FACTORS AFFECTING THE UPTAKE OF VOLUNTARY MBAO PENSION SAVINGS BY INFORMAL SECTOR TRADERS IN NAIROBI CITY COUNTY, KENYA

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ABSTRACT

Africa's coverage of contributory private sector pension scheme of the working population age is still low with Mauritius having the highest private-sector coverage of 70 percent, and a range between 10-20 percent in East African countries. In Kenya, the pension system reforms include the establishment of Retirement Benefit Authority in 1997 to regulate the pension schemes, amendment of the National Social Security Act in 2013 to allow voluntary membership to all citizens above 18years and the launch of the Mbao pension scheme in 2011 to ensure pension coverage of the informal sector which accounts for an average of 80 percent of jobs created in Kenya yearly, however, the overall pension coverage in Kenya is still low ranging between 20% and 22.2% and the Informal Sector Skills and Occupation Survey reported that as at 2020, about 6.9% of the informal sector workers were members of National Social Security Fund while only around 1% was in Mbao pension scheme. The general objective of this study was to evaluate the factors that influence voluntary Mbao pension savings uptake by informal sector traders in Nairobi City County, Kenya by targeting the traders in Gikomba market categorized into small-scale traders in food, clothes, shoes, artisans, and small scale kiosk owners. Specifically, the study assessed the effects of Mbao pension scheme design incentives, demographic factors and the traders' attitude towards voluntary retirement savings with Mbao pension savings scheme. The study was guided by institutional savings theory, lifecycle savings theory, theory of planned behaviour and prospect theory. Descriptive research design and probability sampling technique was used to select a representative sample by classifying the traders according to the sector of trad. Questionnaires were used to collect primary data from a random sample of 384 traders and the data analysed using descriptive statistics and inferential statistics of Binary logistic regression analysis aided by Statistical Package for Social Sciences software version 28. The results of the binary logistic estimation model showed that scheme incentives are statistically significant with a p-value less than 0.05,demographic aspects of age, education level, income level, number of children and years in business were also found statistically significant with p-values less than 0.05 while gender and marital status were found insignificant with p-values greater than 0.05.Behavioral aspect was also found statistically significant with a p-value less than 0.05.Retirement Benefit Authority regulator support was found statistically insignificant in moderating the relationship. Thus, scheme incentives, age, education level, income level, number of children, years in business and behavioral aspects significantly influence the uptake of voluntary Mbao pension savings by informal-sector traders in Nairobi City County, Kenya. The research suggests that Mbao pension scheme administrators together with the Retirement Benefit Authority engage in periodic and continuous awareness campaigns on Mbao pension scheme and consider setting aside funds yearly for this sensitization in their annual financial budget.

Key words: Informal-sector, Voluntary pension savings, Mbao pension scheme, scheme incentives and regulator support.

INTRODUCTION

Background of the Study

The goals of pension systems are old-age income security and poverty alleviation which are in line with the Sustainable Development Goals 2030 for United Nations member states; however, the emerging labour market conditions pose a social security policy threat and countries have had to consider introducing income-related pension schemes that are compulsory, discretionary or both, besides the existing national-public pension schemes to spread the outreach of retirement coverage to persons working in the informal-sector in light of the workforce increasing informality and income fluctuations.(Hagemejer, 2016).

World development report documented that the traditional pension model formulated and promoted by Bismarckian for persons in formal employment arrangement is unsuitable especially if it is replicated in the circumstances of informal work since the provisions therein on social protection were solely developed with a steady wage type of arrangement which outlines clearly who an employee is and at the same time who an employer is. The model was also ideal for retirement savings in formal employment since the retirement age was known. However, such models are increasingly being re-evaluated because the conditions of employment and income generation among the population are changing at a fast rate. This has raised the need for individual voluntary retirement planning model (World Bank, 2019).

The informal sector is defined as that section of an economy that is less or not regulated in the legal and social confines or structure. They are enterprises where employees and employers are not regulated by the official labour laws. This sector is mainly made up of businesses with small activities, open to entry by anyone willing and open to exit as an individual pleases because of the fewer existing regulations, medium skills and less amount of capital required to set the businesses up. As such, these businesses are also characterised by high job insecurity since majority are in self-employment where the owner is the manager (ILO, 2015). In Africa, the informal sector employs an average of 80% of the working age population and between 76%-80% in East African countries; Tanzania, Uganda ,Kenya included(Guven, 2019).

Globally, 49.6% of persons within the age where they can involve themselves in productive activities are covered by either mandatory or voluntary contributory pension schemes, 44.5% are covered by non-contributory schemes and although most countries have initiated the option of voluntary pension coverage, voluntary coverage is still generally low.There are significant regional inequalities with developed nations; Europe, Asia and America having the highest pension coverage between 83% and 95% while developing countries in Africa having the lowest general pension coverage ranging between 5% and 20%.(ILO, 2021).

According to Guven (2019), Africa's coverage of contributory private sector pension scheme of the working population aged (18-59) is still low with Mauritius having the highest private-sector coverage of 70%, and range between 10-20% in East African countries; Kenya, Uganda, Tanzania. These numbers have caused the governments of developing nations to come up with pension and social security reforms aimed at increasing the number of persons within the working age bracket participation in retirement savings schemes. It also needs to be noted that majority of the individuals in the active working age are in the informal sector .

The informal -sector in Tanzania accounts for an average of 76% of the workforce yet the general pension coverage is still low at 5% with informal sector workers in business and agriculture having the lowest coverage (Mwakisisile & Larsson, 2020). Moreover, a study of the factors that influence individuals' decision to set aside some finances towards their retirement within the informal sector arrangement in Tanzania found that only 16% of workers joined voluntary pension schemes, the remaining 84% were in mandatory schemes (Kibona, 2020).

The general pension coverage is still low in Uganda at around 10% ; Mazima Voluntary pension scheme having 720 members and out of the 15 Million workforce only 1.8Million persons were registered in NSSF,600,000 workers were voluntary contributors in various schemes (Guven2019). To increase coverage, the Authority charged with the responsibility of Retirement Benefits in Uganda licensed two voluntary micro pension schemes in 2016 that focus on persons with low income especially those in informal sector; Mazima & Kampala City traders provident fund (Nakaweesi, 2016).

