Confidence in Retirement

How well are Kenyans prepared for retirement?

Discussion paper
Strathmore University
Social security study group

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Contributors and acknowledgements

This report was written and compiled by members of the social security study group in the Strathmore Institute of Mathematical Sciences.

By partnering with Enwealth Financial Services, the study group aims to examine governance of pension schemes in Kenya, propose innovative social security products and contribute to policy, with a shared vision of better livelihoods in retirement.

It is our hope that this work will contribute to the thinking and decision making of individual members of retirement benefits funds and relevant policy bodies in the spirit of enhancing the social security industry in Kenya.

Mary Wanza – Kipkemoi,
Study group leader

Social security study group members

Dr Thomas Kibua – Technical advisor
Gillian Kimundi
Johnson Muthii
Mary Wanza - Kipkemoi
Naomi May Mwangi

Enwealth Financial Services
Simon Wafubwa – CEO
Michelle Nyandiko
Ruth Njuguna
Bancy Kaleli
Richard Noah

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Introduction

Kenyans' level of confidence in their readiness to retire is a topic that is increasingly becoming relevant given changing socio-economic environment. We often see retirement confidence revealed by controversial displays of retirement issues published by the media such as the following:

"Justice Rawal and her Supreme Court colleague Philip Tunoi have contested the constitutional requirement that judges retire at 70, arguing they were appointed under the old Constitution when the age was capped at 74. – Daily Nation, 30th May 2016

"A wave of anxiety is sweeping through the C-suites of a number of State agencies after the Industrial Court ruled out extended terms for elderly chief executives. Public Service Commission (PSC) has restated the ruling which has already cut short careers of two parastatal chiefs, adding that it has embarked on a process to compile data to determine the number of sexagenarian CEOs." – Business Daily, February 6th 2017

"The Teachers Service Commission has been at loggerheads with the Ministry of Education and teachers' unions over its decision to extend contracts of teachers who surpassed retirement age…. "In adherence to the new directive, the commission will retire teachers on the dates they attain 60 years of age whether it will be in the middle of the terms or otherwise," TSC secretary Gabriel Lengoiboni says in the circular." - www.the-star.co.ke, Aug. 09, 2014.

The factors that promote or impede retirement confidence in Kenyans are therefore worth consideration regardless of gender, social status, financial status or level of education.

The purpose of this study is to assess and evaluate the views and attitudes of working age Kenyans who are members of a registered workplace pension schemes. The study reveals the extent in which different factors influence individual's level of optimism or pessimism about retirement as well as Kenyans actions to prepare for retirement.

Executive Summary

Our survey results indicate that, overall, only 1 in 7 respondents are “very confident” that they will outlive their retirement savings, an important aspect in preventing old age poverty. This is approximately 14.2% of the respondents.

Our results further indicate that at the current savings rate and the given assumptions, the median respondent would adequately save the money he/she anticipates in retirement (estimated at approximately a third of current gross salary between Kshs. 50,000 – 60,000). Our calculations estimated a replacement ratio of 55%. Global standards recommend a 75% replacement of income in retirement.

The action of estimating retirement costs is found to be a positive and consistent factor for both men and women in explaining their confidence in retirement. 56% of members who had received employer provided financial literacy in the past 12 months and 66% who have sought out such knowledge had estimated their retirement needs. The gap of 10% could imply that that employer provided education does not always provide sufficient information in helping members to effectively plan for retirement.

Our study suggests that financial literacy courses should include modules that help individuals anticipate their expenses in retirement to improve their retirement confidence. This should be reassuring to policy makers and financial educators that behavioral activities can be applied to boost the level of confidence in retirement.

Summary of Finding : Confidence in Retirement

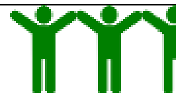
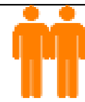
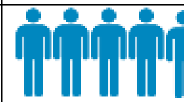
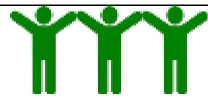
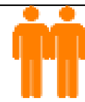
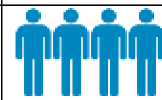
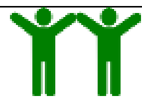
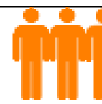
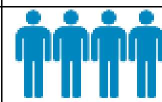
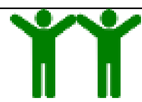
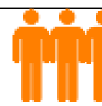
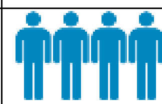
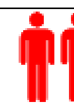
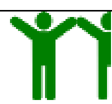
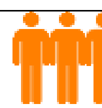
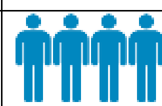
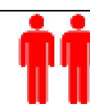
	Very Confident	Slightly confident	50 – 50 confident	Not at all confident
Overall how confident are you about your financial future in retirement?				
I am confident I will have enough money to meet my **daily expenses** in retirement				
I am confident I will have enough money to meet my medical expenses in retirement				
I am confident I will have enough money to meet my **long-term care** expenses in retirement				
I am confident I will outlive my retirement savings				

