LIVING FOR TODAY: HOW PRESENT BIAS AND HYPERBOLIC DISCOUNTING CONSTRAIN FINANCIAL INCLUSION AND ASSET ACCUMULATION AMONGST VULNERABLE WOMEN IN NIGERIA

Muhammad Kabir SALIHU [1], Umar Ahmadu ISA [2*], & Sanusi OHIARE [3]
[1&2] Department of Economics,
Ahmadu Bello University, Zaria
[3] Department of Economics,
Federal University, Lokoja
[*]**Corresponding Contacts:** umariah1414@gmail.com
Phone: +2347031877683

Abstract

This paper examines the relationship between time preference parameters, specifically present bias and hyperbolic discounting, and financial inclusion outcomes amongst vulnerable women in Nigeria. Using data from 12,433 women surveyed in the EfINA 2023 Access to Financial Services study, we employ probit models and ordinary least squares regression to analyse how intertemporal choice patterns affect Bank account ownership, financial exclusion, savings behaviour, asset accumulation, and consumption smoothing capacity. The results indicate that women in Nigeria exhibit substantial present bias, with 77.5% choosing ₦5,000 immediately over ₦5,500 in one month, representing a 10% monthly return or 213% annualised return. The mean present bias coefficient (β)is 0.76, indicating strong preference for immediate gratification. Whilst present bias shows modest direct effects on financial inclusion, the analysis reveals that financial literacy and access barriers play more substantial roles. Women with higher financial literacy scores demonstrate significantly greater likelihood of bank account ownership, whilst distance to the nearest bank creates meaningful barriers to formal financial inclusion. The findings suggest that interventions targeting both behavioural patterns and structural barriers is necessary to enhance financial inclusion amongst vulnerable women in Nigeria.

Keywords: Financial inclusion, Gender gap, Present bias, Hyperbolic discounting, & time preferences

JEL Classification Codes: D91, G21, G51, O16, J16

1. Introduction

Financial inclusion represents a critical pathway for economic empowerment and poverty reduction, particularly amongst women in developing countries. Despite significant progress in recent years, Nigeria continues to face substantial gender gaps in access to financial services. According to the 2023 EfINA Access to Financial Services survey, formal financial inclusion rates stand at 64% nationally, with women lagging behind men by nine percentage points. More concerning, 37.7% of women remain completely

financially excluded, lacking access to both formal banking services and alternative financial providers such as mobile money operators and microfinance institutions.

The persistence of financial exclusion amongst women in Nigeria cannot be explained solely by traditional economic factors such as income, education, or geographic access. Behavioural economics offers important insights into decision-making patterns that may contribute to financial exclusion and limited asset accumulation. Hyperbolic discounting and present bias, which describe the tendency to disproportionately prefer immediate rewards over future gains, have been shown to influence savings behaviour, credit use, and long-term financial planning. The quasi-hyperbolic discounting model proposed by Laibson (1997) and further developed by O'Donoghue and Rabin (1999) provides a theoretical framework for understanding how individuals may make choices that conflict with their long-term welfare.

Evidence from the EfINA 2023 survey reveals striking patterns of present bias amongst Nigerian women. When offered a choice between ₦5,000 immediately and ₦5,500 in one month, 87% of women selected the immediate option, foregoing a 10% monthly return equivalent to 213% annually. This extreme preference for immediacy occurs even amongst women without urgent consumption needs, suggesting deep-rooted time preference patterns rather than responses to temporary liquidity constraints. Such preferences may have profound implications for financial behaviours including savings accumulation, investment in productive assets, insurance uptake, and participation in formal financial services.

The relationship between time preferences and financial inclusion operates through multiple channels. Women with stronger present bias may find it more difficult to maintain minimum account balances, leading to account dormancy or closure. They may be less willing to incur the immediate costs of account opening, such as travel to bank branches or assembly of required documentation, in exchange for future benefits of financial access. Present-biased individuals may also struggle to resist immediate consumption temptations, making regular savings contributions more challenging. Furthermore, the structure of many financial products, which often require upfront costs or waiting periods before benefits accrue, may be particularly unattractive to those with hyperbolic discount functions.

