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Extending the normal retirement age in occupational defined contribution funds in South Africa

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ABSTRACT

This paper addresses the problems of insufficient retirement savings and increasing longevity through the consideration of extending the retirement age. It is a pilot study of South African employers' and employees' perspectives on extending the normal retirement age in occupational retirement funds and the implications thereof. The data used for this paper were collected from two surveys conducted amongst South African employers and employees who are part of occupational retirement funds. The results indicate that most employers appear to have a positive attitude toward older employees, rating positive attributes such as reliability, experience, productivity and loyalty to the firm highly. The most significant factors in predicting whether an employee would be willing to work past the normal retirement age include employees' expectations with respect to retirement and retirement lifestyle, current age, and whether they believe they will accumulate sufficient savings by their company's normal retirement age. This study provides a base on which further analysis should be performed to understand whether the occupational sector in South Africa is willing to extend the normal retirement age.

KEYWORDS

Retirement; older workers; employers; retirement savings; South Africa

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1. INTRODUCTION

1.1 Globally, there have been trends of increasing longevity and aging populations (Doyle et al., 2009). Despite rising life expectancy, the average retirement age decreased gradually from the 1970s to the early 2000s (Mein et al., 2003). An important step towards ensuring a sustainable pension system is improving labour participation rates up to and, in the future, beyond the current retirement age (Doyle et al., 2009; Hairault et al., 2010).

1.2 The problems of aging populations and increasing longevity have had significant effects in developed countries for many years, and are now becoming evident in South Africa and other developing countries (Vogel et al., unpublished). Extensive research around extending the retirement age and its implementation has been done in the context of many European and other developed countries (Lacomba & Lagos, 2006). This paper is aimed at a South African context, where there is less extensive literature regarding extending the retirement age.

1.3 Much of the available literature is also around national pension schemes and social security benefits, rather than occupational funds (Barr, 2002). Occupational retirement funds are prominent in the South African market as a consequence of state schemes not catering to the wider population (Butler & Van Zyl, 2012).

1.4 A few decades ago, South Africa experienced a major shift from defined benefit retirement funds to defined contribution funds. In defined contribution funds, members bear the longevity, investment and expense risks (Van Zyl & Van Zyl, 2016). According to the life-cycle hypothesis, individuals accumulate savings throughout their working life in order to finance any expenses that occur during their retirement (Ando & Modigliani, 1963). It is projected that many South African households will not have accumulated sufficient retirement savings before age 67 and that they are largely unaware of this risk until it is too late (Butler & Van Zyl, 2012). Extending the retirement age could combat such insufficient retirement savings but employer (van Dalen et al., 2009) and employee (Jaime-Castillo, 2013) support is necessary for the success of such a reform.

1.5 Literature suggests that both employers (van Dalen et al., 2009) and employees (Jaime-Castillo, 2013) have been opposed to the idea of an extension in the retirement age. Employers' resistance is in part due to stereotypes that older workers are less productive, less adaptable and more costly than younger workers (van Dalen et al., 2009; Munnell et al., unpublished). For employees, factors such as gender, marital status and level of education play a large part in their opinion regarding the change in the retirement age (de Grip et al., 2013).

1.6 There appears to be a gap in the literature in considering the perspectives of both the employer and employee, from the same occupational fund, about extending the retirement age. This research is a pilot study of South African employers' views regarding older workers and their respective employees' perspectives about retirement.

1.7 The study's main aim is to give an idea of the necessity, effectiveness and viability of increasing the normal retirement age in South African occupational defined contribution retirement funds. The research aims to answer the following research questions:

— What are the major considerations for employers in extending the normal retirement age in occupational defined contribution funds?
— What are employers' views on extending the normal retirement age?
— Are employees willing and motivated to work past the normal retirement age?

1.8 Section 2 of this paper reviews global and South African literature on retirement reforms, and studies on the perceptions of employers and employees on retirement and retirement behaviour. Section 3 outlines the methods used in conducting a pilot study on South African employers' and employees' perceptions regarding an extension in the retirement age. Sections 4 and 5 detail and summarise the results of the study conducted. Finally, the results are discussed and conclusions are drawn, and compared to the literature, in Section 6.

2. LITERATURE REVIEW

2.1 Background

2.1.1 Increasing longevity and population aging are becoming increasingly prevalent issues globally (Doyle et al., 2009). These problems are exacerbated by low workforce participation rates of older workers (van Dalen et al., 2009) and declining fertility rates (Vogel et al., unpublished). An economy's characteristics tend to change as its population ages due to the fact that different age groups have different needs and productive capabilities (Bloom et al., 2010).

2.1.2 In South Africa, there has been an increasing trend in life expectancy and unemployment rates are consistently high across all ages.[1] The State Old Age Grant in South Africa is means tested, and provides minimal benefits of a maximum of R1500 per month.[2] As a result, a large portion of the population is not eligible for the grant. Hence the need to analyse occupational retirement funds and other individual forms of retirement savings.

2.1.3 The statistics below indicate that many South African citizens are not prepared financially for retirement:

— Research indicates that 45% of pensioners experience a shortfall between their monthly retirement income and their expected expenses (Van Zyl & Van Zyl, 2016).
— It is estimated that out of the individuals that save for retirement, only 24% will be able to maintain their current standards of living in retirement (Van Zyl & Van Zyl, 2016).

Butler & Van Zyl (2012) project that, given current savings rates, many South Africans will only accumulate sufficient retirement savings by age 67. As the state's normal retirement age is 60, there may be scope to consider the extension of the South African retirement age.[3]

1 Statistics South Africa, 2014
2 South African Government, 2017 (www.gov.za)
3 South African Government, 2017 (www.gov.za)

2.2 Major Considerations in extending the Retirement Age

2.2.1 Economic impacts

2.2.1.1 The Organisation for Economic Cooperation and Development projects that increasing the retirement age by even 1.2 years every 10 years could play a significant role in stabilising the effect on retirement funds of increasing longevity (Doyle et al., 2009).

2.2.1.2 Increasing the normal retirement age can have a positive effect on the work force participation rates of older workers (Hairault et al., 2010). Results from a study on the public pension reforms in Austria indicate that a one year increase in the early retirement age increases employment rates in the short term by approximately 10% (Staubli & Zweimüller, 2013).

2.2.1.3 Literature suggests that the existence of tax benefits for continued workforce participation delays retirement and encourages unemployed older workers to search for work (Hairault et al., 2010).

2.2.2 Practical implementation

2.2.2.1 Countries such as the United States of America (USA), Austria and Poland have implemented a cohort approach in extending the retirement age (Michalcewicz-Kaniowska et al., 2015; Staubli & Zweimüller, 2013; Duggan et al., 2007). This method implies a gradual phase-in of the increase in the retirement age (Duggan et al., 2007) which could assist in combatting employee resistance to a large extent (Bloom et al., 2010).

2.2.2.2 Bloom et al. (2010) suggest that increasing the retirement age while providing flexible pension arrangements could encourage employees to participate in the workforce for longer. Lifelong educational programmes could also assist older workers in adapting their skills to a changing work environment (Bloom et al., 2010) .

2.2.3 Other factors

2.2.3.1 A counter-argument to extending the retirement age is that it may exacerbate youth unemployment by reducing the number of jobs available (van Dalen et al., 2009). Gruber & Wise (2010) proved this proposition to be false in all studies they conducted and collated as no evidence was found to support that an increase in employment at older ages causes a decrease in employment at younger ages. However, during times of economic distress, employers tend to offer early retirement packages instead of retrenching younger workers due to resource constraints (van Dalen & Henkens, 2013).

