International Journal of Banking, Risk and Insurance
12 (1) 2024, 26-39
http://publishingindia.com/ijbri/
doi: https://doi.org/10.21863/ijbri/2024.12.1.004

Submitted: 26 July, 2023
Revision: 24 August, 2023
Accepted: 18 September, 2023

Behavioural Economics: Appropriate Framework for Studying the Life Insurance Market

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Abstract

This article rests on establishing a unique standpoint that life insurance products (unlike other financial assets) are purchased for protection, not as an investment for return. This aims at identifying the most suitable theoretical framework to study the life insurance market and to suggest appropriate tools of analysis. Economic and financial theories starting from neo-classical economics, going up to behavioural economics (BE) have been studied vis-à-vis life insurance markets. A distinction has been drawn between BE and behavioural finance (BF). Accordingly, neo-classical economics, standard theory of finance and BF have been found to be inappropriate to understand life insurance as a market. The main theoretical edifice of BE, with a blend of transaction-cost approach and information theoretic approach, is argued to be the right theoretical framework to study the life insurance market, given the idiosyncrasies involved. A novel attempt has been made to create a 'construct' to depict how the BE framework is most relevant. It is hypothesised that bounded rationality is adversely influenced by emotions, search costs, intermediaries and socio-psychological influences, to embed behavioural biases and heuristics into life insurance purchase decisions. Combinedly, this leads to demand and supply distortions that create an incomplete market. To test this framework, it has been suggested that Heuristic z-test; Murthy's Index of Rank Dominance (MIrd & MRird); and logistic regression, be harnessed. These tools would help in measuring market inefficiency and underperformance. Policymakers, the regulator, insurers and buyers alike would benefit from a better understanding of the market.

Keywords: Life Insurance, Neo-Classical Economics, Information Asymmetry, Bounded Rationality, Behavioural Economics, Market Inefficiency

Introduction

The objective of this article is to try to establish the uniqueness of life insurance as a product and not a financial asset, and thereby suggest an appropriate theoretical framework to study the life insurance industry. Therefore, the article begins with an understanding of major approaches/economic theories to understand industry- neo-classical economics; transaction cost approach; information theoretic approach; and behavioural economics (BE) approach. These approaches are then studied in relation to the life insurance industry and it is understood whether each of these theories or a part thereof can lend itself to explain the life insurance industry. The extension of major economic theories, namely, neo-classical economics to the field of finance in the form of standard theory of finance and the newly emerged theory of behavioural finance (BF) are also brought into picture to press upon their insufficiency in explaining life insurance products (as they are not financial assets). Such an analysis helps in arriving at the optimum economic approach or theoretical framework to study life insurance, given its peculiarities. After identifying that approach in the form of BE, a novel attempt is made to present this approach in the context of life insurance in two ways- a diagrammatic depiction of BE construct in relation to life insurance purchase decisions and developing of a methodology to measure the underlying BE phenomena in the life insurance market through the application of state-of-the-art statistical measures.

Approaches/Economic Theories to Study Industry

Neo-classical economics (Marshall, 1890) dominated the field of economics for a long time and attained a special

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status which it continues to enjoy till date amidst voices of strong criticism. The two main pillars of neo-classical economics, that is, rational choice theory and expected utility theory deal with rational choice behaviour and evaluation of various alternatives by economic agents. These theories consider all consumers as 'rational.' Consumers are assumed to have the complete information about all the available alternatives and the ability to compare all of them in order to form preferences (ranking the alternatives) to make a choice. They finally choose the best alternative which maximises their utility.

The increasing emergence of anomalies with respect to neo-classical economics led to the search for new paradigms in economics. It was felt that the real-world consumers and the real-world investors are quite different from what these theories believe because the basic assumption of full rationality does not apply to them and markets with complete information are actually not found in reality. This led to the emergence of alternate paradigms, namely, transaction cost approach, information theoretic approach and BE approach.

According to the transaction cost approach (Commons, 1931; Coase, 1937; Williamson, 1981; North, 1982), transaction costs are the costs associated with the happening of a complete transaction starting from planning and going up to after-sales. Economic activities would be performed inside the organisation when the transaction costs associated with them are high and on the market when the transaction costs are low. This approach looks at the transaction attributes namely boundedly rational actors, information asymmetry and incomplete contracts.

Information Theoretic Approach (Stigler, 1961; Akerlof, 1970; Spence, 1973) deals with study of decisions in transactions where one party has more or better information than the other. Information asymmetries are generally studied in relation to principal-agent problems.

