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Assessing factors that influence saving through retirement funds

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Assessing factors that influence saving through retirement funds

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A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

Johannesburg, 2019

ABSTRACT

Retirement planning is an important savings mechanism that requires a collaborative and strategic approach from all the key stakeholders, mainly, the employer and employees, underpinned by a sound state policy framework. The need for this strategic alliance is direr in developing countries where social security programmes are virtually non-existent. The unpredictability of financial markets which retirement funds are exposed to, adds further complexity to an already sophisticated process laden with numerous unknown and often undefined variables. A positive savings culture is a non-negotiable and integral core ingredient to a robust social security framework. This research seeks to assess factors that are accepted as key influencers of savings for retirement for member of the retirement funds in South Africa.

A cross sectional survey was used to collect the required data. Therefore, the general population of this study comprised of members of retirement funds who are aged 55 years and above, whose occupation retirement fund is a client of Alexander Forbes. The study aimed to obtain at least 150 questionnaire respondents via an online survey platform called Qualtrics by distributing the link to the identified respondents. After gathering cross sectional data, regression and descriptive statistics approach were used, where a sample of 130 responses out of a population of 150 members of retirement funds was used. The research established that a correlation existed between saving for retirement and the following factors; uncertainty about one's health, education, age, salary range and the level of education.

Correspondingly, the research recommends that employers, through financial literacy programmes, can assist to enhance a culture of saving by empowering the less educated employees to appreciate the benefits of long-term saving through retirement funds. Obvious benefits like tax savings and compound interest might not be apparent or completely misunderstood by employees of lower literacy levels. A key recommendation for the retirement fund industry, the employers and the government as interrelated stakeholders, is that financial awareness which is more than just financial literacy should be prioritised across

all the sectors of society. Basics of financial planning, like the cost of credit, budgeting, taxation and pensions should perhaps be incorporated into the schooling syllabus to ensure functional or operational understanding of these concepts. To further entrench a culture of saving for retirement, the retirement fund industry is challenged to design bespoke products to talk separately to each sector of the market, to understand the differentiate the needs of the high net individuals from those of the lower LSM (living standard measure). It is suggested meaningful efforts in this regard, coupled with similar efforts in the health sector, where the state sponsored healthcare system is acutely overburdened, would result in upward surge of the key indicators of saving for retirement.

DECLARATION

I, Motlatjo Seima (9801944G), declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Motlatjo Seima

Signed at ……

On the ……... day of …… 20…...

DEDICATION

In remembrance of my late grandmother, Seila Masipa, from whom much I learnt including the wisdom of saving. To my late mother Tshepo Seima who started this journey with me but is not here to witness its completion, such being the dictates of heaven – Motjilela! Indeed, this is also a dear dedication to the black woman and child across the continent of Africa who continues to remain the wretched of the earth.

ACKNOWLEDGEMENTS

Special thanks to my wife Boledi Seima, here’s to the empty MBA evenings! To Moeletji and Theresho, every day I discover more of a father in me because of you guys.

My supervisor, Professor Eric Schaling, from my heart of hearts, I thank you.

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CHAPTER 1.INTRODUCTION

1.1 Purpose of the study

The purpose of this research is to assess factors that are accepted as key influencers of savings for retirement through retirement funds. This will be used to draw inference on why members who save through retirement funds retire financially secure/insecure.

1.2 Context of the study

In the year 2011 the South African National Treasury released a policy discussion document titled, *A Safer Financial Sector to Serve South Africa Better* (National Treasury, 2011). This policy document discussed four central policy priorities namely,

- financial stability;
- consumer protection and market conduct;
- expanding access through financial inclusion; and
- Combating financial crime.

Additionally, the following observations were made in 2010 regarding the South African financial sector by the same document:

- It comprises over R 6 trillion in assets;
- It contributes eleven per cent of the gross domestic product;
- It employs four per cent of the employed population;
- It contributes as least fifteen per cent of the corporate income tax;
- It has survived the 2008 financial crisis relatively unscathed; and
- It has grown annually by nine per cent since the year 2000 against the broader economic growth of four per cent.

In this instance the financial sector is defined to collectively include Banks, Long Term Insurers, Short Term Insurers and the retirement fund industry (public and

private). The focus of this study as suggested by the title shall be saving, in particular, saving through retirement funds.

With regards to saving, the policy discussion document of 2011, (National Treasury, 2011), reported the following national trends in 2010:

- The national savings rate by government, corporate and households equalled to sixteen per cent of GDP;
- Households contribute a meagre two per cent towards the savings rate; and
- Added to the low savings rate in general and households in particular, is the low preservation rates of retirement savings when employees changed jobs.

Anderson, (2010) presented a paper titled, *Are we saving enough?* At the Institute of Retirement Funds conference in 2010 which revealed the following:

- fifty per cent of members who changed employers withdrew their funds in cash;
- thirty per cent transferred their benefits to the retirement fund of the prospective employer;
- twenty per cent left their benefits in the previous fund, three per cent invested in retirement annuity funds and;
- four per cent in a preservation fund. (Anderson, 2010).

The data presented by Anderson shows clearly that the government was not too far off the mark in its assessment of the preservation patterns by members of retirement funds. Another study undertaken by Alexander Forbes through the *Benefits Barometer 2014*, indicates that ninety per cent of the members of retirement funds across 15 different sectors who are 60 years or older, will only be able to replace fifty per cent or less of their salary at retirement, they will thus not retire financially secure. (Alexander Forbes, 2014). For the purposes of this study, retiring financially secure will be defined as being able to replace at least sixty per cent of final salary at retirement.

In response to the low levels of saving(s) the National Treasury released a policy proposal document in 2012 titled *Preservation, portability and governance for retirement funds.* The diagnosis as captured by the said document is reflected thus, “Coverage of occupational funds in South Africa is high relative to other countries of similar income level, though coverage varies across sectors and households generally do not save adequately for retirement. A key reason for the disparity in coverage levels and savings rates is the lack of preservation, resulting in workers often liquidating their savings when they leave a job rather than transfer them to a new fund”. (National Treasury, 2012; p. 8). To remedy this situation, National Treasury advanced the following policy proposals which were reduced into the Taxation Laws Amendment Bill of 2013:

- Forced preservation of savings will come into effect from 1 March 2015;
- Forced annuitisation will come into effect from 1 March 2015, thus eliminating provident funds, though vested rights will be protected; and
- Standardise the tax deductibility of all retirement fund contributions to twenty-seven and half per cent limited to an annual limit of R 350 000.

It is the position of this study that not enough research was undertaken to back up these policy proposals, in fact it is suggested that these were made arbitrarily. Whereas the diagnosis is true, it is a reasonable conclusion that the policy proposals were advanced for reasons other than ensuring that members retire with better net replacement ratio. In particular, the taxation proposals are prejudicial to low income earners who are currently below tax threshold and don’t pay tax on their retirement funding income but will be forced to do so should the proposals be implemented. The policy proposal document, *Preservation, portability and governance for retirement funds,* suggests there may be another reason, “Pension funds play an important role in the national economy. Given South Africa’s low savings rate and the present twin fiscal and current account deficits, pensions are even more important for economic development. Pension funds, smartly invested, provide a mechanism for

unlocking savings, stimulating economic growth and ensuring that pensioners are provided for in retirement." (National Treasury, 2012; p. 8).

The study will therefore research the problem of why members who save through retirement funds retire financially secure or insecure by assessing factors that are accepted as key influencers of savings for retirement.

At the time of the conclusion of this study the Taxation Laws Amendment Bill had been signed into law by the president of South Africa, Jacob Zuma, on 8 January 2015 to be promulgated into law with effect from 1 March 2016. The said changes, effective 1 March 2016 are summarised below:

- **Tax treatment of contributions ("capping of contributions")**

  The tax treatment of contributions paid into the various types of retirement funds by both employers and employees were aligned with effect from 1 March 2016. The new tax regime as of the same date is such that employer contributions to pension funds, provident funds and benefit funds are tax deductible in full for the employer. The employer contributions to pension and provident funds are regarded as a fringe benefit in the hands of employees. In this new regime, the tax deduction for employee/member contributions to these funds are limited to the highest of twenty-seven and half per cent of taxable income or "remuneration". An employer contribution to pension and provident funds is an employee fringe benefit and is regarded as employee/member contributions under the new regime for tax deductibility purposes. An overall annual tax-deductible limit of R350, 000 is applied to contributions over and above the limits set out above.

- **Provident fund annuitisation rules**

  Currently, provident funds do not have annuitisation restrictions on retirement. The full fund interest may be paid out as a lump sum upon retirement. In light of the fact that the tax treatment of contributions to all funds will be aligned, the retirement benefit design will also be aligned. From 1 March 2019, provident fund retirement lump sum benefits will also be

limited to 1/3rd of the members fund interest. To protect vested rights, only the portion of the fund interest relating to contributions after 1 March 2019, will be subject to this new regime and members aged 55 and older on this date will not be subject to this regime at all, unless they transfer to another fund to which they become a member after 1 March 2019. To keep the fund interest separated under the "old regime" and the "new regime", administrators will have to keep two accounts for persons younger than 55 on 1 March 2019 and one "old regime" account for persons 55 and older on such date. These separate accounts will have to be maintained on transfer to another fund.

- **Increase of de minimums retirement fund lump sum amount**

  With effect from 1 March 2016 total fund interest of R247 500 or less are not be subject to annuitisation rules for all funds. This applies to all retirement funds including retirement annuity funds.

- **Paragraph (a) and (b) public sector pension funds**

  The requirement to purchase an annuity on retirement is extended to include paragraph (a) and paragraph (b) pension funds from 1 March 2016.

- **Tax free transfers between approved funds**

  All transfers between approved funds, including transfers from pension to provident funds are be tax free from 1 March 2016. Trustees must carefully consider any transfers of provident fund members who are 55 years or older, as their vested rights will be affected by a transfer. Effectively, contributions and growth to the new fund to which the transferring member becomes a member after 1 March 2016 were subject to the annuitisation rules.

It remains to be seen whether all these changes will sustain as they continue to be met with great resistance and threats of rolling mass action by organised labour led by the federation Cosatu.

1.3 Problem statement

1.3.1 *Main problem*

The research problem is to assess retirement fund members' perceptions of dimensions that influence their income at retirement (expressed as net replacement ratio) in South Africa and ascertain the extent to which these perceptions impact the members' projected income at retirement.

1.3.2 *Sub-problems 1*

The first sub-problem is to identify how members of retirement fund perceive the dimensions that influence income at retirement.

1.3.3 *Sub-problems 2*

The second sub-problem is to establish a relationship between the members' perception of the retirement saving dimensions and their own projected retirement income.

1.4 Significance of the study

Over ninety per cent of the members of retirement funds across 15 different sectors who are 60 years or older, will only be able to replace fifty per cent or less of their salary at retirement, they will thus not retire financially secure. (Alexander Forbes, 2014). According to Coleman (2011), Bailey etc. al (2011), Merton (2014) and Alexander Forbes (2014), the following are some factors that can be used to assess why some members retire financially secure why others don't:

- Investment return;
- Preservation
- Contribution rate; and
- Time of retirement

It therefore stand to reason that these factors are key to understand the root causes of the problem (retiring financially insecure), so that better solutions can be developed.

It therefore follows that to understand why a majority of the members of retirement funds don't retire financially secure, each of the four factors must be deconstructed into simpler variables and understood individually and collectively at a lower level. The study therefore breaks down each of the four factors into simpler statements to develop a research instrument the responses to which are analysed to gain a better understanding of the problem.

It is empirically if not mathematically evident that investment return, preservation, contribution rate and the choice of when to retire contribute proportionally to the available savings at retirement. The study concerns itself with underlying reasons as to why members of retirement funds seemingly make choices and decisions that may not be aligned with these self-evident truths. This member-level enquiry is possible due to the fact that eighty per cent of registered retirement funds in South Africa today are defined contribution funds (DC) where members carry the investment risk and as a result are afforded more flexibility to choose within predefined parameters where to invest and how much to contribute. (Financial Services Board, 2013). Further, as the legislation currently stands, members are free to choose whether to preserve or not and also, the Income Tax Act allows members to retire anytime upon attaining age 55 years, despite the normal retirement age as may be stipulated in the rules of their respective retirement funds. It is in this context that each of the four factors shall through a number of lower level statements be reduced to a sub-problem and considered on its own and thereafter in concert with the other factors.

The World Economic Forum in its 2013 Global Competitiveness report tells us that South Africa has the world's third most developed financial market. To better complete this picture, the same World Economic Forum in its 2013 Human Development Report, ranks South Africa 121 out of 186 countries on the human development index. The report however places South Africa 42 places higher on the income index, thereby suggesting that as a country, South

Africa comparatively is doing better on income than development metrics. (World Bank, 2013). This matter is raised as saving for retirement through retirement funds or the concept of retiring financially secure has thus far been dominantly articulated as a matter of amassing as much savings, derived from employment related remuneration, as possible. Practical issues like competing needs which impose pressure on the income available for saving are usually ignored by this discourse. The concept of net replacement ratio focuses wholly on the amount of savings relative to final salary available at retirement which in itself is too narrow.

Reliance shall be borne on Sen (1999) to further argue this theoretical gap in how the problem of retiring financially secure is currently articulated. Sen (1999) in his discourse of poverty as capability deprivation argues that while inadequate income is undeniably a strong predisposing condition for an impoverished life, on its own is not enough as; “1. Poverty can be sensibly identified in terms of capability deprivation; the approach concentrates on deprivations that are *intrinsically* important (unlike low income, which is only *instrumentally* significant). 2. There are other influences on capability deprivation – and thus on real poverty – *other* than lowness of income (income is not the only instrument in generating capabilities). 3. The instrumental relation between low income and low capability is *variable* between different communities and even between different families and different individuals (the impact of income on capabilities is contingent and conditional).” (Sen, 1999; p.87). So, what are the deprivations that are intrinsically important in order to understand the South African savings patterns in general and through retirement funds in particular? Is there room to accommodate the history of apartheid, which for example, has barred certain racial groups from procuring residential property in urban areas as per the Group Areas Act (Act No 41 of 1950)? If the adverse impact of this history is to be accepted how then does it assist to understand and predict consumption patterns of the various racial groups thus faced with capability deprivation?

The Unilever Marketing report of 2005 titled, 4 Million and Rising, found that the black South African middle class has grown from 1.7 million in 2004 to 4 million

people in 2012, with a collective spending power of approximately R 400 billion a year. (Unilever Institute, 2013). Further, the South African Reserve Bank reported that at the end of 2013 the household debt to income ratio stood at eighty per cent, a figure considered to be high. (South African Reserve Bank, 2014). Additionally, by the year 2012, seventy per cent of the black middle class owned their own homes and their income spent was forty per cent on housing, ten per cent on education and twenty per cent on bills and other incidental expenses. (Fin mark Trust, 2013). Saving in any form involves deferral of consumption, it therefore follows that those that have plenty or surplus to current needs are more predisposed to defer consumption than those that don't. The same logic of deferral or prioritisation of consumption holds when saving through a DC retirement fund as the amount of flexibility involved was discussed in the previous chapter. In recognition of the concept of capability deprivation (Sen, 1999), the study recognises that predisposition to save through retirement funds will in the South African context be distributed along gender, race, level of education and the level of income.

The study will attempt to contribute to the body of literature on saving through retirement by adopting a non-prescriptive enquiry in recognition of the fact that members of retirement funds are not homogeneous and such understanding may assist either with policy discourse or product development. Through alternative thinking as borrowed from Sen (1999) the dominant view that articulates saving for retirement as only a matter of income at the end is questioned. It is noted that the literature that give being to the dominant view of saving for retirement as only a matter of income is premised on the western concept of independence which, among others, says that the maximum consumption of a household cannot be greater than the income of that same household. Lumped to this concept is the implied assumption that it is rational for an employee to forego present consumption in favour of making a provision for future consumption in old age – specifically through a retirement fund. In short, old people are sent to a retirement village where it's expected they will live off their savings. The instance of South Africa having the world's third best developed financial markets was problematized by former president Thabo Mbeki when he spoke about two parallel economies within one country, to

remind ourselves, he said, that the dominant First Economy that is at the cutting edge, globally integrated and with a capacity to export manufactured goods, services and primary commodities. Alongside this economy is another that is marginalised, exists at the edges, consists of large numbers of the unemployed and the "unemployable", and does not benefit from progress in the First Economy. (ANC Speaks, 2003)

The first economy is developed, skilled, male dominated and Anglo-Saxon in culture, more articulate and talks down to the underdeveloped, unskilled second economy. It is therefore the first economy that prescribes appropriate saving vehicles and develops metrics to quantify appropriate saving levels. Whereas this may be considered a role of the educated elites or skilled technocrats in any society, it surely can't be that it is also dictated to the second economy without consultation, what is important for them to save for? Importantly, as managers and business people in the financial sector, the alternative understanding of the concept of saving may assist us to identify untapped opportunities (Deaton, 1989). This can be made possible through the realisation that the retirement funds industry has been developing solutions that are tailor-made exclusively for the dominant class and forcing everyone else to assimilate at the risk of complete exclusion. Why is it that patterns of saving for retirement fund seem to display a positive correlation among the wealthier population of the country than the poorer ones even though participation is mandatory for all through occupational schemes? By comparing those that are on trajectory to retire financially secure against those who are not, along the lines of the discussed sub problems through a questionnaire, income and cultural biases, among others, are seen to emerge as key drivers of patterns of saving.

