

UNIVERSITY OF KWAZULU-NATAL

**Examining factors affecting lapse rates in the South African short
term insurance industry**

By

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A dissertation submitted in partial fulfilment of the requirements for the
degree of

Master of Business Administration

**Graduate School of Business and Leadership
College of Law and Management Studies**

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Year of submission:

2019

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ACKNOWLEDGEMENTS

I wish to express my sincere appreciation and gratitude to the following individuals, without whose assistance, this study would not have been possible:

- To God, for giving me the strength and willpower to persevere in completing this dissertation
- My husband Showan, for always believing in me and for his unwavering patience, understanding, love and support
- My supervisor, Professor Mihalis Chasomeris for his guidance and invaluable expertise
- Talksure, my employer for its financial support
- My parents, for their love, support and encouragement

ABSTRACT

The Insurance industry is one of the main contributors to the South African economy. The threats resulting from insurance lapse within the South African short term insurance industry are of great economic importance as lapse negatively influences the role player's financial state. The aim of this research is to examine factors affecting lapse rates in the South African short term insurance industry. A quantitative research methodology was applied for this investigation. The policy data obtained spans from 2012 to 2018. The policyholder and policy characteristics that were examined in this study are age, gender, province, policy start date, policy end date, policy duration, policy premium, sum insured, product type, bank, LSM (living standards measure) Level, cluster group, salary band, government employee status and registered deed status. While the macroeconomic variables examined were inflation rates, interest rates and GDP growth rate. Data gathered was analysed using descriptive and inferential statistics. The key questions that this research sought to answer included the following: (1) What policyholder features determine short term insurance lapse? (2) What macroeconomic variables influence short term insurance lapse? (3) How do short-term insurers manage lapse? Product type, gender, cluster group, policy duration and sum insured were found to have statistically significant influence on lapse rates. While the macroeconomic variables examined in this study were found to exhibit a weak significant correlation with short term insurance lapse rates. Recommended strategies to mitigate lapse rate included approaches to retain customers and strategies that could be applied during the development phase of short term insurance policies.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

The Insurance industry is one of the main contributors to the South African economy. The Association for Savings and Investment South Africa (ASISA) indicated that in 2017 alone, benefit payments to recipients and clients amounted to R469 billion. This is especially significant when comparing the benefits over the next three years, in the form of social grants, promised by the South African policy makers only amounts to R528.4 billion (Kruger, 2018).

Short term insurance is a contractual agreement that occurs between the insuring party and the insuring company. This can be viewed as protection or management of risk in that it helps the insured to receive cover from the contingent event or any unforeseen loss that may occur to them (Stevens, 2017). Here the insurance provider commits to pay to the insured or its dependents an amount of money, which is known as sum insured, on occasion of any predetermined event occurring or death. In the traditional view, the term lapse in the insurance sector refers to the cessation of privileges that the policyholder has due to the termination of cover. This occurs in the insurance sector when the party to the insurance does not pay his or her obligation, in the form of a premium, for the cover. Therefore, the lapse rate is the rate in which insurance policies cancel due to non-payments. Surrendering a policy is similar to lapsing a policy. A surrender occurs when the client decides to stop continuity of their insurance cover before the expiry date and will receive a lump sum amount upon termination. This generally occurs with long term insurance plans. The main difference between surrender and lapse is that when a client lapses there is no lump sum payment received (Poufinas and Michaelide, 2018).

In more recent times, the study of the determinants of lapses has increased as a result of the economic and global financial crises being experienced subsequently driving up lapse rates up in the traditional sense. Existing literature points to various factors that influence

the decision to lapse or surrender a long term insurance policy (Linton, 1932; Outreville, 1990; Kuo *et al.*, 2003; Kim, 2005; Russell, 1997; Carson and Forster, 2000; Schott, 1971; Pesando, 1974), however this study is different in that it focuses specifically on lapse within the short term insurance industry.

This chapter outlines the study undertaken to examine the factors affecting lapse rates in the South African short term insurance industry. The motivation for undertaking this study is provided. Thereafter, the paragraphs that follow provide the focus of this study and problem statement. The intent of this study, research objectives and questions and an overview of the limitations encountered during the study are documented.

1.2 Motivation for the study

The threats resulting from insurance lapse within the South African short term insurance industry are of great economic importance as lapse negatively influences the role player's financial state. This study will be beneficial for industry stakeholders such as financial intermediaries, insurance underwriters and administrators. These stakeholders are operating under volatile, uncertain, complex and ambiguous conditions. It is generally well known that the cost of acquiring a new client is much higher than retaining an existing client base (Poufinas and Michaelide, 2018). This research is thus significant, as it will shed light on the impact of these factors on lapse rates, which will assist interested parties to assess the way forward on mitigating high lapse rates and the resulting risks. By reducing lapse rates, the stakeholders could improve their customer retention and maintain their existing client base therefore reducing the cost of having to acquire new customers to replace the ones lost through insurance lapse. This study will also add to the current body of knowledge on short term underwriters on the modelling of insurance lapse rates, which will serve as a groundwork for investigators and students studying in this area.

1.3 Focus of the study

This research is based on examining the factors that affect the lapse rates in the South African short term insurance industry. This includes the impact of the policyholder

attributes on the short term insurance lapse rates. In addition, the examination of the impact of macroeconomic variables on the lapse rates would be considered in this report. The macroeconomic variables examined in this study are gross domestic product (GDP), inflation and interest rate. This research will however, not focus on the long term insurance industry and the influence that the insurance provider has on the insured policyholder which causes them to lapse their cover.

1.4 Problem statement

Since the late nineties, the insurance industry has been plagued with three main risks, namely market risk, credit risk and lapse risk (Barsotti, Milhaud and Salhi, 2016). Consumers often view insurance as a grudge purchase and nothing more than an unavoidable evil. The Society of Actuaries (2014) argued that most activities within the insurance sector are impacted by policyholders' actions. Policyholders' behaviours around non-payment of premiums, which lead to insurance lapse, have a direct negative impact on the financial performance of insurers by raising costs and reducing future returns.

During 2017, 2.7 million insurance policies were lapsed and were only in force for less than twelve months compared to 2016 when only 2 million policies had been lapsed (Kruger, 2018). This represents a thirty-five percent increase in the first year lapse rate highlighting the significant financial strain currently being experienced by South African consumers. If the lapse rate continues on this increasing trend, the South African insurance industry could face a potential crisis. Excessively high rates of early insurance lapses could result in considerable financial losses and threaten the liquidity position of the underwriter if it is unable to fund the acquisition costs (Eling and Kochanski, 2013). High lapse rates also adversely affect the payment of benefits and claims by the insurance sector, which stimulates the financial markets and economy.

1.5 Aim of the research

The aim of this research is to examine factors affecting lapse rates in the South African short term insurance industry.

1.6 Research questions and objectives

There are key questions that this research seeks to answer that includes the following:

1. What policyholder features determine short term insurance lapse?
2. What macroeconomic variables influence short term insurance lapse?
3. How do short-term insurers manage lapse?

Research objectives are basically what we expect to achieve from research. The following research objectives were identified to answer the research questions:

1. To examine the impact of policyholder characteristics on short term insurance lapse rates.
2. To examine the impact of macroeconomic variables on short term insurance lapse rates.
3. To provide recommendations on strategies to mitigate lapse rates.

1.7 Methodology

The participant in this study is a short term insurance intermediary based in Durban, KwaZulu-Natal. A quantitative research methodology was implemented for this investigation. This study makes use of secondary data that was extracted from the participant's database and entered into Microsoft Excel. The policy data obtained is from short term insurance policyholders across all nine provinces in South Africa that spans from 2012 to 2018 and was recorded on a monthly basis. The policyholder characteristics that were available for this study are age, gender, province, policy start date, policy end date, policy duration, policy premium, sum insured, product type, bank, LSM (living standards measure) Level, cluster group, salary band, government employee and registered deed.

The information gathered was then inputted into SPSS statistical tool for analyses. Data gathered was analysed using descriptive and inferential statistics. Generalised linear models were used and preferred as they can capture interactions and account for correlations between variables. Graphical and tabular representations were used to provide the analysis of the data obtained.

1.8 Limitations of the study

The population was limited to policyholders with short term insurance policies. This study does not consider those policyholders with long term insurance policies. The study makes use of secondary data extracted from the research participant's database.

1.9 Chapter outline

Chapter One familiarises the reader to the aim, background, motivation and focus of the research study. The problem statement, questions and objectives of the research are introduced while a short description of the research methodology and study limitations of the study are presented.

Chapter Two presents a widespread review of the existing scope of literature on the research study. A discussion of the South African insurance industry is provided and the chapter also explores the policyholder characteristics and macroeconomic factors affecting lapse rates from international and local perspectives.

Chapter Three discusses the research methodology adopted in order to address the research questions. The study setting, population, data collected and data analysis techniques are also documented. Within the backdrop of the aim and objectives of this research, the author provides justification for use of generalised linear models implemented for this research.

Chapter Four presents and discusses the results of this research. The results are interpreted with an analysis of the demographic profile of the policyholders and description of the short term insurance policies. Thereafter, interpretation of the analyses of the results that related to the research objectives are presented. The discussion of the results are provided within the context of pertinent existing literature.

Chapter Five provides the conclusion of this research findings and recommendations on strategies to mitigate lapse rates. The study limitations are presented and further areas of study are documented in this chapter.

1.10 Summary

This first chapter provided a summary of the motivation for undertaking this research and the aim of this study. The three objectives of the study are first, to examine the impact of policyholder characteristics on South African short term insurance lapse rates, second, to examine the impact of macroeconomic variable on South African short term insurance lapse rates and third, to provide recommendations on strategies to mitigate lapse rates. A quantitative methodology approach was adopted in the investigation, where data was extracted from the participant's database to obtain information. This information was then inputted into SPSS for analyses. Data gathered was analysed using descriptive and inferential statistics. Generalised linear models were used to capture interactions and account for correlations between variables.

Chapter Two provides a comprehensive literature review used to discuss factors affecting lapse rates in the insurance industry. International and local peer reviewed journals, articles and other research studies were consulted.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter seeks to provide a background of the South African insurance industry (discussed in section 2.2) and a broad understanding of the factors that affect lapse rates in the insurance industry. Studies that focus on the influence of policyholder attributes and macroeconomic variables on lapse rates have been provided in section 2.3. Existing strategies to mitigate lapse rates are provided in section 2.4 while section 2.5 concludes this chapter. While discussing the literature in this dissertation the author made focus on relevant material sourced from academic journals and articles, theories and others bodies of works.

2.2 Background of the South African Insurance Industry

The term insurance according to law is a result of man's effort to create a monetary protection potentially affecting an individual or business's life, possessions or estate. The insurance industry in South Africa is categorised by long term and short term insurance. Long term insurance is also known as life insurance since it concerns the financial protection of an individual's life. Once cover has been issued, it cannot be terminated or reviewed by the underwriter unless there are non-payments resulting in either lapse or a surrender (Still and Stokes, 2016). In contrast, short term insurance is viewed as non-life insurance. This type of cover is used to protect consumers and businesses from financial loss or damage as a result of a predetermined situation. The general principle of short term insurance is that the policyholder should be in the exact economic state subsequent to an insured event occurring. This deters the policyholder from being unfairly compensated, as a result of an insured event occurring, since the policyholder will be unable to overvalue their financial damage or try to get a pay-out for the same event on multiple insurance covers (Still and Stokes, 2016).

The mechanism behind the workings of the insurance industry requires underwriters to have sufficient funds available to meet its financial responsibilities to their entire portfolio of clients. An underwriter's financial holdings is satisfied by combining the amount paid by their clients into a ring fenced risk float (Still and Stokes, 2016). If the underwriter finds that risk pool is inadequate to meet the underwriting estimation of the risk, then the underwriter has the option to engage in reinsurance (which is financial protection for the underwriter) or the underwriter could participate in partly insuring their obligations together with other underwriters (Still and Stokes, 2016). The method used to determine the financial requirement of the underwriter is founded on complex estimation modelling (Still and Stokes, 2016). An individual will acquire an insurance policy to transition from a position of monetary insecurity to one of monetary security. By purchasing such protection, the insured person will disperse their threat of a financial loss between a cluster of other individuals whom share similar sentiments (Still and Stokes, 2016).

Figure 2.1 below presents a high-level view of the South African insurance industry. The short term insurance industry is viewed as being highly competitive. In 2011 alone, just ten underwriters (KPMG, 2012) provided over 80 percent of all insurance policies. During 2010 and 2011, smaller short term underwriters captured almost two percent of the market shared from the major underwriters in South Africa (KPMG, 2012).