BE approach explains that decision-making under various economic settings is based on incomplete information and bounded rationality wherein decisions are subject to behavioural biases.

Reber et al. (2009) define BE as:

> 'An interdisciplinary approach to economics that borrows heavily from psychology and sociology. While neo-classical economics assumes that people act rationally, Behavioural Economics is founded on the assumption that they act like people. That is, they tend to make economic and financial decisions using cognitive heuristics rather than idealised models of rational action. Interestingly, while the theorists who take this approach often called themselves 'behaviourists,' from psychology's point of view, they really take a cognitive view' (p. 91).

After understanding the economic theories, it would be pertinent to have a brief discussion of the theories of finance.

Theories of Finance vis-à-vis Life Insurance

Life insurance products are confused to be financial assets and treated like investments (Rajgopal, 2013) and thus there is a general tendency to study them under the Standard theory of finance. Standard theory of finance [Modern Portfolio Theory, (Markowitz, 1952); Efficient Market Hypothesis (Fama, 1965; 1970)] is an extension of Neo-classical economics to financial markets. According to Modern Portfolio Theory, an efficient portfolio can be created for any group of stocks that has the highest (maximum) expected return given the amount of risk assumed. EMH states the premise that all information has already been reflected in a security's price or market value and that the stock or bond trades at its fair value. So, there is no possibility of the generation of superior returns.

It would be pertinent to mention the BF approach in this context as it has emerged out of anomalies to Standard theory of finance.

According to Ricciardi and Simon (2000), 'Behavioural finance attempts to explain the what, why and how of finance and investing from a human perspective. For instance, behavioural finance studies financial markets as well as providing explanations to many stock market anomalies (such as the January effect), speculative market bubbles (the recent retail internet stock craze of 1999) and crashes (crash of 1929 and 1987)' (p. 2).

Statman (1995); Barber and Odean (1999, 2000); Yuan et al. (2002); Rosenthal and Young (1990); Pandey (2022) and Kumar and Singh (2023), are amongst others to highlight the stock market anomalies. Sengupta and Mitra (2023) highlighted the recurrent patterns of irrationality in human decision-making using BF theories.

But life insurance products are different from financial assets (like shares, mutual funds etc.) as their main objective is protection/life cover rather than a return or gain. Table 1 describes the main differences between financial assets and life insurance products.

Table 1: Difference between Financial Assets and Life Insurance Products

Sr. No.	*Basis of Difference*	*Financial Assets*	*Life Insurance Products*
1.	Objective	Financial assets are purchased with an objective to have financial returns- revenue and capital gains.	Life insurance products are purchased for various reasons- life cover, tax benefits, children's education etc.
2.	Basis	The returns on these assets are based on the period for which they are held and various market forces. So, risk is attached to the returns.	The concept of life insurance is based on an uncertain event i.e., death where the uncertainty is regarding the time of occurrence.
3.	Type of risk	The risk in the case of financial assets is the difference between expected and actual return.	Here the risk refers to the risk of pauperization of the next of kin upon death of the insured.
4.	Tradability	Financial assets are tradable.	Life insurance products are not tradable
5.	Secondary Market	There is a fully developed secondary market for trading in securities.	There is no secondary market for life insurance products.
6.	Gain and holding period	In case of financial assets, the return is ordinarily viewed as a short-term return which is a speculative gain receivable only on trading.	Life insurance products are not purchased to have short- term gain but are held for a long period to get the needed benefit.
7.	Nature	Singular: Meant to give financial return.	Composite: It has several attributes: 1. Covers Risk of Death 2. Often gives some return. 3. Can be used for taking loan against paid-up premium; and 4. May give tax benefit
8.	Return	Short-term.	Long-term.
9.	Time frame	Investment at a point of time.	Investment as an annuity in long run.
10.	Derivatives	There could be some derivatives based on the primary assets.	No derivatives are there.

Source: Author's own.

Now, that we have made it amply clear through Table 1 that life insurance products are not financial assets, both Standard Theory of Finance and BF are insufficient in explaining this market.

Most Suitable Approach to Study Life Insurance Industry

Table 2 presents the relevance of the economic and financial theories discussed so far in relation to the life insurance industry.

