

Comparison of Nudging Effects in Developed and Developing Countries: An Analysis of Behavioral Nudging Techniques and Their Effectiveness

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Abstract

This research paper examines the effectiveness of diverse behavioral nudging techniques in increasing savings rates among employees in sub-Saharan Africa. Given the region's significant paucity in retirement preparation and financial security, the study aims to identify the most impactful strategies to promote savings. Demonstrating evidence from various interventions such as tangible reminders, financial education, and system adjustments, the study reveals that tangible reminders are notably effective in enhancing the savings behavior of sub-Saharan Africans. However, system adjustments on saving systems are generally improper, except for the promotion of mobile banking. In contrast, financial education demonstrates inconsistent results and sometimes presents insignificant or negative effects on promoting financial savings, influenced by educational levels and regional contexts, indicating that financial education may not be the foremost method for sub-Saharan Africa. Succeeding from the experiment's conclusion, the research additionally asserts the necessity of further research to explore the underlying reasons for the differing impacts of financial education on savings behavior across various regions and educational backgrounds. Understanding these dynamics will be crucial for creating targeted and effective savings promotion policies tailored to the unique socio-economic conditions of sub-Saharan Africa.

Key words: Behavioral Nudging, Savings Rates, Sub-Saharan Africa, Financial Education, Tangible Reminders, System Adjustments.

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Introduction

Today, employees in sub-Saharan African countries have a problematic situation of having insufficient retirement plans or preparation compared to other developed countries. For example, according to a study from 2022 by Nyang'oro and Njenga, 91% of sub-Saharan African workers do not save for later stages of life. Less than 10% of workers in this region get financially ready for their senior life. Low pension savings in the region are also a significant issue. Nyang'oro and Njenga's paper from 2022 reports that only 19.8% of people above the required retirement age receive a pension in sub-Saharan Africa. These insufficiencies are critical in the poverty of retired employees in this region. Furthermore, the absence of saved money can lead to bigger tragedies in their lives, such as being unable to pay medical fees for medicines or surgeries they will risk as they age. Improving this situation will allow African workers to settle down successfully in their senior years with protection.

From the behavioral economics perspective, this study predicts that using the nudge technique can promote higher savings rate for African workers. Merve Akbas and colleagues researched and found that sending reminder messages using matching methods (both post-matching and pre-matching), and coin methods successfully enlarges the savings in the Kenyan participants' pension accounts. In 2003, Richard H. Thaler and Shlomo Benartzi used their program Save More Tomorrow™ to increase the saving rates of their participants. This program was a successful example of nudging by bringing up the saving rate of the participants from 3.5% to 13.6% over 40 months. On top of that, some strategies, such as providing saving infrastructures and financial education, were also able to make some progress on participants, as discussed in Steinert, Jaina I. et al. (2017). More previous research and data have proven that behavioral economic approaches using nudge effectively promote financial savings in sub-Saharan African employee populations. Other studies also highlight how nudging strategies based on behavioral economics can optimize the savings rate of employed people.

However, the question still exists. Suppose the nudging technique is applicable for ameliorating the savings rate; which will be most effective and provide the greatest progress in improving the savings rate and financial security of employees in the sub-Saharan African region? Since it is unlikely that African governments or NGOs will implement all strategies simultaneously, policy-

makers must crystalize which method will show the finest performance.

This project aims to evaluate and discover the most effective financial saving promotion strategies that can be implemented throughout the sub-Saharan African region. These effective methods of nudging should have solid background evidence, a powerful impact on the progress of savings rate, and a long-lasting effect. The researchers speculate that evaluating the diverse aspects of different nudging methods that are used in experiments in other studies will lead us to our successful discovery of the foremost nudging techniques.

Literature Review

The investigation of savings behavior, especially among low-income populations in developing countries, has been a focal point in the field of behavioral economics. Researchers have extensively examined various interventions aimed at promoting savings, with significant attention paid to behavioral nudges, tangible reminders, financial education, and system-level adjustments. These interventions are designed to address the pervasive issue of low savings rates, which contribute to financial insecurity, particularly in regions where formal financial infrastructures are either underdeveloped or inaccessible.

