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## Loss Aversion, Nudges, and Mental Accounting: Understanding Decision-Making through Behavioral Economics

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### ABSTRACT

*This research paper explores the principles of behavioral economics, placing special emphasis on loss aversion, the endowment effect, and the role of nudge theory in everyday decision-making. By analyzing foundational theories, this paper highlights how psychological factors influence human behaviour, and aims to prove how behavioural economics provides a more realistic approach to decision-making than traditional theories. Behavioral economics has emerged as a field that explains the deviations in pre-existing consumer theories and provides a more realistic rationale to explain consumer behaviour in making decisions. Special attention is given to Richard H. Thaler, whose contributions to mental accounting, prospect theory, and nudge theory provided the foundation for understanding real-world behaviour. Methodologically, this paper adopts an analytical approach. It reviews pioneering literature, including Thaler's original papers related to behavioural studies, and contrasts them with neoclassical assumptions. This paper draws connections between theoretical concepts and real-world practical examples—from consumer spending patterns to market behaviour. Overall, this paper discusses that integrating human behavioural insights into economic thinking leads to a more realistic model of human behaviour.*

**KEYWORDS:** *Behavioural Economics, Neoclassical Economics, Expected Utility Theory (EUT), Efficient Market Hypothesis (EMH), Prospect Theory, Heuristics, Loss Aversion, Endowment Effect, Mental Accounting, Nudge Theory, Choice Architecture and Libertarian Paternalism.*

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### INTRODUCTION

Every day, millions of individuals make economic decisions which shape their financial lives; what to buy, paying extra for faster delivery, buying something impulsively because it is trending. These decisions are often not rational. Neoclassical economics was based on the idea of the “*Homo Economicus*”: perfectly rational beings who make decisions that aim to maximize their utility (Koçaslan 64). Traditional economics theories such as *Expected Utility* and *Efficient Market Hypothesis (EMH)* assume that individuals are logical in their choices and indifferent to emotions (Thaler 1267; Thaler 1274). However, over time, researchers observed patterns of human behaviour that defied these predictions. For instance, you see a “50%OFF” sale sign outside your favorite shop. Even if you don't really need what's for sale, you are likely to buy something just because it seems like a good deal. Rationally speaking, spending money on something unnecessary doesn't make much sense. However, emotions like excitement or fear of missing out take over.

This is just one example of how our emotions guide our decisions. This highlights that human decisions are more influenced by human emotions instead of rationality and logical thinking. We also try to justify our irrational choices. For instance, while buying an expensive piece of clothing which is on sale, you might try to justify the purchase by saying that you saved money because it was on sale. This is *behavioural economics*, a field that combines psychology and economics to study how people actually make decisions. Unlike traditional economics, which assumes that humans are perfectly rational, behavioral economics recognizes that emotions, biases and mental shortcuts (heuristics) often guide our decisions (Thaler 1266). Concepts such as heuristics and loss aversion reveal the predictable nature of human beings and how they deviate from rational behaviour (Thaler 1269).

Behavioural Economics is of utmost importance because it challenges the assumption of perfect rationality proposed by traditional economics which dominated for decades. It recognizes that cognitive biases and influences often guide our decisions and recognizes that human beings are not perfect robots who weigh all the relevant information before making a decision. For instance, when you go to the supermarket to buy a chocolate, you rarely find yourself comparing all the options logically. Instead, you will probably find yourself buying your personal favourite, or the chocolate with the most appealing packaging or lowest price. Rationally, comparing all the products carefully would be more rational. However, our biases, habits and curated marketing often guide the decision. Understanding behavioural economics explains why humans overspend, fall for marketing trends, and explains the rationale in making investment choices. Behavioural Economics helps explain everyday behaviour that traditional economics cannot explain.

