	WTP_BUGLARY
Method:	ML - Binary Probit (Quadratic hill climbing)
Sample:	1 70
Included observations:	70
Convergence achieved after 5 iterations	
QML (Huber/White) standard errors & covariance	

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1,14	1,81	-0,63	0,53
SOCIALCAP	0,05	0,05	0,96	0,34
RISK_AVERSION	0,05	0,05	1,11	0,27
Q13	0,13	0,35	0,37	0,71
RA_BURGLARY	-0,06	0,39	-0,15	0,88
DEG	-0,28	0,66	-0,42	0,67
DIP	0,10	0,70	0,15	0,88
HONS	-0,67	0,60	-1,11	0,27
SEX	-0,27	0,36	-0,75	0,45

McFadden R-squared	0,08	Mean dependent var	0,77
S.D. dependent var	0,42	S,E, of regression	0,43
Akaike info criterion	1,24	Sum squared resid	11,37
Schwarz criterion	1,53	Log likelihood	-34,52
Hannan-Quinn criter.	1,36	Deviance	69,05
Restr. deviance	75,26	Restr, log likelihood	-37,63
LR statistic	6,21	Avg, log likelihood	-0,49
Prob(LR statistic)	0,62		

Obs with Dep=0	16	Total obs	70
Obs with Dep=1	54		

Willingness to pay for burglary insurance (based on question Q16_1).

SOCIAL_CAP = the composite score for social capital based on Q10_1 to Q10_9 (i.e. summation of all the responses to form one score for each respondent).

RISK_AVERSION = composite score for risk aversion. Constructed following a similar approach for social capital (summation of Q11_1 to Q11_7 to form a single score for each respondent).

RA_BURGLARY = risk awareness (dummy variable based on Q12_3).

In Model 3, all probs. are greater than 0.05, therefore none of the coefficients are statistically significant.

4.4.8 *Goodness-of-Fit Tests*

To assess goodness-of-fit, Pearson Chi-square was performed. Two goodness-of-fit tests were carried out, being: Hosmer-Lemeshow (1989) and Andrews (1988a, 1988b). The idea underlying these tests is to compare the fitted expected values to the actual values by group. If these differences are “large”, we reject the model as providing an insufficient fit to the data. Briefly, the tests differ in how the observations are grouped and in the asymptotic distribution of the test statistic. The Hosmer-Lemeshow test groups observations based on the predicted probability that y=1. The Andrews test is a more general test that groups observations based on any series or series expression. The null and alternative hypotheses for the test are as follows

H0: the current model fits well

HA: the current model does not fit well

Therefore, if the p-value (Prob. Chi-Sq.) is large then we do not reject the null hypothesis and we conclude that the current model fits well.

The test result using the default specification is shown in Tables 9 to 11.

The columns labelled “Quantiles of Risk” portray the high and low value of the predicted probability for each decile. Also portrayed are the actual and expected

number of observations in each group, together with the contribution of each group to the overall Hosmer-Lemeshow (H-L) statistic—large values indicate large differences between the actual and predicted values for that decile. Statistical data is reported at the bottom of the table. Because grouping based on the fitted values falls within the structure of an Andrews test, results for both the H-L and the Andrews test statistic are thus reported.

Table 9 - Model 1 - Goodness-of-Fit Evaluation for Binary Specification – WTP Civil Unrest Ins.

Goodness-of-Fit Evaluation for Binary Specification
Andrews and Hosmer-Lemeshow Tests
Equation: EQ01B
Grouping based upon predicted risk (randomize ties)

	Quantile of Risk			Dep=0		Dep=1	Total	H-L
	Low	High	Actual	Expect	Actual	Expect	Obs	Value
1	0,11	0,23	6	5,83	1	1,17	7	0,03
2	0,24	0,27	5	5,25	2	1,75	7	0,05
3	0,29	0,36	5	4,73	2	2,27	7	0,05
4	0,36	0,43	4	4,30	3	2,70	7	0,06
5	0,43	0,48	6	3,85	1	3,15	7	2,68
6	0,51	0,56	2	3,24	5	3,76	7	0,88
7	0,56	0,67	1	2,61	6	4,39	7	1,58
8	0,70	0,74	3	1,96	4	5,04	7	0,77
9	0,74	0,84	1	1,46	6	5,54	7	0,18
10	0,85	0,98	1	0,74	6	6,26	7	0,10
	Total		34	33,96	36	36,04	70	6,37

H-L Statistic	6,37	**Prob, Chi-Sq(8)**	0,6063
Andrews Statistic	11,98	**Prob, Chi-Sq(10)**	0,2862

Results from both Hosmer-Lemeshow (0.6063) and Andrews (0.2862) goodness-of-fit tests show that Model 1 fits well.

Table 10 - Model 2 - Goodness-of-Fit Evaluation for Binary Specification – WTP Fire Ins.