1.5 Delimitations of the study

There are possibly innumerable occurrences that may cause any given member of a retirement fund to retire with a low net replacement ratio, a majority of which are not in the control of the member, certainly in a defined contribution retirement fund. For example, poor fiduciary oversight by the board of trustees, market failure and poor benefit design are some of the occurrences that the

member may not directly influence. This study is concerned with the views from the members as the industry practice is to generally have a select few of highly skilled technocrats prescribe what is best for the rest. The prevalence of defined contribution retirement funds where the member carries the investment risk, logical presents a situation whereby the view of the member carries substantially more weight than before (Botha, 2014). The study is therefore limited in that it is not necessarily designed to reflect what is known or accepted to be right but rather mirror the views of the members as surveyed.

Additionally, the following functional limitations are acknowledged:

- The study targets active members of occupational retirement funds who (save compulsory) are afforded member investment choice and contribution rate flexibility by their retirement funds. This may create an impression of flexibility that does not apply across all the retirement funds;
- The study classifies members who are on trajectory to achieve a net replacement ratio of at least sixty per cent as retiring financial secure and those below, financially insecure. In making this determination, savings and other assets outside the retirement fund are disregarded; and
- Whereas the survey focuses on the South African retirement fund members, the literature review will include knowledge that has emerged from outside the country.

1.6 Definition of terms

Below are the definitions, informed by the Alexander Forbes Benefits Barometer (2014), that the reader needs to understand to make sense of the report:

Annuity = A financial product sold by financial institutions that is designed to make a stream of payments to the individual later in time. Annuities are used primarily to secure a steady cash flow for an individual during their retirement years, for the remainder of their lives.

Asset-liability modelling (ALM) = an approach to examining pension risks which allows the sponsor to set informed policies for funding benefit design and asset allocation.

Beneficiary = A person who benefits from a trust, will, medical scheme, retirement fund or life insurance policy.

Contribution rate = the regular payments made to a benefit scheme by the employer, employee or both. It is calculated as a percentage of pensionable pay.

Consumer price index (CPI) = Measure of living costs based on changes in retail prices. Consumer price indices are widely used to measure changes in the cost of maintaining a given standard of living.

Consumption smoothing = A way to project a stable path of financial demands throughout retirement by estimating total consumption needs for retirement and then allocating them over time.

Defined benefit (DB) fund = A type of retirement fund where the final benefit is pre-determined using a mathematical formula. The benefit is based on the employee's final salary at retirement, the number of years of membership of the retirement fund and a rate of increase.

Defined contribution (DC) fund = A type of retirement fund where the final retirement benefit the employee receives depends on all the contributions made to the fund, as well as the fund's investment returns and expenses.

Disposable income = The amount of money households have available for spending and saving after income tax has been deducted.

Employee benefits = Indirect and non-cash compensation paid to an employee to meet their needs. Some benefits are mandated by law (such as UIF), while others vary from firm to firm or industry to industry. Benefits can include items like health insurance, life insurance, a medical scheme, paid vacation, retirement fund, and so on.

Fiduciary = A person who has a legal duty to act in another person's interest. Typically, a fiduciary takes care of property or money for a beneficiary.

Fund credits = the benefit entitlement of each fund member within each of their retirement funds. This is effectively the liability in a DC fund.

Gross domestic product (GDP) = the monetary value of all the finished goods and services produced within a country's borders in a specific time period. GDP is usually calculated every year. It includes all private and public consumption, government outlays, investments and exports less imports that occur within a defined territory. A country's GDP often shows its standard of living and whether the country's economy is growing or not.

Normal retirement age (NRA) = the retirement age specified in the scheme rules as the official age at which employees are entitled to their retirement benefit.

Occupational fund = A fund that an employer organises on behalf of a group of employees to provide benefits for one or more employees. This can be established as a pension or provident fund, where the only difference between the two types of fund relates to the tax treatment of benefits on retirement.

Pension = an annuity paid to an individual during their retirement years (see Annuity).

Pension fund = A type of retirement fund where employee contributions are tax-deductible within certain limits. A maximum of one-third of the retirement benefit may be taken in cash at retirement.

Pensionable pay = Pensionable pay is defined in whatever way the employer wants to define it. Typically, this is as a percentage of total cost to company or basic pay. Also known as retirement funding income, it is usually less than an employee's total monthly salary.

Preservation = This is when the money saved for retirement through pension, provident and preservation funds remains in those funds until you retire, or is

rolled over into another similar retirement savings scheme without incurring taxes or penalties when you change jobs.

Provident fund = A type of retirement fund where the employee contributions are not tax-deductible. The entire benefit may be taken in cash at retirement.

Replacement ratio = the ratio of monthly income in the year after retirement to the monthly income in the year before retirement. A replacement ratio shows the relative level of income a member needs after retirement.

Retirement funding income = the total amount of taxable earnings (including income and fringe benefits) used when retirement fund contributions are calculated.

Retirement savings = Amount of money saved to cover the cost of your living expenses when you retire.

Short-term insurance = Covers things such as vehicles, property, household, personal liability, travel and business insurance.

Stokvel = A savings or investment society to which members regularly contribute an agreed amount and from which they receive a lump sum.

Volatility = A statistical measure of returns for a given security or market index. Volatility can either be measured by using standard deviation or variance between returns from that same security or market index. Commonly, the higher the volatility the riskier the asset.

1.7 Assumptions

The study makes the following assumptions:

- It is assumed that the respondents will not respond to the research questions in a revisionist manner. Saving for retirement is a journey that occurs over a period of 40 years and as the study survey is targeted at members who are at least 55 years of age, there are probabilities that respondents may answer questions on the basis of

what ought to have been. This was mitigated by making the survey available exclusively online where a sense of confidentiality is heightened which is reasonably expected to encourage frank responses;

- It is assumed that the language used by the research instrument will be accessible to all the respondents as not all of them are English speaking. In this regard emphasis is placed on ensuring that the usage of the retirement fund industry jargon is limited to the necessary minimum. Prior to the distribution of the survey, trials were run with lay people to ensure the language was reasonably accessible and that the questionnaire was not too long. This seems to have successfully mitigated this concern as less than one per cent of the respondents abandoned the survey midway;
- It is assumed that the eventual financial position of the respondents will not bias the responses to the point of making the data invalid for the research. Should this be the case there will be a risk to end up with respondents that are financially secure responding one way and those who are not, responding another; and
- As the research will be undertaken with the assistance of Alexander Forbes, it is assumed that the respondents' moments of truth experienced with Alexander Forbes service will not play a significant role in how the responses are formulated. This can result in the research reflecting how the members perceive the service received from the company and not necessarily survey questions.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

According to Cooper and Schindler (2008), a literature review provides a theoretical review of the extant theory that relates to the problem under study. It provides a meaningful context of the research project and locates it within the universe of research that already exists.

The following section provides an overview of the literature applicable to the problem identified in the previous chapter and as already stated, the major themes to be evaluated are; the factors influencing members saving through retirement funds to retire financially secure.

The first part of literature review will focus on the theory of saving and the retirement fund system as it exists in South Africa and thereafter the concept of poverty, saving patterns in South Africa and the four factors that have been identified by previous research as influencing saving through retirement fund, namely; investment return, preservation, contribution rate and the time of retirement.

2.2 Saving, retirement fund and poverty theories

2.2.1 *Saving and retirement fund system*

Eizenga (1960) posited that saving for old age creates patterns of “hump savings” in that an individual saves during the period of economic activity and dissaves during retirement. Further, in a stationary society where the population is constant, the hump saving for the whole society will be zero as the total savings of the economically active population will be equal to the dissaving’s of the retired population. It follows that in a growing population the increase in the number of humps will be proportionally related to the population growth, resulting in positive net savings. According to Eizenga (1960) we will expect that the savings hump in South Africa will display a pattern that is affirmatively

proportional to the economically active population of the country. Better yet, it will be reasonable to expect the savings hump to be positively related to the economically active population that has to mandatorily save for retirement through occupational retirement funds. But as already discussed ninety per cent of the members of retirement funds across the 15 different sectors who are 60 years or older, will only be able to replace fifty per cent or less of their salary at retirement (Alexander Forbes, 2014).

In a retirement fund the relationship is constituted by three key stakeholders which are the retirement fund itself, the members for whom the fund is established and the employer who participates in and contributes to the retirement fund. Underpinning this relationship is a web of legal principles and members' need to understand whether they can appeal to labour law, contract law or pension law indeed if not a mixture of these to enforce their rights – so the relationship is not simple. The contract of employment between the employer and an employee, which can be written or oral or tacit is the backbone of this relationship and would often dictate that an employee will be a member of the employer's occupation fund as a condition of employment. In South Africa there is no legal requirement for an employer to establish a retirement fund for or on behalf of its employees; nonetheless, according to the South African National Treasury Department between seventy per cent and ninety per cent of employees in the formal sector are members of an occupational retirement fund (National Treasury, 2012). In these instances, membership of the occupational retirement fund is a compulsory condition of employment as imposed by the requirements of the Income Tax Act, 1961 and enforced by the contract of employment. (Lindsey-Renton, 2006). Despite the sound legal basis, majority of members of retirement funds in South Africa judged by the income metric of replacement ratio, retire almost destitute.

It was Costa (1998) who observed that retirement is a reasonably new concept as by the turn of the nineteenth century, employees would invariably remain in employment for as long as their bodies could carry them. It is recorded that in 1880 the United States workforce had eighty per cent men who were over the age 64 years and similar trends were also observed in Britain, France and

Germany. The industrial revolution introduced physical rigours that older workers could not keep up with any longer and round about the same time, governments around the world introduced security benefits. These security benefits were paid to individuals who had stopped working and were provided either through mandatory or encouraged retirement. In 1990, the proportion of men over the age of 64 years that remained in employment had collapsed to less than twenty per cent in the United States and less than ten per cent in Britain, France and Germany. So, in one hundred years, retirement has changed from being a short period at the end of life where the incapacity to work was the reason for financial support to a period of leisure every worker is expected to save for during their working life. (Costa, 1998).

Benartzi and Thaler (2007) found out that proved difficult for individuals to forego instant gratification of present consumption in exchange delayed consumption through a pension that will only be due three or four decades later. Increases in longevity, as Sanderson and Scherbov (2008) have observed in north European countries, is such that life expectancy has improved by three to four decades since from the late nineteenth century. Similarly, the post retirement mortality rates have seen improvements from 1.2 years at the turn of the nineteenth century to approximately a quarter of a century as of today. (Sanderson and Scherbov, 2008). Despite the dramatic increases in lifespan, normal retirement ages have remained largely static at age 60 – 65 years. Perhaps to further compound the problem, a study by Friedberg (2007) established a spike in the uptake of early retirement and that in certain European territories, normal retirement age had been reduced towards the beginning of the twenty-first century. It is my commentary that the financial difficulties faced by Greece today are informed by these trends where a large portion of the population is in retirement and the state does not have enough resources to meet the liabilities of pension promises made to these retirees during their working life.

In 2007, the World Bank advanced the following proposals as three distinctive pillars of a retirement fund system:

- A public benefit programme funded from the general government revenue which is aimed at redistribution, from the wealthier to the poorer population, to avoid poverty in old age;
- Privately managed, fully or partially funded with mandatory participation, within which individuals save to provide an income during retirement; and
- Voluntary savings which permits individuals to choose how they allocate income over their lifetime (World Bank, 2007).

In South Africa today, the first pillar which is distributive and funded from the fiscus, is the most prevalent scheme ran through the state grant system and has the highest coverage – the only one of its kind in Africa. Second to this is the privately managed pillar, provided through the various occupational retirement funds and it is compulsory or auto-enrolment in nature. The third pillar is all but non-existent and where it exists, does not enjoy similar tax advantages as the second pillar. This study will focus largely on the second pillar wherein the employer supports participation by co-contributing into the retirement fund. The London School of Economics and Political Science conducted a research in which twenty-six thousand individuals employed in England were surveyed and it was established that that the availability of employer contributions into an occupational retirement fund increased the likelihood of an employee saving for retirement by approximately seventy-one per cent. (Lloyd, 2011).

According to Whitehouse and others, a well-designed retirement system should satisfactorily address the following issues (Whitehouse et al., 2009):

- **The level of coverage achieved by all the retirement savings vehicles in the country**; the retirement vehicles include both the individual retirement schemes and occupational schemes, whether compulsory or voluntary;
- **The adequacy of retirement benefits from all the sources of retirement income**; there is a need to consider the income from each of the pillars of retirement savings including the state old age pension;
- **Financial sustainability and affordability to contributors**; a high contribution rate can increase the probability of retirement benefits being

adequate but may be unaffordable to the contributors. So, the right balance between adequacy of retirement benefits and financial sustainability and affordability to contributors is required;

- **Cost efficiency of the retirement system**; the cost of administration, such as collecting contributions and investment management, should be kept as low as possible. The compound effect of higher charges has the effect of significantly reducing retirement benefits (see table 2); and
- **The level of security benefits in the face of different risks**; in a pay as you go schemes, some countries have responded to the risk of increased longevity, lower contributions by increasing retirement age and reducing benefits. (Whitehouse et al., 2009).

In South Africa, apart from the state grant system the occupational retirement funds which are usually compulsory for eligible employees remain by far the most prevalent vehicle of saving for retirement. Chamburuka and Aitchison (2014) make the point that compulsory retirement saving, in addition to being paternalistic, increases the coverage of individuals that save for retirement but diminishes savings towards other goals notably, such as education. This deepens the problem as access to retirement savings is not permitted until attainment of a certain age without incurring punitive tax liability (currently 55 years in South Africa); despite whatever financial difficulties individuals may face en route to retirement. This is an important observation of contrast to make again thus, “For example, in America, some companies have experienced on average a 50% increase in participation rate by switching to auto-enrolment, and some companies with default escalations on contribution rates have seen an increase in the savings levels among participants. Auto-enrolment and compulsory savings can increase retirement savings by mitigating the problems caused by procrastination.” (Chamburuka and Aitchison, 2014; p.270). Chamburuka and Aitchison (2014) make an additional observation that in countries where auto-enrolment is being pursued, pressure is being applied by the state to push down the administration and other costs incidental to running a retirement fund scheme. Curry (2008) reported that compulsory retirement savings may not be suitable for people who for example, are low income earners, as charges on small amounts of savings can erode the real value of

savings. It is given as an example that in Australia the regulations are such that charges cannot exceed investment returns but this does not preclude some people from earning investment returns that do not exceed consumer price index.

2.2.2 *Poverty as relative deprivation*

The articulation of what it means to retire financially secure and ultimate problematizing of this discourse by the South African National Treasury is reflective of the literature employed by the financial services sector. Similarly, the remedies put forth to resolve the low replacement ratios are positivist and factual, affords no room for context, the same metrics employed in the developed nations are assumed to apply in South Africa, cultural nuances notwithstanding (National Treasury, 2013). Contrarily, the alternative literature makes distinction across cultures, developed and developing nations, Asia and Africa, Eastern Europe and Latin America and on that basis, itemises what may be rational in the varying contexts. Necessarily, the conclusions are very different from the positivist literature, among others, the alternative literature argues that South Africans do in fact save; they may not save through the savings vehicles that the financial sector thinks they should be saving in. Critically, the alternative literature advances the view that there is more than one way of saving for retirement, for example, in developing nations it may be more desirable to save for children's education as opposed to saving directly for consumption in old age. (Deaton A, 1989).

The material deprivation indicators are aimed at addressing the non-monetary aspects of poverty that are usually used to measure the degree or deprivation within a single country, territory or region. The European Union's material deprivation indicator measures the share of respondents who cannot afford to do at least three of the following:

- Face unexpected expenses;
- Take a week's holiday away from home every year;
- Pay off arrears (mortgage, rent, utility bills or hire purchase instalments);

- Eat a meal with meat, fish, or protein equivalent every second day;
- Keep home adequately warm;
- Have a washing machine;
- Have a colour TV;
- Have a telephone; and
- Own a car (Guio, 2005, 2009, Guio et al., 2009).