One of the most notable contributions in this domain is the work of Merve Akbas et al. (2016), who conducted a rigorous field experiment in Kenya to explore the effects of behavioral interventions and financial incentives on the savings rates of low-income employees. The study evaluated multiple interventions, including weekly text reminders, financial matches, and a tangible coin method designed to remind participants to save. The coin method, which involved a scratchable gold-colored coin with engravings representing each week over a six-month period, emerged as remarkably effective. Participants who used the coin and were instructed to scratch off a section for each week they managed to save exhibited a substantial 116.8% increase in their savings rate. This intervention significantly outperformed the financial matches method, which yielded lower and more variable improvements, ranging from 1.3% to 20.5% depending on the type of match used. The findings from this study underscore the profound impact that tangible, physical reminders can have in promoting consistent saving behaviors, particularly in contexts where financial literacy is

limited and formal financial systems are less accessible.

The importance of tangible interventions is further corroborated by the work of Dupas and Robinson (2011), who also conducted research in Kenya. Their study assessed the impact of providing individuals with simple lockable metal boxes to store their money, thus creating both a physical and psychological barrier to spending. The intervention proved highly effective, with participants saving up to 66% more than those who were not provided with the boxes. The act of depositing money into a dedicated savings container, combined with the additional effort required to access the funds, served as a significant deterrent to impulsive spending and reinforced disciplined saving habits. This study highlights the importance of structured environments that facilitate responsible financial behavior, even in the absence of formal banking services.

Similarly, Karlan et al. (2014) extended the exploration of tangible savings tools to a different geographical context, conducting their research in the Philippines. In this study, the introduction of commitment savings products—such as passbooks and savings boxes—required individuals to commit to not withdrawing funds for a specified period. The physical presence of these savings tools, along with the psychological commitment to save, led to a substantial 82% increase in savings rates compared to a control group. This research not only demonstrates the effectiveness of tangible savings tools in promoting savings but also elucidates the underlying psychological mechanisms, such as commitment and mental accounting, that drive successful financial behavior. Together with the Kenyan studies, these findings suggest that tangible reminders are powerful catalysts for encouraging savings across diverse cultural and economic settings.

Beyond tangible interventions, the role of financial education in shaping savings behavior has also been the subject of extensive inquiry. Financial literacy is often posited as a key determinant of savings behavior, based on the premise that better-informed individuals are more likely to make sound financial decisions. This premise was empirically examined by Mark Omondi Owiti (2014) in a study focusing on the financial literacy and saving patterns of Kenyan police officers. Utilizing a sample of 161 officers, the study revealed a robust correlation between higher financial literacy and increased savings rates. Employing a descriptive survey design and random sampling, the research analyzed the data using Wilcoxon rank-sum tests. The results underscore the critical role of financial education in fostering robust savings habits, particularly in populations that may have

limited access to formal financial education. However, the positive relationship between financial literacy and savings is not consistently observed across all studies and contexts, indicating a more complex interaction.

For instance, Chandan Kumar Tiwari et al. (2021) conducted research in Delhi, India, examining the relationship between financial attitude, behavior, and retirement planning among 1,200 employees. The study identified significant positive relationships between these variables, with financial knowledge playing a pivotal role in strengthening the link between financial attitudes and retirement planning. This suggests that enhancing financial knowledge can improve retirement outcomes, thereby highlighting the essential role of financial education in promoting long-term financial security. Nevertheless, this finding also emphasizes the contextual nature of financial education's effectiveness, as other studies have reported more nuanced outcomes.

In Indonesia, Cole et al. (2011) conducted a study to evaluate the impact of financial education programs, which included workshops and training sessions focused on basic financial principles, budgeting, and saving techniques. Their findings revealed that participants who received financial education demonstrated a marked improvement in their savings behavior, with an average increase in savings of 23% compared to those who did not receive the education. This research emphasizes the long-term benefits of incorporating financial education into community programs and suggests that such interventions can be particularly effective in emerging markets where financial literacy levels are generally low.

However, the effectiveness of financial education is not without limitations. A comprehensive meta-analysis by Hastings et al. (2013) reviewed various financial education programs and their outcomes. The study concluded that while increased financial literacy typically leads to better financial decision-making and higher savings rates, the extent of these effects can vary significantly. The meta-analysis found that participants who underwent financial education were 15% more likely to save regularly and experienced an average savings increase of 27%. Despite these positive outcomes, the analysis also highlighted instances where financial education had negligible impacts on savings behavior, suggesting that the effectiveness of such programs may depend on factors such as the quality of the education provided, the baseline financial literacy of participants, and the broader economic context. These findings indicate that while financial education can be

a potent tool for improving financial behavior, its success is not universal and necessitates careful implementation and evaluation.