2.2.3.2 Pension reforms that increase labour productivity are important due to labour scarcities and increasing life expectancy in developed countries. Reforms in the form of increasing the retirement age may also provide incentives for greater human capital investment due to the increased time horizon (Vogel et al., unpublished).

2.2.3.3 However, extensions in the retirement age have resulted in increased unemployment and disability benefit claims (Duggan et al., 2007). This result could partially offset the possible benefits from increases in employment rates (¶2.2.1.2) of older workers (Staubli & Zweimüller, 2013).

2.3 Employers' Views on extending the Normal Retirement Age

The effectiveness of extending the normal retirement age and hence increasing the workforce participation rate of older workers will depend, in part, on the support and commitment of employers (van Dalen et al., 2009).

2.3.1 Willingness to extend the retirement age

In the past, employers have resisted extensions in the retirement age owing to stereotypical perceptions of older employees (Debrah, 1996). Research suggests that firms are reluctant to retain older workers because of the belief that it is more efficient to concentrate on younger workers who are more likely to provide larger economic returns over time (Harper et al., 2006). Older employees tend to place a high wage burden on employers due to an expectation of constantly increasing wages throughout their working lives (van Dalen et al., 2009). Other factors that employers consider are whether older employees will have the skills to cope with technology improvements and the effect of allowing individuals to work past the traditional retirement age on unemployment levels (Munnell et al., unpublished).

2.3.2 Attitudes towards older workers

There is a tendency for employers to perceive older workers as less flexible, slower and less willing to adapt to new environments than younger workers (Debrah, 1996). Employers stereotype older workers to be less productive than younger workers (van Dalen et al., 2009). The difficulty of enforcing retirement may also contribute towards employers' sense of resentment towards older workers (Williams & Beck, 2015). Employers fear an increase in costs for older workers due to absenteeism and further financial burden resulting from increased medical and disability care costs (Bloom et al., 2010). Employers tend to encourage early retirement via incentives for employees and use performance management techniques to push older workers out of work (Williams & Beck, 2015). Reasons for such policies could be attributable to employers' perceptions that older workers are less employable (Hairault et al., 2010).

2.3.3 Influences on retirement policy

Employers' perceptions of older employees vary in line with familiarity (Munnell et al., unpublished). Employers with a relatively older work-force tend to have more positive views on the productivity of older employees and hence are less opposed to the idea of extending the retirement age (Munnell et al., unpublished). Van Dalen et al. (2009) suggest that many employers facing poor financial circumstances use early retirement as an easier means of reducing employee costs than retrenchments or formal dismissals. Munnell et al. (unpublished) also state that employers that are themselves older (55 and over) are more likely to have a positive view of older employees.

2.4 Employees' Views on Working beyond Normal Retirement Age

The success of extending the retirement age in increasing employment rates of older workers depends to a large degree on whether employees are in fact willing to work past the retirement age (Davies & Cartwright, 2011).

2.4.1 INFLUENCES ON RETIREMENT PERCEPTIONS

The reasons behind the decision to leave the workforce earlier or later than the national pension age vary between countries (Doyle et al., 2009). De Grip et al. (2013) discovered that men were more likely to be opposed to an increase in the retirement age than women. It was also found that if the individual's job involved physically demanding or intensive managerial tasks they had more ambivalent reactions towards the announcement of an increase in retirement age (de Grip et al., 2013). Individuals who face financial difficulties may be more willing to accept a later retirement age (Michalcewicz-Kaniowska et al., 2015).

2.4.2 PRIORITIES

Employees' current priorities in terms of leisure, family, social interactions or work commitments may influence their retirement decision (Davies & Cartwright, 2011). Behavioural traits such as thirst for knowledge or goal-orientation may also increase an employees' acceptance of a retirement age increase. (Davies & Cartwright, 2011). Employees tend not to look kindly upon the need to work past the retirement age they have been anticipating (Bloom et al., 2010). Lower income employees and employees with poorer health may retire earlier than healthier higher earning employees (Sánchez-Martin et al., 2014).

2.4.3 EXPECTATIONS OF RETIREMENT

Many individuals believe that they will have sufficient retirement savings to retire at or before the current normal retirement age (Michalcewicz-Kaniowska et al., 2015). Other factors that contribute to whether employees are willing to work past the normal retirement age are their expectations for retirement and their current job satisfaction levels (Davies & Cartwright, 2011). Davies & Cartwright (2011) stated that if an employee has a positive view of retirement, they are more likely to retire early.

3. METHODOLOGY

This section outlines the survey response collection methods and the statistical methods used to analyse the survey results.

3.1 Survey Methodology

3.1.1 OVERVIEW

3.1.1.1 Two cross-sectional surveys were conducted for this study: one to establish employers' views on extending the retirement age and the other focusing on employees' motivation to work past normal retirement age. The employer and employee surveys as attached in Appendix A and Appendix B were based on past studies done in various countries.

3.1.1.2 The surveys were distributed via an online survey platform to 30 South African companies across a range of different industries and of varying sizes. Employer responses from 13 of these companies were received, and 127 employee responses from 18 companies were received. The surveyed companies had their own occupational retirement funds.

3.1.1.3 The employer-based surveys were answered from the perspective of the employer by an individual who had knowledge of their company's retirement fund. The employee surveys were distributed to as many employees as possible by the respective human resources' departments of the surveyed organisations.

3.1.1.4 Due to the distribution method of the employee surveys, insufficient quantities of responses were received for artisanal or manual labour job types, hence the focus of the results is on employees in administrative, managerial or professional roles.

3.1.1.5 Below, Sections 3.1.2 and 3.1.3 summarise the aims of the two surveys conducted and the questions asked to the respondents. The responses are then analysed statistically, as set out in Section 3.2.

3.1.2 EMPLOYER SURVEY

3.1.2.1 The employer survey (Appendix A) aimed to answer the following points:

— What are employers' attitudes towards older workers?
— What are the influences on employers' retirement policies?
— Are employers willing to extend the normal retirement age of their company?

3.1.2.2 As in van Dalen et al. (2009), employers were asked to rate their view as to whether attributes such as reliability, sense of pride, seniority or loyalty to the firm applied to older workers, on a 5-point Likert scale to determine their attitudes towards older workers.

3.1.2.3 Questions regarding the size of the organisation, age profile of older workers in the organisation and industry of business were asked as these appeared to have an influence on firms' retirement policies (Munnell et al., unpublished).

3.1.2.4 The principal question to assess employers' willingness to extend the retirement age was whether employers would encourage workers to continue working post retirement, should the firm face skills shortages, as measured on a 5-point Likert scale (van Dalen et al., 2009). Other questions included whether the firm was more inclined to address the issue of unemployment than that of insufficient retirement savings or vice versa, to apply the survey to a South African context.

3.1.3 EMPLOYEE SURVEY

3.1.3.1 The employee survey (Appendix B) aimed to provide information on:

— What are the influences on employees' perceptions of retirement?
— What are employees' priorities?
— What are employees' expectations for retirement?

3.1.3.2 Gender, age, industry of work, job type and level of additional retirement savings could have an influence on an individual's perception of retirement (de Grip et al., 2013), hence this information was asked of survey participants.

3.1.3.3 The likelihood of various factors such as health issues, family commitments and work stress resulting in early retirement for the respondent was asked in the form of a 4-point Likert scale (Davies & Cartwright, 2011).