Respondents who are unable to afford four or more of the above listed nine things are considered severely materially deprived. (Guio, 2005, 2009, Guio et al., 2009).

Deaton (1989) volunteers four reasons why the studies of saving in the developed countries must not be conducted along the same contours as in the developing countries, thus:

- At the microeconomic level, the developing-country households tend to be large and poor; they have a different demographic structure;
- But few developing countries possess the sort of fiscal system that permits deliberate manipulation of personal income to help to stabilize output and employment;
- Much of the post-war literature expresses the belief that saving is too low, and that development and growth are impeded by the shortfall; and
- Saving is more difficult to measure in developing countries and the resulting data inadequacies are so pervasive and have seriously hampered progress in answering basic questions (Deaton A, 1989).

Further discussion of the saving behaviour of developing countries households reveal stationary demographic structures where old people as they die are replaced by those younger resulting in a situation where everyone shifts up and the structure remains uniform. Clearly in these instances there is limited need for conventional retirement savings as income is shared across generations living in the same household. The economically active financially look after the young and aged and they themselves will in turn be looked after by the economically active when they reach old age. (Deaton A, 1989).

2.2.3 *Saving through Stokvel*

To build further on the alternative view, in South Africa, Stokvel are defined as group of saving schemes providing for mutual financial wellbeing as well as social and entertainment needs. It is common knowledge that the Stokvel represent the informal savings sector in South Africa that services approximately thirty per cent of the population majority of whom are low income earners. A research undertaken in 2010 reported that there were 811 830 Stokvel in South Africa with annual member contributions totalling R 44 billion (African Response, 2012). In addition, a report done by Finmark Trust in 2013 produced evidence showing that fifty per cent of individuals in LSM 5-6 who had an average monthly income of R 4 497 were using Stokvel for short and medium-term savings. (Benefits Barometer, 2013). This combined information undermines the firmly held notion that the South African level of savings are low in absolute terms and importantly, shows a preference for collective and communal approach to financial solutions by large population of South Africans. The Old Mutual Savings and Investment Monitor studies undertaken in 2013 revealed that a fairly large percentage of South Africans expected to be supported by their children in retirement, the reported figure was thirty-eight per cent. Further, forty-five per cent of 18 to 30-year olds were planning to support their parents when they are old. (Old Mutual, 2013).

“The informal system for income security with no governmental and little market involvement is still the mainstay in most developing countries. The extended family takes care of insurance, redistribution and even saving – investing in children and land for housing for the whole family. Although voluntary, this system has been buttressed by strong social sanctions, and an estimated sixty per cent of the world’s labour force and seventy per cent of the old rely on it exclusively” (World Bank, 1994; p.49). The World Bank through this policy research report titled, averting the Old Age Crisis, further posited that the informal saving systems though still prevalent, were on the retreat in industrialising countries, gradually replaced by formal market arrangements and mandatory government programs which are dominant in industrialised countries. The main driver of the formalisation of the saving system is economic

development, urbanization, migration, secular education, nuclear families and the breakdown of traditional norms. Thus, the World Bank said in 1994 that these modernization agents lower the prestige of the old, reduces their control over resources and diminishes the effectiveness of the extended family in pooling income and risk. Whilst acknowledging these sweeping winds of change, the World Bank also issued a warning, “Because mandatory formal programs can hasten this process, governments should carefully assess when, where and in what form to introduce formal programs of old age support. They should use measures to maintain rather than crowd out informal systems that may still be functioning reasonably well.” (World Bank, 1994; p.49).

Perhaps it’s useful to pause and enquire of South Africa, whether the modernisation agents (economic development, urbanization, migration, secular education, nuclear families and the breakdown of traditional norms) itemised by the World Bank are prevalent in the country to support an aggressive policy advocacy for the formal system as intended by the South African National Treasury Department? The question is more relevant as the report finds that Africa’s support systems are based on a much broader definition of family and old age support from siblings is far more common than both in Asia and Latin America. Similarly, the definition of children is more inclusive; grandchildren are raised and eventually care for the grandparents and in instances of polygamy, all the wives and children share a common living compound. Additionally, nonfamily institutions such as kin, community and tribal support remain operational in Africa than elsewhere, in the case of South Africa the Apartheid legacy of township settlement along tribal identity remains vibrant. The fact that children remain the main source of support in old age remains a universal African reality and being childless is a grave disadvantage for the old. Therefore, the report concluded in 1994 that the informal old age support system works relatively better that in Asia and Latin America for the following reasons:

- Old people make five per cent of the population;

- Africa's lack of economic development has restrained the effect of the modernising agents – urbanisation, secular education and general social change;
- Seventy-five per cent of the population lives in rural areas;
- Those that work in urban areas retire to their birthplaces; and
- On retirement an employee will be requested to bring their child to work in their place, thus perpetuating loyalty and financial support to the parent. (World Bank, 1994)

The report does however acknowledge that the fabric of the informal support is wearing thin but nonetheless continues to run and lists the following reasons for this:

- The family size and heterogeneity enable economies of scale while avoiding the informational costs and asymmetries of formal systems;
- Adverse selection of formal systems, where people who think themselves to be low risk opt out while high risks opt, thus making the price of insurance prohibitive;
- Moral hazard, where people insured through formal system may feign disability whereas in a family this will be difficult;
- Pooling of risks in family arrangement makes flexible adjustments for unforeseen outcomes whereas in a formal insurance, contingencies covered are succinctly spelled; and
- The old though not economically active, can performs task of child minders and maintain households thus freeing the economically active to pursue gathering activities. (World Bank, 1994)

The report concludes that for developing countries that are in transition, it may be preferable to have formal systems that complement the informal ones as opposed to outright substitution or exclusion. "Given limited taxing and administrative capabilities, governments in Africa and Asia should be cautious about ambitious formal programs which might fail, after crowding out family arrangements that function reasonably well. Family investments in education or small businesses may provide better old age security than would the required contributions to public pension programs." (World Bank, 1994; p.71).

In its quest to increase the replacement ratio of the South African occupational fund, the state's policy positions seem to be focused exclusively on the external factors such as spending patterns and completely ignore the psychology of the population in question. This of course raises the question of whether a particular mind-set can be legislated away. Duisenberg (1967) observed that the level of saving achieved represents the outcome of the conflict between the desire to improve the immediate standard of living and to obtain future welfare. It is thus important to understand the conflicting motivations leading towards increased expenditure and those which make saving desirable. "To begin with, however, we need a picture of the consumer in action. For this purpose, we need only the most general idea about motivation." (Duessenbery, 1967; p.22). It may be a lazy conclusion that in South Africa, given deprivation resulting from the Apartheid policy, the black population will display aspirational consumption patterns whereas their white compatriots, being more affluent, will save more. Further, Duessenbery (1967) posits that the drive to spend more on some goods stems from superior effectiveness of those goods, and this effectiveness is a social or cultural construct of the individual concerned. Attainment of a higher standard of living, whatever the meaning to whoever, becomes an end in itself and the desire for effective expenditure assumes a life of its own. (Duessenbery, 1967). It can therefore be concluded that the analysis of the problem, to be credible, must necessarily include a fair amount of interrogating the behavioural economics of the South African population.

2.3 Investment return

This section reviews the literature pertaining to behavioural factors that influence investment choices which addresses sub problem 1.

2.3.1 *Investment choice*

The organized labour driven migration from Defined Benefit (DB) to Defined Contribution (DC) retirement funds in South Africa has inadvertently occasioned a situation where the members of retirement funds carry the exposure to numerous contingencies that were hitherto borne by the employers. These risks

are in the main around investment volatility, longevity (outlive savings) and cognitive deterioration. Above this, there remain numerous other risks that are associated with the choices made by the government, employers, trustees which might not be in the best interests of a member's financial wellbeing in retirement. Whereas the DB funds are balance of cost funds where the employer carries the underside risk and control in the fund, by contrast, the member bears the majority risk and control in a DC retirement fund. Specifically, longevity, investment and expense are risks that are borne directly by the members and although they can be mitigated, the residual risks can be immense nonetheless. A migration from DB to DC has over time given birth to a greater sphere for member choice, where choice is available on, inter alia, contribution rate, quantum of risk benefits, investment portfolio and annuity type. This choice, it can be argued, is imbedded with severe unintended consequences; it undermines the main attractive feature of a retirement fund as an institutional saving vehicle – the ability to crowd out the inherent behavioural human irrationality in saving and investment. These developments severely undermine the economic rationale underlying retirement funding. (Van Zyl and Van Zyl, 2014).

The increase in member choice is closely associated with increased confusion and very likely, increased prevalence of behaviour that may economically be characterised as irrational. The economic life cycle (Thaler and Benartzi, 2004) presumes that households want to smooth their consumption over their life cycle, however the following statistics show that this is currently not the case in South Africa:

- It is estimated that only twenty-nine per cent of members will be able to maintain their standard of living in retirement (Sanlam Survey, 2014);
- six per cent of members in the Alexander Forbes Umbrella Fund with an amount sufficient to secure a pension of more than sixty per cent their pre-retirement income (Alexander Forbes Member Watch, 2013); and

- Only thirty-two per cent of members believe they have saved enough capital to last the rest of their lives (Sanlam Survey, 2014).

It must be borne in mind that the central feature of retirement saving is the market, investors benefit from compound interest by having a degree of exposure to the market. But when the market fails, as it recently occurred in 2008, people tend to agitate for a social security system that does not depend on income as an agent to relieve deprivation. (Ahmed et al., 1991).

In the instance of retirement funds, it's the responsibility of the Board of Trustees, who may be lay people as currently there are no minimum requirements as such for anyone to be a Trustee, to decide on the appropriate levels of market exposure. The Trustees are however required to engage professional assistance to make investment decisions. Regulation 28 of the Pension Funds Act (Act 28 of 1956) provides guidance of the category of investment portfolios a fund may be exposed to, including limits by asset class, securities issued by participating employer and individual investments. For the purposes of compliance and regulation every fund must have Investment Policy Statement that is deemed appropriate for its membership profile – in itself a subjective exercise. The Sanlam Survey (2014) established that fifty-one per cent of standalone funds offer member investment choice, with ninety-one per cent of those providing a default portfolio, mostly a life stage solution which invests members' savings aggressively at early stages and conservatively closer to retirement age. It is estimated that seventy-one per cent of all members are invested in their fund's default investment option, indicating that seventy-one per cent of members are unable to exercise choice. (Van Zyl and Van Zyl, 2014).

2.3.2 *Proposition 1*

A retirement fund member's perception of investment return as a dimension that influences retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.4 Preservation

This section reviews the literature pertaining to behavioural factors that influence preservation which addresses sub problem 1.

2.4.1 *Pre-retirement withdrawal*

Despite the publication of the Taxation Laws Amendment Bill of 2013 there currently is no legislation in place to impose the preservation of retirement benefits on pre-retirement withdrawal from a retirement fund. There are tax incentives to retain the savings within a tax approved vehicle such as a preservation fund or the retirement fund of a prospective employer but statistics indicate that many members prefer to receive a taxed cash benefit. This is the case regardless of the punitive tax regime as per Table 1 below.

Retirement (Age 55 years onwards)	**Withdrawal (Below Age 55 years)**
(R 0 to R 500 000) – tax free	(R0 to R 25 000) – tax free
(R 500 001 to R 700 000) – 18%	(R 25 001 to R 660 000) – 18%
(R 700 001 to R 1 050 000) – 27%	(R 660 001 to R 990 000) – 27%
(R 1 050 001 and more) – 36%	(R 990 001 and more) – 36%

Table 2-1: Taxation of retirement savings on exit (Income Tax Act)

Very clearly the rate of taxation where a member has not yet attained age 55 years are punitive and designed to discourage members from opting for a cash lump sum pay out.

The Sanlam Survey (2014) estimated that seventy-one per cent of members who terminated their employment withdrew their retirement savings in cash as opposed to transferring the savings to another retirement fund or becoming a

paid-up member. Old Mutual (2013) reported the same figure to be at sixty-one per cent and Alexander Forbes Member Watch (2013) reported that the average rate of preservation of their umbrella fund was eight per cent. The same Alexander Forbes Member Watch indicated that the preservation rate for members younger than 25 years to be close to zero. The Sanlam Survey (2014) indicated that the following were the top five reasons provided by the members who have withdrawn their savings in cash on changing employment:

- Settlement of short term debt;
- Paying for living expenses;
- Home improvements;
- Starting own business; and
- Reducing mortgage bond. (Sanlam, 2014)

The mathematical implication is profound, in addition to 'throwing away' years of savings, members begin saving in the new fund on a clean slate thus foregoing the passive benefit of compound interest. Lost years of savings and compound returns may be said to be intangible, but the tax liability incurred for accessing savings before reaching the qualifying age is hard to ignore. According to the Sanlam Survey (2014) retirement funds have responded to this problem by:

- Providing relevant member information (sixty-six per cent);
- Arranging financial counselling (thirty-eight per cent);
- Designing their forms and procedures to increase the likelihood that members will opt for the default preservation strategy (twenty-one per cent);
- Offering a default strategy (fourteen per cent); and
- seven per cent of funds did nothing.

As previously indicated the South African National Treasury is concerned by the apparent lack of preservation and have proposed several interventions such as that retirement funds should have default preservation solutions in place such that members will have to actively opt out of those in favour of a cash withdrawal. On the other hand, these proposals are made despite the reality that South Africa does not have comprehensive social security net as an alternative for employees. At the time of this study National Treasury has put

forward the following proposals which, if adopted will accordingly vary the legislation:

- Introducing a *de minimums* such that small amounts will not have to be preserved;
- Limiting withdrawals to one withdrawal per tax year;
- Reviewing the tax treatment of pre-retirement withdrawals to ensure fairness and to discourage withdrawal for frivolous reasons;
- Withdrawals before retirement to reduce the cash amount that can be paid as a lump sum at retirement. (Van Zyl and Van Zyl, 2014).

Lack of preservation has been identified as the key contributor to members retiring with less than sufficient savings which in the long run leads to reliance on the state-pension which creates an unsustainable dependency on the fiscus. The National Treasury therefore sees the introduction of mandatory preservation as critical. (National Treasury, 2011). Can it be fairly and accurately concluded that members who opt for pre-retirement cash lump sum on withdrawal are driven by ignorance and poor advice as it is popularly suggested? A study by the Bureau for Market Research reveals that a meagre thirty-five per cent of the surveyed affluent market (income level above R 750 000 per annum) and realised market (income level between R 300 000 – 750 000) are financially knowledgeable (National Treasury, 2011). However, as we have already seen in the discussion of Stokvel, “financially knowledgeable” is defined around financial products and services on offer by the mainstream market. The Taxation Laws Amendment Bill was signed into law on 8 January 2016 and the proposals that were initially made pertaining to preservation were omitted in their entirety. It is reported that they were successfully resisted by organised labour at Nedlac.

2.4.2 *Proposition 2*

A retirement fund member’s perception of preservation as dimension that influence retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.5 Contributions

This section reviews the literature pertaining to behavioural factors that influence the choice of contribution rate which addresses sub problem 1.

2.5.1 *Contribution rate*

The South African fiscus carries a huge financial load in the form of social grants, be they old age or orphan grants, all the same it is agreed the situation is not sustainable. Retirement savings reduce the probabilities that the member will upon retirement need state old age pension for survival. Primarily for this reason the government encourages saving for retirement and there are tax incentives available to support this. Contributions into retirement funds enjoy tax deductibility, this means before an employee's income tax liability is calculated, income that is contributed into retirement funds can be deducted and thus decrease a member's gross income liable for income tax. At the time of this study the Taxation Laws Amendment Act was promulgated to increase the maximum deductions to twenty-seven and half per cent of the member's pensionable income subject to an annual monetary cap of R 350 000. (Taxation Laws Amendment Bill, 2013). Previously member contributions into a provident fund were not deductible whereas employer contributions were deductible up to a maximum of twenty per cent of the member's pensionable income. Member contributions into a pension fund were deductible up to seven and half per cent of pensionable income and employer contributions, at the same rate as a provident fund.

