



Determinants of Life Insurance Demand By Zimbabweans In South Africa. Case Of Gauteng Province

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KeyWords

Minimum 7 keywords are mandatory; Keywords should closely reflect the topic and should optimally characterize the paper. Use about four key words or phrases in alphabetical order, separated by commas.

Demand, dependants, documentation, Life insurance, funeral policies, premiums, repatriation,

ABSTRACT

This empirical study used primary data on a sample chosen in Gauteng province, South Africa and examined the determinants of life insurance demand by Zimbabweans in Gauteng Province, South Africa. The motivation behind the study is the high costs that were encountered by Zimbabweans in repatriation of bodies from South Africa. Repatriation challenges faced by Zimbabweans that forced some to smuggle corpses was the driving force behind this empirical study. The logit model was used as an econometric model. From the results obtained it was found out that dependency ratio, income and education were crucial variables in ascertaining life insurance demand. This implies that the more income earned by an individual in Gauteng the more he or she will demand life insurance and the insurance companies should charge affordable repatriation costs. On the basis of education, the conclusion is that as one advance in acquiring more education the opportunities of him or her buying a funeral policy will be high also. Based on the findings of this study the author recommended that Life insurance companies in South Africa should educate the Zimbabweans on benefits of having life insurance policies. Since number of dependants or the dependency ratio was useful in explaining life insurance demand it was recommended that the Insurance companies should introduce a life insurance package that caters for many people as in one family. These packages maybe designed to meet the elderly hence the Zimbabweans in South Africa might perceive it cheaper to pay affordable premiums and bring many dependants to South Africa. On income it was recommended that the life insurance companies should work hand in hand with Embassy of Zimbabwe in South Africa in processing working documents. This is so since some Zimbabweans lack enough documentation and as a result they may be earning low remunerations.

The first page should be used only for Title/ Keyword/ Abstract section. The main paper will start from second page.

ACKNOWLEDGEMENT

I owe a huge debt of loving thanks to my academic sponsors Mr and Mrs Masiyiwa for their investment in my life. I also feel deeply indebted to my academic supervisor, Mr E. Ndlovu for his commitment, guidance, encouragement and enthusiasm which made me to continue relentlessly even in turbulent times. My special gratitude goes to Economics Department for their professional coaching in various courses. Hats off to my family who mastered the art of being kind and positive to me. Lastly, a token of appreciation goes to Reverend Mr and Mrs Chingwanangwana and my entire family who were great pillars to me and source of strength during the arduous and long path at university. My special thanks to my sister Mercy Shoko who played a pivotal role in providing some information which was crucial in this research.

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MAIN PAPER STARTS HERE...

DECLARATION

I, Freeman Munisi Mateko declare, that this empirical study is authentic and original. This work has never been submitted to any institution for academic award. Due acknowledgement was done to all views of other scholars quoted in this study.

(Student's Signature) Date...../...../...../

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ACRONYMS

D.R.C	Democratic Republic of Congo
GNP	Gross National Product
IPEC	Insurance and Pensions Commission
LID	Life Insurance Demand

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Insurance the world over is a crucial component in the financial market needed for protection of life or assets. Life insurance as defined by Hayhoe and Smith (2005, pp 1) is, “a policy that provides a cash payment when a person dies.”, and this will be the working definition. The Free dictionary (2014) concurs with that definition and goes on to say it is, “a form of insurance provision for the payment of a specific sum to a named beneficiary on the death of the policyholder.”

Life insurance sector sells funeral policies and plays a pivotal role in making payments upon the death of the insured. Kirova and Steinmann (2013) said that, Life insurance offers protection from unfavourable and unpredictable events such as death. Since life insurance is unique from life assurance in that the later incorporates investment component as benefits are offered to beneficiaries post the burial while life insurance covers only costs such as transportation of the corpse and mourners, food and coffin, (Insuremylife, 2014). According to www.funeralwise.com (2014), life insurance encompasses funeral insurance. So funeral insurance is a form of life insurance. The writer will focus on a crucial component of life insurance which is for funeral expenses such as food, transportation as well as repatriation costs.

Since body smuggling is illegal there is no clear statistics about it but it can be argued that such cases may still exist frequently since the issue of Zimbabweans struggling to raise funds is evident (Mail and Guardian, 2013). To economists, policymakers and the business community it raises a questioning eyebrow into why people lament and toil because of repatriation costs while the funeral service providers were introduced to curb such challenges, with the government later intervening pumping out money.

1.1 Background to the study

Body repatriation is a colossal challenge to Zimbabweans staying in South Africa and has resulted in corpse smuggling as a way of escaping repatriation costs. This can all be attributed to lack of life insurance cover which helps in meeting funeral, transportation and food costs up to the burial. This research will bring light on the determinants of life insurance by Zimbabweans in South Africa.

Zimbabwean Mail (2004) cited that a number of companies from 2012 started to offer funeral services to Zim-

babweans in South Africa and these are: Econet home, Zimnat, Doves and Nyaradzo International Funeral Services. Since the economic meltdown many fled to seek greener pastures. Polzer (2010) said that the reasons why Zimbabweans migrated to South Africa were economic collapse, persecution and social needs. So the reason why Zimbabweans are staying in South Africa is for jobs. The repatriation costs made the Zimbabwean government to pay R54000, 00 to funeral service providers, (The Zimbabwean, 2014). It is unclear on how long the state will continue to pay such expenses since the number of Zimbabweans killed continues to rise as cited by the Mail and Guardian Press (2013).

Some Zimbabweans are financially stricken and the need for financial aid from the state is inevitable. Mail and Guardian (2013) said that, “some people resort to illegal repatriation.”, meaning body smuggling. Refworld (2013) said that” a retired teacher living on a paltry pension resorted to smuggling the body of his daughter. He lacked R10000 and bribed US\$20 at the border.” This shows that a loss of close to US\$800 is lost to smuggling. Another case of body smuggling was recorded when the Newsday (2014) cited that, “the corpse was wrapped in a carpet and it was declared as a carpet at the border.”

Services offered by Zimbabwean companies in South Africa are very significant since their value is included in the Gross National Product (GNP). Harare 24 (2014) posted that, 19 lives were lost in 2005 and that 10 Zimbabweans died in 2012. From these statistics it shows that such bodies were supposed to be repatriated to Zimbabwe for burial. According to the Zimbabwean (2005), “28 people died in south Africa in the 2005.” Therefore, the number of Zimbabweans dying in South Africa continues to increase since 2005. Eye witness (2014) cited that the number of Zimbabwean bodies that need to be repatriated in a week amount to 30. They further posted that, “families face heavy financial burdens to bring their loved ones home and the South African government has nothing to offer.” However, the intervention by the Zimbabwean government in repatriation of bodies raises an assertion that it may be an incentive for Zimbabweans not to take precautionary plans, since they are aware that the government will assist in the burial arrangements.

Hundi (2012, p 10) said that, “life insurance consumption is the demand for life insurance products such as Whole life, Term policy, Endowment policy and Annuities.” From this definition it shows that the relationship existing between life insurance and burial is that for all various insurance products available in the market the primary purpose of each insurance product is the burial of a person upon death. Other benefits may accrue later depending on the product but the main aim will be burial.

Figure 1.1 summarises the trend in life insurance demand in Zimbabwe using gross premium written for the 10 listed companies by Insurance and Pensions Commission (IPEC).

GROSS PREMIUMS (millions \$)

