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The Role of Behavioural Biases in Shaping Individual Saving Patterns: Evidence From India

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***Abstract*—The conventional saving models argue that the expenses of the consumers are correctly allocated into the current consumption and future consumption. Nevertheless, even in the cases of economic capability for saving, data reveals the existence of discrepancy between commitment to saving and actual saving behaviour. Therefore, the present research investigates the five behavioural biases, which influence saving behaviour—present bias, loss aversion, mental accounting, over-confidence, and self-control problems. Additionally, primary data was gathered from 177 respondents in Gujarat, India through the use of structured questionnaire consisting of 33 items (to evaluate the severity of different behavioural biases as well as different dimensions of saving—frequency of saving, proportion of the income allocated for savings, maintaining emergency fund, and choosing saving instruments). The present bias emerges as the only significant predictor of saving frequency ($r = -0.548$, $p < 0.001$) accounting for nearly 30% of the variance ($R^2 = 0.300$) in simple linear regression. Mental accounting ($M = 3.18$) and lack of self-control ($M = 3.16$) emerged as the most common types of behavioural biases. The survey shows that 48.0% of participants save less than they planned to save at the beginning of the year. Finally, it is important to mention that students and young adults aged from 20 to 25 are the most vulnerable group in terms of biases intensity. The findings suggest that inadequate saving in India is not solely an income or access problem but a cognitive and behavioural one, with direct implications for nudge-based policy design, product design by financial institutions, and behaviourally informed financial literacy programmes.**

***Index Terms*—behavioural biases, saving behaviour, present bias, mental accounting, self-control, household finance, India, behavioural economics.**

I. Introduction

Saving is defined as the allocation of a part of a person's earnings for upcoming usage instead of current consumption, and this remains a very important decision in personal financial management. Traditional economic theories assume that individuals act rationally in their choice of how much to save, taking into account their future income throughout their lives [1]. Nevertheless, in contrast to traditional theories, multiple studies over the years testify to continued under-saving from all over the world [2].

Behavioural economics that originated from the works of Kahneman and Tversky, then developed further with the contribution of Thaler and Laibson and many others, is said to provide a more realistic method of financial decision-making. The present paper analyses five biases connected to saving:

1) present bias, which means the propensity to give much more importance to immediate smaller gains than to much bigger gains occurring in the future [3];
2) loss aversion, which entails the fact that losses are felt in approximately twice as strong a way as equivalent gains [4];
3) mental accounting, which means that individuals treat money differently depending on its origin [5];
4) overconfidence which is associated with inflated opinions about one's competence in finance and can lead to under-provisioning for emergencies; and;
5) self-control problems, which cause saving intentions to collapse in the face of immediate spending temptations [6].

India presents a unique context to explore these issues. The country traditionally has a high level of household savings; however, the composition of savings has moved from physical to financial assets and the total amount of savings has undergone a downward trend. The situation is defined by low levels of financial literacy, a broad informal labour market, and an increasing number of financial products accessible by a growing middle class. For the time being, the bulk of Indian studies on savings has centered around macroeconomic factors influencing saving (like such factors as income, inflation, interest rates) with psychological factors being studied less.

This paper fills in that gap. The main problem of research refers to the issue of under-saving for people from different income classes in India, even for those who can be seen as middle- or high-income people because such groups have enough capacity for savings. Accordingly, this research asks: which behavioural biases are most prevalent among individuals, and to what extent do they shape saving

frequency, the proportion of income saved, emergency-fund maintenance, and the choice of savings instrument, and does this influence vary across demographic groups such as age, gender, income, and occupation?

The research offers three significant contributions. Firstly, it looks at five types of human behavioural biases as a joint phenomenon instead of a separate one, which provides a solution to the problem of many studies discussing only one type of bias. Secondly, it uses original data obtained in India to study biases. Finally, it connects the level of bias with observable effects in savings behaviour and derives practical recommendations for regulators, banks, and educational institutions from the results of the research.