In Rwanda, matters relating to administration of pension are managed centrally by the formal sector pension administrator which is also in charge of the informal-sector pension scheme referred to as *EjoHeza* scheme meaning a brighter future that was launched in 2018 to encourage voluntary retirement savings by people with fluctuating earnings. (RSSB, 2018).The informal sector in Kenya has rapidly grown over the last ten to twenty years, contributing significantly to the overall growth of the economy and job creation. The Kenya National Bureau of Statistics data show that the informal-sector contributes to a high percentage of the jobs created in Kenya yearly as follows; 82% in 2016, 90% in 2017, 83.6% in 2018, and went up by 5.4 % in 2019. (Economic surveys; 2017; 2018; 2019;2020). Moreover, Kwena(2018) social security review paper further asserted that more than 1 in 4 working adults is actively involved in this informal- *Jua Kali* sector in Kenya. These statistics show the future of work hence the emphasis on informal-sector pension coverage.

Kenya's pension system stands out as one of the best in Africa, ranking second after South Africa, according to the Pension report by global financial services, Allianz pension report(2020). In addition, the overall pension coverage of the working

population has grown substantially from a paltry 12% in the year 2000 to an average of 15% between 2010-2016, 18.6% in 2017, and an average of 20% between 2018-2019 and at 22.2% in 2020. (RBA, 2016; 2017; 2018; 2019;2020).

Informal Sector Skills and Occupation Survey (2020) found that 82.1% informal sector workers are in urban areas in Kenya and also noted that persons working in informal-sector need to subscribe to available social security arrangements because at the time of that study it was still low with around 6.9% in NSSF membership while only 1% was in *Mbao* pension scheme. Moreover, past studies on informal sector retirement planning in Kenya found a low pension uptake (36.8%) for both NSSF and *Mbao*, out of this *Mbao* coverage was only at 7.2% despite the high pension awareness of 76% (Ade, 2013).

Mbao Pension Scheme Design Incentives

The Retirement Benefits Authority in Kenya registered *Mbao* pension scheme in 2009 and officially launched it in 2011 to allow voluntary and flexible pension contributions by the informal or J*uakali* sector workers. Four key organizations play various roles in its management through a private-public cooperation;RBA serves as the regulator, Eagle Africa Insurance Brokers registers people and keeps records, Kenya Commercial Bank keeps the cash and finally, Co-operative Trust Investment Services invests the money. Outreach is done through informal sector workers associations.(Kwena & Turner, 2013).

Mbao Pension savings scheme membership has grown from 164 in 2010, 5,233 in 2011, 23,949 in 2012, 18,123 in 2013, 24,550 in 2014, and 17,685 in 2015, and in 2016 membership reduced to 11,684 members. (Kabare, 2018; Ngomba, 2020). The progressive growth may be attributed to the aggressive advertising done by RBA on TV radio and print media between 2012-2014 arousing interest and curiosity which saw the membership increase to between 76,000 and 100,000 in 2018 and can also be attributed to awareness created by the regional, institutional and global interest on *Mbao* pension scheme between 2015 and 2018.

Lüchinger (2013) Swot analysis on the Kenyan *Mbao* pension rider model noted the major strengths for *Mbao* customers as follows; financial training offered, flexible contribution period with no penalty, small voluntary contribution, mobile money convenience, and pension backed mortgage benefits; however, the analysis also revealed weakness and threats for customers in terms of registration fee and hardcopy process, transaction costs, low system speed and peoples fear of losing their money.Kabare (2018) social security review paper further asserted that the low membership of 100,000 in 2018 could be attributed to lack of awareness, poor savings culture, voluntary nature of the scheme, registration process, and withdrawal ease(3yrs) before retirement.

Demographic factors

Globally, the overall pension coverage for women is lower at 26.4% compared to that of men at 31.5% and this gender pension gap is traced to a higher proportion of women being in self employment and domestic work(ILO, 2020).Locally, RBA (2018) data revealed that pension knowledge differences exist between males as compared to the females in Kenya. It is estimated that about 60.7% men are pension conscious and have more information on what they are likely to get on retirement as compared to 57.7% among women.

The Informal Sector Skills and occupation Survey in Kenya (2020) found that 74.8% of informal enterprises are owned by family members, 51% are between the ages of 18 and 34 years, the average age being 35 years, and that women dominated market retail and wholesale services while men dominated technical and craft service provision.

Behavioral factors

Fertig,Lefkowitz, and Fishbane(2015) explained that behavioural barriers to voluntary retirement savings revolve around individuals attitude and perceptions and identified the barriers as; not thinking about retirement, prioritizing immediate needs, uncertainty about the future and recommended that solutions to the behavioural barriers may include automating savings, making retirement savings accessible and visible and making retirement feel real and not distant.

In Kenya, there have been limited studies on informal-sector workers views concerning retirement planning since the implementation of *Mbao* scheme for the *Juakali* sector in 2011. Onyango (2014) in a study of the attitude of informal sector traders of Kamkunji market towards retirement planning found a significant relationship between attitude and retirement planning among traders. Retirement attitudes have also been found to vary between men and women due to family roles and retirement planning and thinking was done more by the breadwinners and that female traders income mostly went to meeting the basic family needs.(Nderitu, 2019).

Retirement Benefit Authority

Retirement Benefits Authority was established by the Retirement Benefits Act, chapter 197 (RBA, 1997) and started active operations in the year 2000. Prior to 1997, there was no legislated body that regulated retirement schemes in Kenya but was dependent on a number of statutes that controlled trustees.Its duties include; regulating, supervising, safeguarding members' interests and sponsoring schemes or arrangements set up for retirement in the country. RBA has regulatory responsibility over *Mbao* Pension Scheme thus provided initial support and public awareness of the *Mbao* scheme in the Jua Kali/informal sector workers association.The authority encouraged growth in scheme membership and aggressive promotion and increasing awareness of *Mbao*

pension scheme was done between 2012-2015 through television, radio and printed materials.(Kimathi, 2016).