Table 2: Economic and Financial Theories vis-a-vis Life Insurance

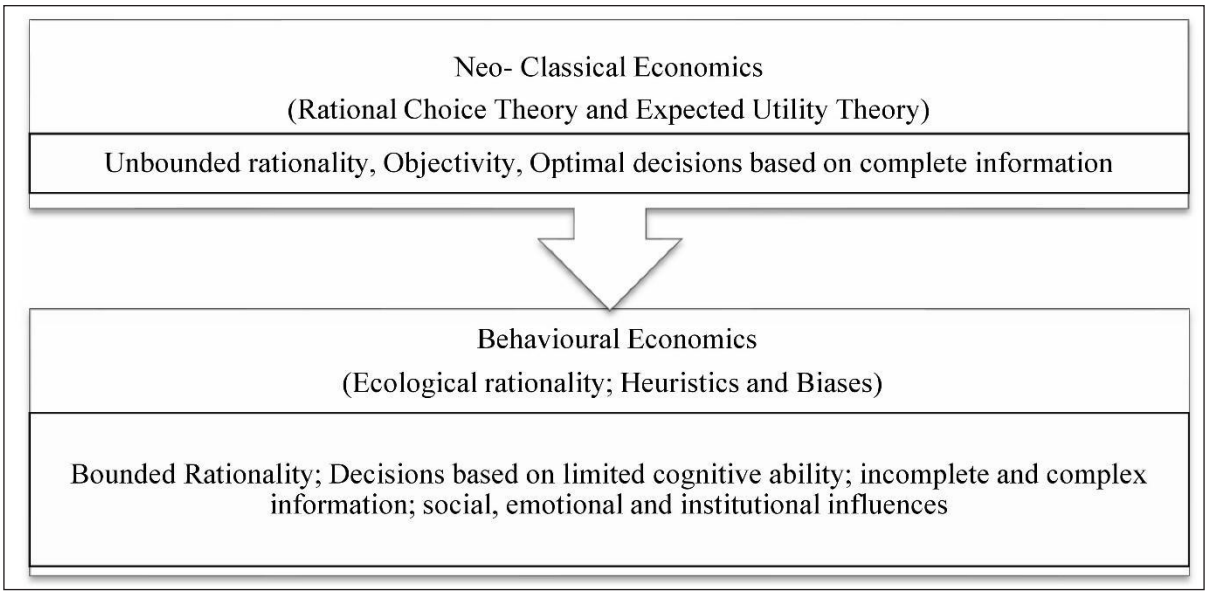
Approach	*Relevance to Study Life Insurance*
Neo-Classical Economics	Given the complex nature of life insurance, basic assumptions of complete information and unbounded rationality are not fulfilled.
Transaction Cost Approach	Economic Transactions are looked at from the production side and not from the consumption side or the buyers' perspective. Thus, this approach is insufficient to explain a complex industry like life insurance. Still, since it considers a 'transaction' and its participants as the unit of study and considers the concept of bounded rationality and information asymmetry, this approach cannot be fully ignored because in life insurance industry also, we try to study the transactions in the presence of information asymmetry and bounded rationality.

Approach	*Relevance to Study Life Insurance*
Information Theoretic Approach	It can partly explain the life insurance industry as life insurance products are complex and sellers tend to have more information than the buyers. The 'principal-agent problem' observed in the life insurance industry is also quite peculiar.
Standard Theory of Finance (EMH)	The uniqueness of life insurance as a financial product requires a theoretical framework which is different from the one that applies to financial assets (securities' markets). Therefore, the general notion of treating life insurance as a financial asset and using Standard theory of finance to explain this market does not hold good.
Behavioural Finance	Though BF has more realistic assumptions about investor-behaviour, this also does not 'fit the bill' when it comes to life insurance as its scope is limited to understanding financial markets, mainly stock market anomalies.
Behavioural Economics Approach	This appears to be the most suitable approach as it blends the assumptions of incomplete information, bounded rationality, behavioural biases. It rejects the neo-classical assumptions; adopts partly from transaction cost approach; partly from information theoretic approach and thus in a way is a blended approach which has a vast application and is not restricted financial markets. Therefore, out of the given approaches, BE qualifies to be the best approach to study the life insurance industry, given the idiosyncrasies involved.

Source: Author's own.

Behavioural Economics (BE)

Fig. 1 highlights the shift from neo-classical economics to BE, discussed so far.



Source: Author's own.

Fig. 1: From Neo-Classical Economics to BE

Before BE became a distinct school, Herbert Simon was the first to differ from the neo-classical school of thought. Simon (1955) took agents to be boundedly rational, the bounds arising from the impossibility of obtaining full information and limits on human ability in processing the information which is available.

BE: Major Contributions

Simon (1987) highlighted the theories of bounded rationality based on limitations of knowledge and computational capacity of decision makers. Todd and Gigerenzer (2003) stressed that satisficing yields better

(optimal) results than would neoclassical normative choice behaviour. Gigerenzer et al. (1999), in the book titled 'Simple heuristics that make us Smart', discussed the fast and frugal heuristics, that is, simple rules of decision-making.

