DIPOLE OF PAIN AND PLEASURE AND USE OF MENTAL ACCOUNTING TO REACH HEDONIC EQUILIBRIUM

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Abstract

The current paper hypothesizes that humans try to reduce not only the pain but also pleasure (psychological, not physical) resulting due to economic losses, thereby trying to maintain a hedonic equilibrium. The researchers use an analogy of dipole in physics to express the hypothesis. While mitigation of pain is understood, reduction of pleasure is interesting to understand. Neurobiology may present its answer to this. Pain and pleasure when experienced are likely to cause hyper activity in neural networks. This consumes more energy, which may not be sustainable by the brain. Hence people may try to reach equilibrium to conserve the limited energy of the brain. The research discusses unique ability of mind to strategize through thoughts for reaching this hedonic equilibrium. Mental accounting is discussed as a device of human psyche used to achieve hedonic equilibrium. The work also tries to explain the importance of loss aversion and segregation of losses.

Key words : *Mental Accounting, Hedonic Equilibrium, Dipole, Pain, Pleasure, Gains, Losses, Pseudo-rationality, Prospect Theory, Need to survive, Loss Aversion, Segregation of gains and losses, Hedonic efficiency*

Hedonism and Economics

The Wealth of Nations in 1776 by Adam Smith was the first major work that gave cues about psychological process that human beings pass through while making economic choices. Many economists later (Edgeworth, Ramsey, Fisher) thought of tools that could measure hedonic states resulting due to choice directly *(Colander, 2007)*. The insight was that if hedonic states can be measured directly it would be an accurate predictor of human choice assuming that the most primal aim of human being is to enhance its pleasures and mitigate the pain. This aim is the essence of rational decision making; economic or otherwise.

Mental Accounting

Mental accounting is a cognitive process used by individuals to take economic decisions, (*Thaler 1980, 1985, 1999).* It has been widely used to understand anomalous decision making process which deviate from rational decision making process. In order to highlight the use of mental accounting for reaching hedonic equilibrium from pain, the paper discusses two anecdotes from Thaler, 1999 and interpret them in a way that explains use of this cognitive process to reach hedonic equilibrium.

Mitigation of Pain

Anecdote 1: *(Thaler, 1999)*

"A former colleague of mine, a professor of finance, prides himself on being a thoroughly rational man. Long ago he adopted a clever strategy to deal with life's misfortunes. At the beginning of each year he establishes a target donation to the local United Way charity. Then, if anything untoward happens to him during the year, for example an undeserved speeding ticket, he simply deducts this loss from the United Way account. He thinks of it as an insurance policy against small annoyances."

Interpretation of Anecdote 1:

Losses can be classified as expected and unexpected losses.The above anecdote is an example of how one tries to strategize mitigation of pain caused due to unexpected losses. The person creates acharity account at a cost. While helping the society is the prima facie aim of charity, in this case the objective of creating a charity account is different. The person has apprehension about unexpected losses that he will be facing. So he creates anaccount (charity account) for funding such losses. If the society (or any element of society) for which the charity account is created at a cost, does not reciprocate positively or acts in a harmful way e.g. getting an undeserving ticket by police (the police here is element of the society), the person deducts this amount from his charity account thereby funding the unexpected loss through punishing the society. This funding (economic level) or punishment (psychological level) acts as a strategy to mitigate his pain of unexpected loss. On mitigating his pain he reaches his hedonic equilibrium from the pain polarity.

Anecdote 2: *(Thaler, 1999)*

"A few years ago I gave a talk to a group of executives in Switzerland. After the conference my wife and I spent a week visiting the area. At that time the Swiss franc was at an all-time high relative to the US dollar, so the usual high prices in Switzerland were astronomical. My wife and I comforted ourselves that I had received a fee for the talk that would easily cover the outrageous prices for hotels and meals. Had I received the same fee a week earlier for a talk in New York though, the vacation would have been much less enjoyable."

Interpretation of Anecdote 2:

In the above anecdote, the source of pain is attributed to very high expenses in Switzerland due to the currency rate. This pain would become a hindrance for the pleasure resulting due to vacation. So in order to mitigate the pain resulting due to higher (more than expected and hence more painful) expenditures, the person creates a matching mental account of higher (more than expected due to currency rate) reward, which is the fees received from the lecture. Both accounts match and a hedonic equilibrium is reached.