Problem Statement

The Retirement Benefits Authority in Kenya launched a new Strategic Plan 2019 -2024 whose aim is to increase the general working population retirement coverage to 30% by 2024, since between 2018 and 2019 coverage was at an average of 20 % and currently at 22.2%. It was also noted that to achieve this, there is need to focus on the informal sector since the sector accounts for an average of 80% of jobs created in Kenya yearly and that the low pension uptake in Kenya is due to low coverage of persons who are not in any formal employment arrangements (RBA, 2019).

The vision of *Mbao* pension scheme is to ensure at least 50% pension coverage of the informal sector workers by the year 2030; however, the scheme had approximately 76,000 to 100,000 members between 2017 and 2018(Kabare, 2018; Kwena, 2018; Ngomba, 2020). These numbers represent a slow progress since the informal sector in Kenya had approximately 12 Million workers in 2018 and approximately 14 to15 Million workers in 2019 (Economic surveys; 2019; 2020; ISOS, 2020).

Mbao Pension savings scheme membership has grown from 164 in 2010, 5,233 in 2011, 23,949 in 2012, 18,123 in 2013, 24,550 in 2014, and 17,685 in 2015, and in 2016 membership reduced to 11,684 members; however, membership increased to approximately 100,000 members in 2018. Outreach is through the *Jua Kali* Associations of the informal sector workers (Kwena, 2018; Ngomba, 2020).

Ade (2013) in a study on how financial knowledge possessed by individuals influence the decision to prepare for pension especially by persons in the informal sector within Kenya, found a low informal sector traders pension uptake (36.8%), financial literacy, age, and income were found most significant, while gender and marital status were found insignificant in voluntary retirement preparedness.NSSF & *Mbao* pension coverage was at 36.8%, with *Mbao* at only 7.2%. Furthermore, this study explored the gap suggested by Ade (2013) that more attention be given to factors promoting or hindering uptake of *Mbao* Pension Plan among the self employed and other informal-sector individuals.

Objective of the Study

To assess the factors that influence the uptake of voluntary *Mbao* pension savings by informal sector traders in Nairobi City County, Kenya.

1.4 Research Hypotheses

This study was guided by the following research hypotheses.

H_{01}: *Mbao* pension scheme design incentives have no significant effect on its voluntary uptake by informal sector traders.

H_{02}: Demographic factors have no significant effect on the uptake of voluntary *Mbao* pension savings by informal sector traders.

H_{03}: Behavioural factors have no significant effect on the uptake of voluntary Mbao pension savings by informal sector traders.

H_{04}: Retirement Benefit Authority regulator support has no significant moderation effect on the relationship between the scheme design incentives, demographic factors, behavioral factors and the uptake of voluntary *Mbao* pension savings.

LITERATURE REVIEW

Theoretical Review

This study was anchored on Institutional theory of savings, Life cycle theory of savings, theory of planned behaviour and the prospect theory.

Institutional Theory of Savings

Initially proposed by Sherraden (1991), who defined institutions as guidelines set out to direct the way things get done within an institutional setting as it seeks to achieve the espoused future position. It includes laws, rules coupled with incentives and punishment for any violation, internal procedures meant to direct the way households and organizations go about saving for retirement.

Subsequent theoretical concepts of institutional theory were done by Beverly and Sherraden (1999) who proposed that saving behaviour among individuals and their households is a function of guidelines, processes and incentives put in place by organisations in charge of saving and investments. These propositions contributed to this study by expounding on the reasons behind less savings among low income households such as limited access to incentives, subsidies and tax incentives. They also lack payrolls hence it may be difficult to deduct such monies at the time of paying salaries. These factors work against their setting aside some finances towards their retirement.

Life Cycle Theory of Savings

The lifecycle savings theory by Ando and Modigliani (1963) proposed that individuals or households build up their retirement funds by regularly setting aside funds during their active working periods. In their active working period, they accumulate wealth which enable them smoothen marginal utility of consumption.

In the recent years Bloom, Canning, and Graham (2003) extended the traditional life cycle theory of savings model by adding health and longevity to the traditional model of life cycle saving due to the improving life expectancy in most countries and hypothesized that improvement in the number of years averagely lived by persons

resulted in higher savings rates thus retirement planning increases with age. The life cycle theoretical proposal that savings occur over an individual's life cycle and the savings increase with age and income formed a basis for the second objective of this study regarding the influence of demographic attributes of age and income on voluntary *Mbao* pension savings

Theory of planned behavior

Proposed by Ajzen (1991), this school of thought aimed at forecasting and understanding human behaviour.The main hypothesis of this theory was that an individual's future behaviour is dependent on intentions; the intentions can be triggered by economical, social, or environmental factors. A second assumption is that these intentions are influenced by three factors; attitude (favourable or unfavourable evaluation of outcomes), subjective norms (peer or other people common approval), and controls (ease of fulfilling the intention).

The theoretical proposal that human behaviour is influenced by attitude, peer or family approvals and the means to fulfil the intention formed a basis of the third specific aim of the study regarding the influence of behavioural aspects on savings intentions, this case for retirement with *Mbao* pension scheme

Prospect theory

Initially formulated by Tversky and Kahneman (1979) as a decision-choice model and postulated that individuals prefer perceived gains to perceived losses and prefer certain outcomes to probable ones. Further developments of this theory were done by Tversky and Kahneman (1992). This theory also helped in understanding how financial decisions around investments and savings are greatly influenced by human emotions, cognitive bias, external and social factors, thus formed a foundation of the study topic on factors that influence voluntary retirement savings.

Empirical review

Mbao scheme incentives

Mbao offers voluntarily saving plan, for a period, which matures at the time of retirement either from formal or informal employment, but members can make withdrawals after every 3years members are allowed to contribue as little as Ksh. 500 monthly, Ksh.20 daily or Ksh.100 weekly and there is no late payment penalty. This arrangement offers attaractive incentives and flexibility to individuals in the informal-sector as they have freedom to set aside their share of contributions at any time and in any place via their phones.(Kwena & Turner, 2013).