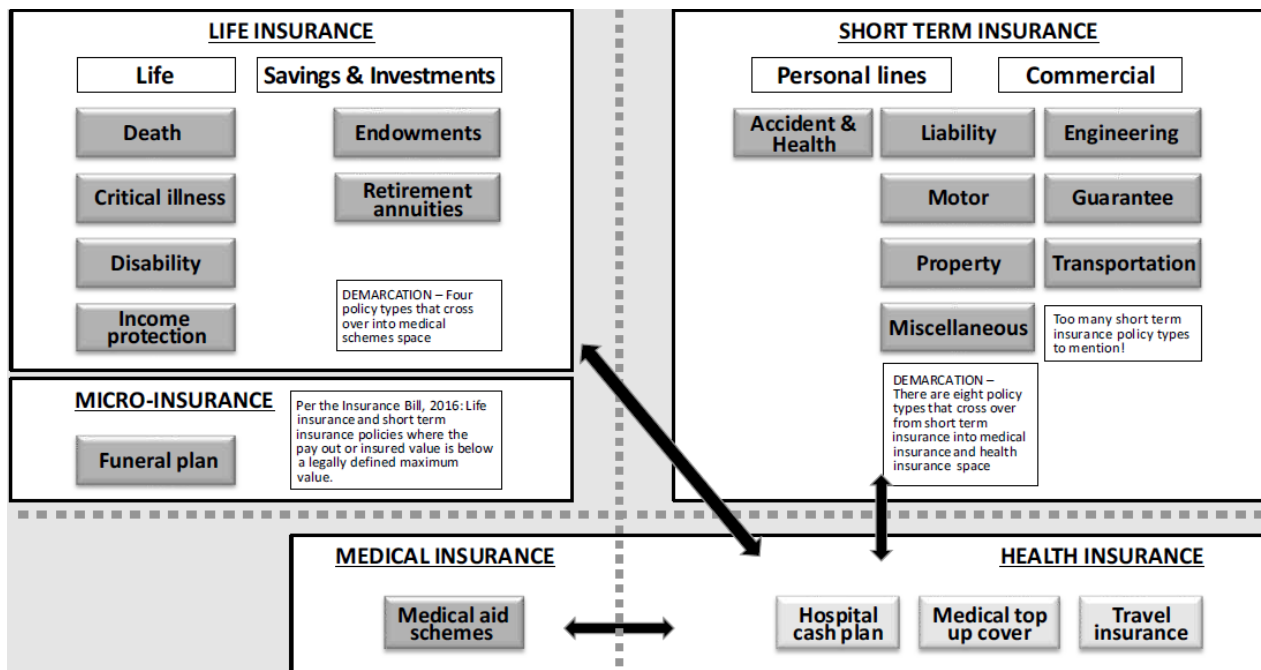


Figure 2.1: The landscape of South Africa's insurance industry

Source: Still and Stokes (2016 p.24)

There are various strengths and weaknesses that are related to the South African insurance industry, which includes the following:

- **Strengths:** It is considered as a well established and economically sound industry. The level of competition helps the consumers to achieve the best product to cover their insurance needs. Also, the industry has a diversified multi-channel distribution model which helps them to achieve the advantage of giving best and suitable products (PWC, 2018).
- **Weaknesses:** There is a huge risk of over regulation within the insurance space and as a result businesses are not able to perform their obligation properly and it raises the percentage of lapse rates. Also, the South African insurance industry has been sluggish in participating in the transformation programmes so as to address the disparity among its people (PWC, 2018).

The African insurance premiums in the year 2016 accounted for around 60.7 billion US Dollars or 1.28 percent of the global insurance premiums, which represents a moderately undeveloped insurance industry (Staib, Pain and Puttaiah, 2017). The insurance

premiums in Africa dropped more than 15% from the year 2012 to the year 2016 (Staib, Pain and Puttaiah, 2017), it has however, been seen that the South African insurance industry is by far the largest African insurance market in the world. Currently the industry is generating around 42 billion US Dollars (refer to Table 2.1) and represents 0.89 percent of the global insurance industry. Compared to 2015, the South African premiums for 2016 have decreased year on year by 7.8 percent. Across the African region, development in the insurance industry has been significant and forecasted to continue.

Table 2.1: 2016 Top 10 African insurance markets by total premium amount

Country	World Ranking	Premium Volume (Millions of US Dollars)		Percent change in 2016		Percentage share of world market in 2016
		2016	2015	Nominal in (US Dollars)	Inflation adjusted	
South Africa	19	41,962	45,491	-7.8	0.1	0.89
Morocco	49	3,561	3,104	14.7	13.8	0.08
Egypt	57	2,130	2,104	1.2	1.8	0.05
Kenya	59	1,915	1,757	9.0	6.0	0.04
Algeria	69	1,209	1,278	-5.4	-3.5	0.03
Nigeria	71	1,159	1,504	-22.9	-11.4	0.02
Tunisia	78	824	848	-2.8	na.	0.02
Angola	83	788	831	-5.1	na.	0.02
Namibia	84	783	850	-7.9	-0.5	0.02
Mauritius	86	776	748	3.8	na.	0.02
Other Countries		5,602	5,428			0.12
Total		60,709	63,942	-5.1	0.8	1.28

Source: Staib, Pain and Puttaiah (2017)

Table 2.2 presents a view of past growth rates in some African countries and an indication of the insurance structure.

Table 2.2: Comparison of insurance market composition and growth

Country	License	Number of Insurers *	Compound annual growth rate percent 2008 - 2012
South Africa	Life	73	19.3
	Short term	92	6.1
Nigeria	Life	16	10.1
	Short term	30	32.8
Kenya	Life	11	17.0
	Short term	24	17.7
Ghana	Life	18	19.1
	Short term	23	38.1

* Excludes composite insurance licences in Nigeria, Kenya and Ghana

Source: Napier (2015, p.13)

While growth in the insurance industry is forecasted to grow, it could come under pressure as it is evident that South Africa and its consumers are facing a tough economic environment as it is on a lower economic growth trajectory as compared to the rest of Africa (refer to Figure 2.2).

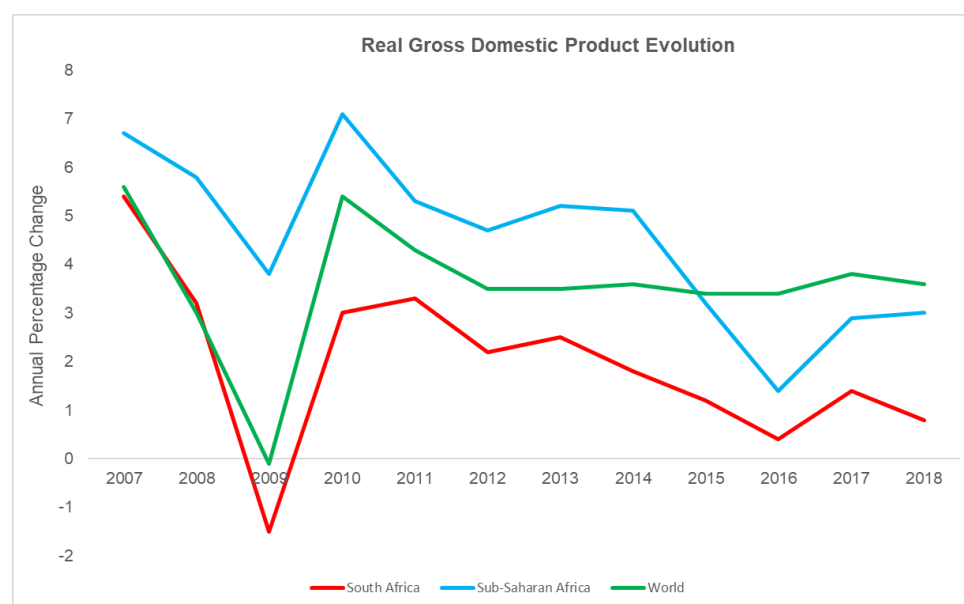


Figure 2.2: Annual change in gross domestic product

Source: International Monetary Fund (IMF) (2019)

Real growth in the gross domestic product in 2018 was only 0.8 percent as compared to 1.5 percent in year 2017 (IMF, 2019). Growth in the insurance industry is also likely to come under pressure by acts of nature, reducing individual revenue caused by declining employment levels and high inflation rates. The slowdown of the economy causes a potential risk for the life insurer as it depicts the low inflationary environments in the country, due to this the interest rate tends to drop and it becomes difficult for them to achieve the required investment returns. As is seen in the literature, the interest rate and inflation rate similarly impacts the insurer's profitability. Furthermore, product features such as being able to withdraw money at any time or the addition of benefits under the original policy terms all influence the sensitivity to interest rate fluctuations (Jones, 2017).

2.3 Empirical Literature

Lapse is recognised as the voluntary termination of the insurance policy and the contract that has been entered between the policyholder and the company. In the context of conventional life insurance it is considered as the lapse where the insured person or any person who his paying on behalf of him discontinues the policy before it acquires any of the paid up value or a surrendered value.

High lapse of life insurance policies is one of the most serious issue that arise in the market. Around 20 percent of the policyholders lapse the policies in the initial year of existence (Kruger, 2018). Some of the companies and in some of the product lines the lapse rates are higher if compared to other products and other companies (Haefeli and Ruprecht, 2012). Due to increase in the lapse rates and due to financial losses in the product category there exists a huge amount of dissatisfaction with the products taken up by consumers (Cohen, 2018). When the life insurance contracts are taken out then the insurer imagines that the contract of insurance would continue until the end of contractual terms or the policy year. If the policyholder breached the contract and lapsed it then it gives rise to the risk of being without financial protection.

The holder of an insurance policy has the option to cease cover through lapse during any period in time (Smith, 1982; Walden, 1985). If the policy lapses then the policyholder loses

his investment or financial protection. This decision to lapse cover at any time will unfavourably affect the monetary state of an underwriter if the volume of lapses is larger than expected. In such occurrences, underwriter operations are impaired through various ways such as the acquisition cost (e.g. risk premium, commission fees, collection cost, service and admin fees) of taking on new clients typically takes a numbers of years to be recovered by the insurer. When a client lapses before the insurer can break even then that leaves the insurer out of pocket and the insurer has to find alternative ways to recover that loss. If that loss is significant, it could result in the insurer becoming insolvent (Fier and Liebenberg, 2013). High lapse rates will also influence the pricing used in the underwriting of insurance policies to be more than expected (Doherty and Singer 2002; Gatzert *et al.*, 2009). Future profits are also at risk as lapses can result in underwriters not receiving recurring revenue. High instances of lapses could also pose an issue to business's reputation further incurring losses, as new business will be hindered (Eling and Kochanski, 2013). Lapses of insurance policies could cause insurers to inadvertently choose a client base that can be viewed as more riskier, basically selecting persons who are more likely to have a higher claim ratio as they are more inclined to have a lower lapse rate (Bluhm, 1982).

Researches have also proposed various theories for lapse behaviour. Linton (1932), Outreville (1990), Kuo *et al.* (2003) and Kim (2005) suggest that the emergency fund hypothesis is that consumers have a greater chance of lapsing their cover due to pressure and hardships as a result of the economic climate. The choice to lapse cover could be based on two reasons either the need to utilise the policy premiums to cover other significant expenses or the need to cash out a policy and make use of the lump sum amount accumulated to spend on domestic expenditures. The emergency fund hypothesis is further bolstered by studies covered in the United States by Jiang (2010). The policy replacement hypothesis argues that the decision to lapse is likely to happen due to the consumer finding an alternative that offers better advantages or is more cost effective compared to their current insurance policy (Outreville, 1990; Russell, 1997; Carson and Forster, 2000). Since consumers allow lapse to occur for the objective of taking a new life insurance cover, the expectations of this theory is that a positive

correlation exists between lapse rates and new life insurance policies. Fier and Liebenberg (2013) examined the reasons for lapse with life insurance plans making use of household level data. Their study finds support for the policy replacement and emergency fund theories. The results document that huge adverse shocks to household revenue are likely to lapse an insurance cover. The results also indicate the retirement and death of a married partner are directly related to lapse in cover while lapse rates is also strongly dependent on the policyholder's age. Finally, the interest rate hypothesis coined by Schott (1971), Pesando (1974) and Kuo *et al.* (2003) documents that due to higher market interest rate, consumers are expected to capitalise on this occurrence by accessing the monetary value accrued to a long term insurance cover through surrendering their policy or by borrowings.

The current research that exist around the factors determining lapse can also be categorised in four broad areas. The first area compromises of the attributes of the insurance holder, the second category explores the macroeconomic variables while the third category examines business specific attributes and the fourth area investigates modelling approaches to pricing the option of termination of cover. Figure 2.3 below presents a view of factors that are commonly used in existing literature to examine the influence in lapse rates.

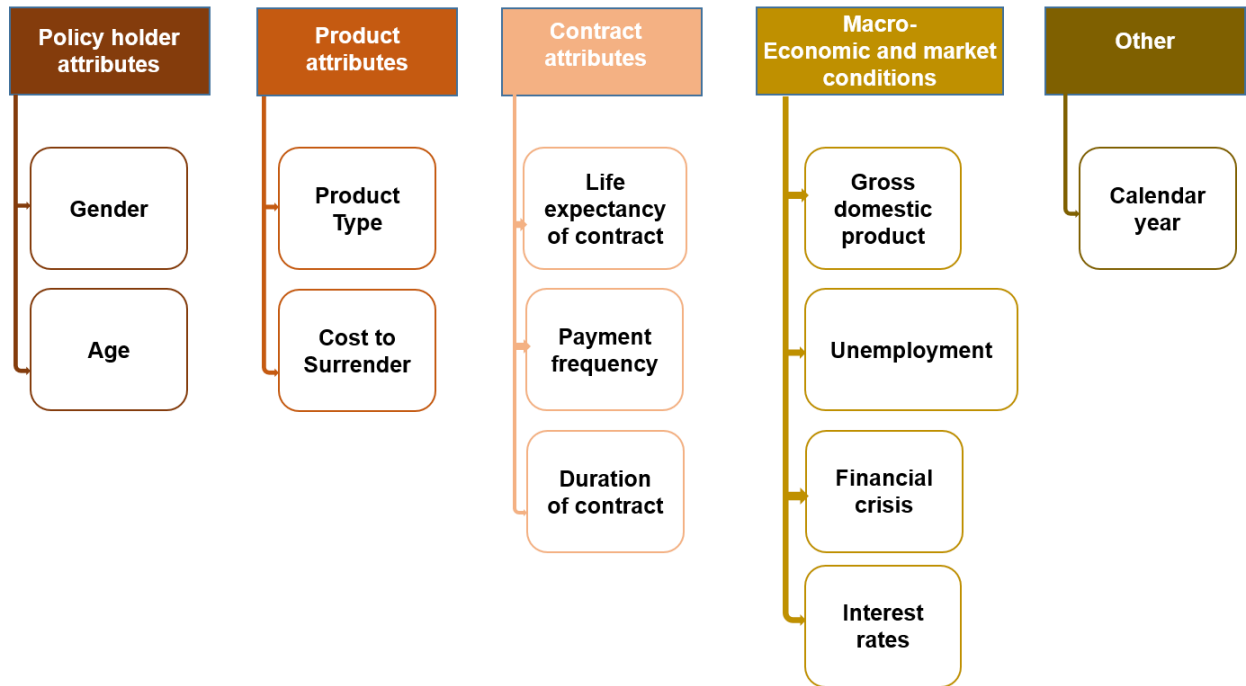


Figure 2.3: Factors commonly used to determine lapse rates in literature

Source: Zians, Miller and Ducuroir (2016, p.6)

Researchers Dar and Dodds (1989) examined the influence of macroeconomics data on endowment life covers focusing on the British insurance industry. Their dataset spanned from 1952 until 1985. The results of their discovery suggests that surrendering an insurance cover is connected directly to the unemployment rate. This supports the emergency fund hypothesis. A study conducted by Hwanf (2016) in Taiwanese life insurance industry during the timeframe 1999 until 2009 analyses the driving contributors of surrender dynamics. The research considers macroeconomic and business characteristics and finds that the home ownership ratio, tenure of the business and business line to be the most noteworthy variables. A negative relationship is found to exist between a company’s magnitude and status and surrender rates. A study conducted by Russell (1997) use macro variables that are precisely attributable to the individual states within the United States to examine the influence of elements linked to the choice of surrendering a long-term life cover. While Outreville’s (1990) study covers, the time frame 1966 until 1979 and looks at the North America region (United States of America and Canada) while making use of country specific variables to investigate insurance lapses.