Table 1: Confidence in retirement for every 10 respondents

Research Objectives and Methodology

The overall objective was to measure and understand the level of confidence in retirement among working age Kenyans who are members of a registered pension scheme.

The survey tool comprised of five key sections. The first section captured the socio-economic characteristics and the current financial status of the respondent, including age, dependency, level of education, health risk, level of income, level of investments, financial management and level of financial literacy. Section 2 evaluated saving behavior and social network factors. Section 3 looked into the level of anticipation and preparedness for retirement. Section 4 evaluated self-stated individual and family health. The fifth section enquired of their retirement confidence with regards to various aspects of retirement.

The research questions were:

1. Do socio economic characteristics influence retirement confidence?
2. Does saving behavior and social networks influence retirement confidence?
3. Does family health and dependency history influence retirement confidence?
4. Does level of anticipation and preparedness for retirement influence retirement confidence?

The figure below displays the research framework for the study of relationship between socio economic characteristics, saving behavior, social networks, family health and dependency history and retirement confidence among working age Kenyans who are members of a registered pension scheme.

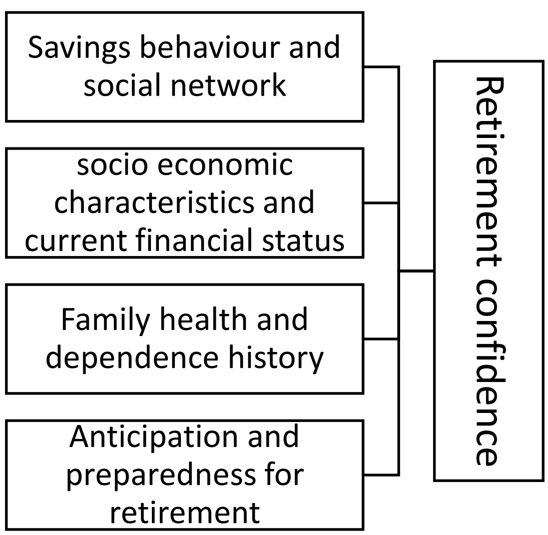


Table 2: Research conceptual framework

Hypothesis:

We tested four hypotheses.

H_1: Personal financial and health status, financial literacy and demographic variables have a significant influence on the retirement confidence.
H_2: Saving behavior and personal financial management practices have a significant influence on the retirement confidence
H_3: Anticipation and preparedness for retirement has a significant influence on the retirement confidence
H_4: Personal health and family health histories have a significant influence on the retirement confidence.

The research was conducted through an online survey that run for 12 days from 8th to 19th November 2017.

Members of pension schemes were invited to participate using various channels. Over 1,200 survey invites were sent out and a total of 567 participants completed the survey. After data cleaning 515 responses were analyzed.

Review of relevant literature

The ability to have adequate income for retirement becomes an important consideration in predicting the quality of life after retirement. The measure of adequacy is however not clear cut as there is no "one-size-fits-all" with the perception and reality of adequacy highly dependent on the different individual expenditure needs, behavioral influences and social context (Bajtelsmit, Rappaport, & Foster, 2013).

Pensions, which are typically workplace retirement plans, form an important resource – often in the form of a regular income stream for retired employees in addition to the government run social security funds whose features differ significantly across countries (Alonso-Ortiz, 2014). Within the Kenyan context these have often been found inadequate in monetary terms to meet the needs after retirement (Walaba, 2014), (Raichura, 2008). It therefore becomes necessary for individual workers to consider and plan for additional resources or coping mechanisms that will ensure a comfortable life in retirement.

Evidence from behavioral research indicates that individuals exhibit peculiar characteristics when it comes to saving and investing for their retirement. Individuals lack the necessary willpower to execute a long-term retirement savings plan (Shefrin, 2002). Inertia and procrastination in decision making appear to be behavioral influences that inhibit the retirement savings behavior of individuals ((Madrian & Shea, 2001); (Choi, Laibson, Madrian, & Metrick, 2002); (Gallery & Gallery, 2005)).