This paper addresses two main research questions. First, what are the time preference parameters amongst vulnerable women in Nigeria, and how do these parameters vary by financial inclusion status, income levels, and exposure to economic shocks? Understanding the distribution and determinants of time preferences is essential for designing appropriate policy interventions. Second, what is the effect of present bias on financial behaviours and economic outcomes, including bank account ownership, financial exclusion, savings accumulation, asset holdings, and consumption smoothing capacity? Establishing these relationships helps to identify whether behavioural interventions should complement structural reforms aimed at expanding financial access.

The analysis contributes to the growing literature on behavioural economics and financial inclusion in several ways. First, the paper provides detailed estimates of time preference parameters for a large sample of women in Nigeria, filling an important gap in the

empirical literature on intertemporal choice in Sub-Saharan Africa. Second, we examine how present bias interacts with structural barriers such as distance to financial services and supply-side constraints including identification requirements. Third, we explore heterogeneity in time preferences across income levels and shock exposure, which has implications for targeting behavioural interventions. Fourth, we assess the relative importance of behavioural factors compared to traditional determinants of financial inclusion such as income, education, and financial literacy.

The paper proceeds as follows: the next section reviews relevant literature on hyperbolic discounting, present bias, and financial inclusion. The paperfurther describes the data from the EfINA 2023 survey and present descriptive statistics on time preferences and financial behaviours amongst Nigerian women. The methodology section explains the econometric approach, including probit models for binary outcomes and ordinary least squares regression for continuous outcomes. The paper present results from multiple specifications and discuss their implications for understanding financial exclusion. The final section concludes with policy recommendations and suggestions for future research.

2. Literature Review

The term time preferences represent the relative significance an individual attributes to the receipt of rewards at various temporal intervals, primarily quantifying their degree of patience or orientation towards the future. traditional theoretical frameworks posit that these preferences remain stable and consistent, however, empirical behavioral research indicates that a considerable number of individuals exhibit a "high time preference," characterized by pronounced impatience, thereby favoring immediate consumption over future utility (Frederick et al., 2002). This disposition frequently impedes the pursuit of financial literacy and the formulation of long-term plans, as the perceived costs associated with postponing future benefits surpass the immediate gratification derived from present expenditures.Present bias on the other hand, constitutes a particular cognitive anomaly within time preferences, where individuals disproportionately prioritize payoffs that are accessible in the immediate "now." This cognitive distortion creates dynamic inconsistency, whereby an individual may intend to save for retirement in the future but subsequently retract that intention upon the actual moment of decision, thereby opting for immediate satisfaction instead (O'Donoghue & Rabin, 1999). Empirical findings reveal that individuals exhibiting present bias are less likely to save and more susceptible to high-cost borrowing, which directly impairs their ability to achieve stable asset accumulation (Meier & Sprenger, 2010).

Hyperbolic discounting, in contrast, serves as the mathematical framework for understanding present bias, illustrating how the value attributed to a reward diminishes sharply for short delays while remaining relatively constant for prolonged deferrals. Unlike exponential discounting, which operates under the assumption of a constant discount rate, hyperbolic discounting gives rise to preference reversals, for instance, an individual may prefer two rewards in 31 days over one reward in 30 days, yet select one reward today over two tomorrow (Laibson, 1997). This steep "discounting of the now" renders long-term goals, such as pension contributions, appear less significant than trivial current expenditures, thereby establishing a psychological impediment to asset accumulation and wealth creation. Thus, individuals who engage in hyperbolic

discounting frequently find themselves excluded from the advantages of compound interest and formal investment opportunities, as they prioritize liquidity and immediate cash availability over the deferred rewards associated with financial instruments and this limit their tendencies to be financially included.