Goodness-of-Fit Evaluation for Binary Specification
Andrews and Hosmer-Lemeshow Tests
Equation: EQ02B
Grouping based upon predicted risk (randomize ties)

	Quantile of Risk			Dep=0		Dep=1	Total	H-L
	Low	High	Actual	Expect	Actual	Expect	Obs	Value
1	0,38	0,46	4	4,05	3	2,95	7	0,00
2	0,46	0,54	4	3,44	3	3,56	7	0,18
3	0,56	0,65	2	2,70	5	4,30	7	0,30
4	0,67	0,73	3	2,13	4	4,87	7	0,51
5	0,73	0,78	1	1,72	6	5,28	7	0,40
6	0,79	0,83	1	1,30	6	5,70	7	0,09
7	0,83	0,90	0	0,90	7	6,10	7	1,03
8	0,91	0,95	2	0,55	5	6,45	7	4,19
9	0,96	0,99	0	0,19	7	6,81	7	0,19
10	0,99	1,00	0	0,04	7	6,96	7	0,04
		Total	17	17,01	53	52,99	70	6,92

H-L Statistic	6,92	Prob, Chi-Sq (8)	0,545
Andrews Statistic	25,44	Prob, Chi-Sq (10)	0,005

For Model 2, the Hosmer-Lemeshow (0.5454) goodness-of-fit test shows that the Model fits well, while the Andrews (0.0046) test shows to the contrary.

Table 11 - Model 3 - Goodness-of-Fit Evaluation for Binary Specification - WTP Burglary Ins.

Goodness-of-Fit Evaluation for Binary Specification
Andrews and Hosmer-Lemeshow Tests
Equation: EQ03B
Date: 03/21/17 Time: 18:33
Grouping based upon predicted risk (randomize ties)

	Quantile of Risk			Dep=0		Dep=1	Total	H-L
	Low	High	Actual	Expect	Actual	Expect	Obs	Value
1	0,39	0,61	3	3,26	4	3,74	7	0,04
2	0,63	0,66	3	2,42	4	4,58	7	0,21
3	0,67	0,72	3	2,14	4	4,86	7	0,49
4	0,72	0,75	1	1,87	6	5,13	7	0,55
5	0,75	0,77	2	1,70	5	5,30	7	0,07
6	0,79	0,81	1	1,41	6	5,59	7	0,15
7	0,81	0,83	1	1,24	6	5,76	7	0,06
8	0,84	0,88	1	0,96	6	6,04	7	0,00
9	0,90	0,92	1	0,63	6	6,37	7	0,24
10	0,92	0,99	0	0,33	7	6,67	7	0,34
		Total	16	15,96	54	54,04	70	2,16

H-L Statistic	2,16	Prob, Chi-Sq(8)	0,9758
Andrews Statistic	8,65	Prob, Chi-Sq(10)	0,5654

For Model 3 both Hosmer-Lemeshow and Andrews goodness-of-fit tests show that the model fits well.

As shown above, the diagnostic checks for show model adequacy, except for model 2 where the p-value for the HL test is large, while the value for the Andrews test statistic is small, providing mixed evidence of problems.

4.4.9 *Probability Response Curves*

Finally, the effect of risk aversion on the willingness to pay (WTP) for various insurance packages is investigated. In other words, the fitted probabilities of increments in willing to pay for various insurance packages are plotted as a function of the level of risk aversion, fixing the values of other variables at their sample means. This is achieved by creating a model out of the estimated equations (i.e. equation 1 to 3) and using this model to solve for values of the probabilities for various levels of risk aversion, with all other variables equal to the mean values. As the risk aversion variable is a composite score of 7 items on a Likert scale of 5, values ranging from 7 (minimum level of risk aversion) to 35 (maximum level of risk aversion) were created. Furthermore, a series containing the mean values of the other explanatory variables (i.e. DEG, DIP, HONS, Ex post coping mechanisms, Risk awareness, Gender, and Social Capital) is created. Three different models were created and solved based on equations 1 to 3. Figure 26 displays a graph of the fitted willingness to pay probabilities plotted against levels of risk aversion. It shows the effect of different levels of risk aversion on probability of willingness to pay. At a lower level of risk-aversion, respondents are more willing to pay for robbery insurance (green lines), followed by fire and then civil unrest. At higher levels of risk aversion, the probability of paying for fire and civil unrest insurance are almost equal, while that of robbery is lower.