Further research shows that different types of financial education programs and the dissemination of information can positively influence retirement savings behavior ((Bayer, Bernheim, & Scholz, 2009); (Clark & Schieber, 1998); (Lusardi A. , Financial education and the saving behavior of African American and Hispanic households, 2005); (Clark, d'Ambrosio, McDermed, & Sawant, 2006)). Educational seminars, written communications and website information have all been found to be effective educational tools in this process.

According to (Elder & Rudolph, 1999)planning activities imply a higher likelihood of satisfaction even for those whose retirement decisions were not made voluntarily (either through health problems or an employer mandate). Marital status, health status, level of education, whether the individual was forced to retire, and pre-retirement occupation as well as the retirement planning have an impact on the level of the retirement satisfaction.

The future time perspective, financial knowledge, and financial risk tolerance are important variables when it comes to understanding individuals' retirement saving practices (Jacobs-Lawson & Hershey, 2005). (Stawski, Hershey, & Jacobs-Lawson, 2007) indicated that retirement goal clarity is a significant predictor of planning practices in turn to predict savings tendencies. This study found that income and age were important elements of the model with income, accounting for roughly half of the explained variance in savings contributions.

Research Findings

Descriptive statistics

Of note, socioeconomically the man and the woman are indistinguishable on many factors. Both are about 38 years of age, have an undergraduate level degree, worked for 13 years and estimate to retire at 55. Both men and women have on average 2 dependent children and another two dependents apart from their children.
Statistically women have significantly higher mortgage loan and cash in investment groups (popularly referred to as Chama's).

Variable	Female		Male		Total	
Years worked	318	13	161	12	479	13
Current Age	318	38	161	38	479	38
Expected Retirement age	307	55	159	56	466	55
No of children dependent	318	2	160	2	478	2
Other dependent person	318	2	159	2	477	2
Current value of pension savings	305	800,000	154	560,000	459	800,000
Value of Mortgage loan	206	4,000,000	119	2,100,000	325	4,000,000
Estimated monthly cost in retirement	190	60,000	97	50,000		
Estimated total value of investments	307	2,400,000	156	1,902,000	463	5,438,198
Estimated total debt undertaken	226	2,286,493	128	1,205,199	354	1,895,517
Debt ratio	220	1	126	1	346	1
Overall - Very confident	282	1 in 4	143	1 in 4	425	1 in 4
Overall - Not at all confident	282	1 in 7	143	1 in 14	425	1 in 9

Table 3: Descriptive statistics

Estimating Future Retirement Savings and Annuity

Based on the respondents stated pension fund value, we estimated the future pension savings and subsequent monthly annuity. The table below summarizes the key assumptions and results

Criteria	Male	Female
Current Age	38	38
Expected retirement age	55	55
Current pension savings	560,000	800,000
Annual Household income	2,000,000	2,000,000
Annual Salary increase	4%	4%
Annual interest income	10%	10%
Annual inflation rate	6%	6%
Contribution to pension	5% matched	5% matched
Estimated future pension savings	**16,071,923.29**	**17,406,303.44**
Monthly pension annuity due	165,892.53	179,665.84
Self estimated monthly cost after retirement (adjusted for inflation)	134,638.64	161,566.37
Over / (under) financing	31,253.89	18,099.48
Replacement ratio	51%	55%

Table 4: Estimated retirement income and income replacement ratio for the median male and female respondent