Occupational funds generally provide retirement and other benefits such as group life assurance, income protection and funeral benefit. Contributions towards retirement savings or retirement funding contributions are determined by reducing the gross contributions by the expenses paid out of the fund such as the costs of the group life assurance, income protection, funeral benefits premiums (as these are usually insured out of the fund) and administration fees. It therefore follows that an increase in either the cost of the premiums of the insured benefits or the administration fees imposes a reduction in the contributions available to fund retirement, which ultimately is the members'

available savings at retirement. According to the Sanlam Survey (2014), thirty-five per cent of DC retirement funds cap the cost of group life assurance and thirty-nine per cent cap the cost of the income protection scheme. Mention must be made that pensionable salary, the basis of contributions, may be expressed as a percentage of total earning to exclude commission and bonus income. The Sanlam Survey (2014) found that on average pensionable salary amounted to eighty-three per cent of total remuneration, with fourteen per cent of funds using a figure below seventy per cent of total remuneration. Logically such a definition not only reduces the level of retirement contributions but also benefits! (Van Zyl and Van Zyl, 2014).

Table 2 below was extracted from the Sanlam Survey (2014) reports on the contribution rates of standalone funds.

All results as percentage of pensionable salary	**2014 survey**	**Average over last 5 years**
Employer Contributions	9.66%	9.91%
Employee Contributions	6.44%	6.05%
Total Contribution	**16.10**%	**15.96**%
Less group life cover	1.59%	1.63%
Less disability cover	1.01%	1.16%
Less administration costs	0.98%	0.95%
Net contribution to retirement funding	**12.52**%	**12.23**%

Table 2-2: Contribution of standalone Funds

It can be deduced from the table that in 2014 a member who may have thought they were contributing approximately sixteen per cent of their pensionable into their respective retirement fund were in actual fact only contributing approximately thirteen per cent! According to the Sanlam Survey (2014), twenty-nine per cent of retirement funds offered members the choice to select their preferred rate of employer contribution and thirty-nine per cent offer similar choice on member contributions. Additionally, there is a default for members who do not wish to exercise choice. It is expected that members will exhibit discounting behaviour by choosing the lowest permitted contribution rate so as to maximise take home pay and current consumption. Accordingly, wealthier South Africans are more likely to increase their levels of savings and emphasize saving for retirement and this observation is a matter of interest for this study. (Van Zyl and Van Zyl, 2014).

Benartzi and Thaler (2007) have conducted a study which indicated that attempts to improve contribution rates through education have generally met with little success. More usual is that members are encouraged make additional voluntary contributions into the retirement fund with post tax remuneration to increase the probabilities of retiring financially secure. The member is thus faced with a proposal to forego certain expenditure today in exchange for an uncertain future consumption.

2.5.2 *Proposition 3*

A retirement fund member's perception of contribution rate as a dimension that influence retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.6 Time of retirement

This section reviews the literature pertaining to behavioural factors that influence the choice of when to retire which addresses sub problem 1.

2.6.1 *Normal retirement age*

The Income Tax Act (Act 58 of 1962) defines the normal retirement date for members of pension and provident funds as the date on which members become entitled to retire from employment for reasons other than sickness, accidental injury, or incapacity. The Income Tax Act prescribes, from a taxation point of view, that any member of a retirement fund may retire from attainment of age 55 years despite what is stipulated in the rules of their retirement fund and will not be subjected to punitive taxation as per figure 1. Further, this date will usually be inscribed in the rules of the pension or provident to prohibit members from accessing their savings in a tax efficient manner prior to attainment of normal retirement age. The lifecycle hypothesis will have us believe that members in deciding when to retire, will seek to obtain optimization by deferring retirement for as long as possible as that will entail earning income for longer, contributing towards retirement for longer and delaying accessing savings for longer! The Sanlam Survey (2014) reported that the average normal retirement age is 63 years and that fifty-four per cent of pensioner surveyed responded that they have retired at age 60 years or earlier. The Alexander Forbes Member Watch (2013) reported that men and women who retired at age 65 years are projected to live another 16 to 20 years of which 7 to 9 years will be in sound health.

Additionally, a survey by Old Mutual (2013) revealed the following:

- On average members prefer to retire at age 59.8 years;
- On average members think they can afford to retire at age 63 years;
- On average members plan to retire at age 61.3 years; and
- On average members believe their savings need to last them another 17.1 years (Old Mutual, 2013).

Closely linked to the decision of when to retire is the longevity risk whereby members may outlive their savings and thus end up destitute. (Alexander Forbes, 2014). There seems to exist disconnect between members' perceptions of when can they retire and the standard of living they can afford in retirement with the object reality as revealed by studies undertaken on the subject.

2.6.2 *Proposition 4*

A retirement fund member's perception of time of retirement as a dimension that influences retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.7 Conclusion of Literature Review

The World Bank Report (1994) seems to negate the narrative that the formal system of saving must exist as the be all and end all of saving. Whereas the same study agrees that formalisation is inevitable, it should not be pursued divorced from the overall development indices and modernisation of the population. The state has a responsibility to engage, with a view to improve and gradually co-opt the informal system and this process ought to proceed with acknowledgement of the existence of the informal system. Similarly, the state has a cogent responsibility that goes with creating a monopoly of saving through the formal system to ensure that the retirement funds industry prices competitively and transparently. Some of these concerns are being addressed through the promulgation of the Treating Customers Fairly, but this focuses squarely on services and leaves the industry to determine fees in an unregulated manner (World Bank, 1994).

Bonoli & Shinkawa (2005) postulate that demographic transitions are occurring at different paces and begin from different starting points, and as a result affect pension politics differently. So, it's important that the South African institutions are best geared to address the local realities, this is said in recognition of the near obsequious tendencies of wanting to be seen to be keeping up with the latest international best practices which may undermine the national realities or vice versa. For example, "In Western Europe, ageing is taking place at a relatively moderate pace, but by 2040 the population older than 65 is expected to exceed 25 Percent of the total population in all countries." (Bonoli & Shinkawa, 2005; p. 3), so it can't therefore be that whatever plans implemented by the UK for instance, are adopted blindly by South Africa as best international practice.

Deaton & Muellbauer (1980) argued that households differ in size, age composition, educational level and other general characteristics which in turn inform an expectation that these different households will display different expenditure patterns. If Engel has famously observed that poorer households' higher share of total expenditure goes on food than is the case for richer households and further that the same holds true for larger households over smaller ones, these concerns that should enrich discussions on the saving tendencies or lack thereof of South Africans.

2.7.1 *The pursuit of happiness*

It can be argued that saving for retirement is not an end in itself or that the adequacy of financial resources is not a goal in itself but rather a contributing factor to the overall quality of life. Importantly, financial measures do not lead to insightful innovations on occasions wherein financial resources themselves are insufficient. Therefore, to measure the quality of life the concept of happiness can be used as happiness is in the unique position of being an end in itself. Wealth remains important as it is a vehicle to procure goods and services which are key to creation of an opportunity to attain an improved quality of life and possibly happiness. The other advantage of happiness is that it lives with us as human beings as it is dependent on personal and environmental circumstances we live in, of which finances are just one aspect. Over the previous few decades the economics discourse has been developed to the point of seeking to understand the concept of happiness as a measurable, through meaningful and valid metric as an indicator of a successful life. (Legutko, 2014).

Veenhoven (1993) defines happiness by considering how one might evaluate whether society is livable – the degree to which society's provisions and requirement fit with the needs and capacities of its members, where such needs can include food, shelter, security, identity and meaning. The issue of happiness is a research question on its own and for the purposes of this study focus shall be specifically on happiness in retirement. Barret and Kecmanovic (2013) advance the view that happiness is more relevant measure of retirement success than financial models as they rely strongly on a multitude of

assumptions. Bender (2004) argues that income and wealth measures as utilised to evaluate retirement outcomes, are by design limited to economic well-being only, therefore the implied assumption being that economic well-being leads overall well-being.

2.7.2 *Conclusion*

In conclusion the four propositions are restated, and a hypothesis is made where the propositions will be subjected to correspondence analysis and T test will be used to test the hypothesis. The literature has resulted in “proposition" and "hypothesis “which both refer to the formulation of a possible answer to a specific scientific question. The main difference between the two is that a hypothesis must be testable and measurable, while a proposition deals with pure concepts for which no laboratory test is currently available.

2.7.3 *Proposition 1*

A retirement fund member’s perception of investment return as a dimension that influence retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.7.4 *Proposition 2*

A retirement fund member’s perception of preservation as a dimension that influence retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.7.5 *Proposition 3*

A retirement fund member’s perception of contribution rate as a dimension that influences retirement fund income is directly affected by the following factors: gender, race, level of income and level of education.

2.7.6 *Proposition 4*

A retirement fund member's perception of time of retirement as a dimension that influences retirement income is directly affected by the following factors: gender, race, level of income and level of education.

2.7.7 *Hypothesis 1*

This is aimed at addressing sub-problem 2 to say to the extent that the four proposals hold, it therefore can be hypothesised the observed perceptions should display a significantly positive linear relationship with projected retirement income. The null (H0) and the alternative (H1) hypotheses for the overall regress mode and the individual predictors are presented below:

Hypothesis for overall regression model

H0: The regression model is of no value to predicting the members' overall retirement income.

Mathematically,

As adopted from Green (2015) we use the following regression model

$$Y^*_i = \sum_{k=1}^{K} \beta_k X_{ki} + \varepsilon_i = Z_i + \varepsilon_i$$

where Y^*_i is the exact but unobserved dependent variable (perhaps the exact level of SAVINGS Income for retirement); k means the level or category of retirement income , X_{ki} is the vector of independent variables; β_k is the vector of regression coefficients which we wish to estimate , ε_i is the error term.

H1: There is value in the regression model to predict the members' overall retirement income.

Hypothesis for individual perception of saving dimension

H0: The individual perception of saving dimensions is of no value to predicting the members' overall retirement income.

Mathematically,

We have, the ordered Logit Model part which is distinct as follows:

$$Z_i = \sum_{k=1}^{K} \beta_k X_{ki}$$

This model simply shows how the unobserved dependent variable (Zi), perhaps savings dimension relates with vector of independent variables. This study used ordered logistic regression, with five savings dimensions (lowest, low, medium, high and highest)

Where β_k is the standardised population regression coefficient of the k th perception of the saving dimension. X_{ki} is the vector of independent variables

H1: The individual perception of saving dimensions has value in the prediction of the members' overall retirement income.

CHAPTER 3. RESEARCH METHODOLOGY

This section describes the methodology followed to address the propositions and hypothesis put in the literature review in the previous sections.

The empirical literature pertaining to quantitative research will be discussed, followed by a review of the research design, research instrument and model specification which was used. Thereafter data collection will be discussed within the context of this study and to conclude the section, validity and reliability of the study will be discussed.

3.1 Research methodology /paradigm

The study uses a quantitative methodology in order to gather appropriate data and answer the formulate propositions and hypothesis. Struwing and Stead (2001) noted that quantitative research concerns collection of numerical data to address a specific research question and that it is a descriptive type of research where the end is to try to offer an accurate description or picture of a particular phenomenon.

In this regard propositions were developed from literature review with the expectations that these will explain the factors influencing the retirement income of members of retirement funds. This type of research is, according to Gravetter and Forzano (2012), suitable when trying to resolve a hypothesis about the current state of individual variables for a specific group of individuals.

The possible disadvantage of the research method employed by the study is that the results may be limited as they provide numerical descriptions as opposed to detailed accounts of members' perceptions of the dimensions of saving. Blanche et al. (2009) have on the other hand argued that quantitative research has the advantage of being less reliant on interviews, observations, and small number of questionnaires, focus groups, subjective reports and case studies as it places greater focus on collection and analysis of numerical data and statistics.

Given the nature of this study, quantitative research method was suitable as it was less time consuming and the collected data was analysed objective, employing standard statistical tools. (Gravetter and Forzano, 2012)

3.2 Research Design

A cross sectional survey method was used to collect the required data. This is a method where data is collected by observing many subjects at the same point of time, or without regard to differences in time. This method was found to be appropriate as it allows the research to gather information related to self-reported beliefs or behaviours. Further, a cross-sectional study involves looking at people who differ on one key characteristic at one specific point in time. The data is collected at the same time from people who are similar in other characteristics but different in a key factor of interest such as age, income levels, or geographic location. In the instance of this study, all the subjects of the survey are members of retirement funds but may differ in age, level of education, level of income and gender (Neuman, 2000).

Additionally, the survey method enabled the research to sample many respondents who answered the same set of questions to measure a number of variables, test multiple propositions and the hypothesis.

Saunders et al. (2009) advanced the view that descriptive research has the added advantage of flexibility in that the researcher can select the descriptive method based on what is expected to be found, as opposed to opting for a method and then conducting a study. The research focuses on perceived behaviours and perceived notions of the members of retirement funds towards the dimensions of saving for retirement and this survey method is deemed appropriate.

The notable disadvantage is that the researcher may not be able to gain deep insight on the observed phenomenon as respondents in this study were not asked to explain the rating scores they have provided.

3.3 Population and sample

3.3.1 *Population*

For the purpose of this study reliance is made upon Saunders et al. (2009) who defined population as the totality of cases which can form the designated specifications. Therefore, the general population of this study comprised of members of retirement funds who are age 55 years and above, whose retirement fund is a client of Alexander Forbes. The age of the population justifiable using Paradox of thrift which says as one grows one will save more. Further, at age 55 years and above, this population has been in membership of an occupational retirement fund for at least 30 years, assuming workplace entry age of 20 years, and therefore have interacted with the factors that the study seeks to assess.

3.3.2 *Sample and sampling method*

The researcher will use purposive sampling. The advantage of purposive sampling according to (Babbie, 2007), is that the researcher may select the sample based on his/her knowledge of the population and the aim of the research. This is further supported by (Yin, 1994) who points out that this is important as well-informed respondents can provide important insights into a situation.

The survey was a convenience sample of member of retirement funds who have attained at least age 55 years (5 years before retirement). The selection of the respondents was drawn from the Alexander Forbes administration database and the following inclusion criterion was followed:

- Attained age of at least 55 years; for the purposes of the study this is ideal as such members would have on average been members of a retirement fund for a period of 35 years and the same time are approaching retirement age and as such retirement income is a matter of their concern;
- Members of defined contribution funds with investment and contribution choice; this is a requisite as members carry the investment risk and have

latitude to make contribution and investment choices, two of the dimensions of the study;

- All the respondents, except the members of the Alexander Forbes umbrella fund, that were sampled, are projected to retire with a replacement ratio of less than sixty per cent. This is useful for testing the hypothesis and also for convenience as the umbrella fund members can be identified by a common IP address which Qualtrics captures.

According to Hair et al. (2010) the minimum absolute sample size is 50 observations and further, the acceptable minimum is to obtain at least five times as many observations as number of variables to be analysed. The study aimed to obtain at least 150 questionnaire respondents via an online survey ran through Qualtrics by distributing the link to the identified respondents. 1500 requests were distributed by email and 130 responses were received illustrated by table 3 below.

Description of respondent type	**Number sampled**
Projected to retire financially secure (replacement ratio > 60%)	70
Projected to not retire financially secure (replacement ratio < 60%)	60
Total	130

Table 3-1: Profile of respondents

3.4 The research instrument

A closed questionnaire was used by asking restrictive questions to gain demographic information, level of education and income as restrictive questions to present the respondent with a limited number of alternatives to choose from

thereby limiting the possibilities of responses across the dimension being questioned (Grevetter and Forzano, 2012).

The research instrument chosen for this study was a questionnaire with seven sections, namely:

- Section A – which addresses the demographics of the respondent;
- Section B – which addresses the level of monthly income of the respondent;
- Section C – which addresses the level of education of the respondent;
- Section D – which addresses the factors that determines the perceptions of the respondent towards the investment return dimension of saving;
- Section E – which addresses the factors that determine the perception of the respondent towards the preservation dimension of saving;
- Section F – which addresses the factors that determine the perception of the respondent towards the contribution rate dimension of saving; and
- Section G – which addresses the factors that determine the perception of the respondent towards the time of retirement dimension of saving;

Sections D to G addresses the issues explored by the Literature Review which were reduced to ten statements per each of the four dimensions and respondents were asked to rate through a five-point Liker scale.

In addition to the Literature Review, the research instrument was a combination of various empirical evidence.

3.5 Procedure for data collection

The data was gathered through the Qualtrics, a web-based survey tool which is defined in the literature as internet survey. Internet surveys are a cheap and efficient administration method of reaching a large number of participants. (Gravetter and Forzano, 2012).

The link to the website was distributed to a pre-determined, as drawn from the Alexander Forbes administration database, members of retirement funds who are projected not to retire financially secure (replacement ratio of less than sixty-five per cent). The second group was the members of the Alexander

Forbes umbrella fund who are projected to retire financially secure, this second criteria was for convenience purposes to allow the researcher to be able to identify those who are projected to retire financially secure from those who are. Qualtrics assures complete anonymity of the respondents and reveals only the IP address, as members of the Alexander Forbes umbrella fund were asked to respond to the survey from the umbrella fund's portal, their responses display a common IP address which then makes it possible to classify them as members who are projected to retire financially secure.