Outreville's (1990) results suggests that lapses of long term insurance cover occur during the first thirteen months from policy start date as a result of fluctuations in anticipated individual revenue. Both these papers provides results that back the emergency fund and policy replacement theories. A study was conducted using data from a German underwriter (Kiesenbauer, 2012) which includes business attributes such as the age, the legal type of company, the magnitude and participation rate. The macroeconomic variables considered were gross domestic product, yield rate, unemployment level and consumer confidence. He finds partial evidence for the emergency fund theory while the impact on lapse rates are different depending on the product itself. Kuo *et al.* (2003) employs the co-integration method and presents results that indicate interest and unemployment levels have an influence on lapse rates. They find interest rates to be financially significant in clarifying the influence on lapse rates behaviour. De Giovanni (2010) modelled lapse rates through the use of a rational expectation model to understand insured's decisions with regards to terminating cover as a result of lapse. His research reflects a market model with random market rates to price the surrender clause typically found in the long term insurance industry.

Haefeli and Ruprecht (2012) investigates the decisions leading to surrender a policy during stable and turmoil conditions that faced the United States in the period of 2002 until 2012. The results indicated that breakdown of support in a business potentially could cause a large volume of terminations or surrenders in insurance covers to occur. While, based on the product, fluctuations in unemployment and interest levels in Korea was found to cause surrenders in the entire life insurance market. Gemmo and Götz (2016) undertook an examination of the impact of sociodemographic variables on the long term life cover surrender rate. The results indicate that situations that cause financial strain in the domestic front (through divorce or birth of a new dependent) escalates the probability of insurance surrenders. Mullohad and Finke (2014) contends that policyholders with higher mathematical abilities have less of a chance of causing their insurance policies to lapse. Cerchiara, Edwards, and Gambini (2008) investigates lapse in the life insurance industry. They make use of a generalised linear model to understand the influence of policy characteristics (such as calendar year, product type, policy duration) on lapse. The

results from their study indicate that the policy duration of between two and five years has a positive impact on life insurance lapse rates. Konetzka and Luo's (2010) study examines the determinants of lapse rates in the long-term insurance industry with a specific focus on long standing health care. Their study suggests that consumer's that are less well off financially, less qualified, less fit and belong to minority race groups have a greater likelihood to lapse their insurance cover. The highest lapse rate appears to be in the group of policyholder's who are considered as least fit. Purushotham (2005) jointly with the LIMRA International and the Society of Actuaries undertook a study in the United States that examined individual long term insurance lapse occurrences. The research involved 22 individual long term underwriters that provided cover for death, common life and flexible life policies. Policyholder attributes were investigated and the outcomes presented indicated that gender, whether a policyholder smoked, policyholder age at start of cover, expected maturity age, type of payment, risk profile, pricing technique were found to influence long term lapse rates. Kagraoka (2005) examined the impact of gender on life insurance lapse rates in Japan and found that female insurance holders have a lower chance of lapse as compared to their male counterparts. A study undertaken by Sirak (2015) states that policyholders with higher disposable revenue and wealth have a lower probability in cancelling their insurance policies as a result of lapse. Furthermore, he finds that when a policyholder moves from being in employment to unemployment then that shift can also drive up lapse rates to over 75 percent. Eling and Kiesenbauer (2014) modelled lapse rates in the German life insurance industry and also makes use of policy variables which included gender, calendar year, policy age, method of premium payment, policy duration, supplementary cover, and product type. The results from their research indicate that lapse rates are the highest for life insurance policies at the start of cover and the lapse rate reduces the longer the insurance policy is inforce.

2.4 Existing strategies to mitigate lapse rates

According to Horsham (2018), there are existing strategies used by the insurance sector in order to provide satisfaction to consumers, which will assist in mitigating high lapse rates. These relate to product and business characteristics which insurers have control off. The strategies include (Horsham, 2018):

- **Personal services-** The availability of personalised client services to consumers will ensure they feel valued and comfortable in sharing any grievances, which should be speedily resolved. This helps to make a positive change in consumer behaviour as they can easily get in contact with the insurer to request assistance when required. A customised service allows consumers to feel as though that their money is invested according to their requirement. With customised services, consumers within the insurance sector are exposed to greater choices which assists with customer retention. When efficient services are provided to the consumers, it is easier to retain them by providing options with more benefits or lower premiums. This could result in an increase in customer retentions which will result in a decrease in insurance lapse rates.
- **Proper communication technique-** Communication is one of the important aspect which helps to retain consumers for a longer time. It is important and significant to provide best communication technique such as blogs, CRM systems, social media, personal touch, etc. which helps to provide complete information to consumers. From an ethical consideration, the insurance industry also needs to ensure safety of their client's personal information. With regular contact with clients, insurers must provide the environment of confidentiality so clients more forthcoming with their personal information. Customers are eager for the short term insurance industry to have a greater presence in the digital space (Accenture, 2016). The use of digital technology assists consumers to have real time access to their policy status. This improves customer satisfaction as information becomes readily available. When changes occur with the insurance policy, immediate instruction related to it should be communicated accordingly. Effective communication could result in an increase in customer satisfaction thereby reducing insurance lapse rates as customers will choose to stay with their current insurance provider.
- **Easy redemption-** Redemption refers to withdrawal of money which is invested with an insurance company. Insurance is the provision which is reserved for the provision of emergency. As part of retaining their clients, insurers should reduce the complexity or complications faced during the redeeming process. Customer

experience can also be improved through the element of gifts, discount on premium, etc. which is relevant for maintaining long-term relations and reducing lapse rates.

- **Fast resolution of consumer grievance:** it is the responsibility of the insurance provider to treat customers fairly. Speedily resolving grievance will ensure higher client retention, improve reputation, consumer confidence and subsequently lower lapse rates.
- **Transparency and honesty-** In the insurance sector, there are many terms and conditions attached to the actual policy. When terms and conditions of insurance are clear to consumers there is no room for misjudgement of benefits on offer. This helps to create a trustworthy relationship between consumers and the insurance company thereby building a loyal customer base which could lead to lower insurance lapse rates.
- **Measure lifetime values:** In the case of long term insurance, the marketing of policies should include complete information regarding lifetime value of benefits. This helps to retain consumers and ensure regular premium payments as they become more aware of the intrinsic value of their chosen insurance product, which ultimately will result in lower lapse rates.
- **Do not over promise-** insurance companies should avoid over promising returns and benefits without fully disclosing the risks involved. Properly disclosing of plans, risks and discounts offered, client's will be better able to financially plan when choosing to purchase an insurance policy thereby reducing insurance lapse rates.

From the above discussion, it is clear that enhancement in the product attributes and effective engagement with its client base, long-term retention is possible. This in turn helps to reduce the lapse rates of insurance policies. Surveys conducted by Accenture (2016), indicates that the short term insurance industry is expected to grow to R115.2 billion by 2020. In order to capitalise on this growth short term insurance providers must be able to meet the changing customers demands and leverage off the new opportunities.

2.5 Conclusion

In this chapter, it is evident that the insurance industry is considered as one of the main industries in the world. It is evident from the literature that insured persons lapse their policies due to various macroeconomic factors. In addition, the design and features of the product and policyholder attributes are considered as some of the most important factors that influence the decision of the insured person to lapse their insurance policy. It is evident that companies need to re-evaluate the way insurance policies are sold to their consumers and should implement ethical practices in the sales process to ensure they are able to mitigate lapse rates and thus retain existing client base and maintain their financial position. The focus on the rest of this study concentrates on macroeconomic and policyholder factors noted above. Chapter three, which follows, explains the research methodology that was applied to this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter is to provide the method used to examine the relationship between the research question and objectives. The aim of this study is provided in this chapter. The methodology adopted will be discussed in detailed as well as the approaches followed to collect and analyse the data. Ethical considerations and confidentiality, validity and reliability of this research are also documented in this chapter.

A quantitative research methodology was implemented for this investigation. Data from the short term insurance intermediary was extracted from their database and will be used to produce the outcomes. By implementing this method, factors that influence lapse rates based on macroeconomic variables and product characteristics will be identified. The data collection will then assist in examining which of the factors has a major influence on the rate of lapse in the South African short term insurance industry.

3.2 Aims of study

The aim of the study as previously stated is to examine the factors affecting lapse rates in the South African short term insurance industry. The questions that are related to the research are considered as follows:

1. What policyholder features determine short term insurance lapse?
2. What macroeconomic variables influence short term insurance lapse?
3. How do short-term insurers manage lapse?

3.3 Research Design and Methods

The research design is considered as the emphasis that identifies the ways through which the research is to be conducted. Figure 3.1 presents the steps involved in systematically conducting a research study, known as the hypothetico-deductive technique (Sekaran and Bougie, 2010).

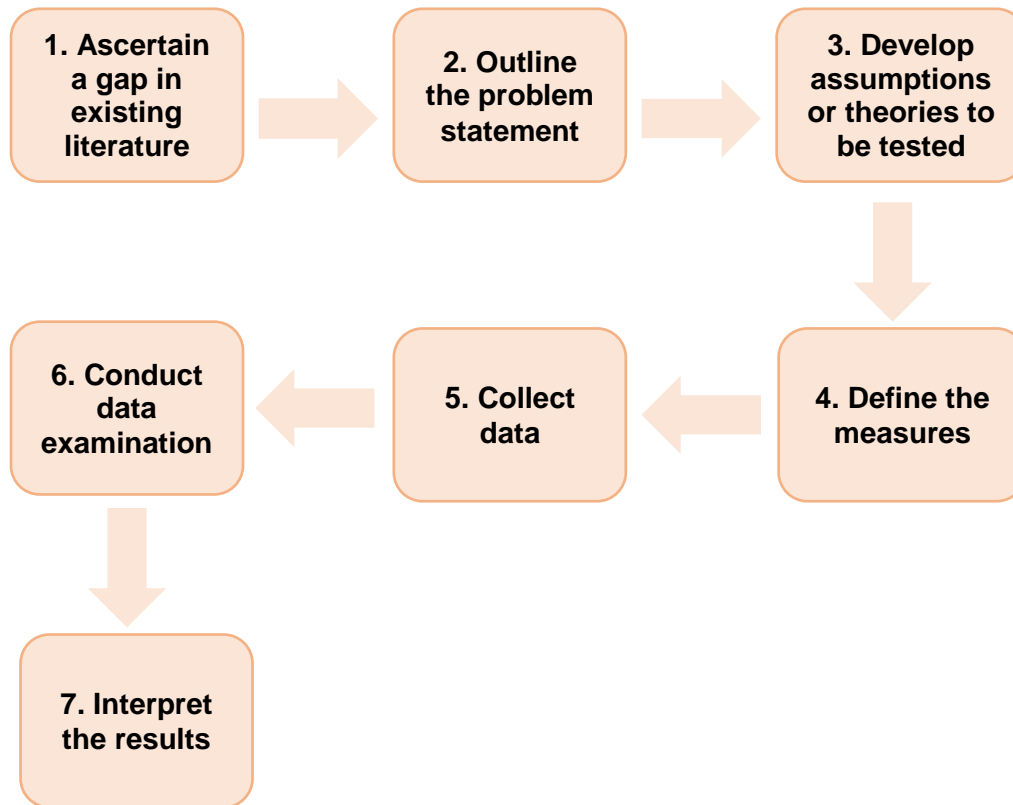


Figure 3.1: The step-by-step hypothetico-deductive method

Source: Adapted from Sekaran and Bougie (2010)

There are different types of research design that are taken into consideration namely descriptive, exploratory and experimental research design (Sekaran and Bougie, 2010). Descriptive research design places emphasis on presenting the research through the detailed description which is done through the existing facts and the figures. While the exploratory research on the other hand places emphasis on investigating new concepts and the models. Finally, the experimental design is considered as a method where the scientific or the mathematical analysis of the problems that are related to the research are done. The present study is related to the lapse that occurs in the short term insurance sector in South Africa. The descriptive design is taken into consideration for this research which helps to provide the detailed analysis of different aspects which is related to the current field. In addition, the study is considered to be descriptive as it investigates variables.

In order to answer the research questions, the investigator can implement either a qualitative or quantitative research methodology. A qualitative approach is made up of wide spread of varying techniques as expressed by King *et al.* (1994) and Ritchie *et al.* (2013). This method concentrates either one or fewer cases, compromises of consultations or thorough investigation of past resources, informal techniques, and contemplates an general explanation of a specific occurrence (King *et al.*, 1994).The qualitative research is regarded as being biased since various investigators could draw opposite outcomes from the same analysis (Zikmund *et al.*, 2013). This approach to conducting a study utilising a minor subset of the population and is commonly used in exploratory research techniques (Zikmund *et al.*, 2013). On the other hand, various researchers (King *et al.*, 1994; Williams, 2011) states that the quantitative method utilises a wide range of statistical and numerical techniques. This methodology is commonly based on algebraic measurements of specific pieces of occurrences, it summaries from particular illustrations to follow broad explanations or to examine contributory theories and its measurements and investigations can be reproduced by the academic world (King *et al.*, 1994). The quantitative approaches make use of a wide sample size consequently producing outcomes that are regarded as unbiased. This is due to the data being collected through participants that offer a commitment total on a quantitative scale then the result will be considered equivalent irrespective of the investigator that is conducting the examination (Zikmund *et al.*, 2013). Zikmund *et al* (2013), going on to argue that the quantitative method is more commonly found in studies that implement descriptive and causal research strategies. The methodology that is used in this study is the quantitative method.