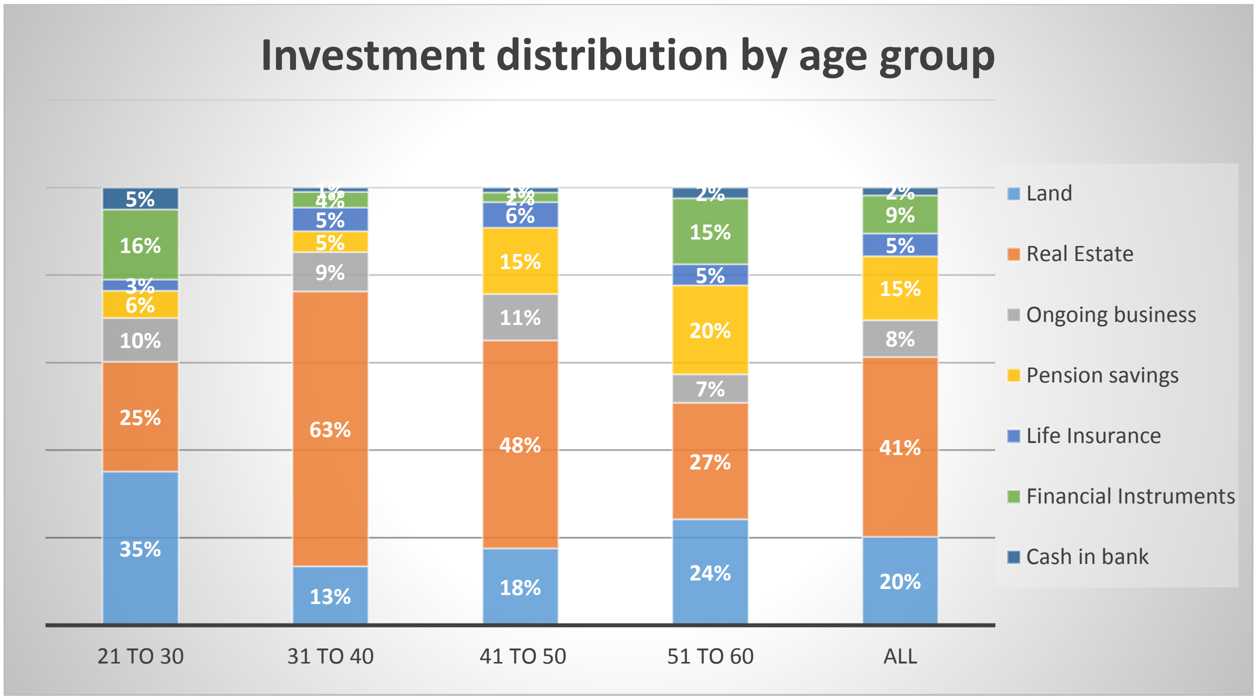
Our results indicate that at the current savings rate and the given assumptions, the median respondent would adequately save the money he/she anticipates in retirement. The monthly retirement income would be about half of the final salary. Global standards recommend a 75% replacement of income in retirement.

Evaluating personal investments portfolios

Investments do not influence the stated level of confidence for men, while it weakly explains the level of confidence for women.

Extant literature indicates members of these self-directed defined contribution pension plans often fail to understand the risks (such as interest rate and liquidity risks) associated with investment and consumption decisions especially at older ages (Lusardi & Mitchell, 2007). These exposes them to retirement shortfalls especially where such assets cannot be readily converted to cash on demand (Poterba, Rauh, Venti, & Wise, 2007).
This is especially important at retirement with increasing (and highly variable) health shocks that could influence asset allocation (Yogo, 2016) .

The graph below indicates the median investment portfolio over different age groups.



Graph 1:Investment distribution by age group

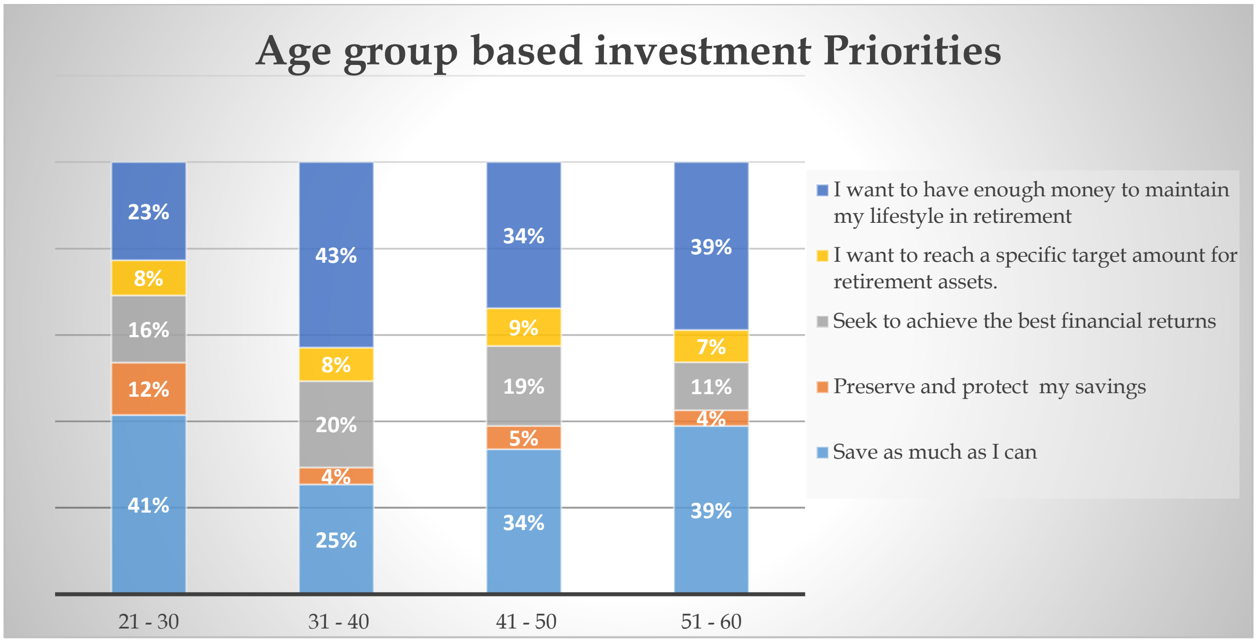
Land and real estate makes up the largest assets Kenyans invest in across all age cohorts. However, there is a gradual change in the composition of investment assets with pension assets increasing with age.