A disadvantage of this method is that usually individuals who have accessed to internet were likely to be of a particular socio-economic group in particular as the survey targeted individuals of age 55 years and above. This could have exacerbated the bias, in this instance, towards high earners and better educated individuals. This bias does find expression in the study as a majority of the respondents earn more R 40 000 per month and have a university degree and this certainly is not representative of the South African population in general.

3.6 Model specification

The model in this study is the ordered logit model, where there is an observed ordinal variable, Y, which is a function of another variable, Y* an unmeasured latent variable, whose values determine what the observed ordinal variable Y equals (Green.W.H, 2012).

As adopted from Green (2015) to estimate Y* the following model is used;

$$Y^*_i = \sum_{k=1}^{K} \beta_k X_{ki} + \varepsilon_i = Z_i + \varepsilon_i$$

where Y^*_i is the exact but unobserved dependent variable (perhaps the exact level of SAVINGS for retirement); k means the level or category, X_{ki} is the vector of independent variables; β_k is the vector of regression coefficients which we wish to estimate , ε_i is the error term. Therefore, the ordered Logit Model part is distinct as follows:

$$Z_i = \sum_{k=1}^{K} \beta_k X_{ki}$$

This model simply shows how the unobserved dependent variable (Zi) relates with vector of independent variables. This study used ordered logistic regression, with five levels of savings (lowest, low, medium, high and highest) SAVINGS as the dependent variable. 1 = lowest level of savings; 2 = low savings; 3 = medium savings; 4 = high savings and 5 = highest savings. Assuming linearity in parameters and a normal or logit distribution of the error term, the study model to be adopted is specified as follows;

$Savings_i = \beta_0 + \beta_1 Age + \beta_2 Exp + \beta_3 Religion + \beta_4 Inborn + \beta_5 FS + \beta_6 MS + \beta_7 Consume + \beta_8 Sex + \beta_9 Race + \beta_{10} Salary + \beta_{11}$ uncertain + ε_i

Savings= are the levels of savings for retirement (1, 2, 3,4and 5).

Age is the number of full years one possesses

Exp is total expenditure level

Edu is education level of the respondent

MS is the respondent's marital status (1-married, 0-otherwise)

Consume is the respondent's consumption expenditure (1 if >R5000, 0-otherwise)

Sex (1 if male 0 if female)

Salary is the responds estimated monthly income (in categories)

Religion is the religious belief (1-chriastian, 0=otherwise

FS is the family size of number of dependents

Inborn means subscription to the belief that if one has inborn features that result in savings (1-yes, or otherwise)

Uncertain is uncertainty about future health

$\mathcal{E}_i$ is a stochastic error term

3.7 Justification of variables

Education and level of savings

To explain educational level as a factor which affects retirement savings the research takes note of the life cycle model of 1999 by the World Bank Policy, applied to panel of 74 countries around the world, it was found that for each zero point one per cent increase in education stock, the retirement savings rate increased by zero point three-seven (Thomas.F, 2001). However, it took about five years for the positive effect, through income, to compensate for the initial negative impact on savings. This implies that, in the long run, educated employees will reinforce or develop positive attitudes towards retirement savings significantly attributable to changes in income levels. Therefore, we expect education level to improve savings for retirement.

Age and savings for retirement

Age is also an important variable in determining the effective participation in any economic activity. As one gets older so is the need to live a peaceful life that does not need strenuous activities and is less attractive as human capital especially after the retirement age. According to paradox of thrift which says as one grows he intends to save more. Therefore, age is expected to have positive effect of savings for retirement (Morrissey.M, 2016).

Family size and savings for retirement

Family size and number of financial dependents has a negative impact on retirement saving. Common sense entails that as family size and number of financial dependant's increases this negatively affects retirement savings. A deeper analysis of statement goes hand in hand with the findings of Bucks and Spencer (2007) who purports that a lesser number of financial dependents are relatively easy to cater for and will allow the employee to make some retirement savings (Morrissey.M, 2016)

Uncertainty about one's health and retirement saving

We expect the results to show that most employees take into consideration their health status and life expectancy when considering saving for retirement. The findings on the statement uncertainty about one's health status and life expectancy affect retirement savings concurs with findings that uncertainty about nature of one's health status and life expectancy are some of the attributes of attitudes towards retirement savings (Muler.H, 2004). Accordingly, employees who feel that they need some form of long-term care as they grow older have positive attitudes towards retirement savings (Attanasio.O, 1999). It could also be that if one saves for healthcare there are no funds left for retirement savings. As a result, such employees are more likely to save more than employees who feel that their health is good and will not need long-term care.

Consumption Expenditure and level of savings for retirement

The findings on the statement consumption affects retirement saving revealed that increase or rather decrease in consumption have almost equal and opposite characteristics. It seems not obvious that consumption after retirement will be consistent because as we can cite that their level of consumption will not be consistent and will remain changing after retirement. (Helman G, 2004). As individual become unsure of their future they consume more leading to fewer saving not sure about their consumption status after retirement. Accordingly, we would say higher consumption at a given income, reduces savings

Salary and saving for retirement

Many workers or people earning poor remuneration may end up accumulating low retirement savings. This derivatively supports the existence of in born or inherent positive attitudes among employees. Hence there are few years to leave after retirement. The findings from the statement salary range affects retirement savings was supported by Plath and Stevenson (2000) who states that employees who earn high income are more likely to resemble positive attitudes as compared to low income earners.

Religion and savings for investment

In Christianity, the Bible prescribes a differentiation of religious tasks between men and women. The notion of savings appears prominently in religious teachings. Clergymen still refer to the teachings of Paul and the early church fathers to sanction the savings in and out of their churches. This means that if an individual is not a Christian believer more likely to save for retirement than a Christian supposedly because Christian are too cultured to consider their future as god only knows their future as they don't believe in "earthly treasure". There we expect a negative relationship with savings for retirement.

Marital status of and Savings for retirement

A further review on the statement of the marital status data in relation to retirement savings revealed that the majority of married employees have savings for retirement although they are not sufficient enough to provide adequate retirement security. This observation is in line with what was found by Lusardi and Mitchell. In a research on Asset Building Project in Uganda in 2006, a similar case of married couples having greater amounts of retirement savings was noted. There is also a portion of single employees who have little retirement savings and are planning to increase them with time (Lusardi A, 2007). This group lies outside Lursadi and Mitchell theory the asset Building Project in Uganda mentioned above. Conclusively, marital status influences positively attitude towards retirement savings.

Error term (ε)

The error term captures all the effects of the variables not included in the model and has a random effect; it also helps to measure inaccuracies of some measured variables and capturing human indeterminacy.

3.8 Data analysis and interpretation

3.8.1 *Introduction*

Descriptive statistics are various techniques used to describe the basic features of the data in the study and that descriptive statistics provide simple summaries about the sample and the measures. The questionnaire used to gather data in this study is based on ordinal level data.

Correspondence analysis was undertaken to analyse the data, however, as the measures are ordinal as opposed to interval (Bailey, 1987), statistical validity is undermined when the chosen analysis of data, correspondence analysis, is performed as the data will not meet the chosen statistical methods assumption, a numerical scale. (Neuman, 2006 and Gorsuch, 1983). As already discussed, Stacey (2005) has proven that the population parameters such as the mean and the standard deviation are better estimated through utilisation of the normal distribution fitting algorithm as opposed to arithmetic procedures. Therefore, the means discussed throughout the document were estimated through usage of the normal distribution fitting algorithm.

3.8.2 *Correspondence Analysis*

The choice of correspondence analysis as a useful technique for analysing data of questionnaires of studies similar to this one is backed by Ewels (1989), Pratt (1992) and Borman (1993). The following are some of the features which warrant the use of this technique in the study:

- It is one of the few techniques available for the analysis of nominal data which is the nature of raw data in this study;
- It takes into consideration multiple categorical variables simultaneously and can detect structural relationships within variable categories and helps to show how the variable are related;

- The data requirements are flexible and permissible data is easily and quickly obtained. A rectangular matrix with non-negative entries is the only stringent data requirement; and
- Correspondence analysis offers dual displays where row and column geometrics have similar interpretations and this assists in the analysis and identification of relationships.

Mention must also be made that correspondence analysis has a number of disadvantages which were highlighted by Hoffman and Franke (1986) as follows:

- It is a multivariate descriptive technique and is therefore inappropriate for hypothesis testing;
- There remains a question as to how many dimensions must be selected in the analysis of data and despite utilisation of selection criteria, the process is subjective and can impact the interpretation of the data; and
- Different aspects of the same data can be presented in different formats by rotating the axes, which again exacerbates the element of subjectivity.

3.8.3 *Additional use of correspondence analysis results*

In order to isolate appropriate variables for subsequent application to other statistical techniques, Hair et al. (2010) proposed the following three data reduction techniques:

- Select a single variable with the highest correlation which then becomes the best representative for all variables in the dimension;
- Calculate a summated scale where variables with highest correlations are summated; or
- Calculate correlations for each dimension where each variable contributes to the correlation based on its individual correlation.

For the purposes of using correspondence analysis for multiple regression analysis, this study has derived variable correlations and variables that display low correlation are discarded and only those that achieve high correlation level are admitted to further analysis.

3.8.4 *Multivariate linear regression analysis*

Multiple regression analysis is a multivariate statistical technique used to examine the relationship between a single dependent variable and a set of independent variables (Hair et al., 2010).

Hair et al. (2010) forwarded two objective of multiple regression analysis:

- To maximise the overall predictive power of the independent variables as presented in the variety where the variety is formed by estimating regression coefficients of each independent variable so as to be the optimal predictor of the dependent measure; and
- To compare two or more sets of independent variables to ascertain the predictive power of the variety.

In the instance of this study, having isolated the variables with a high correlation to the dimensions of saving for retirement through correspondence analysis, the same variables shall be subject to T tests to determine whether they can predict the dependent variable, which is retiring financially secure.

Saving can be defined as the change in wealth over a certain time period or as the difference between income and consumption (Beverly et al., 2003). It is a complement to consumption, if income and wealth are held constant (Xiao and Olson, 1993). In this research, we used an ordered logit model and for the ordered logit model the researcher generated the saving variable by first subtracting amount consumed from the household heads

Estimated Income. Income in excess of consumption was used in the current study to create a multi levels depended variable; SAVINGS, coded from level 1 to level 5.

3.9 Limitations of the study

This study will be limited to the members of retirement funds that are clients of Alexander Forbes. The findings of this study can only ascertain the financial

security of that population. It will not be possible to abundantly generalize to other members of the funds that are not clients of this organization (Silverman, 1997). It is intended that the study will act as catalyst for more conversations and further research in this field.

3.10 Validity and reliability

Validity in quantitative research refers to the extent to which research design is scientifically sound and appropriately conducted (Struwig and Stead, 2001). In this regard, the researcher used multi-item measures in the scales since they provide considerable advantages over single-item measures (Pirolo and Presutti, 2010). These steps were taken as pre-cautionary measures to obtain validity and reliability

3.10.1 *External validity*

External validity is the extent that study results may be generalised to other situations, and the extent to which the conclusions drawn can be generalised to contexts beyond the immediate study (Yin, 1994). Ghauri and Gronhaug (2010) and Riege (2003) posit that to establish external validity involves answering the question whether findings of a study can be generalised to other populations, settings or periods beyond the current study.

The ability of this study to make generalisations across the population of the South African retirement funds remains limited by the use of convenience sampling methodology, which is confined the population to the members of retirement funds that are clients of Alexander Forbes

3.10.2 *Internal validity*

Campbell and Stanley (1963) define internal validity is defined as the extent to which causality can be inferred. Saunders at al. (2009) posited that internal validity is enhanced by ensuring that there are not extraneous variables during the process of gathering data. To ensure internal validity in this study, the researcher has used the same questionnaire across all the respondents and

basic language was used in constructing the questionnaire to avoid possible equivocations.

3.10.3 *Reliability*

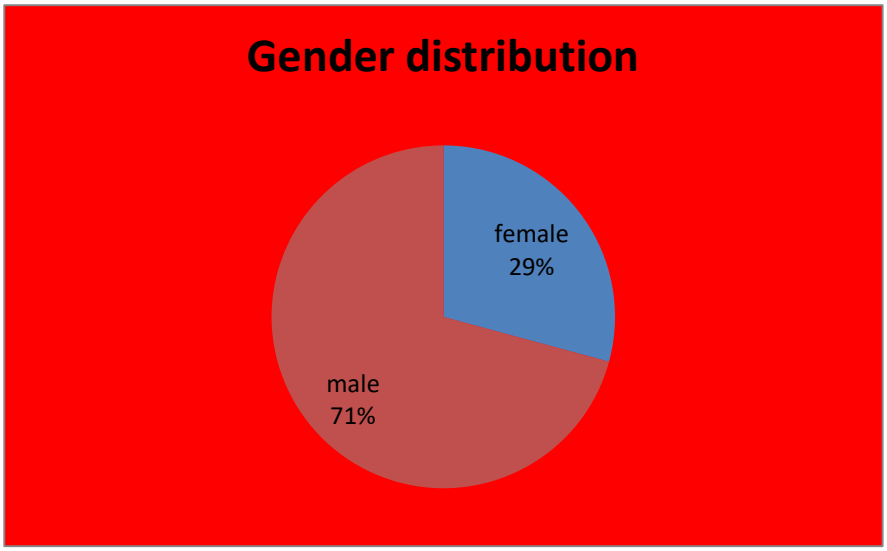
Reliability is concerned with estimates of the degree to which a measurement is free from random error. A measure is said to be reliable to the degree that it produces consistent results (Cooper and Schindler, 2008). The reliability of the study was conducted through test-retest reliability test at the development phase of the questionnaire where a group of respondents was given the survey twice over a three-week period (Blance et al. 2009).

3.11 Demographic profile of respondents

3.11.1 *Gender*

A total of 130 observations were made with regard to gender with the distribution as below:

Figure 1: Gender Distribution



3.11.2 *Race*

A total of 130 observations were made with regards to race distributed as per the below chart:

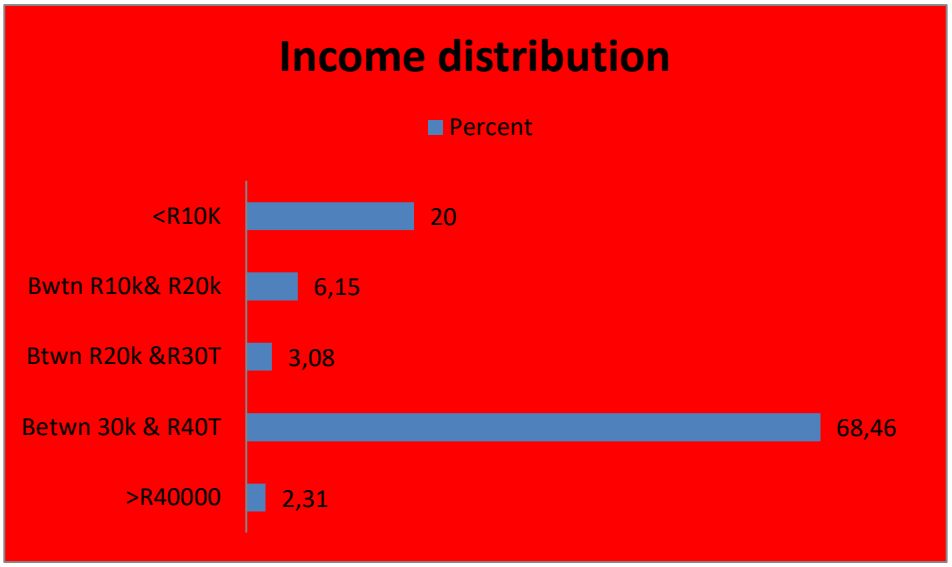
Figure 2: Racial Distribution



3.11.3 *Income*

A total of 130 observations were made with regards to race distributed as per the below graph:

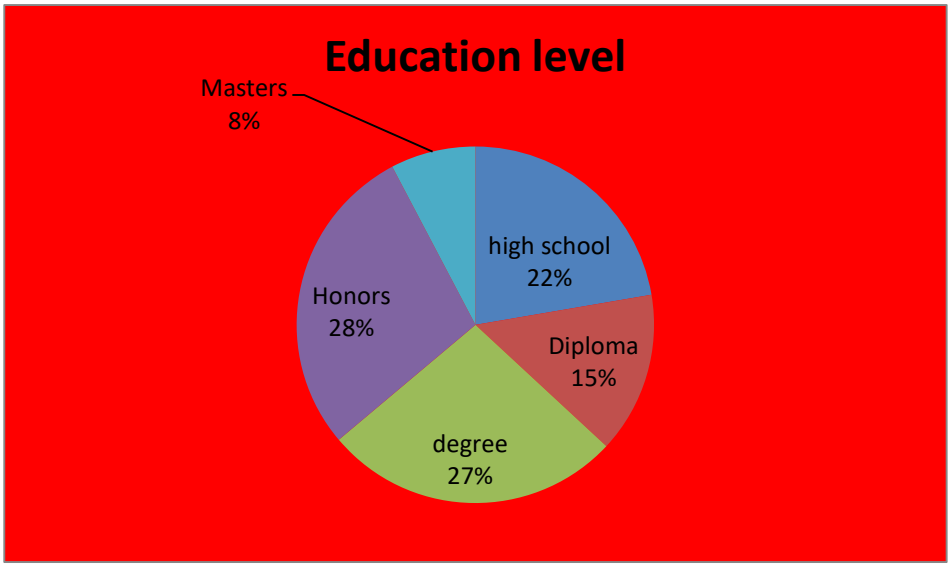
Figure 3: Income distribution



3.11.4 *Education*

A total of 130 observations were made with regards to race distributed as per the chart graph:

Figure 4: Education levels



3.11.5 *Conclusion*

The demographics of the respondents are skewed in favour of better educated and high income earners which are detached from the general South Africa population. This is more particularly the case as seventy-three per cent of the respondents are black which in South Africa represent the least educated group and the least earning group. The demographics of the respondents are to be understood in the context of the population sample having been drawn from the client base of Alexander Forbes, which is positioned at the high end of the market and the internet based method of data collection. The researcher had hoped to obtain more observations from the low income and least educated population.

