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ARTICLE

Ethics and Benefit–Cost Analysis: Introduction to the Special Issue

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Abstract

Conventional benefit–cost analysis plays an important role in informing policy decisions, encouraging systematic investigation of the positive and negative impacts of alternative policies. It is based on strong normative assumptions, however. To measure individual wellbeing, the conventional approach relies on individuals' willingness to exchange their income for the outcomes they experience. To measure societal welfare, it relies on simple aggregation of these values across individuals. In this "Ethics and Benefit–Cost Analysis" special issue, we explore alternative conceptions of individual and societal welfare, their application, and the implications, from both practical and ethical perspectives.

Introduction

Conventional benefit–cost analysis is well-established and widely used to assess interventions that aim to improve public health and welfare. It provides important insights and can be feasibly implemented due to decades of methodological development and application. Although it has many advantages, conventional benefit–cost analysis also has certain limitations. It reflects a relatively narrow conception of welfare, deriving values from the monetary trade-offs individuals are willing to make, and ignores how impacts are distributed across advantaged and disadvantaged individuals. In this special issue, we explore alternative approaches, including their normative underpinnings and their implementation.

This special issue builds on a five-day cross-disciplinary Brocher Foundation Summer Academy in Global Population Health, "Healthy, Wealthy and Wise—The Ethics of Health Valuation." The Summer Academy was selected by the Foundation's Scientific Committee and held in 2022 with the Foundation's financial support. It was organized by Nir Eyal (Rutgers University), Samia Hurst (University of Geneva), Lisa A. Robinson (Harvard University), and Daniel Wikler (Harvard University). It brought together 15 invited speakers

and over 40 other participants selected through a competitive application process.[1] Attendees included distinguished scholars, early career researchers, and practitioners from the fields of philosophy, public health, economics and biomedical sciences. Those invited to attend the Summer Academy were then invited to contribute to this "Ethics and Benefit–Cost Analysis" special issue of the *Journal of Benefit–Cost Analysis*, which was organized and edited by Lisa A. Robinson.[2] Submissions were subject to the *Journal's* standard peer-review procedures.

The Summer Academy focused on approaches that estimate costs and benefits using the same metric, including monetary and nonmonetary measures. These include, for example, measures of subjective wellbeing (happiness or life satisfaction), equivalent income or life years, and social welfare functions. Participants considered the application of these approaches to interventions intended to improve public health. These interventions include medical care, government regulations, and other programs, such as those that control pollution, promote transportation safety, or provide social services.

Overview of articles

The nine articles in this special issue explore alternative conceptual frameworks for estimating and comparing costs and benefits and their application from ethical and practical perspectives. In the first article, "**The Right Numeraire or the Just Weights? How to Make BCA Rational and Fair**," Marc Fleurbaey and James K. Hammitt (2024) explore conceptual issues related to measuring individual and societal welfare. Much attention has been paid to the relative merits of alternative measures of individual welfare (i.e. the numeraire), such as money, healthy life years, or life satisfaction. The authors argue that simply summing these measures across the affected population is generally problematic, however, regardless of the numeraire used. Instead linking these measures to a social welfare function offers more flexibility and leads to more rational outcomes, although implementing such an approach can be difficult. Regardless, the authors argue that it is important to utilize approaches that give greater weight to policies that benefit the worse off.

The following three articles describe the use of social welfare analysis as an alternative to conventional benefit–cost analysis and illustrate its implementation. In "**Social Welfare Functions and Health Policy: A New Approach**," Matthew Adler (2024) provides an overview of the framework and discusses its application. This framework converts policy outcomes into interpersonally comparable measures of lifetime wellbeing for each affected individual. It uses a social welfare function to aggregate these individual measures. For example, a utilitarian function sums the estimates while a prioritarian function gives greater weight to improvements for those who are worse off. After reviewing key concepts and findings from the application of this framework to health policy, Adler discusses the

[1] In addition to the four organizers, the invited speakers included Matthew Adler, Rachel Baker, John Broome, David Canning, Susan Chilton, Richard Cookson, Marc Fleurbaey, Daniel M. Hausman, Christian Krekel, Ole F. Norheim and Aki Tsuchiya. More information on the speakers and suggested background readings is available in the program, posted here: https://fondation-brocher.ch/event/brocher-summer-academy-in-global-population-health-2022-healthy-wealthy-and-wise-the-ethics-of-health-valuation-2/.

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valuation of mortality risk reductions within this framework—the social value of risk reductions (SVRR)—and how it differs from the approach conventionally used, the value per statistical life (VSL).