Wealth creation is a lifelong journey largely dependent on the need to keep on investing towards a target benefit. Conversely, investment plans and asset portfolio mix are dynamic and should realistically and periodically adjust to the various life-stages since the members risk factor varies with age. The risk-taking ability as a single individual would differ from when one has a family and when one is nearing retirement.

This could be a possible explanation in the reduction of assets invested in business ventures for those nearing retirement in the age group of 51-60. There is also an increase in investments in Financial Instruments in the same age-group. This demonstrates the need to include investment information when providing financial literacy to ensure the asset allocation process is aligned with their risk profile.

In the case of the age group near retirement (51 to 60) the allocation to immovable assets falls slightly but still accounts for more than 50% of investments. Focusing on easily liquidated assets, this age group can potentially draw just 11% of their investment (Cash in Bank and Financial Instruments) on demand.

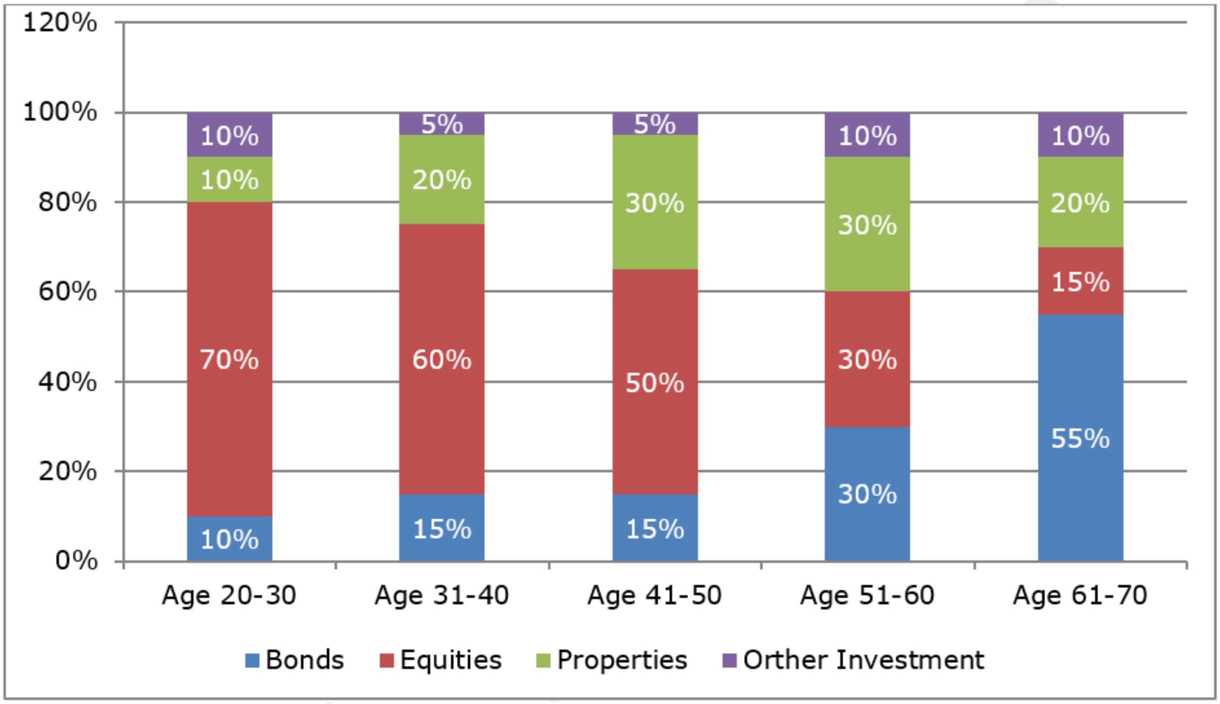
Age group based investment priorities for the respondents was as follows:



Graph 2: Age group based investment priorities

The basic principal of investment demonstrated above takes into account that one should gradually reduce the portfolio risk as they grow older. For example, if the equity holding in portfolio takes a dip due to market conditions when a member is young, the member can still have time to wait for the markets to bounce back. Retirees who need a regular income do not have this luxury and should reduce risk by buying less-volatile debt investments.