Both the above anecdotes are interesting because they reveal how mind is able to strategize and create pseudo-rationality to achieve hedonic equilibrium. For evidence, the researchers asked few subjects a hypothetical question to understand how mental accounting can be used to mitigate a pain that has resulted due to avoidable loss.

To understand this process further, consider the following thought experiment.

You are on a short vacation with your spouse. You book a 5 star resort for Rs. 4000 a night for 2 days. One of your friends on hearing your vacation trip informs you that the same resort reduces the room rates to Rs. 3000 on little bargaining. You feel you have incurred a loss of Rs. 2000 (Rs. 1000 per night) by not putting a little effort on bargaining.

Which one of the following expenditure each costing Rs. 2000 would you avoid incurring in order to compensate for this loss of Rs. 2000?

1. Kitchen mixer [20]
2. Night out for a movie and dinner [61]
3. Grocery expenditure [11]
4. An equity (stock market) investment [15]

N = 107

The number in parenthesis indicates number of people selecting that option. 107 respondents participated in the experiment, (N=107). Interestingly, since the loss was due to some careless expenditure on entertainment, most people [61] (57%) try to compensate the loss by forgoing an item that is close to entertainment. It seems that people try to match the type of expenditure. Such mental accounting is a strategy to mitigate the pain that resulted due to unexpected loss. The forgoing of expenditure on night out and dinner creates a balance for the loss arising due to careless expenditure on vacation, thereby helping to reach hedonic equilibrium.

Mitigation of pleasure

Here the research work discusses reduction of pleasure by using mental accounting. Assume that a reward is generated first which is unexpected and unusual like a lottery or any such unexpected income. The moment one has the information that the unexpected income is realized or is about to be realized, a mental account of income gets created resulting in an immediate overwhelming feeling of happiness. The intensity of happiness would be correlated to the amount of income. The researchers propose that this pleasure has to reach an equilibrium by creating balancing mental accounts of expenditure. It cannot remain open psychologically.

Consider the following anecdote.

Anecdote 3:

I had Rs. 4000/- in my bank account and wanted to buy a mobile phone costing Rs. 10,000. Since I was short by Rs. 6,000 in my savings bank account, I planned to buy the phone through EMI that a local shop was offering. Meanwhile my father had surrendered a life insurance policy prematurely and had directed the Insurer to transfer the surrender value of Rs. 6000/- into my savings account. I was unaware of this. When I realized the income in my account and talked to my father, he asked me to keep the money and spend wherever I wanted to. I was happy for this unexpected inflow. Immediately I allocated this money for buying of my mobile phone in cash.

Interpretation of Anecdote 3:

The allocation of the money to the mobile purchase account was a strategy used by the mind in order to balance the pleasure of unexpected income with an outflow (buying in cash) which was not planned. In case it was not the purchase of mobile, it would most likely be for some other expenditure or investment account. The balancing caused hedonic equilibrium.

For further evidence the researchers asked respondents a question the answer to which would explain the process for mitigation of pleasure.

Imagine that you just won a lottery of INR 1000000. Your monthly income is INR 10000.

Which of the following activity would you undertake first after winning the lottery?

i) Go to the market and enjoy spending on various things that you had thought of buying but could not buy due to budget constraints [21]
ii) Plan carefully to allocate the won money in various accounts like Fixed Deposits, Mutual Funds, Home renovation, buying various goods, etc. [86]

N=107

A significant percentage of people [86] (80.37%) would immediately undergo mental accounting to create various psychological accounts through planning and allocate the won money. This creates hedonic equilibrium. While the first option indicates the carrying forward of the joy of winning through spending the things one always wanted to, the second option indicates coming back to the hedonic equilibrium through allocation of money into the different accounts.While actual allocation to various accounts will take some time, mental accounting brings the state of hedonic equilibrium in a short time.

Such mental accounting can be one of the reasons that there is likely to be a weaker correlation between increase in income and happiness after certain level of wealth is achieved. When the income increases a person experiences an upsurge of happiness because of the increase. But later he creates expenditure accounts mentally and strategizes for the allocation of the increased income. Once this allocation is done he reaches hedonic equilibrium. The search for equilibrium signals to the fact that one is unable to be in a hedonic state for a long time, be it pleasure or pain. The initial surge of happiness drops. It is important to note the distinction between pleasure and comfort. The increase in income causes increased standard of living which brings comfort. This is different from the overwhelming feeling of happiness when the increase is acknowledged by the mind for the first time.