II. Literature Review and Conceptual Framework

The classical starting point for research on saving is the rational, forward-looking consumer of the Life-Cycle and Permanent Income Hypotheses [1], [7], [8], in which saving decisions today are optimised against expected income over an individual's full lifetime. These models remain the normative benchmark against which behavioural deviations are measured, but they were built on assumptions of unlimited self-control and unbiased expectations that a large body of subsequent research has challenged.

Behavioral economics provides the concept behind different behaviours' acceptance. According to Prospect Theory [4] people make judgments about gains and losses based on a reference point, giving different weights to losses than to gains, which explains the trend of people to choose savings products being perceived as 'safe' despite their low profitability. The concept developed by Thaler [5], known as mental accounting, indicates that people do not treat money as a homogeneous good, creating budgets in their minds based on various sources of income and using different rules for managing budgets. Laibson [3] developed the concept of hyperbolic discounting or present bias, which means that people cannot save money in the present moment, even if they plan to do so in the future. The theory from Shefrin and Thaler [6] called the Behavioral Life-Cycle Hypothesis summarizes all of the abovementioned concepts under one theory, pointing out that the conflict occurs within the same person between the plan-making part of the personality and the part that does not remain attentive to future prospects.

A smaller body of empirical literature has connected these variables directly to savings outcomes, typically in settings with a bias towards either a Western or East Asian perspective. For instance, the effect of commitment mechanisms on savings behaviour in the Philippines [9], the earmarking effect on savings for poor demographics [10], the significance of financial literacy in retirement planning [11], the SMarT program implementing automatic escalation in the USA to bring about increased retirement savings [12], and macro evidence of increased savings for urban Chinese households [13]. The Reserve Bank of India offers data regarding the macroeconomic situation behind Indian saving, but its data provides little comprehension regarding the psychological significance of it.

The existing literature exhibits five critical voids providing the impetus for this research: an inordinate focus on investment instead of savings behavior; an almost exclusive focus on biases existing in isolation instead of utilizing framework of multiple biases; an existence of Western viewpoint within the evidence with underrepresentation of India; excessive tendency for measuring bias strength while failing to connect it with observable saving behavior; and limited utilization of observable evidence for suggesting policies in the context of developing economies. Building upon the framework of Behavioural Life-Cycle Hypothesis and utilization of Prospect Theory, hyperbolic discounting, and mental accounting in concept of biases, the present research proposes that savings behavior is affected by the strength of the biases and that this effect is moderated through demographic characteristics of respondents including age, sex, income, and occupation.

III. Methodology

A. Research Design and Sample

The approach adopted by this research is cross-sectional and involves a quantitative descriptive investigation. To acquire primary data, an original questionnaire was constructed and deployed through Google Forms and distributed using purposive and convenience sampling, collecting data through online platforms like WhatsApp, identifying three categories of respondents: students, working people, and the general public. The sample collected consists of 177 completed responses sourced primarily from respondents located in Gujarat while also including responses from Mumbai, Pune, Bengaluru, Hyderabad, Delhi, Jaipur, and a few other places, thus meeting the geographical spread requirement while remaining in the same state. The research is exploratory and descriptive in nature and thus, the researcher reduced the need for primary data collection and employed non-probability sampling as the primary sampling method, despite its implications on generalisability as discussed in Section VI.

B. Instrument and Measures

The questionnaire that consists of 33 items is divided into eight sections. Section A contains demographic data (age, sex, occupation, education, earnings, and city of residence). Section B contains measurements of four aspects of the saving behavior: frequency of saving (an ordinal scale from "Never" to "Very Often"), percentage of monthly income saved, availability of emergency funds, savings instruments used, and comparison of actual savings and expected savings at the beginning of the year. There are four items from Sections C–G each with a Likert-type scale (1 = Strongly Disagree to 5 = Strongly Agree) aimed at doing an analysis of one of five biases targeted: present bias, loss aversion, mental accounting, overconfidence, and lack of self-control. Section H has two optional open-ended questions about the

main barrier to saving without interruption and an accidental financial decision.