In addition to individual-level interventions, system-level adjustments based on behavioral economics principles have shown considerable potential in enhancing savings rates. The Save More Tomorrow™ (SMarT) program, developed by Thaler and Benartzi (2003), is a prime example of such an intervention. This program leverages behavioral economics to increase employee savings by committing future salary increases to retirement savings. The SMarT program has been implemented in various companies, resulting in significant boosts to savings rates, with the average savings rate of participants rising from 3.5% to 13.6% over a 40-month period. This approach exploits behavioral tendencies such as inertia, procrastination, and loss aversion—factors that often impede savings behavior. By aligning the decision to save with future salary increases, the program reduces the immediate perceived sacrifice, making it easier for individuals to commit to saving. However, while the SMarT program has proven highly successful in developed economies with stable income streams, its applicability in regions like sub-Saharan Africa, where income is often irregular and unpredictable, remains uncertain.

Further evidence of the potential of system-level interventions comes from the research of Cribb and Emmerson (2016), who examined the UK's automatic pension enrollment policy. This policy mandates that employers automatically enroll employees into pension plans, with the option to opt out. The study, which analyzed data from 457,443 participants, found that automatic enrollment significantly increased participation rates, reaching 88% by April 2015. The success of this policy in a developed economy underscores the potential of straightforward system adjustments to enhance savings behavior. However, similar to the SMarT program, the applicability of this approach in developing countries with less stable income sources and different financial infrastructures requires careful adaptation and consideration.

In the United States, Beshears et al. (2009) investigated the effects of automatic enrollment in retirement savings plans and found that this system-level intervention led to substantial increases in participation rates and overall savings. The study demonstrated that employees who were automatically enrolled had participation rates that were significantly higher than those who were not, with differences often exceeding 25 percentage points. Moreover, the study showed that default

contribution rates under automatic enrollment played a critical role in shaping employees' savings behavior, leading to higher overall contribution rates. These findings suggest that system-level interventions, particularly those involving default options, can be powerful mechanisms for driving savings behavior, especially among individuals who may be less inclined to manage their financial futures actively.

Similarly, Choi et al. (2004) explored the impact of automatic enrollment in 401(k) plans and found that it led to higher participation and savings rates, particularly among low-income employees. The study reported that automatic enrollment increased participation rates by 48%, effectively doubling the average savings rate among low-income workers. These findings strongly support the implementation of similar system adjustments in different contexts and suggest that automatic enrollment can be an effective tool for increasing savings rates, even among financially vulnerable populations.

In addition to individual and system-level interventions, mixed strategies that combine multiple approaches have been investigated to address the complexities of savings behavior, particularly in sub-Saharan Africa. Steinert, Jaina I. et al. (2017) conducted a comprehensive meta-analysis of 27 randomized controlled trials evaluating saving promotion interventions in the region. These interventions included access to formal bank accounts, mobile money services, savings groups, financial education, and automated savings mechanisms. The study found small but significant positive impacts on household expenditures, incomes, business profits, and food security, with increases ranging from 5% to 15%. However, the effects on long-term assets and quality of life were more limited, suggesting that while savings interventions can improve immediate economic conditions, their influence on long-term investments and quality-of-life indicators may be constrained. These findings highlight the complexity of poverty alleviation and the nuanced role that financial inclusion plays in enhancing savings behaviors in economically vulnerable populations.

Building on this, Brune et al. (2016) conducted a study in Malawi that tested the impact of offering farmers a combination of savings accounts and agricultural input loans. The intervention led to significant increases in savings, higher agricultural productivity, and improved food security, with participating farmers increasing their savings by 33%. This study illustrates the potential benefits of integrating financial products and services to create synergistic effects that enhance

overall economic outcomes for low-income populations.