Lüchinger(2013) Swot analysis on the Kenyan *Mbao* pension rider model noted the major strengths for *Mbao* customers as follows; financial training offered, flexible contribution period with no penalty, small voluntary contribution, mobile money convenience, and pension backed mortgage benefits; however, the analysis also revealed weakness and threats for customers in terms of registration fee and hardcopy process, transaction costs, low system speed and peoples fear of losing their money.

Demographic aspects

Ade (2013) examined how the financial knowledge that an individual contributor to a retirement scheme has influences their readiness to be part of a retirement arrangement using data from persons in informal employment in Kenya. Findings indicated that pension awareness stood at 76%, low pension uptake (36.8%) in both NSSF& *Mbao*, with *Mbao* coverage at only (7.2%). Financial education was found most significant, amount of income, formal education level, and age were also found significant, but marital status was found insignificant in pension preparedness.

Githui and Ngare (2014) studied the influence that knowledge possessed on financial management by a population has on their planning arrangements for retirement using data from informal sector in Kenya. Findings revealed that demographic factors are important in retirement planning. Agravat and Kaplelach (2017) studied the demographic effects on micro pension uptake among informal employees of Kenya ports Authority, the micro pension uptake among casuals was found low, literacy levels and income were found the most significant(53.7%), age and household size were found significant too, however, gender was found insignificant.
Ngomba(2020)studied
factors influencing intent of uptake of retirement pension scheme plans in the informal sector in Nairobi County.and found that Age, income and education level are significant determinants of pension uptake. In addition, Ndegwa and Mwaniki (2020) in a study of the determinants of voluntary contributions among formal sector employees towards their retirement income using data drawn from Westlands Sub-County found that knowledge on financial management, age, amount of income, and formal-education level had a significant effect on voluntary retirement schemes at 95% confidence level while tax incentives and gender were found insignificant at 95% confidence level

Behavioral aspects

According to Rubinstein-Levi and Kedar-Levy (2019) irrational attitudes and beliefs held by individuals on retirement greatly contribute to the irrationality displayed in saving behaviour towards retirement.Majority of the persons found not having a plan in place thought that planning for the life after active employment could be postponed to a later date.Culturally in Africa, Kenya included, the oldest establishment of social security has always been the family and land for those who own it or who live on farms.

Asante(2016) in Ghana studied the perceptions and willingness of informal sector workers to participate in social security schemes and found that perceptions and attitudes significantly influence informal sector workers willingness to participate in social security schemes.Similarly
in Kenya, Onyango(2014) carried out qualitative research on the attitude of informal sector traders in Kamkunji market towards retirement savings planning with a focus on *Mbao* pension plan. The research found that informal traders are more concerned about their immediate lives, pension awareness was high, but low participation, traders perceived the saving so small for retirement income, traders preferred other physical assets investments like livestock and housing to pension savings, the attitudes varied with gender, men thought more about retirement plans, unlike women.

Nderitu(2019) in a study of determinants of voluntary contributions towards retirement arrangements by persons running small businesses within Mlolongo area in Machakos County found that financial literacy was most significant, followed by gender, income at 27%, age at 12%. Years in business was found insignificant and men saved for pension while women preferred *chamas (*saving groups*).* The study also contributed to attitudes and cultural norms; the findings were that retirement attitudes varied between men and women due to family roles and retirement planning and thinking were more done by the breadwinner and that women traders income mostly went to meeting the basic family need