This paper traces the major milestones in the development of behavioural economics. Starting from the traditional *Expected Utility Theory* and *Efficient Market Hypothesis* to the breakthrough by *Daniel Kahneman and Amos Tversky* on *heuristics* and *Prospect Theory*, the discovery of *mental accounting*, *loss aversion*, *endowment effect* and *nudge theory* (Thaler 1267-1283). These milestones explain the intersection between psychology and economics to explain human behaviour better than traditional theories.

## EXPECTED UTILITY THEORY

Expected Utility Theory is one of the foundational theories of neoclassical economics. It explains the decision-making capabilities of individuals when faced with risk or uncertainty.

Expected Utility Theory (EUT) states that the decision maker (DM) chooses between risky or uncertain prospects by comparing their expected utility values, that is, the weighted sums obtained by adding the utility values of outcomes multiplied by their respective probabilities. (“Davis 171”) Developed by *Von Neumann* and *Morgenstern*, the theory proved that if you want to satisfy some basic rationality axioms then you must maximize expected utility. (“Thaler 1267”) For instance, imagine you are ordering food online, and you are given the option of paying 100 rupees for express delivery. According to EUT, a rational consumer would weigh the extra cost with the satisfaction from receiving the food sooner, and only choose to pay extra if the added utility exceeds the price. However, in reality, people often make decisions like these impulsively- guided by hunger, impatience and mood rather than careful reasoning and analysis.

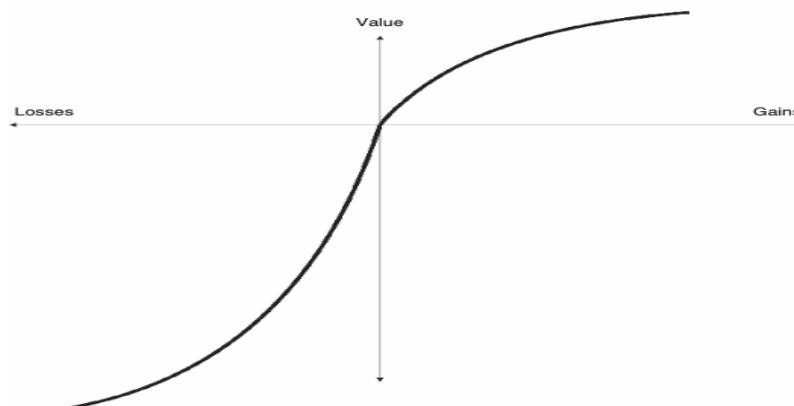


Figure 1- The value function

Source: Kahneman and Tversky (1979)

This graph illustrates two main features of human decision making. First, the curve flattens for both gains and losses, showing diminishing sensitivity- the difference between 50 and 60 rupees seems greater than the difference between 1050 and 1060 rupees. Second, the loss side is clearly steeper than the gain side, representing the fundamental concept of *loss aversion*- losses feel more painful than equivalent gains, feel rewarding. This imbalance helps explain the endowment effect- that human beings overvalue what they own.

We demand more money to give up an item we own than they would pay to acquire it. Kahneman and Tversky modified Expected Utility Theory by suggesting that people evaluate changes in wealth  $v(\bullet)$  (that depends on changes to wealth rather than levels), rather than total wealth itself,  $U(W)$ , where  $W$  is lifetime wealth. They argued that individuals quickly adapt to their current standard of living (Thaler 1269). Expected Utility Theory is based on several key assumptions of human behaviour. It assumes that humans are capable of weighing all the possibilities and outcomes presented in front of them, and always make a decision based on the option which maximises their overall satisfaction or “utility”. Let's take another example- while the probability of winning the lottery is extremely low, millions of people still purchase these tickets hoping to get lucky. From the EUT perspective, a more rational decision would be to save or invest your money somewhere safer, however human emotions such as hope and excitement defeat logical reasoning. These behaviours directly contradict the Expected Utility Theory.