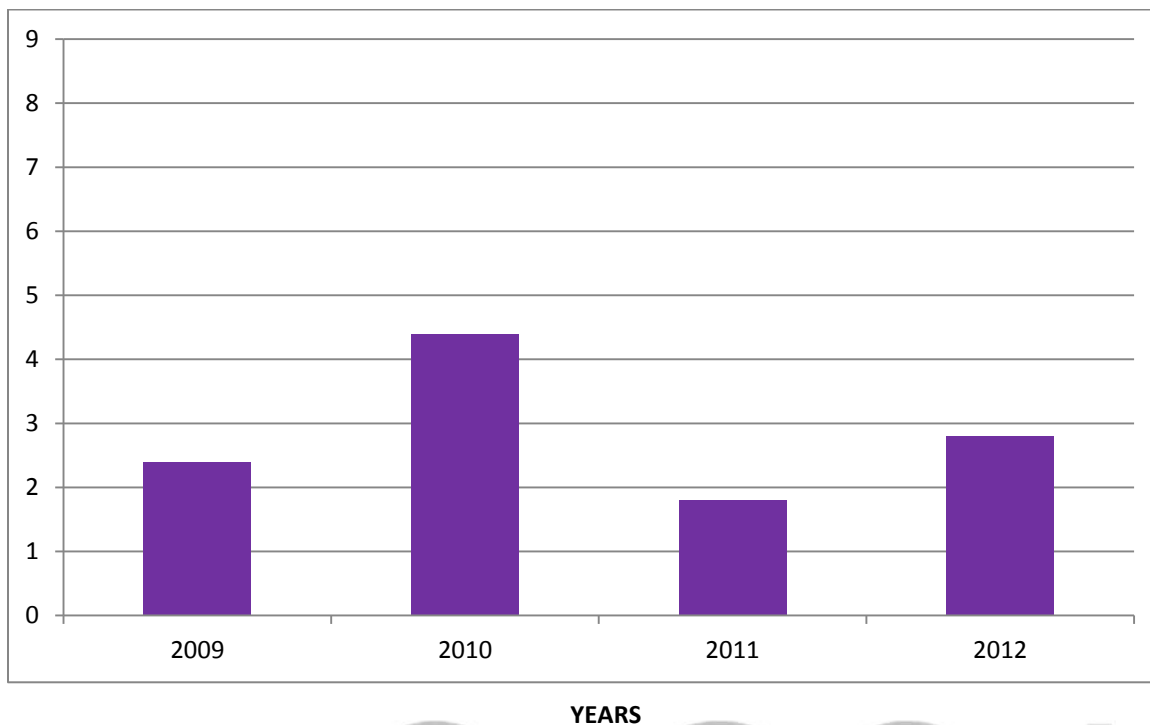


Figure 1.1 Gross Premium Written

Source: IPEC Reports (2009-2012)

From Figure 1.1 it is clear that from 2009 to 2010 the amount increased by 44.2 million dollars and later dropped by 20.3 million dollars. This decline in value revealed a decrease in demand for life insurance policies. This may be explained by the fact of some people reducing their confidence in service providers hence the need to withdraw from such service providers.

From 2011 to 2012 the gross premium written increased by 3.8 million dollars. This can be attributed to the widespread dissemination of information about the benefits of having a life cover. So increase in campaigns or advertising could have attributed to that increase.

Figure 1.2 shows the premium per capita which is a proxy to life insurance demand for the top ten countries in Africa.

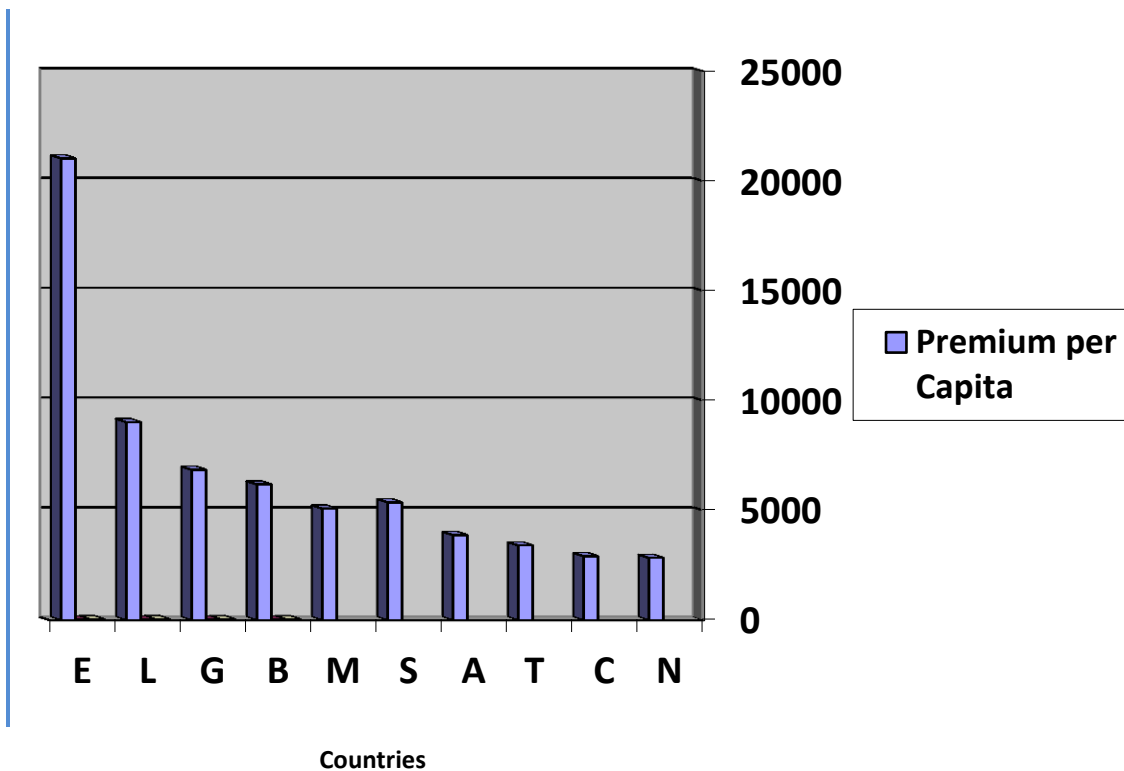


Figure 1.2 Premium per capita of top ten African countries

Source: Ngulube (2009)

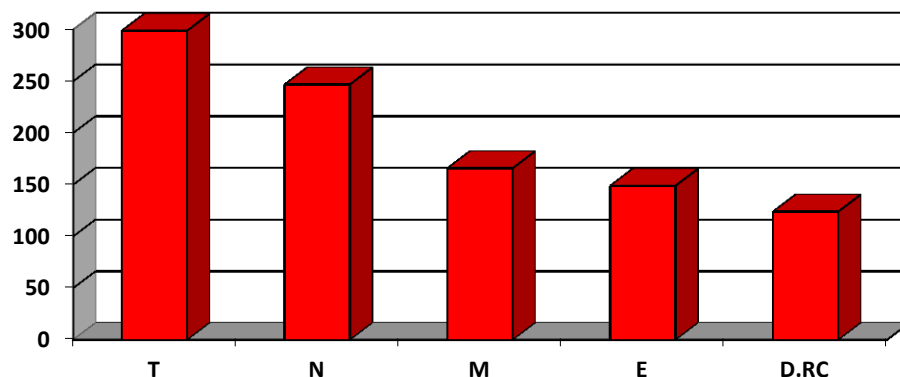
Key: E = Equatorial Guinea, L= Libya, G= Gabon, B= Botswana, M= Mauritius, S= South Africa, A= Algeria, C= Cape Verde, N= Namibia

Figure 1.2, shows that Equatorial Guinea has the highest premium per capita of U\$21041 and the rationale behind is that the population is well educated and they know the importance of life insurance. Libya, Gabon, Botswana, Mauritius, and South Africa ranged from U\$5372-U\$9022. The explanation behind maybe of that life insurance in these African economies is seen as an essential component of taking care of eventualities before they happen.

However, Ngulube (2009) also listed the bottom five African economies in as far as life insurance consumption is concerned. Therefore since Zimbabwe is neither in the top ten or bottom five, the writer can assume that it is on the average, which is its per capita value, is not so high and not so low also.

Figure 1.3 summarises the bottom five African economies on premium per capita in (US\$).

Premium per Capita (US\$)



Countries

Key: T= Tanzania, N= Niger, M= Malawi, E= Ethiopia, D.R.C= Democratic Republic of Congo

Figure 1.3 Premium per Capita for bottom 5 countries.

Source: Ngulube (2009)

Tanzanian economy has a spending per head of US\$299 while D.R.C, Ethiopia, Malawi and Niger lied in the range of US\$124- US\$299. The rationale behind such values may be the issue of war especially for the D.R.C. Due to war people are displaced and this may affect the need for one to purchase life insurance as many people may be evacuated to refugee camps or the fact that there is lack of certainty and instability in the insurance economies due to war. Lastly, the writer looks at education trends as it is one of the variables in this study. This trend will be analysed by looking at the literacy rates of the same African economies. The literacy rate of Zimbabwe of 92% depicts that people in this economy are highly educated, Sigma (2011).

However, by comparing such a high literacy level against a lower premium per capita of \$48, 41 as was shown in Figure 1.3 it means that even though it is believed that highly educated people value life insurance for Zimbabwe the enormous constraint will be income to do so. Comparing Kenya with 87% literacy rate and Egypt with a 67% means that Kenyans have a better understanding of life insurance relative to Egyptians. Their premiums per capita were \$7.19 and \$7.89 respectively. In contrast Egypt was ahead of Kenya and the rationale behind maybe of income disparities. So all in all, though Kenya has higher literacy rate but lower premium per capita which maybe because of income disparities.