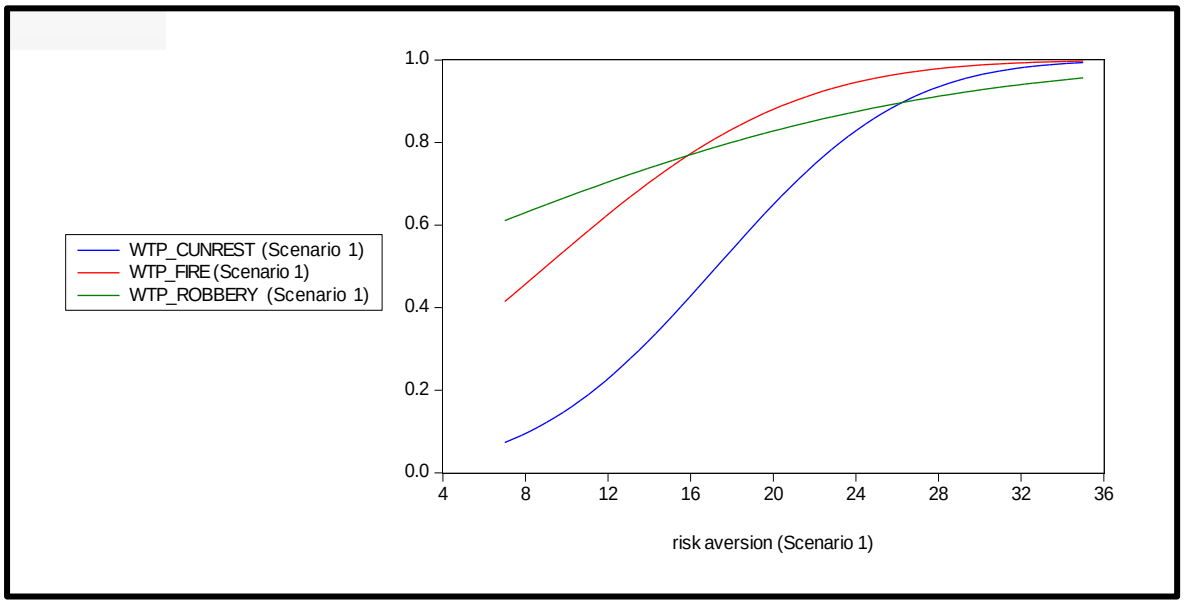

Figure 27 - Probability Response Curves for willingness to pay for insurance as a function of level of risk aversion

Fitted probabilities of willingness to pay for various insurance policies as a function of risk aversion for two values of the “ex post risk coping mechanism” questionnaire (occurrence of man-made or natural disaster in the last five years) were also plotted, fixing the values of other variables at their sample mean. The procedure followed in the first instance is applied here again, except that “ex post risk coping mechanism” question is set to zero (i.e. the case where there has not been any occurrence of man-made or natural disaster) in scenario 1 and solve for the model. Scenario 2 is the case where there has been an occurrence of natural or man-made disaster in the last five years. Figures 27 to 29 show the effect of the occurrence of man-made or natural disaster in the last five years (“ex post risk coping mechanism”) on the probability of willingness to pay for various levels of risk aversion. Willingness to pay is always greater in the case where there has been an occurrence of disaster in the past five years (red lines).

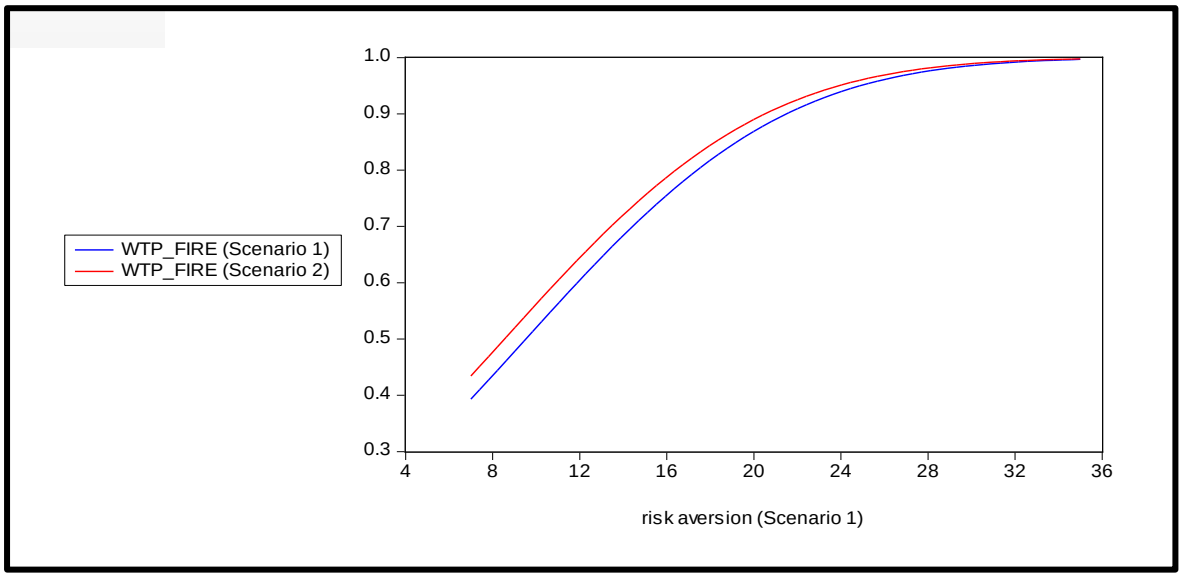

Figure 28 - Probability Response Curves for willingness to pay for fire insurance