Although this theory offers a structural, mathematical and a more logical method for understanding decision making, it assumes that individuals are always capable of evaluating all the possibilities and results rationally. However, in real life, the decision-making process of humans is affected by emotions and judgements instead of logical evaluation. This gap between how people should make decisions and how they actually make decisions laid the foundation for the introduction of the Prospect Theory, introduced by Daniel Kahneman and Amos Tversky. (Thaler 1266)

## **EFFICIENT MARKET HYPOTHESIS**

The Efficient Market Hypothesis (EMH), formulated by Eugene Fama (1970), proposed that markets were extremely efficient in reflecting information about individual stocks and about the stock market as a whole (Malkiel 49). This theory argues that the current price of a stock already reflects all the necessary information, therefore no investor can consistently earn returns above the market average. There is no room for the investor to ‘take advantage’ because all the information is already included in the price. EMH assumes that investors are rational and analyse all information perfectly. Under this theory, prices would only change if new information entered the market, because if the information was already known, the market would have adjusted itself. As a result, prices are considered to be unpredictable, since the future is capricious.

The Efficient Market Hypothesis dominated the stock market for decades. Investors never tried to beat the market since they believed it would be pointless because all the relevant information was provided in the price of the stock and markets were doing the best job at processing

information. However, over time, real market behaviour did not fully match this theory and

Financial markets do not work so flawlessly. The main reason for this was because human

investors are not robots. They are influenced by natural human emotions such as fear,

excitement, joy, and social pressures. This human behaviour creates market trends and sudden crashes. This clearly contradicts the rational decision making that EMH proposes. Behavioural Economists such as Amos Tversky, Daniel Kahneman, Richard H. Thaler and Werner De Bondt argued that investors overreact to bad news, and underreact to slow, boring information. This leads to a proposition that the EMH cannot explain. If the EMH was right, there would be no sudden stock bubbles, no hype and no herd behaviour- yet these are extremely common

(De Bondt and Thaler 1985). Another challenge to EMH comes from the “noise trader” model proposed by Andrei Shleifer and Lawrence Summers. They argue that markets are not only influenced by investors, but also by noise traders- investors who trade based on rumors, gut and trends rather than solid information. These traders can temporarily also push prices away from their standard value (Shleifer & Summers 1990).

This is where behavioural economics comes in. Just as Prospect Theory challenged the rationality assumptions of the Expected Utility Theory, Behavioural Finance emerged as a challenge to the Efficient Market Hypothesis. It argued that markets are not only driven by price, but also affected by cognitive biases. For instance- if a company posts excellent profits, stocks jump like crazy in a few seconds because the market reacts instantly to information. Behavioral Finance showed that markets are not fully efficient because human investors are not fully rational. It proposed that prices not only reflect all information, but it also reflects human psychology. Human investors have biases; they use heuristics and are influenced by their emotions. Therefore, Behavioural Finance did not reject EMH completely, but it showed that markets become predictable because human psychology and behaviour is predictable.

## **PROSPECT THEORY**

The Prospect Theory was introduced by Daniel Kahneman and Amos Tversky as a direct response to the limitations of the Expected Utility Theory. In their paper, “Prospect Theory: An Analysis of Decision under Risk”, they ran experiments where people were asked to choose between their gambles. People did not choose what according to the EUT is ‘rational’. Therefore, they were able to prove that

humans do not always make decisions that maximize their utility. Through these experiments, they were able to notice a consistent behavioural pattern- humans reacted much more strongly to losses than gains of the equivalent size. For instance- Losing 500 Rupees hurts more than gaining the same amount of money feels. This phenomenon came to be known as *loss aversion*. This was one of the first major cracks in purely rational decision making. This feature of overvaluing our losses also explained another phenomenon of endowment effect. Since owning a material object makes giving it up feel like a

Loss, and since losses hurt more than gains, humans demand more money to give and object up compared to the money we would pay to acquire it. For instance- if you buy a jacket for 1000 Rupees, you would not sell it for anything less than the price you brought it for. Similarly, while buying that jacket, you would not pay even a penny more than 1000 Rupees. This shows that not only do we overvalue our losses, but we also overvalue what we own. Prospect Theory aimed to explain how people actually make risky economic decisions, whereas Normative Theory explained how people should make decisions if they were rational. Kahneman and Tversky believed that economics required both theories- one for logic, and one for reality. The basic flaw in neoclassical economics was that it uses one theory for both tasks, namely theory of optimization (Thaler “1267”).

