

How Behavioural Biases Influence Rational Decision-Making in Life Insurance Purchases Decision: A Mediating Role of Information Gathering

N. Ramanjaneyalu*, Prateeksha Deshpande*

Abstract

Purpose - This study examines the impact of Decision Framing Bias and Mental Accounting Bias on life insurance purchase decisions, specifically during the process of choosing among available alternatives. In the context of rational decision-making, where individuals evaluate all options and select the most optimal one, this research aims to explore how these biases affect the critical stage of selecting from alternatives and their subsequent influence on the final purchase decision with the mediating role of information gathering. **Design/Methodology** - The sample was gathered using a simple random sampling technique on investors who have made transactions in life insurance purchases. The data was analysed using SEM PLS with Smart PLS application. **Findings** - The study found that decision-framing bias does not significantly affect the stage of selecting the best alternative. In contrast, mental accounting bias was found to have a notable influence on this selection process as well as the final purchase decision. Additionally, choosing among the alternatives as a critical stage of rational decision-making was also observed to have a subsequent impact on the final purchase decision. It was also found that information gathering has full mediation effect on the purchase decision. **Practical Implication** - The findings can help individual investors to analyse and evaluate their behaviour towards the selection of an insurance policy. Insurance institutions can use this research to understand investors' behaviour and provide adequate information to insurance buyers before purchasing.

Keywords: Purchase Decision, Behavioural Bias, and Insurance

Introduction

The decision to purchase life insurance is a critical financial choice that involves a complex interaction of rational analysis and psychological influences. At the core of rational decision-making lies the structured process of identifying a need, gathering information, evaluating alternatives and ultimately making a choice. However, this idealised model of decision-making often encounters significant deviations due to behavioural biases, notably decision framing and mental accounting. These biases can slightly, yet profoundly, influence consumer decisions, particularly when it comes to choosing among alternatives in life insurance products.

Decision framing bias refers to the cognitive tendency where the presentation of information—whether as a potential gain or loss—affects decision outcomes. This bias, deeply rooted in prospect theory as outlined by Kahneman and Tversky (1981), suggests that individuals are more likely to avoid risk when a decision is framed in terms of potential gains but are more willing to take risks when the same decision is framed in terms of avoiding losses. In the context of life insurance, the way policy details are framed can significantly sway consumer preferences, potentially leading to decisions that may not

* Kousali Institute of Management Studies, Karnatak University, Dharwad, Karnataka, India.
Email: pforprateeksha@gmail.com

align with their long-term financial well-being (Kahneman & Tversky, 1981; Kurniawan & Murhadi, 2018).

Mental accounting, another behavioural bias introduced by Thaler (1999), involves the cognitive separation of money into different mental categories, which can influence how individuals perceive and utilise their financial resources. For example, individuals might allocate funds into distinct “mental accounts” for savings, flexible spending, or necessary expenses. This compartmentalisation can lead to irrational financial behaviours, such as under-insuring or over-insuring based on how insurance premiums are mentally categorised. In life insurance decisions, mental accounting can lead to a mismatch between perceived and actual needs, affecting the choice among available policy alternatives (Thaler, 1999; Silva et al., 2023).

The stage of choosing among alternatives in the rational decision-making process is particularly exposed to these biases. While this stage should ideally involve an objective comparison of different life insurance policies based on a thorough assessment of needs, biases such as decision framing and mental accounting can distort this process. For instance, a consumer might disproportionately favour a policy that is framed as providing security, even if it is more expensive or less comprehensive than other options. Similarly, mental accounting might cause a consumer to dismiss a beneficial policy because its premiums are perceived as a flexible expense rather than a necessary one (Singh & Jain, 2021; Zong & Guo, 2022).

Understanding the impact of decision framing and mental accounting biases on the life insurance purchase decision is essential for both consumers and financial advisors. By recognising these biases and incorporating strategies to mitigate their effects, it is possible to make more rational decisions that better serve long-term financial security.

One effective way to mitigate the influence of these biases is through comprehensive information gathering. By thoroughly researching and comparing life insurance policies, consumers can better understand the true value of each alternative, thereby reducing the impact of decision-framing and mental accounting.

This study focuses on analysing the influence of these biases on the process of life insurance purchase decisions.

This study considers choosing among the alternatives as a critical stage of rational decision-making, how behavioural biases influence this stage, and finally the purchase decision. To understand what mediating role information gathering plays in reducing the influence of these biases.

Literature Review

Life Insurance Purchase Decision

The connection between life insurance purchase decisions and the influence of biases can be identified from the research works of literature.

