Exploring the Role of Behavioural Economics in Understanding Decision-Making Processes

Md.Mafiqul Islam

[1]Department of Information Science and Library Management, University of Rajshahi, Bangladesh

Abstract

This paper aims to underscore the invaluable role of behavioral economics in elucidating the decision-making process. In order to comprehensively grasp the attitudes and mechanisms underlying decision-making, it becomes imperative to integrate subjective and psychological dimensions inherent in behavioral economics. Such integration redefines rational behavior beyond the confines of classical and neoclassical paradigms, opening new avenues of exploration. While this approach may challenge conventional economic development models, its consideration of multifaceted factors influencing individual decision-making promises a more nuanced understanding of economic phenomena and the discovery of viable solutions.

Keywords: cognitive heuristics, behavioral economics, prospect theory, decision-making

Introduction

The title of this research spotlights its central focus, which is an endeavor to delve into the theoretical underpinnings of decision-making within the burgeoning field of behavioral economics, which has evolved primarily since the 1950s. This subject presents an intellectual challenge that ignites curiosity and fosters a desire for exploration, achieved through the analysis of literature, reports, and studies compiled by reputable institutions.

Behavioral economics has emerged as a significant research direction within the realm of economic science due to the paradoxes it has unearthed within rational choice theory. Moreover, it represents a branch of economics that scrutinizes the everyday decision-making processes of individuals, thereby challenging traditional economic postulates. Its interdisciplinary nature is evident, with a predominant influence from psychology, supplemented by elements from philosophy, epistemology, sociology, economics, anthropology, and even mathematics or econometrics.

An in-depth analysis is imperative, particularly in light of the growing importance and relevance of behavioral

economics, fueled by advancements in technological progress over recent decades. The insights garnered, particularly from the field of neuroscience, have facilitated a deeper understanding of the human brain and the foundational principles that underpin decision-making processes. Furthermore, considering the significant upheavals in the economic landscape since the Great Depression of the 1920s and '30s, there is a compelling reason to underscore the importance of this study.

With six years having passed since the onset of the deepest recessions since 1929, and with most economies still in a fragile state, it is evident that conventional economic theories have fallen short in providing sustainable solutions for economic rehabilitation. This failure can be attributed to the inadequacy of both interventionist and liberal economic models, which are grounded in abstract notions of individual behavior: either as purely selfish and perfectly rational or entirely altruistic, devoid of selfish motives. However, the reality is far more complex, with individuals exhibiting behaviors and making decisions that are often irrational, emotional, and fraught with repeated mistakes. Behavioral economics, with its nuanced understanding of human behavior, offers valuable insights into these complexities and shortcomings of traditional economic models.

Method

In this study, the research strategy was predominantly deductive, aligning with the inherent nature of the subject matter, and rooted in theoretical reflections within the referenced field. Deductive reasoning was supplemented by elements of induction, drawing upon statements and theories extracted from the existing literature on economic practice to bolster the formulated hypotheses.

The primary research methodology employed was the qualitative approach. This involved gathering data from various sources in the field literature pertaining to established theories. Data collection entailed examining a range of documents such as books, articles, encyclopedias, among others, thereby constructing a cohesive and structured information network. The research techniques utilized encompassed analysis of mediated content and comparative analysis of existing data, alongside empirical studies found within the literature.

Literature Review

The literature portrays behavioral economics as a branch of economics rooted in the assumptions of human behavior, drawing from insights derived from psychological studies and conclusions from various social sciences and biology. Its objective is to formulate descriptive hypotheses concerning individuals' cognitive abilities and emotional responses within economic decision-making contexts. This analysis integrates both institutional frameworks that dictate organizational rules and norms of social interaction, as well as the contextual specifics of individual circumstances (Schwartz, 2007, p. 4).

Additionally, behavioral economics endeavors to elucidate why individuals do not always act in a purely selfish manner, fail to consistently make economically rational decisions, or assign varying values to objects of identical worth (Frank, 2006, p. 231-256). Gary Becker, a Nobel Prize laureate, although not a proponent of behavioral economics, argued that deviations from rational behavior, when traditional economic explanations based on income or prices fall short, can be attributed to shifts in preferences (Becker, 1998, p. 139).

Behavioral economists advocate for expanding and refining traditional economic theories by incorporating decision-making models borrowed from psychology, thereby adopting a multidisciplinary approach.