The standard exponential discounting model, which has dominated economic analysis for decades, assumes that individuals discount future utility at a constant rate. Under exponential discounting, preferences are time-consistent, meaning that choices between outcomes at two future dates remain unchanged as both dates move closer to the present. However, substantial empirical evidence demonstrates that human decision-making frequently violates this assumption. Individuals often exhibit present bias, placing disproportionate weight on immediate outcomes relative to all future outcomes, regardless of how distant those future outcomes may be.Laibson (1997) formalised this behaviour through the quasi-hyperbolic discounting model, in which utility at time t is given by $U(t) = u(c_0) + \beta\delta u(c_1) + \beta\delta^2 u(c_2) + \ldots + \beta\delta^{\mathrm{T}} u(c^{\mathrm{T}})$, where $\beta \leq 1$ captures present bias and $\delta < 1$ represents standard exponential discounting. When $\beta = 1$, preferences reduce to standard exponential discounting with time-consistent preferences. When $\beta < 1$, individuals exhibit present bias, preferring immediate consumption more strongly than implied by their long-run discount rate. This model has proven highly effective at explaining phenomena including undersaving, procrastination, and dynamic inconsistency in consumption choices. O'Donoghue and Rabin (1999, 2001) extended the quasi-hyperbolic framework by distinguishing between sophisticated and naive agents. Sophisticated individuals recognise their future present bias and may adopt commitment devices or other strategies to manage their time-inconsistent preferences. Naive individuals fail to anticipate their future present bias, leading to repeated failures to follow through on intended future actions. This distinction has important implications for financial inclusion, as sophisticated present-biased individuals might actively seek commitment savings products, whilst naive present-biased individuals might repeatedly intend to open accounts or begin saving without following through.Therefore, these provide a theoretical framework for understanding how individuals may make choices that conflict with their long-term welfare.

2.1 Empirical Literature

The empirical literature on time preferences in developing countries has grown substantially in recent years. Tanaka et al. (2010) measured discount rates in Vietnam and found considerable heterogeneity, with some individuals exhibiting very high discount rates exceeding 50% annually. Bauer et al. (2012) examined time preferences amongst children and adolescents in India, finding that present bias declines with age but remains substantial even amongst teenagers. Duflo et al. (2011) demonstrated that commitment savings accounts designed to accommodate present bias significantly increased savings amongst women in the Philippines, providing field experimental evidence that time preferences influence financial behaviours. Several studies have investigated the relationship between poverty, financial stress, and time preferences. Haushofer and Fehr (2014) reviewed evidence suggesting that poverty itself may generate or exacerbate present bias through multiple psychological channels including stress, cognitive load, and negative affective states. Shah et al. (2012) found that scarcity captures attention and impairs cognitive function, potentially leading to more short-sighted decision-making.

Mullainathan and Shafir (2013) argued that the psychology of scarcity creates a "bandwidth tax" that reduces the mental resources available for forward-looking planning. If poverty causes present bias, rather than simply correlating with it, then interventions that reduce economic insecurity might also improve intertemporal choice patterns.

More recently, the study by Nabeshima, et al., (2025) empirically examined data from 6,709 active Japanese investors aged 65 and over using probit regression to analyze how hyperbolic discounting impacts the achievement of later-life financial asset thresholds, specifically finding that the bias significantly impaired asset accumulation only at the JPY 100 million level, but not at the lower thresholds of JPY 20 million, JPY 30 million, or JPY 50 million. However, the research by Bawalle, et al., (2024) analyzed responses from 114,170 active investors in Japan to demonstrate a strong negative association between financial knowledge, positive financial behavior, and future-oriented financial attitude, and hyperbolic discounting, suggesting that these aspects of financial literacy can mitigate time-inconsistent behavior. Also, the study by Maji and Prasad (2024) employed binary probit regression using data from 47,132 respondents in India to conclude that the prevalence of present bias (8.2% of the sample) led individuals to save less and be more inclined toward borrowing, validating the theoretical link between lack of self-control and suboptimal financial behavior. Again, the meta-analysis by Cheung, et al., (2025) which synthesized estimates from 86 studies on quasi-hyperbolic discounting, reported that after correcting for selective reporting, the present bias parameter (β) for monetary rewards was estimated at 0.938, but was significantly stronger for non-monetary rewards, such as real consumption, with an estimated coefficient of 0.750.