3.1.3.4 Employee respondents were asked what their expectations about retirement were, as well as how they expected their lifestyles would differ in retirement as compared to their current lifestyles, as measured on 3-point Likert scales (Michalcewicz-Kaniowska et al., 2015).

3.2 Statistical Methodology

3.2.1 Analysing the employer survey

3.2.1.1 Many of the results from the employer survey are summarised using descriptive statistics, tables and charts, as in Munnell et al. (unpublished). The regression models used in Munnell et al. (unpublished) were not appropriate for this pilot study due to the small sample size and non-normally distributed response variables. Hence marginal tests such as the Fisher exact tests were used to determine any relationships between principal variables.

3.2.1.2 The main variable assessing employers' willingness to extend the retirement age was the ordinal (Likert-scale) response to the question: "If your firm were to face skills shortages to what extent would you consider encouraging workers to continue working post retirement". The 5-point Likert scale was then converted into a binary variable to categorise responses into "willing" or "not willing". Selecting the option "Very unlikely", "Unlikely" or "Neutral" in response to the above question was regarded as being unwilling to extend the retirement age. Consequently, selecting the options "Likely" or "Very likely" was regarded as being willing to extend the retirement age (van Dalen et al., 2009).

3.2.1.3 Count data were obtained from categorisations of individual factors and the significance of each factor was assessed using Fisher exact tests, as compared to the above binary variable. The Fisher exact test examines whether there is an association between two categorical variables, when the assumptions for a Chi-squared test are violated. These assumptions mainly relate to sample size, and considering the small sample size of the employer data obtained, Chi-squared tests were not appropriate. Marginal analysis in the utilisation of Fisher exact tests may not take account of confounding and the combined influence of other variables. The results therefore should be interpreted cautiously (Hill & Lewicki, 2006).

3.2.2 Analysing the employee survey

3.2.2.1 The results from the employee survey are principally analysed via a binomial logistic regression model. The remaining results are analysed using descriptive statistics, and marginal analyses such as Chi-squared tests and Fisher exact tests. For detailed descriptions of these methods and the reasons for choosing them, see Appendix C.

3.2.2.2 The binary response variable for the binomial regression model was derived from the employees' responses to the questions: "What would be your ideal age to retire?" and "What age do you think your employer wants you to retire?" By subtracting the employee's answer for the age at which they think their employer wants them to retire from their stated ideal retirement age, their willingness to work past the retirement age was gauged. If the above difference was negative, the employee was regarded as not willing to work past the normal retirement age and coded as 0. Consequently, if the difference was positive, the

employee was regarded as willing to work past the normal retirement age and coded as 1. This method was used by Davies & Cartwright (2011) in their analysis of "Psychological and psychosocial predictors of attitudes to working past normal retirement age".

3.2.2.3 The assumptions required to fit a valid binomial regression model did not appear to be violated in the data obtained for this study. The employees' responses were fitted to a binomial regression model. The data used to fit this model consisted of 95 observations, out of the original 127 respondents. The 11 employees in artisanal or manual type jobs were excluded due to insufficient quantity to provide credibility to these observations. The other 21 respondents did not provide sufficient information to calculate the binary response variable and hence were excluded.

3.2.2.4 Inputs to the binomial regression model included 21 predictor variables from the survey questions. Factors included gender, age, industry of work, type of work (administrative, managerial, professional), scheme structure, level of job satisfaction, priorities in terms of work, family and leisure, and expectations with regard to retirement and retirement lifestyle. Forward stepwise regression was used to choose the most important predictor variables. Interaction terms between these variables were found to give non-significant p-value statistics and an examination of the interaction plots confirmed that no variables were significantly correlated in the final chosen model ((¶4.3.1.1).

3.2.2.5 The data were further classified into a classification tree to determine the most significant predictors of the binary response variable (¶3.2.2.2). The CHAID algorithm was used for this purpose.

3.2.2.6 Individual analysis was performed on each of the predictor variables in comparison to the binary response variable. The Chi-squared test was used to perform the individual analysis.

3.2.2.7 To carry out further analysis, a different response variable was used, namely the response from the question asking employees what their attitude was towards working beyond normal retirement age (NRA). The response variable has four categories namely, "I definitely do not want to work after NRA", "I might consider working past NRA if I could keep my present role", "I might consider working past NRA if I could choose to work more flexibly" and "I definitely would like to work past NRA". Since the data used to perform the analysis did not satisfy some assumptions required for a Chi-squared test, Fisher exact tests were performed instead.

3.2.3 Employer vs employee comparisons

Descriptive statistics were used to compare employers' responses to those received from the employees in the respective companies. This gives insight into whether the employees are well informed about their company's normal retirement age and whether they know the details of their employment contract. The results of this analysis are of particular interest, as there does not appear to be any literature comparing both employers and employees simultaneously.

4. RESULTS

4.1 Data Profile and Limitations

4.1.1 EMPLOYER DATA AND LIMITATIONS

4.1.1.1 A total of 13 South African companies with their own occupational retirement funds were surveyed. The sizes of the surveyed organisations ranged from less than 20 employees to over 2000 employees and the organisations represented various industries. Table D.1 (Appendix D) summarises the sizes, industries and scheme structures of the surveyed organisations and the age of interviewees.

4.1.1.2 The data are limited by the sampling process due to limited time and resources to gain access to a wider, more diversified sample. Being a pilot study, these issues were not a focus of the research, and the aim is to give preliminary results and conclusions only.

4.1.2 EMPLOYEE DATA AND LIMITATIONS

4.1.2.1 A total of 127 employees responded to the employee survey. The age of the employees ranged from 20 to 70+ years representing various industries and types of work. Table D.2 (Appendix D), summarises the data profile obtained.

4.1.2.2 Limitations to this data are mainly as a result of the distribution method used for the employee surveys. Since the employer respondents were requested to distribute the employee surveys, the range of targeted respondents may be biased. For example, insufficient data for employees in artisanal and manual type jobs were received.

4.2 Results from the Employer Survey

4.2.1 The figures below summarise the surveyed employers' responses to their willingness to extend the normal retirement age and the attributes they believed older workers to have. Most employers appear not to have implemented strategies to keep older employees.

4.2.2 Employers that responded "Unlikely" or "Neutral" to the question: "If your firm were to face skill shortages, to what extent would you consider encouraging workers to continue working post retirement", are regarded as being unlikely to extend the retirement age. Responses of "Likely" or "Very likely" are regarded as being willing to extend retirement age. Figure 1 illustrates the response distribution for this variable.

4.2.3 According to categorisations such as industry, size, and the view on handling the South African issues of unemployment or insufficient retirement savings, the number of employers willing or not willing to extend the normal retirement age are recorded in marginal tables, as set out in Appendix C. Fisher exact tests are performed on each of these marginal tables, to determine whether an association exists between the various factors and willingness to extend the retirement age. None of the factors tested appear to be significant in predicting willingness to extend the retirement age, as seen from the results that no p-value was less than 0.1. This may be as a result of the very small sample size of employers used for this study.