Shiller (2008) stressed on the quality and availability of information as well as government intervention to improve financial decision-making. Posner (2009) highlighted the positive role of emotions and herding behaviour in decision making. Shiller (2010) laid emphasis on the informational environment to financial decision-making.

Tversky and Kahneman (1973) introduced the availability heuristic. After that, research related to bounded rationality based on incomplete information (resulting from credence, nature and shrouding), social influences and emotions, gained momentum. All these phenomena along with the major studies related to them are summarised in Table 3. As shown in Table 3, incomplete information or information asymmetry is caused due to credence nature, shrouding of attributes and high search costs. Other bounds on rationality are emotional and social influences. Together, all these bounds make decision-makers resort to heuristics (short-cuts or rules of thumb) and thus the biases creep into the whole process.

Table 3: Bounded Rationality Based on Information Asymmetry and Other Influences

Phenomenon	*Meaning*	*Major Studies*
Information Asymmetry	Any of the following conditions qualifies as information asymmetry: (a) One party has more information than other. (b) One party possessing superior skills to process the same information. (c) Difference in the perceptions of two parties regarding the same phenomenon	Akerlof (1970); Arnott and Stiglitz (1988); Arora et al. (2009); Shmanske (1996); Spence (1973); Stiglitz et al. (1984); Vining and Wiemer (1988)
Factors Contributing to Information Asymmetry		
Credence Nature	Nature of the products is such that it is very difficult for buyers to ever understand their features.	Andersen and Philipsen (1998); Darbi and Karni (1973); Emons (1996); Minor and Brown (2012)
Shrouded Attributes	There is a deliberate hiding of attributes on the part of sellers or intermediaries.	Gabaix and Liabson (2005); Inderst and Ottaviani (2012)
Search Costs	Search costs refer to the expenditure, time and effort involved in searching for information. If search costs are high, it is difficult to gather complete information.	Capuano and Ramsay (2011); Huck and Zhou (2011); Kunreuther et al. (2013)
Other Bounds on Rationality		
Cognitive limitations and Emotional influences	Human minds are designed to process limited information. Along with the cognitive factors, the emotions also play an important role in decision-making.	Ackert et al. (2003); Coughlan and Connolly (2008); Hirshleifer and Shumway (2003); Loewenstein (2000); Loewenstein and Lerner (2003)
Social Influences	People are influenced by the behaviour and thoughts of others surrounding them.	Capuano and Ramsay (2011); Vieider (2009)
Heuristics and Biases Emerging from Incomplete Information and Bounded Rationality		
Overconfidence	People tend to overestimate their knowledge, judgement, and skills.	Camerer and Lovallo (1999); Chira et al. (2008); Cooper et al. (1995); Della Vigna (2007); Odean (1999); Sandroni and Squintani (2004)
Inattention bias	People tend to be inattentive towards certain types of information, which they find complex to understand or which is provided later.	Huberman and Regev (2001)
Availability bias	People tend to base their decision on the information that is easily available, or which can be easily retrieved from their memory.	Tversky and Kahneman (1973)
Familiarity bias/Home effect/ Recognition heuristic	People tend to prefer an alternative more known to them while taking a decision.	Benartzi (2001); Hong et al. (2003); Huberman (2001); Seasholes and Zhu (2010)

