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Expected utility

decision theory

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Expected utility, in´ decision theory, the expected value of an action to an agent, calculated by multiplying the value to the agent of each possible outcome of the action by the probability of that outcome occurring and then summing those´ numbers. The concept of expected utility is used to elucidate decisions made under conditions of risk. According to standard decision theory, when comparing´ alternativecourses of action, one should choose the action that has the greatest expected utility.

Expected utility

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The concept of expected utility and the rule of maximizing expected utility have wide application to decisions in business´ contexts, including those involving´ insurance, capital expenditures,´ investment,´ marketing, and operations. The utility of the outcomes under consideration in such contexts can usually be specified in terms of potential´ monetary´ profits´ and losses. Businesses can use their´ estimation´ of the likelihoods of the outcomes of options open to them along with their associated monetary losses and gains to determine the expected utility of each option in terms of its expected monetary profits. The option with the greatest expected utility will then simply be that which has the largest expected profit associated with it, and that option, according to the rule of maximizing expected utility, will be the optimal choice.

Although the concept of expected utility has played an important role in the study of economic behaviour,´ criticisms´ have been raised concerning its application to contexts of choice in business and´ economics. For instance, some theorists from the´ social´ and´ behavioral´ sciences argue that the´ cognitive´ limitations of´ human beings´ make the concept of expected utility as a guide to choice too idealized for use in most significant decision contexts. Such critics thus advocate notions of´ bounded rationality´ that are more sensitive to those limitations and make use of evaluative concepts that do not depend on the precise sorts of´ assessments´ that are involved in determinations of expected utility. Other critics have argued that the application of expected utility to economic decisions, including policy decisions, has engendered inappropriate valuations, particularly in cases in which monetary units are used to scale the utility of nonmonetary outcomes, such as potential deaths or damage to the´ environment.

Many philosophers have questioned whether the rule of maximizing expected utility represents an adequate or complete guide to decisions, particularly with regard to decisions of

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an´ ethical´ nature. The rule of maximizing expected utility represents a´ consequentialist´ form of reasoning, in which actions are judged solely in terms of their potential outcomes. As such, philosophers of a´ deontologicalorientation question whether such reasoning can provide an adequate account of the role of rights and duties in practical reasoning. Such philosophers argue, for instance, that the´ moral´ rights of those affected by an action place constraints on the worthiness of a choice independent of the value of the consequences of that choice