4.2.4 Figure 2 depicts the responses for employers in rating their perspectives of the characteristics of older workers (55+) compared to younger workers. Most employers appear to have a positive attitude towards older employees, rating positive attributes such as

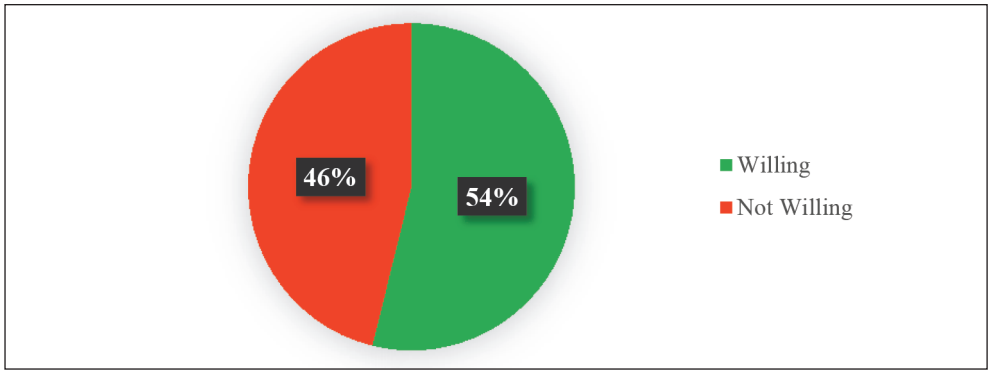

FIGURE 1. Willingness of employers to extend the retirement age

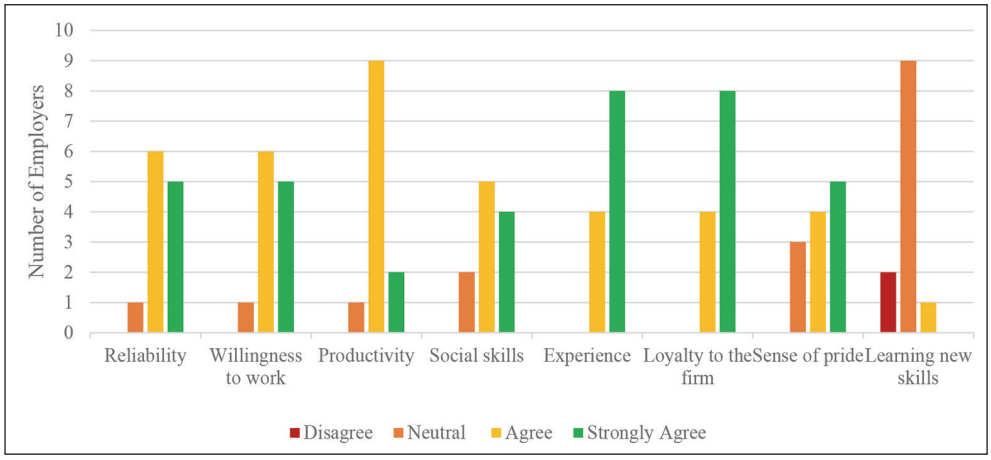

FIGURE 2. Employers perceptions of older workers (age 55+)

reliability, experience, productivity and loyalty to the firm highly. Employers appear to view older workers as having a sense of pride or seniority, and are largely neutral towards the ability of older workers to learn new skills.

4.2.5 Most employer respondents had not considered strategies to keep older employees, aside from introducing part-time or flexi hours for older employees. The results are summarised in Figure 3. The alternative strategies that have been considered or implemented by respondents include requiring older workers to train younger workers on processes or systems within the business.

4.3 Results from the Employee Survey

4.3.1 BINOMIAL REGRESSION MODEL

4.3.1.1 The binomial logistic regression model described in ¶3.2.2.4 is given by Equation (2) and summarised in Table 3.

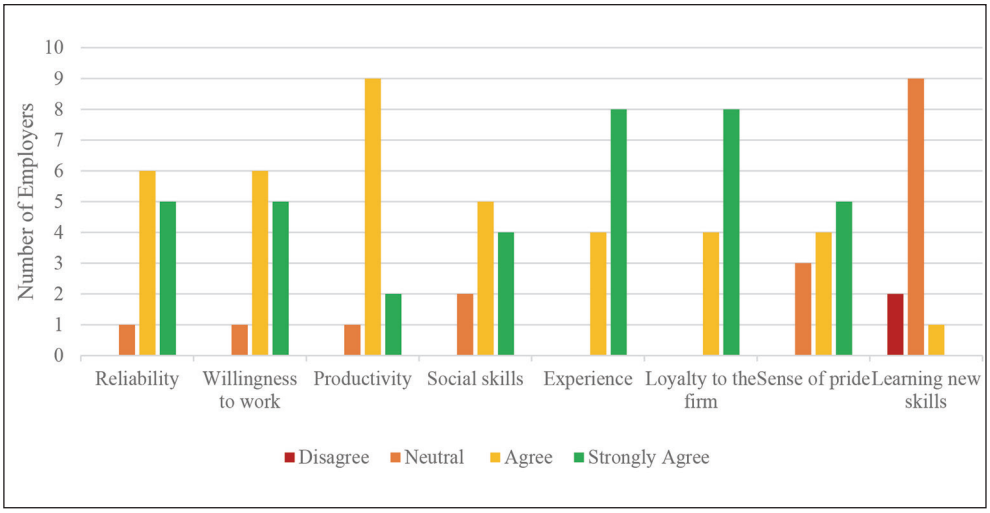

FIGURE 3. Strategies to keep older employees (age 55+)

$$y_i \sim \text{Bin}\left(n_i, \pi_i\right) \tag{1}$$

$$\text{log it}\left(\pi_i\right) = \sum_{t=0}^{9} \beta_t X_{i,t} \tag{2}$$

where

— y_i is the sum of the binary response variables derived in ¶3.2.2.2 (willingness to work beyond normal retirement age)
— i is the observation
— π_i is the probability that the i^{th} observation yields a response of 1 (willing to work beyond normal retirement age)
— X_1 is preparedness for retirement
— X_2 is industry of work
— X_3 is age
— X_4 is level of additional retirement savings compared to that in their employer's fund
— X_5 is whether early retirement penalties apply in the retirement fund
— X_6 is whether retirement is compulsory, their company's normal retirement age or if the retirement rules are flexible
— X_7 is whether the respondent believes sufficient savings will be accumulated by the company's normal retirement age
— X_8 is whether the employee expects to enjoy retirement
— X_9 is the employee's expected lifestyle during retirement

TABLE 3. Summary of binomial logistic regression model

	Estimate	Pr(>|z|)
Intercept	34.9674	0.00595**
X_1 – Prepared	–0.6158	0.72178
X_1 – Somewhat prepared	5.3159	0.04320**
X_1 – Very prepared	4.7058	0.272554
X_2 – Financial services	–3.7371	0.28361
X_2 – Manufacturing	9.8125	0.01859**
X_2 – Property development	–0.3692	0.98396
X_2 – Public services	–21.3029	0.99267
X_3 – 30–39	–8.8777	0.01309**
X_3 – 40–49	–10.2638	0.01686**
X_3 – 50–59	7.6974	0.01419**
X_3 – 60–69	–21.6718	0.99735
X_3 – 70+	–42.4362	0.99481
X_4 – Less	–5.9322	0.04782**
X_4 – More	–6.8528	0.01708**
X_4 – Much less	1.4620	0.52327
X_4 – Much more	–0.7086	0.95306
X_4 – None	–5.9882	0.05466*
X_5 – Unsure	–8.6799	0.01131**
X_5 – Yes	–11.2700	0.00993***
X_6 – Flexible	–6.4174	0.01342**
X_6 – Unsure	0.1513	0.93383
X_7 – Unsure	–14.0037	0.02541**
X_7 – Yes	–12.1043	0.00787***
X_8 – I expect to enjoy retirement	–5.8815	0.04722**
X_8 – I have no opinion about retirement	–6.2289	0.02569**
X_9 – The same as my current lifestyle	–5.3846	0.04880**
X_9 – Worse than my current lifestyle	–9.1644	0.02897**

* 10% significance level ** 5% significance level *** 1% significance level

4.3.1.2 The most significant variables in predicting whether an employee is willing to work past the normal retirement age are if the individual's employment contract has penalties for early retirement and if they believe they have sufficient savings for retirement at their company's normal retirement age. Where the company's retirement rules are flexible, the respondent's expected lifestyle in retirement, their expected enjoyment of retirement and their age also appear to influence an individual's willingness to work past normal retirement age.

