Rehan Ahmad

Professor Amber Riaz

Phil 331

22nd November 2023

What, if any, are some key objections to Rational Choice Theory (RCT? Is RCT defensible in the light of these objections?

In the domain of natural sciences, progress has been intricately entwined with ontological commitments. This is exemplified by the transition from the Newtonian to the quantum mechanical description of reality which was marked by the replacement of rudimentary conception of point-like particles with the more sophisticated and less counterintuitive concept of quanta. While Rational Choice theory (RCT) operates within the domain of the social sciences and therefore differs in methodologies from natural theories, recent works have seen an urge for a similar paradigm shift. Works by economists such as Amartya Sen and behavioral psychologists like Daniel Kahneman expose noteworthy disparities, questioning the theory’s underlying assumption that all human action can be reduced to utility maximization. Considering these developments, we aim to explore the keys objections to RCT and its defensibility in response to these objections.

Rational Choice Theory posits that individuals are rational actors driven by the goal of maximizing their utility. This involves expressing preferences for various possibilities, where items or situations are compared and ranked based on personal preferences. The core elements are "acts," representing potential actions, and preferences are denoted symbolically. Acts can be further analyzed into states of the world and outcomes, introducing an element of uncertainty. Beliefs about states of the world are represented by a probability function, and desires for outcomes are expressed through an interval-valued utility function which conveys the strength of preferences. The expected utility principle serves as the standard decision-making framework, asserting that rational agents' preference rankings align with the calculated expected utility.

Over the years, a central critique faced by the theory involves the challenges associated with quantifying utilities. The concept of cardinal utility assumes that utility can be precisely measured with numerical units, such as 5 utils. However, difficulties emerge when attempting to test this assumption. To establish the initial conditions for analysis, the method involves assuming that individuals are utility maximizers. However, this introduces circularity in our reasoning. Essentially, if we assume from the start that individuals are utility maximizers, any subsequent observations supporting this assumption may be seen as circular reasoning. For instance, consider giving an agent an extra glass of apple juice and asking them if the value of that juice declined by introspection. The validity of this experiment relies on the assumption that the agent is rational, meaning they maximize utility. Thus, the very premise of the analysis presupposes the conclusion that individuals are utility maximizers, introducing a circular element into the concept. Another challenge for ordinal utility is the dependence of utility on the availability of other goods. The utility of a particular good may vary based on the presence or absence of other goods. Therefore, the experiment to measure cardinal utility through "pairwise" comparisons becomes impractical due to the vast number of goods and contexts that can influence utility.

To address the limitations of cardinal utility, economists have opted to avoid assigning concrete values to utility, opting instead to simplify measurement by ranking choices in terms of preference. For instance, we may express a preference for option A over option B. This approach to utility formulation, where choices are ranked without assigning specific values, is known as ordinal utility. While ordinal utility is a crucial measure in microeconomics and cognitive psychology, it is not immune to criticism. One notable critique revolves around the questionable assumption that individuals can consistently rank their preferences—a notion that appears at odds with insights from Prospect Theory as developed by Daniel Kahneman and Amos Tversky. Prospect Theory introduces the concept of loss aversion, suggesting that the emotional impact of losses and gains can influence how individuals rank their preferences. This challenges the idea that preferences are strictly based on an objective ordinal scale, as the subjective valuation of outcomes can be shaped by psychological factors. Moreover, Ordinal Utility Theory often presupposes that preferences are context-independent and can be consistently ranked across various situations. However, the principles of Prospect Theory imply that the context and framing of choices play a significant role in influencing individuals' rankings. For example, how a choice is presented or framed can alter its perception as a loss or gain, thereby impacting ordinal rankings.

Insights such as these from cognitive psychology and decision theory continues to challenge the psychological plausibility of RCTs foundational assumption that individuals make decisions based on rational calculations. One framework that characterizes this mismatch between how RCT models’ agents to how agents might behave in actual world is Herbert Simon’s concept of bounded rationality. Simon argued that individuals operate with limited cognitive resources, incomplete information, and time constraints, factors that hinder the ability to make fully rational decisions. According to the framework of Bounded rationality, people often rely on heuristics and mental shortcuts, deviating from the idealized rational decision-making process. Moreover, individuals may not always seek to maximize utility but rather engage in "satisficing," choosing options that are satisfactory given their constraints. The theory recognizes the influence of emotions and the impact of incomplete information on decision-making, factors typically excluded by RCT.