Variables or data obtained for the study can be dependent or independent. Response or also known as dependent variables are thought to be cause by independent variables also known as explanatory variables. In contrast, independent variables are thought to have a direct correlation or cause certain effects as captured by the dependent variables. In this study the dependent variable is the lapse rate. The independent variables include policy factors (that are policy start date, policy end date, policy duration, policy premium, sum insured, product type), policyholder attributes (that are age, gender, province, bank,

LSM level, cluster group, salary band, government employee and registered deed) and macroeconomic variables (that are GDP, inflation rate and interest rate).

3.4 Study setting

The physical location of a study is considered as an important factor of the research methodology (Waruingi, 2010). The background causes certain instances of behaviour to occur, for example inhabitants that exist in a similar setting are inclined to exhibit similar behaviour, while the opposite is said to occur (that is different settings result in opposing behaviours (Waruingi, 2010). This study was conducted at the short term insurance intermediary, business's premises that is based in Durban, KwaZulu-Natal province, South Africa.

3.5 Population of the study

The population of a study can be viewed as a comprehensive collection of components (such as persons, happenings, objects) that are being examined. Mouton (2009) and Sekaran and Bougie (2010) state that these components all have similar predetermined stipulations. This study makes use of secondary data. The population from which the sample was drawn consisted of policy data obtained by the short term insurance intermediary during the period 2012 until 2018. The policy data was gathered from policyholders across all provinces in South Africa with short term insurance products. The total population of records amounted to 29031. Access to the population of records is restricted and only the participant's Business Intelligence department has access to the data. The full population was examined for this research.

3.6 Data Collected

Data collection is also an essential part of research that helps in obtaining reliable and valid data for conducting an investigation. It can be defined as a systematic process to collect the information from various authenticated sources, for addressing the issues mentioned within a particular research. Data based on policyholder characteristics was obtained from the research participant, namely the short term insurance intermediary. The

participant collected the data through their call centre by talking to policyholders across South Africa during the period 2012 until 2018. The data was stored in the participant's data warehouse. The data was collected to segment the participant's database in order to specifically direct their sales and marketing efforts. The author of this study requested this set of data from the participant who prepared and extracted the data from the data warehouse. The data gathered was transferred to a structured excel database and the author then inputted the data into IBM SPSS statistical tool for analysis.

The policy data collected covers the monthly period during 2012 until 2018. The research participant also provided the corresponding short term insurance lapse rate experienced during that period. The policyholder attributes or demographics that was available for this study are age, gender, province, policy start date, policy end date, policy duration, policy premium, sum insured, product type, bank, LSM Level, cluster group, salary band, government employee and registered deed. Details of the variables obtained are given below:

- Age – refers to how old the policyholder is.
- Gender – refers to the sex of the policyholder which is either male or female.
- Province – refers to the South African province that the policyholder resides in.
- Policy start date – the insurance cover begins at this date, also known as the inception date.
- Policy end date – this is the date that the policy was terminated due to non-payment of premiums.
- Policy duration – refers to length of the actual insurance cover, measured in months.
- Policy premium – this is the actual payment that is required for the insurance cover.
- Sum insured – this is the benefit or total value that will accrue to the policyholder in the event of an insurance claim.
- Product type – refers to type of insurance cover taken by the policyholder. In this dataset, the product types identified were:

- “Medical Insurance” which is the protection from the occurrence of an insured medical event. The medical insurance product delivers protection to both the policyholder and their dependants;
- “Medical Gap Cover” which is the protection from the shortfall incurred by the policyholder or its beneficiaries due to medical practitioners charging a rate that is above pre-approved medical aid rates and
- “Motor Warranty” which is the protection from failures or breakdown in the mechanical functioning of the insured vehicle. This type of insurance is limited to one insured member and per vehicle. Adding on additional vehicles or beneficiaries requires additional policies to be purchased.
- Bank – refers to the financial institution that client holds a bank account that is used to make the premiums for the policy.
- LSM Level – this is the living standard measure assigned to the policyholder, with 01 being the lowest level and 10 being the highest level.
- Salary band – this is the group that the policyholders income falls within.
- Government employee – this is an indication whether the policyholder is employed by the South African government.
- Registered deed – this is an indication if the policyholder has a registered deed in their name, in other words, indicating if the policyholder has ownership of properties.
- Cluster group – this is an indication of the profile of the policyholders based on their physical location. The clusters are made up of 11 groups which compromises of 53 metros and town ranges. Table 3.1 provides an overview of the clusters groups.

Table 3.1: Overview of cluster groups

Group Type	Metro and Town Range of Clusters
Silver Spoons	Upper Crust, Pearl Strings, Cheese and Wine, Fashion Café Society and Big Fish.

Upper Middle Class	Suburban Bliss, Dish and Decoder Set, Terracotta Terraces, Retreat and Platteland Pearls.
Middle Suburbia	Pram Pushers, Settled Suburbia, Small Town Families.
Community Nests	Silver Threads, Melting Pot and Modest Main Street.
Labour pool	Suburban Stagnation, Family Street, Family Strugglers and Rusty Blues Town.
New Bonds	Bond Battalions, Developer's Dream, Strugglers Reward and Young Blues Town.
Township Living	Council's Clutter, Kwaito Corners, eKasi and Basic Town.
Towering Density	City Strugglers, Modest Masala, Wilted Neon and Tenement Trenches.
Dire Straits	Chakalaka, Poor Neighbours and The Other Town.
Below the Breadline	Tin Town, eKaya and Forgotten People.
Special Cases	Agricultural, Cemetery, Small Holdings, Sparse, Institution, Tribal, Industrial, Water, Commerical, Mine, Community, Air field, Golf course, Recreational, Hospital, Insufficient data and Hostel.

Source: Van Niekerk *et al.* (2014) and Knowledge Factory Cluster Plus (2012)

The macroeconomic variables (GDP, interest rate and inflation rate) used for this study also spans 2012 until 2018. GDP represented by the real GDP growth and the interest rate (represented by the prime lending rate) was collected from the South African Reserve Bank website (South African Reserve Bank, 2019). While inflation rates (represented by the consumer prices index headline year on year rate) was collected from Statistics South Africa's website (Statistics South Africa, 2019).

3.7 Data Analysis

Data analysis is also considered as one of the most important parts of a research study, where specific techniques are used to analyse the data and draw valid conclusions accordingly. Data analysis can be defined as a process that can be logically applied to a statistical research to describe as well as measure the information to check its feasibility and reliability. Data can be gathered by using primary and secondary techniques as per requirements of research. The benefit associated with secondary data is that it is generally cost effective and quicker to collect as compared to primary data and it may deliver data that is typically unreachable to the investigator (Zikmund *et al.*, 2013). In contrast, downside of secondary data is that it may not be explicitly anticipated to meet the investigator's requirements resulting in the investigator validating the data for bias, accuracy and reliability (Salkind, 2010; Zikmund *et al.*, 2013). In this present research, the author used secondary data to examine factors that affects lapse rates within South African short term insurance industry. The retrieved data was analysed using statistical package for social science (SPSS version 23.0). Descriptive analysis was conducted to determine the distribution of the policyholder exploratory data, macro-economic data and dependent variable (lapse rate). A generalised linear model was then used to examine and identify policyholder characteristics and macroeconomic variables influencing short term insurance lapse rates.

3.7.1 Descriptive statistics

Descriptive statistics are used to present the central tendency and spread of data (Sekaran and Bougie, 2010). With the use of graphical representations or examining the midpoint, range and standard deviation the author is able to get a clear understanding of the data from which patterns or results can easily be identified (Sekaran and Bougie, 2010). In this research the frequency statistics, mean and standard deviation analysis were used to analyse the demographic profile of policyholders, policy data, LSM level of policyholders, macroeconomic variables and the short term insurance lapse rate. In order to determine the direction and impact of the identified factors on lapse rates, cross tabulations was also used in this research. Cross tabulations are generally utilised on categorical elements that can be separated into equally exclusive clusters. Cross

tabulations are commonly implemented when investigating the associations within variables that are unlikely to be easily identifiable (Finlay and Agresti, 1986). A correlation analysis was further used to test the relationship between the three macroeconomic variables and short term insurance lapse rate. Correlation analysis estimates a Pearson correlation coefficient. This coefficient varies within negative one and positive one (Finlay and Agresti, 1986). The sign indicates the movement of the relationship. A positive one finds that the two variables move together (that is an increase in one variable suggests the other variable will also increase and vice versa). Inversely, a negative one points to a relationship that moves in an opposite direction (that is an increase in one variable will suggest a decrease in the other variable and vice versa). The strength of the relationship is examined by the size of the correlation coefficient. A size closer to positive or negative one suggests a strong relationship while the opposite of which is furthest from positive or negative one indicates a weaker relationship. If the correlation coefficient is zero then it points to there being no existence of a relationship between the variables (Finlay and Agresti, 1986).

3.7.2 Generalised linear model

Researchers, Eling and Kochanski (2013), conducted a comprehensive literature review of over 50 theoretical and empirical studies that were done on lapse rates in the long term or life insurance industry. In each of these studies, generalised linear models were used to model various factors that drive lapse rates in the life insurance industry (Checcacci, 2015). Generalised linear models typically work by grouping together a wide variety of dependent variables, which are linear in nature, into a single regression model and applies a link-function to forecast the explanatory variable (Agresti, 2013).

Generalised linear models contain three components, which are, firstly, the random component – this is the likelihood distribution of the dependent variable (Y) (Agresti, 2013). The distribution for the dependent variable can be normal with the use of a linear regression or binomial with the use of a binary logistic regression. Secondly, the systematic component – this stipulates the predictor variables (X) in the model (Agresti, 2013). The explanatory variables are linear in the parameters. Thirdly, the link function –

this describes in what way the anticipated value of the dependent variable is connected to the linear predictor of explanatory variables (Agresti, 2013).

While there are some weaknesses with using generalised linear models in that, the model can only contain linear explanatory variables in the systematic component and the outcomes must be independent, generalised linear models are still favoured over traditional ordinary least squares regressions for various reasons as stated by Agresti (2013). These advantages include the following:

- The dependent variable is not required to be altered to contain a normal distribution.
- There is greater flexibility in the modelling, as the selection of link is not connected to the selection of the random component. When the link yields additive outcomes, there is no need for constant variance.
- Generalised linear models are fitted through maximum probability approximation therefore, yielding the best properties of the estimators.
- Inferences statistics such as Wald and Likelihood ratio tests and confidence intervals relate to generalised linear models.

In this research, generalised linear models were used and preferred as they capture interactions and account for correlations between variables. The equation used to examine the impact of policyholder characteristics on short term insurance lapse rates is as follows:

Lapse rate = f(age, gender, province, bank type, LSM level, cluster group, employment status, registered deed, policy duration, policy premium, sum insured premium)

While the equation used to examine the impact of macroeconomic variables on short term insurance lapse rates is as follows:

Lapse rate = f(inflation rate, interest rate, GDP growth rate)

Graphical and tabular representations were used to provide the analysis of the data obtained.

3.8 Reliability and Validity of study

Bryman (2012) labelled validity and reliability as the honesty of the ideas produced in the study. A study is considered to be valid depending on the degree to which the investigation actually processes what it claims to quantify. While for a study to be reliable, it emphasises the degree to which an assessment tool yields constant and dependable findings. The reliability technique involves testing and retesting in order to utilise the exact scale to the exact replies at two opposing periods for consistency analysis (Bless *et al.*, 2006; Zikmund *et al.*, 2013). When both the tests have been concluded, the results should indicate equivalent findings provided it was conducted in the exact circumstances (Zikmund *et al.*, 2013). Internal stability denotes a degree of similarity. (Zikmund *et al.*, 2013). Reliability can be determined through estimating the coefficient alpha, which should be a minimum of 0.6 (Zikmund *et al.*, 2013). In this research, the author examined the coefficient alpha with the use of SPSS statistical tool and the results from the descriptive and inferential statistics are found to be both valid and reliable.

3.9 Ethical Consideration

Researchers should possess knowledge about ethics while conducting their research. By concentrating on such adherence, they can maintain reliability as well as validity of research in an ethical manner. Under this present research, permission from the research participant, the short term insurance intermediary, was acquired through a gatekeeper's letter. The Humanities and Social Sciences Research Ethics Committee of UKZN then granted the ethical clearance permission (refer to Appendix 2). The participant requested to remain anonymous so as to protect its confidentiality. Secondary data that was provided by the research participant was done so in a manner that did not reveal their client's identities or personal details. Each policyholder's information was re-organised and coded by the author. Punch (2013) specifies that confidentiality is basically the right to discretion. Acquiring of data and conducting research is heavily reliant on the participant's right to disclose information. The frequently used approach in protecting confidentiality is by coding data to make it anonymous. This involves replacing all information that could be used to recognise persons in the study population with a code.

Confidentiality was achieved by gathering data that did not include recognising features before widespread distribution of information.

3.10 Conclusion

This chapter discussed the research methodology and the collection process applied to gain the essential data required to answer the research questions. A quantitative methodology approach was used in this research. Research questions were discussed showing the application of descriptive and inferential statistics that was used to examine the factors that affect lapse rates. Different studies such as those by Cerchiara, Edwards, and Gambini (2008) and Eling and Kiesenbauer (2014) applied similar generalised linear models. Ethical considerations, confidentiality, validity and reliability of the study was also presented in this chapter. The following chapter will present and discuss the results of data collected, coded and analysed.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter organises the data in a meaningful manner ensuring achievement of the goals of the research. Additionally, this section provides a summary of the problem being researched, the methodology applied and the inferences drawn from the results generated. The results derived in this study are based on descriptive as well as inferential statistical techniques. As per Weiss and Weiss (2012), descriptive statistics provides a summarised form of information regarding the characteristics observed in the entire sample of a population. On the other hand, inferential statistical, as the name suggests, uses sample to make inferences by critically examining each sample value. It is used where the population size is large and it is not possible to study each data value present in that data set. The results from the demographic profile of the policyholders and insurance policy descriptions will be interpreted. Then the results connected to the research objectives as stated in chapter one will be interpreted. The discoveries of this research will be deliberated in the framework of the research objectives that were presented in the first chapter.