This foundational paper discusses how decision framing can influence choices, which is relevant when considering how life insurance options are presented to consumers. Kahneman and Tversky (1981). Insurance decision-making and market behaviour. This study explores how biases, including mental accounting and framing, influence insurance decisions, with implications for life insurance markets (Thaler, R. H.). This paper explores how price framing and other biases affect consumer judgements, relevant for understanding life insurance decisions (Zong & Guo). This study examines how insurance literacy and behavioural biases affect decision-making in personal insurance, providing insights into life insurance choices (Gamage et al.) Barberis and Thaler (2003) A Survey of Behavioural Finance. This survey covers various behavioural biases, including those that affect financial decisions such as life insurance purchases. K. Sanjay, and Shweta Tewari (2024), Determinants of Life Insurance Purchase Intention using Structured Equation Modelling with Focus on Saving Motive and Financial Literacy. This research sheds light on different factors that impact the purchase intention of life insurance and provides valuable insights for life insurance providers, enabling them to better understand the factors influencing consumers' purchase intentions.

Decision Framing Bias

Kahneman and Tversky (1981), The Framing of Decisions and the Psychology of Choice: This seminal paper

introduces the concept of decision framing and explores how the way choices are presented can influence decision-making, particularly when evaluating alternatives, Tversky and Kahneman (1986). Rational choice and the framing of decisions: This article discusses how framing effects can lead to different outcomes even when the same alternatives are presented, highlighting the importance of how choices are framed in rational decision-making. Payne, Bettman and Johnson (1993), *The Adaptive Decision Maker*: This book provides an in-depth analysis of how individuals make decisions when faced with multiple alternatives, discussing how decision framing can influence the selection process. Levin, Schneider and Gaeth (1998), *All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects*. This paper categorises different types of framing effects and analyses how these effects influence the process of choosing alternatives in decision-making, Johnson and Goldstein (2003). *Do Defaults Save Lives?* This study examines the role of default options (a form of framing) in decision-making, highlighting how the framing of alternatives can significantly influence choices.

Mental Accounting Bias

Thaler (1985), *Mental Accounting and Consumer Choice*: This work explores the concept of mental accounting and its role in consumer decision-making, with implications for how alternatives are evaluated and selected. Silva, Moreira and Bortolon (2023): *Mental Accounting and Decision Making: A Systematic Review of the Literature*. This review provides a comprehensive look at how mental accounting influences decision-making, including in the context of insurance. Thaler (1999), *Mental Accounting Matters*: This work delves into the concept of mental accounting, explaining how individuals compartmentalise financial decisions, which can influence life insurance purchases. Heath and Soll (1996), *Mental Budgeting and Consumer Decisions*: This study explores the concept of mental budgeting, a subset of mental accounting and its influence on consumer decision-making processes, particularly when selecting among various alternatives. Prelec and Loewenstein (1998), *The Red and the Black: Mental Accounting of Savings and Debt*. This paper examines how individuals mentally account for savings

and debt, influencing their decisions among financial alternatives. It offers insights into the broader implications of mental accounting for rational decision-making.

Rational Decision Making / Choosing among the Alternatives

Tversky and Kahneman (1986), *Rational Choice and the Framing of Decisions*: This work expands on the concept of framing effects and discusses how they can lead to different outcomes even when evaluating the same set of alternatives, relevant to life insurance decisions. Lusardi and Mitchell (2007), *Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel*. This study looks at the role of financial literacy in decision-making and how it interacts with biases like mental accounting and decision framing when consumers choose among life insurance options. Giné and Yang (2009), *Insurance, Credit and Technology Adoption: Field Experimental Evidence from Malawi*. This research explores how biases influence insurance uptake, with implications for how consumers choose alternatives in life insurance based on their mental accounting and the framing of options. Kurniawan and Murhadi (2018), *Bias Aspect in Decision-Making for Buying Life Insurance in Indonesia*: This study specifically addresses how biases like decision framing and mental accounting affect life insurance purchasing decisions, offering insights into how these biases distort the rational evaluation of alternatives. Milkman and Beshears (2009), *Mental Accounting and Small Windfalls: Evidence from an Online Grocer*. This study provides empirical evidence on how small financial windfalls are mentally accounted for and how this affects choices among alternatives, offering insights relevant to financial decisions like insurance purchases. Dhar (1997), *Consumer Preference for a No-Choice Option*: This study investigates how framing effects and the availability of a no-choice option influence the process of choosing among alternatives, contributing to the understanding of rational decision-making. Simon (1955), *A Behavioural Model of Rational Choice*: This classic paper discusses the concept of bounded rationality and how individuals make decisions under constraints, including the influence of framing when choosing among alternatives. Tversky and Kahneman (1986), *Rational Choice and the Framing*