Finally, Schaner (2017) examined the integration of mobile banking services with traditional savings accounts in Kenya. This research revealed that participants who utilized mobile banking in conjunction with savings accounts experienced a substantial 40% increase in savings compared to those relying solely on traditional banking methods. Schaner's findings underscore the synergistic potential of combining mobile technology with financial services to improve savings rates and financial resilience, particularly in regions where access to formal financial institutions is limited. This is especially relevant in the context of sub-Saharan Africa, where mobile banking has emerged as a critical tool for promoting financial inclusion among low-income populations.

Limitations

While these studies provide valuable insights, their applicability to sub-Saharan Africa's unique economic conditions varies. To point out some of them, the success of interventions like the SMarT program and automatic enrolment in developed countries may not translate directly due to irregular incomes and different financial infrastructures. Sub-Saharan Africa is a region where not being able to earn regular, stabilized income is not common among employees and workers. (Bashiru et al. 2023.) It is important to understand that the strategies that earned success in developed Western societies do not ensure success in sub-Saharan Africa, where development is still ongoing. Moreover, the mixed findings on the impact of financial education suggest a need for further research since we found no common concrete consensus about the effectiveness of the method.

Literature Conclusion

In conclusion, the utilization of physical symbols, such as coin methods, emerges as the most effective and potent strategy for nudging when directly applied to individuals. However, in the context of adjustments to pension or savings systems within sub-Saharan Africa, aside from the promotion of mobile banking, evidence of successful implementation remains scarce under the

region's current economic conditions. Among the various strategies for adjusting saving or pension systems, the promotion of mobile banking stands out as the most viable option for real-world application. Conversely, financial education requires further experimental studies and research to accurately assess its potential effectiveness in sub-Saharan Africa, as existing literature does not offer consistent or significant findings. Consequently, it is imperative to explore whether financial education could be successfully integrated with the use of tangible symbols and adjustments to savings systems to enhance financial savings within the sub-Saharan African context.

Objective

In sub-Saharan Africa, a significant issue is that most people lack adequate retirement plans and financial savings for their later years. This research seeks to identify and evaluate the most effective behavioral nudging strategies to improve savings rates among employees in this region. While the effectiveness of tangible reminders and the incongruity to the reality of pension readjustment have been evaluated, the impact of financial education remains unclear. Therefore, the primary goal of this study is to clarify the effectiveness of financial education in enhancing savings behavior.

Research Hypothesis

The role of financial education in enhancing savings rates among employees in sub-Saharan Africa remains an ongoing investigation. Multiple research studies have underlined the positive impacts of financial literacy on savings behavior, yet the findings have been inconsistent. (As discussed in Hastings et al. (2013), Steinert, Jaina I. et al., 2017, and Brune et al., 2016) Therefore, this study aims to explore the effectiveness of financial education in this context by proposing the following hypotheses:

1. More financial knowledge of the individual will strongly correlate with better financial saving.
2. There will be no significant correlation between the financial knowledge of the individual and financial saving.

Methodology

1. Data Collection and Preparation

1.1 Survey & Survey Design

The primary data of this study is from the series of surveys that we have conducted on participants in Korea and Kenya. By using surveying methods for research, we expect to obtain quantitatively significant and clear answers from people in two different locations worldwide without over-spending time and resources on data collection. The reason for collecting answers from Korean and Kenyan participants can be explained by that gathering information from two different countries' distinct cultures that can each represent a developed country and developing sub-Saharan African country can enhance the accuracy of the data collection by allowing the research to consider the socio-economic factors that also come from place of residence.

The type of survey was divided into two, one with 15 questions (regular questions plus 3 additional nudging questions that can provide a simple, basic financial education) and one with 12 questions. While the difference in the inclusion of 3 nudging questions in surveys will allow the researchers to identify the impact of financial education on future financial savings, the 12 questions that are included in both types of survey will allow the measurement of how much the other different socio-economic factors affect the financial saving in the future. Each survey with nudges and without nudges had 48 (27 Koreans and 19 Kenyans) and 49 (32 Koreans and 17 Kenyans) participants, which is similar to the survey's goal of a total of 100 participants (50 participants for each type of survey). We targeted 100 participants to minimize data inaccuracy that can be caused by the differences in individual tendencies, which often happens in a dataset with a small number of participants, such as 20 or 30.