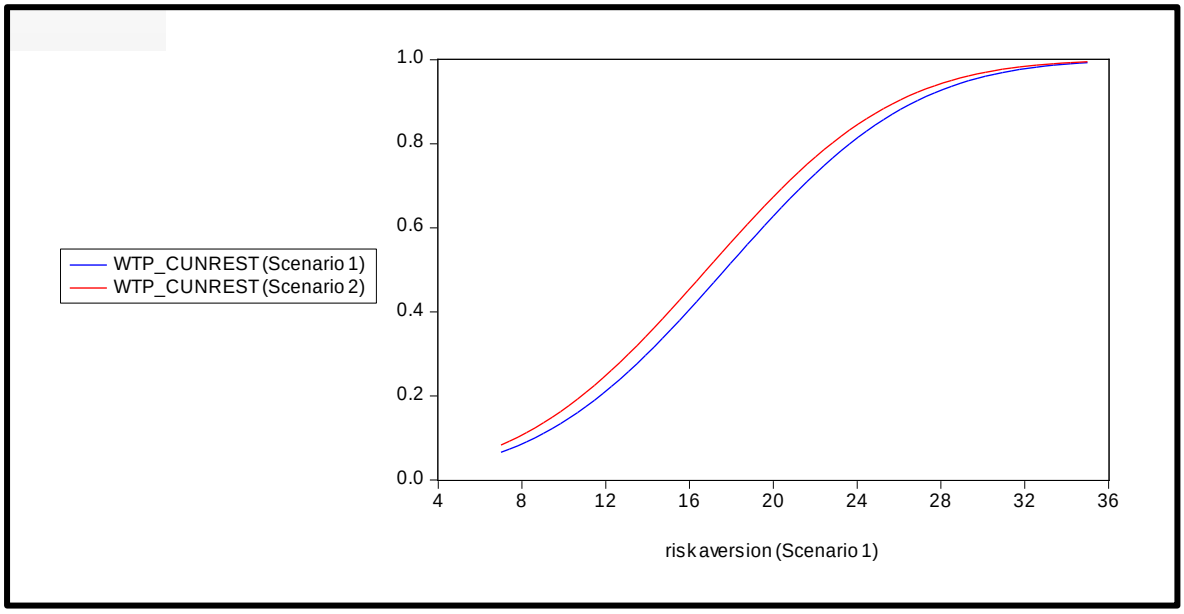

Figure 29 - Probability Response Curves for willingness to pay for insurance based on civil unrest

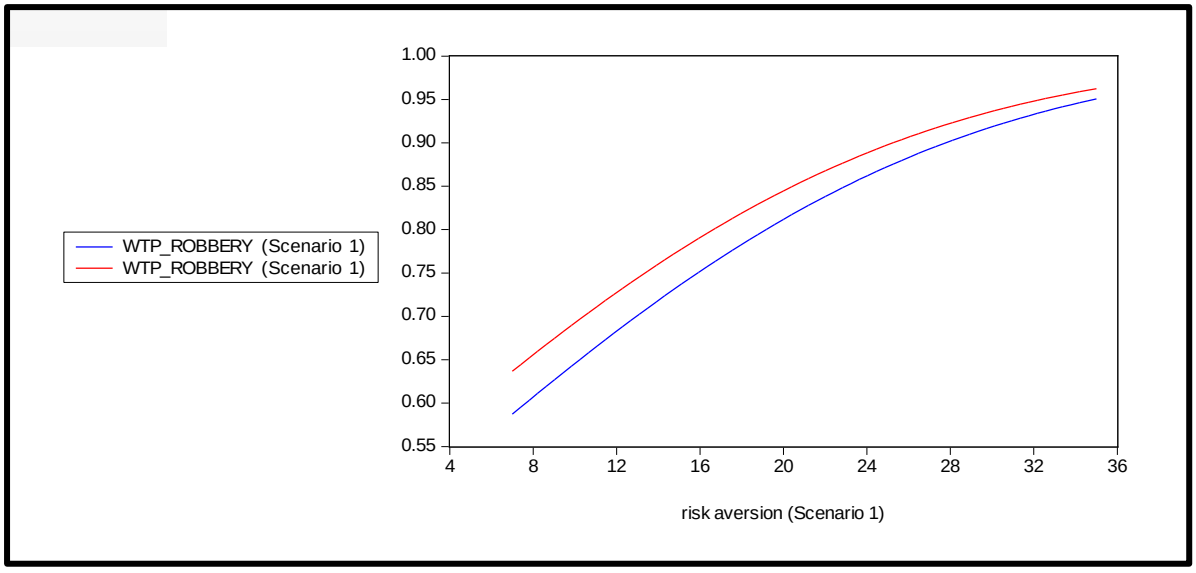

Figure 30 - Probability Response Curves for willingness to pay for robbery insurance

CHAPTER 5. CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The purpose of this chapter is to present concluding thoughts to the study, based on the research results. The chapter first presents a summary of the research findings, conclusions and recommendations with regard to the development of property insurance products for people living in the rural areas of South Africa. Second, the chapter deals with recommendation for future research that could potentially add value to this body of knowledge.