4.2 Presentation and interpretation

In this research, both descriptive as well as inferential statistical methods have been used to analyse the underlying factors affecting the lapse rate in short-term insurance sector of South Africa. As per the study conducted, the main factors that were identified as responsible for impacting lapse rates were: policyholder attributes and macroeconomic factors.

4.2.1 Descriptive statistics: Demographics and policyholder characteristics

Table 4.1 provides the results of the descriptive statistics used to analyse the demographic profile of the short term insurance policyholders.

Table 4.1: Demographic Profile of Policyholders

Variables	Frequency	Percentage (%)
Age (yrs)		
21 – 30	1480	5.1
31 – 40	5602	19.3
41 – 50	7561	26.0
51 – 60	8382	28.9
Above 60	6006	20.7
Total	29031	100.0
Mean (SD) = 49.89 (11.91 years)		
Minimum = 21 years		
Maximum = 91 years		
Gender		
Female	12679	43.7
Male	16352	56.3
Total	29031	100.0
Province		
Eastern cape	2549	8.8
Free state	1813	6.2
Gauteng	10353	35.7
KwaZulu-Natal	5754	19.8
Limpopo	936	3.2
Mpumalanga	2009	6.9
North west	1713	5.9
Northern cape	788	2.7
Western cape	3116	10.7
Total	29031	100.0

Table 4.1 above shows that the majority of the policyholders (94.9 percent) were above 30 years of age and the mean age was 49.89 and the standard deviation was 11.91 years. The youngest was 21 years while the oldest was 91 years. The gender were relatively close with a slightly higher population of males. Most (35.7 percent) of the policyholders were from Gauteng province.

Table 4.2 provides the results of the descriptive statistics used to analyse the description of the policy duration of short term insurance policies.

Table 4.2: Description of Insurance Policy: Policy duration

Description	Frequency	Percentage (%)
Policy Duration (months)		
1 – 12	8178	28.2
13 – 24	9894	34.0
25 – 36	4032	13.9
37 – 48	2570	8.9
> 48	4357	15.0
Total	29031	100.0
Mean (SD) = 26.47 (21.11) months		
Minimum = 1 month		
Maximum = 71 months		

Table 4.2 depicts that 62.2 percent of the policyholders had a policy duration between 1 to 24 months (≤ 2 yrs). The mean policy duration was 26.47 and the standard deviation was 21.11 months. The minimum duration for the short term insurance policy uptake among the policyholders was 1 month while the maximum was 71 months.

Table 4.3 provides the results of the descriptive statistics used to analyse the description of the policy premium and sum insured values of short term insurance policies.

Table 4.3: Description of Insurance Policy: Policy premium and sum insured

Description	Frequency	Percentage (%)
Policy Premium (Rands)		
1 – 200	14608	50.3
201 – 400	12103	41.7
401 – 600	816	2.8
601 – 800	754	2.6
801 – 1000	288	1.0
> 1000	462	1.6
Total	29031	100.0
Mean (SD) = 248.47 (176.66) Rands		
Minimum = 103 Rands		
Maximum = 2169 Rands		
Sum Insured (Rands)		
5001 – 50000	520	1.8
50001 – 100000	6868	23.7
100001 – 150000	18115	62.4
150001 – 200000	1190	4.1
> 200000	2338	8.1
Total	29031	100.0
Mean (SD) = 193097.65 (221936.46) Rands		
Minimum = 5350 Rands		
Maximum = 1041150 Rands		

Table 4.3 shows that the premium paid by majority of the policyholders (92.0 percent) were R400 and below with a minimum premium of R103 and a maximum of R2169. On the other hand, the sum insured by most (62.4 percent) of the policyholders was between R100001 – R150000 with an average sum insured of R193097.65. The minimum was R5350 while the maximum was R1041150.

Table 4.4 provides the results of the descriptive statistics used to analyse the LSM level of the short term insurance policyholders.

Table 4.4: LSM Level of Policyholders

LSM Level	Frequency	Percentage	Valid Percent	Cumulative Percentage
LSM 01	83	0.3	0.3	0.3
LSM 02	682	2.3	2.3	2.6
LSM 03	1056	3.6	3.6	6.3
LSM 04	1782	6.1	6.1	12.4
LSM 05	3105	10.7	10.7	23.1
LSM 06	7835	27	27	50.1
LSM 07	1490	5.1	5.1	55.2
LSM 08	300	1	1	56.3
LSM 09	5820	20	20	76.3
LSM 10	6878	23.7	23.7	100
Total	29031	100	100	

The South African advertising research foundation (SAARF) developed the living standards measure to determine the socio-economic rank of a person or group of persons in South Africa (SAARF, 2002). This measure is market segmentation tool used to measure the quality of living standards based on a variety of products that would typically be found in a household or in person's possession. The consumers are grouped according to shared values, needs and wants as they will typically responded to marketing communication in a similar fashion (Schneider *et al.*, 2009). SAARF developed 10 LSM levels which can be broadly classified into three groups which are (Schneider *et al.*, 2009):

- LSM level 1 – 2: Individuals in this classification have very limited domestic goods and only strive to meet their basic needs due to their limited available revenue. These individuals are not usually exposed to the different forms of media, thus advertising to this group is more difficult.

- LSM level 3 – 6: Individuals in this classification own basic domestic appliances and have some disposable income (despite being in the lower earnings tier) to spend on the things they desire.
- LSM 7-10: Individuals in this classification owns the most domestic goods and fulfil their needs. These consumers are most exposed to the different forms of media and as such strive to fulfil their desires. This category is the quickest to grow as earnings increase and more individuals are financial able to afford lifestyles that are more lavish.

The short term insurance policyholders were found to be at middle and higher LSM categories which were LSM level six (27.0 percent), LSM level nine at (20.0 percent) and LSM level ten (23.7 percent) respectively. Short term policyholders are therefore likely to have a lower occurrence of difficulties due to their enhanced standard of lifestyle.

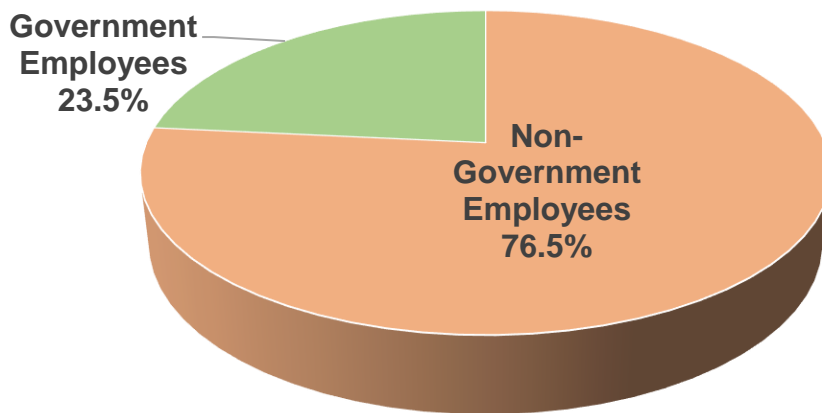


Figure 4.1: Employment status of Policyholders

Figure 4.1 shows that the majority (76.5 percent) of the policyholders were not government employee while few of the policyholders (23.5 percent) were employed by the government.

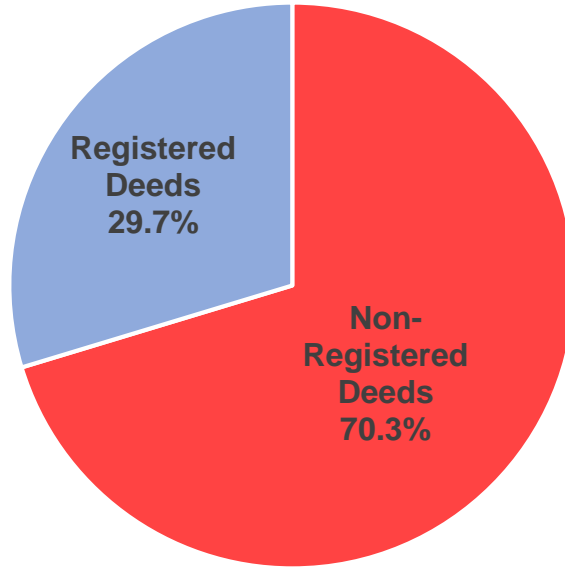


Figure 4.2: Deed Registration status of Policyholders

Similar to their employment status, 70.3 percent had no registered deeds, in other words did not have a registered property, while less than one third had registered deeds (see figure 4.2).

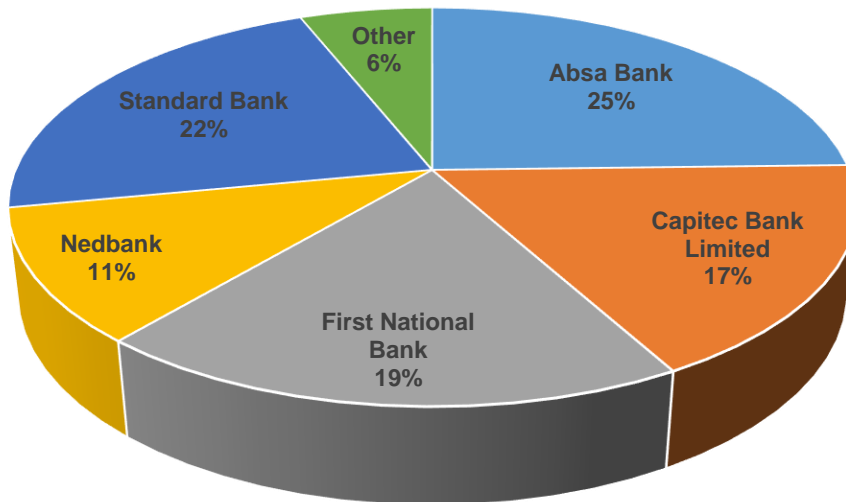


Figure 4.3: Banks used by the policyholders

Figure 4.3 shows that the policyholders held South African bank accounts from which their monthly premiums collected from through debit orders. The top three banks used

were Absa Bank with 25 percent, following by Standard Bank with 22 percent and First National Bank with nineteen percent.

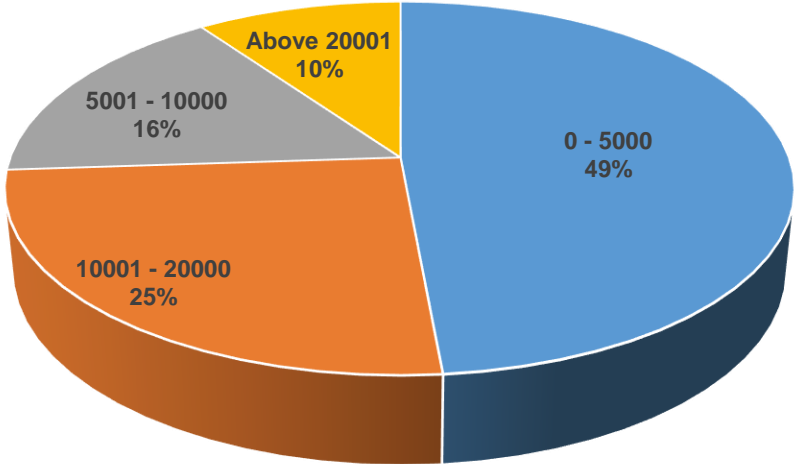


Figure 4.4: Salary bands of the policyholders

In figure 4.4, it can be seen that 49 percent of policyholders are earning between R0 and R5000 per month while only 35 percent of the policyholders have a salary band that is above R10000 indicating that the short term insurance industry comprises of generally lower income earners.

Table 4.5 provides the results of the descriptive statistics used to analyse the cluster groups of the short term insurance policyholders.

Table 4.5: Cluster groups of Policyholders

Cluster Group	Frequency	Percent age	Cluster Group	Frequency	Percent age
Agricultural	716	2.47	Mine	13	0.04
Air Field	9	0.03	Modest Main Street	497	1.71
Basic Town	694	2.39	Modest Masala	1192	4.11
Big Fish	840	2.89	Pearl Strings	415	1.43
Bond Battalions	1255	4.32	Plattelrand Pearls	180	0.62
Chakalaka	94	0.32	Poor Neighbours	1138	3.92
Cheese and Wine	168	0.58	Pram Pushers	617	2.13
City Strugglers	701	2.41	Recreational	33	0.11
Commercial	10	0.03	Retreat	298	1.03
Community	2	0.01	Rusty Blues Town	1741	6
Council's Clutter	243	0.84	Settled Suburbia	2858	9.84
Developer's Dream	343	1.18	Silver Threads	32	0.11
Dish and Decoder Set	737	2.54	Small Holdings	168	0.58
eKasi	975	3.36	Small Town Families	1187	4.09
eKaya	276	0.95	Sparse	266	0.92
Family Street	411	1.42	Strugglers Reward	365	1.26
Family Strugglers	825	2.84	Suburban Bliss	1127	3.88
Fashion Café Society	503	1.73	Suburban Stagnation	798	2.75
Forgotten People	979	3.37	Tenement Trenches	418	1.44
Hospital	9	0.03	Terracotta Terraces	589	2.03
Hostel	42	0.14	The Other Town	1712	5.9
Industrial	263	0.91	Tin Town	385	1.33
Institution	9	0.03	Tribal	212	0.73
Insufficient Data	81	0.28	Upper Crust	104	0.36
Kwaito Corners	253	0.87	Water	1	0
Melting Pot	343	1.18	Wilted Neon	759	2.61
			Young Blues Town	1145	3.94
Total Frequency:	29031				
Total Percentage:	100.0				

Policyholders were found to be located in the cluster groups: Settled Suburbia (9.84 percent), Rusty Blues Town (6.0 percent), The Other Town (5.90 percent), Bond Battalions (4.32 percent), Modest Masala (4.11 percent), Small Town Families (4.09 percent), Young Blues Town (3.94 percent), Poor Neighbours (3.92 percent), Suburban Bliss (3.88 percent), Forgotten People (3.37 percent) and eKasi (3.36 percent). Settled Suburbia represents the middle suburbia, as these communities are considered to be ageing but rather stable with seventy percent of the residents employed. Rusty Blues

Town fall within the labour pool category and policyholders within this group is considered to be disadvantage by technology and closer to retirement age (Knowledge Factory Cluster Plus, 2012). The Other Town is grouped as dire straits as residents in these neighbourhoods are faced with financial strain, high unemployment levels, low levels of pay and education levels (Knowledge Factory Cluster Plus, 2012). These neighbourhoods require support in the form of education and infrastructure from more affluent communities. Bond Battalions inhabitants are considered to be young with the average home compromising of four members. These residents typically finds themselves in lower paying government service jobs. This community falls in the new bonds category, which represents the first cohort of parents post-apartheid (Knowledge Factory Cluster Plus, 2012). Finally, Modest Masala is found within the towering density category. Inhabitants in these areas are mostly in blue collar jobs. The housing type in this cluster are generally small apartment blocks made up of about four to six units. Education and household disposable revenue is low however the inhabitants could find themselves living a content lifestyle (Knowledge Factory Cluster Plus, 2012).