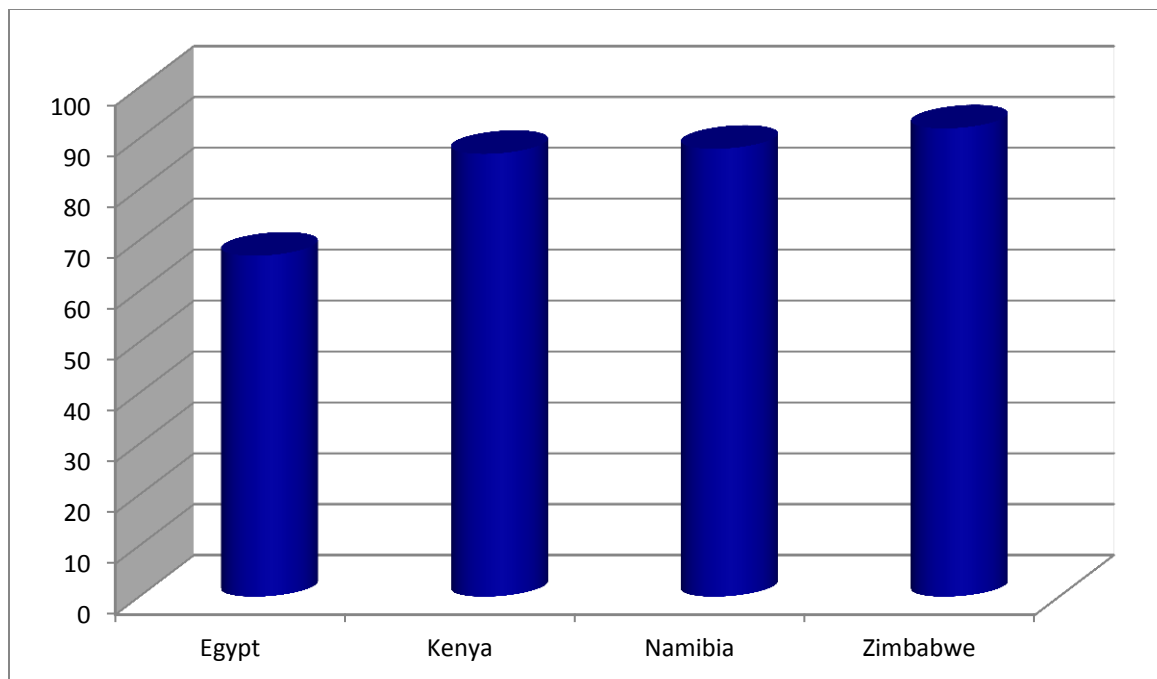


Figure 1.4 literacy rates

Source: Sigma (2011)

1.1 Statement of the problem

The problem of high costs of repatriating bodies, body smuggling and why some Zimbabweans are not buying life insurance are the pressing issues why the writer had to investigate into the determinants of life insurance demand. Another cost mainly incurred by Zimbabweans includes documentations processing. The government's efforts to alleviate body repatriation may act as an incentive of people not to take good care of their lives by not purchasing policies from various services providers mentioned earlier on. Due to financial constraints some have ended up smuggling corpses and bribing officials to bring corpses home, (The New Zimbabwean 2012) Such a practice means a loss of revenue as there are taxes and clearances which are supposed to be charged before one repatriate a body. Therefore, there is loss to potential services providers such as Nyaradzo since if one can bribe with US\$20, 00 instead of paying R10000.00 it means there is great untapped revenue. Another case which shows serious difficulties in repatriating bodies was revealed by The Zimbabwean (2014) were the quoted a respondent who said, "at one point we ended up burying some people in South Africa after failing to raise money for repatriation." This simply means that Zimbabweans are struggling to raise the funds required for body repatriation.

1.2 OBJECTIVES

The main objective of the study is to identify the determinants of life insurance demand by Zimbabweans living in Gauteng Province, South Africa. This empirical study will also seek to:

- Investigate the factors causing some Zimbabweans not to buy life insurance policies.
- Inquire why some Zimbabweans are opting for body smuggling.
- Examine the consequences of body smuggling to the state.

1.3 SIGNIFICANCE OF THE STUDY

This study will bring clarity to why some Zimbabweans living in South Africa are not subscribing to the life insurance services being offered by various service providers mentioned earlier on, either they view such a service as luxurious! Hundi (2012) carried a study on life insurance demand by African economies, Akotey *et al* (2011) empirically researched on life insurance in Ghana and Hlasi (2013) also researched on life insurance demand for Shurugwi, Zimbabwe. From these studies there was no attempt to look on life insurance demand by foreigners. This shows that the issue of foreigners is a crucial gap in the field of insurance and chief important is the fact that the costs of repatriation faced by foreigners further widens the gap. As a result, there is a gap in that there is no explanation to the demand for life insurance demand by foreigners and in particular of Zimbabweans living in South Africa.

Of cognisance are the results that will be made use by the policy makers, Insurance companies, business community as well as other interested stake holders since it is believed that Zimbabweans residing abroad are estimated to be about three million as postulated by Chiumia (2013) since the economic meltdown of the last fifteen years. Therefore, such a study is crucial in that it will elucidate the pellucid facts behind life insurance demand.

1.4 HYPOTHESIS

The major determinants are: income, educational years and dependency ratio and the writer expect a positive relationship with the dependant variable. The minor factors are: age and gender.

1.5 LIMITATIONS OF THE STUDY

The study was carried out on a limited space of time and the main focus area was Gauteng Province and it implies that other South African areas or provinces are not included in this research.

1.6 ORGANISATION OF THE REST OF THE STUDY

This research is structured into five chapters. Chapter 2 will focus on empirical and theoretical literature review while Chapter 3 will focus on the methodology used by the researcher. In this chapter the variables are justified and the model is specified. Chapter 4 dwells on diagnostic tests, results presentation and interpretation. Finally, chapter 5 summarises the study, giving conclusions, policy recommendations and suggestions for future studies

will also form this chapter. The reference list will be found at last.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This section will look at the views of prior authors in the arena of life insurance and of interest is the key issue that raises questions to why demand for life insurance varies and worse off there is no empirical research that attempted to look at demand for life insurance by foreigners in another country. Theoretical frameworks will be given as well as empirical investigation will form part of the literature review.

2.1 THEORETICAL LITERATURE REVIEW

The theories behind life insurance demand are: the Permanent income hypothesis by Friedman (1957), Life cycle hypothesis by Modiglian (1965) and the Expected utility theory.

The Permanent income hypothesis is a theory which states that individuals base their consumption pattern on their income expectation Modiglian (1965) that the consumers may shift higher incomes to lower income periods to smoothen consumption. Friedman's model is as below:

$$C = cp + ct \dots\dots\dots (1)$$

$$Y = yp + yt \dots\dots\dots (2)$$

Where: cp = permanent consumption, ct = transitory consumption, yp = permanent income, yt = transitory income. Friedman (1957) further posted that the permanent consumption can be found by the equation: $cp = k(r,z)yp$

Where k , r , z denoted the marginal propensity to consume which is dependent on interest rate and taste shifter variable z . Therefore, in relation to life insurance demand it is clear that the Permanent Income hypothesis stresses key factor of income in determining life insurance demand.

Modigliani (1965) Life cycle hypothesis states, "that an increase in life-time resources leads to proportionate consumption in all periods of life." This implies that an individual's consumption will be directly proportional to resources owned in one's life time. So the theory in short states that people maximise their utility of expected life time consumption. The theory therefore explains that an individual saves part of his or her income for re-

tirement or other future events and income is a key factor in this theory also. It is can also be deduced that it is education that enables one to save for future consumption, thus education comes as a variable also.

Lewis (1989) looked on the life insurance demand with his theory focusing on that the need for a person to buy a life insurance it will be dependent upon the structure of his or her household demographic. He used the life-cycle model in illustration of demand for insurance and the father was theoretically seen at the forefront of providing cover for their children. It is clear that, income was an important variable since the breadwinner was solely responsible for purchase of insurance for the children or spouses. Apart from that, a variable of dependency ratio was brought into reality by other researchers who later carried out practical research. This can be equated to Lewis (1989) who gave a model below:

$$(1-lp)F=\max \left\{ \frac{[1-1/p]}{L(1-p)} \right\}^{1/\delta} \{TC-W\}$$

Where:

L = the policy loading factor, P= probability of primary wage earner's death

F= face value of total insurance written, δ = measures beneficiaries risk aversion

TC = current consumption of the offspring, W = wealthy of the household

In short from Lewis, life assurance was solely purchased with an aim of satisfying those that remain behind, survivors. For example spouse, kids.

