

INTEGRATING BEHAVIOURAL ECONOMICS AND EXTENSION EDUCATION: SOME INSIGHTS



In this blog, Dr RM Prasad argues for integration of Behavioural Economics theories into the domain of Extension education as it will help in understanding the decision making behaviour of farmers better.

CONTEXT

Behavioural Economics is different from classical economics. Classical economics assumes that people are perfectly rational. Rationality in economics means that the individual has perfect knowledge of all the alternatives and expected utilities, which allows choice of an option that maximises net utility. Behavioural Economics evolved with insights from the field of psychology as applied to the economic decision-making processes of individuals and institutions. The effects of psychological, emotional, cultural, and social factors on the decisions of individuals and institutions are studied by Behavioural economists, which were relatively ignored by classical economists. Extension education is an applied science which deals with the creation, transmission and application of knowledge designed to bring about planned changes in the behavioral complexes of farmers. In this context, integration of Behavioural Economics theories into the domain of Extension education will help in understanding the decision making behaviour of farmers better. A brief history of Behavioural Economics is presented in Box 1.



Box 1. Behavioural Economics - A Brief History

Historically, it seems that economics was much more connected to psychology, as evident from Adam Smith's classic work, *The Wealth of Nations* published in 1776, in which he famously argued that economic behavior was motivated by self-interest. Jeremy Bentham also wrote extensively on the psychological underpinnings of utility, whose ideas influenced the development of welfarism. With the emergence of neoclassical economics that focused on supply and demand as the driving forces in production, economics became more mathematical and started forgetting that they are dealing with human beings.

The neoclassical economists seeing unpredicted behaviors as random errors and ignored them as 'errors' in the statistical models. But over the years, there were economists who felt that they were missing the human part (Psychology). The importance of psychology in economics regained importance as Economic Psychology in the 20th century in the works of Gabriel Tarde.

Herbert Simon proposed 'bounded rationality' as an alternative to the mathematical modeling of decision making. In the early 1970s, Daniel Kahneman – through his 'prospect theory' – indicated that our intuitive understanding of probability often departs systematically from what the mathematical theory of probability and statistics dictates. Kahneman has shown that we can take actions to overcome the biases that cripple our decision making, dampen our thinking and limit our effectiveness. Behavioural Economics took centre stage after Richard Thaler started working with Kahneman and Traversky.

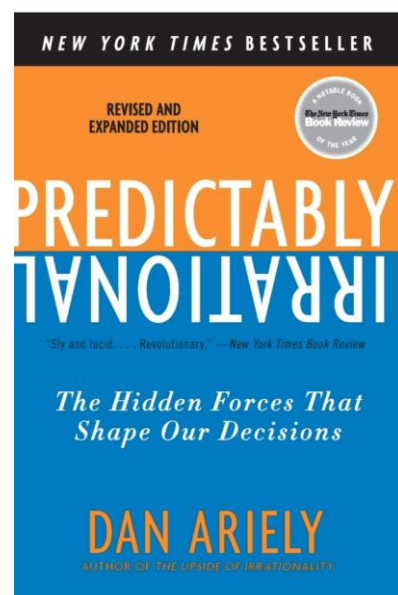
WHY BEHAVIOURAL ECONOMICS?

Researchers in Behavioural Economics figured out that the biases exhibited by humans have a pattern and we could exploit those biases to influence decision making. As a response to the predictions about the future of economics, Thaler (2009) predicted that Homo economicus would evolve into Homo sapiens. In other words, Economics will become more related to human behaviour. As researchers in Social Science, we need to understand that we are dealing with Homo sapiens.

Choice architecture is a behavioral change approach employed by behavioral economists. It refers to intentionally changing a decision-making environment (such as a presentation, timing, or context) to influence a decision (Williamson 2018). Richard Thaler has proposed a specific type of choice architecture known as 'nudging'. Nudging is the act of subtly modifying the environments within which voluntary decisions are made without actually restricting any options. He called it 'Libertarian Paternalism'.

Dan Ariely in his book *Predictably Irrational* delves into the irrational nature of many decisions, and how to apply these behavioural trends in the marketing strategy. According to Ariely, 'Most people think they have a good handle on why they make certain decisions. People often think that they're making decisions, but in reality their decisions are very much determined by their environment.'