4.2.2 Descriptive statistics: Macroeconomics variables and lapse rate

Table 4.6 provides the results of the descriptive statistics used to analyse the short term insurance lapse rate and macroeconomic variables (GDP, interest rate and inflation rate) for the period 2012 to 2018.

Table 4.6: Descriptive statistics of Macroeconomic variables and Lapse rate for the period 2012 – 2018

Statistics	Inflation rate (CPI)	Interest rate (Prime lending rate)	GDP growth rate	Lapse rate
Mean	4.98%	10.03%	0.62%	2.54%
Standard Deviation	0.68%	0.48%	1.83%	1.71%
Variance	0.461	0.229	3.345	2.924
Minimum	3.80%	8.50%	-2.20%	1.11%
Maximum	7.00%	10.50%	4.20%	100.00%
Range	3.20%	2.00%	6.40%	98.89%

Mean is the average value present across the observations. The mean value depends on the number of large or small values present in the data set. Standard Deviation is the measure of dispersion from the actual values. It is the square root of Variance. On the other hand, variance is the measure of variability that aims to check how far the variables are from each other. The mean square is the product derived after dividing sum of squares by their respective degree of freedom values. It is the risk function containing both variance as well as the bias. These indicate the accuracy with which the observations are able to predict the parameters. Since every study includes a certain degree of bias, it is not possible to have a zero or negative mean square value. Lastly, the F-values have been calculated using these Mean squares to understand the statistical significance of the observations taken into consideration. Out of the three macroeconomic variables examined during the period 2012 to 2018, interest rate had the highest mean value of 10.03 percent and the inflation rate mean was 4.98 percent while GDP growth rate mean was the lowest with a value of 0.62 percent. The average lapse rate with the period was 2.54 percent. The lapse rate measurements for the period 2012 to 2018 showed greater deviation for the average with a standard deviation of 1.71 percent. The GDP growth rate standard deviation was 1.83 percent.

4.3 Impact of policyholder characteristics on short term insurance lapse rate

The generalised linear model was used to examine which of the policyholder characteristics determines the short term insurance lapse rate. The predictors or independent variables used in running the model were age, gender, province, bank type, LSM level, cluster group, employment status, registered deed, policy duration, policy premium and sum insured premium while the dependent variable was the short term insurance lapse rate. Table 4.7 provides the results of the generalised linear model.

Table 4.7: Policyholder characteristics determining short term insurance lapse

Goodness of Fit			
	Value	df	Value/df
Deviance	67354.908	28858	2.334
Scaled Deviance	29031.000	28858	
Pearson Chi-Square	67354.908	28858	2.334
Scaled Pearson Chi-Square	29031.000	28858	
Log Likelihood ^b	-53409.617		
Akaike's Information Criterion (AIC)	107167.234		
Finite Sample Corrected AIC (AICC)	107169.344		
Bayesian Information Criterion (BIC)	108607.279		
Consistent AIC (CAIC)	108781.279		

Omnibus Test		
Likelihood Ratio Chi-Square	df	Sig.
6718.141	172	.000

Tests of Model Effects

	Wald Chi-Square	df	Sig.
(Intercept)	119.877	1	.000
Product Type	29.519	2	.000**
Age	71.383	68	.366
Gender	4.188	1	.041**
Province	6.984	8	.538
Bank	4.191	17	.999
LSM Level	4.970	9	.837
Cluster Group	149.246	52	.000**
Government Employee	.740	1	.390
Registered Deed	.000	1	.986
Policy duration	3105.512	4	.000**
Policy Premium	.888	5	.971
Sum Insured	107.531	4	.000**

** = statistically significant

Overall, the independent variables used in the above model had a combined statistically significant ($P=0.000$) influence on lapse rate (as shown in likelihood ratio test). This is also reflected in the goodness of fit test with a deviance/df value of “2.334” which is not close to “one”. This shows that the model fits significantly. The test of model effects helps to identify specific characteristics influencing lapse rate. This shows that “**product type**”, “**gender**”, “**cluster group**”, “**policy duration**” and “**sum insured**” had statistically significant ($P<0.05$) influence on the lapse rate. This is consistent with other studies (Outreville, 1990; Kagraoka, 2005; Purushotham, 2005; Kiesenbauer’s, 2012; Eling and Kiesenbauer, 2014 and Kruger, 2018).

The parameter estimates (see appendix 1) shows that Medical Insurance ($P=0.003$) and Medical Gap Cover ($P=0.000$) had the most statistical significant lapse rate among the product types. In addition, Females were found to be statistically significant ($P=0.041$)

against the short term insurance lapse rate. Among LSM, LSM level 06 was found to have a statistical significant ($P=0.031$) impact on determining the lapse rate. Among cluster groups, 24 out of the 53 clusters were found to be statistically significant determinants of lapse rates: Agriculture ($P=0.009$), basic town ($P=0.008$), big fish ($P=0.035$), bond battalion ($P=0.000$), city strugglers ($P=0.006$), council's clutter ($P=0.022$), Developer's dream ($P=0.006$), eKasi ($P=0.008$), family strugglers ($P=0.004$), forgotten people ($P=0.011$), kwaito corners ($P=0.032$), melting pot ($P=0.11$), modest main street ($P=0.019$), modest masala ($P=0.001$), poor neighbours ($P=0.004$), silver treads ($P=0.000$), small town families ($P=0.036$), strugglers rewards ($P=0.015$), suburban stagnation ($P=0.007$), tenement trenches ($P=0.007$), terracotta terraces ($P=0.038$), the other town ($P=0.014$), tin town ($P=0.007$) and wilted neon ($P=0.003$). Finally, total sum insured between R50001 – R100000 were found to be statistically significant ($P=0.000$).

In order to determine the direction and impact of the identified factors on lapse rate, values of the lapse rate were classified into three groups: low (0 percent - 1.99 percent), medium (2.0 percent - 2.99 percent) and high (3.0 percent - and above). These were cross tabulated against the policy holder factors identified in the generalised linear model. The results are as shown in following tables below.

Firstly, Table 4.8 provides the results of the gender and short term insurance lapse rate cross tabulation.

Table 4.8: Gender and Lapse rate Cross tabulation

		LAPSE_RATE			Total
		Low Lapse rate	Medium Lapse rate	High Lapse rate	
Gender	Female	4376	3864	4439	12679
		34.5%	30.5%	35.0%	100.0%
	Male	5095	5170	6087	16352
		31.2%	31.6%	37.2%	100.0%
Total		9471	9034	10526	29031
		32.6%	31.1%	36.3%	100.0%

The cross tabulation above shows that there was a higher proportion of female policyholders (34.5 percent) which fall in the low lapse rate category compared to that of males (31.2 percent). In contrast, a higher weighting (37.2 percent) of males experience a high lapse rate compared to that of females (35.0 percent). This result indicates that female policyholders are less risker in terms of cancellations due to non-payment of premiums. This is consistent with the studies undertaken by Kagraoka (2005) and Eling and Kiesenbauer (2014). Kagraoka (2005) goes on to contend that women only take up insurance policies when household revenue increases.

Secondly, Table 4.9 provides the results of the short term insurance product type and short term insurance lapse rate cross tabulation.

Table 4.9: Product Type and Lapse rate Cross tabulation

		LAPSE_RATE			Total
		Low Lapse rate	Medium Lapse rate	High Lapse rate	
PRODUCT TYPE	Medical Gap Cover	9395	5017	2767	17179
		54.7%	29.2%	16.1%	100.0%
	Medical Insurance	48	545	2050	2643
		1.8%	20.6%	77.6%	100.0%
		Motor Warranty	28	3472	5709	9209
0.3%	37.7%		62.0%	100.0%	
Total		9471	9034	10526	29031
		32.6%	31.1%	36.3%	100.0%

Table 4.9 shows that most of the medical gap cover policyholders (54.7 percent) had a low lapse rate while majority of those with medical insurance (77.6 percent) and motor warranty (62.0 percent) had a high lapse rate. Medical gap cover is generally seen as an important insurance cover to have in place as it is a supplement to having a private medical aid. In contrast, medical insurance is typically sold to lower income earners, as these policyholders are unlikely to have a private medical aid but still want to have some type of financial protection in the case of a medical emergency. While motor warranty policies are sold to policyholders with vehicles that are out of their manufacturer warranty. These policyholders choose to hold onto their older model vehicles somewhat due to the

financial strain of purchasing a brand new vehicle. As such, these two products can be viewed by the policyholders as a grudge purchase and therefore may prompt them to lapse their policies resulting in a higher lapse rate. The different level of lapse rate based on the product itself is consistent with Kiesenbauer’s (2012) study.

Thirdly, Table 4.10 provides the results of the duration of the short term insurance policy and short term insurance lapse rate cross tabulation.

Table 4.10: Policy Duration and Lapse rate Cross tabulation

		LAPSE_RATE			Total	
		Low Lapse rate	Medium Lapse rate	High Lapse rate		
Policy Duration	1 – 12	0	0	8178	8178	
		0.0%	0.0%	100.0%	100.0%	
	13 – 24	1558	6132	2204	9894	
		15.7%	62.0%	22.3%	100.0%	
	25 – 36	4032	0	0	4032	
		100.0%	0.0%	0.0%	100.0%	
	37 – 48	290	2227	53	2570	
		11.3%	86.7%	2.1%	100.0%	
	> 48	3591	675	91	4357	
		82.4%	15.5%	2.1%	100.0%	
	Total		9471	9034	10526	29031
			32.6%	31.1%	36.3%	100.0%

Table 4.10 shows that policy duration between 25 and 36 months had a low lapse rate and similarly 82.4 percent of those above 48 months also had a low lapse rate. While policy durations between 1 and 12 months had a high lapse rate. The short term insurance lapse rate is higher at the beginning of cover as the policyholders will assess if they are financially able to pay the monthly premiums and they will determine if the insurance policy satisfies their needs. From year 3 and onwards, low lapse rates is likely due to instinctive selection as the policyholders place more value in retaining their insurance

cover thus driving down lapse rates. This result is consistent with other studies (Outreville, 1990; Eling and Kiesenbauer, 2014; and Kruger, 2018).

Fourthly, Table 4.11 provides the results of the sum insured benefit of the short term insurance policy and short term insurance lapse rate cross tabulation.

Table 4.11: Sum Insured and Lapse rate Cross tabulation

		LAPSE_RATE			Total
		Low Lapse rate	Medium Lapse rate	High Lapse rate	
Sum Insured	5001 – 50000	4	138	378	520
		0.8%	26.5%	72.7%	100.0%
	50001 – 100000	28	3247	3593	6868
		0.4%	47.3%	52.3%	100.0%
	100001 – 150000	9395	5242	3478	18115
		51.9%	28.9%	19.2%	100.0%
	150001 – 200000	0	0	1190	1190
		0.0%	0.0%	100.0%	100.0%
	> 200000	44	407	1887	2338
		1.9%	17.4%	80.7%	100.0%
Total		9471	9034	10526	29031
		32.6%	31.1%	36.3%	100.0%

Table 4.11 shows that 51.9 percent of the policies with sum insured benefits that are between R100001 and R150000 had a low lapse rate. While a high lapse rate was found in majority of the policies with the two highest categories of sum insured benefits which are: between R150001 and R200000 (100 percent) and more that R200000 (80.7 percent). The lowest sum insured category between R5001 and R50000 also shows that most policies (72.7 percent) with this benefit has a high lapse rate. This result could indicate that policyholders place a higher value proposition on insurance policies with a higher sum insured benefit, in other words, the policyholder gets more bang for their buck. Policyholders could lapse their policies as they replace it with other insurance policies

that offer a higher insured benefit. This result is supported by the policy replacement hypothesis (Outreville, 1990; Russell, 1997; Carson and Forster, 2000).

4.4 Impact of macroeconomic variables on short term insurance lapse rate

A generalised linear model was used to examine which of the macroeconomic variables determines the short term insurance lapse rate. The predictors or independent variables used in running the model were GDP growth rate, interest rate and inflation rate while the dependent variable was the short term insurance lapse rate. Table 4.12 provides the results of this generalised linear model.