Despite these shortcomings, however, the concept of ordinal utility and the tacit assumption of rationality that it embodies continues to find widespread applicability in understanding phenomenon such as risk aversion and insurance policies. For example, we can understand ordinal utility and the subsequent notion of marginal utility that it gives rise to understand why poor people buy insurance and why richer people sell it to them. The loss of a fixed amount of sum would cause a lower loss of utility to someone who already has a large sum than someone who has lower income, thereby explaining why the poor are happy to transfer the risk to richer individuals. This example reflects how decision theory and choice models are not designed to offer exhaustive explanations of human behavior. Instead, they are selective in their focus, emphasizing specific aspects while deliberately neglecting others. Rosenberg likens this to how physics may intentionally omit certain factors such as friction to make models more tractable. In other words, defenders contend that RCT is a tool for understanding and predicting certain facets of human decision-making, recognizing its limitations in capturing the entirety of human motivation. In this context, the assumption of assumed rationality within RCT is pivotal, playing a fundamental role in paving the way for the exploration of intentionality in decision-making.

In this vein, the experiments revealing departures from rational choice theory in recent years should be seen as an evolutionary progression rather than a rejection of RCT as the assumed rationality within RCT provides a benchmark against which these departures are measured. The contributions of neuroeconomics, which combines cognitive neuroscience, social psychology, and experimental economics, including the creation of prospect theory by Daniel Kahneman, reinforce the idea that RCT has laid the groundwork for subsequent advancements.

Furthermore, it can be argued that RCT operates effectively when explaining typical human behavior on an aggregate level. The theory allows for variations and errors at the individual level to cancel each other out, resulting in meaningful insights at a broader scale. Proponents acknowledge the existence of cases where psychological biases or constraints lead to sub-optimal or irrational behavior, but they contend that in many contexts RCT continues to be successful. Deviations from instrumental rationality are perceived as noise, statistical anomalies that do not undermine the overall explanatory power of the theory.

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Our examination of RCT has thus far delved into critiques of its underlying assumptions of rationality and the defensibility of the framework amidst such opposition. However, the scrutiny of RCT's methodology goes deeper, extending to the very language it employs. RCT, as the formalization of folk psychology, asserts that all human actions are intentional and can be explained by identifying the intentions that drive them. These intentions are characterized by a desire-belief pair and are considered the root cause of actions. However, numerous reductionist branches of psychology, including behaviorism, question the ability of these conceptual units to accurately mirror an agent's true intentions. Moreover, while there is promise in neuroscience and neuroeconomics for uncovering the neural correlates of experiences and providing a more nuanced understanding of decision-making, the act of substituting brain states for subjective experiences in economic terms introduces substantial philosophical challenges. These include the mind-body problem which explores the incommensurability between mind and body, and how the mental can be reduced to physical phenomenon occurring in the brain.

By leveraging the concept of instrumental rationality, we can sidestep these issues by arguing that RCT maintains explanatory power even in the absence of a direct correlation between the neurological basis of experience and observed behavior. Instrumental rationality places the act of action explanation beyond the Deductive-Nomological pattern of explanation as advocated by covering law. Hence, we can express what it would be rational for the agent to do given his or her beliefs and attitudes even if they may fail to act on these actions for reasons recognized as appropriate in their communities. Donald Davidson draws an analogy between hurricanes and disaster to illustrate this point. Hurricanes cause disasters through myriad interactions at a mechanical level, even though there may not be explicit laws governing this relationship. Similarly, while we may not be able to connect RCT's claim of utility maximization to a strict causal law in neurophysiological terms, we can still observe and refine our understanding of human behavior based on observed patterns at a social scale.

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In light of these insights, we can appreciate how instrumental rationality coupled with the principle of utility maximization provides RCT with a powerful framework for understanding human action and beliefs even as questions regarding the measurement of utilities and psychological plausibility persist. More problematic however is the way these frameworks shape the interpretation of agency for an agent. Even acts of altruism such as giving money to the poor or placing the welfare of family over others can be justified by considering them higher on the agent’s own utility scale rather than agent’s consideration towards others. In this egoistic framework of interpreting action, the ethical considerations of individuals are demarcated from their rationality, thereby making economic models devoid of considering obligations beyond cost and benefit analysis.