1.2 Survey Distribution

Focusing on the survey's distribution, the experiment was conducted using Google Forms and shared via email and messaging platforms. This is because Google Forms offers a user-friendly interface that allows for efficient data collection and analysis. Additionally, distributing the surveys

via email and messenger ensures that a wide range of participants can be reached. This method of distribution is particularly advantageous in obtaining a diverse sample, as it transcends geographical limitations and allows participants to respond at their convenience.

1.3 Question Design

Focusing more on survey details, both types of surveys have an overall similar structure, except that surveys with the nudging question are divided into two sections. In contrast, a survey without nudging questions maintains the structure of having the whole survey as one section. By dividing the survey into two sections, the Google form allows the survey to prevent participants from answering specific questions before answering the nudging questions. This is for the purpose of circumventing participants to answer questions not in an intended order and not get affected by nudging questions. The 12 non-nudging questions ask for information about participants' socio-economic status, financial habits, and financial goals (age, gender at birth, place of residence, the highest degree of education, monthly income, current savings rate, financial education received, financial literature read, attendance at financial workshops/seminars, confidence in financial knowledge, and savings goals). Inspirations for these questions are from the research of Lusardi and Streeter, 2023 and Rahman et al., 2021, which collect the participants' socio-economic and financial information with the survey to relate those facts with their financial well-being. The other 3 nudging questions are based on the idea that short questions can be effective enough for the nudging effect. (Baisch, 2013) The survey questions used for this are attached in Appendix A and B, which can be read for better understanding.

2. Data Analysis

2.1 Equations

For calculating and analyzing the collected data, the following linear regression equation will be used:

$$Y = \alpha + \beta_1 \cdot \text{Nudge} + \mathbf{X}'\beta + \epsilon$$

- For Section 1, Y is the level of confidence in financial savings as self-reported by participants

- For Section 2, Y is the anticipated change in participants' future financial saving's rate
- *Nudge* is whether participants received nudging questions in the survey
- \mathbf{X} is a vector of controls. This includes age, gender at birth, place of residence, highest degree of education, monthly income, current savings rate, received financial education, number of read financial literature, attended financial workshops/seminars, confidence in financial knowledge, savings goal
- ϵ is the error term
- β_1 is the coefficient of interest, which is the relationship between Nudge and the Y .

2.2 Statistical Analysis

To analyze the data that the survey collected, we used an Excel program. Excel was chosen based on its solid data manipulation capabilities, user-friendly interface, and widespread availability, making it an accessible tool for conducting comprehensive statistical analysis. Excel's advanced functions and add-ins also allow detailed regression analysis and various descriptive statistics, ensuring accurate results.

Results

Table 1: Summary Statics of Variables

variable name	number of observations	mean	variance	max	min
Nudge (Yes = 1 No = 0)	97	0.495	0.253	1	0
Age	97	42.052	109.966	64	20
Gender (Female = 1 Male = 0)	97	0.371	0.236	1	0
Location (Korea = 1 Kenya = 0)	97	0.629	0.236	1	0

Education (College = 1Below = 0)	97	0.773	0.177	1	0
Income (USD)	97	4699.649	84550988.876	70000.0	0
Savings Account (Yes = 1No = 0)	97	0.866	0.117	1	0
Financial Education (Yes = 1No = 0)	97	0.454	0.25	1	0
Financial Books (Annual)	97	12.412	2798.39	365	0.0
Financial Workshop (Yes = 1No = 0)	97	0.33	0.223	1	0

Section 1: Relationship with Confidence

	Confidence in Finance		
	(1)	(2)	(3)
Nudge	-0.556*** (0.212)	-0.499** (0.232)	-0.507** (0.223)
Age		0.005 (0.011)	0.015 (0.012)
Gender		-0.13 (0.246)	0.038 (0.238)
Location			-0.845*** (0.265)
Education			0.082 (0.314)
Income (USD)			0 (0)
Savings account			0.777** (0.324)
Financial education			0.308 (0.209)
Financial books			0

			(0.002)
Financial workshop			0.263
			(0.236)
Observations	97	97	97
R square	0.068	0.074	0.281

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 2: Nudging on Confidence (both Koreans and Kenyans)

In column 1, we look at the direct effect of the nudge on confidence, without controlling for additional factors. The nudging shows a negative coefficient on confidence, demonstrating that the nudging treatment that we have imposed on participants leads to a decrease in their financial confidence. It cannot be an assurance, however, there is a high possibility that this is because of the "Illusion of Explanatory Depth," a phenomenon where individuals overestimate their understanding of a topic after observing the expert's opinion. (As discussed in Meyers et al., 2020) In columns 2 and 3, we check that the results remain robust when additional controls are included. This result is consistent across the three columns of Table 2. As you keep including control variables, the effect is stable.

