

Uncertainty and Variability on the Cost Side of Cost-Benefit: What Would Happen if We Stopped Ignoring It?

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Paper to be presented at the upcoming Society for Risk Analysis annual meeting, Orlando, FL, December 4-7.

One of the reasons risk analysts have continued to develop and implement increasingly sophisticated methods for quantifying uncertainty and interindividual variability in risk is to allow a richer treatment of monetized benefits within cost-benefit decision processes. Whereas a point estimate of "expected lives saved" can be monetized to yield only a point estimate of benefit, two-dimensional Monte Carlo (or other) analyses of uncertainty and variability in risk can yield a distribution for benefit that also allows for individualized monetization of benefit based on the utility of the risks reduced (in other words, enabling analysts to treat the benefits of risk reduction as anything rather than a strictly linear function of risk). Such richer measures, however, would be grossly incompatible with typical measures of the cost of regulatory or other interventions, which rarely quantify uncertainty and (to our knowledge) never consider that costs may be borne differently by different individuals within the national or state economy. We will briefly summarize the literature on uncertainty and systematic bias in cost estimation, with an application to a recent analysis of the costs of a hypothetical ban on cell-phone use while driving. We will then discuss possible forms of the interindividual-variability-in-cost distribution, and sketch out a research agenda for estimating the parameters of these distributions and for assessing the effects on risk perception and decision-making if citizens were informed that both costs and risks might be distributed in a non-uniform fashion.