of Decisions: This paper discusses how framing effects can lead to different outcomes even when the same alternatives are presented, highlighting the importance of how choices are framed in rational decision-making. Sengupta and Mitra (2023), How Does the Behavioural Finance Theories Impact the Investor Decision Making: An Empirical Study. This study finds that the information structure and the characteristics of the market participant systematically influence an individual's investment decision, examines the main issues of individual investors, and studies their relation to behavioural finance theories. Prashantu Mer, Priyam Vishwakarma (2013), Is Life Insurance a Social Security Tool or an Investment? Post Reforms Karnataka Experience: This paper attempts to know whether the Indian insurance buyers still perceive life insurance as a social security tool or as an attractive investment option, which guides their decision to be rational or emotional.

Objectives of the Study

- To analyse the influence of decision framing bias and mental accounting bias on choosing alternatives while making a life insurance purchase decision.
- To know whether choosing alternatives as a stage of rational decision-making influences the final purchase decision of life insurance.
- To analyse the mediating role of information gathering in the process of purchase decision-making.

Hypotheses Framed for the Study

- H_1 : Decision framing has an influence on choosing among the alternatives.
- H_1 : Mental accounting bias has an influence on choosing among the alternatives.
- H_1 : Choosing among the alternatives has an influence on life insurance purchase decisions.

- H_1 : Information gathering has a mediation effect between choosing among the alternatives and the purchase decision.

Methodology

Sample and Procedure

The sample was gathered using a simple random sampling technique on investors who have made transactions in life insurance purchases. The data was analysed using SEM PLS with Smart PLS application. Data was collected with the assistance of a structured questionnaire through Google Forms. The responses were measured on a 5-point Likert scale ("1"strongly disagree, "5"strongly agree").

Data Analysis

To test the hypotheses in the research model, structural equation modelling (SEM) was used. A structural model was drawn to explore the direct and indirect effects of components on life insurance purchase decisions, followed by convergent and discriminant validity of the construct.

Results and Analyses

Evaluation of Measurement Model

Convergent Validity

The convergent validity score is calculated from the loading factor score on a latent variable with its indicators. The picture below shows the calculation result of each indicator loading factor. It is considered high if the correlation is more than 0.60 with the calculated construct.

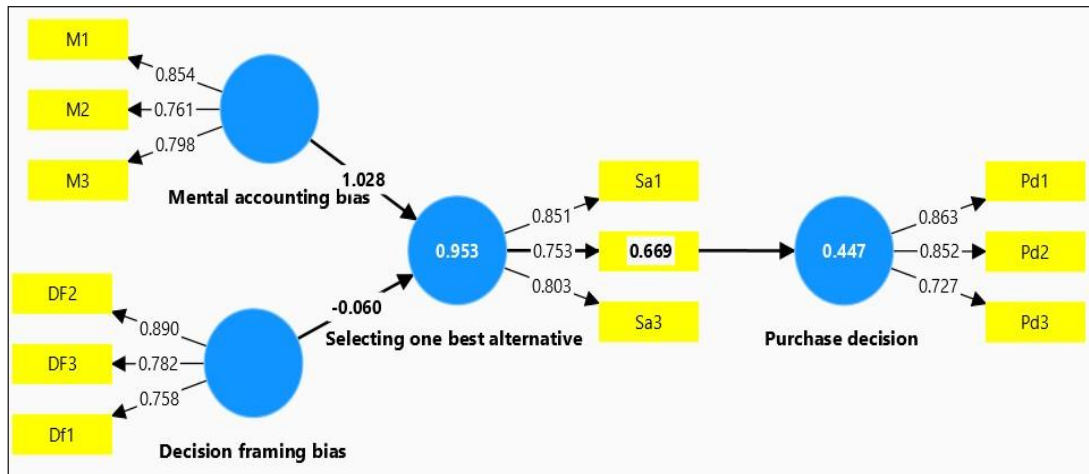


Fig. 1: The Test of Convergent Validity

Based on Fig. 1, it can be seen that all the indicators have complied with the convergent validity due to their loading factor score above 0.60. Aside from the loading factor score, the validity can also be seen from the AVE score, it is considered valid if the AVE scores more than 0.5.