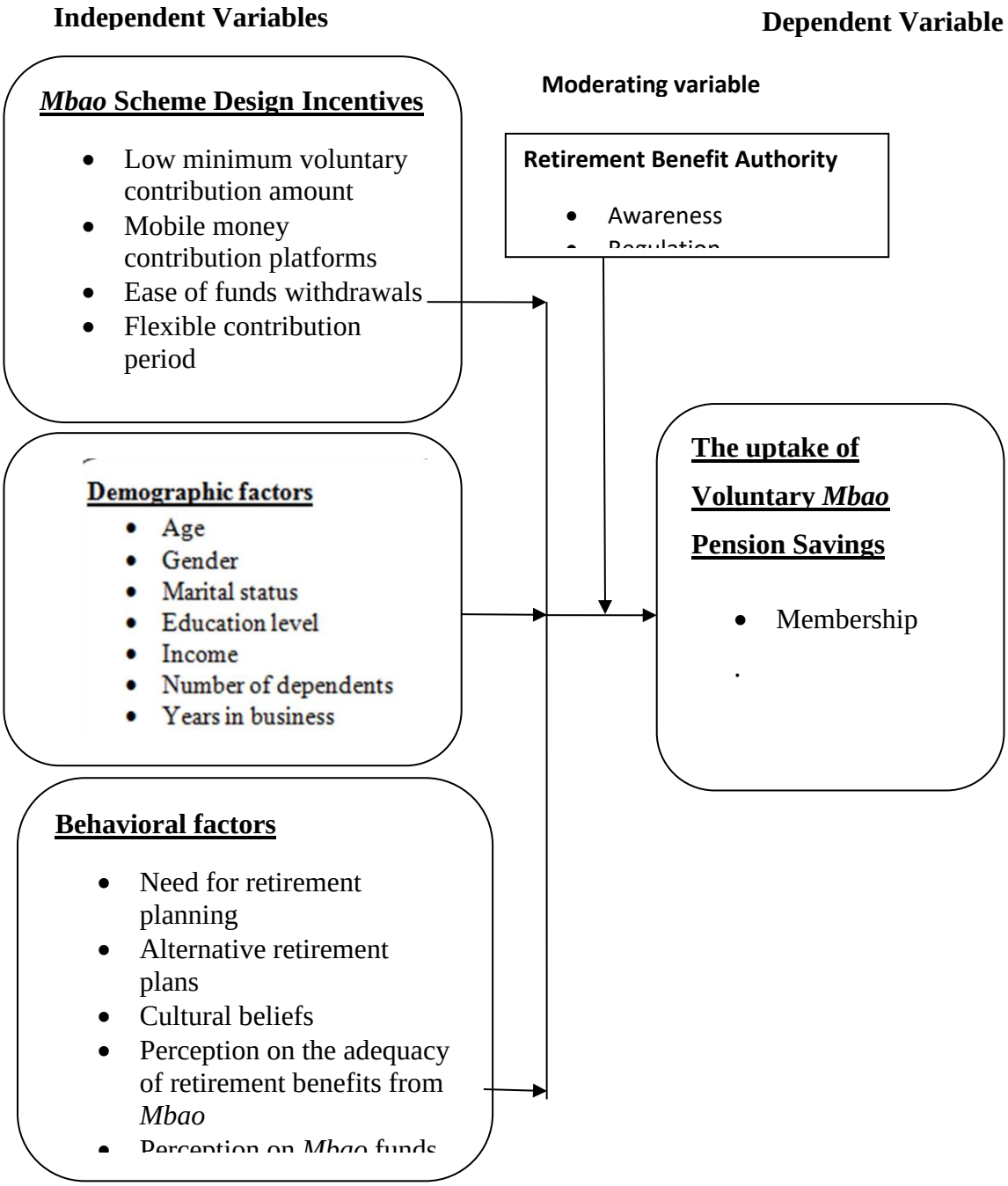
RBA Regulator support

An earlier study by Kusewa(2007) found that the financial performance of retirement schemes in Kenya in terms of contribution and membership was better in the period under which RBA regulation had been operational from the year 2000 compared to the prior years.Kaburu(2013) studied effective marketing and communication strategies used by RBA to attract Juakali workers to join *Mbao* pension scheme and found that the respondents were more responsive to face-face meetings with *Mbao* pension sales agents, word of mouth from referrals and TV adverts.

Conceptual model

In this investigation the dependent variable (the uptake of voluntary *Mbao* pension savings) and the independent variables being *Mbao* pension scheme incentives, demographic factors and behavioural factors as well as the moderating variable , RBA regulator support were examined as laid out in figure 2.1.

Figure 2.1 Conceptual framework



Source: Researcher(2022)

RESEARCH METHODOLOGY

Research design

Observational research method which is usually descriptive in nature was used in this study because it enabled the researcher to gather detailed information about the current status of the factors that influence the uptake of voluntary *Mbao* pension savings plan

by informal sector traders.This design was successfully applied by Githui and Ngare (2014) in studying financial literacy and contributions towards retirement savings.

Target population

Crowe(2014) noted that the Nairobi City Council estimated that about 65,000 people work or trade in Gikomba, Kenya's largest- *mitumba* market, hence one can only obtain approximate numbers. Based on the above statistics, the targeted population in this study was the over 10,000 informal-sector traders in Gikomba market in Nairobi City County, Kenya.

Sampling technique and size

Stratified random sampling helped in classifying the traders into five categories according to the sector of trade namely; food& household items, second-hand clothes, shoe dealers, artisans (furniture/metal fabricators), and other small kiosks.The sample size of 384 traders was determined by using the formula recommended by fisher (1998) for target population larger than 10,000 This precept is used for huge populations especially when it is possible to estimate the size even when the real size is unkown like in this case.

Data Collection Instruments

Questionnaires were used in gathering primary data from a sample of 384 traders from the 5 sectors of trade in Gikomba market, Nairobi City County in Kenya .

Data Analysis and Presentation

The data gathered was organized, checked and coded before entry into SPSS. Responses were also checked for relevance and clarity then examined using descriptive and inferential statistical tools. Descriptive statistics consisted of frequency tables, pie/bar charts, arithmetic mean and percentages used in analyzing the backround data of the participants since they help summarize large amounts of data into a simple meaningful number or statistic for easier interpretation. (Bryman & Bell, 2003). Measures of variability such as standard deviation were used alongside means in analysing the response and predictor variables in this study.

For inferential statistics, binary logistic regression analysis was done using Statistical Package for Social Sciences software version 28 for easier quantitative estimation and drawing conclusions on the association between the outcome variable and the explanatory variables (Cooper &Schindler, 2003). The data was then presented using tables and charts which are easier to read, visualize and understand.

Empirical model

Binary logistic regression analysis was done using Statistical Package for Social Sciences software version 28 for easier quantitative estimation and drawing conclusions on the association between the outcome variable and the explanatory variables (Cooper &Schindler, 2003).Binary logistic regression model predicts membership in this case the probability of success(trader) saving for pension in *Mbao* scheme) over the probability of failure which is the non target group and the results are usualy in the form of odds ratio **(**Tranmer & Elliot, 2008). The model was therefore expressed in terms of the logarithms of the Odds ratio.

Logit P = $\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} W_j + \beta_{11} W_j * X_1 * X_2 * X_3 * X_4 * X_5 * X_6 * X_7 * X_8 * X_9 + \varepsilon$

Where P = The probability of a trader saving for pension in *Mbao* scheme, β_0 =Constant (the log odds at zero values of the independent variables)., X_1 = *Mbao* pension scheme incentives

X_2 = Gender, X_3 = Age, X_4 = Marital status, X_5 = Education level, X_6 = Business income, X_7 = Number of children, X_8 = Years in business, X_9 = Behavioral influence, W_j = Retirement Benefit Authority as a moderating variable and ε = error term

RESULTS AND DISCUSSIONS

Demographic profile

This study was done in Gikomba market in Nairobi City County in Kenya using a sample of 384 traders and 331 of the 384 questionnaires that were discharged to the participants were correctly filled yeiled a satisfactory response rate of 86%.This is in line with Mugenda and Mugenda(2003) assertion that a response rate of 50% is considered adequate, 60% is better while 70% and above is excellent.