CHAPTER 4. PRESENTATION OF RESULTS

4.0 Introduction

The previous chapter has presented the distribution of results across gender, race, level of income and level of education. This chapter focuses on research findings estimation, presentation and interpretation. Thus, this chapter will enable us to answer the research questions posed in Chapter 1. Presented are summary of statistics, descriptive statistics, cross tabulation, correlation analysis and regression analysis. Interpretations of results are based on STATA 14 which was used for the estimation of results. The chapter is focused on descriptive information from the respondents in relation to the objectives of the study.

Standardised means were calculated by utilising the normal distribution fitting algorithm and the estimated means pertaining to the scores assigned by the members in relation to the perception of each saving dimensions are presented. The results of the correspondence analysis and multiple regression analysis are presented where propositions and hypothesis made in chapter 2 are tested and conclusions drawn for discussion in chapter 5.

4.1 Descriptive Statistics

4.1.1 *Summary Descriptive statistics*

Next is a summary of statistics which helps us understand better the structure of data and the source of variation in the data for our observations. It is important to note that if we mind about dimension, most variables represent levels or categories of a certain variable.

Variable	Observation	Mean	Standard Deviation	Min	Max

Savings	130	2.838462	1.35145	1	5
age	130	57.54615	5.882719	55	75
Exp	130	2.3	1.236712	0	4
Religion[d]	130	.2923077	.4565824	0	1
Inborn[d]	130	.5461538	.4997913	0	1
fs	130	4.430769	1.888104	1	9
Ms[d]	130	.3923077	.4901535	0	1
Consume[d]	130	.7230769	.4492092	0	1
Sex[d]	130	.7076923	.4565824	0	1
race	130	3.484615	1.398973	1	5
Salary	130	2.730769	1.256231	1	5
Uncertain[d]	130	.5076923	.5018748	0	1
Edu	130	2.846154	1.272619	1	5

Table 4-1: Summary statistics

Source: survey data

There are thirteen variables in the summary table. As shown by the last two columns of minimum and maximum, six variables are dichotomous variables with a reaction 1(for yes) and 0(for no) as shown by a superscript d in the table. Savings for retirement (savings), salary are categorical variables ranging from (1) to (5). Education levels (edu) are a categorical variable. Remaining variables are just continuous variable of the expected responses for the question.

Since we have the majority of dichotomous dummy variables with mean values greater than 0.5 this implies that on average the responses where yes to question asked, for instance if we consider gender most of the respondents where male (1). For categorical variables the mean value for the aforementioned variables seems to be at least 2.5(half of 5) this implies that most of the respondents seem to be in the

middle category of the variable in question. For instance, most people tried to save part of the income that gets as shown by the mean savings for retirement of 2.84.

The most volatile variable which deviates from the mean is age followed by expenditure (exp). Considering variability as measured by Standard deviation (S.D) it seems Consume is the least volatile variable.

4.1.2 Description of Savings for Retirement

Next table presents a scale of the dependent variable (savings for retirement) starting with the lowest level to the highest level of savings

Savings	Freq.	Percent
Very low	34	26.15
Low	14	10.77
Medium	35	26.92
High	33	25.38
Very High	14	10.77

Table 4-2: Saving for retirement explained

The lowest level of savings was termed very low. The category with the highest percentage frequency is medium income/the poor with 26.92% while the lowest saver earners with the least percentage frequency of 10.77%. The very low, and very high saver earners have 26.15% and 10.77% respectively (Full set of results in appendices). The numbers for low and very high the same because this might be explained as if people who save little are fewer but they never outweigh those who saves a lot. The tabulation and the description here show that in this context respondence were to admit being medium saver.

4.1.3 Demographics Descriptive statistics.

To articulate the factors that affect savings for retirement, cross tabulations were extracted to document the demographic relationship. This relate the respondents in

terms of level of education, family size, sex, age, and income or salary levels as indicated in figures next.

Relationship between gender and educations for pensioner

	Female	Males	Total
Secondary	9	20	29
Diploma	0	19	19
Degree	13	22	35
Honours	9	28	37
Masters	7	3	10
Total	38	92	130

Table 4-3: Gender and Education levels

As professed majority of interviewees possesses honours degree. However, women have highest qualification than male counterparts as they have more master's degrees those men. This gives them the capacity to superbly plan for future by practising consumption smoothing.

4.1.4 Relationship between Gender and other variables

Next table produces frequencies and mean as vital descriptive statistics.

sex	Freq.	mean(age)	mean(salary)	mean(edu)	mean(fs)
female	38	58.4737	2.86842	3.13158	4.34211
male	92	59.3043	2.67391	2.72826	4.46739

Table 4-4: Gender and other variables

The mean age of female is 58, for males are 59. The mean for both men and women salary is approximately in the third category that most people surveyed earn between R20000 and R30000.The average education level for both man and women is the third category that is degree level. The average level of family size is 4 members per family.

4.2 Correlation Analysis

In this section, the study tries to expose the nature of relationship among relevant variables. Accordingly, correlation matrix gives proof of the relationship between variables (Gujarati, 2004.pp347). Correlations were derived by assessing the degree of variations in the dependent variable (savings for retirement) to another independent variable. When testing for Multicollinearity using a correlation matrix, the pairwise correlation value of 0.8 and above implies that Multicollinearity is severe between explanatory variables *(Full set of results is in appendix)*.

H_0: There is no severe Multicollinearity; H1: There is severe Multicollinearity

All the correlation coefficients are below 0.8, therefore, we do not reject the null hypothesis and conclude that the model does not suffer from severe Multicollinearity. Hence, we can conclude variables have separate effects on the dependent variable (savings for retirement).

4.3 Heteroscedasticity Test

The researcher used the Breush-Pagan test to test for the presence of Heteroscedasticity. The results were as follows:

P Breush-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of savings

chi2 (1) = 0.52

Prob > chi2 = 0.4688

The null hypothesis of homoscedasticity is that there is constant variance. The results do not reject the null hypothesis indicating that there is no problem of heteroscedasticity.

4.4 Relationship between variables

To see whether there is a relationship between two variables one can choose a number of tests. We can apply to nominal variables or ordinal variables. Next test relationship between savings, education and other variables through Chi-squared tests for relationships between variables. The Null hypothesis (ho) is that there is no relationship.

Variable	Pearson chi2(4)	Probability value(Pr)
Savings and family size	48.3423	0.032
Savings and marital status	24.4690	0.000
Savings and inborn traits	4.8314	0.305

Savings and gender	14.1747	0.007
Savings and race	109.8705	0.000
Savings and Salary	131.6978	0.000
Savings and Uncertainty	54.1249	0.000

Table 4-5: Testing Relationship between Dependent variable and Independent variables

To reject this, we need a Pr<0.05(at 95% confidence). Here both chi2 are significant. Therefore, we conclude that there is a relationship between savings and education-though we are to establish whether it's negative or positive. All other variables have been established that they have a relationship with savings except inborn features as shown by Pr values which are less than 0.05.

4.5 Regression Model

Although the correlation matrix gives proof of the relationship between variables, its shortcoming, is that it does not identify causes from consequences. This therefore means that the researcher was careful in interpreting correlation coefficients. The core analysis was derived from the multiple regression models which is subject of this section

To determine causal effects of the independent variables multiple variables regression analysis was used predict the dependent variable in order to determine which one among them is the most significant explanatory variable.

After testing correlation all the correlation coefficients were below 0.8. Therefore, we concluded that the model does not suffer from severe Multicollinearity. Hence, we also concluded that variables have separate effects on the dependent variable (savings)-Appendix)

The odds ratio here gives the change in odds for a unit increase in a variable under discussion (Predictor). We explain odds ratio for every variable (see appendix)

Education of the respondent (EDU) odds ratio. This reflects what happen if education level increases given that the other variables are not changing (constant). Accordingly, a year increase in education, the odds of high savings levels versus the combined middle and low-savings level categories are 9.1 times greater, given the other variables are held constant in the model. Likewise, for a unit increase in education score, the odds of the combined high and middle savings level versus low savings level are 9.1 times greater, given the other variables are held constant. Therefore, we conclude that education leads increase in savings for retirement. Accordingly, most of those with degrees have retirement savings, while those without degrees do not make significant retirement savings. This might imply that education has a positive impact on the attitude of employees on retirement savings. The findings on educational level as a factor which affects retirement savings concurs with the savings and education life cycle model of 1999 by the World Bank Policy, applied to panel of seventy-four countries around the world, it was found that for each 0.1% increase in education stock, the retirement savings rate increased by 0.37% (Thomas.F, 2001). However, it took about five years for the positive effect, through income, to compensate for the initial negative impact on savings. This implies that, in the long run, educated employees will reinforce or develop positive attitudes towards retirement savings significantly attributable to changes in income levels. However, the theory by contradict to the general findings from the life 1999 education life cycle model when he argues that there is a group among the highly educated, degreed and non-degreed who have negative intrinsic attitudes towards retirement savings and they do not save for retirement (Lusardi A, 2007). Deductively, we can conclude that education is likely to increase retirement funds through knowing the right retirement portfolio to choose and where to invest.

Age of the respondent (AGE) odds ratio: This is the proportional odds ratio for a unit increase in age score on savings level given that the other variables in the model are held constant. For a unit increase in AGE score, the odds of high savings level versus the combined middle and low savings levels are 1.12 times higher, given the other variables are held constant in the model. Likewise, for a unit increase in age score, the

odds of the combined high and middle savings level versus low savings level are 1.12 times higher, given the other variables are held constant. Therefore, we conclude that age leads to increase in savings for retirement. To test for the life cycle hypothesis, we used age as an explanatory variable. The results of the study show that there is a positive and significant relationship between age and saving. Age was found to increase the probability of saving which is in support to the paradox of thrift which asserts that an individual becomes thrifty with age

Sex of the respondent (SEX) odds ratio: This is the proportional odds ratio for a unit increase in sex score on savings level given that the other variables in the model are held constant. For a unit increase in sex score, the odds of high savings level versus the combined middle and low savings level are 0.92 times lower, given the other variables are held constant in the model. Likewise, for a unit increase in sex score, the odds of the combined high and middle savings level versus low savings level are 0.92 times lower, given the other variables are held constant. However, the relationship is found to be insignificant

Salary odds ratio is the proportional odds ratio for a unit increase in salary score on savings level given that the other variables in the model are held constant. For a unit increase in salary score, the odds of high savings level versus the combined middle and low-savings level categories are 28 times greater, given the other variables are held constant in the model. Likewise, for a unit increase in salary score, the odds of the combined high and middle savings level versus low savings level are 28 times greater, given the other variables are held constant. The majority of employees in salary groups have accumulated savings for retirement. The findings from the statement salary range affects retirement savings was supported by Plath and Stevenson (2000) who states that employees who earn high income are more likely to resemble positive attitudes as compared to low income earners. This is because most high-income earners are highly educated and understand the need to safeguard their lives when they retire. Even though some employees earning less have some retirement savings, lower salary ranges, some employees still want to save for retirement. However, the low salary rates negatively affect retirement savings as shown by many employees who have no retirement savings in the low salary ranges. Therefore, we conclude that increase in

salary level leads to increase in savings for retirement as this will lead the retiree to move to higher savings category.

Uncertainty odds ratio is the proportional odds ratio for a unit increase in uncertainty level given that the other variables in the model are held constant. For a unit increase in uncertainty score, the odds of high savings level versus the combined middle and low savings are 10 times higher, given the other variables are held constant in the model. Likewise, for a unit increase in uncertainty score, the odds of the combined high and middle savings versus low savings are 10 times higher, given the other variables are held constant. This shows that most employees take into consideration their health status and life expectancy when considering saving for retirement. The findings on the statement uncertainty about one's health status and life expectancy affect retirement savings concurs with findings of Muller (2004) who states that uncertainty about nature of one's health status and life expectancy are some of the attributes of attitudes towards retirement savings. According to Reifner (2003), employees who feel that they need some form of long-term care as they grow older have positive attitudes towards retirement savings. As a result, such employees are more likely to save more than employees who feel that their health is good and will not need long-term care. In support of the notion, Dummann (2008) cites that bad health is correlated to negative attitudes towards retirement savings. These negative attitudes might be perpetrated by the perception that bad health is correlated to low life expectancy. Hence there are few years to leave after retirement. Therefore, we conclude that increase uncertainty about one's healthy savings will likely lead to increase in savings for retirement for consumption smoothing, reduction in shocks and vulnerability.

Consumption expenditure odds ratio is the proportional odds ratio for a unit increase in consumption-score on saving level given that the other variables in the model are held constant. For a unit increase in consumption score, the odds of savings versus the combined middle and low savings are 0.40 times lower, given the other variables are held constant in the model. Likewise, for a one unit increase in consumption score, the odds of the combined high and middle savings versus low savings are 0.40 times lower, given the other variables are held constant. Therefore, we conclude that increase in consumption expenditure will thwart efforts to increase savings for retirement.

4.6 Marginal effects of predictors on savings for retirement

Marginal effects (mfx) show the probability of a change in the dependent variable brought about by a change in the explanatory variable. Table 18 shows the summary results obtained from Stata software package.

	Marginal effects very low	Marginal effects Low	Marginal effects moderate	Marginal effects high savings	Marginal effects Very high	Marginal effects total
Education	-0.02	-0.05	-0.38	0.45	0.00	0
AGE	-0.001	-0.003	-0.021	0.025	-0.001	0
Consume	0.01	0.02	0.19	-0.20	0.00	0
Salary	-0.028	-0.080	-0.577	0.685	0.000	0
Uncertainty	-0.025	-0.067	-0.363	0.4550	0.001	0
Race	0.01	0.02	0.14	-0.17	-0.01	0

Table 4-6: Marginal effects (Mfx) of Savings for retirement from change in the predictor

(*)-means marginal effects of dichotomous variable (1/0) or dummy variable

Education level mfx shows that if one educated, he/she will be 2% less likely to be in the very low savings category, 5% less likely to be in the low savings category, 38% less likely to be in the medium savings category, and 45% more likely to be in the high level of savings category. This implies that educated pensioners are more likely to save more for their retirement.

Uncertainty about future health mfx is that if someone being uncertain, she/he will be 2% less likely to be in the very low savings levels, 7% less likely to be in the low savings category, 36% less likely to be in the medium savings category, and 46% more likely to be in the higher savings. This therefore implies that uncertainty about one's health will result in higher savings

Consumption expenditure mfx are interpreted if one increases current consumption will be associated with being 1% more likely to be in the very low or low savings category, 19% more likely to be in the medium category, Therefore, if one consumes more this will lead to lower savings for retirement

AGE mfx is that as one gets older he/she will be 1% less likely to be in the lowest savings category, 3% less likely to be in the low savings category, and 20% less likely to be in the medium savings category, and 25% likely to be in the very high savings category. Accordingly, people of old age save more.