4.3.1.3 To test the model fit, two tests were conducted. The first test was the

Pearson's Chi-squared test, with the null hypothesis being that the model fits the data, yielded a p-value of 0.427. The null hypotheses cannot be rejected, hence there is insufficient evidence to prove that the model does not fit the data.

4.3.1.4 The second test was a McFadden R-Square test. The binomial regression model produced an R-Square value of 0.702 (<0.80) which indicates that this model is not a very good fit in terms of predicting whether an employee is willing to work past the normal retirement age. This indicates that even though the data met all the assumptions for a binomial regression model, the model does not accurately predict all the variation as to whether an individual is willing to work past normal retirement age. Consequently, further analysis (including marginal tests and descriptive statistics) was done with respect to a different but related response variable to see if this yielded better results (Section 4.3.3).

4.3.2 CHAID ANALYSIS

4.3.2.1 The binomial model indicated some significant factors in predicting willingness to work beyond normal retirement age but to determine the most significant split of factors, CHAID analysis was performed. The parent node was specified to contain at least 50 data points, where the child nodes were specified to contain at least 20 data points. The analysis was performed at a 5% level of significance, both for splitting nodes and for merging categories.

4.3.2.2 As depicted in Figure 4, the most significant factors in predicting whether an individual is willing to work beyond normal retirement age were whether the respondent believed they had sufficient retirement savings and, if they replied yes or were unsure, then their age was also a significant predictor. Of these respondents, 84.6% believed they would not accumulate sufficient retirement savings appeared to be willing to work beyond normal retirement age. Since insufficient data existed for the 60–69 age category, it may be spurious to draw conclusions from this category. Respondents aged 30–39 do however appear to be less willing to work beyond normal retirement age than younger (age 20–29) and older (age 40–59) respondents, if they believed they would accumulate sufficient retirement savings.

4.3.3 MARGINAL TESTS AND DESCRIPTIVE RESULTS

4.3.3.1 An interesting result from the survey was the employees' responses to the question as to whether they would work past normal retirement age in certain circumstances. As illustrated by Figure 5, 18% of respondents stated they definitely would not like to work past normal retirement age, but 51% of respondents stated that they would consider working past normal retirement age given certain conditions, and 31% definitely want to work past normal retirement age.

4.3.3.2 The four categories of employees' attitudes to working past the normal retirement age (as in Figure 5) were classified as an alternative response variable. Fisher exact tests were performed on the individual predictor variables with respect to this response variable. It is seen in Table 4 that an employee's expectations about retirement, their lifestyle expectations during retirement and whether they believe they have saved enough for retirement are significant at a 1% level of significance in predicting the employees' attitudes towards working past the normal retirement age.

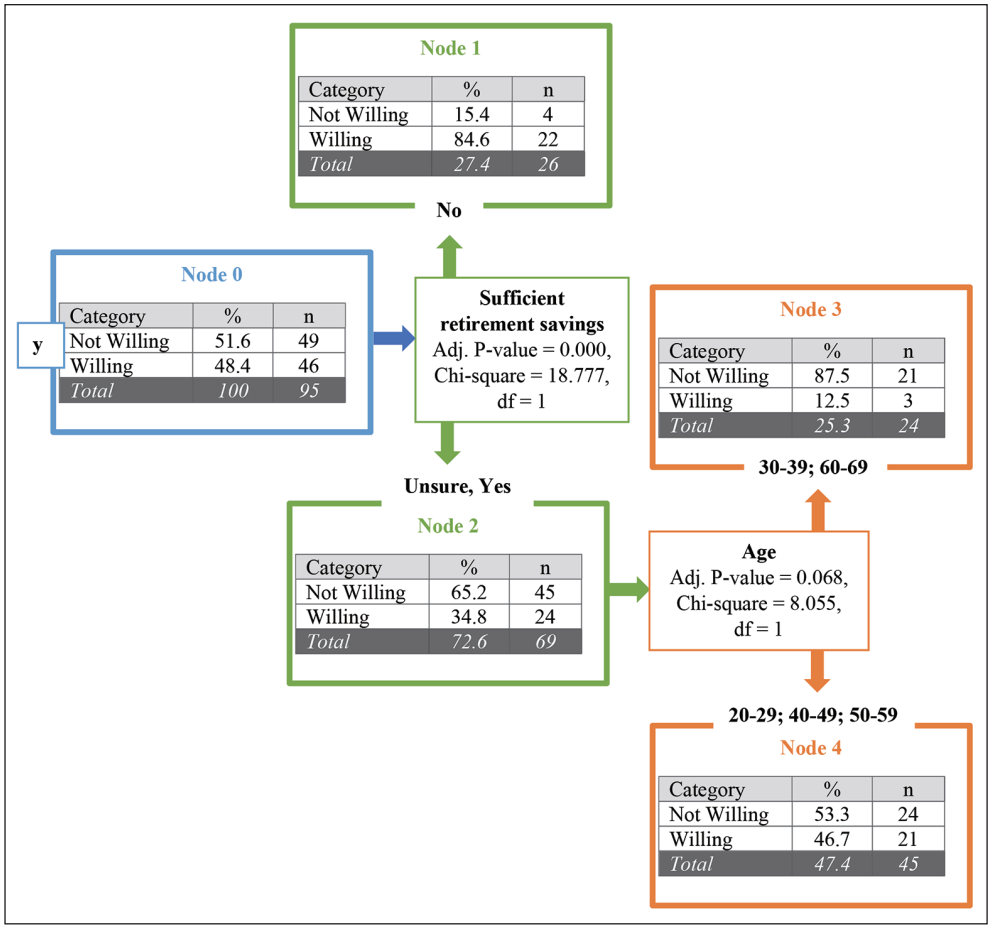

FIGURE 4. Classification tree – most significant factors

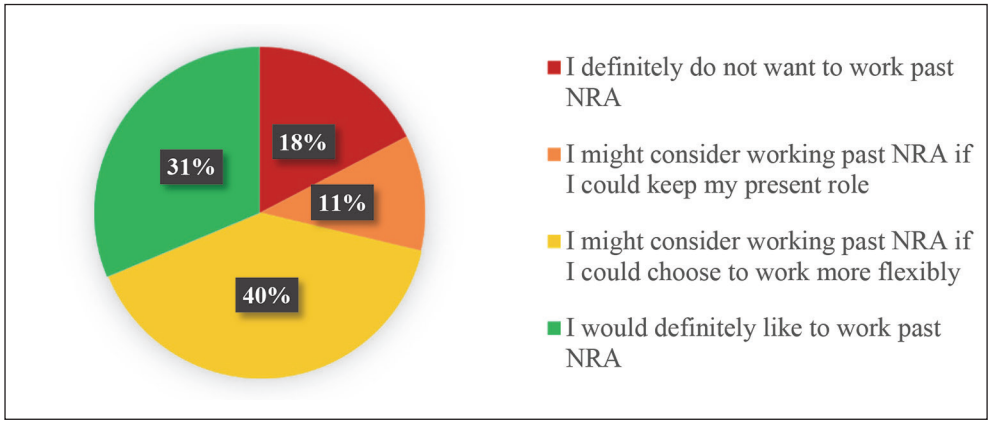

FIGURE 5. Working past NRA (normal retirement age)

TABLE 4. Summary of predictor variables

Predictor variable	Fisher exact test
Type of work	0.03567**
Retirement expectations	0.0004696***
Lifestyle during retirement	0.000247***
Sufficient savings for retirement	0.002451***

** 5% significance level *** 1% significance level

4.4 Combined Analysis of Employee and Employer Responses

4.4.1 Analysing the responses from employers and employees from the same occupational fund highlighted some particularly interesting results. There appeared to be deficiencies in communication between employers and employees with regard to retirement, and whilst some of the results may be inaccurate for reasons discussed below, exploring this area in further research could be of interest to stakeholders in the retirement space.