The results of the study showed that most of the traders saving for retirement in *Mbao* scheme were female traders(59.50%). Older taders above 56 yrs at 32.4% and those between 46-55years at 29.7% were found saving for retirerment with *Mbao* more than younger traders, also married traders were found saving more for pension with *Mbao* scheme(62.20%) ,traders with college and university education formed the bulk of those found saving with *Mbao* scheme at 32.4% and 35.1% respectively. While traders with monthtly business incomes between Kes.30,000-50,000 and from 50,000 and above comprised the majority of those saving with *Mbao* scheme at 29.7% and 35.1% respectively. traders with fewer dependants between 0-1 child and those with 2-4 children were also found the bulk of those in *Mbao* pension scheme at 48.6% and 37.8% respectively. Finally, traders who have been in business for a longer period, above 5 years comprised the majority of those saving for retirement with *Mbao* pension scheme at 59.50%,

Reliability results

The Cronbach's Alpha for the 11 Likert scale questions on scheme incentives and behavioural aspects was slightly above 0.7 as laid out in table 4.1; this means the questions had a good or acceptable level of internal consistency within the threshold of 0.70 to 1. The general standard is that a Cronbanch alpha of 0.70 and above is good (reliable), 0.80 and above is better and 0.90 to 1 is best.(Cronbach&Shavelson, 2004).

Table 4.1: Cronbach Alpha

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.727	0.762	11

Source: Research data(2022)

Descriptive statistics

Descriptive statistics of frequencies, percentages, means and standard deviation were used in the analysis of data as follows;

Mbao pension scheme Uptake

Table 4.2 below demonstrates that most of the traders are not saving for pension in *Mbao* scheme (88.82%) despite the fact that most of them agreed that they have heard or know the scheme, only 11.18% of the respondents were found saving for pension with *Mbao* pension scheme

Table 4.2: Mbao pension scheme Uptake

Statement	Response	Frequency	Percent (%)
Are you currently saving for retirement with *Mbao* Pension Savings scheme?	YES	37	11.18
	NO	294	88.82
	Total	**331**	**100**

Source: Research data(2022)

Mbao Pension Savings Scheme Design Incentives

The results in table 4.3 demonstrates that majority of the study participants agreed that flexible contribution period with no late payment penalty is the most attractive incentive with the highest mean score of 4.66, std. 0.825, followed by the ability to access and see retirement savings balance on phone and make contributions using phones (mean score of 4.51, std. 0.980), then low contribution amount of Ksh.20 daily or Ksh. 500

monthly is attractive (mean score of 4.47, std. 0.957), the ability to withdraw the savings after 3 years, the respondents were neutral meaning they neither agreed nor disagreed with the statement (mean score of 3.72, std. 1.061).Finally the respondents weakly agreed that low pay bill transaction cost is attractive, with a mean score of 4.05 with a standard deviation of 1.304.

Table 4.3 : Mbao Scheme Incentives

Views on *Mbao* incentives	1	2	3	4	5	N	Mean	Std. Dev.
The Low contribution amount of Ksh.20 daily or Ksh. 500 Monthly is attractive	9	10	26	56	230	331	4.47	0.957
Ability to withdraw the funds saved with *Mbao* after 3years is attractive	12	10	144	59	106	331	3.72	1.061
You save or would with *Mbao* because of the flexible contribution period with no late payment penalty	4	6	24	26	271	331	4.66	0.825
The ability to access and see retirement savings balance on phone and make contributions using your phone is attractive	11	9	24	42	246	331	4.51	0.98
Low pay-bill transaction cost is attractive	25	14	80	11	201	331	4.05	1.304

Source: Research data(2022)

Behavioral factors and the uptake of voluntary Mbao pension savings

The results in table 4.4 below demonstrates that most of the respondents agreed that retirement is worthy of thinking about and planning with the highest mean score of 4.46, std. 0.94, followed by the belief that children will look after them in old age (mean score of 4.44, std. 0.81), then the belief in retiring from business (mean score of 4.33, std. 0.89). The respondents weakly agreed with the belief that physical assets (land, buildings & real estate) are better retirement plans, with a mean score of 4.31, std. 0.89, they also weakly agreed with the belief that the expected retirement benefits from *Mbao* scheme will be too low with a mean score of 4.20, std. 1.31.Lastly they were neutral concerning their trust in *Mbao* pension scheme with a mean score of 3.90, std. 0.92).

Table 4.4 : Retirement Planning Perceptions and beliefs

Perceptions	1	2	3	4	5	Total	mean	Std. Deviation
Retirement is worthy of thinking and planning	9	4	38	56	224	331	4.46	0.94
You believe children will look after you in old age	1	2	56	63	209	331	4.44	0.81
physical assets (land, buildings & real estate) are better retirement plans	1	2	83	51	194	331	4.31	0.89
You trust *Mbao* pension scheme	1	4	141	66	119	331	3.90	0.92
You believe in retiring from business	1	2	82	47	199	331	4.33	0.89
You feel the expected retirement benefits from *Mbao* scheme will be too low	29	17	30	37	218	331	4.20	1.31

Source: Research data(2022)

Binary Logistic regression model summary

Initial model without RBA regulator moderation

The Nagelkerke R-Square also known as psuedo R-square was used to estimate the approximate variation caused by the predictor variables on the dependent variable. From table 4.5 below, the psuedo R-square statistics is 0.501. Therefore, we conclude that the estimated model without RBA regulator moderation accounts for aproximately 50.1% of the uptake of voluntary *mbao* pension savings by informal sector traders in Nairobi City County, Kenya.

Table 4.5 : The Model's Predictive Power

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	135.498[a]	0.253	0.501

Source: Research data(2022)

The overall Percentage Accuracy of the model without RBA regulator moderation was good at 92.7% as displayed in table 4.6 below. The model also exhibited a fair sensitivity (second row) since 48.6% of the respondents were correctly predicted to be saving for pension in *Mbao* pension scheme and it also exhibited a high specificity of 98.3% (first row) representing the respondents not saving for pension in *Mbao* scheme.

Table 4.6 : Classification Accuracy

	Observed		Predicted		
			not saving	**saving for pension in *Mbao* scheme**	**Percentage Correct**
Step 1	Voluntary pension saving in *Mbao*	not saving	289	5	98.3
		saving for pension in *Mbao* scheme	19	18	48.6
	Overall Percentage				92.7

Source: Research data(2022)

The individual contribution of the predictor variables into the estimated initial model was assessed as shown by table 4.7 below. The confidence level was set at 95% and the Wald test applied, variables with significance (p-values) less than 5% were considered significant. Out of the nine variables included in the initial model, the following were found significant; scheme incentives, age, education level, business income level, number of children, years in business, and behavioral aspects. Gender and marital status results had p-values greater than 5% hence insignificant.