Phenomenon	*Meaning*	*Major Studies*
Small Sample bias	Just by relying on a few observations, people make judgements about the future.	Gilovich et al. (1985); Rabin (2002)
Certainty effect	People prefer 'certain' outcomes to probable outcomes even if the probable outcomes offer a higher return.	Kahneman and Tversky (1979)
Reference point bias	While evaluating an alternative, people tend to have some reference in their minds in relation to which they compare it. This reference may not have a logical explanation.	Tversky and Kahneman (1974, 1991)
Status-quo bias	Status-quo bias implies that people prefer the existing state and do not want to change.	Madrian and Shea (2001); Samuelson and Zeckhauser (1988)
Sunk Costs fallacy	The expenditure or costs that have already been incurred i.e., the sunk costs do affect the future decisions.	Arkes and Blumer (1985); Gourville and Soman (1998); Thaler (1980, 1985, 1999)
Loss Aversion and Endowment effect	In general, people attach more weight to losses than to gains. This is known as loss aversion. As per Endowment effect, a thing owned by a person is considered by him/her as more valuable than its actual value.	Coval and Shumway (2001); De Beats et al. (2012); Kahneman and Tversky (1979)
Risk aversion	People, in general, want to avoid risk.	Rabin and Thaler (2001)
Herd Behaviour or Bandwagon effect	People tend to imitate others in situations where they intuitively feel that they have limited information or others have better information.	Banerjee (1992); Shiller (1995); Shiller and Pound (1989)
Regret	While taking decisions, people tend to think that they may not have to regret later on which is known as anticipated regret. Once they have taken a decision and they regret it, it is known as realized regret and it affects the future decisions.	Bleichrodt et al. (2010); Brown (2007); Deuskar et al. (2013); Loomes and Sugden (1982); Muermann and Volkman (2006)
Framing	The same situation can be framed in different ways and people react to it differently according to the framing, the situation being the same.	Tversky and Kahneman (1981)
Hyperbolic Discounting	People are more patient in the long run than in the short run i.e., they are willing to wait for a higher return when the return is going to come in distant future, but they are not willing to wait for a higher return in the near future.	Bisin and Hyndman (2014); Della Vigna (2007); Reuben et al. (2007)

Source: Author's own (based on literature review).

BE Framework vis-a-vis Life Insurance

The choice of BE as the right framework to study life insurance market is given more weight by the fact that there are studies (shown in Table 4) which have considered the BE phenomena in relation to insurance in general and life insurance in particular.

Table 4: BE vis-a-vis Life Insurance

Study	*Major Findings*
Brighetti et al. (2012)	Individuals lack confidence in the insurance decision because of limited information and limited ability to predict the future.
Buzatu (2013)	Decisions in general and insurance decisions in particular are subject to the influence of many factors: risk perception influence, lack of information or submission of false information and biases leading to a behaviour that is not always rational.
Huang et al. (2008)	Showed that one possible reason for a positive relation between risk type and insurance coverage is regret aversion.
Inderst and Ottaviani (2011)	Pointed towards the problem of incentive system of advisors which makes them more inclined towards increasing the sales rather than informing the buyers.

Study	Major Findings
Kunreuther et al. (2013)	Discussed search costs specifically in relation to insurance purchase decisions. It is difficult for buyers to obtain information about loss probabilities and insurance premiums. If search costs are high relative to the potential gains from collecting additional data, some individuals will be deterred from gathering the information needed to purchase coverage. It is shown how the standard theory (neo-classical economics) fails to explain the demand and supply side anomalies in insurance markets. Many people don't buy insurance because of the long-term commitment, and it is difficult to convince people that the "best return on an insurance policy is no return at all." Various types of insurance and the behavioural biases in relation to them are also discussed in detail.
Minor and Brown (2012)	Studied the 'credence goods' problem specifically in relation to insurance markets. According to Minor and Brown (2012), 'An insurance sale is a classic credence good market with price-taking experts. Products are complicated and multidimensional, and it is very difficult for even sophisticated consumers to identify the appropriate product for their needs. This is particularly true for life insurance and annuity products (LA) where insurers impose multiple "riders" and introduce modifications to policies that may be opaque to customers' (p.12).

Source: Author's own (based on literature review).