5.2 Conclusions of the study

The objective of the study was to ascertain the determinants of demand for property insurance in the rural areas and what factors informed WTP for such products. Factors looked at were household demographics, social capital, risk awareness (experience) and risk perception (level of aversion) as determinants of willingness to pay for property insurance in the rural areas. The study also looked at current risk coping mechanisms that people in the rural areas adopted to deal with losses they might suffer due to natural or man-made hazards. This insights could assist insurance product developers in firstly, understanding whether currently rural dwellers have adequate consumption smoothing mechanisms, to be able to survive an income shock, and secondly; what should be incorporated into the insurance products for people living in the rural areas and what is not necessary.

5.2.1 *Factors affecting the adoption of property insurance in the rural areas of South Africa*

The following five factors were identified and proposed as drivers of or inhibitors to the adoption of property insurance products in the rural areas of South Africa.

Proposition 1 - Higher levels of education have a positive correlation to WTP to rural property insurance

Proposition 2 - Lower levels of education negatively impacted the demand for property insurance in rural areas

Proposition 3 - There is a higher correlation between demand for insurance and female headed households

Proposition 4 -There is a positive correlation between WTP and risk aversion

Proposition 5 - Social capital positively moderates the demand and WTP for property insurance products in the rural areas

All five factors proposed in the study were derived from various studies conducted in low income markets and rural areas of the developing world. The study concluded that not all these factors were significant determinants for WTP for property insurance products.

5.2.2 *Household demographics*

The study concludes that household demographics such as gender, age, income and education, were not significant determinants to the WTP for property insurance products. Respondents, regardless of their background, had a general understanding of hazards and risk exposure and had an idea of what coping mechanisms they would adopt should a loss occur. The study was limited in that not all income and education groups were represented. People of no schooling with low monthly incomes, did not form part of the study.

5.2.3 *Social capital as an inhibitor to the adoption of property insurance products*

The results of the study showed that there is a high level of social capital in people living in rural areas, regardless of their educational background or wealth status. However, the results were not conclusive on whether social capital would inhibit rural area dwellers in purchasing insurance products, nor did it conclude that social capital was an adequate risk coping mechanism, in case of a shock.

Interestingly, the research results showed that female respondents opted less for support from family as a risk coping mechanism than men.

5.2.4 *Risk perception and experience as a driver of property insurance product adoption*

The study concluded that respondents that had experienced a loss or knew of someone who had experienced a loss within the past five years, were more prone to recency bias. This means that risk perception of this group was influenced by their recent experience of a loss. However, the study also concludes that risk perception is a driver of willingness to pay (WTP) for property insurance products.

When presented with different types of hazards (both man-made and natural) that could occur, respondents were more concerned about suffering a loss because of burglary, fire and storm related events. Although there is a high degree of civil unrest in South Africa, respondents did not seem to be concerned about suffering losses as a result of such an event occurring.

5.2.5 *Risk coping mechanisms*

The results of the study show that people living in the rural areas of South Africa employ a variety of consumption smoothing mechanisms to cope with income shocks, including being members of Stokvels, savings and depending on family and community for support. Insurance products are not currently being used as a consumption smoothing mechanism, however there is considerable intention to use such in the future.

5.2.6 *Willingness to pay for property insurance*

The study concludes that WTP for property insurance cover increases with an increase in risk aversion. As mentioned above, risk aversion is informed by risk awareness. The results of the study show that at a lower level of risk-aversion, respondents were more willing to pay for burglary cover, followed by fire and then civil unrest. At the higher levels of risk aversion, there was a higher probability of paying for fire and civil unrest cover, while WTP for burglary cover was lower.

5.3 Recommendations

The South African rural landscape has changed considerably since the dawn of democracy in 1994. Peri-urbanisation is a reality for those that cannot afford to live in cities, while they aspire to a better quality of life. The provision of water and electricity has made it possible for rural home dwellers to build houses of value in these areas. However, lack of land ownership impacts negatively on raising secured loans to build houses to code. This has a ripple effect on perceptions about the quality of properties in the rural areas. Furthermore, perceptions regarding literacy levels may act as inhibitors to developing suitable products for this market.