C. Analytical Approach

The use of descriptive statistics allowed us to analyze the profiles of participants in terms of their demographics and saving behavior.Cronbach's alpha was used to find out whether the four-item bias scales displayed a satisfactory level of reliability in each case (minimum level of acceptance $\alpha \geq .70$). Pearson's correlation coefficients served to determine the interdependence of composite scores for individual biases and saving frequency ($\alpha = .05$). A simple linear regression analysis was performed to assess the predictive capability of a single bias significantly correlated with the dependent variable. The average bias scores were also checked for consistency in terms of occupational status, age, and gender differences, while qualitative data obtained from open-ended questions were analyzed in search of common themes that would confirm or supplement findings obtained through quantitative study. The study was conducted in line with human research ethical requirements, which means that participation was free of charge, no personally identifiable information other than the participants' places of residence was collected, and collected data were used only for research purposes.

IV. Results

A. Sample Profile and Saving Behaviour

According to the research, the 177 respondents surveyed revealed that 35 percent were aged between 20 and 25 years old, while 32.2 percent were aged 45 or older. The rest of the respondents included individuals across the other age brackets. Additionally, the gender makeup of survey participants was almost evenly divided. Approximately 52 percent of respondents were female and 48 percent male. Students comprised the majority of job categories at 39.5 percent, being followed by status salaried private sector individuals and business owners at 21.5 percent and 20.3 percent, respectively. Furthermore, 42.9 percent of the respondents admitted to earning less than ₹10,000 monthly, which indicates the dominance of students among the surveyed population.

TABLE I
Demographic profile of respondents (N = 177).

Variable	Category	n	%
Age	20–25 years	62	35.0
	Above 45 years	57	32.2
	26–35 years	25	14.1
	36–45 years	20	11.3
	Below 20 years	13	7.3
Gender	Female	92	52.0
	Male	85	48.0
Occupation	Student	70	39.5
	Salaried (Private)	38	21.5
	Self-employed/ Business	36	20.3
	Salaried (Govt./PSU)	11	6.2
	Homemaker	10	5.6
Monthly income	Below ₹10,000	76	42.9
	Above ₹1,00,000	30	16.9

The saving behavior revealed a significant intention-action gap. 53.1% of those surveyed said they save regularly or very often, while 46.9% save only occasionally or very rarely. Moreover, 36.2% of respondents save at least 5-10% of their income, while 24.9% save either less than 5% or nothing. One interesting fact is that 48.0% of those surveyed saved less than their original intention at the beginning of the year, while only 15.3% of respondents saved more than they planned to. In addition to that, emergency fund accumulation is also not found satisfactory: 45.7% never think about saving for emergency reasons or have no savings at all; only 31.1% of respondents managed to save at least three months of their expenses.

B. Reliability and Composite Bias Scores

Cronbach's alpha values showed that Present Bias had good internal consistency ($\alpha = .803$), while Loss Aversion ($\alpha = .666$) and Self-Control Problems ($\alpha = .643$) were reasonably consistent. Although Mental Accounting was moderately reliable, with $\alpha = .447$, the result likely demonstrates that this construct is multidimensional. In contrast, the Cronbach's alpha value for Overconfidence is low ($\alpha = .059$), meaning that its items do not measure a single property of Overconfidence.

All five biases have mean scores greater than the midpoint of the scale, proving that they were present in the study sample. Mental Accounting had the highest mean score of 3.18, and the second highest was Self-Control Problems with mean score of 3.16. Overconfidence had a mean score of 3.10, Loss Aversion scored 2.96, and Present Bias had the lowest mean score of 2.54, but had a statistically significant relationship with saving frequency.

TABLE II
Mean composite bias scores and scale reliability (scale 1–5, N = 177).