The Nigerian context presents particular challenges for financial inclusion, in terms of the usage of financial services, traditional banking infrastructure remains concentrated in urban areas, despite recent growth in mobile money services and digital financial platforms. Also, access to financial services in rural areas remain limited, women often travel substantial distances to reach bank branches, incurring significant transaction costs. Again, identification requirements for account opening pose additional barriers, as many women lack official identification documents. Low levels of financial literacy limit awareness of available services and understanding of how to use them effectively. Cultural norms in some regions restrict women's independent economic decision-making, requiring spousal permission for financial transactions.

3. Methodology

This section explains the nature of data, sampling size, the preference measurement i.e.present bias and hyperbolic discounting (with the three choice scenarios), estimation techniques as well as model specifications employed in this study.

3.1 Data and Sample Size

This study utilisesprimary data from the EfINA 2023 Access to Financial Services survey in Nigeria, a comprehensive nationally representative household survey conducted in 2023. The survey included approximately 24,000 adult respondents from all 36 states of Nigeria plus the Federal Capital Territory. Analysis of this study focuses exclusively on female respondents to examine financial inclusion patterns and time preferences amongst

women in Nigeria, and sample for the study comprises of 12,433 women aged 18 years and older.

3.2 Preference Measurements

Time preferences were measured using a series of hypothetical choice questions in which respondents selected between smaller immediate payments and larger delayed payments. Three choice scenarios were presented. In the first scenario, respondents chose between ₦5,000 now and ₦5,500 in one month, representing a 10% monthly return. The second scenario presented ₦10,000 now versus ₦11,000 in one month. The third scenario offered ₦5,000 now versus ₦6,000 in six months. These choices allow us to infer individual-level discount rates and present bias parameters.This paper constructs two summary measures of time preferences from these choice questions. First, we calculate an implied monthly discount rate for each individual based on the indifference point between immediate and delayed payments. Second, we estimate a present bias coefficient (β) using the quasi-hyperbolic discounting framework. The present bias coefficient captures the additional weight placed on immediate consumption beyond what would be implied by the standard exponential discount rate.

3.3Estimation Techniques and Model Specification

This study used two estimation techniques; the binary probit model and ordinary least square model (OLS) that broadly answered the question of how present bias and hyperbolic discounting could influence the financial inclusion of vulnerable women in Nigeria.

3.3.1 Probit Model

The probit model is suitable to be employed to determine the extent of financial inclusion or exclusion among when the dependent variable is binary or categorical (an individual owning a bank account or not). Hence, the dependent variables for the binary probit model are bank account ownership, and financial exclusion, while the independent variables include present bias, discounting rate, monthly income, financial literacy and distance to bank.

3.3.1.1 Model Specification (Probit)

The probit specification assumes that the latent propensity to adopt a financial behaviour follows a normal distribution, let the latent variable Y_i^*represent the likelihood of an individual $i$owning a bank account or financially excluded. The observed binary indicator variable is:

$$Y_i = \begin{cases} 1 \; if \; Y_i^* > 0 \\ 0 \; otherwise \end{cases}$$

The latent variable Y_i^* depends linearly on observed explanatory variables such as: present bias preference, the hyperbolic discount preference, monthly income, financial literacy and distance to bank.The probit model is specified as follows:

Let $Bank\ Account\ Ownership_i = 1$ if individual $i$owns a bank account, and 0 otherwise.

$$BAC_i^* = \beta_0 + \beta_1 PRB + \beta_2 DIR + \beta_3 MOI + \beta_4 MOI + u \quad - \quad - \quad - \quad 3.1$$

Where:BAC =Bank account ownership, $\beta_0\ and\ \beta_i$ are constant and parameters, $u_i = Error\ term \sim N(0,1)$, PRB = present bias, DIR = discount rate, MOI = monthly income, DIS = D=distance to bank.

The observed outcome will the specification below:

$$P\ (BAC_i = 1) = \phi(\beta_0 + \beta_1 PRB + \beta_2 DIR + \beta_3 MOI + \beta_4 MOI + u_i) \quad - \quad - \quad 3.2$$

Hence, $\phi(.)$ is the cumulative distribution function (CDF) of the standard normal distribution.