Scheme incentives, age, education level, income level and years in business had positive coefficients **(B),** their Odds ratios (Exp(B) greater than 1,and their confidence levels also greater than 1 hence an increase in their levels increases the probability of a trader saving for pension voluntarily in *Mbao* scheme. The number of Children had a negative coefficient (**B),** Odds ratio- (Exp (B) less than 1 and confidence level also less than 1 hence an increase in the number of children decreases the probability of a trader saving for pension voluntarily in *Mbao* scheme.

Table 4.7: Variables in the Equation

		B	S.E.	Wald	Df.	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	scheme Incentives	0.255	0.107	5.623	1	0.018	1.29	1.045	1.592
	Gender(1) (0= Male, 1= Female	0.897	0.571	2.474	1	0.116	2.453	0.802	7.505
	Age	1.286	0.278	21.355	1	<.001	3.618	2.097	6.243
	Marital status(1) (0=Single, 1=Married	0.067	0.608	0.012	1	0.913	1.069	0.325	3.522
	Education level (0=Primary)			9.21	3	0.027			
	Education level(1) (1=Secondary)	0.144	0.069	4.337	1	0.037	1.155	1.009	1.323
	Education level(2) (2=College)	0.156	0.072	4.74	1	0.029	1.169	1.016	1.346
	Education level(3) (3=University)	0.683	0.263	6.763	1	0.009	1.979	1.183	3.311

	B	S.E.	Wald	Df.	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Business income	0.714	0.315	5.15	1	0.023	2.042	1.102	3.783
Number of children	-1.158	0.36	10.343	1	0.001	0.314	0.155	0.636
Years in Business	0.883	0.307	8.243	1	0.004	2.417	1.323	4.416
Behavioural influence	0.157	0.075	4.449	1	0.035	1.17	1.011	1.355
Constant	-17.6'	4.116	18.421	1	<.001	0.000		

Source: Research data(2022)

Final model with RBA regulator moderation

From table 4.8 below, the psuedo R-square statistics is 0.514, indicating that the estimated model capturing the moderation effect has a predictve power of 51.4%. Therefore, we conclude that the estimated model accounts for aproximately 51.4% of the uptake of voluntary *mbao* pension savings by informal sector traders in Nairobi City County, Kenya.

Table 4.8 : Predictive Power of the Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	132.789[a]	0.259	0.514

Source: Research data(2022)

In addition, Percentage Acurracy statistics was used to assess the correct classification that a trader would choose to save for pension voluntarily in *Mbao* scheme. Table 4.9 below demonstrates that the overall Percentage Accuracy of the estimated model capturing the moderation effect was good at 92.4%, indicating that the estimated model is fit for predicting the correct category (membership into *Mbao* pension scheme) .The model exhibited a fair sensitivity since 48.6% of the respondents were correctly predicted to be saving for pension in *Mbao* pension scheme. It was noted that

the sensitivity power remained the same as the one yielded by the initial model at 48.6% even after entering RBA moderation effect signifying that RBA regulator support moderation effect barely added any contribution to the model.

Table 4.9 : Classification Accuracy

	Observed		Predicted		
			not saving	saving for pension in *Mbao* scheme	Percentage Correct
Step 1	Voluntary pension saving in *Mbao*	not saving	288	6	98.0
		saving for pension in *Mbao* scheme	19	18	48.6
	Overall Percentage				92.4

Source: Research data(2022)

The variables in the equation were used to identify the specific significant variables entered in the final model capturing RBA regulator moderation as laid out in table 4.10 below.

Table 4.10 : Variables in the Equation

		B	S.E.	Wald	df.	Sig.	Exp(B)	95% C.I.for Lower	EXP(B) Upper
Step 1a	scheme incentives	0.277	0.106	6.839	1	0.009	1.319	1.072	1.625
	Gender(1) (0=Male, 1=Female	0.937	0.558	2.824	1	0.09	2.553	0.856	7.616
	Age	1.642	0.346	22.46	1	<.001	5.166	2.62	10.189

	B	S.E.	Wald	df.	Sig.	Exp(B)	95% C.I.for Lower	EXP(B) Upper
Marital status(1) (0=Single, 1=Married)	0.721	0.711	1.029	1	0.31	2.056	0.511	8.278
Education level (0=Primary)			11.102	3	0.011			
Education level(1) (1=Secondary	0.099	0.042	5.618	1	0.018	1.104	1.017	1.198
Education level(2) (2=College)	0.189	0.075	6.309	1	0.012	1.207	1.042	1.399
Education level(3) (3=University)	0.336	0.161	4.347	1	0.037	1.4	1.02	1.023
Business income	0.897	0.315	8.105	1	0.004	2.452	1.322	4.546
Number of children	-1.311	0.335	15.305	1	<.001	0.27	0.14	0.52
Years in Business	1.146	0.347	10.87	1	<.001	3.144	1.591	6.213
Behavioural influence	0.224	0.091	6.03	1	0.014	1.252	1.046	1.497

	B	S.E.	Wald	df.	Sig.	Exp(B)	95% C.I.for Lower	EXP(B) Upper
RBA Support	0.188	0.273	0.472	1	0.492	1.207	0.706	1.062
RBA*Scheme*Gender*Age*Marital S*Education*Business Income*Number of children*Years in Business*Behavioural			5.632	3	0.131			
RBA by Scheme by Gender(1) by Age by Marital S(1) by Education(1) by Business income by number of children by years in business by behavioural	0.000	0	2.356	1	0.125	1	1	1
RBA by Scheme by Gender(1) by Age by Marital S(1) by Education(2) by Business income by number of children by years in business by	0.000	0	1.392	1	0.238	1	1	1

	B	S.E.	Wald	df.	Sig.	Exp(B)	95% C.I.for Lower	EXP(B) Upper
behavioural								
RBA by Scheme by Gender(1) by Age by Marital S(1) by Education(3) by Business income by number of children by years in business by behavioural	0.000	0	1.717	1	0.19	1	1	1
Constant	-27.59	6.098	20.469	1	<.001	0.000		