Based on principles of prudent investment, Enwealth Financial Services recommends the following age-based asset allocation:



Graph 3: Industry recommended age based investment portfolio

"An easy-to-remember rule of thumb is that your fixed income allocation should be equal to your age. So, if the member is in twenties and thirties, keep no more than 70% in equities and the rest in fixed income assets. Mid-career professionals in their forties and fifties should have between 50-60% in equities, while retirees who need regular income should start reducing their equity exposure to around 30%.

Factors Affecting Stated Confidence Level

We conducted a robust test of the relationship between the stated level of confidence and financial behaviors, while controlling for a multitude of socio-demographic and economic factors that may affect retirement confidence.

Socio economic characteristics and current financial status-H1:

Personal financial and health status, financial literacy and demographic variables have a significant influence on the retirement confidence.

Literature Review	Results from the 2000 (American Savings Education Council, 2001)showed that women were less likely than men to say they were confident about many financial aspects of retirement. It also showed that women with ***higher educational levels*** have greater retirement confidence. (Szinovacz & DeViney, 2000) found that ***marital status*** affects retirement decisions. The study found that husbands tended to retire from work if their wives had a long history of employment, which reflected wives benefit eligibility. Wives' retirement was contingent on the couple's income, and for many women, retirement income was based primarily or exclusively on husband's earnings. **Dependent care** has been an issue that affects more female workers than male workers. The number of financial dependents is a factor that has negative influence on female workers' retirement confidence ((Weaver, 1994)) (Malroutu & Xiao, 1995) studied the perceived **adequacy of retirement income** of pre-retirees and found that those with low incomes (between$10,000 and $19,999) were less likely to perceive their future retirement income to be adequate.

<table>
<tr><td>Research findings</td><td><table>
<tr><th>Factors influencing Kenyans’ level of confidence</th><th>Factors that do not influence Kenyans’ level of confidence</th></tr>
<tr><td>Gender (+)***
Years worked (-)***
Total investments (+)*</td><td>Level of education
Marital status
Fully dependent children
Other dependent</td></tr>
</table></td></tr>
<tr><td>Discussion</td><td>It is interesting to note that marital status, number of children and level of education do not affect the stated level of confidence. Further, differences are noted across the genders. For instance, increasing the level dependent persons (who are not children) is strongly and negatively associated with reduced level of confidence among the women whereas there is no association among the men</td></tr>
</table>

Savings behavior and social network - H2:

Saving behavior and personal financial management practices have a significant influence on the retirement confidence

<table>
<tr><td>Literature Review</td><td>Lusardi and Mitchell (2007) showed that planners accumulate large wealth than nonplanners through saving, investment, probability of selling house to finance retirement and others. Joo and Pauwels (2002) indicated that for those who are younger and have higher level of education reported a higher retirement confidence. Hence the younger generation have an early retirement planning.

Having savings was positively related to retirement confidence for both men and women (EBRI, 2002)</td></tr>
<tr><td>Research findings</td><td><table><tr><th>Factors influencing Kenyans' level of confidence</th><th>Factors that do not influence Kenyans' level of confidence</th></tr><tr><td>Prioritizing savings protection (-) **
Keeping emergency fund (-)**
Set target value of investments (-)*
Saving monthly from salary (-)***
Receiving advice from partner (+)*</td><td>Having a savings account
Saving for long term
Saving monthly in bank account
Investing for higher returns</td></tr></table></td></tr>
<tr><td>Discussion</td><td>Women's confidence is strongly and positively associated with receiving advice from partners.
Also interesting is the fact that positive saving behaviors such as maintaining a bank account, having an emergency fund or paying up the credit card bill in full when due are either negatively or not at all associated with retirement confidence.
The negative association could be attributed to saving for future consumption expenses e.g. for Christmas as opposed to saving for investment.</td></tr>
</table>

Anticipation and preparedness for retirement - H3:

Anticipation and preparedness for retirement has a significant influence on the retirement confidence