Table 4.12: Macroeconomic variables influencing short term insurance lapse

Goodness of Fit			
	Value	df	Value/df
Deviance	73136.052	27963	2.615
Scaled Deviance	28018.000	27963	
Pearson Chi-Square	73136.052	27963	2.615
Scaled Pearson Chi-Square	28018.000	27963	
Log Likelihood ^b	-53197.095		
Akaike's Information Criterion (AIC)	106506.190		
Finite Sample Corrected AIC (AICC)	106506.418		
Bayesian Information Criterion (BIC)	106967.663		
Consistent AIC (CAIC)	107023.663		
Omnibus Test^a			
Likelihood Ratio Chi-Square	df	Sig.	
3648.323	54	.000	

Tests of Model Effects

	Wald Chi-Square	df	Sig.
(Intercept)	1662.531	1	.000**
Inflation rate (CPI)	112.772	25	.000**
Interest rate (Prime lending rate)	74.632	7	.000**
GDP growth rate	606.611	22	.000**

**** = statistically significant**

The ratio of deviance value to degree of freedom in the goodness of fit test shows the model fits significantly. The macroeconomic variables; inflation rate (CPI), interest rate (prime lending rate) and GDP growth rate all had combined statistically significant (P=0.000) influence on lapse rate. Also, each had a separate statistically significant (P=0.000) influence on the rate as shown in the test of model effects.

A correlation analysis was further used to test the relationship between the three macroeconomic variables and lapse rate. The results of the correlation analysis are documented in Table 4.13.

Table 4.13: Correlation analysis of macroeconomic variables and lapse rate

Correlations					
		Lapse rate	Inflation rate (CPI)	Interest rate (Prime lending rate)	GDP growth rate
Lapse rate	Pearson Correlation	1	-.184**	.075**	.017**
	Sig. (2-tailed)		.000	.000	.003
	N	29031	28018	29031	29031
Inflation rate (Consumer Price Index)	Pearson Correlation	-.184**	1	.142**	-.052**
	Sig. (2-tailed)	.000		.000	.000
	N	28018	28018	28018	28018
Interest rate (Prime lending rate)	Pearson Correlation	.075**	.142**	1	.140**
	Sig. (2-tailed)	.000	.000		.000
	N	29031	28018	29031	29031
GDP growth rate	Pearson Correlation	.017**	-.052**	.140**	1
	Sig. (2-tailed)	.003	.000	.000	
	N	29031	28018	29031	29031

****.** Correlation is significant at the 0.01 level (2-tailed).

The correlation result above showed that there was a weak statistically significant negative correlation ($r = -0.184$) between inflation rate (CPI) and lapse rate. Although the relationship is not strong, this still shows that as the inflation rate relatively reduces there is a relative increase in the lapse rate. Thus, there is a tendency for the lapse rate to increase following any decrease in the inflation rate. A decrease in the inflation rate could result in the cost of goods and services becoming more affordable. As a result, policyholders could capitalise on this as they could shop around for alternative insurance policies that are cheaper. This result supports the policy replacement hypothesis (Outreville, 1990; Russell, 1997; Carson and Forster, 2000).

On the other hand, the correlation analysis showed that there was a weak statistically significant positive correlation between lapse rate and Interest rate ($r=0.075$) and also

GDP growth rate ($r=0.017$). Thus, as the interest rate and GDP growth rate relatively increases, the lapse rate also has a tendency to increase. This positive correlation of interest rate to lapse rate finds some support to the interest rate hypothesis (Schott, 1971; Pesando, 1974 and Kuo et al., 2003) when lapse rates worsens (increase) when the market returns increase. While, the positive correlation between lapse rate and GDP growth rate does not support the emergency fund theory (Linton, 1932; Outreville, 1990; Kuo *et al.*, 2003 and Kim, 2005) as lapse rate is expected to improve (decrease) under a deteriorating economic climate (declining GDP growth). It is possible that short term insurance policyholders want to hold on to their cover to protect themselves against financial losses given an already worsening economy. This indicates that the short term insurance industry behaves differently compared to the long term or life insurance industry.

4.5 Conclusion

This chapter has presented and discussed the results of the analyses of the quantitative data collected from the research participant, the short term insurance intermediary. The purpose was to examine the factors that affect lapse rates in the short term insurance industry. The generalised linear model was used to examine which of the policyholder characteristics determines the short term insurance lapse rate. Utilising a goodness of fit test it was showed that the model fits significantly. The test of model effects identified the following attributes that had statistically significant influence on the lapse rate: product type, gender, cluster group, policy duration and sum insured. Cross tabulations were used to determine the direction and impact of the identified factors on lapse rate.

In examining the impact of the macroeconomic variables on lapse rates; inflation rate, interest rate and GDP growth rate were all found to be statistically significant. Further, a correlation analysis was utilised to test the relationship between the three macroeconomic variables and lapse rate. The findings provides support to the interest rate hypothesis which suggests that as interest rates rise so too does lapse rates.

The following chapter will provided a summary of the major results based on the findings identified in the above discussion. As well as draw a conclusion and end with recommendations for future studies.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter of the research summarises the major finding of this study that seek to examine the factors affecting lapse rates in the South African short term insurance industry, in line with the objectives acknowledged in chapter one. For this purpose, a literature review has been conducted to examine the impact of policyholder characteristics as well as macroeconomic variables on short term insurance lapse rates. A quantitative research methodology was adopted for this research while descriptive statistics, inferential statistics and a generalised linear model was used to answer the research questions. The results from the analysis indicated that product type, gender, cluster group, policy duration and sum insured where found to have statistically significant influence on lapse rates. While the macroeconomic variables examined in this study were found to exhibit a weak significant correlation with short term insurance lapse rates. This chapter also provides strategies to mitigate high lapse rates and documents the study limitations. Chapter five ends with recommendations for further areas of study.

5.2 Conclusion

5.2.1 Policyholder demographics and description of insurance policies

In this study, the total number of short term insurance policyholders examined was 29031. The study finds that the short term insurance industry is somewhat dominated by males with 56.3 percent of sample being male. The short term insurance client base can be viewed as an ageing one with the average age of policyholders being around fifty years with 62.2 percent of the client base holding a short term insurance policy that is between one and 24 months old. 92 percent of the insurance premiums incurred by the policyholders is R400 and below. While the sum insured value that majority of the policyholders could benefit from (around 86 percent) is above R50000 but below R150000. The majority of the policyholder base is concentrated in the three main economically active provinces in South Africa, which is the Gauteng region (about 36

percent), following by Kwazulu-Natal (around 20 percent) and Western Cape (about 11 percent). The policyholders in the short term insurance market are mostly found existing with a more enhanced standard of lifestyle as around 77 percent of the insured are between the LSM level six and ten. Most of the policyholders (94 percent) held bank accounts with South Africa's five main banks (Pitjeng, 2018). 49 percent of the policyholders have a salary band that is below R5001 indicating that the short term insurance industry comprises of generally lower income earners. The five largest proportion (combined around 30.1 percent) of the policyholders are located within the cluster groups Settled Suburbia, Rusty Blues Town, The Other Town, Bond Battalions and Modest Masala. The short term insurance client base indicated that about 77 percent hold jobs within the private sector.

5.2.2 Objective one: impact of policyholder characteristics on lapse rates

In this research, the author examines the impact of twelve product and policyholder attributes on short term insurance lapse rates, which included the product type, age of the policyholder, gender of the policyholder, province, bank type, LSM level, cluster group, employment status, homeownership status, duration of the policy, policy premium and sum insured value. Following investigations carried out in Italy (Cerchiara, Edwards, and Gambini, 2008) and Germany (Eling and Kiesenbauer, 2014) generalised linear models were utilised to determine the association between lapse rates and those product and policyholder factors. The author considered a sample of 29031 policyholders that covered a recent time of seven years 2012 - 2018.

The main findings of this study indicated that these variables had a combined statistically significant influence on lapse rate. The specific characteristics identified to have an impact on short term insurance lapse rates that was statistically significant were product type, policyholder gender, cluster group, duration of the policy duration and sum insured value. The parameter estimates was then conducted to identify the factors within these variables that had statistical significant impact on the short term lapse rate. Of the three product types medical insurance and medical gap cover had the most statistically significant impact on lapse rates. In addition, females were found to be a statistically significant

determinant of short term insurance lapse rates. Among the ten LSM levels, LSM level 06 was found to be statistically significant on lapse rates. While, total sum insured values that were between the ranges R50001 – R100000 were found to be statistically significant determinant of lapse rates. Finally, 24 out of the 53 clusters were found to be statistically significant. Further to the above analysis, cross tabulations against the policyholder factors identified as significant in the generalised linear model was examined to determine the direction and impact of the identified factors on short term insurance lapse rates. Female policyholder were shown to have a relatively lower lapse rate than males, indicating these policyholders are less risker in terms of terminations due to lapse. Policyholders with medical gap cover were found to have a lower lapse while those with medical insurance and motor warranty product types had higher lapse rates. Policies that had been in existence within the first twelve months since purchase were shown to have a high short term insurance lapse rates. The lapse rates were shown to reduce to lower levels when the duration of the policy increases. This is consistent with other studies (Outreville, 1990; Eling and Kiesenbauer, 2014; and Kruger, 2018). Finally, the benefit derived from the insurance policy, as a result of the predetermined insurance event occurring, that was values between the ranges R100001 – R150000 had been found to have a lower lapse rate. This could indicate that policyholders place more value on a higher sum insured benefit.

5.2.3 Objective two: impact of macroeconomic variables on lapse rates

The second stated objective of this study was to examine the impact of macroeconomic factors on short term insurance lapse rates. Based on the literature review undertaken (Schott, 1971; Pesando, 1974; Kuo *et al.*, 2003 and Kiesenbauer, 2012), a total of three macroeconomic variables being inflation rate, interest rate and GDP growth rate were examined to determine their influence on short term insurance lapse rate. In order to answer this research question, analysis through the use of a generalised linear model found that the macroeconomic variables examined in this study all had combined and separate statistically significant influence on short term insurance lapse rates. A correlation analysis was then further implemented to gain an understanding of the association between the three macroeconomic variables and lapse rate. Inflation rate was

shown to exhibit a weak statistically significant negative correlation with lapse rate. Basically as inflation rate rises this will relatively decrease lapse rates in the short term insurance industry. Conversely, there is tendency for the lapse rate to increase following any reductions in the inflation rate. The correlation analysis also showed that there was a weak statistically significant positive correlation between lapse rate and interest rate and GDP growth rate. Therefore as the interest rate and GDP growth rate relatively decreases, the lapse rate also has a tendency to decrease and vice versa.

However, neither inflation rate, interest rate nor GDP growth rate established any strong significant correlation with short term insurance lapse rates. It is still an open question whether these factors examined are true determinants of short term insurance lapse rates. Therefore, the impact of macroeconomic variables on lapse rates in the short term insurance industry in South Africa is likely to be a result of factors that are not investigated in this study. A more comprehensive research imploring the use of a larger sample size and additional macroeconomic variables may assist with finding a resolution this question.

5.2.4 Objective three: strategies recommended to mitigate lapse rates

Strategies to retain customers in the short term insurance market are crucial in reducing lapse rates. The following tactics can be implemented to assist insurers in the short term insurance industry to retain their policyholders:

- Segmenting of the client base to gain an understanding of the behaviour of policyholders. This can include grouping policyholders into price or service sensitive categories. The results from this research indicated that cluster groups were a statistically significant influence on lapse rates. Thus, it would be useful for insurance companies to segment their clients based on their cluster group to target clients who have a lower chance of lapse thereby improving customer retention and driving up profits.
- Credit scoring the policyholders through the use of external credit scores combined with internal credit scoring could assist insurers in implementing tailor made collection strategies to increase premium collections and therefore reduce lapse rates.

- Focus on bolting on additional products to the client base. The more policies held by clients from a particular insurer, the less willing for a policyholder to terminated their cover. Additionally offering multi product discounts could further assist with this strategy.
- Encourage automatic payment options such as a debit or stop order to assist those self-paying policyholders who overlook the payment of their premiums resulting in lapse. Discounts can also be utilised to encourage the clients to make the switch.
- In the short term insurance industry, renewals is generally an annual occurrence. Rewarding policyholders for renewing their policies could assist with retention. Rewards could be tailor made according to the interests of the policyholder, which should be identified when segmenting the client base.

Strategies that are utilised during the development of short term insurance policies could also assist in reducing the risks associated with lapse. These strategies could be embedded in the actual product characteristic to dissuade insured clients from terminating their policies earlier than intended through either a surrender or lapse. This will also assist to provide cover against damages to the policyholders as a result of lapse. The following characteristics could be included in the product to discourage lapse:

- Lapse charges in the form of a penalty. These penalties can assist in discouraging policyholders from terminating their cover due to non-payment as they would incur a higher financial burden as well as ensure underwriters can recoup their cost of acquisition in the event of lapse occurring earlier than anticipated.
- Modified participation rates that are more consistent with industry rates. Suppose an underwriter is obligated to liquidate a bond with unrealised financial losses as a result of an increase in interest rates this could subsequently cause a rise in the lapse charge for the insurance holder. In contrast, if the underwriter is obligated to liquidate a bond with unrealized economic benefit then this should conversely result in a reduction in the lapse charges incurred by the insurance holder.
- Significant reduction is tax savings due to lapses. Contributions to some insurance policies have the benefit of reducing tax liabilities and as such, lapsing such policies could result in an increase in the tax liability.

- Bonus pay-outs that are lost upon lapsing of a policy. The bonus pay-outs should be made up of a lump sum value of the profits that is given to the policyholder when they policy reaches a certain age. This will especially be useful in reducing the high lapse rates experienced in the first twelve months of purchasing a short term insurance policy.
- Implementing underwriting that is specific to policyholder's risk profile for medical insurance and motor warranty product types. This will discourage lapse since due to risk dependent profiles, the insured holder may be unable to source similar type of products at the same price point with another competitor.

With the implementation of the above-mentioned recommendations, insurers could better manage their lapse risk and potentially reduce the incurrence of high lapse rates of short term insurance policies.

5.3 Limitations of the study

The documentation of limitations will be valuable for forthcoming research concerning the insurance industry. Academic literature on the determinants affecting lapse rate in the short term insurance industry is scarce. This could be due to the assumptions that factors influencing lapse in the long term insurance market would be similar to the short term insurance market.