Construct of Life Insurance Purchase Decisions Under the BE Framework

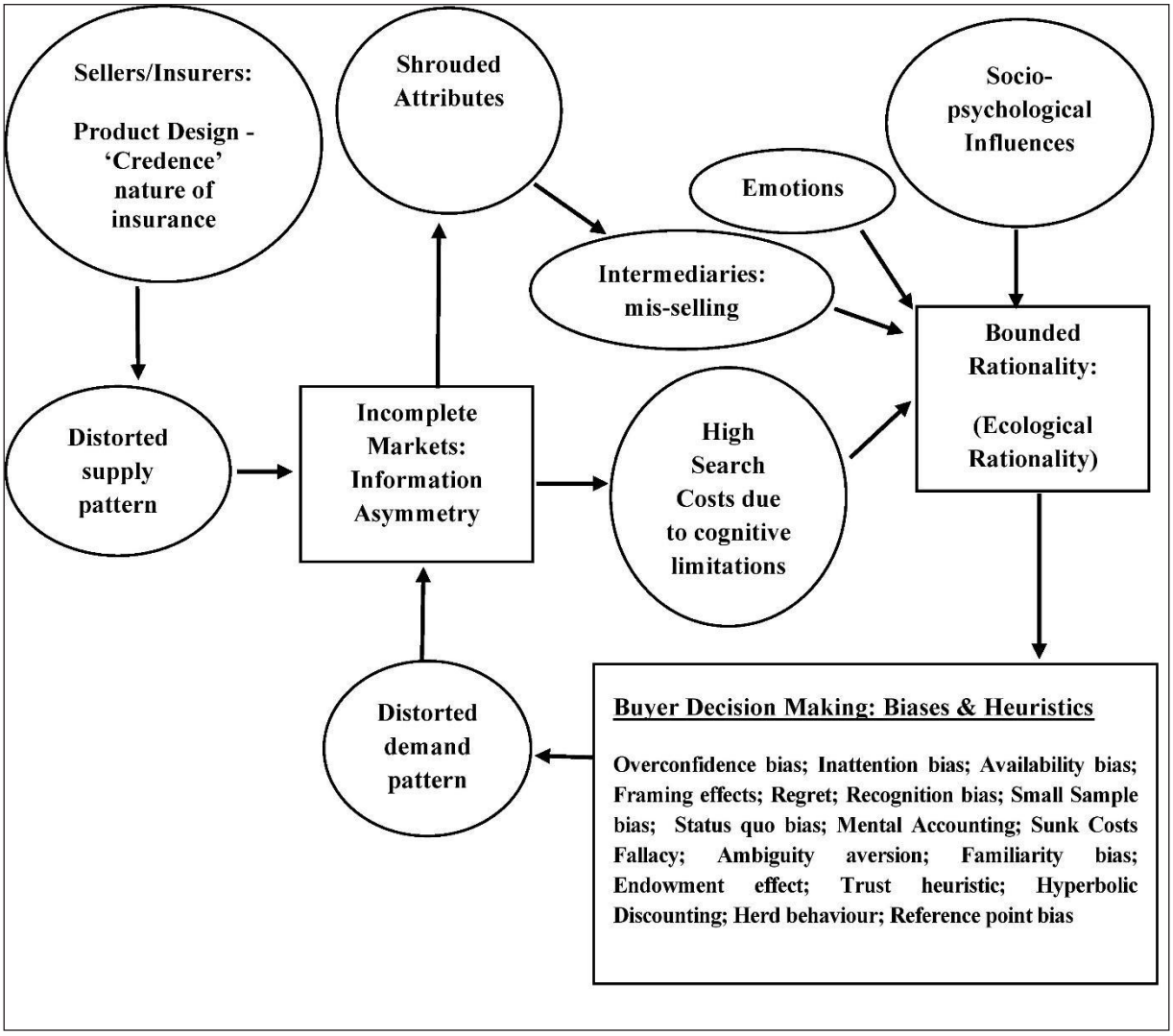
Fig. 2 depicts both the supply and demand side factors leading to sub-optimal decisions.

Optimal decisions require complete information but in reality, it is not so. Information is a supply side factor as the products/policies are designed by the life insurance companies and the companies design the product features in such a manner that it becomes difficult for buyers to understand. Thus, the life insurance companies distort the supply side by designing 'credence' products. Further, deliberate hiding of product features or shrouding (Gabaix & Liabson, 2005) by intermediaries (Inderst & Ottaviani, 2011) adds to incomplete information. Intermediaries are able to conveniently hide some product features because the majority of buyers are 'naive' and they hardly go beyond asking about some basic product features. Because the buyers don't know what to ask, the information asymmetry present in the market facilitates the intermediaries in doing away with their role of disclosing full information.

As shown in Fig. 2, designing of 'credence' products by life insurance companies and 'shrouding' by intermediaries are the supply side distortions that lead to incomplete information. The incomplete information facilitates the further shrouding of attributes, thus making it a vicious circle. Here, the 'Information Theoretic approach' is evoked as the life insurance purchase decisions are based on one party (sellers) having more information than the other (buyers). However, there is another possibility of information asymmetry wherein the buyers have more information than the sellers. In relation to life insurance markets of developed countries, information asymmetry has been shown to work in favour of the buyers (Finkelstein & Poterba, 2002; 2004) whereas there are other studies that reject the presence of information asymmetry or adverse selection or both (Cawley & Philipson, 1999; Hendel & Lizzeri, 2000; McCarthy & Mitchell, 2003). The focus of this study, however, is on the information asymmetry caused by complexity of products/policies, deliberate shrouding and mismatch between the perceptions about buyer behaviour. And in this context, buyers (in both developed and developing countries) have not been found to be having complete information as per the analysis of 23 financial literacy surveys reported by Capuano and Ramsay (2011). So, we can safely hypothesise that sellers/insurers have a better understanding about the product/policy features than the buyers.