To further explain irrationality in everyday decisions, Kahneman and Tversky emphasised on the role of heuristics (mental shortcuts) on human decision making. Their paper Kahneman and Tversky (1974) “Judgment Under Uncertainty: Heuristics and Biases” argued that when humans face uncertainty in their decision making, our brain uses mental shortcuts called heuristics which often lead to biases, therefore, wrong judgements. People judge how likely something is by how easily they can recall examples of it — this is the availability heuristic.(Thaler 1266). For example, if there was recently a plane crash shown all over Instagram and the news, people suddenly feel like flying is extremely dangerous, even though statistically car accidents are far more common. The plane crash comes to mind easily, so the brain treats it as more likely.

The conclusion that people make ‘predictable errors’ was profoundly important in the development of behavioural economics. Bounded Rationality, coined by Herbert Simon (1987) argues that humans make “bounded” rational decisions- we try to be rational, but only in our limits. People make some errors in their regular decision making, but since random errors cancel out on average, people's choices still look rational enough for economic models to work. Prospect Theory therefore showed that irrationality is not random — it is organised. And this is what created a new branch beyond neoclassical economics: behavioural economics.

## MENTAL ACCOUNTING

Imagine receiving ₹1000 as a birthday gift. You are more likely to spend this amount freely—perhaps on food, clothing, or entertainment—compared to ₹1000 that you earned through hard work. Why does this happen if the monetary value is identical? This difference arises because our mind places the money into different “mental accounts.” This behaviour, termed *Mental Accounting*, was introduced by Richard H. Thaler. Thaler first introduced the concept of *mental accounting* in his 1985 paper, later elaborating on it in his book *Nudge* (2008). (Thaler 1268) Through a series of behavioral experiments, Thaler demonstrated that individuals maintain separate “mental accounts” for different types of transactions, leading to unreliable financial decisions that deviate from traditional economics. It explains how individuals categorise money into separate budgets—such as savings, gifts, leisure, or necessities—and treat each category differently, even though each rupee holds the same objective value.

For instance, losing ₹500 while gambling at a casino or during a Diwali party may feel like an “entertainment expense,” whereas losing the same amount from one’s wallet feels like a *real financial loss*. The amount of money is identical, yet the psychological framing differs. The gambling loss is mentally coded as part of leisure spending and thus easier to accept, while the wallet loss triggers a stronger emotional reaction because it feels like a genuine reduction in one’s available resources.

However, according to neoclassical economics, all money should be treated the same way because it holds the same value regardless of its source or intended use. In traditional economic theory, individuals are assumed to evaluate decisions based on their overall wealth, without separating money into subjective categories. However, in real life, humans don’t follow this principle. This reluctance of spending money from certain ‘mental accounts’ mirrors the endowment effect- people overvalue what they own, whether it’s an object or money saved for a specific memory. Mental accounting reveals that individuals rarely behave the way traditional economics proposes to. Instead of viewing money as one shared pool, instead, they treat different types of incomes and spending separately, attaching unique emotions and rules for each. Another related topic is *Prospective Accounting*. Introduced by Prelec and Loewenstein (1998), it suggests that people experience both the pleasure of consumption and the pain of payment, but try to align the two in a way that *minimizes discomfort* (Prelec and Loewenstein 4) For example, paying for a vacation months in advance allows the “pain of paying” to occur early, making the experience feel free when it actually happens. By mentally distancing the act of paying from the act of consuming, individuals make spending feel less painful and more justified.