According to the standard economic model, individuals make decisions within a comprehensive framework, possessing full knowledge of their preferences, with their choices always deemed rational. However, behavioral economics challenges this notion by considering the myriad fluctuations in human rationality influenced by emotions, social conformity, marketing tactics, or individuals' inability to accurately assess probabilities. Fear of

failure, remorse, and susceptibility to external cues significantly impact decision-making processes.

For instance, Dan Ariely contends that individuals perceive their surroundings in relation to others, lack autonomy in thought, and exhibit uncontrolled reactions to certain stimuli, such as the allure of "free" or "zero-cost" offers, thereby struggling to make rational decisions when faced with societal and economic norms (Ariely, 2010, p. 87).

Numerous eminent scholars have contributed to the study of behavioral economics. Herbert Simon advocated for the fusion of psychology and economics, introducing the concept of bounded rationality, which challenges the foundational assumption of traditional economics concerning unlimited rational choice (Simon et al., p. 126).

Another significant area of research within behavioral economics focuses on decision-making under conditions of uncertainty and risk. Amos Tversky's empirical studies revealed deviations from rational behavior, particularly in the realm of investment decisions, where individuals exhibited risk aversion for gains but risk-seeking behavior for losses (Tversky, 1995).

Daniel Kahneman and Amos Tversky further demonstrated the influence of cognitive biases on decision-making processes, debunking classical theories of anticipated utility (Kahneman and Tversky, 1972; Kahneman et al., 1974). They revealed that individuals tend to mimic the actions of others, succumb to social pressure, and prioritize immediate gratification over long-term balanced consumption (Muradoglu, 2010, p. 8).

The behavioral economics framework also addresses consumer decision-making by integrating psychological aspects into economic analyses, considering factors such as regret aversion and emotional states (Urse, 2009, p. 400). This approach complements traditional economic perspectives by examining various utility functions and preferences, challenging the assumption of universal selfishness, and offering explanations for irrational decision-making patterns observed in individuals.

In essence, behavioral economics endeavors to elucidate why individuals often deviate from rational decision-making patterns predicted by classical and neoclassical economic models, thereby offering insights into human behavior that can inform practical applications.

Normative Models of Decision Making

Classical and neoclassical economics primarily focused on objective economic factors in decision making, neglecting the psychological aspects involved. As a result, normative models of decision making were developed, emphasizing rationality as the guiding principle of decision makers. These models aimed to formalize decision-making processes, often prioritizing the calculation of maximum profit through mathematical optimization techniques.

The most prominent normative models include expected value and expected utility.

Expected Value:

The expected value model calculates the anticipated benefit, typically in monetary terms, associated with each alternative considered by the decision maker. It is an objective measure independent of individual subjective perceptions. However, this model is limited as it only considers quantifiable

economic factors and neglects non-monetary values influencing decision making.

Expected Utility:

In contrast, the expected utility model seeks to address the shortcomings of the expected value model by incorporating subjective perceptions of value. It distinguishes between objective value and subjective utility, where utility represents the individual's perception of value. This model posits that decision makers base their choices on the perceived utility of each alternative rather than its objective value. While more psychologically valid, the expected utility model still has limitations, especially in complex decision-making scenarios.

Experimental studies, such as those conducted by Payne et al. (1988), have shown that individuals tend to make rational decisions when time and complexity are reduced, employing the calculation of expected utility. However, under time pressure or increased complexity, individuals resort to heuristics and simplified decision-making models.

In summary, the expected utility model is descriptive in situations where decision makers have sufficient time and resources, while it becomes prescriptive in complex or time-constrained decision scenarios. On the other hand, the expected value model is primarily prescriptive. Both models, however, are limited by their assumptions of rational decision makers possessing complete knowledge of alternatives and consequences, as evidenced by experimental data contradicting these assumptions.

4. Descriptive Models of Decision Making: Bounded Rationality

Normative models, while valuable for providing guidelines, encounter significant challenges when applied descriptively to explain how individuals actually make decisions (Broadhurst, 1976; Kahneman and Tversky, 1979; Lee, 1971; Rapaport and Walsten, 1972; Simon, 1976; Slovic, Lichtenstein, and Fishoff, 1977). Herbert Simon, a prominent critic of rationalist models and later a Nobel Prize laureate for his research on decision theory, highlighted this discrepancy. In 1959, Simon argued that classical theories, which assume decision makers choose among fixed alternatives with known consequences, fail to adequately capture the complexities of decision making when individuals interact with their environment. Simon proposed the concept of bounded rationality, a foundational concept in behavioral economics, which acknowledges that individuals are constrained by limited information and cognitive capacities within finite timeframes for decision making (Simon, 1959, p. 260).