Extension scientists often are victims of 'confirmation bias'. They form opinions about farmers' problems and conveniently choose only those pieces of information that support their hypothesis. Such biases cloud their decision making, and so they won't search for real evidence. Behavioral science insights can help extension workers to realise this fallacy. It will be all the more important to recognize that such insights will help in understanding the biases of farmers in the adoption process.



Theories of select Behavioural economists

An attempt is made to present the salient contributions of select Behavioural economists, in Table 1.

Table 1: Theories of select Behavioural economists

Behavioural economist	Concept / Theory	Key message	Application in Extension
Herbert Simon	Bounded rationality	Rationality is limited by the tractability of the decision problem, cognitive limitations and availability of time.	Decisions on crop and livestock insurance; Decisions on input use by farmers, including dairy farmers.
Daniel Kahneman	Prospect theory; System 1 & 2 thinking	Deals with how people decide between alternatives that involve risk and uncertainty.	Climate and market resilient practices; Devising marketing strategies for FPOs.
Richard Thaler	Nudge	Positive reinforcement and indirect suggestions as ways to influence the behavior and decision making of groups or individuals.	Abandoning use of pesticides; Regulated use of irrigation water; Scientific milking practices; Value chain management.
Dan Ariely	Irrational behaviour	Impact of empathy and emotions on decision making by the consumers.	Strengthening FPOs for creating trust in farmers.
Uri Gneezy	Effect of incentives on behaviour	Reveals the hidden motives and undiscovered economics of everyday life situations.	Impact of subsidy on adoption behaviour; Credit behaviour using KCC vs. institutional credit.

The concepts/theories are briefly explained below.

Bounded rationality

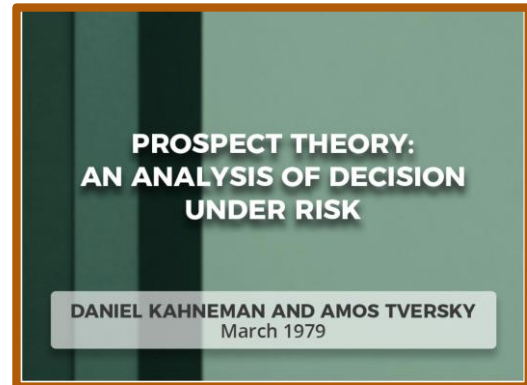
'Bounded rationality' is the idea that when individuals make decisions, their **rationality** is limited by the tractability of the decision problem, their cognitive limitations and the time available. In this view, decision maker's act as **satisfiers**, rationality describes humans making decisions within the constraints of incomplete and imperfect information, limited time, and restricted computational ability. Rationality is thus 'bounded' by its limitations even though people try to decide rationally.

Bounded rationality postulates that in case of decision making in the wild ('wild' stands for situations where the events and outcomes are not so certain), people make use of heuristics or rule of thumb. The decisions may not be rational, but given the circumstances, it might be the right one. Behavioral sciences can map the decision making process. Once the decision tree is mapped, it can provide point of intervention to change behavior. Fast and Frugal Trees (FFT) are simple algorithms that facilitate efficient and accurate decisions based on limited information. An illustrative case could be that of an emergency doctor facing a patient with high fever and sore throat. Here, the doctor has to take a quick decision whether to send the patient to COVID-19 care unit or to a regular hospital bed. Extension workers may also face such situations while suggesting suitable technologies to farmers affected by natural disasters.

Kreckova and Brozova (2017) had conducted a study on agricultural insurance and bounded rationality. The study confirmed the existence of bounded rationality in agricultural insurance in the Czech Republic. Bounded rationality in this study seems to originate due to insufficient information on payments in the insurance industry, excessive complexity related to the selection of the best premium, as well as from the fear of impending loss. The study concluded that it seems to be primarily more acceptable to clients to pay regularly, but smaller amounts, than to eventually pay a one-time but very high amount of money.

