

The Value of Life: Editor's Introduction

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Issues pertaining to the value of life involve some of the most fundamental concepts in the area of risk and uncertainty. Individual perceptions of mortality risks have long served as the reference point for assessing how people think about risk. Since the time of Adam Smith economists have focused on market choices involving fatality risks, particularly those on the job, in order to assess how reliably individuals make choices in risk contexts and how markets respond to their expressed risk preferences.

More recently, the value of life has become an explicit issue in policy debates. In the United States government, agencies have been explicitly valuing statistical lives using appropriate value-of-life methodologies for over a decade. The policy issues are intertwined with a wide variety of concerns pertaining to how people think about risk and how they make decisions involving mortality risk. These policy concepts raise other pertinent concerns as well.¹ Life-saving efforts do not confer immortality, but extend life probabilistically. How should the framers of government policy incorporate recognition of the duration of life lost and the quality of those life years? Timing also enters in other ways as lives saved now may have a different value than lives saved in the future.

The first part of the special issue on the value of life appeared in the *Journal of Risk and Uncertainty* in Volume 14, Number 3, and the second segment of papers appears in this issue. Whereas the previous issue is more wide-ranging in focus, this issue focuses almost exclusively on timing and duration issues.

The first of the value-of-life journal issues began with a paper by Viscusi, Hakes, and Carlin. Their catalog of the risks of death by cause was distinctive in that it distinguished not only overall mortality risks but the duration of life lost as well. Doing so increases the relative importance of accidents as compared to deferred illnesses. Using these estimates, the authors showed that many well-known perceptual biases can be traced to a failure to adjust for the duration of life lost. The paper estimated the implicit rate of discount that people use in assessing the discounted expected life-years lost to various causes of death, which they find to be between 3.3 and 12.4 percent. Their calculations of the cost effectiveness of regulatory policies are in terms of the cost per discounted life-year saved, decreasing the relative efficacy of regulations affecting health as compared to those affecting safety.

The paper by Jenni and Loewenstein explores the "identifiable victim effect." It has long been observed that people are willing to pay more for saving an identified life than saving a statistical life. The classic example in the literature pertains to the amount society would pay to save a trapped girl in a well. Is this attachment to identified lives irrational, or is the lower value attached to statistical lives a reflection of people's failure to think

sensibly about small risks of death? This paper explores a variety of potential causes of this relative preference for identified lives, with the possibility receiving the greatest support being that in identified life contexts a greater proportion of the lives currently at risk are being saved than when statistical lives are at risk.

The paper by Fetherstonhaugh, Slovic, Johnson and Freidrich also addresses the identifiable life issue, focusing on the role of psychophysical numbing. Their analysis provides an explanation for the phenomenon found by Jenni and Loewenstein pertaining to the identifiable victim effect. They found that interventions that saved a fixed number of lives have a greater perceived value when the population at risk is smaller rather than larger. Respondents appeared to judge the life-saving measures in contexts in which there was a smaller reduction in the probability of death for an individual as less valuable and presumably less effective, thus giving them a preference for policies that appear to have more sweeping consequences.

Another paper in Volume 14, Number 3 by Baron also addressed the identifiable victim effect and led to results that were consistent with the findings of Jenni and Loewenstein and Fetherstonhaugh, et al. The context that he focused on was medical insurance for diseases. Baron concludes that much of the identifiable victim effect can be traced to how people perceive absolute differences as opposed to ratios. If people are valuing programs based on the proportion of lives saved rather than the absolute number of lives saved then they will tend to display the kinds of preferences for identified lives that have been identified in the literature.

In his analysis of "Bad Deaths," Sunstein distinguishes different kinds of deaths that may have different values. He correctly notes that all deaths are not created equally even if the duration of life lost is held constant. Such differences reflect in part the fact that the pain and suffering associated with different kinds of death may differ. A host of other factors also may be consequential, including who is responsible for the death, whether the risk is voluntary, and the externalities associated with the event.

This journal volume on the value of life focuses almost exclusively on quality-adjusted life-year (QALY) concept, which is an approach developed by Zeckhauser and Shepard (1976). Both the quality of the life-years and their quantity matter. Although the quality-adjusted life-year approach is appealing from an intuitive standpoint, the question has always been as to how stringent the economic conditions must be for this to be an appropriate measure of how people think about risk decisions. The paper by Bleichrodt, Wakker, and Johannesson shows that these restrictions are less than was previously thought. In particular, provided that people display risk neutrality for life-years in every health state, one is led to the quality-adjusted life-year formulation.

The next pair of papers focus on age and quantity adjustments in mortality risks as they pertain to risk perceptions. Benjamin and Dougan address the long-standing result in the literature that people tend to overassess small mortality risks and underassess larger risks. Their analysis uses a rational expectations model in which they hypothesize that it is the age-specific risk level that is driving individual risk beliefs rather than the population risk. Using this rational expectations model as the reference point, they show that observed patterns of risk perceptions cannot be distinguished from rational expectations given this age-specific source of information.

The paper by Hakes and Viscusi recasts the Benjamin and Dougan analysis in a Bayesian learning framework in which the population mortality risk enters as well. However, their formulation also adds the age-specific hazard rate considered by Benjamin and Dougan. In addition, they also explore the role of discounted expected life-years within the context of this learning model. They find that all three sources of information are consequential. Moreover, their quantile regression results show that risk variables are more influential in explaining risk perceptions for larger risks than for smaller risks. The inability to explain the perception of small risks is consistent with the researchers' general belief that people are more prone to erroneous decisions for small risks.

Bleichrodt and Quiggin marry the QALY concept to a model in which choices are not governed by the standard expected utility model. The framework they have selected for their analysis is Quiggin's general rank-dependent utility model, which is one of the more prominent alternatives to the conventional expected utility model. Their paper contrasts the QALY formulations under both choice models and shows that the QALY approach extends in a quite natural way to this alternative decision framework.

The final paper by Johannesson and Johannson focuses on the timing of the lives saved as opposed to their quantity. For example, how many lives being saved at some future date is equivalent to saving one hundred lives today? Their study finds that people have an implicit rate of discount similar to those found for private risk-taking decisions. In particular, they found discount rates in the 8–14 percent range depending on the time horizon and the framing of the lifesaving question. As with the other studies, their analysis demonstrates that the value-of-life analysis is not the search for an elusive single number or a natural constant but rather an exploration of an entire class of issues relating to life-saving efforts.

Notes

1. For more complete treatment, see Viscusi (1992).

References

- Viscusi, W. Kip. (1992). *Fatal Tradeoffs: Public and Private Responsibilities for Risk*, New York: Oxford University Press.
- Zeckhauser, Richard J. and Donald Shepard. (1976). "Where Now For Saving Lives?" *Law and Contemporary Problems* 39, 5–45.