According to Simon's theory of bounded rationality, decision makers do not possess unlimited information or the theoretical skills of a "rational actor." Instead, they make decisions using analytical systems constrained by cognitive limitations and bounded by their own values. Simon emphasized that decision makers prioritize actions based on the likelihood of achieving desired outcomes within the constraints of their cognitive abilities and available information.

Bounded rationality recognizes that decision making occurs in heterogeneous environments where individuals have diverse desires and preferences. Decision makers must consider these factors when selecting among alternatives, constrained by cognitive limitations and time constraints. Rather than selecting the optimal alternative, decision makers aim to identify a satisfactory solution that meets relevant criteria, given the resources and time available. This approach allows decision makers to

prioritize satisficing over optimizing, especially when faced with time pressure or complex decision scenarios.

In contrast to normative models, which assume unlimited rationality and aim to prescribe optimal decision-making strategies, descriptive models of decision making focus on understanding the mechanisms of rationality within the constraints of limited knowledge and uncertainty. By examining cognitive, emotional, and subjective factors influencing decision making, descriptive models provide greater explanatory and predictive value for real-world decision-making behavior.

Empirical studies, particularly those conducted by Daniel Kahneman, have revealed deviations from classical rational choice theory, as individuals tend to simplify decision-making processes, ignore information, or rely on instincts rather than optimization strategies. These experiments underscore the distinction between procedural rationality, where decisions result from proper deliberation within constraints, and substantive rationality, where behavior aligns with desired outcomes within given limitations and constraints (Rubinstein, 1998, p. 187).

In conclusion, descriptive models of decision making, particularly those grounded in bounded rationality, offer insights into how individuals navigate complex decision environments, shedding light on the interplay of cognitive, emotional, and subjective factors shaping decision outcomes.

Cognitive Elements and Mechanisms Influencing the Decision Process

Understanding and predicting human behavior in decision-making requires analyzing various cognitive elements involved in the process. Behavioral economics research reveals that decision-making is subject to cognitive heuristics, which are predictive of decision behavior. Some of the most studied cognitive elements include cognitive framing, alternative anchoring, prototypicality of alternatives, memory accessibility, and retro-assessment of alternatives.

The influence of cognitive framing was elucidated in studies by A. Tversky and D. Kahneman (1981, 1983), who argued that the formulation of alternatives activates different cognitive frames, thereby affecting decisions. For instance, participants in an experiment were presented with scenarios regarding intervention proposals to combat an epidemic. The framing of the alternatives significantly influenced decision outcomes, with positive framing leading to different choices compared to negative framing.

Similarly, alternative anchoring, as demonstrated by Tversky and Kahneman (1974), affects decision-making. In an experiment involving multiplication tasks, different anchor points led to significantly different estimates of the final result, showcasing the impact of anchoring on decision outcomes.

The degree of prototypicality of alternatives also plays a role in decision-making. Medin and Ross (1992) found that individuals tend to perceive more prototypical scenarios as more probable, influencing their decisions accordingly.

Memory accessibility of alternatives can significantly influence decision outcomes, as demonstrated by Kahneman and Tversky (1983). Easily retrievable knowledge and events are more likely to manifest themselves during decision-making, leading individuals to favor accessible alternatives.

Furthermore, retro-assessment of alternatives can distort the perception of decision difficulty. After making a decision, individuals may reassess alternatives based on hindsight, leading to an inaccurate estimation of the initial decision's difficulty.

In conclusion, cognitive elements such as framing, anchoring, prototypicality, memory accessibility, and retro-assessment significantly impact the decision-making process. Understanding these mechanisms is crucial for predicting and explaining human behavior in decision-making contexts.

Prospect Theory: An Insight into Decision-Making Under Risk

In response to the traditional expected utility theory prevalent in normative decision-making models, Daniel Kahneman and Amos Tversky (1979) introduced Prospect Theory. This theory, outlined in their seminal article in Econometrica, challenges the notion of rational decision-making by exploring how individuals behave when faced with risks, particularly in scenarios involving potential gains or losses.

At the core of Prospect Theory are two key experimental findings: First, individuals tend to assign less weight to probable outcomes compared to certain outcomes. Second, people exhibit a stronger aversion to losses than the joy derived from equivalent gains. These phenomena give rise to risk aversion in scenarios involving potential gains and risk-seeking behavior in situations involving potential losses.