Prospect Theory

In 1979, Kahneman and Tversky published *Prospect Theory: An Analysis of Decision under Risk* that used cognitive psychology to explain various divergences of economic decision making from neo-classical theory. Prospect theory has two stages: an editing stage and an evaluation stage. In the editing stage, risky situations are simplified using various heuristics. In the evaluation phase, risky alternatives are evaluated using various psychological principles that include:



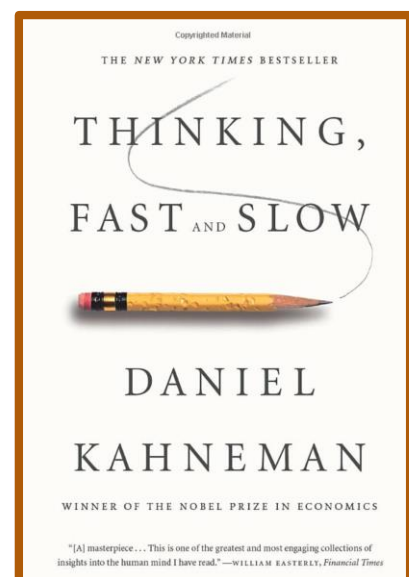
- **Reference dependence:** When evaluating outcomes, the decision maker considers a 'reference level' (for example, the previous year's yield). Outcomes are then compared to the reference point and classified as 'gains' if greater than the reference point or 'losses' if less than the reference point;
- **Loss aversion:** Losses are avoided more than equivalent gains sought for.

Prospect theory explains three biases people use when making decisions. They are:

1. **Certainty:** occurs when people tend to overrate options that are certain, and risk averse with regard to gains, e.g., use of a drought tolerant crop variety.
2. **Isolation effect:** refers to people's tendency to act on information that stands out and differs from the rest, e.g., success stories of other farmers.
3. **Loss aversion:** is when people prefer to avoid losses rather than acquire equivalent gains. e.g., crop insurance package.

The theory describes how people choose between different options (or prospects) and how they estimate (often in a biased or incorrect way) the perceived likelihood of each of these options happening. People make decisions using several common biases. Understanding these biases can help persuade people to take action. If we take the example of investor behaviour, when an investor is presented with an equal choice, he/she will choose the one presented with the most perceived gains. This is because according to Prospect Theory, the perceived loss would have a greater negative emotional impact.

Kahneman has described the process of 'thinking fast and slow', which is also known as System 1 and System 2 theory. System 1 is fast, instinctive and consumes less energy. System 2 is slower, which requires thinking and energy. While System 1 refers to automatic decision making, System 2 refers to reflective thinking.




An example of System 1 is normal driving, whereas driving in hilly terrain under snowy condition is System 2. The theory of System 1 and 2 is incredibly useful as a way to understand the complexities of human decision making.


In the field of extension education, Prospect Theory can be used to explain several biases farmers rely on when making decisions related to risk and uncertainty. These could be adoption of risk aversion practices related to climate change, insurance package for farmers, poultry disease surveillance, etc. Understanding these biases can help in persuading farmers to take action.

Nudge

Richard Thaler who coined 'Nudge' refers to any aspect of choice architecture that alters the behaviour of people in a predictable way without prohibiting any options or significantly changing their economic incentives. Nudge discusses how public and private organizations can help people make better choices in their daily lives. It is said that Thaler has changed the Economics discipline itself in that '[h]e doesn't write papers that are full of math, but writes papers that are full of common sense'.

**Blog 105: October 2019**Agricultural Extension in South Asia

RETHINKING POLICY FROM A BEHAVIOURAL ANGLE: A CASE OF NUDGE



Behavioural Economics can be very useful not only in understanding our own behaviour, but also in formulating the right policies and evaluating policy outcomes. In this blog, Muthuprasad T, S Niranjana and Aditya KS urge academia to consider inclusion of Behavioural Economics topics in social science curricula.

CONTEXT

Behavioral Economics is not a new branch of Economics. Its seeds were sown by Adam Smith in his book "Theory of Moral Sentiments", in which he opined that human decisions are driven by several factors, such as cognitive ability, attention and motivation. However, the seed of Behavioural Economics did not germinate until it was rejuvenated by Daniel Kahneman and Amos Tversky in the 1970s with their paper titled 'Judgment under Uncertainty: Heuristics and Biases'. For his contribution to Behavioral Economics, Daniel Kahneman was awarded the Nobel Prize in 2002. Further developments in the field of Behavioral Economics came up largely due to the seminal works of another Nobel laureate, Richard H Thaler. Publication of the book 'Nudge' by Thaler and Cass R Sunstein (2008) revolutionised economic thinking and drew the attention of both academia and policy makers alike. This book talked of how understanding of different biases and use of simple nudges can induce people to make ideal/optimal choices.