Importance of Loss Aversion and Segregation of Losses

Kahneman and Tversky introduced an alternative theory to Expected Utility Theory called The Prospect Theory *(Kahneman anc Tversky, 1979)*which considers outcomes as gains and losses. The prospect theory replaces the expected utility function with value function and probability with decision weights. The value function is concave over gains and convex over losses which means sensitivity for gains and losses is diminishing. However the value function is steeper for losses than for gains. This explains loss aversion.

Understanding the value function in prospect theory highlights that it is more rational to segregate the gains as well as losses due to its hedonic efficiency. There is clear evidence for preference for segregation of gains *(Thaler & Johnson 1990, Thaler 1999)*. However it is seen that people also prefer segregation of losses which as per Prospect Theory is hedonically inefficient. The value function points out that losses should be integrated.

Here the researchers give their reasons for the importance of loss aversion and segregation of losses

The importance of loss aversion

To understand high sensitivity towards losses, we need to understand human beings as a biological species rather than homo economics. The nature's argument for the importance of loss aversion is the most basic need of any species which is "The need to exist or the need to survive"*(Darwin 1859)*. Even the possibility of pleasure exists if and only if the organism exists. Each loss whether economic or otherwise contributes to the pain and thereby to the fear of extinction. For human beings the pain due to loss is a signal to the brain to avoid the loss. However the loss has to be sensed first and then the action to avoid it would be taken. A pleasure due to a gain is not as much salient as the pain due to loss because a loss contains an embedded warning to becoming extinct. Hence more sensitivity towards loss is essential than towards gain. Thus loss aversion is important biologically also.

The importance of segregation of losses

The concavity of value function over gains explains the preference of people for segregation of gains. The convexity of the value function over losses indicates that people should integrate losses in order to feel less pain for them. However people prefer segregation of losses *(Thaler & Johnson, 1990)*. This is not hedonically efficient as two smaller losses are more painful than one larger loss*(Thaler, 1999)*. One of the important assumption of economics is that we strive to maximize our pleasure and minimize the pain. Then why in case of losses we fail to integrate them. Is this a psychological shortcoming or is it necessary. The researchers argue that such behavior is hedonically inefficient but evolutionally efficient. As the need to survive is more fundamental than the need to feel more pleasure or less pain. Any trait that will help species to support its survival will be respected moreby the species and shall be preserved.

A loss makes the one who experiences it weaker. In case of economic losses also this is true. A small loss is easy to manage than larger ones. People think that small losses at different times can give them time to become stronger again. While larger economic blows can not only impact the wellbeing but can also threaten the stable economic existence (an analogy for extinction in biology). By showing preference for segregation of losses people are simply buying time to become stronger. One more reason why people prefer two smaller losses over larger loss is that smaller losses preserves the sensitivity of pain, thereby helping them to be prepared for future losses.Experience of larger losses is likely to make one insensitive towards smaller losses. The loss of sensitivity for loss is more of a problem as it again signals extinction. So the question is between choosing sorrow over extinctions (hurting economically to a large extent).

Discussion

Hedonism is important to understand even if we want to understand economics. We strive for economic progress so that we can buy more goods and services and improve our standard of living. Our choices be it economic, social or any other are ultimately linked to some hedonic states. A choice do not have any significance on a standalone basis. It is not significant if it is separate from the hedonic state that it leads to.It was a dream of many economists and psychologists to measure the hedonic states in order to understand choice directly. Unfortunately it was not possible before few years. But now due to advances in neuroscience the dream has become a reality through techniques like TMS (transcranial magnetic stimulation), tDCS (transcranial direct current stimulation), fMRI (functional magnetic resonance imaging), and EEG (electroencephalography). An interesting proposition in the current work is that people mitigate pleasure also by using mental accounting. Researchers understand that this needs much more rigorous empirical research. One more subject of discussion is the importance of loss aversion and segregation of pain. Loss aversion may be statistically anomalous and segregation of pain may be inefficient hedonically. However researchers express that both the phenomena are important if we understand people as biological species. In the history of evolution we have been homo economicus for a very negligible time frame. Howsoever civilized we may seem, the latent (and essential) biological instincts will dominate when there is a survival need.

Conclusion

It is not only pain that people try to mitigate but also pleasure arising due to economic outcomes. The aim of mitigation of these hedonic states is to achieve hedonic equilibrium. Mental accounting is a device used by mind to achieve this goal. Both loss aversion and segregation of losses are important if we see human beings from the lens of biology and consider them as biological species the primary aim of which is survival.

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