4.4.2 Figure 6 indicates that the majority of employees know what type of retirement fund they are part of (defined benefit or defined contribution). In contrast, many employees are incorrect in their knowledge of what their company's normal retirement age is. Out of the employees that stated that they knew what their company's normal retirement age is, 53.01% gave the incorrect age. This figure may not be an accurate representation as, on further investigations with the surveyed companies, it was discovered that certain individuals have different normal retirement ages from that stated in the company's fund rules due to instances such as insourcing or mergers and takeovers of retirement funds with different rules. However, it does highlight that there may be a lack of communication between employers and employees as to the fund's actual rules. Many employees were also unsure of any policies their companies had implemented with regard to keeping older workers, such as part-time work or training programmes.

4.4.3 Another interesting analysis is whether employees believe their employers are willing to extend the retirement age. This was done by comparing the normal retirement age to employees' responses about the age they thought their employer expected them to

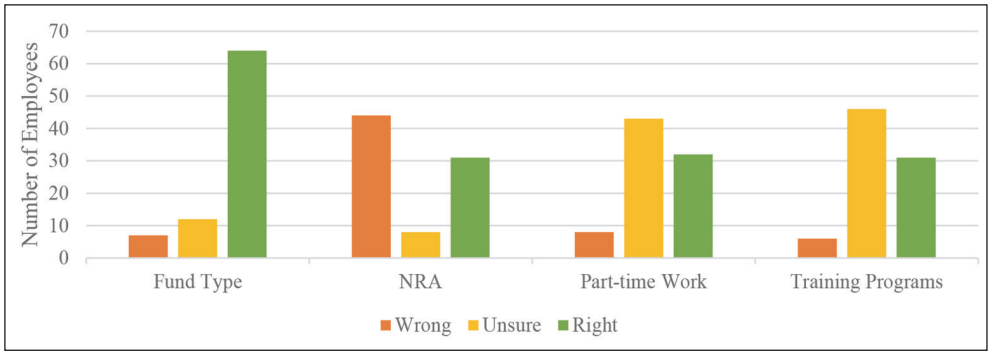

FIGURE 6. Employees' knowledge about their employment contracts

retire. Seventy-nine employee respondents stated the same normal retirement age as the age they believed their employer expected them to retire. Eleven employees stated that the age that their employer wants them to retire is different from the normal retirement age for their company from which seven assumed that the age that their employer wants them to retire is greater than the fund's normal retirement age. This may indicate that some employees believe their employers are willing to extend the normal retirement age.

5. SUMMARY

5.1 The results are divided into three sections: those relating to the employers, employees and lastly a comparison between the two categories. From the employer surveys, it was found that:

— 54% of employers are willing to extend the normal retirement age.
— Industry, size of the company and the view on handling the South African issues of unemployment or insufficient retirement savings appear to have no significance in predicting the employer's willingness to extend the retirement age.
— Most employers appear to have a positive attitude towards older employees, rating positive attributes such as reliability, experience, productivity and loyalty to the firm highly and in being largely neutral towards the ability of older workers to learn new skills.
— The majority of the employer respondents have not considered strategies to keep older employees, aside from introducing part-time or flexi hours for older employees.

These results are subject to data limitations, in terms of the sampling process and small sample size.

5.2 The results from the employee survey were principally analysed via a binomial logistic regression model. The response variable was derived by subtracting the employee's answer for the age at which they think their employer wants them to retire from their stated ideal retirement age. The factors of whether the employee believes that they have sufficient savings for retirement at their company's normal retirement age and if the individual's employment contract has penalties for early retirement are the most significant in predicting whether an employee is willing to work past the normal retirement age. The model was not an ideal fit for the data, producing a McFadden R-Squared statistic of 0.702.

5.3 CHAID analysis was also performed on the employee dataset, yielding results that showed that if employees believe that they have saved enough for retirement, then age is also a significant factor in predicting their willingness to work past the normal retirement age.

5.4 The employees' attitude to working past the normal retirement age was considered as a separate response variable. Employees' retirement expectations and their belief of sufficient savings at normal retirement age are significant at a 1% level of significance in predicting the employees' attitudes towards working past the normal retirement age.

5.5 Lastly, the combined analysis of employee and employer responses indicated that most employees know their type of retirement fund but are unsure about their fund's normal retirement age and their employer's policies for older workers. This result is likely subject to some limitations as outlined in Section 6, but may indicate a lack of communication between employers and their employees with respect to retirement policies.

6. LIMITATIONS

6.1 In the South African environment, youth unemployment and transformation are topical issues for employers. As discussed in ¶2.2.3.1, there is no evidence that extending the retirement age contributes to youth unemployment. The transformation drive by employers arises in part by the Employee Equity Act[4] as well as sector targets such as those set out in the Financial Sector Charter.[5] There is currently no research on the impact of extending the retirement age on transformation in South Africa or elsewhere in the world, although Adam (1997) noted that some early retirements were prompted by the impending Employee Equity Act. The authors therefore did not explore transformation explicitly as a factor, and left this for future research. Employers considering extending the retirement age should do so in line with their own transformation strategies.

6.2 One of the major limitations of the study arises due to the sampling process. Employer respondents were requested to distribute the employee surveys. This method may have created a bias in the profile of the employee respondents as they were selected by their employers. This limitation occurred as a result of limited time and resources available to conduct the study. The effect of this limitation can be seen from the insufficient data received from employees in the artisanal and manual fields of work.

6.3 Since the employer surveys were filled out mainly by an individual in the human resource's department, the results from the employer survey may not be entirely reliable. The effect of this limitation is inconclusive due to the small sample size for the employer surveys but is highlighted for future analysis.

6.4 A limitation was identified during the combined analysis of employer and employee responses. The question: "Do you know what the Normal Retirement Age is for your employer?" should have been split into two questions, namely: "What is the Normal Retirement Age at your firm?" and "What is your Normal Retirement Age?" During analysis, it was discovered that certain individuals have different normal retirement ages to those stated in the company's fund rules, due to instances such as insourcing or mergers and takeovers of the retirement funds with different rules. This limitation most likely played a part in the rather large percentage (53.01%) of employees that gave the incorrect normal retirement age for their company.

4 Act no. 55 of 1998, as amended, Republic of South Africa
5 www.fscharter.co.za/

7. DISCUSSION AND CONCLUSION

7.1 Overview

7.1.1 Despite the abovementioned limitations, this pilot study yields some interesting results which may be useful to explore in further research. Many results contrast those in the literature, which may highlight a need for further investigations into a specifically South African context.

7.1.2 The following discussion first provides insight into the employer and employee survey results separately, and then a combined discussion is set out.