The Expected utility theory as cited by Pratt (1964) assumes that, "individuals who are risk averse will have a concave utility function and purchase full insurance at an actuarially fair price to maximise their expected utility." Newhouse (1978, p 19) gave an explanation on the expected utility theory where the author said, "The purpose of any insurance policy is to convert an uncertain, but potentially large, loss into certain, small loss. Such a conversion benefits the consumer if greater losses cause progressively larger declines in utility." The theory stress on maximization of anticipated monetary value and it's clear that income ascertain life insurance demand. The equations illustrates the expected utility without insurance where P= chances of getting ill, L =amount to be spent on medical care, U= utility and Y= income.

$$EU = (1 - p)U(Y) + pu(Y - L) \dots\dots\dots (1)$$

$$EU = (1 - p)U(Y - P) + Pu(Y - L + I - P) = (U - P) \dots\dots\dots (2)$$

Therefore, if the marginal utility of the individual diminishes he or she will be better paying off P for the insurance and escape the risk of loss, (L). In short, the theory focuses on income as a variable to life insurance demand and it means that income is a key enabler to the purchase of life insurance.

2.1 EMPIRICAL LITERATURE REVIEW

Beck and Webb (2003) said that the determinants of life insurance demand are grouped under demographic, economic and institutional. Dependents factors include religion, life expectancy while economic factors are income, inflation, interest rates and for institutional we have rule of law and revolution and coups. They focused on panel data of 68 economies from 1961-2010 concluded that inflation, income per capita, banking sector development and religion were the most robust determinants of demand for life insurance. For religion it is like that since many Islamic economies as cited by Beck and Webb (2003) believe that taking insurance will be a compromise to their protection from Allah. However, they also discovered that life expectancy, dependency ratio and education had no robust association with life insurance demand.

In terms of education it is contrary to what was found by Ghosh (2010), Nesterova (2008). So basing on Beck, it can be concluded that consumers in the 68 economies vested their view in stable prices and development of banking sector for their savings. A higher rate of inflation therefore will be a threat to them but how can one understand the dynamics of inflation and savings without being educated? This means that education contributed indirectly to the demand for insurance, hence that is where the variance lies as with other scholars.

Gao and Hwang (2003) carried out a research in China using Multiple Regression Model and looked at inflation, education, and urbanisation. All other factors such as education and income behaved in the same manner as was found by Ghosh (2010) and Nesterova (2010). Surprisingly, their inflation was not found to be a robust determinant of insurance demand though China was hit by a high inflation in the mid 1990s. These results differ with what Beck and Webb (2003) discovered about inflation. Therefore, what may explain the case of China is that there could probably have increases in Gross Domestic Product or increase in economic growth and the sensitivity of consumers to effects of inflation were next nothing hence inflation was not found to be robust.

Li *et al* (2007) used ordinary least squares methodology and the research was based in the European economies. They found consistent outcomes with Ghosh and Mitra (2010) on income and education. Dependency ratio was also positive in affecting life insurance demand. However, since they analysed the demand for life insurance for developed economies their research yielded that social security as a factor was negatively related to the demand for life insurance. The probable reason may be the role of the government in taking care of its citizens. The more the state covers for the misfortunes among people the more the unwillingness to pay for life insurance. A consumer will view the government funding as an incentive of not insuring him or herself hence a negative relationship is observed.

However, there is divergence of results as Celik and Kayalim (2009) found a negative relationship between educational level and the demand for life insurance. A conclusion that can be drawn from this study is that consumers between 2000 and 2006 were very attentive to benefits of life insurance hence it can be concluded that they could have realised that the benefits were not lucrative hence the demand for life insurance fell. A reason of limited consumption of life insurance can be attributed to the issue that the people in European economies found better wealth management schemes other than life insurance resulting in the dwindling on the numerical value of the life insurance demand.

Ghosh and Mitra (2010) empirically researched in India using Ordinary Least Squares and they discovered that education, inflation and income affected life insurance demand. So from such findings it is clear that as an individual earn a higher disposable income demand for life insurance will not be an exception. So there is convergence of ideas between Kjoseviki and Ghosh about education as a factor affecting life insurance demand.

Kjoseviki (2012, pp 1-11) conducted a research using panel regression model and it was for the period 1998-2010 in Central and South Eastern Europe. "high levels of education lead to high life insurance and higher life penetration." He found out that education, inflation and rule of law were key factors in determining the demand for life insurance. The author found out that dependency ratio and interest rates did not have robust link to life insurance demand. It also leads us to the point that the society must be educated so that they will be able to assess the various options and benefits of life insurance at their disposal.

Nesterova (2010) used Ordinary Least Squares on a study based on European states and concluded that higher life expectancy was a significant factor in the demand for life insurance. The factors the writer looked at are education, life expectancy, urbanisation, financial development and dependency ratio. The writer found out those economies with higher life expectancy, high income and high educational levels had a higher consumption of life insurance. Therefore, on the basis of income there is harmony of results between Nesterova (2010) and Ghosh and Mitra (2013).

Curak *et al* (2013) did a research in Croatia and used the Chi-square test. They discovered that age, employment and education were statistically significant in determining the demand for life insurance. Their results on education agree with the outcome of Nesterova (2010). These writers went on to examine gender, marital status and number of family members which were found to be insignificant.

Munir and Khan (2013) carried out a research that focused on Pakistan and used time series data. From such a research Munir and Khan concluded that all the demographic and macro-economic variables had a direct link or effect with the demand for life insurance.

However, of interest is that, price of insurance was found to be negatively related to life insurance demand. The explanation behind is that, as the price of insurance increases people tend to ignore purchase and the product will be viewed as a luxury. Except that, people may also rely on social security that is funding by the state upon cases of death.

Goh and Loke (2012) pursued the study in life insurance by Malaysians and used a Logit model. Income, education and age were the variables they analysed. Their results about education tallied with those of Celik and Kayalim (2009). An inverse relationship between education and the demand for life insurance policies was found. Goh and Loke (2012, pp 419-420) commented that, “The higher educated individuals may view the new wealth management products as a more appealing way of managing their finances and leaving bequests for their dependents than life insurance.” This assertion implies a cost –benefit analysis will have been adopted by consumer in assessing returns from insurance against other substitutes. As a result if more benefits accrue from non- insurance alternative the demand for life insurance must react adversely.

2.2 CONCLUSION

From the analysis of theoretical and empirical literature review it is clear that, age, income, education, dependency ratio, gender are crucial factors in determination of life insurance demand.

CHAPTER 3

METHODOLOGY

3.0 INTRODUCTION

This chapter seeks to show the methodology employed in this research. The variables used which are: income, age, gender, dependency ratio and education are going to be justified in this chapter. Apart from that, primary data was used and the relevant diagnostic checks were done so as to render the research relevant. These tests are the heteroscedasticity and multicollinearity.

3.1 MODEL SPECIFICATION

The model is going to be an adaptation of the Logit which was used by Kakar and Shukla (2010) in their research. To test for their hypothesis Kakar and Shukla used the Logit model and it was specified as follows:

$$P_{i=F}(Z_i)=F(\alpha+XB)=\frac{1}{1+e^{-Z_i}}=(e^{Z_i})/(1+e^{Z_i}) \quad (1)$$

And

$$Z_{i=F^{-1}}(P_i)=\log\left(\frac{P_i}{1-P_i}\right)=(\alpha+XB) \quad (2)$$

Where X = set of explanatory variables that are: education, occupation and product ownership, α are unknown regression coefficients. The coefficient β represented change in odds ratio. From their research parameters in (2) of the model were estimated by the maximum likelihood method.

This model will be a binary logistic model where responses yes or no will be recorded on some variables. However, other variables will be continuous such as age, dependency ratio and income.

The model in functional form will be stated as follows:

$$LID = f(\text{Edu, Inc, Age, Gen and Dep}) \dots \dots \dots (3)$$

Where:

LID = Life insurance demand is measured by funeral policy, 0= no, 1 = yes

Inc = Income measured in continuous form.

Edu = Cumulative educational years, 7 years- Primary, 11 years- Secondary, 13 years- College, 17 years – First Degree.

Age = age is the number of years of respondent, it's a continuous variable.

Gen = gender and 0 is for males, 1 for females.

Dep = dependency ratio which is continuous variable.

Gen= Gender

3.2 VARIABLE JUSTIFICATION

Education (Edu)

The level of education is believed to affect the demand for life assurance. As one acquires more education he or she will be precautionary against inevitable events such as death. Therefore, the increase in levels of education in a society implies greater awareness of the importance of life insurance and the demand for insurance will respond accordingly, Baek and De vaney (2005) and Gandolfi and Miners (1996). The factor is hypothesized to yield a positive sign.

Income (Inc)

The higher the income earned the higher the demand for life insurance. If one earns meagre emolument the chances of him or her demanding life insurance will be next to nothing, the product might be viewed as a luxury, Dash and Sood (2013) and Nesterova (2008). Income which is a crucial variable in this research will mean all money obtained from self-employment, income generating projects or any other activities done and a payment is made to the service provider. This variable is significant in the sense that for one to buy life insurance it is income that enables him or her to purchase and the sign expected is a positive.