Bias	M	α	Rank
Mental Accounting	3.18	.447	1
Self-Control Problems	3.16	.643	2
Overconfidence Bias	3.10	.059	3
Loss Aversion	2.96	.666	4
Present Bias	2.54	.803	5

C. Present Bias as a Predictor of Saving Frequency

The Pearson correlations computed for all biases versus saving frequency revealed that only Present Bias had a significant relationship ($r = -0.548$, $p < .001$), while Loss Aversion ($r = -0.065$, $p = .461$), Mental Accounting ($r = -0.094$, $p = .288$), Overconfidence ($r = -0.116$, $p = .189$), and Self-Control Problems ($r = -0.045$, $p = .612$) were not significantly correlated with saving frequency at 5%. The simple linear regression of saving frequency on Present Bias was significant, $F(1, 175) = 67.43$, $p < .001$; Present Bias explained approximately 30% of the variance in saving frequency ($R^2 = 0.300$, adjusted $R^2 = 0.296$). The unstandardized coefficient ($B = -0.812$, $SE = 0.099$, $\beta = -0.548$) showed that a one-point increase in Present Bias was related to a decrease in saving frequency by 0.812 points on a five-point scale in line with the theoretical predictions of hyperbolic discounting [3].

TABLE III
SIMPLE LINEAR REGRESSION: PRESENT BIAS PREDICTING SAVING FREQUENCY.

Parameter	Value
R^2	0.300
Adjusted R^2	0.296
$F(1, 175)$	67.43, $p < .001$
Constant (Intercept)	4.60 (SE = 0.268)
Present Bias coefficient (B)	-0.812 (SE = 0.099)
Standardised β	-0.548

D. Demographic Patterns

Among all occupational categories, students reported the highest mean scores on Present Bias ($M = 2.82$), Mental Accounting ($M = 3.47$), and Self-Control Problems ($M = 3.40$), depicting their relatively limited knowledge about long-term planning and irregular remuneration; conversely, government and PSU employees reported the lowest mean on Present Bias ($M = 2.23$), which can be attributed to the roles of salary-based compulsory methods of savings. By age, scores for Present Bias reached the maximum value ($M = 2.94$) for the segment of 20 to 25-year-olds, while the greatest mean scores for both Loss Aversion and Self-Control Problems occurred within the 36 to 45 segment, reaching $M = 3.45$; such age pattern can be explained by involvement of people in high-stake financial situations such as taking out mortgages or performing saving for retirement or children's education. The analysis of gender differences showed that men scored a bit higher on Present Bias ($M = 2.59$ vs. 2.50), while women achieved a slightly greater score on Loss Aversion ($M = 3.07$ vs. 2.85).

E. Savings Instruments and Qualitative Themes

Bank savings accounts and fixed deposits were the most widely used instrument (68% of respondents), followed by mutual funds/SIPs (41%, concentrated among 20–35 year-olds), gold and physical assets (35%, concentrated among older respondents and homemakers), insurance-linked products (29%), post-office/PPF instruments (22%), informal saving including cash and chit funds (18%), and direct equity (15%). Open-ended responses converged with the quantitative findings: the most commonly cited barrier to consistent saving was small, unplanned day-to-day spending, and many respondents deferred saving with statements such as intending to start 'next month' or 'once expenses stabilise' — a qualitative echo of present bias. The most commonly cited financial regret was impulsive discretionary spending, particularly around online sales, corroborating the self-control and present-bias findings from the quantitative analysis and confirming that the gap observed is one of converting intention into action rather than a lack of awareness.

V. DISCUSSION

The main conclusion from this research is that present bias, rather than factors like loss aversion, mental accounting, overconfidence, or self-control issues taken on their own, is the most significant and only valid predictor of the amount saved by the respondents in this study. The findings are surprising given that Mental Accounting and Self-Control Problems were found to be less important than Present Bias and yet explain around 30% of the variance in saving behavior. The results reflect the theory of hyperbolic discounting introduced by Laibson in 1997 and indicate that even a medium level of present bias can lead to the failure of saving behavior while being more important than strong, but diffuse effect of Mental Accounting or Self-Control.

Almost half of the surveyed group (48.0%) that managed to put less money away than expected, along with 45.7% of individuals who did not have an adequate emergency fund, means that the gap between intention and actions seen in behavioural economics literature is not just an oddity of the sample but a reality experienced by the majority of the individuals surveyed, as well as by a considerable portion of more affluent respondents (23.3%) who do not have an appropriate emergency reserve even given the existing possibilities to accumulate it. In other words, the results support the main thesis of the research that the low levels of saving in India cannot be entirely explained by income limitations alone, while they are in line with the idea of the Behavioural life-cycle Hypothesis proposed by Shefrin and Thaler [6] suggesting that saving is a continuous clash between planning and implementation instead of just a rational calculation.