Buyers, when encountered with the purchase decision, first try to gather some information about the products but due to their own cognitive limitations, the 'credence nature' and 'shrouding' by intermediaries, the 'search costs' become quite high. Making comparisons between numerous policies issued by a company or similar policies by different companies creates a 'choice overload' and adds to the 'confusion' (Huberman & Jiang, 2004; Iyengar & Lepper, 2000; Schwartz, 2004; Thaler, 1980; Timmermans, 1993). While identifying BE as the appropriate framework to study life insurance, we laid down that this framework is chosen as it blends the 'information theoretic approach' and the 'transaction

cost approach'. When we talk about search costs, we look at 'transaction costs' from the perspective of the buyers whereas in extant literature, the transaction costs are viewed from the sellers' perspective. And the presence of asymmetric information draws from the information theoretic approach.



Source: Author's own.

Fig. 2: BE Framework vis-a-vis Life Insurance

Then there are additional factors that affect the buyers in the form of social influences (including friends, relatives, peers and intermediaries) and emotions. Since life insurance covers the risk to life, its purchase inherently involves emotions and they can be easily exploited by the insurance companies and intermediaries. For instance, the agent/intermediary may take advantage of the COVID-19 situation, and press upon immediate buying of the policy and the buyer instantly purchases a policy not because it is the best for him but because the negative emotions of not protecting himself or his family overpower the objective evaluation process.

The combined effect of all the bounds on rationality in the form of incomplete information by intermediaries, high search costs due to cognitive limitations, socio-psychological influences and emotions, is that life insurance buyers often compromise on objectivity and end up resorting to shortcuts or simple tools for making decisions. These shortcuts are referred to as heuristics. For example: choose the policy that gives the highest

return; buy the policy which most of the colleagues have purchased; buy a policy which is advertised the most; buy a policy recommended by the agent/intermediary and so on. Decision-making based on such shortcuts or heuristics exhibits several biases like overconfidence, inattention, availability bias, reference-point bias, status-quo bias and loss-aversion and so on.

The decisions taken on the basis of simple rules of thumb or heuristics which suffer from the biases result in a distorted demand pattern where buyers don't purchase the right product/policy suited to their needs, don't purchase adequate amount of insurance to secure their future and don't appreciate the relevance of life insurance in general. This distorted demand pattern coupled with supply side distortions (complex product design and shrouding) together lead to incomplete markets/market inefficiency.

Therefore, it can be seen how informational inefficiency results in an inefficient market and thus the market fails to realise its full potential. Market inefficiency affects life insurance penetration (which is expressed as the percentage of premium to gross domestic product and is an indicator of performance). So, if low penetration of life insurance is seen in case of some countries, which otherwise have tremendous potential for growth, one of the possible causes could be the market inefficiency resulting from informational inefficiency.

A novel attempt has been made to create a 'construct' to depict how the BE framework is most relevant. It is hypothesised that bounded rationality is adversely influenced by emotions, search costs, intermediaries and socio-psychological influences, to embed behavioural biases and heuristics into life insurance purchase decisions. Combinedly, this leads to demand and supply distortions that create an incomplete market.

In conclusion, the main theoretical edifice that needs to be adopted is that of BE, with a blend of transaction-cost approach and information theoretic approach. Through this construct, it is argued that the right theoretical framework to study the life insurance market, given the idiosyncrasies involved, is enshrined in the novel framework.

Measurement of BE Phenomena vis-a-vis Life Insurance

It requires a unique methodology to measure all the BE phenomena discussed in relation to life insurance. The methodology suggested here is questionnaire-based survey which comprises three questionnaires- for buyers, intermediaries/agents and sellers/insurance companies. Main focus of the study would be buyer behaviour. However, to prove the existence of BE phenomena, the perspectives of the intermediaries and companies are also required. This will give a complete picture of the market which includes buyers' own perception about their behaviour and the perceptions of intermediaries and life insurance companies about buyer behaviour. The three questionnaires will contain some common questions which would be asked from all the three entities. They will help to compare the views of the three entities. Other questions in the three questionnaires will be specific to the respective entities. Questions in the three questionnaires will be designed to cover all aspects of insurance viz life insurance awareness, information, decision making, post purchase behaviour and grievance redressal.