Dependency Ratio (Dep)

Dependency ratio in this research implies the total number of people that rely on a breadwinner or main source of income, Lenteen and Rulli (2006). The higher the dependency ratio the greater the need to cover those lives with funeral policies, hence the demand for life insurance will be positively related to the dependency ratio, Showers and Shotick (1994) This is a continuous variable and the expected sign of the variable is a positive.

Gender (Gen)

Gender can be explained or defined as either a person is a male or a female. It is believed that females are more risk averse than males and they tend to buy more life insurance relative to male counter parts and this affects life insurance demand, Chen *et al* (2001). Gender is expected to have a positive sign in the research. Gender will be treated as a dummy variable where 0= male, 1 = female.

Age (A)

Age can be seen or regarded as the total number of years one has since birth, this affects income and life insurance demand since as one grows old there is need to secure the future, though the factor at times has diverse results, (Baek and De Vaney, 2005). The researcher included this variable to ascertain whether the fact that the older people are more risk averse than young people perspective holds water. The anticipated sign is a positive.

3.3 DIAGNOSTIC TESTS

The diagnostic tests for econometric problems which are multicollinearity and heteroscedasticity are going to be

carried out in this research.

Multicollinearity

An econometric problem likely to be faced in this research is of multicollinearity. It becomes a problem if it exceeds the value of 0.8 and the researcher is going to make sure that multicollinearity is not severe. The hypothesis will be specified as that the null hypothesis will mean the absence of multicollinearity and the alternative hypothesis will imply that multicollinearity will be present.

Heteroscedasticity

Heteroscedasticity is an econometric problem that may emanate from the presence of outliers. This problem is detected by the use of the Breusch-Pagan test. Under heteroscedasticity the null hypothesis means that there is constant variance, that is homoscedasticity and the alternative hypothesis will mean that there will be heteroscedasticity, that is no constant variance.

3.4 DATA TYPES AND SOURCES

Chiumia (2013) postulated that the estimated number of Zimbabweans in South Africa is close to 3 million. However, since the focus area is Gauteng, Statistical Department of South Africa (2011) posted the total number of Zimbabweans in Gauteng after their Census of 2011 totalled 397668. Gauteng Province was chosen since it flourishes with businesses and industries as cited by South Africa.Com (2014). Therefore, the chances of finding Zimbabweans in Gauteng Province will be high since they left Zimbabwe for greener pastures, (Polzer, 2010). So Gauteng Province can be viewed as a cosmopolitan metropole, so it implies that respondents to the questionnaires were obtained in this city. Lewis *et al* (2009) stated that for a population of 10000 and more the sample size must be 384. This is at par with what Krejcie and Morgan (1970) postulated about sample selection. Therefore, 384 questionnaires were distributed.

The use of primary data enabled a microscopic diagnosis of time invariant predictors and the regulation of simultaneity and reverse causation. The sampling technique that the researcher used is snowball, since it is useful for a hidden population. With this method one Zimbabwean approached will also direct the researcher on where other Zimbabweans can be found until the required number is attained. Snowball sampling technique was advantageous since Zimbabweans are a hidden population in South Africa, so it enables selection of respondents and the chances of getting desired attributes were also high, though the control over sample contents was quite low.

The data was collected within one and half months when the researcher was in South Africa and he went to places in Gauteng Province such as Kemptown Park, Pretoria, Midrand and Germiston to mention a few.

3.5 CONCLUSION

The following chapter will be a fruit of chapter three. All what has been said in chapter 3 is going to be fulfilled with data presentation and results presentation.

CHAPTER 4

DATA PRESENTATION AND ANALYSIS

4.0 INTRODUCTION

This chapter seeks to present the results found by the researcher in the study and the analysis also. A summary of the descriptive statistics is going to be given first. After this, regression results, specification tests and the analysis will complete this chapter.

4.1 DIAGNOSTIC TESTS

The results to be presented here are of heteroscedasticity and multicollinearity. This will be based on 384 observations. For multicollinearity a correlation matrix of explanatory variables will be presented. The model specification was tested using the Ramsey Reset test as well as the diagnostic test for heteroscedasticity using the Breusch-Pagan. This is all presented as below:

Model Specification: Ramsey Reset test

$$F(3, 374) = 0.01$$

$$\text{Prob} > F = 0.9992$$

From these results it shows that the P value is greater than 0.05 and we conclude that the model is correctly specified and there are no omitted variables. For full results see appendix 3.

Heteroscedasticity: Breusch-Pagan test

$$\chi^2(1) = 0.39$$

$$\text{Prob} > \chi^2 = 0.5314$$

The diagnostic test for heteroscedasticity shows that the P value is greater than 0.05 and the researcher accept the hypothesis that there is constant variance or there is homoscedasticity. See the appendix 3 for the full results.

Pseudo Ratio: Goodness of fit

$$\text{Pseudo } R^2 = 0.0930$$

The Pseudo ratio measures the goodness of fit of this Logit model. However, for any empirical study involving a binary logistic model such as this one it is economically unworthy to assess the value of the pseudo, Gujarati

(2004). So the writer will ignore this.

Multicollinearity

Table 4.1: Correlation matrix

Variable	Gen	Dep	Fp	Inc	Edu	Age
Gen	1.0000					
Dep	-0.0068	1.0000				
Fp	0.0681	0.0578	1.0000			
Inc	0.0337	-0.0882	0.2418	1.0000		
Edu	0.0165	-0.1415	0.2764	0.3042	1.0000	
Age	-0.0402	0.1429	0.0887	0.0505	0.0724	1.0000

From Table 4.1 we can see that there is no severe multicollinearity on the entire explanatory variable used in this research and the immediate conclusion that there is no high correlation between explanatory variables. Therefore, from this step we then move to the summary of the statistics which will be presented below and interpreted accordingly. See Appendix 4 for full results.

Table 4.2: Summary of Statistics

Variable	Observation	Mean	Std.dev	Min	Max
Age	384	32.3776	2.863403	24	45
Gen	384	0.53125	.4996735	0	1
Dep	384	4.747396	1.127044	2	9
Fp	384	0.4583333	.4989109	0	1
Inc	384	7099.74	1046.354	4500	9500
Edu	384	12.27344	2.610628	7	18

For full results refer to appendix 5. The mean age from 384 respondents was 32.38 years and the minimum number of dependants per person ranged from 2 -9 dependants. Primary school was the average educational level and the maximum was a post graduate degree and this is so since the economic meltdown for example, women would go and stay there selling crocheted products such as doilies. Most of the respondents earned a

minimum of R4500 and maximum was R9500.

Table 4.3: Regression results

Variable	Coefficient	Std.Err	T	P>t
Dep	0.0439459	0.0218583	2.01	0.045
Gen	0.0609911	0.0482194	1.26	0.027
Inc	0.0000835	0.0000242	3.45	0.001
Edu	0.0444178	0.0097764	4.54	0.0000
Age	0.0089398	0.008541	1.05	0.296
Cons	-1.210422	0.328304	-3.69	0.000

From table 4.3 we can note that the variables namely income (inc), Dependants ratio (dep) and education (edu) are significant. The significance of these variables is seen at 5% level of significance. For full results refer to appendix 6.

4.1 RESULTS INTERPRETATION

The table below gives a summary of the Logit model regression results which were run using econometric software Stata 11.2

Table 4.4: The Logit model regression results using Stata

Variable	Coefficient	Std. Err	Z	P < z
Dep	0.2044979	0.1002545	2.04	0.041
Gen	0.2848818	0.2195633	1.30	0.194
Inc	0.0003693	0.000111	3.33	0.01
Edu	0.2042307	0.0473792	4.31	0.000
Age	.0403958	0.0394791	1.02	0.306
Cons	-7.743022	1.595966	-4.85	0.000

The full results are on appendix 7.

From the above table of the Logit model, life insurance demand can be presented as follows:

$$\text{LID} = -7.74 + 0.20\text{DEP} + 0.28\text{GEN} + 0.003\text{INC} + 0.20\text{EDU} + 0.04\text{AGE}$$

Gender, age, dependency ratio, income and education have positive values. This implies that all these variables positively influence life insurance demand by Zimbabweans in South Africa. The writer can therefore conclude that these variables increase the demand for life insurance.

Dependency ratio (Dep)

Dependency ratio is statistically significant with a value of 0.20. The researcher can say that an increase in the number of people taken care of by a Zimbabwean in Gauteng will accelerate the chances of demanding life insurance. The actual sign does not vary with the expected sign as in chapter 3. This conforms to findings of Li *et al* (2007) and Sen (2008).

Gender (Gen)

Gender, yielded a positive value of 0.28 and the positive sign conforms to the hypothesis in the prior chapter. This implies that gender positively affect life insurance demand and in particular as was hypothesized earlier, females in South Africa are more risk averse than males. Loke and Goh (2012) also found on a positive value on gender.