Table 1: Average Variance Extracted

Construct	Average Variance Extracted (AVE)
Decision framing bias	0.660
Mental accounting bias	0.649
Purchase decision	0.667
Selecting one best alternative	0.645

It can be seen from Table 1 that the score test result of the *average variance extracted* (AVE) for each construct with the relation of each construct towards other constructs is above 0.5, which means a good convergent validity score.

Reliability Test

Construct reliability testing is measured using composite reliability and Cronbach's Alpha. A construct is considered reliable if the score is above 0.70.

Table 2: Reliability Test

Construct	Cronbach's Alpha	Composite Reliability (Rho _a)	Composite Reliability (Rho _c)	Average Variance Extracted (AVE)
Decision framing bias	0.754	0.855	0.853	0.660
Mental accounting bias	0.728	0.733	0.847	0.649
Purchase decision	0.749	0.767	0.856	0.667
Selecting one best alternative	0.724	0.730	0.845	0.645

From the results of Table 2, all the constructs have a Composite Reliability score and Cronbach's Alpha score above 0.70, which means that the construct has good reliability.

The Evaluation of Structural Model Results (with Mediation Effect)

The testing phase on the structural model (*Inner Model*) in this research is undertaken through these steps:

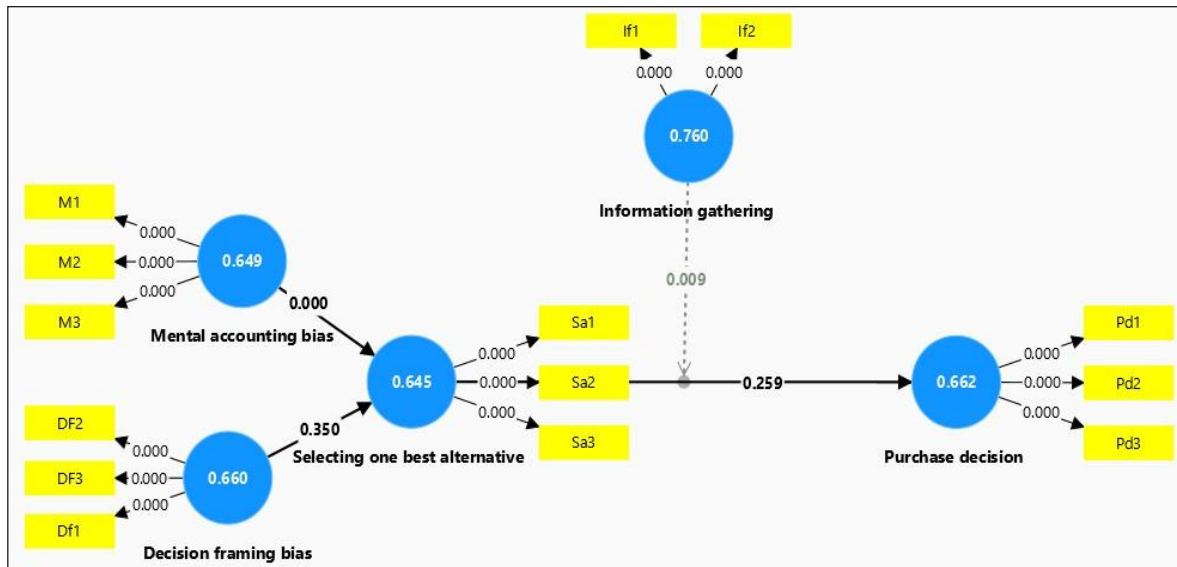


Fig. 2: Inner Model

R-Square Adjusted

Table 3: R Square Test

	<i>R-Square</i>	<i>R-Square Adjusted</i>
Purchase decision	0.447	0.436
Selecting one best alternative	0.953	0.951

Table 3 shows that the R^2 adjusted score is 0.951, meaning that every change in the Insurance Purchase Decision (dependent variable) is explainable by selecting one best alternative (independent variable) by 95.1%. Other factors still explain the 4.9 % of the purchase decision variable.