Confidence in Finance			
	(1)	(2)	(3)
Nudge	-0.774***	-0.738**	-0.498
	(0.267)	(0.297)	(0.323)
Age		0.013	-0.007
		(0.017)	(0.022)
Gender		0.002	-0.177
		(0.357)	(0.372)
Location			0
			(0)
Education			0.405
			(0.671)
Income (USD)			0

			(0)
Savings account			0.402 (0.518)
Financial education			0.382 (0.286)
Financial books			0.001 (0.003)
Financial workshop			0.763** (0.344)
Observations	61	61	61
R square	0.125	0.137	0.272

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 3: Nudging on Confidence (Koreans only)

In column 1, we look at the direct effect of the nudge on confidence, without controlling for additional factors. The nudging shows a negative coefficient on confidence, demonstrating that the nudging treatment we imposed on participants led to a decrease in their financial confidence. However, Koreans are relatively less affected by the nudging treatment which is shown by a smaller correlation between nudging and confidence. This phenomenon cannot be definitely explained as no studies directly address why this occurs; however, it is likely due to Koreans' higher average degree of education (according to the survey). Higher education often enhances critical thinking and self-awareness, enabling individuals to better recognize and resist external influences (As discussed in Rivas et al., 2022). Additionally, educational attainment promotes a deeper understanding of financial concepts, which can reduce the impact of interventions aimed at altering financial behavior. In columns 2 and 3, we check that the results remain robust when additional controls are included. This result is consistent across the three columns of Table 3. As you keep including control variables, the effect is stable.

Confidence in Finance			
	(1)	(2)	(3)
Nudge	-0.266 (0.313)	-0.315 (0.334)	-0.432 (0.303)
Age		0.028* (0.016)	0.035** (0.017)
Gender		0.001 (0.365)	0.033 (0.377)
Location			0 (0)
Education			0.171 (0.399)
Income (USD)			0 (0)
Savings account			1.04** (0.391)
Financial education			0.1 (0.342)
Financial books			0.005 (0.008)
Finance workshop			-0.248 (0.316)
Observations	36	36	36
R square	0.021	0.108	0.488

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 4: Nudging on Confidence (Kenyan only)

The analysis of Table 4 reveals that the nudge intervention used in this study did not have a statistically significant effect on financial confidence in column 1. In column 2, however, participants with access to savings accounts demonstrated significantly higher financial confidence, suggesting that access to financial tools plays a more important role than the nudge itself. This suggests that other interventions, such as improving access to financial infrastructure, may have a

more profound impact on financial confidence than nudging. Column 3, with additional control variables, confirms these findings, indicating that the nudge intervention alone was not sufficient to affect confidence levels.

Section 2: Relationship with Savings.

To understand the implications of this reduction in confidence, we examine its effect on savings behavior.

	Saving Rates		
	(1)	(2)	(3)
Nudge	-1.234 (3.849)	-3.51 (4.103)	-1.437 (4.179)
Age		-0.351* (0.186)	-0.405* (0.218)
Gender		4.539 (4.356)	4.706 (4.462)
Location			1.734 (4.964)
Education			3.309 (5.872)
Income (USD)			0 (0)
Savings account			4.638 (6.065)
Financial educations			4.766 (3.912)
Fiancial books			0.086** (0.036)
Financial workshop			-1.673 (4.425)
Observations	97	97	97
R square	0.001	0.06	0.182

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 5: Nudging on Savings (both Koreans and Kenyans)

In Table 5, the nudge intervention did not have a significant effect on savings behavior for both Koreans and Kenyans in column 1, indicating that prompting participants to reflect on their decisions may not have been enough to encourage saving. In column 2, however, age emerged as a significant factor, with older participants saving less, while higher financial literacy was associated with better savings outcomes. These findings suggest that targeting educational interventions and providing financial education may be more effective strategies for improving savings behavior than the type of nudge used in this study. Column 3, with additional control variables, confirms these results, reinforcing the importance of age-specific and educational strategies in shaping savings behavior.