Salary and or Income mfx are interpreted as one unit increase in salary is associated with being nearly 3% Less likely to be in the very low savings category, 8% Less likely to be in the low savings category, 6% less likely to be in the medium savings category and 69% more likely to be in the high savings category entailing that well salaried pensioners are associated with good savings.

4.7 Summary of the results

This chapter gave the estimations, presentation and analysis of results. Consumption expenditure, age, education level, salary or income and uncertainty about one's healthy and race where found to be vital components that explain variation in savings for retirement. However, an insignificant portion of high-income earners have no retirement savings citing unexpected obligations, extended family commitments, intrinsic negative attitudes and unstable economic environment as other detrimental factors. Most of these employees cited macroeconomic pressures and current needs among other factors to be holding them from pursuing their retirement plans. This is in line with the findings of authors who postulate that some employees do not save for retirement due to fear of losing their savings to economic uncertainties. The findings on the statement consumption affects retirement saving revealed that increase in consumption have almost equal and opposite characteristics. The research findings show that there are lot of factors which influence retirement savings. The following features were found to influence employees' attitudes towards retirement savings. Uncertainty about one's health status and life expectancy, age, consumption level, Salary range and Level of education. It was deduced that salary combined with good education levels has good explanatory capacity based on significance. Okay

Overall, considering significant relationships education, age, salary levels and uncertainty about one's health will lead to higher savings for retirement. On the other hand, consumption expenditure is the only variable that significantly reduces savings for retirement. The next chapter summarises the whole research, gives policy recommendations derived entirely on the study findings and also suggestions of areas for further study.

CHAPTER 5: DISCUSSION OF THE RESULTS

5.0 Introduction

The previous chapter provided the analysis and discussion of the primary data collected from the sampled population using mainly descriptive and regression analysis. This chapter delivers summary of key findings regarding factors that affect savings for retirement. This chapter briefly compares the research findings with the theoretical literature and other few empirical findings on the relationship retirement savings and other explanatory variables. Given this indication, it is essential to look and discuss key findings from this study. Post the discussion on the findings from the study, the researcher will give a conclusion of the discussion of such findings.

5.1 Discussion of results

This section discusses explicitly the results. Consumption expenditure, age, education level, salary or income and uncertainty about one's healthy and race where found to be vital components that explain variation in savings for retirement. The following features were found to influence employees' attitudes towards retirement savings. In sum this includes uncertainty on health status, age, consumption level, salary range and level of education. It was deduced that salary combined with good education levels has good explanatory capacity based on significance. Overall, considering significant relationships education, age, salary levels and uncertainty about one's health will lead to higher savings for retirement. On the other hand, consumption expenditure is the only variable that significantly reduces savings for retirement. The next paragraph discusses these findings. All the correlation coefficients are below 0.8; therefore, we conclude that the model does not suffer from severe multicollinearity. Hence, we have concluded that variables have separate effects on the dependent variable (savings for retirement)

Accordingly, the core analysis was derived from the multiple regression models. We have established the relationship between variables through odds ratio and

marginal effects. Where odds ratio gives the change in odds for a unit increase in a variable under discussion (Predictor). We explain odds ratio for every variable. On other hand marginal effects gave the probability of an increase or decrease in retirement savings as a result of a change in any other factor.

Savings for retirement and Education level

A unit increase in education score will increase the likelihood of one saving for retirement. This might imply that education has a positive impact on the attitude of employees on retirement savings. In other words, if one is educated he/she will be more likely to be in the high level of savings category. This implies that educated members have been found to be more likely to have saved more for their retirement and thus more likely to retire financially secure. The findings on educational level as a factor which affects retirement savings concurs with the savings and education life cycle model of 1999 by the World Bank Policy, applied to panel of 74 countries around the world, it was found that for each 0.1% increase in education stock, the retirement savings rate increased by 0.37%.

Furthermore, those with higher education were found to be more financially prepared psychologically for their retirement, because of their exposures to wider scope of life experiences and higher level of education, which had given them the advantage to start early in life-cycle financial planning. These revelations are also clearly reflected in other research findings on (i) financial education (Bernheim and Garrett, 1996; Garman and Leech, 1997; Folk et al., 2012). However, mental preparation towards financial planning may not necessarily translate into an actual implementation of a financial plan.

Savings for retirement and age

It was also observed that as one gets older, he/she will be less likely to be more likely to be in the very high savings category. Specifically, people of old age save more. In other words, for a unit increase in age score, the odds of high savings level versus the combined middle and low savings levels are 1.12 times higher, given the other variables are held constant. Therefore, we conclude with no doubt that age leads to increase in savings for retirement. Accordingly, age

was found to increase the probability of saving which is in support to the paradox of thrift which asserts that an individual becomes thrifty with age. Further, it is expected, that individuals of age 55 years would ordinarily have paid off their bond mortgage, paid off their vehicles and their children independent or semi-independent which releases reserves, which are available for savings, from their income.

Savings for retirement and salary level

Salary was also established to have a positive impact on savings for retirement as retirement contributions are deducted as a percentage of remuneration. If therefore follows that high-income earners' contributions towards retirement as a percentage of salary will yield a proportionally high net saving as a rand amount. Closely aligned to this observation is that tax concessions to encourage savings, though capped, are expressed as a percentage of remuneration and therefore the higher the rand amount, the higher the concession. It therefore can be concluded that high income earners are more likely to be in the high savings category entailing that well salaried members of occupational retirement funds are associated with good savings. The findings from the statement salary range affects retirement savings was supported by Plath and Stevenson (2000) who stated that employees who earn high income are more likely to resemble positive attitudes as compared to low income earners. This is because most high-income earners are highly educated and understand the need to safeguard their lives when they retire. Even though some employees earning less have some retirement savings, lower salary ranges, some employees still want to save for retirement. It stands to reason that faced with the same cost structure, higher income earners are likely to realise surplus than lower income earners and saving as a concept is directly related to the amount of available surplus.

Savings and Uncertainty

It was observed that most employees take into consideration their health status and life expectancy when considering saving for retirement. Accordingly, uncertainty about one's health status and life expectancy affect the attitude

towards saving for retirement since if someone is being uncertain she/he will be more likely to be in the higher savings category. It therefore implies that uncertainty about one's health will result in higher savings. Therefore, we conclude that employees who are faced with ill health or perceived uncertainty about their health, during the period of their working life, will likely increase their savings for retirement. This therefore concurs with findings of Muller (2004) who states that uncertainty about nature of one's health status and life expectancy are some of the attributes of attitudes towards retirement savings. This also concurs with Reifner (2003) who said that employees who feel that they need some form of long-term care as they grow older have positive attitudes towards retirement savings. As a result, such employees are more likely to save more than employees who feel that their health is good and will not need long-term care. In the South African context this is supported by a much simpler analysis being that when employees retire, they cease to be members of the occupational medical aid schemes and for the first time in over 35 years, in the instance of inadequate savings, are faced with the harsh reality of the public healthcare system.

Savings for retirement and Consumption level

Furthermore, consumption expenditure has a linear but inverse relationship with the propensity to save. Therefore, the increase in individual current consumption will be associated with being more likely to be in the low savings category. Current consumption whilst it might secure instant gratification, unlike current long terms saving, it foregoes the magic of compound interest which magnifies long term saving returns. Therefore, if one opts to consume today rather than save, he will have lower savings for retirement. In the context of saving for retirement, consumption talks to lack of preservation whenever an employee will change from one employer to another and thus be presented with an option in cash out their savings as a lump sum payment. Where preservation is not chosen, such an employee will forego compound interest and be subject to taxation rates of almost 50 percent of their lump sum disbursement. It is thus observed that a unit increase in the consumption score, the probabilities of realising the combined high and middle savings diminish by 40% with all the

other variables held constant. Therefore, we conclude that the increase in the consumption expenditure is inversely related to the to the increase savings for retirement.

5.2 Conclusion

Consumption expenditure, age, education level, salary or income and uncertainty about one's health and race explain variation in savings for retirement. The research findings discussions show that there are lot of factors which influence retirement savings. The following factors were found to statistically influence employees' attitudes towards retirement savings. These include uncertainty about health status (+), age (+), consumption level (-), salary range (+) and level of education (+). It was deduced that salary combined with good education levels has good explanatory capacity based on significance. Overall, considering significant relationships education, age, salary levels and uncertainty about one's health will lead to higher savings for retirement. On the other hand, consumption expenditure is the only variable that significantly reduces savings for retirement. The next chapter gives policy recommendations derived entirely on the study findings and also suggestions of areas for further study.

CHAPTER 6: CONCLUSIONS & RECOMMENDATIONS

6.1 Introduction

While giving suggestion for future studies, this chapter also offers conclusions and recommendations based on the key findings. This chapter rephrases findings and conclusions with regards to the research, with reference to the context specified at the beginning and any differences with other published research that may have become obvious. It then goes on to provide recommendations to each of the stakeholders based on the outcome of the research. Importantly this chapter make suggestions for further research – these have occurred as the researcher was writing up the research.

6.2 Conclusions of the study

The study reveals some demographic characteristics as significantly related with various personal retirement savings. For example, respondents' personal income explains a significant variance of the retirement funds and personal income. Furthermore, personal income positively affects personal financial wellbeing.

The study also reveals age as positively related with retirement savings whereas older respondents 55 years or above will have more reserve funds. Whereas the reserves might have been accumulating over 35 years of contributions, over the same period these members would have interacted with the factors that are being assessed by this study. Additionally, the study shows close relationships between respondents' financial preparedness and their age, education level, and investing habits. Hence, with increasing age, they will have a better understanding of their cost of living and retirement expense requirements, thereby enabling them to gauge at what stage of their lives they will achieve financial readiness for retirement.

Are financially literate employees more prepared for retirement were a descriptive and econometric approach which considered the individual heterogeneity was adopted? The objective was to understand which variable authorities and other economic agents would need to target in order to promote retirement savings culture. Savings for retirement was determined by age, education level, religion, and income and consumption expenditure. From empirical results household size family size, marital status to the researchers' surprise dint significantly affects savings for retirement. The research findings show that there are sizable factors which influence retirement savings.

To be able to retire from active employment, people must have sufficient income to support them during the post-retirement period. Retirement income in South Africa comes from a combination of pension income (for civil service workers and members of the armed forces), and in the case of employees in the private sector contributions, personal savings and investments, and support from family members. Several studies of people nearing retirement (in their fifties and early sixties) have found that their savings levels are insufficient and are not in congruent with their expected retirement age (Bernheim, 1992; Lusardi, 1999). In many Asian countries, the commitment to familial support of the elderly has been found waning. In Japan, South Korea, and Taiwan, the percentage of elderly living with their children has declined substantially in recent years (Feeney and Mason, 2001). To ensure financial security in their post-retirement period, it is critical that Malaysians plan for their own financial retirement needs. Ultimately, it is the responsibility of the individual to prepare for his or her own retirement.

6.3 Recommendations

6.3.1 Policy Recommendations

The researcher recommends the following policies; and this is in line with the research findings drawn from this empirical qualitative study.

Insurance companies

Moreover, it is recommended that investment and insurance companies play a greater role in informing individuals of the types of options they offer and go a little further by alluding to the options most suitable for various segment groups. Another important recommendation for practitioners is the need to educate persons about the importance of having a pension that is adequate to meet their post-retirement needs, especially among those who are in the low-income bracketsThere is an urgent need to address the concerns about rising healthcare costs, long term care costs, prescription drugs and other medical expenses, etc. attributable to these demographic changes. Failure to address the health needs of the elderly population could post a costly problem for both the retirees and immediate family members. Apart from financing post-retirement consumption, the biggest risk in financial planning for retirement is the risk of ill health and the escalating healthcare costs. Many retirees have stated that the unpredictability of personal health is the biggest risk in retirement planning. Financial planning for post-retirement therefore should include provisions for lifetime healthcare coverage to provide for medical expenses during retirement and long-term care. Retirement planning should cover for medical insurance and providing investments for old age care. However, escalating healthcare costs make it increasingly difficult for individual to finance their own medical costs. Insurance companies should provide other alternative Medicare of the population to benefit. These include the Medicare Program to cover the low-income workers' medical expenses (which may not be adequately covered by government medical aids).

Workers

Workers should take additional effort and methods to improve the retirement planning in private sector. In the first place, since salary is the most significant factor affecting compulsory retirement savings, government or the regulatory authorities (Reserve Bank and the Financial Sector Conduct Authority) must create awareness among the workers so that they are able to improve their saving behaviour and thus improving their retirement planning. Workers also should take more proactive action to improve their personal saving behaviour. They should properly plan for their spending and saving so that they are able to

save more for their retirement. Besides that, financial education regarding retirement saving planning should be taught to the workers to improve their financial literacy. Therefore, when workers are more exposed to the financial education, they will be more aware regarding the importance of retirement savings and thus they will immediately start to plan for their retirement so that they can retire financially secure.

Organized labour or unions together with capital need to learn that retirement funds are not a safety valve that can be used to ease up tensions whenever they are unable to agree. For example, in 1996, Anglo American agreed with organized labour after a protracted strike that to alleviate the resultant financial distress among the workforce, all employees' employment contract would be officially terminated only to be rehired a day later and this enabled wholesale lump sum disbursements of retirement savings. In one fell swoop years of savings were destroyed. The logic is simple enough, an average member of a retirement fund contributes fifteen per cent of their income towards retirement savings, if contributed consistently over 40 years, all else equal only sixty-five per cent of income at the date of retirement can be replaced into retirement until death. Workers through their unions must bargain for higher contributions towards retirement, say at least thirty percent of their gross income must be directed towards saving for retirement, however for this to be possible, the state must perform. For example, middle class income earners in South Africa pay for private security, private education and private healthcare but they still pay taxes to the state!

Government

Government through the regulatory may roll out awareness campaigns, tax concessions and even punitive taxation regimes but the solutions does not lie in legislative instruments. This of course is no argument to suggest the above measures will not help, but to the contrary it's an acknowledgement that they have helped to this point and cannot take the country any further! Analysis of the double taxation that the citizen is subject to through private education, private security and private healthcare is incredible. This study told us about the role played by the level of education, uncertainty (health and I suggest security

from bodily harm as well), coincidentally, these are the very same areas where the state is consistently failing the citizen to the point of vexation! Security as a concept could also be extended to include the security of the financial institutions in which the citizen is encouraged to invest not just his money but also his faith. Whereas the South African retirement fund industry is one of the most advanced globally, it cannot survive unscathed the malfeasance which eats not only into the industry but the national body politic itself which in turn negates the sustenance of the key factors as identified by this study.

Employers

A key recommendation for practitioners which is derived from findings above is that employers should do more in educating their employees on different aspects of their pensions and in areas of financial management such as retirement planning, credit management, and budgeting and salary management. Employers should train employees to positively improve attitudes towards retirement savings. This will do through sponsoring uneducated employees to acquire necessary knowledge to motivate them to save for retirement. This can be done through quarterly or semi-annual seminars and conference organised for every employee to attend as mandatory and sign confirmation of attendance. This will improve quality of education and positively impact on retirement savings.

Other related policy recommendations include:

Among the possible policy measures to curb the rising household consumption and debts are:

(1) The imposition of more stringent Loan-to-value ratios by banks and financial institutions for mortgage loans to finance home purchases;

(2) Fixing higher minimum income requirement for eligibility to apply for credit cards and personal loans; and

(3) Limiting the maximum credit limit on credit cards as well as the number of credit cards to be issued to an individual.

Private Investors

It is therefore timely that the government approved the establishment of private retirement schemes to facilitate voluntary savings for retirement and complement the mandatory savings for the benefit of private sector employees and the self-employed. Private pension schemes are becoming an increasingly important source of retirement income in many countries such as the United Kingdom, the United States, Latin America and Western Europe; this has spurred the growing trend towards greater privatization of retirement income worldwide. Private pensions can complement the current system by providing various options to the public to supplement their current retirement funding. There are a number of potential providers to supply private pension schemes to the public, and these could include banks, insurance companies, asset managers and other specialist providers. In addition to strengthening retirement protection and old age security, this will also go a long way to help the country to strengthen the depth of the domestic financial and capital markets.