Literature Review	Alcon (2000) found a significant relationship between the amount of ***employer-sponsored financial education*** and information and retirement confidence for women. According to Kim, Kwon and Anderson (2004), the individuals' retirement confidence tends to be higher than others as they calculated their retirement fund needs and had more savings
Research findings	**Factors influencing Kenyans' level of confidence**: Estimating retirement cost (+)***; Estate planning (+) * **Factors that do not influence Kenyans' level of confidence**: Receiving financial literacy; Seeking financial literacy
Discussion	The action of estimating retirement costs is found to be a positive and consistent factor for both men and women in explaining their confidence in retirement. A direct link has been drawn between financial knowledge and preparing for retirement (Mayer, Zick, & Marsden, 2011) with empirical studies suggesting financial literacy antecedent to estimating retirement needs (Lusardi & Mitchell, 2005)

Factors influencing Kenyans' level of confidence	Factors that do not influence Kenyans' level of confidence
Estimating retirement cost (+)***	Receiving financial literacy
Estate planning (+) *	Seeking financial literacy

We explored the correlation between financial literacy and estimating retirement costs. We examined two types of literacy – sought by self and provided by the employer. There is a clear strong correlation between financial literacy and estimating retirement costs.

Our data indicates 56% of respondents have received employer provided financial literacy in the past 12 months compared with 66% who have sought out such knowledge.

This could indicate a gap in the availability or accessibility of the employer provided knowledge.

		Have you considered how much money you will require upon your retirement for your upkeep expenses (e.g. housing, food, clothing, medical, etc.)		
		No	**Yes**	
In the past 12 months, has your employer or the current retirement scheme provider, provided you with any educational material, professional advice or training about retirement planning, savings and investment?	**No**	33%	11%	44%
	Yes	31%	26%	**56%**
		63%	37%	100%

Table 5: Estimating retirement costs vs receiving employer provided retirement planning literacy in the past 12 months

		Have you considered how much money you will require upon your retirement for your upkeep expenses (e.g. housing, food, clothing, medical, etc.)		
		No	**Yes**	
In the past 12 months, have you personally sought information about retirement planning, savings and investment?	**No**	28%	6%	34%
	Yes	36%	30%	**66%**
		64%	36%	100%

Table 6: Estimating retirement costs vs personally seeking retirement planning literacy in the past 12 months

Studies have further explored the connection between financial literacy and other retirement planning activities beyond estimating retirement needs. (Agnew, Utkus, & Young, 2007) show a relationship between financial literacy and voluntary or automatic enrollment to retirement plans and (Hilgert, Hogarth, & Beverly, 2003) find an association with literacy and retirement related investment activities.

We evaluate this association by looking at whether there exists a significant association between financial literacy and three retirement planning activities: -

(i) Time since last update of Nomination of Beneficiary forms
(ii) Estate planning
(iii) Making additional voluntary contributions (AVC's)

Our analysis indicates a strong association between financial literacy (whether sought individually or provided by the employer) and estate planning as well as more recent update of Nomination of beneficiary forms

However, we find no association between financial literacy and making additional voluntary contributions (AVC's)

Further we find no statistical difference between the financial literacy (whether sought individually or provided by the employer) and retirement savings measured by the log of total investments and the log of the current value of pension savings.

Health status and dependence history - H4:

Personal health and family health histories have a significant influence on the retirement confidence.

Literature Review	The level of confidence will increase as the higher household income provided that they are with better health. The working individuals who received workplace financial education and advice earlier help them to have more confidence toward retirement planning (Power & Hira, 2004). A study *on Optimum Strategies for Creativity and Longevity* concluded that for every year one works beyond age 55, one loses 2 years of life span on average. The hard-working late retirees probably put too much stress on their aging body-and mind such that they are so stressed out to develop various serious health problems that forced them to quit and retire. With such long-term stress-induced serious health problems, they die within two years after they quit and retire (Lin, 2002)
Research findings	<table><tr><th>Factors influencing Kenyans’ level of confidence</th><th>Factors that do not influence Kenyans’ level of confidence</th></tr><tr><td>Current health (+)***</td><td>Diagnosis in family Death in family Long term care in family</td></tr></table>
Discussion	Over 80% of respondents indicated their health status as good or excellent. Health and family health histories generally have no effect. This could be explained by the continuing ‘harambee’ nature of funding for health emergencies. A Kenyan family therefore would to some extent count on donations from family and friends to meet health expenses.

Conclusion

The overall objective was to measure and understand the level of confidence in retirement among working age Kenyans who are members of a registered pension scheme.