The results of the study clearly indicate that there is an appetite for property insurance products for people living in the rural areas of South Africa, especially those in the higher income brackets. There is a general awareness of risks and hazards and rural home dwellers have consumption smoothing mechanisms that they adopt in cases when they experience a loss, however these mechanisms might not be optimal. The importance of optimal mechanisms demonstrates how consumers can use funds set aside to cope with losses otherwise, if they had other means to cope with such losses. The presence of alternative means, may allow rural home dwellers to direct their money to other income producing activities, which allows them to take more risks, with a higher possibility for returns.

Rani (2014) identifies six factors that influence consumer behaviour as:

- Problem recognition
- Information Search
- Evaluation of alternatives
- Purchase Decision
- Purchase
- Post-Purchase Evaluation

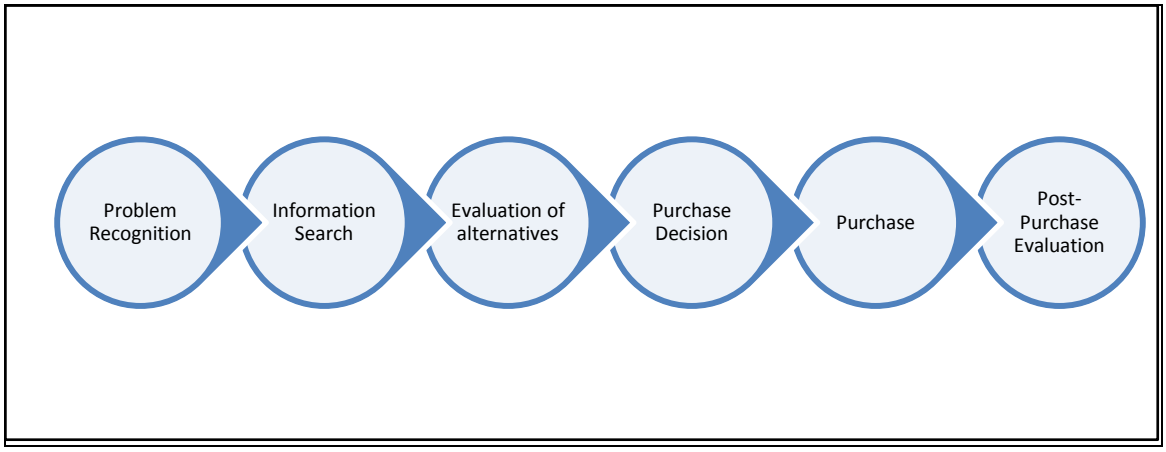

Figure 31 - Factors influencing consumer behaviour - (Rani, 2014)

The research results show that WTP for property insurance products is highly linked to risk awareness and risk aversion. It may thus be concluded that consumers that are risk averse have reached the problem recognition stage of consumer behaviour, albeit first step. This is important because if there is accessible information on insurance products available, this will assist the consumers to evaluate options and decide whether to purchase a product or not.

This paper therefore recommends that insurance companies test suitable platforms to make insurance product information available to property owners in the rural areas, if such products exist. Currently, very few products have been developed for this market, due to current business models that are not cost effective for the rural market.

Finally, this paper recommends that product development specialists take into account rural market dynamics before replicating products sold in the first world market, as this market has a different set of values and needs and perhaps cover for this market may be more affordable if current consumption smoothing mechanisms are taken into account.

The microinsurance legislation needs to consider changing from a consumer based definition (low-income market) to a general definition that takes into account the previously excluded consumers, including rural areas at large. This will allow microinsurers to take advantage of the current high sums insured in the rural areas and not be limited to the low income market that might not be profitable on its own.

5.4 Recommendations for future research

Further studies into the low-income market of the rural areas who have lower levels of education may require further future research. The lower income market is not easily accessible to researchers using electronic means of collecting data.

It may be well worth the effort to understand constraints that limit short-term insurance companies from developing products for the rural market. For example, the research results show that there is a high awareness of burglary risk and WTP, the insurance industry has specific security measures to reduce risk exposure in urban areas. In rural areas, infrastructure such as rapid armed response and fire stations, is not readily available. This may have a negative impact of product pricing, unless product innovation takes this into account.

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APPENDIX A – RESEARCH QUESTIONNAIRE

SECTION 1 : DEMOGRAPHIC QUESTONNAIRE

1.1. How old are you?

1	**18 – 24**
2	**25 – 34**
3	**35 – 49**
4	**50 – 64**
5	**65 – 74**
6	**75 and above**

1.2. Your gender is:

1	**FEMALE**
2	**MALE**

1.3. What is your marital status?

1	**Single and never married**
2	**Married**
3	**Widowed**
4	**Divorced**
5	**Living with partner**

1.4. What is your relation to the rural household?

1	**Head**
2	**Spouse**
3	**Child**
4	**Other (parent, sibling, child-in law, etc.)**

1.5. What is the highest school grade/class/standard that you passed?

1	**NO SCHOOLING**
2	**GRADE 1 / SUB A**
3	**GRADE 2 / SUB B**
4	**GRADE 3 – GRADE 7 / STANDARD 1 – STANDARD 5**
5	**GRADE 8 – GRADE 10 / STANDARD 6 – STANDARD 8**
6	**GRADE 11 – GRADE 12 / STANDARD 9 – STANDARD 10**

1.6. What is the income category that best describes your household's gross monthly income before deductions and including all sources of income?

