NON-EXPECTED UTILITY THEORY

The expected utility/subjective probability model of risk preferences and beliefs has long been the preeminent model of individual choice under conditions of uncertainty. It exhibits a tremendous flexibility in representing aspects of attitudes toward risk, has a well-developed analytical structure, and has been applied to the analysis of gambling, games of strategy, incomplete information, insurance, portfolio and investment decisions, capital markets, and many other areas. This model posits a cardinal utility function over outcomes (usually alternative wealth levels) and assumes that an individual evaluates risky prospects on the basis of the expected value of his or her utility function. In situations of objective uncertainty (e.g., roulette wheels), this expectation is based on the objective probabilities involved. In situations of subjective uncertainty (e.g., horse races) likelihood beliefs are represented by the individual's personal or subjective probabilities of the various alternative occurrences. First proposed by the Dutch mathematician Daniel Bernoulli in 1738 as a solution to the well-known Saint Petersburg paradox, the expected utility model has since been axiomatized under conditions of both objective and subjective uncertainty. Many consider these axioms and the resulting model to be the essence of rational risk preferences and beliefs.

In spite of its flexibility, the expected utility/subjective probability model has refutable implications, and beginning in the 1950s, psychologists and economists have uncovered a growing body of experimental evidence that individuals do not necessarily conform to many of the key axioms or predictions of the model. One well-known example, first demonstrated by the French economist Maurice Allais in 1953, consists of asking subjects to express their preferred option from each of two pairs of objective gambles. The majority of subjects express preferences that are inconsistent with expected utility, and they directly violate its primary empirical axiom, the so-called independence axiom. Although initially dismissed as an isolated example, the Allais paradox has been replicated by numerous researchers and found to be a special case of at least two forms of systematic violations of the independence axiom. Such departures have also been replicated using real-money gambles.

Starting in the early 1960s, researchers have also uncovered a class of systematic violations of the subjective probability hypothesis. The most well-known example, offered by Daniel Ellsberg in 1961, consists of an urn with ninety balls, thirty of which are red, with the remaining sixty being black or yellow in an unknown proportion. Subjects are asked to select from each of two pairs of bets on this urn, and they typically select in a manner inconsistent with well-defined likelihood beliefs in regard to obtaining a black versus a yellow ball. This finding was also originally dismissed, but the phenomenon has since been replicated by many researchers in a number of different examples. Choices in such experiments reveal a general preference for betting on objective rather than subjective events, a phenomenon that has been termed "ambiguity aversion."

In response to these empirical violations, researchers have developed, axiomatized, and analyzed a number of alternative models of risk preferences and beliefs, most of which replace the expected utility formula with alternative formulas that individuals are assumed to maximize. The earliest of these models, proposed by Ward Edwards in the 1950s and adopted by Daniel Kahneman and Amos Tversky in the 1970s as part of their well-known "prospect theory," was found to generate implausible predictions (namely that individuals would select some gambles with lower payoffs than other gambles). Economists have since developed and axiomatized non-expected utility models of risk preferences that avoid these difficulties, are consistent with the broad class of Allais-type violations of the independence axiom, and are capable of formal analysis and application to economic and other decisions. The most notable of these is the "rank-dependent expected utility model" of the Australian economist John Quiggin.

Researchers have also developed models of preferences over subjective prospects that are consistent with both Allais-type departures from expected utility risk preferences and Ellsberg-type departures from probabilistic beliefs. One such model, long informally discussed in the literature, axiomatized by Itzhak Gilboa and David Schmeidler, and known as "maximin expected utility," posits a utility function and a set of subjective probability distributions over events. It assumes that individuals evaluate each bet on the basis of its minimum expected utility over this class of distributions. Another important model, again axiomatized by Gilboa and Schmeidler and known as "Choquet expected utility," posits a utility function but replaces the classical (i.e., additive) probability measure of subjective expected utility with a nonadditive measure over events. It also replaces the standard expected utility formula with an alternative notion of expectation in respect to this nonadditive measure. Both models have been successfully applied to economic decision-making.

SEE ALSO *Expected Utility Theory; Probability; Probability, Subjective; Prospect Theory; Rationality; Risk; Uncertainty*

BIBLIOGRAPHY

Kahneman, Daniel, and Amos Tversky. 1979. Prospect Theory: An Analysis of Decision under Risk. *Econometrica* 47 (2): 263–291.