Our key finding that estimating retirement needs appears to enhance confidence in retirement may appear self-evident. This should be reassuring to policy makers and financial educators that behavioral activities can be applied to boost the level of confidence in retirement. Educators can persuasively promote the need to estimate retirement costs early to meet the anticipated retirement savings: "If you don't know where you are going you will probably end up somewhere else"

However, this retirement planning activity needs to be tied to tangible long term retirement outcomes supported by present day positive financial behavior. In our study we examine one activity that could boost retirement savings: making Additional Voluntary Contributions (AVC's) and two activities in planning for eventual death: updating nomination of beneficiaries and estate planning. Our findings indicate no direct effect of financial literacy and retirement savings.

This points to the need for further research in understanding the subsequent action following the textbook action of estimating retirement needs. Research has examined the impact of retirement planning activities such as building retirement savings, setting retirement goals and taking greater investment risks. However, we are yet to examine how estimating retirement needs eventually leads to more retirement savings.

Though this research targeted professional Kenyans with an employer provided pension, the survey respondents were predominantly from the Human Resource professionals (91.5%). The analysis therefore focused on this demographic to control for any bias. Future research could look into administering the same tool to different professions to further understand factors influencing members of retirement savings schemes, variability in retirement confidence as influenced by culture and the impact of late retirement on lifespan.

Commentary on Industry Policy and Practice Considerations

The overall objective was to measure and understand the level of confidence in retirement among working age Kenyans who are members of a registered pension scheme. It is important to reflect that formal pension covers just 15% of Kenyans. Though it could be argued that understanding their sentiments can help improve their livelihoods in old age, the wider gap still lies in understanding and providing social security for the 85% of Kenyans with no formal pension plan.

Based on our findings and extant literature we recommend the following:

(i) A shortfall in anticipated retirement income based on current savings and contribution rates was noted with replacement ratio at an average of 55%. There is therefore need for Trustees and service providers to consider measuring income replacement and include this information on members statements as a best practice to make it easier for members to save towards their individual targets.

(ii) That calculating the amount of money required to meet retirement expenses appears to enhance confidence in retirement. Financial literacy modules should include focus on activities on budgeting, financial management and anticipating for retirement

(iii) Financial literacy programs should be rolled out early in one's career and information made relevant for members in different age groups. They should also focus on holistic investment advice that takes into account retirement planning for members and their spouses and portfolio building. This will enable members to make informed investment decisions.

(iv) Take advantage of ICT not only as an enabler of operational efficiency but also as a platform for innovative financial literacy & member communication. This research observed that retirement confidence was increased where information was personally sought through internet searches or professional magazines. Therefore, schemes should leverage on platforms such as websites, blogs or social media where members can share inspirations and share information on retirement planning.

(v) The study revealed that receiving partner advise positively influenced retirement confidence as such retirement planning and financial literacy programs should consider training couples rather than the individual member.

(vi) It was observed that the low-income replacement ratios and inadequacy of savings to meet financial obligations in retirement negatively affected retirement confidence. We recommend lock-in of retirement savings as a way of increasing the total cumulative value of retirement benefits.

(vii) The literature review shows that for every year one works beyond age 55, an individual loses an average 2 years of lifespan. Therefore, there is little benefit for members in increasing the retirement age.

(viii) Based on subject literature review and other corelated researches we propose It is evident that physiological and behavioral attributes of members influence the saving attitudes and retirement confidence. We therefore recommend a shift in approach of financial literacy programs to consider psychological and behavioral attributes.

(ix) The data support that up to 41% of millennials prioritize to save as much as they can. This is contrary to the general opinion held that millennials mostly want to consume rather than save and invest. Therefore, it is important to have innovative product designs that answer to their savings priorities. This will greatly contribute to their retirement confidence by growing their pension savings in response to their saving priorities.

(x) The progression of saving and investment behavior over the lifetime of respondents does not support the realities of financing their needs in retirement. Extant literature indicates members of these self-directed defined contribution pension plans often fail to understand the risks (such as interest rate and liquidity risks) associated with investment and consumption decisions especially at older ages. These exposes them to retirement shortfalls especially where such assets cannot be readily converted to cash on demand. This is especially important at retirement with increasing (and highly variable) health shocks that could influence asset allocation.

These findings can be applied by policy makers and financial educators in promoting the need to estimate retirement costs early in order to meet their anticipated retirement goals: "If you don't know where you are going, you won’t know how to get there, consequently you will end up somewhere”

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