Measurement of Incomplete Information/ Information Asymmetry

Information asymmetry can be proved if the policies are complex (credence nature), and buyers find it difficult to understand; or all their features are not disclosed (shrouding); or there is a mismatch in the understanding/ perceptions of the three entities (buyers, intermediaries and companies) about buyer behaviour. To know the difficulty level or complexity of information, direct questions will be asked from companies, intermediaries and buyers. To test for shrouding, the intermediaries and sellers will be asked about the features that they disclose to buyers and the buyers will be asked about the features which were actually disclosed to them at the time of purchase. If a difference is observed, it points towards shrouding.

If the buyers' understanding about their own behaviour and the perceptions of intermediaries and insurers about

buyer behaviour do not match, this also indicates the presence of information asymmetry. It can be tested empirically by applying logistic regression (discussed under statistical measures).

Measurement of Heuristics and Biases

To test the social influences, effect of emotions and cognitive limitations and the resulting biases, several questions will be asked from the buyers. These questions relate to the sources of information, role of agents/ intermediaries, emotions involved in purchase decisions, the role of other people (friends/relatives/peers, etc.) in the decision, choice overload, confusion and so on.

Statistical Measures

To analyse the responses to the three questionnaires, following tests are proposed to be applied.

Heuristic Z-Test

Since it is proposed to gather the data at a point of time, there is a need to have a methodology which can help in commenting on the long-term trend on the basis of this data. Therefore, the z-test ordinarily used is modified and substituted by heuristic z-test developed by Murthy (2014) where the null hypothesis is taken to be 0.5 instead of 0, that is, P_{H0}=0.5. So, if the phenomena tested through the questionnaire hold good in statistically significantly more than 50% of cases, then it can be said with confidence that this is a long-term trend and thus it is possible to overcome the limitation of having cross-sectional data. Therefore, to analyse the responses to questions in nominal and interval scale, heuristic z-test would be applied to comment on the presence or absence of a phenomenon with greater confidence.

Murthy's Index of Rank Dominance (MIrd) and Murthy's Relative Index of Rank Dominance (MRird)

To compare the ranking/ordinal scale questions, Murthy's Index of rank dominance (MIrd) would be applied. MIrd is a measure evolved by Murthy (2011). There are two measures of the index - absolute and relative. Index of rank dominance summarises the trends in ordinal data as shown in Equation 1.

$$MIrd_i = \frac{\sum_{j=1}^{N} a_{ij}}{R*N} \quad (1)$$

Where,

MIrd_i = Murthy's Index of Rank Dominance

a_{ij} = Actual rank score of jth individual/respondent for the ith option

R = Maximum rank score

j = 1,2,3, ……N

N = Sample size

The index of rank dominance is calculated for each option of every ranking (ordinal scale) question. This is done by dividing the sum of the ranks given to the particular option by all the respondents (actual score) in that category by the maximum score that the option could have received. The actual score is calculated by adding the ranks given to it by all the respondents. This tells the dominance of a particular option in terms of the rank received by it from the respondents.

The Murthy's Relative index of rank dominance (MRird), when computed for each option of one question, helps in studying the relative importance of that option in relation to other options. The MRird is computed as given below in Equation 2.

$$MRird_i = \frac{MIrd_i}{\sum_{i=1}^{n} MIrd_i} \quad (2)$$

where,

MRird = Murthy's Relative index of rank dominance

$MIrd_i$ = Murthy's Index of rank dominance for i^{th} option

n = number of options

Logistic Regression

Through Logistic Regression, it is intended to test whether there is a significant difference in the behaviour/perception of the three major players in the life insurance market. So, it is proposed to make a triangular comparison. First

comparison would be between buyers and intermediaries; second between buyers and companies; and the third between intermediaries and companies. This logistic regression exercise will help us in testing for significant differences in the perceptions of the three entities, compared two at a time. The significant differences will point towards information asymmetry and also the level at which it occurs.

Conclusion

Life insurance products/policies are not financial assets but financial products, whose objective is not capital gain. Through an analysis of various decision-making theories in economics and finance, it has been shown that BE seems to be the most relevant theoretical framework to study life insurance markets. The major contribution of this paper is the development of a BE framework vis-a-vis life insurance purchase decisions. A novel attempt has been made to give a diagrammatic depiction of the construct of life insurance purchase decisions under the BE framework. It is hypothesised that various bounds on rationality (incomplete information, cognitive limitations, social influences and emotions) affect life insurance purchase decisions and manifest themselves through different behavioural biases, thus resulting in market inefficiency and underperformance. To test these hypotheses, a methodology has been suggested to measure the BE phenomena using state-of-the-art statistical measures, namely heuristic z-test, MIrd, MRird and logistic regression. It is believed that this would be a framework which would lend itself to different insurance markets and could equally apply to different economies with varying conditions.

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