The Hypotheses Test Result

Direct Influence Hypotheses Testing

Table 4: Hypotheses Test Results

<i>Relationship</i>	<i>Path Coefficients</i>	<i>P-Value</i>
Decision framing bias -> selecting one best alternative	-0.060	0.349
Mental Accounting bias -> selecting one best alternative	1.028	0.000

<i>Relationship</i>	<i>Path Coefficients</i>	<i>P-Value</i>
Selecting one best alternative -> Purchase decision	0.669	0.000

The observed path coefficients and associated p-values for the relationships among the variables reveal insightful findings. The path from decision framing bias to selecting one best alternative exhibits an insignificant coefficient of -0.060 with a p-value of $0.349 > 0.05$ indicating no significant relationship. This implies that there is no notable influence of decision-framing bias when choosing among the alternatives while purchasing life insurance. The path from mental accounting bias to selecting one best alternative demonstrates a significant coefficient of 1.028 with a p-value of $0.00 < 0.05$ emphasising the accepted significant relationship. This signifies that mental accounting bias has a notable influence on choosing among alternatives while purchasing life insurance. Similarly, the path from selecting one best alternative to the purchase decision exhibits a significant coefficient of 0.669 with a p-value of $0.00 < 0.05$, emphasising the accepted significant relationship. This signifies that selecting one best alternative/choosing among alternatives as a stage of rational decision-making has a significant notable influence on the final purchase decision.

Hypotheses Testing on Indirect Influence

Table 5: Indirect Effect Results

<i>Relationship</i>	<i>Path Coefficients</i>	<i>P Value</i>
Decision framing bias-> selecting one best alternative-> Purchase decision	-0.040	0.311
Mental accounting bias-> selecting one best alternative->purchase decision	0.688	0.000

The observed path coefficients and associated p-values from Table 5 also reveal that decision framing bias does not influence either selecting one best alternative as a stage of rational decision-making with a coefficient of -0.040 and a p-value of $0.331 > 0.05$ and Mental accounting bias has a significant notable influence on selecting one best alternative and the final purchase decision with a coefficient of 0.688 and a p-value of $0.000 < 0.05$. This signifies that mental accounting bias influences insurance buyers' choices rather than a decision-framing bias.

plays a significant role, strongly influencing the selection process during this stage of rational decision-making. Additionally, Mental Accounting Bias extends its impact to the final purchase decision. Ultimately, the process of selecting the best alternative within rational decision-making has a considerable influence on the final insurance purchase decision. Information gathering has a vital role played in making these purchases decisions rational. Gathering adequate information will help to choose the best alternative and make more rational decisions.

Mediation Effect Results

Table 6: Mediation Effect

<i>Relation</i>		<i>P Value</i>	<i>Result</i>
Information gathering x Selecting one best alternative -> Purchase decision	0.803	0.009	Full mediation

The total effect of 0.803 signifies the overall impact of choosing among the alternatives on purchase decisions. The p-value of 0.009 shows the statistical significance of these effects. In essence, these results suggest that the influence of choosing among the alternatives on purchase decisions is not only partially mediated by information gathering but is also characterised by a full mediation effect. This implies that information gathering plays a significant role in choosing alternatives and helps an individual make rational decisions.

Findings

The analysis reveals that Decision Framing Bias does not significantly impact insurance buyers when they are in the critical stage of choosing the best insurance option among alternatives. Furthermore, the findings suggest that this bias does not have a notable indirect effect on the final purchase decision. In contrast, Mental Accounting Bias

Conclusion

The complexity of life insurance products can lead to information overload, where consumers struggle to process all available information and rely on heuristics, such as framing and mental accounting, to make their decisions. This can result in consumers either defaulting to the option that is most favourably framed or choosing the policy that aligns with their mental accounting categories, rather than conducting a thorough comparison of all available alternatives (Zong & Guo, 2022; Gamage et al., 2023). As found in the study, consumers are more prone to their mental accounting categories when choosing among the alternatives or making a final purchase decision. This shows the irrational behaviour of insurance buyers or the bias-influenced decision-making process. To counteract the effects of mental accounting in life insurance decisions, consumers must take a more holistic view of their finances. For example, by considering life insurance as part of a broader financial plan rather than a standalone expense, consumers can make more rational decisions that align with their overall financial goals.

To make more rational decisions, consumers need to gather comprehensive information and evaluate it objectively. This can be facilitated by decision aids, such as online comparison tools, which present information in a standardised format, reducing the influence of biased

framing and helping consumers compare policies based on objective criteria (MDPI, 2023). In conclusion, understanding the impact of decision framing and mental accounting biases on the life insurance purchase decision is essential for both consumers and financial advisors. By recognising these biases and incorporating strategies to mitigate their effects, it is possible to make more rational decisions that better serve long-term financial security.

Moreover, the role of information gathering as a moderating factor is crucial in mitigating the influence of these biases. Comprehensive information allows consumers to better understand the implications of different choices, helping to align their decisions with their long-term financial goals. By using decision aids and comparative tools that present information in a neutral and structured format, consumers can reduce the influence of biased framing and make more rational, informed choices in their life insurance decisions (Naradda Gamage et al., 2023).

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