	Monthly
1	**No income**
2	**R1 – R400**
3	**R401 – R800**
4	**R801 – R1 600**
5	**R1 601 – R3 200**
6	**R3 201 – R6 400**
7	**R6 401 – R12 800**
8	**R12 801 – R25 600**
9	**R25 601 and above**

SECTION 2 : PROPERTY OWNERSHIP QUESTIONNAIRE

2.1. Do you own property in the rural areas of South Africa?

1	**YES**
2	**NO**

2.2. Which province is your property situated

1	**KwaZulu-Natal**	**2**	**Gauteng**
3	**Eastern Cape**	**4**	**Western Cape**
5	**Northern Cape**	**6**	**North West Province**
7	**Limpopo**	**8**	**Mpumalanga**
9	**Free State**		

2.3. Who currently occupies your property in the rural areas?

1	**Myself**	**3**	**Tenants**
2	**My family**	**4**	**Other**

2.4. What is the estimated value of the house in the rural areas?

1	**Less than R50 000**
2	**R50 001 – R100 000**
3	**R100 001 – R200 000**
4	**R200 001 – R400 000**
5	**R400 001 – R800 000**
6	**R800 001 and above**

SECTION 3 : SOCIAL CAPITAL QUESTIONS

	QUESTION	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
3.1.	Most community members in my village can be trusted	1	2	3	4	5
3.2.	Most community members in my village take advantage of people to achieve their own goals	1	2	3	4	5
3.3.	My neighbours can be trusted	1	2	3	4	5
3.4.	Community leaders in my village like the counsellors can be trusted	1	2	3	4	5
3.5.	Community members in my village are concerned about the wellbeing of other community members	1	2	3	4	5
3.6.	Community members in my village will provide help to their fellow community members if needed	1	2	3	4	5
3.7.	I would lend money to my neighbour if he / she had his/her property lost, stolen or damaged?	1	2	3	4	5
3.8.	If my village was a large family, I would be a member in this family?	1	2	3	4	5
3.9.	I would like to support a project that might not benefit me most, but benefit my rural community?	1	2	3	4	5

Figure 32- Social Capital Questionnaire - (CBHI, 2013)

SECTION 4 : RISK PERCEPTION QUESTIONNAIRE

How concerned are you that one of the following hazards will affect your property in the rural areas in the near future?

Hazard / Risk	Not concerned	Slightly concerned	Concerned	Very concerned
Storms / Floods / Hurricane	1	2	3	4
Fires	1	2	3	4
Burglary	1	2	3	4
Lightening damage to electrical appliances	1	2	3	4
Damage to house caused by civil unrest	1	2	3	4
Car accident	1	2	3	4
Earthquakes / Earth tremors	1	2	3	4

Figure 33 - Perceived risk questionnaire - (Mase, Gramig, & Prokopy, 2016)

SECTION 5 RISK EXPERIENCE QUESTIONNAIRE

Over the past five years I or someone close to me has been affected by one of the following events:

Risk / Hazard	YES	NO
Storms / Floods / Hurricane	1	2
Fires	1	2
Burglary	1	2
Lightening damage to electrical appliances	1	2
Damage to house caused by civil unrest / riots	1	2
Car accident	1	2
Earthquakes / Earth tremors	1	2
	1	2

Figure 34 - Risk experience questionnaire - (Keller, Siegrist, & Gutscher, 2006)

SECTION 6 : COPING STRATEGIES

In the event of any of the above hazards occurring, which of the following statements are true:

Coping strategy	Already implemented	Not implemented but planning to	Not implementing and not planning to
I have purchased a property insurance to cover structure	1	2	3
I have purchased an insurance policy to cover contents of house (like furniture, electrical appliances)	1	2	3
I have created a savings account	1	2	3
I depend on family to help	1	2	3
I depend on the community members to help	1	2	3
I depend on government and local counsellors to help	1	2	3
I will relocate to another area	1	2	3

Figure 35 - Adaptation strategy questionnaire - (Mase, Gramig, & Prokopy, 2016)

SECTION 7 : WILLINGNESS TO PAY FOR INSURANCE QUESTIONNAIRE

Please respond to the questions tabled below.