Demographic trends further clarify the situation. The high levels of students' results in nearly every bias together with their large representation in the sample shows that young people with limited means at the very beginning of their financial lives are the most affected by the behaviourally vulnerable group. The finding that loss aversion and self-control problems peak in the 36–45 age bracket, a life stage typically associated with larger financial commitments, suggests that the dominant behavioural barrier to saving may shift across the life course rather than remain constant, an implication that a purely cross-sectional design can identify but not confirm causally.

Therefore, some caution is necessary in the case of non-significant effects. With the very low reliability of the Overconfidence scale (α = .059), its zero correlation with saving frequency should not be interpreted as overconfidence being irrelevant behaviorally. Instead, the null correlation probably signals the fact that the scale is subject to the measurement error and it is therefore not a valid apparatus for measuring the phenomenon of interest, leading to the conclusion that Loss Aversion, Mental Accounting, and Self-Control Problems despite being fairly reliable might have various effects, which prevent obtaining expected results.

A. Implications

Policymakers will distinctly benefit from current findings on the relevance of using nudges as opposed to education-only approaches: automated and voluntary joining of pension schemes increased participation from 55% to 87% in five years' time following the Automatic Enrolment Pension Reform in the UK, while opting out mandatory contributions to provident funds or the National Pension System would emulate a low-resistance lever in India's formal job sector. Financial literacy initiatives should favor behavioural over mere knowledge information since qualitative data reveal that many respondents have been acquainted with financial practices but fail to implement their knowledge in practice.

Moreover, for financial institutions saving products using mandatory withdrawal restrictions would agree to the commitment concept, as products with loss-oriented communications would suit clients demonstrated both present bias and loss aversion. Financial advice would do well to consider the presence of bias when advising clients by screening clients for signs of commitment bias such as the gap between intentions and actual saving practices. Educational establishments could see behavioural finance incorporated in a number of courses targeted at providing students with necessary information, thus intervening in biased behaviours.

VI. Limitations and Future Research

The study that was conducted comes with some limitations. The nature of the research is such that it can only identify correlations rather than establish one factor's effect of the other. Also, participants' self-reported answers pose the risk of social-desirability bias, so it can also be said that sampling across Gujarat has had some influence on the generalisability of findings. Overconfidence scale used in the study is problematic, a more appropriate instrument should be used in future research to measure overconfidence. Finally, the research has not accounted for family structure, marital situation or experience of financial shocks.

Future research should use either longitudinal or experimental designs to identify the first cause and test the effectiveness of interventions. For instance, panel studies that track saving behaviour over 1 to 3 years, as well as randomised field trials of opt-out enrolment, commitment products and loss-framed messages, could be used. Research into saving behaviour focusing on either high-income urban areas or mainly rural and poorer states would improve generalisability. Structural equation modelling or path analysis should be used to find out how five identified biases work together, instead of working separately, whereas stratified by gender and income research should find out whether nudges work differently depending on these characteristics. Finally, since this research is made in the discipline of forensic accounting; it should further investigate the relationship between saving behaviour biases, such as the relationship between loss aversion and informal savings or overconfidence and vulnerability to mis-sold financial products, and the vulnerability to fraud, which is highly relevant from the point of view of practical application.

VII. Conclusion

The research aimed to investigate the effect of five types of biases on saving behaviour of 177 subjects in India. The results were unambiguous: present bias is the leading behavioural hindrance; it accounts for roughly 30% of the variations in saving frequency, whereas mental accounting and self-control were prevalent in real life, but their statistical influence on saving behaviour was weaker than in the case of present bias. In addition to that, it is important to note that nearly 50% of the sample saved less than it planned and almost 50% did not have enough savings for emergencies, regardless of their income. All these findings corroborate the main assumption of this research, i.e., under-saving in India is based on cognition and behaviour that need to be taken into consideration when developing saving systems and financial products.

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