7.2 Employer Survey Results and Implications

7.2.1 In contrast to the literature (¶2.3.2), South African employers are not entirely resistant towards an extension in the retirement age, as shown in Figure 1. Furthermore, five of the 13 respondents believed that their firm's normal retirement age would increase in the future.

7.2.2 Employers in this study also appear to have a more positive perception overall with regard to older workers in their firms than was indicated by the literature (¶ 2.3.3). Employers in this study appeared to be concerned about their employees having insufficient retirement savings, and hence may view an extension in the retirement age of their occupational fund favourably. The literature suggested that employers may view unemployment as a larger issue than insufficient retirement savings, but the opposite was found to be true in this study.

7.2.3 However, out of the 13 employers surveyed, seven believe older workers to be more costly than younger workers. Most employers surveyed believed older workers to have a sense of pride or seniority, which is consistent with the literature. This or other negative perceptions may be a hindrance to employers' willingness to extend the retirement age, but further research as to the significance of the impact would need to be conducted.

7.2.4 Some employers in the study have implemented strategies to keep older workers, such as training programmes and flexible hours for older workers, as suggested in Section 2.2.2, but this was the minority. As such, there may indeed be scope to consider extending the retirement age in occupational funds, if this result proves true in a more comprehensive study.

7.3 Discussion of Results from the Employee Survey

7.3.1 The study highlights significant predictors of an employee's willingness to work past the normal retirement age, some of which are consistent with the literature. These include expectations about retirement and retirement lifestyle and whether sufficient savings will be accumulated by normal retirement age.

7.3.2 The variables of gender, individual priorities (family, work, leisure) and level of job satisfaction are not significant in this study, in contrast to the results presented in past literature. If this result remains true in a more comprehensive study, there is likely to be less variability in different employees' perceptions about an increase in the normal retirement age.

7.3.3 On an empirical level, employees appear to be relatively willing to work past normal retirement age. Only 18% of respondents to this study stated that they definitely would not like to work past normal retirement age. Extending the normal retirement age could consequently be a desirable action as from employees' perspectives, should this result hold in a more comprehensive study. Strategies implemented to extend the normal retirement age should, however, take cognisance of the fact that many employees may desire more flexible working arrangements when retiring later.

7.4 Comparison between Employer and Employee Results

7.4.1 Being the first study of its kind in analysing both employer and employee perspectives, the results of the combined analysis may not be entirely reliable, as many inconsistencies were identified during the results analysis stage. However, there appears to be a substantial amount of confusion and lack of clarity between employers and their employees with regard to their occupational retirement funds.

7.4.2 Most employees in the study appear to know some information about their retirement fund, such as the scheme type. However, many employees did not know whether their company had implemented strategies to encourage older workers to retire later and were incorrect about their fund's normal retirement age. Better communications between employers and employees about the retirement fund and the risks of insufficient retirement savings may assist employers with smoother transitions in extending the normal retirement age. Both employers and employees would likely benefit from more consistent messaging within the organisation in terms of retirement and older worker policies.

7.5 Conclusions and Further Research

7.5.1 The necessity of extending the normal retirement age in South African occupational funds stems from the lack of sufficient retirement savings for the majority of employees. This is exacerbated by employees' perception that their savings will be sufficient as well as lack of knowledge about the workings of their retirement fund as found in some instances in the study.

7.5.2 The results from this pilot study indicate that South African employers may not be entirely opposed to extending the normal retirement age. Furthermore, the study reveals that employees may be more willing to work past normal retirement age than was suggested in the literature.

7.5.3 Employees appear to expect their employers to want them to retire at the company's normal retirement age. If this result were true after the employer extended the normal retirement age, employees would remain in the workforce for longer.

7.5.4 Consequently, there is certainly scope to consider extending the normal retirement age in occupational defined contribution funds in South Africa, and an extension may not be met with significant resistance. An extension in the normal retirement age may consequently be effective in increasing workforce participation rates of older workers, if the results of this pilot study are consistent with the larger South African occupational fund space.

7.5.5 This study highlights that extending the normal retirement age in South Africa is viable and the literature suggests it to be necessary. This study could provide the necessary building block on which employers consider whether extending their normal retirement age is possible. Since this is a pilot study, it also provides the foundation upon which further research on this topic can be conducted.

7.5.6 Further research needs to be conducted to establish whether the results found in this pilot study are true across a wider sample, and hence if the conclusions drawn are applicable. The models presented in this study are heavily reliant on the method of selecting the response variable. Other methods of selecting the response variable may yield different results, and could be explored in further research. Other areas of research to consider would include a deeper analysis into employees' retirement behaviours and hence whether extending the normal retirement age would in fact encourage employees to work for longer.

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APPENDIX A

Survey on Employers' Perspectives of Older Workers

These survey questions are based on past studies conducted by van Dalen et al. (2009) and Munnell et al. (unpublished).

Question No.	Question	Reference to Literature
1	Size of your organisation: *<20 / 20–50 / 50–100 / 100–500 / 500–1000 / 1000–2000 / 2000+*	2.3.4 2.4
2	Company Name	2.3.4
3	Industry/Sector of business	2.3.4
4	Does your company have its own occupational retirement fund? *Yes / No*	2.2 2.3.4
5	If not, are there ways in which you assist your employees in saving for retirement? Please explain	2.3.4
6	Is the retirement fund Defined Benefit or Defined Contribution? *Defined Benefit / Defined Contribution / Hybrid*	2.3.4
7	Age of interviewee *21–30 / 31–40 / 41–50 / 51–60 / 61–70*	2.3.4
8	What age would you consider an employee to be classified as "older"?	2.3.3
9	Approximate proportion of older workers in each of the following age bands in your organisation *45–55; 55–60; 60–65; 65+*	2.3.4 2.4
10	What is the normal retirement age in your firm?	2.3.4
11	Is retirement mandatory at this age? *Yes / No*	2.3.4 2.4
12	The following are two major issues in the South African workforce and possible methods of combatting these issues by employers: A: High unemployment rates. Solution: Increasing employment of younger workers B: Insufficient retirement savings. Solution: Allowing employees to work past the normal retirement age a) If you can do only one of the above which would it be? *A / B* b) Do think it is possible to do both? *A / B* c) Which do you think your firm is better equipped to handle? *A / B*	2.3.2
13	In your opinion, do the following characteristics apply to older employees (age 55+): *Rating scale:* *1. Strongly Disagree / 2. Disagree / 3. Neutral / 4. Agree / 5. Strongly Agree* a) Reliability b) Willingness to work (productivity) c) Ability to learn new skills d) Social/customer skills e) Experience f) Efficiency (speed of work) g) Sense of pride/seniority h) Loyalty to the firm	2.3.3

14	Do you perceive the monetary cost of older workers (age 55+) relative to younger workers to be: *Less costly / Equal in cost / More costly*	2.3.3
15	Has your organisation implemented or considered implementing any of the following strategies to keep older employees (age 55+)? Implemented: *Yes / No* Considered: *Yes / No* a) Training programmes for older workers b) Part-time retirement/Flexi hours for older workers c) Reducing pay of older workers d) Reduced workload for older workers/exempt from overtime e) Adapting the work environment to suit needs of older workers f) Alternative strategies *(Please specify)*	2.3.2 2.4
16	If your firm were to face skills shortages to what extent would you consider: *Rating scale:* *1. Very unlikely / 2. Unlikely / 3. Neutral / 4. Likely / 5. Very likely* a) Increasing work hours of current employees b) Increasing training programmes c) Encouraging workers to continue working post retirement d) Lowering job criteria requirements e) Recruiting foreigners f) Recruiting disabled workers	2.3.2 2.3.4
17	Do you expect the future average retirement age to increase or decrease in your firm or nationally? Retirement age will: *Increase / Decrease / Remain the same* a) State retirement age b) Employers in general c) Employers in your industry d) Your own organisation	2.3.2 2.3.4

APPENDIX B

Survey on Employees' Perceptions of Retirement

These questions are based on past studies conducted by Davies & Cartwright (2011), Michalcewicz-Kaniowska et al. (2015), de Grip et al., (2013) and Sánchez-Martin et al., (2014).