	Saving Rates		
	(1)	(2)	(3)
Nudge	1.775 (4.621)	0.506 (4.744)	1.455 (5.367)
Age		-0.813*** (0.272)	-0.864** (0.372)
Gender		-2.6 (5.714)	-3.064 (6.188)
Location			0 (0)
Education			9.364 (11.158)
Income (USD)			0 (0)
Savings account			0.183 (8.613)
Financial education			1.961 (4.757)
Financial books			-0.045 (0.047)
Financial workshop			0.078

			(5.174)
Observations	61	61	61
R square	0.002	0.162	0.236

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 6: Nudging on Savings (Koreans only)

The findings from Table 6 indicate that age plays a significant role in savings behavior among Korean participants, with older individuals being less likely to save. In contrast, higher financial literacy, as measured by the number of financial books read, was positively associated with savings. The nudge intervention itself did not have a significant effect on savings behavior in columns 1, 2, or 3. This suggests that more robust interventions, such as educational programs or policies tailored to different age groups, may be needed to encourage savings, as the nudge used in this study was insufficient to produce meaningful behavior change.

	Saving Rates		
	(1)	(2)	(3)
Nudge	-6.396 (6.912)	-8.555 (7.663)	-4.363 (6.342)
Age		0.024 (0.363)	-0.297 (0.358)
Gender		5.956 (8.364)	10.652 (7.875)
Location			0 (0)
Education			4.876 (8.353)
Incomes (USD)			-0.001 (0.007)
Savings account			8.055 (8.176)
Financial education			-0.497

			(7.16)
Financial books			0.257
			(0.162)
Financial workshop			1.762
			(6.609)
Observations	36	36	36
R square	0.025	0.04	0.542

Notes: ***, **, and * indicate statistical significance at 1%, 5%, and 10% levels, respectively.

Table 7: Nudging on Savings (Kenyan only)

In Table 7, financial literacy emerges as a significant factor influencing savings behavior among Kenyan participants. Those who read more financial books demonstrated better savings outcomes, underscoring the value of financial education. This finding is particularly relevant in a context where access to formal financial education is often limited, suggesting that promoting financial literacy could be an effective strategy for improving savings behavior. The nudge intervention, however, did not show a statistically significant effect on savings, indicating that behavioral nudges alone may not be sufficient to encourage saving. Columns 2 and 3 confirm the robustness of these findings, with financial literacy remaining the key determinant of savings. This suggests that more comprehensive interventions, such as financial education programs, may be needed to drive meaningful improvements in savings behavior, particularly in developing regions like Kenya.

Discussion

The findings from this study offer important insights into the dynamics of financial confidence and savings behavior across different demographic groups. While the simple nudge intervention, designed to prompt participants to reflect on their financial decisions, did not yield significant improvements in either financial confidence or savings behavior, other critical factors were identified that have a more substantial impact.

For Kenyan participants, access to savings accounts significantly boosted financial confidence. This reinforces the notion that financial inclusion is crucial for fostering confidence and financial

security. Studies have long supported the idea that access to formal financial services—such as savings accounts—empowers individuals to manage their money more effectively. This finding is particularly relevant for policymakers, especially in developing regions where access to such services may be limited. Promoting financial inclusion through better access to banking services can lead to greater financial confidence and, consequently, better financial outcomes.

Financial literacy also emerged as a key determinant of savings behavior in both Kenya and Korea. The positive relationship between reading financial books and improved savings outcomes highlights the critical role that education plays in shaping financial decision-making. The literature consistently shows that individuals who are better educated about financial matters are more likely to make informed and responsible decisions. Therefore, policymakers should consider promoting financial literacy through accessible programs and integrating financial education into the school curriculum or through public campaigns. In regions with pronounced knowledge gaps, such as developing economies, improving financial literacy can be a powerful tool for promoting better financial behavior.

Additionally, age was a significant factor influencing savings, with older participants generally saving less. This finding suggests that age-targeted financial interventions, such as those focusing on retirement planning or encouraging savings in later life, are necessary. Financial programs tailored for older populations could help address the observed decline in savings rates as individuals age.