Nudge can be considered as an approach to decision making and cognitive biases such as anchoring, framing, etc., as its tools. Nudges can integrate normative messages. For example, when communicating with people who have not adopted the desired target behavior, messages might be used to inform clientele about the number of people in a certain socio-demographic group or geographic area who have adopted the behaviour. This approach is most likely to be effective when the target audience is under-performing in relation to the reference group, but wants to be like the reference group. This is referred to as 'framing effect'. (For further details, kindly refer AESA Blog 105 – 'Rethinking policy from a behavioural angle: A case of Nudge' by Muthu prasad T, Niranjana S and Aditya KS).

Irrational behaviour

Ariely observes that human behaviour departs from standard economic theory in systematic and predictable ways, which he explores at length in his studies. He is more connected with neuro economics. While Behavioural economics is mostly experimental and based on field observation, in neuro economics, researchers try to observe what happens in people's brains. Ariely observed that people often behave in ways that are completely at odds with how they would behave if they were rational utility maximizers. The most common example has to do with the effect of emotion on our behaviour. A good illustration could be of someone who goes to a restaurant saying that he is on a diet, but when the waiter comes with a new dish he changes his opinion and tastes the dish, now this is a case of irrational behaviour. There are many such irrational behaviours experienced in daily life.

Ariely believes that economics would make a lot more sense if it was based on how people actually behave, instead of how they should behave. Using this hypothesis as a guide, Ariely thinks there are unlimited social, economic and political problems that can be solved or at least addressed more effectively in a chaotic world. Some of the methods suggested are: (a) the influence of 'free'; (b) price primacy; (c) herding; and (d) placebo effect. Getting something free makes us feel excited, and the strong emotional impact of a 'free price' is called the 'zero price' effect. After administering a placebo

(resembling a real drug, but with an inactive substance like sugar), if the patient feels cured, it is not due to the properties of placebo, but belief in the placebo. This is referred to as placebo effect.

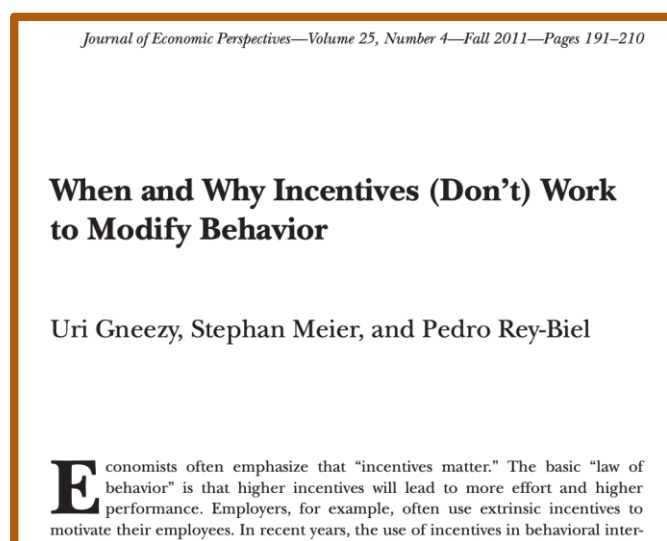
Ariely (2010) noted that the only effective way to get people to respond to suffering is through an emotional appeal, rather than through an objective reading of the great need. The upside is that when our emotions are awakened, we can be tremendously caring. By realizing that our emotions are fickle and how our compassion biases work, we can make more reasonable decisions and help people who need our care. This is particularly applicable in the case of farmers under stress during the COVID-19 pandemic.



Ariely (2016) argues that people have an innate ability to trust one another, but struggle to trust large corporations. Ariely shares tips for overcoming this barrier and creating organizations that people can trust. There are many aspects and building blocks for trust, but there are five key mechanisms suggested by Ariely that allow human beings to trust one another: long-term relationships, transparency, intentionality, revenge, and aligned incentives. Ariely's views are very relevant in the case of establishing farmer trust in FPOs.