## NUDGE THEORY

Generally, while shopping, you may have observed that you are more likely to buy an item priced at 999 Rupees rather than 1000 Rupees. Similarly, when choosing between two shirts at a mall, many subtle factors play a major role in influencing our decision, which may be outside our conscious awareness. Neoclassical Economics- such as Samuelson's (1938) concept of *revealed preferences*, assumes that individuals make choices purely based on their true preferences. Basically, you choose shirt A over shirt B simply before you preferred shirt A.

However, behavioural economics proves that the environment in which choices are presented significantly affects the decisions that people make. This is due to a concept known as *Nudge Theory*. A nudge is a subtle change in the manner the choices are presented that influences consumers decisions without restricting their freedom. A nudge is primarily focused on shaping how individuals interpret their options while still allowing them to choose any other alternative.

Nudge theory requires examining the frameworks that support it, namely- *choice architecture*, the design of the environment in which decisions are made, and *libertarian paternalism*, the philosophy that nudges should guide people without limiting freedom. (Thaler 1282)

Choice architecture is the environment in which people make decisions. A person who constructs that environment is a choice architect. When you go to the supermarket and you notice an eye level placement of goods, or you see "BESTSELLER" or "RECOMMENDED" signs on goods aim to steer decisions even when all options are available. This is because of the principle of heuristics- people relying on mental shortcuts. The purpose of choice architecture is to structure a decision-making environment to make consumers choose desirable outcomes- such as higher saving rates, healthier options.

Libertarian paternalism is the idea that it is possible to influence people's behaviour in ways that makes their lives better, while still preserving complete freedom of choice. (Thaler 1283) According to Richard H. Thaler, it is the idea to help people make the choice they would select if they were fully informed.

However, it is imperative to realise that choice architecture raises important ethical questions on how much influence institutions and corporations should have. Libertarian Paternalism addresses this concern by insisting that nudges must be transparent. Together, they provide the conceptual foundation of the nudge theory showing that subtle changes can influence consumer behaviour.

## CONCLUSION

This paper began by examining the assumptions of neoclassical economics, which views human beings as rational agents who consistently make decisions to maximize their utility. Expected Utility Theory is a foundational theory which explains how a rational consumer should make decisions. However, analysis demonstrated that these assumptions often fail to capture real world decision making, where emotions, biases and cognitive limitations play a significant role. This gap reflected the need for alternative theories which better reflect consumer behaviour. The analysis of the Efficient Market Hypothesis (EMH) further proved the limitations of Neoclassical Economics. EMH suggested that markets fully reflect all the necessary information and that investors behave rationally and logically when processing information. However, evidence which has been discussed in this paper shows that investors are influenced by biases such as overconfidence, overreaction, loss aversion, which leads to market anomalies. This proved that market outcomes are not only shaped by given information but also by psychological factors. A segment of the paper delved on Prospect Theory, which examines how human beings actually make decisions. The analysis revealed that individuals do not always make decisions that maximise utility. Instead, decision-making is often influenced by cognitive processes such as heuristics—mental shortcuts that are employed, particularly under conditions of uncertainty. Prospect Theory also revealed how affected humans are with loss. A theory Endowment Effect significantly plays a role in this assumption. It states that humans overvalue their materialistic possessions, and as a result, losses hurt more than equivalent gains. Mental Accounting highlighted how individuals categorise money into separate budgets based on its intended use or source. As a result, human beings tend to treat the same amount of money differently depending upon its emotional factors. However, this behaviour contradicts the neoclassical assumption that all money is valued equally and hence explains why humans make inconsistent financial decisions. The concept of nudge theory explains how subtle changes in the environment in which people make decisions, known as choice architecture, can influence their decisions, without restricting freedom of choice. By curating decision making environments structurally, policy makers and organizations can guide consumers to better outcomes while preserving autonomy. This method describes the concept of libertarian paternalism which balances guidance with freedom.

Overall, this paper concludes that behavioural economics offers a more accurate and realistic framework for understanding consumer behaviour than traditional economic models. By incorporating psychological insights, behavioural economics explains consistent deviations from rational behaviour that neoclassical theory could not fully address. These findings have important implications for consumer behaviour and analysis and policy making.

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