On the other hand, for financial exclusion, let $Financial\ Exclusion_i = 1$ if individual $i$isfinancially exclude.

$$FEX_i^* = \theta_0 + \theta_1 PRB + \theta_2 DIR + \theta_3 MOI + \theta_4 MOI + u_i \quad - \quad - \quad - \quad 3.3$$

Where:

FEX = Financial exclusion, $\theta_0\ and\ \theta_i$are constant and parameters, $u_i = Error\ term \sim N(0,1)$

The observable probability is thus:

$$P\ (FEX_i = 1) = \phi(\theta_0 + \theta_1 PRB + \theta_2 DIR + \theta_3 MOI + \theta_4 MOI + u_i) \quad - \quad - \quad 3.4$$

3.3.2 Ordinary Least Square Model

The OLS regression model with heteroskedasticity-robust standard errors were employed to estimate the continuous dependent variables including log savings, log assets, and consumption smoothing index.All regression models include comprehensive control variables to account for alternative explanations. Demographic controls include age, age squared, household size, and marital status. Education is measured through dummy variables for primary, secondary, tertiary, and postgraduate education. Economic variables include log monthly income. Location is captured through an urban dummy and geopolitical zone fixed effects. Financial infrastructure variables include distance to the nearest bank branch and financial literacy score.

3.3.2.1 Model Specification (OLS)

The OLS model is thus specified below:

$ECO_i = \rho_0 + \rho_1 PRB + \rho_2 DIR + \rho_3 MOI + \rho_4 AGE + \rho_5 HHS + \rho_6 MRS + \rho_7 EDU + \varepsilon_i$ - - 3.5

Where:

ECO_i = Economic outcomes (log savings, log assets, and consumption smoothing index), ρ_0, = constant, ρ_i= parameters, PRB = present bias, DIR = discount rate, MOI = monthly income, AGE = age, HHS = household size, MRS = marital status, EDU = education and ε_i = random term.

4. Results and Discussion

This section contains the estimated results and their discussions,the first part presents descriptive statistics of the sample respondents surveyed respondents of the 2023 EfiNA access to financial services survey, the second part reveals the time preference of money by subgroups while the third and fourth segmentspresent the probit and OLS regression reults.

Table 4.1: Descriptive Statistics for Women in Nigeria (N = 12,433)

Variable	Mean	Std. Dev.	Min	Max
Age (years)	52.71	18.9	18	85
Household Size	5.51	2.13	1	15
Monthly Income (₦)	91,042.99	218,377.82	15,000	8,253,658
Total Assets (₦)	745,202.67	2,494,191.05	1,321	90,573,463
Monthly Savings (₦)	7,872.37	32,861.53	0	1,196,222
Financial Literacy Score	51.13	23.49	0	100
Distance to Bank (km)	8.68	10.01	0.1	95.35
Discount Rate (monthly)	0.107	0.072	0.01	0.3
Present Bias Coefficient (β)	0.764	0.125	0.332	1
Consumption Smoothing Index	46.26	23.02	0	100

***Note**: Data from EfINA 2023 Access to Financial Services in Nigeria survey*

Source: Author's Computation, 2025

Table 4.1 presents summary statistics for the sample of 12,433 women in Nigeria. The average age is 52.7 years with substantial variation. Mean monthly income is ₦91,043, though this figure is substantially skewed by high earners. Monthly savings amount averages ₦7,872, but 58% of women report zero formal savings. Financial literacy scores

average 51.1 on a scale from 0 to 100. Distance to the nearest bank averages 8.7 kilometres but varies widely between urban and rural areas.

The time preference measures reveal substantial present bias amongst Nigerian women. The implied monthly discount rate averages 10.7%, equivalent to approximately 230% annually. The present bias coefficient averages 0.76, significantly below the time-consistent value of 1.0. Regarding time preference choices, 77.5% of women selected the immediate ₦5,000 over ₦5,500 in one month, foregoing a 213% annualised return.Financial inclusion rates remain low. Only 39.7% possess bank accounts, considerably below the national average. An additional 26.2% use non-bank financial services, whilst 37.7% remain completely financially excluded. Economic shocks are common, with 47.5% of women experiencing a major financial shock in the preceding 12 months.