Income (Inc)

This variable is statistically significant with a value of 0.003 and this implies that there is a positive relationship between income and life insurance demand. The higher the income earned, the higher the chances of one demanding life insurance. This value obtained in this research is in harmony with a priori information. The positive result is at par with the findings of Beck and Webb (2003), Zurbruegg (2002) and Akotey *et al* (2011).

Education (Edu)

Education as a factor yielded a positive value and is a significant variable with a value of 0.20. This implies that as one increase in acquiring more education he or she will have increased chances of purchasing life insurance policies. The result is at par with what was mentioned in chapter 3. This conforms to the works by Baek and De Vaney (2005) and Gao and Hwang (2003).

Age (Age)

Age as also another variable in this study produced a positive value of 0.04 as was hypothesized before. This means that as one advance in years the chances of him or her demanding life insurance increases accordingly. This result is in line with the outcome of Baek and De Vaney (2005).

Table 4.5: Marginal Effects

Variable	Dy/dx	Std.err	Z	P< z
Dep	0.0506914	.02485	2.04	0.401
Gen	0.0704422	.05407	1.30	0.193
Inc	0.0000915	.00003	3.33	0.001
Edu	0.0506252	.01173	4.32	0.000
Age	0.0100134	.00979	1.02	0.306

For full results see appendix 8.

Dependency ratio (Dep)

For dependants ratio, it is clear that as a breadwinner increases the number of dependants to take care of he or she will increase the chances of buying a funeral policy by 5,1%. The variable had a positive value and statistically significant in the study.

Income (Inc)

The coefficient of income is positive and the variable is statistically significant in this study. A 1% increases in income increases the probability of one to demand life insurance by 0.009%. So in short it means that the higher the income earned the higher the demand for life insurance.

Education (Edu)

Education as a factor in this empirical research is significant and produced a positive value. This implies that an additional year invested in education accelerates the probability of demand for life insurance by 5%.

Table 4.6: Odds Ratio

Variable	Odds ratio	Std Err	Z	P>z
Dep	1.226909	0.1230031	2.04	0.041
Gen	1.329605	0.2919324	1.30	0.194
Inc	1.000369	0.0001111	3.33	0.001
Edu	1.226581	0.0581144	4.31	0.000
Age	1.041223	0.0411065	1.02	0.306

See appendix 9 for full results.

Dependency ratio (Dep)

The dependency ratio as a variable which had a positive value means that the Zimbabweans in South Africa with more dependants are 1.23 times more likely to purchase a funeral policy as compared to those with fewer dependants.

Income (Inc)

From these results it shows that, Zimbabweans with high income are 1, 00 times more likely to purchase life insurance than those with lower incomes.

Education (Edu)

Apart from that, a highly educated person in South Africa being a Zimbabwean is 1.22 times more likely to buy a funeral policy.

4.3 CONCLUSION

After this data presentation and analysis, the writer can conclude that life insurance demand is affected by income, education and dependency ratio. The following chapter will focus on policy recommendation, conclusion and areas for further study are given, of which it will be chapter 5.

CHAPTER 5

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.0 INTRODUCTION

After this empirical study by the researcher on the Determinants of Life Insurance by Zimbabweans in South Africa, this chapter will give a summary of the study. The conclusions and policy recommendations will also make part of this research. The last aspect of this chapter will be the suggestions for future studies.

5.1 SUMMARY OF THE STUDY

This research looked on the determinants of life insurance by Zimbabweans in South Africa and used the factors: age, gender, dependency ratio, income and education. The focus area was Gauteng Province where a total of 384 well-structured questionnaires were used for data collection and the sampling technique was snow ball. The first objective focused on ascertaining the factors that made Zimbabweans not buy life insurance policies was met. This is supported by the fact that dependency ratio, education and income were found significant in determining life insurance demand by Zimbabweans in South Africa. Other objectives which the writer had were of investigating the effects of body smuggling and why people were resorting to smuggling. It was discovered that the state lose revenue to smugglers and the reason why people smuggle corpses is financial challenges.

5.2 CONCLUSIONS

From these findings the writer can sum up that of all the factors used in ascertaining life insurance demand by Zimbabweans in South Africa, income, education and dependency ratio are the key factors that explain life insurance demand and these factors were used for policy recommendations.

5.3 POLICY RECOMMENDATIONS

Income (Inc)

Income was statistically significant in this study and I recommend that the Zimbabwean Insurance companies in South Africa must join hands with the Zimbabwean Embassy in South Africa on the documentation process. This is so since some of the Zimbabweans do not have sufficient documents as was noted on some questionnaires and at work places they may be offered lower remunerations. So if these people have enough documents they can earn proper remuneration which will enable them to purchase more funeral policies. Also the insurance companies should charge affordable repatriation prices so as to tap lost revenue to body smugglers.

Education (Edu)

Basing on education I suggest that Zimbabwean government must continue to educate all age groups through provision of school facilities even in marginalized areas. To the insurance companies in South Africa, they should conduct educational campaigns on the importance of life insurance to Zimbabweans.

Dependency ratio (Dep)

Lastly, I advise that the Zimbabwean insurance companies in South Africa must create lucrative offers that capture more dependants on one policy since many Zimbabweans have large dependency ratio as was revealed in Chapter 4. This will enable them to have an increased demand for life insurance and their profits may rise.

5.4 SUGGESTIONS FOR FUTURE STUDIES

This research only focused on Gauteng Province since it was mentioned as the main business hub in South Africa as stated in previous chapters. However, other areas such as Cape Town are busy since it is the port of South Africa that connects many countries. Therefore, future studies can be done with a sample drawn from Cape Town or other provinces. In addition to that, further studies can be done but including a variable such as burial societies which is an alternative to a funeral policy. Lastly, this study was conducted over a limited time frame and I suggest that future studies be done but on the conditions of increasing time frame so as to capture more Zimbabweans in areas of interest.

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APPENDICES

Appendix 1: DATA SET

Observation	Gen	Dep	F.p	Inc	Edu	Age
1	1	3	0	6500	11	29
2	1	3	0	7800	11	32
3	1	3	0	8000	16	32
4	1	4	0	6000	11	33
5	1	3	1	7500	13	29
6	1	4	0	5000	11	32
7	1	4	0	7000	12	29
8	1	3	1	8000	16	32
9	1	4	0	6000	14	31
10	0	3	1	8000	13	29
11	0	3	1	8000	12	32
12	0	4	1	7500	16	33
13	0	5	0	6000	11	32
14	0	3	0	9000	11	28
15	0	2	0	7000	13	31
16	0	4	0	5800	14	32
17	0	3	0	6000	11	30
18	0	4	0	8000	13	32
19	0	3	0	7500	11	29
20	0	4	1	7500	11	29
21	1	4	0	7500	12	29
22	1	4	0	6500	11	29
23	1	4	1	8500	16	30
24	1	3	0	6000	13	30
25	1	5	1	8000	17	31
26	1	3	1	6700	17	31
27	1	4	1	7000	11	30
28	1	4	0	8500	16	29
29	1	3	0	7000	13	29
30	1	5	1	6500	11	28
31	1	4	1	8000	18	28
32	0	5	0	7500	11	31
33	0	4	0	7600	13	29
34	0	4	0	6500	7	30
35	0	5	1	5500	16	32
36	0	4	0	6400	11	31
37	0	5	0	8500	11	32
38	0	4	0	6400	11	29
39	0	4	1	8500	14	29
40	0	3	0	6500	11	30

41	0	4	0	6500	9	32
42	0	5	1	7500	13	33
43	0	4	1	8500	18	29
44	0	4	1	7500	16	34
45	1	4	0	7500	13	29
46	0	4	0	6500	12	39
47	1	5	1	8500	13	32
48	1	5	1	7500	13	32
49	1	3	1	7600	16	35
50	1	5	0	6400	7	34
51	1	3	0	7500	13	35
52	1	4	0	8000	9	34
53	1	5	1	8500	13	34
54	1	5	1	8000	16	35
55	0	4	1	9000	17	34
56	0	5	0	7500	16	35
57	1	3	0	6000	12	35
58	0	5	0	7000	13	34
59	1	5	0	7500	17	35
60	1	3	1	7100	12	35
61	1	4	1	6000	12	34
62	0	5	0	7500	12	35
63	1	5	1	7800	13	34
64	0	4	0	6800	14	30
65	0	4	0	6000	8	33
66	0	5	1	7300	14	35
67	0	3	1	8000	13	35
68	1	5	1	9000	15	34
69	0	4	1	8500	13	34
70	1	3	1	7500	16	34
71	0	4	1	6500	11	35
72	1	4	0	6000	13	34
73	1	5	1	7000	13	34
74	1	3	1	6700	11	26
75	0	4	0	7500	16	28
76	0	5	0	6600	9	35
77	1	5	1	8500	17	33
78	1	5	0	8500	16	34
79	0	4	0	7400	16	30
80	0	5	0	6000	13	34
81	0	4	0	7000	10	35
82	1	4	0	7500	13	32
83	0	5	1	8500	16	33