The theory is graphically depicted through a value function, as illustrated in Figure 2. Here, it is evident that individuals' attitudes towards gains and losses are asymmetrical. The curve representing gains follows the principle of diminishing marginal utility, tapering off relatively quickly. In contrast, the curve representing losses accelerates, approaching the reference point more sharply. This asymmetry underscores the stronger emotional impact of losses compared to gains, influencing decision-making behavior.

A key concept in Prospect Theory is the framing effect, which pertains to the different interpretations individuals assign to identical situations based on how they are presented. The framing effect often leads to divergent choices in similar contexts due to variations in how individuals justify their decisions. Notably, individuals tend to be more risk-averse when faced with potential losses, exhibiting a greater willingness to take aggressive action to avoid losses compared to pursuing gains.

Kahneman and Tversky's research demonstrates that decision-making is heavily influenced by the framing of problems. They highlight that how a situation is framed can significantly alter decision outcomes. Their experiments reveal that people's attitudes towards risk are asymmetric, with losses eliciting stronger emotional responses than equivalent gains.

Prospect Theory has revolutionized traditional economic approaches by providing explanations for seemingly irrational behaviors observed in economic practice. It sheds light on phenomena such as individuals holding onto low-value assets during market upswings and being more willing to take risks in scenarios involving potential losses.

A contemporary example that illustrates Prospect Theory's insights is the prevalence of households in the United Kingdom and the United States not investing in stocks but frequently participating in public lotteries. While traditional views may deem this behavior irrational, Prospect Theory explains it as stemming from individuals' aversion to disappointment. People experience greater distress from losses than pleasure from equivalent gains,

leading to risk-averse behavior in contexts where losses could be substantial, such as stock investments.

References

[1] Hasan, M. R. (2023). NetSuite's Next Frontier: Leveraging AI for Business Growth. International Journal of Science, Engineering and Technology, Volume 11 Issue 6. Retrieved from: https://www.ijset.in/volume-11-issue-6/

[2] Hasan, M. R. (2022). Cybercrime Techniques in Online Banking. Journal of Aquatic Science. Retrieved from https://www.journal-aquaticscience.com/article_158883.html

[3] Islam, M., &Shuford , J. . (2024). A Survey of Ethical Considerations in AI: Navigating the Landscape of Bias and Fairness. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.27

[4] Akter, most. S. (2024). Interdisciplinary Insights: Integrating Artificial Intelligence with Environmental Science for Sustainable Solutions. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.28

[5] khan , M. R. . (2024). Advancements in Deep Learning Architectures: A Comprehensive Review of Current Trends. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.29

[6] Rana , M. S. ., &Shuford , J. . (2024). AI in Healthcare: Transforming Patient Care through Predictive Analytics and Decision Support Systems. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.30

[7] Mia , M. R. ., &Shuford , J. . (2024). Exploring the Synergy of Artificial Intelligence and Robotics in Industry 4.0 Applications . *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.31

[8] Klinkenberg , D. . (2024). The Gnostic Code . *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.32

[9] Carrasco Ramírez., D. J. G. ., Islam, M. ., & Even, A. I. H. . (2024). Machine Learning Applications in Healthcare: Current Trends and Future Prospects. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.33

[10] Islam, M. (2024). Applications of MachineLearning(ML): The real situation of the Nigeria Fintech Market. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.34

[11] Shuford, J. . (2024). Quantum Computing and Artificial Intelligence: Synergies and Challenges. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1). https://doi.org/10.60087/jaigs.v1i1.35

[12] Shuford, J. (2024). Deep Reinforcement Learning Unleashing the Power of AI in Decision-Making. *Journal of Artificial Intelligence General science (JAIGS) ISSN: 3006-4023*, *1*(1).https://doi.org/10.60087/jaigs.v1i1.36

[13] Islam, M. M. . (2024). The Impact of Transfer Learning on AI Performance Across Domains
. *Journal of Artificial Intelligence General Science (JAIGS) ISSN:3006-4023*, *1*(1).
https://doi.org/10.60087/jaigs.v1i1.37

[14] Hasan, M. R., &Ferdous, J. (2024). Dominance of AI and Machine Learning Techniques in Hybrid
Movie Recommendation System Applying Text-to-number Conversion and Cosine Similarity
Approaches. *Journal of Computer Science and Technology Studies*, *6*(1), 94-102.
https://doi.org/10.32996/jcsts.2024.6.1.10