Table 4.2: Time Preference Parameters by Subgroups

Subgroup	N	Mean Discount Rate	Mean Present Bias (β)
Banked Women	4,932	0.1051	0.7792
Non-Bank Services Only	2,817	0.1079	0.7534
Financially Excluded	4,684	0.1073	0.7550
No Recent Shock	6,533	0.1054	0.7715
Experienced Shock	5,900	0.1079	0.7563

Note: Time preference parameters vary modestly across financial inclusion status and shock exposure

Source: Author's Computation, 2025

Table 4.2 examines how time preference parameters vary across subgroups. Women with bank accounts exhibit an average discount rate of 10.5% and present bias coefficient of 0.78. Financially excluded women show discount rate of 10.7% and present bias coefficient of 0.76. These differences are modest in magnitude, suggesting that time preferences alone do not fully explain financial inclusion status.

Table 4.3: Probit Models - Determinants of Financial Inclusion

Variable	Bank Account Ownership	Financial Exclusion
Discount Rate (monthly)	-0.099	0.0248
	-0.163	-0.161
Present Bias Coefficient (β)	0.017	0.02
	-0.102	-0.101
Log Monthly Income	-0.0146	(Yes)
Financial Literacy Score	0.0041***	(Yes)
Distance to Bank (km)	-0.0032**	(Yes)
N / Pseudo R^2	12,433 / 0.0535	12,433 / 0.0199

*Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10. All models include full controls*

Source: Author's Computation, 2025

Table 4.3 presents result from probit models examining the determinants of bank account ownership and financial exclusion. The coefficient on discount rate in the bank account ownership equation is -0.099 with standard error of 0.163, indicating that higher discount rates are associated with lower probability of account ownership, though the relationship is not statistically significant. The present bias coefficient shows a small positive coefficient of 0.017, which is not statistically distinguishable from zero.

In contrast to the time preference measures, financial literacy shows a large positive coefficient of 0.004, which is highly statistically significant. Each additional point on the financial literacy scale increases the probability of bank account ownership by approximately 0.15 percentage points. Distance to the nearest bank shows the expected negative coefficient of -0.003, indicating that each additional kilometre of distance reduces account ownership probability by 0.12 percentage points.

Table 4.4: OLS Regression - Economic Outcomes

Variable	Log Monthly Savings	Log Total Assets	Consumption Smoothing
Discount Rate (monthly)	0.0135	-0.106	-1.0338
	-0.544	-0.122	-2.712
Present Bias Coef. (β)	0.1643	0.0294	1.1318
	-0.342	-0.077	-1.701
Log Monthly Income	0.4037***	(Yes)	(Yes)
N	12,433	12,433	12,433
R^2 / Adjusted R^2	0.0398 / 0.0387	0.5680 / 0.5675	0.1157 / 0.1147

*Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10. All models include full controls*

Source: Author's Computation, 2025

Table 4.4 presents ordinary least squares regression results examining economic outcomes. For log monthly savings, the discount rate has a small positive coefficient of 0.014, whilst present bias coefficient has positive coefficient of 0.164. Neither estimate is statistically significant. Log income shows a strong positive association with savings, with coefficient of 0.404 indicating that a one per cent increase in income is associated with approximately 0.4% increase in savings.

For log total assets, discount rate shows a small negative coefficient of -0.106, whilst present bias coefficient is slightly positive at 0.029. Neither coefficient is statistically significant. The R-squared value of 0.568 indicates that the model explains 57% of the variation in log assets, notably higher than for savings.

The empirical results paint a nuanced picture of the relationship between present bias and financial inclusion amongst women in Nigeria. We document widespread present bias in intertemporal choices, with three-quarters of women selecting immediate rewards over substantially larger future rewards. However, time preferences show relatively modest direct associations with financial inclusion and economic outcomes after controlling for other factors.

5. Conclusion and Recommendations

This section contains the conclusion of the paper based on the key findings and actionable policy recommendations that will spur financial inclusion among vulnerable women in Nigeria.