Source: Research data(2022)

Hypthesis testing summary

The results of the binary logistic estimation model showed that scheme incentives are statistically significant with a p-value less than 0.05,demographic aspects of age, education level, income level, number of children and years in business were also found statistically significant with p-values less than 0.05 while gender and marital status were found insignificant with p-values greater than 0.05.Behavioral aspect was also found statistically significant with a p-value less than 0.05.Retirement Benefit Authority regulator support was found statistically insignificant in moderating the relationship as shown in table 4.11 below. Thus, scheme incentives, age, eduction level, income level, number of children, years in business and behavioral aspects significantly influence the uptake of voluntary *Mbao* pension savings by informal-sector traders in Nairobi City County, Kenya,

Table 4.11 : Summarry of Hypotheses Test Results

Specific study aims	Hypotheses	Decision Criteria	P-value obtained	Conclusion
To evaluate the influence of *Mbao* pension scheme design incentives on its uptake by informal sector traders	**H_{01}:** *Mbao* pension scheme incentives have no significant influence on its voluntary uptake by informal-sector traders	Reject **H_{01}** if P-value is <0.05	P < 0.05	*Mbao* pension scheme incentives have a significant influence on the uptake of voluntary *Mbao* pension savings by informal sector traders
To assess the relationship between demographic factors and the uptake of voluntary *Mbao* pension savingsby informal sector traders	**H_{02}:** Demographic factors have no significant effect on the uptakeof voluntary *Mbao* pension scheme savings by informal-sector traders	Reject **H_{02}** if P-value is <0.05	P < 0.05 for age, education, income, number of children and years in business. P > 0.05 for gender and marital status	Demographic aspects of Age, eduction level, business income level, number of children and years in business have a significant effect on the uptake of voluntary *Mbao* pension savings by informal sector traders. while gender and marital status have no significant influence on the uptake of voluntary *Mbao* pension savings by informal

Specific study aims	Hypotheses	Decision Criteria	P-value obtained	Conclusion
				sector traders
To assess the influence of behavioral factors on the uptake of voluntary *Mbao* pension savings by informal sector traders	**H_{03}:** Behavioural factors have no significant influence on the uptakeof voluntary *Mbao* pension savingsby informal sector traders	Reject **H_{03}** if P-value is <0.05	P < 0.05	Behavioral factors have a significant effect on the uptake of voluntary *Mbao* pension savings by informal sector traders
To establish the moderating effect of RBA regulator support on the relationship between the scheme design incentives, demographic factors, behavioral factors and the uptake of voluntary*Mbao*	**H_{04}:**RBA regulator support has no significant moderation effect on the relationship between the scheme incentives, demographic factors, behavioral factors and the uptake of voluntary *Mbao* pension savings.	Reject **H_{04}** if P-value is <0.05	P > 0.05	RBA regulator support has no notable moderating impact on the relationship between scheme incentives,demographic aspects,behavioral factors and the uptake of voluntary *Mbao* pension savings by informal sector traders

Specific study aims	Hypotheses	Decision Criteria	P-value obtained	Conclusion
pension savings by informal sector traders .				

Source: Research data (2022)

CONCLUSSION AND RECOMMENDATION

Conclusions

With regards to *Mbao* pension scheme incentives, the study established that the incentives are attractive and they increase the probability of a trader participating in voluntary *Mbao* pension savings scheme, the study therefore concluded that *Mbao* scheme incentives influence the uptake of voluntary pension savings in *Mbao* scheme by informal sector traders in Nairobi City County, Kenya.

On Demographic aspects influence on voluntary retirement uptake particularly with *Mbao* pension scheme the research concluded that the demographic aspects of age, education level, business income level, number of children and years in business significantly contribute to the probability of a trader saving for pension in *Mbao* scheme while the demographic aspects of gender and marital status were found insignificant.

With respect to behavioural aspects of traders attitude on the need for retirement planning, cultural belief system and trust in *Mbao* pension scheme the results of the study established that behavioural aspects significantly contribute to the probability of a trader saving for pension in *Mbao* scheme voluntarily hence the conclusion that behavioural factors influence the uptake of voluntary pension savings in *Mbao* scheme by informal sector traders in Nairobi City County, Kenya.

Concerning the role of RBA regulation support in the uptake of *Mbao* pension savings scheme, the study established that RBA regulator support interaction with the independent variables; scheme incentives, demographic aspects and behavioural aspects doesn't increase the probability of a trader saving for pension in *Mbao* scheme thus the conclusion that Retirement Benefit Authority regulator support has no significant moderation effect on the relationship between the scheme design incentives, demographic factors, behavioral factors and the uptake of voluntary *Mbao* pension savings by informal sector traders in Nairobi City County.

Recommendation

Policy Recommendation

Concerning RBA Regulation support, this study recommends that RBA undertakes another round of awareness and promotion campaign for *Mbao* scheme as a pension scheme targeting the informal sector workers in Kenya since majority of the traders that agreed to having seen the adverts agreed that they saw the adverts a long time ago from 2011-2013.

Mbao Pension Scheme Administration Recommendation

With respect to *Mbao* pension scheme incentives, this study recommends another round of aggressive sensitization and a specific emphasis on the special features that make the scheme attractive since the study revealed that most traders had heard about *Mbao* scheme a long time ago between 2011-2013, while most were unsure and some traders even started saving and stopped, most younger traders from 18 years knew very little to nothing about the scheme compared to their older counterparts thus *Mbao* scheme administrators should consider another round of aggressive sensitization.

Majority of the informal traders attributed their lack of saving to inadequate information on *Mbao* scheme and them not knowing how to register in *Mbao* scheme and a major reason cited in the others bracket was that some traders had started saving and stopped but they have never seen follow up messages in their mobile devices reminding them. For this reason, the study recommends that Eagle Africa being the scheme administrator come up with policies for follow up of the informal sector subscribers who the system flag as having stopped saving and send them messages on their mobile phones.

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