Incentives and behavior

Uri Gneezy's early work on 'when and why incentives can backfire' has become the cornerstone in a compelling line of research that explores when traditional economic theories fail to explain real human behavior with regard to incentives. Gneezy's research focuses on helping organizations use Behavioural economics to optimize incentive schemes.



Uri Gneezy et al. (2011) explain how extrinsic incentives may come into conflict with other motivations. If incentives are not substantial enough, this change in perception can lead to undesired effects on behaviour. Incentives might have the desired effects in the short term, but they still weaken intrinsic motivation.

The growing body of evidence suggests that the effects of incentives depend on how they are designed, the form in which they are given, how they interact with intrinsic motivation and social motivation, and what happens after they are withdrawn.

Monetary incentives have two kinds of effects: the standard direct price effect, which makes the incentivized behaviour more attractive, and an indirect psychological effect. In some cases, the

psychological effect works in an opposite direction to the price effect and can crowd out the incentivized behaviour.

OTHER SALIENT WORKS IN AGRICULTURE

There are other Behavioural economists also, whose studies are relevant to the discipline of Extension education. For instance, Duflo et al. (2011) in their empirical study revealed that small, time-limited discounts in the cost of fertilizers at the time of harvest induce substantial increase in fertilizer use, compared to those induced by much larger price reductions later in the season. They concluded that a small, time bound discount programme on fertilizer could be an effective, easy to scale up policy that can encourage fertilizer use without distorting decision making and inducing excessive use of fertilizers.

Nava Ashraf et al. (2016) had applied insights from psychology and economics to understand decision making with the aim of improving the design of development programmes. Their research has focused on technology adoption and intra-household decision making, with applications in health, agriculture and microfinance.



Mani et al. (2013) hypothesize that poverty directly impedes cognitive function. The researchers examined the cognitive function of farmers across the planting cycle. It was found that the same farmer shows diminished cognitive performance before harvest, when poor, as compared with after harvest, when rich. Although farmers showed more stress before harvest, that does not account for diminished cognitive performance. Instead, it appears that poverty itself reduces cognitive capacity. These results help explain a spectrum of behaviors among the poor.

Nadia Streletskaia et al. (2020) provide a selective overview of the linkages and complementary topics in behavioral economics and agricultural adoption literatures. The authors highlight the salient differences between agricultural adoption research and Behavioural Economics research, which provides many insights to extension workers.

APPLICATION IN EXTENSION EDUCATION

Behavioural Economics:

- is useful not only in understanding the behaviour of individuals, but also in formulating the right policies and evaluating policy outcomes;
- is useful in studies related to risk and uncertainty faced by farmers, supply chain management, farmer insurance, agricultural financing, input and output marketing, etc.;
- helps extension researchers to identify and study the biases of farmers and other stakeholders in decision making;

- helps extension professionals modify the choice environment to support positive decision making by farmers through tools such as social proof, loss aversion, framing, decoy effect, anchoring, endowment effect, etc.;
- helps social scientists in understanding farmers' choices – be it their decision to adopt technologies or their response to policies or choice of source of information; and
- Is useful in integrating normative messages into the decision-making environment. Inform people of the norm, that is, the decisions others make in the same situation. The use of social comparisons can help people go by what others do.

WAY FORWARD

Economics is very important to the daily lives of farmers in the sense that it summarizes many aspects of farmer behaviour, such as income, cost of production, marketing services, credit and insurance, etc. The importance of understanding Behavioural Economics for extension personnel is immeasurable as it allows for a better understanding of the farmer's mind.

Behavioural Economics, also referred to as the science of decision making, is an emerging discipline which uses experiments that observe human behaviour to uncover how we think.

It is suggested that Behavioural Economics should form part of the academic syllabus for extension students. Extension researchers could gain much from identifying and studying the biases of farmers and other stakeholders in decision making using various theories and concepts developed by Behavioural economists. Capacity development programmes may be organized for field extension personnel so as to make them aware and use these concepts in organizing extension services more effectively.

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