5.1 Conclusion

This paper examined the relationship between present bias, hyperbolic discounting, and financial inclusion amongst women in Nigeria using data from 12,433 respondents in the EfINA 2023 survey. The paper documented substantial present bias in intertemporal choices, with 77.5% of women selecting immediate rewards over future rewards offering 213% annual returns. The mean present bias coefficient of 0.76 indicates widespread preference for immediate gratification.Using probit models and ordinary least squares regression, the paperanalysed associations between time preference parameters and financial outcomes. The results indicate that whilst time preferences vary systematically with income and shock exposure, their direct effects on financial outcomes are modest after controlling for factors such as financial literacy, physical access to services, and documentation requirements. Financial literacy emerges as a particularly strong predictor of bank account ownership.

5.2Recommendations

This studysuggests that expanding financial inclusion amongst Nigerian women requires addressing multiple barriers simultaneously. Supply-side reforms including branch expansion, mobile banking infrastructure, and simplified documentation requirements should be complemented by demand-side interventions such as financial literacy programmes and behaviourally informed product design. Social protection programmes that reduce economic insecurity may also improve intertemporal decision-making.Despite limitations including the cross-sectional nature of the data and measurement challenges, the analysis provides valuable insights for policy. The gender gap in financial inclusion represents both a challenge and an opportunity for Nigeria's development. Women's economic empowerment through financial inclusion can generate benefits for households, communities, and the broader economy. Achieving universal financial inclusion will require sustained commitment from policymakers, financial service providers, and development partners.

References

Ashraf, N., Karlan, D., & Yin, W. (2006). Tying Odysseus to the mast: Evidence from a commitment savings product in the Philippines. Quarterly Journal of Economics, 121(2), 635-672.

Bauer, M., Chytilová, J., & Morduch, J. (2012). Behavioural foundations of microcredit: Experimental and survey evidence from rural India. American Economic Review, 102(2), 1118-1139.

Bawalle, A. A., Lal, S., Nguyen, T. X. T., Khan, M. S. R., & Kadoya, Y. (2024). Navigating time-inconsistent behavior: The influence of financial knowledge, behavior, and attitude on hyperbolic discounting. *Behavioral Sciences*, *14*(994). https://doi.org/10.3390/bs14110994

Cheung, S. L., Tymula, A., & Wang, X. (2025). *A meta-analysis of quasi-hyperbolic discounting*.

Duflo, E., Kremer, M., & Robinson, J. (2011). Nudging farmers to use fertiliser: Theory and experimental evidence from Kenya. American Economic Review, 101(6), 2350-2390.

EfiNA (2025, November) *Access to financial services in Nigeria 2023 survey*. https://a2f.ng/datasets/

Frederick, S., Loewenstein, G., & O'Donoghue, T. (2002). Time preference and time discounting: A critical review. *Journal of Economic Literature*, *40*(2), 351–401. doi.org

Haushofer, J., & Fehr, E. (2014). On the psychology of poverty. Science, 344(6186), 862-867.

Laibson, D. (1997). Golden eggs and hyperbolic discounting. Quarterly Journal of Economics, 112(2), 443-478.

Maji, S. K., & Prasad, S. (2025). Present bias and its influence on financial behaviours amongst Indians. *IIM Ranchi Journal of Management Studies*, *4*(1), 17–30.

Meier, S., & Sprenger, C. (2010). Present-biased preferences and credit card borrowing. *American Economic Journal: Applied Economics*, *2*(1), 193–210. doi.org

Mullainathan, S., & Shafir, E. (2013). Scarcity: Why having too little means so much. Times Books.

Nabeshima, H., Lal, S., Izumi, H., Himeno, Y., Khan, M. S. R., & Kadoya, Y. (2025). The impact of hyperbolic discounting on asset accumulation for later life: A study of active investors aged 65 years and over in Japan. *Risks*, *13*(8). https://doi.org/10.3390/risks13010008

O'Donoghue, T., & Rabin, M. (1999). Doing it now or later. American Economic Review, 89(1), 103-124.

O'Donoghue, T., & Rabin, M. (2001). Choice and procrastination. Quarterly Journal of Economics, 116(1), 121-160.

Shah, A. K., Mullainathan, S., & Shafir, E. (2012). Some consequences of having too little. Science, 338(6107), 682-685.

Tanaka, T., Camerer, C. F., & Nguyen, Q. (2010). Risk and time preferences: Linking experimental and household survey data from Vietnam. American Economic Review, 100(1), 557-571.