QUESTION	YES	NO
On average 568 robberies occur in South Africa every day. If you were offered an insurance policy that would pay you, in case you were robbed of your possessions. The policy will replace your lost possessions with new ones. The following terms and conditions must be met before your possessions are replaced:- premiums must be paid up to date- you will be required to report the robbery to your local police station (SAPS), - you will be required to provide proof that the possessions belong to you (proof of purchase) - Would you buy this policy?		
On average 14 fires occur in private residences, everyday in South Africa. Most of these accidents are caused by smoking, electrical failure, open flame cooking, etc. Let us assume that you were offered an insurance policy that will pay you up to the value of your house and belongings in the event that your house was destroyed by fire that was caused by accident. The following terms and conditions must be met before the claim is paid:- premiums must be up to date- the fire must have been accidentally or maliciously started - Would you buy this policy?		
In South Africa, 6 properties are damaged by riots / service delivery protests every day. These losses cost R700 million. Let us assume that you were offered an insurance policy that will pay you up to the value of your house and belongings in the event that your house was vandalised as a result of a service delivery protest. The following terms and conditions must be met before the claim is paid:- premiums must be up to date- there must have been a service delivery protest in the area on the day of damage or loss- damage or loss must be reported to the local policy station (SAPS) - Would you buy this policy?		

Figure 36 - Willingness to Pay Survey Questions - (Hill, Hoddinott, & Kumar, 2011)

APPENDIX B – CONSISTENCY MATRIX

This main problem statement this study seeks to answer is what are the determinants of demand for property insurance and willingness to pay for people living in the rural areas of South Africa.					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
How do South African rural households' demographic characteristics impact demand and WTP for property insurance?	De Bock and Gelade (2012) Matul et al (2013)	H1a – Post matriculation levels of education positively correlate to demand for property insurance H1b – Higher levels of education have a positive correlation to WTP to rural property insurance H1c – Lower levels of education negatively correlates to demand for property insurance in rural areas H1d – There is a higher correlation between demand for insurance and female headed households H1e – There is a higher correlation between WTP for rural property insurance and female headed households	**Survey**	**Primary**	**Regression analysis model will be used to analyse research results. It will look at non-discourse analysis**

Sub-problem	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
How does risk perception impact willingness to pay for insurance products in the rural areas?	Botzen and van der Bergh (2012) De Bock and Gelade (2012) Matul et al (2013) Cai et al (2009) Ethiopia (Hill, Hoddinott, & Kumar, 2011),	H3a – There is a positive correlation between demand for insurance and higher risk aversion H3b – There is a positive correlation between WTP and risk aversion	**Survey**	**Primary**	**Regression analysis model will be used to analyse research results. It will look at non-discourse analysis**
How does risk awareness impact demand and WTP for rural property insurance products?	Botzen and van der Bergh (2012) De Bock and Gelade (2012) Matul et al (2013) Cai et al (2009) Ethiopia (Hill, Hoddinott, & Kumar, 2011),	H4a – There is a positive correlation between WTP and recent shock experience H4b – There is a positive correlation between demand for rural property insurance and recent shock experience	**Survey**	**Primary**	**Regression analysis model will be used to analyse research results. It will look at non-discourse analysis**

Sub-problem	Literature Review	Hypotheses or Propositions or Research questions	Source of data	Type of data	Analysis
Does social capital in the rural areas impact the need for insurance in the rural areas for idiosyncratic and covariant risks?	Carter and Maluccio (2002)	H5 – Social capital positively moderates the relationship between covariant risks and WTP for insurance products	**Survey**	**Primary**	**Regression analysis model will be used to analyse research results. It will look at non-discourse analysis**

APPENDIX C – CORRELATION MATRIX

Table 12 - Correlation Matrix

Correlation	WTP_FIRE	WTP_ROBBERY	WTP_CUNREST	SOCIALCAP	RISK_AVERSION	RA_FIRE	RA_BURGLARY	RA_CIVIL_UNREST	DEG	DIP	HONS	SEX	Q13
WTP_FIRE	1.00												
WTP_ROBBERY	0.56	1.00											
WTP_CUNREST	0.52	0.29	1.00										
SOCIALCAP	-0.08	0.09	0.00	1.00									
RISK_AVERSION	0.27	0.18	0.39	0.02	1.00								
RA_FIRE	0.27	0.31	0.35	0.22	0.29	1.00							
RA_BURGLARY	-0.18	-0.01	-0.18	-0.08	0.04	0.16	1.00						
RA_CIVIL_UNREST	0.10	0.09	0.08	0.08	0.24	0.11	0.21	1.00					
DEG	0.20	0.02	0.20	-0.11	-0.08	0.10	-0.03	0.04	1.00				
DIP	0.06	0.14	-0.05	-0.07	0.17	-0.01	0.16	-0.16	-0.22	1.00			
HONS	-0.20	-0.17	-0.12	0.05	-0.07	-0.14	-0.10	-0.02	-0.53	-0.46	1.00		
SEX	-0.08	-0.12	-0.14	0.13	-0.30	-0.12	0.15	0.12	0.19	-0.08	-0.05	1.00	
Q13	0.07	0.04	0.12	-0.03	0.17	0.14	0.10	0.20	0.10	0.06	-0.03	0.00	1.00