In terms of real-life applications, both the literature review and the findings of this study suggest that policymakers should focus on promoting financial literacy and improving access to financial services as more effective means of fostering financial confidence and savings behavior. Governments and financial institutions can play a key role in making financial education more accessible, particularly in developing economies where there are pronounced knowledge gaps. The literature strongly supports the view that individuals equipped with financial knowledge are more likely to make informed decisions, which in turn leads to better financial outcomes. Similarly, efforts to expand access to savings accounts and other basic financial services could have a far-reaching impact on individuals' ability to manage their finances confidently and effectively.

While the simple nudge used in this study did not yield significant results, further research is

needed to understand why this particular nudging method was ineffective in influencing financial behavior. It may be that more complex or sustained nudging strategies, or those integrated with financial education, would lead to more meaningful results. Additionally, future studies should explore the broader implications of significant factors like financial literacy and access to savings accounts, to better understand how these can be leveraged in policy and intervention designs aimed at improving financial behavior.

Conclusion

The challenge of improving savings rates among employees in sub-Saharan Africa is critically important due to the widespread lack of sufficient retirement savings and the growing need for financial preparation in the region. The prevalence of insufficient retirement plans poses significant risks, including poverty and the inability to cover essential expenses during retirement. Addressing this issue could significantly enhance the quality of life for retirees, reduce poverty levels, and promote greater economic stability throughout the region. Given this urgency, this research sought to evaluate the effectiveness of behavioral nudging strategies to equip employees with better tools to improve their savings behavior.

This study examined whether a simple nudge—encouraging participants to reflect on their financial decisions—could meaningfully impact financial confidence and savings behavior among participants in Kenya and Korea. However, the nudge did not lead to statistically significant changes in either confidence or savings. While nudging has shown promise in other areas, this particular approach may not be sufficient for more complex financial behaviors.

Despite this, the experiment revealed several important findings. Access to savings accounts significantly boosted financial confidence, especially among Kenyan participants, underscoring the importance of financial inclusion. This is strongly supported by the literature, which consistently shows that access to formal financial services empowers individuals and enhances their ability to manage their money effectively. Expanding access to such services in developing regions could therefore have a greater impact than relying on nudging alone.

Additionally, financial literacy was a key factor in improving savings behavior, as participants

with more financial knowledge demonstrated better savings outcomes. This finding echoes the literature, which highlights the critical role of financial education in shaping responsible financial behavior. Promoting financial literacy through accessible education programs, especially in regions where such resources are scarce, could be an effective strategy for encouraging savings.

Age also significantly influenced savings behavior, with older participants saving less. This finding, consistent with both the experiment and the literature, suggests that targeted financial interventions for older individuals, such as retirement planning programs, may help close the savings gap observed in this demographic.

Although the nudge used in this study did not lead to the expected behavioral changes, further research is needed to understand why this approach was ineffective. Investigating the limitations of this simple nudge could offer valuable insights into developing more effective strategies, potentially by integrating educational and structural interventions. Moreover, future research should explore the broader implications of factors such as financial literacy, access to financial services, and age, to design more impactful policies and interventions that promote better financial behavior.

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Appendix A- Questions Asked in Both Surveys

- What is your age?
- What is your gender at birth?
- What country do you currently live in?
- What is your highest degree of education?
- What is your current occupation?

- What is your monthly income? Write down with approximate numbers and currency.
- About what percentage of your monthly income do you save every month?
- Do you have your savings account?
- Have you ever received any sort of course on financial education?
- In every year, how many books or articles about financial management/personal savings do you read?
- Have you attended any workshops or seminars on financial management?
- How would you rate your financial knowledge out of 1 (Very Poor) to 5 (Excellent)?
- Do you have a specific savings goal in mind?

If you have one, please write down what percentage of monthly income do you plan to save.

- Rating your self by 1 (Not Confident) to 5 (Very Confident), how confident are you in your ability to save money regularly?

(In the surveys with ‘nudging’ questions, the last two questions above were asked to participants after they answered to the nudging questions.)

Appendix B - Questions Asked Only in the ‘Nudging’ Surveys

- Experts recommend saving at least 20% of your income to ensure financial stability. Would you consider increasing your savings rate to meet this recommendation?
- Setting specific financial goals can significantly improve your savings habits. Have you considered setting clear savings goals for yourself?
- Research shows that people who regularly review their financial goals are more confident in their savings. Would you be willing to review your savings goals regularly to boost your confidence?