6.4Suggestions for further research

Firstly, future researchers can conduct research about retirement savings in the private sector in different areas and not only for Alexander Forbes. Then, they can analyse the data collected from the different areas and this will allow the future researchers to get a better interpretation about the retirement savings in South Africa. Besides that, this will allow them to precisely determine the factors of retirement savings in different regions. Next, future researchers can increase the sample size of the research. A larger sample size will allow them to get a better understanding about the factors affecting retirement savings in private sector. This will also allow future researcher to do better data cleaning and improve their analysis. Besides that, the researchers should interpret the questionnaires into various languages. South Africa is a multi-cultural country with varied languages. Therefore, in the future to improve the comfort of the respondents, the researcher can interpret the questionnaire in English, Vendor, Zulu and Africans as well as French. Moreover, researchers should also perform other test such as normality tests in determining whether the data is

normally distributed or not. If the data is not normally distributed, then they should use non-parametric testing methods such as Friedman test, Kruskal-and Wallis Mann-Whitney test, among others. Additionally, the Spearman or Partial Correlation should be used to generate more accurate findings rather than Pearson Correlation when the data is not normal. The empirical research was solely ordinal and for future studies, the researcher suggests that a balance of nominal and ordinal variables can be employed to explicitly articulate more exact findings. This is so since this research was done on categorical variables basis. Apart from that, future researches can be narrowed to a specific industry.

Lastly, the researcher also recommends future studies they can be done over a long period to ensure that more findings can be unearthed.

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APPENDIX A: Data Set Description

variable name	storage type	display format	value label	variable label
edu	byte	%8.0g		education level
savings	byte	%8.0g		level of savings(very low -very high)
age	byte	%8.0g		Age of the respondent(in years)
exp	byte	%8.0g		Total expenditure
religion	byte	%8.0g		religious belief
inborn	byte	%8.0g		inborn features
fs	byte	%8.0g		Family Size(number)
ms	byte	%8.0g		Marital status
consume	byte	%8.0g		Consumption Expenditure
sex	byte	%8.0g		Gender of the respondent
race	byte	%8.0g		Racial belonging
salary	byte	%8.0g		Salary level
uncertain	byte	%8.0g		Uncertainity about one's health

religion — religious belief

```
                 type:  numeric (byte)

                range:  [0,1]                        units:  1
        unique values:  2                    missing .:  0/130

           tabulation:  Freq.  Value
                           92  0
                           38  1
```

inborn — inborn features

```
                 type:  numeric (byte)

                range:  [0,1]                        units:  1
        unique values:  2                    missing .:  0/130

           tabulation:  Freq.  Value
                           59  0
                           71  1
```

fs — Family Size(number)

```
                 type:  numeric (byte)

                range:  [1,9]                        units:  1
        unique values:  9                    missing .:  0/130

           tabulation:  Freq.  Value
                            6  1
                           17  2
                            5  3
                           48  4
                           32  5
                            4  6
                            6  7
                            5  8
                            7  9
```

```
edu                                                   education level
-------------------------------------------------------------------------------

                 type:  numeric (byte)

                range:  [1,5]                        units:  1
        unique values:  5                    missing .:  0/130

           tabulation:  Freq.  Value
                          29  1
                          19  2
                          35  3
                          37  4
                          10  5

-------------------------------------------------------------------------------
savings                              level of savings(very low -very high)
-------------------------------------------------------------------------------

                 type:  numeric (byte)

                range:  [1,5]                        units:  1
        unique values:  5                    missing .:  0/130

           tabulation:  Freq.  Value
                          34  1
                          14  2
                          35  3
                          33  4
                          14  5

-------------------------------------------------------------------------------
age                                     Age of the respondent(in years)
-------------------------------------------------------------------------------

                 type:  numeric (byte)

                range:  [55,75]                      units:  1
        unique values:  16                   missing .:  0/130

                 mean:   59.0615
            std. dev:   4.76706

          percentiles:        10%       25%       50%       75%       90%
                               55        56        57        59        67

-------------------------------------------------------------------------------------------------------------------------------
exp                                                                                                   Total expenditure
-------------------------------------------------------------------------------------------------------------------------------

                 type:  numeric (byte)

                range:  [0,4]                        units:  1
        unique values:  5                    missing .:  0/130

           tabulation:  Freq.  Value
                          13  0
                          18  1
                          44  2
                          27  3
                          28  4
```

ms — Marital status

```
                type:  numeric (byte)

               range:  [0,1]                        units:  1
        unique values:  2                       missing .:  0/130

           tabulation:  Freq.  Value
                          79  0
                          51  1
```

consume — Consumption Expenditure

```
                type:  numeric (byte)

               range:  [0,1]                        units:  1
        unique values:  2                       missing .:  0/130

           tabulation:  Freq.  Value
                          36  0
                          94  1
```

sex — Gender of the respondent

```
                type:  numeric (byte)

               range:  [0,1]                        units:  1
        unique values:  2                       missing .:  0/130

           tabulation:  Freq.  Value
                          38  0
                          92  1
```

race — Racial belonging

```
                type:  numeric (byte)

               range:  [1,5]                        units:  1
        unique values:  5                       missing .:  0/130

           tabulation:  Freq.  Value
                          11  1
                          28  2
                          27  3
                          15  4
                          49  5
```

salary — Salary level

```
                type:  numeric (byte)

               range:  [1,5]                        units:  1
        unique values:  5                       missing .:  0/130

           tabulation:  Freq.  Value
                           3  1
                          89  2
                           4  3
                           8  4
                          26  5
```

uncertain — Uncertainity about one's health

```
                type:  numeric (byte)

               range:  [0,1]                        units:  1
        unique values:  2                       missing .:  0/130

           tabulation:  Freq.  Value
                          64  0
                          66  1
```

APPENDICE B: QUANTITATIVE ANALYSIS

Appendix B1: Tabulation of SAVINGS for retirement levels

```
. tab savings
```

savings	Freq.	Percent	Cum.
1	34	26.15	26.15
2	14	10.77	36.92
3	35	26.92	63.85
4	33	25.38	89.23
5	14	10.77	100.00
Total	130	100.00	

Appendix B2: Multicollinearity

```
. correlate age exp religion inborn fs ms consume sex race salary uncertain
(obs=130)
```

	age	exp	religion	inborn	fs	ms	consume	sex	race	salary	uncert~n
age	1.0000										
exp	-0.2486	1.0000									
religion	-0.1003	-0.0329	1.0000								
inborn	-0.1128	-0.1793	-0.0256	1.0000							
fs	0.2299	-0.0956	-0.1202	0.0034	1.0000						
ms	-0.0184	-0.1445	0.0032	0.5742	-0.1338	1.0000					
consume	-0.0215	0.1228	0.0954	-0.1498	-0.0045	-0.1365	1.0000				
sex	0.1292	-0.1318	-0.1076	-0.0763	0.0303	0.0661	0.0936	1.0000			
race	0.0731	0.0721	-0.0293	-0.0156	0.0788	-0.3359	-0.0192	-0.1770	1.0000		
salary	0.0400	0.0674	-0.1185	-0.0233	0.1506	-0.4188	0.0729	-0.0707	0.6879	1.0000	
uncertain	0.0934	0.1258	0.0858	-0.0646	0.0152	-0.3273	-0.0587	-0.1202	0.6704	0.4970	1.0000

Appendix B3: Hetescedaticity test

```
. hettest

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

         chi2(1)      =     0.55
         Prob > chi2  =   0.4584
```

APPENDIX B4: Regression model

Ordered logistic regression — Number of obs = 130; LR chi2(12) = 229.50; Prob > chi2 = 0.0000; Log likelihood = -84.417608; Pseudo R2 = 0.5761

savings	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
edu	2.208358	.343586	6.43	0.000	1.534942	2.881774
age	.1196119	.0428476	2.79	0.005	.0356322	.2035916
exp	.0558213	.1822417	0.31	0.759	-.3013659	.4130085
religion	-.3855275	.5133111	-0.75	0.453	-1.391599	.6205438
inborn	-.0965068	.6227631	-0.15	0.877	-1.3171	1.124086
fs	-.0970921	.121585	-0.80	0.425	-.3353943	.1412101
ms	-.1734389	.6708469	-0.26	0.796	-1.488275	1.141397
consume	-.9276742	.4935368	-1.88	0.060	-1.894989	.0396401
sex	-.1061627	.5351836	-0.20	0.843	-1.155103	.9427779
race	-.8086724	.3872807	-2.09	0.037	-1.567729	-.0496161
salary	3.332905	1.043918	3.19	0.001	1.286863	5.378947
uncertain	2.356724	1.026935	2.29	0.022	.3439685	4.36948
/cut1	14.60354	3.442018			7.857304	21.34977
/cut2	16.00273	3.463789			9.213831	22.79164

APPENDIX B5: Odds Ratios

Ordered logistic regression — Number of obs = 130; LR chi2(12) = 229.50; Prob > chi2 = 0.0000; Log likelihood = -84.417608; Pseudo R2 = 0.5761

savings	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
edu	9.100761	3.126894	6.43	0.000	4.641056	17.84591
age	1.127059	.0482918	2.79	0.005	1.036275	1.225797
exp	1.057409	.192704	0.31	0.759	.7398071	1.511358
religion	.6800918	.3490987	-0.75	0.453	.2486774	1.859939
inborn	.9080037	.5654712	-0.15	0.877	.2679111	3.077404
fs	.9074724	.110335	-0.80	0.425	.7150561	1.151667
ms	.8407685	.5640269	-0.26	0.796	.2257618	3.131139
consume	.3954724	.1951802	-1.88	0.060	.1503201	1.040436
sex	.8992783	.481279	-0.20	0.843	.315025	2.567103
race	.4454491	.1725138	-2.09	0.037	.2085183	.9515946
salary	28.01961	29.25018	3.19	0.001	3.621407	216.7938
uncertain	10.55631	10.84065	2.29	0.022	1.410534	79.00251
/cut1	14.60354	3.442018			7.857304	21.34977
/cut2	16.00273	3.463789			9.213831	22.79164

APPENDIX B6::Marginal Effects of different Outcomes/levels

```
. mfx, predict(outcome(1))

Marginal effects after ologit
      y  = Pr(savings==1) (predict, outcome(1))
         =  .00846083
```

variable	dy/dx	Std. Err.	z	P>|z|	[	95% C.I.	]	X
edu	-.0185264	.01518	-1.22	0.222	-.048285		.011232	2.84615
age	-.0010035	.00089	-1.13	0.260	-.002748		.000741	57.5462
exp	-.0004683	.00159	-0.29	0.768	-.003584		.002647	2.3
religion*	.0035195	.00606	0.58	0.562	-.008363		.015402	.292308
inborn*	.0008064	.00523	0.15	0.877	-.009435		.011047	.546154
fs	.0008145	.00121	0.67	0.500	-.001553		.003183	4.43077
ms*	.0014837	.006	0.25	0.805	-.010282		.01325	.392308
consume*	.006568	.00616	1.07	0.286	-.005505		.018641	.723077
sex*	.0008719	.00437	0.20	0.842	-.00769		.009434	.707692
race	.0067841	.0064	1.06	0.289	-.00576		.019328	3.48462
salary	-.0279605	.01683	-1.66	0.097	-.06094		.005019	2.73077
uncert~n*	-.024789	.02464	-1.01	0.314	-.073074		.023496	.507692

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

```
. mfx, predict(outcome(2))

Marginal effects after ologit
      y  = Pr(savings==2) (predict, outcome(2))
         =  .02495902
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
edu	-.0528101	.04085	-1.29	0.196	-.132871	.02725	2.84615
age	-.0028604	.00235	-1.22	0.223	-.007459	.001738	57.5462
exp	-.0013349	.00449	-0.30	0.766	-.010129	.007459	2.3
religion*	.0099633	.01665	0.60	0.550	-.022667	.042594	.292308
inborn*	.0022991	.01487	0.15	0.877	-.026843	.031441	.546154
fs	.0023218	.00339	0.68	0.494	-.004332	.008976	4.43077
ms*	.004223	.01703	0.25	0.804	-.029155	.037601	.392308
consume*	.0188504	.01669	1.13	0.259	-.013866	.051567	.723077
sex*	.0024888	.01241	0.20	0.841	-.021843	.026821	.707692
race	.0193384	.01708	1.13	0.258	-.014138	.052815	3.48462
salary	-.0797022	.04134	-1.93	0.054	-.160726	.001321	2.73077
uncert~n*	-.0671405	.05959	-1.13	0.260	-.183939	.049658	.507692

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

```
. mfx, predict(outcome(3))

Marginal effects after ologit
      y  = Pr(savings==3) (predict, outcome(3))
         =  .67741208
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
edu	-.3825913	.20501	-1.87	0.062	-.784412	.019229	2.84615
age	-.0207224	.01287	-1.61	0.107	-.04594	.004495	57.5462
exp	-.0096709	.03194	-0.30	0.762	-.072271	.052929	2.3
religion*	.0629411	.08385	0.75	0.453	-.101398	.22728	.292308
inborn*	.0167669	.10878	0.15	0.878	-.196446	.22998	.546154
fs	.0168209	.02327	0.72	0.470	-.028788	.06243	4.43077
ms*	.0296515	.1136	0.26	0.794	-.192999	.252301	.392308
consume*	.1783312	.12134	1.47	0.142	-.059495	.416158	.723077
sex*	.0186601	.09585	0.19	0.846	-.169207	.206527	.707692
race	.1401	.09986	1.40	0.161	-.055622	.335822	3.48462
salary	-.5774155	.47395	-1.22	0.223	-1.50634	.351505	2.73077
uncert~n*	-.3634106	.21043	-1.73	0.084	-.775844	.049023	.507692

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

```
. mfx, predict(outcome(4))

Marginal effects after ologit
      y  = Pr(savings==4) (predict, outcome(4))
         =  .28912822
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
edu	.4538398	.16335	2.78	0.005	.133677	.774002	2.84615
age	.0245814	.01168	2.10	0.035	.001687	.047476	57.5462
exp	.0114718	.03765	0.30	0.761	-.062311	.085255	2.3
religion*	-.0764096	.09972	-0.77	0.444	-.271862	.119043	.292308
inborn*	-.0198685	.12853	-0.15	0.877	-.271791	.232054	.546154
fs	-.0199534	.02634	-0.76	0.449	-.071572	.031665	4.43077
ms*	-.0353514	.13562	-0.26	0.794	-.301153	.230451	.392308
consume*	-.2037024	.12279	-1.66	0.097	-.444369	.036964	.723077
sex*	-.0220165	.11218	-0.20	0.844	-.24188	.197847	.707692
race	-.1661903	.09773	-1.70	0.089	-.357742	.025362	3.48462
salary	.6849454	.43575	1.57	0.116	-.169102	1.53899	2.73077
uncert~n*	.455225	.20299	2.24	0.025	.05738	.85307	.507692

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

```
. mfx, predict(outcome(5))

Marginal effects after ologit
      y  = Pr(savings==5) (predict, outcome(5))
         =  .00003985
```

variable	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
edu	.000088	.0002	0.43	0.665	-.00031	.000486	2.84615
age	4.77e-06	.00001	0.43	0.669	-.000017	.000027	57.5462
exp	2.22e-06	.00001	0.25	0.802	-.000015	.00002	2.3
religion*	-.0000143	.00004	-0.37	0.709	-.000089	.000061	.292308
inborn*	-3.86e-06	.00003	-0.14	0.885	-.000056	.000048	.546154
fs	-3.87e-06	.00001	-0.38	0.701	-.000024	.000016	4.43077
ms*	-6.79e-06	.00003	-0.22	0.823	-.000066	.000053	.392308
consume*	-.0000471	.00011	-0.42	0.676	-.000268	.000174	.723077
sex*	-4.33e-06	.00002	-0.17	0.862	-.000053	.000044	.707692
race	-.0000322	.00007	-0.43	0.667	-.000179	.000114	3.48462
salary	.0001328	.00027	0.49	0.624	-.000399	.000664	2.73077
uncert~n*	.0001151	.00027	0.43	0.670	-.000415	.000645	.507692

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

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Research problem stated here					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
Actual sub-problem 1 stated fully as in the text	List the most important references that you referred to when writing the literature review for sub-problem 1.	Actual Hypothesis 1 OR proposition 1 OR research question 1 stated here in exactly the same words as in the text of the proposal, and based on the literature that you reviewed in the previous step	Actual interview / questionnaire questions that will provide the data, preferably in words Or other specific sources of data, e.g. stock exchange	Note the type of data, e.g. nominal, ordinal, etc.	Describe the specific analysis method you will use
Actual sub-problem 2 stated fully as in the text	List the most important references that you referred to when writing the literature review for sub-problem 2.	Actual Hypothesis 2 OR proposition 2 OR research question 2 stated here in exactly the same words as in the text of the proposal and based on the literature that you reviewed in the previous step	Actual interview / questionnaire questions that will provide the data, preferably in words Or other specific sources of data e.g. stock exchange	Note the type of data, e.g. nominal, ordinal, etc.	Describe the specific analysis method you will use.

Research problem stated here					
Sub-problem	**Literature Review**	**Hypotheses or Propositions or Research questions**	**Source of data**	**Type of data**	**Analysis**
So on if more sub-problems					