84	1	4	1	7500	16	35
85	1	5	1	5500	11	33
86	0	6	0	7000	14	35
87	1	5	0	8500	12	34
88	0	4	0	7500	10	34
89	1	6	0	5500	9	33
90	1	5	1	7000	13	35
91	1	5	1	6000	8	32
92	0	4	1	6000	10	33
93	0	5	0	7500	11	34
94	0	4	0	8500	13	34
95	1	4	0	6000	10	33
96	1	5	0	6500	13	35
97	1	5	1	6000	10	34
98	1	4	0	7000	14	34
99	0	6	1	8500	12	31
100	1	5	1	9000	13	34
101	0	4	0	6500	14	33
102	1	4	1	7000	11	37
103	0	4	1	6000	16	34
104	0	6	1	9000	16	35
105	1	5	0	6500	8	34
106	1	5	0	7000	7	33
107	1	4	1	6500	14	34
108	0	5	0	8000	9	35
109	0	4	1	8500	15	30
110	1	5	0	7500	13	32
111	0	4	0	6000	9	34
112	0	6	1	7600	10	30
113	1	4	1	7500	16	35
114	0	6	1	8500	16	35
115	1	4	0	4600	13	35
116	1	4	0	5500	10	35
117	0	4	0	7000	10	30
118	1	4	1	8500	13	29
119	0	5	0	6500	13	29
120	1	8	1	7500	12	29
121	0	5	0	7000	14	29
122	0	6	0	7500	12	30
123	1	6	1	5700	13	32
124	0	6	1	6000	10	33
125	0	6	1	8000	9	36
126	0	8	0	6500	13	30

127	1	6	1	8500	17	29
128	1	6	1	8000	17	36
129	0	4	0	8500	14	35
130	1	5	0	7000	9	33
131	0	6	0	6500	10	33
132	1	5	0	7000	13	34
133	0	6	1	6000	16	34
134	1	5	0	8500	17	35
135	0	6	1	7500	13	33
136	1	4	0	7000	14	33
137	0	5	0	6500	9	35
138	1	6	1	8000	14	36
139	0	6	1	8500	14	35
140	0	5	0	7000	14	34
141	1	5	0	6500	11	34
142	0	6	0	5400	9	33
143	1	4	1	7000	8	33
144	1	5	1	7000	13	33
145	0	4	0	6000	13	35
146	1	5	1	8000	11	34
147	0	4	0	7000	10	35
148	1	4	1	6500	11	30
149	0	5	0	6000	9	32
150	1	5	0	5500	12	31
151	0	5	1	6000	9	32
152	0	6	1	7000	14	31
153	0	5	0	6500	8	30
154	0	5	0	6500	10	35
155	0	5	1	7000	13	34
156	1	6	0	6500	11	33
157	1	6	0	6000	13	35
158	0	5	1	7000	10	36
159	1	5	0	6500	9	33
160	0	4	1	6500	13	31
161	0	6	0	6000	11	29
162	1	8	0	6000	10	31
163	1	4	1	7500	13	34
164	1	6	1	8000	14	31
165	1	4	1	9000	13	29
166	1	4	0	5500	16	29
167	0	5	0	7500	10	30
168	0	9	1	5500	11	32
169	1	6	1	7000	16	34

170	0	7	0	7500	13	29
171	0	6	1	5500	12	30
172	0	5	0	8000	12	31
173	1	4	1	6500	13	32
174	1	5	0	7500	13	34
175	1	6	0	7500	10	29
176	1	5	0	7000	11	30
177	1	5	1	5500	16	42
178	0	6	0	7000	13	35
179	0	5	0	6500	9	31
180	1	5	1	8500	16	30
181	0	6	0	7500	12	30
182	1	4	1	6500	16	32
183	0	6	0	9500	13	31
184	0	7	1	8000	12	34
185	1	6	0	7000	13	30
186	0	6	1	7500	15	39
187	1	4	0	8700	14	33
188	0	5	1	7300	14	34
189	1	4	1	9500	14	37
190	0	5	0	5000	12	35
191	1	6	1	7500	12	34
192	1	5	0	8000	12	30
193	0	4	1	5500	16	31
194	0	4	0	5600	13	30
195	1	5	0	6500	8	32
196	0	4	0	8000	12	33
197	1	4	1	9500	13	31
198	1	6	0	6500	10	30
199	0	4	1	9000	17	30
200	1	4	0	9500	14	32
201	0	5	1	7500	14	32
202	1	7	1	9000	12	31
203	0	4	1	5500	14	29
204	0	4	0	7500	12	31
205	1	5	0	6000	14	29
206	0	5	0	5000	13	30
207	1	7	1	7500	12	34
208	0	4	0	9000	13	30
209	0	4	1	6500	12	35
210	1	6	1	9500	12	34
211	1	5	0	8500	14	36
212	0	5	0	4500	16	34

213	1	5	0	7500	12	34
214	1	6	1	5000	13	34
215	0	5	1	6500	15	36
216	1	5	1	7500	12	32
217	1	5	1	6500	16	33
218	0	4	1	9500	13	34
219	1	6	0	6000	16	32
220	1	5	1	6000	8	33
221	0	4	1	6500	14	34
222	1	4	0	6500	13	30
223	0	4	0	7000	11	34
224	1	6	1	5500	13	35
225	0	4	1	8000	16	32
226	1	5	0	6500	13	35
227	0	5	1	5000	13	34
228	1	4	0	7000	13	35
229	1	6	1	9000	13	33
230	1	5	0	6500	12	31
231	0	6	0	6000	11	33
232	0	5	1	8500	13	30
233	1	4	0	6500	13	31
234	1	4	1	5500	13	32
235	1	4	1	9500	14	35
236	0	7	0	7500	12	29
237	1	4	0	6000	10	31
238	1	5	0	6000	14	25
239	0	5	1	7000	13	29
240	1	4	0	9500	14	33
241	0	6	0	8500	13	31
242	1	5	0	7000	10	30
243	1	5	1	7500	12	31
244	0	3	0	8500	13	31
245	0	4	0	9500	14	35
246	1	6	1	7500	13	32
247	1	7	0	6000	13	37
248	1	5	1	6000	10	35
249	0	4	0	6500	8	33
250	0	3	0	7500	14	34
251	1	6	0	7000	7	30
252	0	6	0	6000	13	31
253	1	4	1	6500	13	31
254	1	5	1	6000	14	33
255	0	6	0	7000	10	31

256	1	4	0	6500	11	30
257	0	4	1	8500	13	35
258	0	5	1	7500	12	33
259	1	6	0	7500	12	31
260	1	5	1	6000	14	29
261	0	5	0	7000	12	33
262	1	6	0	6500	10	30
263	0	3	1	4500	16	30
264	0	6	0	5500	14	34
265	1	5	1	6500	10	32
266	1	5	0	8000	15	34
267	1	3	0	7000	12	29
268	0	4	1	8500	16	36
269	0	5	1	7000	16	32
270	0	4	0	7000	16	33
271	1	4	1	8000	13	29
272	1	4	1	8000	13	29
273	1	4	0	6500	13	35
274	0	5	0	6000	14	34
275	1	4	1	7000	12	30
276	1	3	0	8500	13	31
277	1	4	1	8000	13	32
278	0	4	0	6500	7	33
279	1	4	1	7000	13	29
280	1	5	0	6000	14	35
281	0	4	0	7000	7	29
282	1	4	1	7200	11	29
283	1	5	0	6500	13	29
284	0	5	1	6400	13	31
285	1	4	0	7500	13	30
286	0	5	1	6500	13	32
287	1	7	0	6000	7	29
288	1	4	1	9500	13	31
289	0	5	0	6000	7	32
290	0	4	0	7000	14	32
291	1	7	0	6500	7	29
292	0	5	1	7000	11	34
293	1	6	1	6500	11	31
294	0	3	0	7000	12	33
295	1	4	1	8000	12	31
296	0	5	0	7000	7	29
297	1	4	0	6000	14	24
298	0	4	0	7500	14	29