In his work “*Rational Fools*”, Amartya Sen challenges this limited conception of human agency. His main critique is in terms of two concepts which significantly deviate from egoism: sympathy and commitment. While sympathy involves a concern for others directly affecting one's own welfare, commitment entails making choices that do not necessarily maximize personal welfare but where an agent acts according to their personal moral compass. Sen employs a quote from Bernard Shaw's work to exemplify commitment, illustrating a character's willingness to be hanged in place of another as stemming not from sympathy but from a commitment to a personal principle.

According to Sen, the admission of sympathy into economic models might disrupt standard results, but commitment poses a more significant challenge as it challenges the assumption that chosen alternatives are always in one's best interest. Traditional economic theory often assumes the alignment of personal choice and personal welfare, but commitment challenges this assumption. Sen touches upon work motivation in this regard, highlighting that commitment transcends the calculation of net gain from each unit of exertion with social conditioning playing a central role behind agent’s work ethos. Similarly in context of large elections, Sen observes the impact of an individual vote on the outcome is often marginal and voting may involve costs such that the expected net gain from voting could be negative. Despite these considerations, large elections frequently witness high turnout rates. According to Sen in such scenarios people may not be solely motivated by the maximization of expected utility. Instead, their voting behavior may be driven by a simpler desire: the inclination to express their true preference motivated by a sense of commitment to their public duty.

In order to incorporate these preferences motivated by commitments, Sen proposes an expansion of RCT by considering John Harsanyi's works in which distinction between "ethical" preferences and "subjective" preferences is made. According to him, this dual structure permits us to distinguish between what a person thinks is good from the social point of view and what he regards as good from his own personal point of view. However, ambiguity arises in Harsanyi's framework regarding whether subjective preferences are taken to define the agent’s utility function entirely or they incorporate the notion of commitment also. To address this deficiency and enhance the expression of moral judgments, Sen introduces the concept of meta-ranking.

Meta-ranking involves ranking rankings of preferences, providing a more nuanced understanding of morality. This approach allows for the comparison of different moral standings and introduces a broader structure for expressing preferences and behavior. For example, Sen highlights that “*it can be used to describe a particular ideology or a set of political priorities or a system of class interests*.”. In other place, he contents how it “*can be used to analyze the conflicts involved in addiction*.” However, the critique emphasizes that this expanded structure demands more information than merely observing choices. It underscores the necessity for introspection and communication to fully comprehend preferences. Illustrating this, a dialogue between individuals serves as an example of how meta-ranking can unveil cardinal utility functions, going beyond traditional observation of choices. Furthermore, the application of meta-ranking is extended to game theory, specifically the Prisoners' Dilemma, to explore the conflict between individual self-interest and collective well-being. The discussion suggests that individuals may deviate from selfish strategies due to a more sophisticated understanding of preferences, influenced by considerations of commitment and modified preferences. Sen's expansion thus provides a comprehensive framework that enhances the analysis of preference and behavior in various contexts, urging a deeper exploration beyond surface-level choices.

In both the natural and social sciences, paradigm shifts are inherently linked to active engagement with the current body of scientific knowledge. Had Einstein not pondered over the inconsistencies that arose from Maxwell and Faraday’s conception of electromagnetic phenomenon he would have never conceived special relativity. Similarly, Abhijeet Banerjee who won the noble price in 2019 for addressing global poverty engagement drew from rich lines of work of Muhammad Yunus and Amartya Sen. These instances highlight the crucial role of actively engaging with the existing body of work. RCT, with its formalization dating back as far as the 18th century, has not been without its drawbacks and flaws as discussed. However, its influence on the field of social sciences has been undeniable. Rather than solely focusing on the truthfulness of the model, it is essential to scrutinize the predictions and insights it offers. Instead of hastily dismissing the theory due to its simplifying assumptions, a more judicious approach involves considering expansions of the model, drawing from diverse branches of fields such as cognitive psychology, as well as incorporating penetrating insights from economists like Amartya Sen.