Machina, Mark. 1987. Choice under Uncertainty: Problems Solved and Unsolved. *Journal of Economic Perspectives* 1 (1): 121–154.

Quiggin, John. 1982. A Theory of Anticipated Utility. *Journal of Economic Behavior and Organization* 3 (4): 323–343.

Schmeidler, David. 1989. Subjective Probability and Expected Utility without Additivity. *Econometrica* 57 (3): 571–587.

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NONGOVERNMENTAL ORGANIZATIONS (NGOs)

The term *nongovernmental organization*, or *NGO*, refers to a vast range of nonprofit organizations that are not a part of any government. They vary in size from a few people operating on a shoestring budget to huge globe-spanning organizations. Highlighted below are some crucial questions and controversies that are salient in shaping the political economy of NGOs as social actors, particularly in relation to their often assumed status as expressions of civil society; their relationship to social movements; and the ways they both constrain and enable progressive social change.

The number and visibility of NGOs have expanded dramatically since the 1970s, in part because neoliberal policies have reduced the role of the state in many areas. NGOs commonly work in numerous fields, including humanitarian and other social services; research, monitoring, and information provision; and advocacy around particular issues, such as the environment, health, the empowerment of marginalized communities, human rights, and the status of women and minorities. Many NGOs contract with states and intergovernmental organizations to provide services. During the early decades of NGO growth, they were celebrated as efficient providers of services and deliverers of empowerment. As a result, they became consultants to governmental and international agencies, particularly as representatives of the "grass roots."

NGOs are sometimes called *voluntary organizations*, highlighting a presumption that social values, rather than profit or political power, are the primary motivators in the functioning of such organizations. These notions of values and voluntarism have led observers to see NGOs as expressions of civil society, similar to social movements, and to interpret their increased visibility as a strengthening of the influence of civil society in the affairs of the state and the economy.

QUESTIONS AND CONTROVERSIES

Since the mid-1990s, the popular perception that NGOs are potential agents for diffusing development and enabling empowerment has increasingly been subjected to critical scrutiny in academia and in the community spaces where NGOs operate. Critics have pointed out that it is incorrect to assume that NGOs are automatically accountable to the "target groups" in whose name they work. Indeed, some pseudo-grassroots, or "astroturf," NGOs have been set up by business or political interests to provide a misleading impression of grassroots action to advance their own agendas. Often astroturf groups try to hide their status as a vested interest.

More generally, the NGO form itself can blunt its potential for social activism for several reasons. First, NGOs commonly have an organizational hierarchy with paid staff and offices, so they must raise funds, either from donors or through contracting to provide services. This financial dependency frequently renders NGOs accountable to their funders. It also promotes a tendency toward professionalization. These factors often create tensions with movement-based models of social change that rely on mass mobilization.

Second, when NGOs rely on donors for funding, it becomes difficult for them to support alternative visions and local initiatives. For instance, David Hulme and Michael Edwards, in *NGOs, States and Donors* (1997), ask whether the interests, values, methods, and priorities of NGOs have become so tied with those of northern-government donors and "developing country-states" that they have now been "socialized" into the development industry. Have NGOs gained so much leverage, Hulme and Edwards wonder, because "they now have the social grace not to persist with awkward questions and the organizational capacity to divert the poor and disadvantaged from more radical ideas about how to overcome poverty?" (p. 3).

Third, NGO structures and project funding often lead to increased standardization and constrain the spaces for NGOs to learn in response to local concerns, leading to major gaps between advocacy and practice. As states increasingly outsource their functions to them, NGOs find themselves in a race "to do" rather than to "reflect." As David Lewis and Tina Wallace put it in *New Roles and Relevance* (2000), "Finding ways of becoming learning organizations—as well as finding ways to increase accountability at all levels—largely continue to evade NGOs, yet the successful search lies at the heart of NGOs' ability to respond in ways that are truly relevant" (p. xiv).

These processes, through which organizations working at the grassroots level lose their connection with their prime constituency and support base, have been called "NGOization." There is thus an implicit or explicit critique that NGOs and their ties with the state are signifi-