Question No.	Question	Reference to Literature
1	What is your gender? *Male / Female*	2.4.2
2	How well prepared are you for retirement? *Not prepared / Somewhat prepared / Prepared / Very prepared*	2.4.2
3	What company do you work for	2.4.2 2.3
4	What is your age?	2.4.2
5	Which of the following describe your type of job? *Manual / Artisanal / Managerial / Administrative / Professional*	2.4.2
6	What is the time frame for a typical task in your job? *Daily / Weekly / Monthly / Quarterly / Yearly*	2.4.2
7	The Normal Retirement Age is the age at which you can retire from the retirement fund and still receive full benefits. Do you know what the Normal Retirement Age is for your employer? *Yes / No* If yes, what is it?	2.4.2 2.3
8	Do you know what is the structure of your retirement fund? *Defined Benefit / Defined Contribution / Other / I don't know*	2.4.2 2.3
9	Do you have any additional retirement savings and are they significantly more or less than your retirement savings in your employer's retirement fund? (Additional retirement savings include, for example, a retirement annuity, a tax-free savings account, other investments) *Yes / No* If yes, how do these additional retirement savings compare to the savings in your current employer's fund? My additional savings are ___ than the amount in my employer's fund *Much less / Less / More / Much more*	2.4.2
10	Do the following apply to your employment contract? *Yes / No / Unsure* a) Early retirement penalties in the retirement fund b) Training programmes for older employees (age 55+) c) Part-time or flexible work hours at older ages (age 55+) d) Mandatory retirement at a certain age	2.4.2 2.3
11	How satisfied are you in your current job position? *Not satisfied / Somewhat satisfied / Mostly satisfied / Entirely satisfied*	2.4.3
12	Rank the following in order of importance of your current priorities *1; 2; 3; 4* a) Family time b) Work c) Social activities d) Leisure time	2.4.3

13	Which of the following would be more likely to result in your retiring earlier than your employer's normal retirement age? *Rating scale:* *1. Not likely / 2. Somewhat likely / 3. Likely / 4. Very likely* a) Health status b) Family commitments c) Work stress d) Demotion e) Technological changes f) Other *(Please explain)*	2.4.3 2.4.2 2.3
14	What age do you think your employer wants you to retire? Is retirement compulsory at this age or are your employer's retirement rules flexible? *Compulsory / Flexible*	2.4.2 2.4.4 2.3
15	What would be your ideal age to retire? And why?	2.4.4 2.4.3
16	Do you think you will have saved enough for retirement? At the age your employer expects you to retire: *Yes / No* At your ideal age to retire: *Yes / No*	2.4.4
17	Choose the statement that best applies to you: *I expect to enjoy retirement / I have no opinion about retirement / I am worried about retirement*	2.4.4
18	What do you expect your quality of life in retirement to be? My quality of life in retirement will be: *Worse than my current lifestyle / The same as my current lifestyle / Better than my current lifestyle*	2.4.4
19	The Normal Retirement Age is the age at which you can retire from the retirement fund and still receive full benefits. Choose the option that best describes your attitude towards working beyond Normal Retirement Age (NRA): *I definitely do not want to work after NRA /* *I might consider working past NRA if I could keep my present role /* *I might consider working past NRA if I could choose to work more flexibly /* *I definitely would like to work past NRA*	2.4.4 2.4.3 2.3

APPENDIX C
Description of Statistical Tests

C.1 Binomial Regression

The assumptions with respect to the data required to fit a valid binomial regression model are as follows (Long & Freese, 2006):

— The response variable is required to be measured on a dichotomous scale.
— There need to be one or more independent predictor variables. These variables can be either continuous or categorical.
— The observations should be independent and the response variable should have mutually exclusive and exhaustive categories.
— There should be a linear relationship between any continuous predictor variables and the logit transformation of the response variable.

C.2 CHAID Analysis

The requirements to perform a CHAID analysis, which were satisfied in the data used, are (Hill & Lewicki, 2006):

— The dependent variable is categorical or continuous.
— The independent variables are categorical, or made to be so.

The CHAID algorithm for a binary (categorical) response variable classifies the data into its most significant predictors by chi-square tests, with the merging of similar categories and the choice of splitting variables occurring at a specified significance level. The output classification tree is not necessarily dichotomous, as with other classification methods, which was desirable for this dataset as many predictors consisted of more than two categories (Kass, 1980).

C.3 Chi-squared Test

The Chi-squared measures the association of two categorical variables, with a null hypothesis that there is no relationship between the two variables. The assumptions required to be met in order to perform a Chi-squared test are (Hogg et al., 2015):

— The data used need to be uncorrelated.
— The Chi-squared test will only work if the dataset is large enough. This means that the cells in the contingency table need to each have an expected frequency greater than 5.

APPENDIX D
Summary of Survey Respondents

TABLE D.1 Summary of employer respondents

	Number of firms	Proportion of firms
Size		
Small (<50 employees)	4	30.77%
Medium (50–1000 employees)	5	38.46%
Large (2000+ employees)	4	30.77%
Industry		
Financial services	4	30.77%
Other services	4	30.77%
Manufacturing	3	23.08%
Engineering/Construction	2	15.38%
Scheme structure		
Defined Contribution	11	84.62%
Hybrid	2	15.38%
Age of interviewee		
30–39	6	46.15%
40–49	4	30.77%
50–59	3	23.08%

TABLE D.2 Summary of employee respondents

	Number of Respondents	Proportion of respondents
Age		
20–29	28	22.05%
30–39	46	36.22%
40–49	27	21.26%
50–59	23	18.11%
60–69	2	1.57%
70+	1	0.79%
Gender		
Female	51	40.16%
Male	76	59.84%
Job Type		
Manual	5	3.94%
Artisanal	6	4.72%
Administrative	28	22.05%
Managerial	27	21.26%
Professional	69	54.33%

APPENDIX E
Marginal Tables and Fisher Exact Tests

	Willing to extend NRA*		Fisher exact test	Proportion of total in each
	No	Yes	p-value	Category
Industry				
Engineering/construction	1	1	1	2
Financial services	2	2		4
Manufacturing	1	2		3
Other services	2	2		4
Size				
Large	2	2	0.7902	4
Medium	3	2		5
Small	1	3		4
Age of interviewee				
30–39	3	3	1	6
40–49	2	2		4
50–59	1	2		3
Retirement compulsory at NRA				
Yes	3	4	1	7
No	2	3		5
View on handling SA issues				
Unemployment	3	1	0.2222	4
Insufficient retirement savings	2	6		8
Cost of older workers				
Less costly	1	2	1	3
Equal in cost	2	1		3
More costly	3	4		7
National retirement age				
Decrease	2	0	0.2133	2
Remain the same	1	4		5
Increase	3	3		6
Industry retirement age				
Decrease	3	0	0.155	3
Remain the same	2	3		5
Increase	1	4		5
Own firm's retirement age				
Decrease	2	0	0.4755	2
Remain the same	2	3		6
Increase	2	4		5

* NRA = Normal retirement age