This study was limited to policyholders with short term insurance policies. Due to limited time, the long term insurance industry was excluded. While conducting this research, the most important limitation face by the author was the access to available data. Limited data was available in terms of the choice of macroeconomic variables. Also, the insurance industry in South Africa is highly competitive and as such, data is regards as a valuable source of competitive advantage. For this reason, only explanatory variables specific to the short term insurance intermediary's database could be included in this study. Nevertheless, the full population of 29031 policyholder records was able to provide useful results and conclusions.

5.4 Recommendation for future studies

This research concentrated on assessing the impact of lapse factors on the South African short term insurance market. Future studies can elaborate on these results for example by developing a prediction model used for future short term insurance lapse rates. This will further assist insurers to implement tailor made approaches to managing customers most likely to lapse in terms of risk and value based strategies (Eling and Kiesenbauer, 2014). There is also room to expand the research to investigate the lapse drivers within the long term insurance industry of South Africa.

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APPENDIX 1

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	2.364	0.647	1.096	3.632	13.349	1	0
Age group = 21 - 30	0.087	0.046	-0	0.178	3.607	1	0.06
Age group = 31 - 40	-0.01	0.0294	-0.07	0.048	0.1	1	0.75
Age group = 41 - 50	0.022	0.0275	-0.03	0.076	0.633	1	0.43
Age group = 51 - 60	0.035	0.0266	-0.02	0.087	1.687	1	0.19
Age group = Above 60	0 ^a	.	.	.	.	.	.
Gender = Female	0.039	0.0191	0.002	0.076	4.168	1	0.04
Gender = Male	0 ^a	.	.	.	.	.	.
Province = Eastern Cape	-0.04	0.0449	-0.12	0.053	0.598	1	0.44
Province = Free State	-0.08	0.0487	-0.17	0.02	2.417	1	0.12
Province = Gauteng	-0.03	0.035	-0.09	0.043	0.543	1	0.46
Province = Kwazulu-Natal	-0.05	0.0368	-0.12	0.021	1.922	1	0.17
Province = Limpopo	-0.11	0.0637	-0.24	0.012	3.153	1	0.08
Province = Mpumalanga	-0.1	0.0516	-0.2	0.006	3.397	1	0.07
Province = North West	-0.07	0.0517	-0.17	0.034	1.693	1	0.19
Province = Northern Cape	-0.12	0.0644	-0.25	0.006	3.504	1	0.06

Province = Western Cape	0 ^a	.	.	.	.	.	.
Bank = ABSA Bank	0.234	0.6241	-0.99	1.457	0.14	1	0.71
Bank = ABSA- ITHALA	0.473	1.0816	-1.65	2.593	0.191	1	0.66
Bank = Bank of Athens	0.152	1.6494	-3.08	3.385	0.008	1	0.93
Bank = Bidvest Bank Limited	0.294	0.6464	-0.97	1.561	0.207	1	0.65
Bank = CAPITEC Bank Limited	0.239	0.6241	-0.98	1.462	0.147	1	0.7
Bank = First National Bank	0.22	0.6242	-1	1.443	0.124	1	0.73
Bank = FirstRand Bank	0.23	0.6253	-1	1.456	0.136	1	0.71
Bank = Habib Overseas Bank Limited	0.651	1.6498	-2.58	3.884	0.156	1	0.69
Bank = Investec Bank Limited	0.206	0.6673	-1.1	1.514	0.096	1	0.76
Bank = Mercantile Bank Limited	0.083	0.8821	-1.65	1.812	0.009	1	0.93
Bank = Nedbank	0.207	0.6244	-1.02	1.43	0.109	1	0.74

Bank = Nedbank Limited INC BOE Bank	-0.73	1.6492	-3.96	2.507	0.194	1	0.66
Bank = SA Post Bank	0.149	1.2462	-2.29	2.591	0.014	1	0.91
Bank = South African Post Office	0.227	1.2469	-2.22	2.671	0.033	1	0.86
Bank = Standard Bank	0.254	0.6241	-0.97	1.477	0.165	1	0.68
Bank = Standard Chartered Bank of South Africa	-0.16	0.9858	-2.09	1.772	0.027	1	0.87
Bank = Standard Lesotho Bank Limited	-0.66	1.6487	-3.89	2.574	0.159	1	0.69
Bank = UBANK Limited	0 ^a	.	.	.	.	.	.
LSM level = LSM_01	0.021	0.1807	-0.33	0.375	0.013	1	0.91
LSM Level = LSM_02	0.091	0.0899	-0.09	0.267	1.028	1	0.31
LSM Level = LSM_03	0.108	0.0721	-0.03	0.249	2.246	1	0.13
LSM Level = LSM_04	0.085	0.0636	-0.04	0.21	1.805	1	0.18
LSM Level = LSM_05	0.086	0.0645	-0.04	0.212	1.767	1	0.18
LSM Level = LSM_06	0.114	0.0528	0.01	0.217	4.636	1	0.03
LSM Level = LSM_07	0.106	0.0721	-0.04	0.247	2.151	1	0.14

LSM Level = LSM_08	0.043	0.1012	-0.16	0.241	0.177	1	0.67
LSM Level = LSM_09	0.056	0.0432	-0.03	0.14	1.658	1	0.2
LSM Level = LSM_10	0 ^a	.	.	.	.	.	.
Cluster Group = Agricultural	-0.23	0.0887	-0.41	-0.06	6.81	1	0.01
Cluster Group = Air Field	-0.2	0.5114	-1.2	0.804	0.15	1	0.7
Cluster Group = Basic Town	-0.21	0.0785	-0.36	-0.06	7.098	1	0.01
Cluster Group = Big Fish	-0.15	0.0713	-0.29	-0.01	4.451	1	0.04
Cluster Group = Bond Battalions	-0.25	0.0689	-0.38	-0.11	12.616	1	0
Cluster Group = Chakalaka	-0.13	0.1664	-0.46	0.197	0.602	1	0.44
Cluster Group = Cheese and Wine	-0.2	0.135	-0.46	0.069	2.092	1	0.15
Cluster Group = City Strugglers	-0.22	0.0798	-0.38	-0.06	7.507	1	0.01
Cluster Group = Commercial	-0.21	0.4854	-1.16	0.743	0.184	1	0.67
Cluster Group = Community	-0.55	1.0799	-2.66	1.572	0.254	1	0.61

Cluster Group = Council's Clutter	-0.26	0.1112	-0.47	-0.04	5.264	1	0.02
Cluster Group = Developer's Dream	-0.27	0.0985	-0.46	-0.08	7.461	1	0.01
Cluster Group = Dish and Decoder Set	-0.09	0.0879	-0.27	0.08	1.103	1	0.29
Cluster Group = eKasi	-0.2	0.0753	-0.35	-0.05	6.954	1	0.01
Cluster Group = eKaya	-0.21	0.111	-0.43	0.005	3.675	1	0.06
Cluster Group = Family Street	-0.17	0.0914	-0.35	0.008	3.519	1	0.06
Cluster Group = Family Strugglers	-0.21	0.0724	-0.35	-0.07	8.175	1	0
Cluster Group = Fashion Café Society	-0.14	0.0967	-0.33	0.051	2.056	1	0.15
Cluster Group = Forgotten People	-0.19	0.0735	-0.33	-0.04	6.422	1	0.01
Cluster Group = Hospital	-0.45	0.5116	-1.45	0.555	0.766	1	0.38
Cluster Group = Hostel	-0.23	0.2438	-0.7	0.253	0.848	1	0.36
Cluster Group = Industrial	-0.1	0.108	-0.31	0.111	0.861	1	0.35

Cluster Group = Institution	-0.07	0.5119	-1.07	0.937	0.017	1	0.9
Cluster Group = Insufficient Data	-0.19	0.1765	-0.54	0.153	1.2	1	0.27
Cluster Group = Kwaito Corners	-0.24	0.1103	-0.45	-0.02	4.594	1	0.03
Cluster Group = Melting Pot	-0.26	0.0997	-0.45	-0.06	6.544	1	0.01
Cluster Group = Mine	-0.1	0.4276	-0.93	0.742	0.05	1	0.82
Cluster Group = Modest Main Street	-0.2	0.0868	-0.37	-0.03	5.469	1	0.02
Cluster Group = Modest Masala	-0.24	0.0749	-0.39	-0.1	10.547	1	0
Cluster Group = Pearl Strings	-0.16	0.1002	-0.36	0.033	2.666	1	0.1
Cluster Group = Platteland Pearls	-0.14	0.1259	-0.39	0.106	1.248	1	0.26
Cluster Group = Poor Neighbours	-0.22	0.074	-0.36	-0.07	8.436	1	0
Cluster Group = Pram Pushers	-0.13	0.0864	-0.3	0.042	2.188	1	0.14
Cluster Group = Recreational	-0.11	0.2713	-0.64	0.426	0.151	1	0.7

Cluster Group = Retreat	-0.14	0.1068	-0.34	0.074	1.598	1	0.21
Cluster Group = Rusty Blues Town	-0.11	0.0596	-0.23	0.005	3.523	1	0.06
Cluster Group = Settled Suburbia	-0.13	0.0658	-0.26	0.001	3.77	1	0.05
Cluster Group = Silver Threads	2.793	0.2751	2.254	3.333	103.137	1	0
Cluster Group = Small Holdings	-0.16	0.1324	-0.42	0.101	1.432	1	0.23
Cluster Group = Town Families	-0.14	0.0645	-0.26	-0.01	4.4	1	0.04
Cluster Group = Sparse	-0.18	0.1115	-0.4	0.04	2.568	1	0.11
Cluster Group = Strugglers Reward	-0.23	0.0967	-0.42	-0.05	5.871	1	0.02
Cluster Group = Suburban Bliss	-0.08	0.0789	-0.24	0.074	1.056	1	0.3
Cluster Group = Suburban Stagnation	-0.2	0.0732	-0.34	-0.05	7.18	1	0.01
Cluster Group = Tenement Trenches	-0.25	0.0934	-0.44	-0.07	7.37	1	0.01

Cluster Group = Terracotta Terraces	-0.18	0.0878	-0.35	-0.01	4.283	1	0.04
Cluster Group = The Other Town	-0.17	0.07	-0.31	-0.03	5.988	1	0.01
Cluster Group = Tin Town	-0.27	0.0978	-0.46	-0.07	7.405	1	0.01
Cluster Group = Tribal	-0.1	0.1219	-0.33	0.143	0.616	1	0.43
Cluster Group = Upper Crust	-0.16	0.1649	-0.48	0.168	0.886	1	0.35
Cluster Group = Water	-0.11	1.5262	-3.1	2.886	0.005	1	0.95
Cluster Group = Wilted Neon	-0.23	0.0775	-0.38	-0.08	8.991	1	0
Cluster Group = Young Blues Town	0 ^a	.	.	.	.	.	.
Government Employee = No	-0.02	0.0239	-0.07	0.028	0.645	1	0.42
Government Employee = Yes	0 ^a	.	.	.	.	.	.
Registered Deed = No	0.002	0.0203	-0.04	0.041	0.006	1	0.94
Registered Deed = Yes	0 ^a	.	.	.	.	.	.
Policy Duration = 1 – 12 months	1.55	0.0382	1.475	1.625	1646.839	1	0

Policy Duration = 13 – 24 months	0.759	0.0349	0.691	0.828	472.185	1	0
Policy Duration = 25 – 36 months	-0.34	0.0358	-0.41	-0.27	88.317	1	0
Policy Duration = 37 – 48 months	0.634	0.0382	0.559	0.709	275.035	1	0
Policy Duration = >48 months	0 ^a	.	.	.	.	.	.
Policy Premium = 1 – 200 Rands	-0.04	0.127	-0.29	0.208	0.106	1	0.75
Policy Premium = 201 – 400 Rands	-0.06	0.1223	-0.3	0.182	0.222	1	0.64
Policy Premium = 401 – 600 Rands	-0.03	0.0918	-0.21	0.153	0.088	1	0.77
Policy Premium = 601 – 800 Rands	0.021	0.0908	-0.16	0.199	0.055	1	0.82
Policy Premium = 801 – 1000 Rands	-0.05	0.1149	-0.27	0.179	0.163	1	0.69
Policy Premium = > 1000 Rands	0 ^a	.	.	.	.	.	.
Sum Insured = 5001 – 50000 Rands	0.072	0.084	-0.09	0.236	0.727	1	0.39
Sum Insured = 50001 – 100000 Rands	-0.52	0.107	-0.73	-0.31	23.24	1	0

Sum Insured = 100001 – 150000 Rands	-0.43	0.1161	-0.66	-0.2	13.552	1	0
Sum Insured = 150001 – 200000 Rands	-0.02	0.1132	-0.25	0.198	0.046	1	0.83
Sum Insured = > 200000 Rands	0 ^a	.	.	.	.	.	.
Product Type = Medical Gap Cover	-0.28	0.0629	-0.41	-0.16	20.422	1	0
Product Type = Medical Insurance	-0.43	0.1448	-0.72	-0.15	8.999	1	0
Product Type = Motor Warranty	0 ^a	.	.	.	.	.	.
(Scale)	2.325 ^b	0.0193	2.288	2.363			

Note a. Set to zero because this parameter is redundant.

Note b. Maximum likelihood estimate.

Dependent Variable: Lapse rate

Model: (Intercept), Age group, Gender, Province, Bank, LSM Level, Cluster Group, Government Employee, Registered Deed, Policy Duration, Policy Premium, Sum Insured, Product Type

APPENDIX 2

Ethical Clearance:



03 August 2018

Mrs Ugeshnee Veerasamy Moodliar (206503120)
Graduate School of Business & Leadership
Westville Campus

Dear Mr Moodliar,

Protocol reference number: HSS/0864/018M

Project Title: Examining factors affecting lapse rates in the South African short term insurance industry

Approval Notification – Expedited Application

In response to your application received 06 July 2018, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully



.....
Professor Shenuka Singh (Chair)

/ms

Cc Supervisor: Dr Mihalisa Chasomeris
Cc Academic Leader Research: Professor Muhammad HoqueS
Cc School Administrator: Ms Zarina Bullyraj

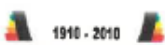
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APPENDIX 3

Turnitin Originality Report:

206503120 – Ugeshnee Veerasamy

Examining factors affecting lapse rates in the South African short term insurance industry

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