What does the concept of rationality mean in economics?

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Two of the pillars of economics are choice and scarcity. Hence, all economic agents, consumers or producers, are compelled to make a decision. If a decision is rational, the utility derived would be maximized for some definition of utility. The rational choice theory dictates that individuals use the standard cost benefit logic [1] to decide whether the action is worth pursuing [1]. The theory assumes that people have perfect information and are constantly looking for alternatives.

The Von Neumann–Morgenstern utility function models this and shows that when a consumer is faced with a choice of items or outcomes subject to various levels of chance, the optimal decision will be the one that maximizes the expected value of the utility derived from the choice made [3].

Rationality, in this context, can also be understood as an instantiation of rationality in general. The definition of rationality is to be in accordance with *logic* [4]. Logic defines strict principles of validity in terms of rules. These rules can be enumerated in the "language of logic". The syllogism: "If it's sunny, I'll go to the mall. It's sunny. I'll go to the mall." can be formalized as the rule "If P implied Q, and P holds, then Q holds" [2]

In economics, the rules of inference are not the major concern. The problems with rationality crop up in assigning a degree of truth to assumed propositions (premises). This is done through analysis of data, and assignments of probability to events for the logical reasoning to be carried out. To reduce the margin of uncertainty in our reasoning, we need to tend towards omniscience.

Instrumental rationality is pursuing particular "actions" or "means" to the end of achieving a particular goal. Firms and companies, for instance, must be instrumentally rational in order to maximize profits and reach their goals. Value rationality, on the contrary, is determined by a conscious belief in the value for its own sake of some ethical, aesthetic, religious, or other form of behaviour, independently of its prospects of success. In real life scenarios, consumer's de-

[1] A calculation that identifies the best alternative, by summing benefits and subtracting costs, with both benefits and costs denominated in a common unit of measurement.

[2] This rule is called *Modus Ponens*: $\frac{P \to Q, P}{Q}$

cisions are affected by their sentiments, morals and conscience to a large extent [2]. One way to reconcile the many definitions of rationality is to agree on a general definition of *utility*, especially one that incorporates utility derived from value-rational decisions.

The major challenges in defining rationality in economics take form of two complexities: probabilistic uncertainty and temporal uncertainty. The challenge of assigning probabilities to the truth of the logical premises, and the challenge of predicting how the nature of a decision changes with time. An even bigger challenge concerns the qualitative rather than quantitative: What models and assumptions are even *rational* to assume? Rationality in economics is often used as a magic word to substitute for *correctness*, however, it is instructive to explicitly state the assumptions and models in play rather than walk the blur lines of, often, tacit and abtruse mentions of rationality in economics.

References

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