299	1	4	1	7500	11	33
300	1	4	1	8000	11	30
301	1	4	0	6500	7	30
302	0	8	0	6500	14	35
303	1	6	1	6000	11	30
304	0	5	0	6000	14	30
305	1	7	1	7000	11	31
306	0	3	1	7000	7	33
307	1	4	0	7000	14	32
308	0	3	1	6500	14	27
309	1	5	0	6000	7	35
310	0	5	1	7000	11	28
311	0	4	1	8500	13	34
312	1	3	0	9000	12	36
313	1	4	0	6500	7	34
314	1	5	0	5600	14	29
315	0	4	1	6500	13	33
316	0	5	1	7500	11	31
317	1	6	0	7000	11	39
318	0	5	0	6000	14	41
319	0	5	0	7500	7	26
320	1	4	1	9500	16	30
321	1	4	0	7500	11	32
322	1	4	1	7500	11	31
323	0	6	0	6500	7	33
324	1	4	1	9500	13	28
325	0	4	0	6000	7	35
326	1	5	0	6500	13	30
327	0	4	1	8500	11	32
328	1	4	1	6500	11	33
329	0	4	0	6000	14	26
330	1	5	1	7500	11	32
331	1	6	0	6500	7	34
332	0	4	0	6500	13	35
333	1	3	1	6500	14	35
334	0	6	1	7000	11	32
335	1	4	1	7000	11	28
336	0	4	0	7000	13	26
337	1	3	0	6000	14	28
338	1	4	0	6000	7	28
339	0	3	1	8000	17	35
340	1	4	0	7500	17	36
341	1	4	1	9000	13	31

342	0	5	0	7500	11	38
343	1	9	1	6000	7	33
344	0	3	0	6500	10	30
345	1	4	1	7000	7	38
346	0	5	0	7000	11	30
347	1	5	0	7000	12	31
348	0	4	1	6500	7	34
349	1	4	0	7500	7	32
350	0	4	1	8500	11	30
351	1	6	0	7000	7	31
352	0	7	1	6000	14	34
353	1	4	0	6000	7	39
354	0	5	1	9500	16	45
355	1	8	1	6000	7	35
356	0	4	0	7000	14	34
357	1	8	1	9500	16	35
358	0	5	0	6500	7	34
359	1	6	1	7000	11	30
360	0	5	0	6000	14	33
361	1	6	1	9500	16	34
362	0	7	0	6000	7	29
363	1	5	0	7500	16	28
364	0	7	1	6500	11	32
365	1	5	1	6000	13	29
366	0	7	0	7800	11	31
367	0	3	1	7500	13	29
368	1	4	0	7000	7	30
369	1	5	0	6500	13	34
370	1	5	1	7500	16	40
371	0	7	1	8000	13	45
372	0	5	0	6500	13	43
373	1	5	1	7000	13	32
374	0	5	0	7300	7	38
375	1	6	0	7500	16	36
376	0	8	1	8000	11	38
377	1	5	0	6700	7	35
378	0	6	1	7500	13	31
379	1	8	0	6000	7	34
380	0	4	1	6500	14	35
381	1	5	0	6000	7	35
382	1	5	1	8000	13	37
383	0	4	0	5500	7	26
384	1	3	0	7500	16	33

Appendix 2: Questionnaire

MIDLANDS STATE UNIVERSITY

I am an undergraduate student at the above named institution doing a research on the **Determinants on the Demand for Life Insurance by Zimbabweans in Gauteng, South Africa** to fulfil the bachelor of Honours Degree in Economics requirements. May you please answer all questions by writing your response in the space provided or ticking where applicable. All information is for academic purpose **only. Thank You!!**

Name of field worker: Freeman Munisi Mateko

Instructions

- **Tick** in the appropriate box
- Fill in your answers in the spaces provided

- (1) Age years
- (2) Gender Male ☐ (0) Female ☐ (1)
- (3a) The number of dependants in South Africa.....
- (b) The number of dependants in Zimbabwe.....
- (4a) Do you have a funeral policy? YES ☐ (1) ☐ NO (0)
- (b) Is it held in South Africa? YES ☐ (1) ☐ NO (0)
- (c) What is your **monthly** premium?
- (5) What is your monthly income?.....
- (b) Are you permanently employed? YES ☐ (1) ☐ NO (0)
- (c) If no, why.....
- (6) Number of years spent in education: Primary: 7 years ☐
- Secondary: 11 years ☐
- College: 13 years ☐
- First Degree: 17 years ☐
- Others (specify)..... ☐

- (7a) Are you a member of any burial society? YES ☐ (1) NO ☐ (0)
- (b) What is your **monthly** premium? ZAR.....
- (c) Is your burial society based in Zimbabwe? YES ☐ NO ☐

Appendix 3: Diagnostic tests

ovtest
Ramsey RESET test using powers of the fitted values of fp
Ho: model has no omitted variables
F(3, 374) = 0.01
Prob > F = 0.9991

Heteroscedasticity
hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of fp

chi2(1) = 0.39
Prob > chi2 = 0.5302

Appendix 4: Multicollinearity

corr
(obs=384)

	gen	dep	fp	edu	age	inc
gen	1.0000					
dep	-0.0030	1.0000				
fp	0.0705	0.0544	1.0000			
edu	0.0130	-0.1365	0.2809	1.0000		
age	-0.0408	0.1442	0.0893	0.0718	1.0000	
inc	0.0328	-0.0869	0.2430	0.3036	0.0503	1.0000

Appendix 5: Summary of Statistics

sum

Variable	Obs	Mean	Std. Dev.	Min	Max
-----+-----					
age	384	32.3776	2.863403	24	45
gen	384	.53125	.4996735	0	1
dep	384	4.747396	1.127044	2	9
fp	384	.4583333	.4989109	0	1
inc	384	7099.74	1046.354	4500	9500
-----+-----					
edu	384	12.27344	2.610628	7	18

Appendix 6: Regression results

reg fp dep gen inc edu age

Source SS df MS Number of obs = 384
F(5, 378) = 10.41
Model 11.5408477 5 2.30816954 Prob > F = 0.0000
Residual 83.7924856 378 .221673242 R-squared = 0.1211
Adj R-squared = 0.1094
Total 95.3333333 383 .248912097 Root MSE = .47082

fp	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
dep	.0439459	.0218583	2.01	0.045	.0009669	.0869249
gen	.0609911	.0482194	1.26	0.207	-.0338207	.155803
inc	.0000835	.0000242	3.45	0.001	.000036	.0001311
edu	.0444178	.0097764	4.54	0.000	.0251949	.0636408
age	.0089398	.008541	1.05	0.296	-.0078541	.0257336
cons	-1.210422	.328304	-3.69	0.000	-1.855953	-.5648916

Appendix 7: Logit model regression results

logit fp dep gen inc edu age

Iteration 0: log likelihood = -264.83364
Iteration 1: log likelihood = -240.23491
Iteration 2: log likelihood = -240.21601
Iteration 3: log likelihood = -240.21601

Logistic regression Number of obs = 384
LR chi2(5) = 49.24
Prob > chi2 = 0.0000
Log likelihood = -240.21601 Pseudo R2 = 0.0930

fp	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
dep	.2044979	.1002545	2.04	0.041	.0080027	.4009931
gen	.2848818	.2195633	1.30	0.194	-.1454544	.7152179
inc	.0003693	.000111	3.33	0.001	.0001516	.0005869
edu	.2042307	.0473792	4.31	0.000	.1113692	.2970922
age	.0403958	.0394791	1.02	0.306	-.0369817	.1177734
cons	-7.743022	1.595966	-4.85	0.000	-10.87106	-4.614986

Appendix 8: Marginal Effects

Mfx

Marginal effects after logit

y = Pr(fp) (predict)

= .45398162

variable	dy/dx	Std. Err.	Z	P>z	[95% C.I.]	X
dep	.0506914	.02485	2.04	0.041	.001987 .099396	4.7474
gen*	.0704422	.05407	1.30	0.193	-.035528 .176412	.53125
inc	.0000915	.00003	3.32	0.001	.000038 .000146	7099.74
edu	.0506252	.01173	4.32	0.000	.027645 .073606	12.2734
age	.0100134	.00979	1.02	0.306	-.009171 .029198	32.3776

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Appendix 9: Odds ratio

logit fp dep gen inc edu age, nolog or

Logistic regression Number of obs = 384
 LR chi2(5) = 49.24
 Prob > chi2 = 0.0000
 Log likelihood = -240.21601 Pseudo R2 = 0.0930

fp	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]
dep	1.226909	.1230031	2.04	0.041	1.008035 1.493307
gen	1.329605	.2919324	1.30	0.194	.8646293 2.044632
inc	1.000369	.0001111	3.33	0.001	1.000152 1.000587
edu	1.226581	.0581144	4.31	0.000	1.117808 1.345939
age	1.041223	.0411065	1.02	0.306	.9636938 1.124989

Conclusion

From these findings the writer can sum up that of all the factors used in ascertaining life insurance demand by Zimbabweans in South Africa, income, education and dependency ratio are the key factors that explain life insurance demand and these factors were used for policy recommendations.

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