Next, in "**The Global Burden of the COVID-19 Pandemic: Comparing Benefit–Cost Analysis and Social Welfare Analysis**," Maddalena Ferranna (2024) illustrates the application of conventional benefit–cost analysis and social welfare analysis to pandemic preparedness policies globally, considering both utilitarian and prioritarian social welfare functions. After introducing these frameworks and their application to pandemic policies, she calculates the global burden of a pandemic similar to the COVID-19 pandemic under each framework, as well as the value of a hypothetical intervention to prevent such a pandemic. Assuming that spending on prevention is worthwhile up to the point where the costs equal the benefits of the policy, she explores the implications of how the costs are distributed. Utilitarian and prioritarian social welfare functions are sensitive to this distribution, while conventional benefit–cost analysis is not. The more progressive the distribution of costs, the larger the net benefits of preventing the pandemic under a social welfare approach.

The following article, "**From Benefit–Cost Analysis to Social Welfare: A Pragmatic Approach**," by Maddalena Ferranna, James K. Hammitt, and Lisa A. Robinson (2024), develops an approach for conducting social welfare analysis that relies on weights rather than more complex modeling. The approach goes beyond adjusting solely for the marginal utility of income (the greater value of a dollar to a poor person than to a wealthy person). It recognizes the importance of differences in other dimensions of wellbeing, particularly health and longevity, and prioritizes increases in wellbeing for those who are worse off. The approach is designed for global implementation, taking into account the limited data available for many countries. The authors develop simple formulas that practitioners can use to compute the weights and illustrate their implementation.

The next two articles focus on valuing mortality risk reductions. In "**The Value of Life in the Social Cost of Carbon: A Critique and a Proposal**" John Broome (2024) critiques how these values have been calculated in estimating the impacts of climate change and other policies from a philosophical perspective. Typically VSL estimates are derived from individuals' willingness to exchange their income for the risk reductions they experience, without any distributional weighting. Broome discusses the ways in which the underlying conceptual framework has been discredited and the problems associated with attempts to avoid interpersonal comparisons of wellbeing. He argues that interpersonal comparisons are necessary and should be used to determine distributional weights. He concludes that a better, although still somewhat imperfect, approach would be to apply distributional weights that equalize the value of a healthy life year across those affected.

In "**Lessons from Applying Value of Statistical Life and Alternate Methods to Benefit–Cost Analysis to Inform Development Spending**" Alice Redfern, Sindy Li, Martin Gould, Felipe Acero, and Daniel Stein (2024) discuss the results of surveying low-income individuals in Ghana and Kenya about their preferences for spending to reduce mortality risks. They elicit conventional estimates of VSL for adults and their children. In addition, they conduct policy choice experiments that ask respondents to choose, from the perspective of a decision-maker, between programs that save lives at different ages, and that save lives and provide cash transfers. The results suggest that VSL in low-income populations may be higher than typically estimated by extrapolating values from studies conducted in high-income countries, and that reducing risks to children is valued more highly than

reducing risks to adults. The authors also discuss the methodological implications of their work for future studies conducted in similar settings.

In "**The Health-Augmented Lifecycle Model**," JP Sevilla (2024) develops an alternative approach for estimating the value of reducing risks to health and longevity. He augments the standard lifecycle model to incorporate the value of mortality and morbidity risks, based on individual preferences. The model reflects lifetime interactions among health and longevity and economic factors, including paid and unpaid work, consumption, leisure, and public and private transfers. He calibrates the model for the U.S. and illustrates its application to a pediatric vaccine, discussing its relationship to other approaches for the economic evaluation of health technologies.

An alternative approach to estimating values is explored in "**Citizen Preferences and BCA: A Model of Willingness-To-Pay Behind a Veil of Ignorance**" by Morgan Beeson, Susan Chilton, Hugh Metcalf, and Jytte Seested Nielsen (2024). The conventional approach relies on individuals' self-interested willingness to pay for outcomes they experience, ignoring the value they place on impacts experienced by others. The authors develop a conceptual approach for estimating "citizen" values that addresses the limitations of previous studies on social preferences, and test it using simulation modeling. They incorporate a veil of ignorance under which individuals do not know how they will be affected by a policy. This approach encompasses altruistic as well as distributional preferences. When these citizen values are aggregated, equal weight is given to each individuals' preferences, and the benefit–cost analysis correctly and consistently identifies policies that maximize net benefits.

Finally, in "**Monetizing Animal Welfare Impacts for Benefit–Cost Analysis**," Mark Budolfson, Romain Espinosa, Bob Fischer, and Nicolas Treich (2024) go beyond the usual focus on human wellbeing and consider the value of animal welfare. They discuss a recent study that provides a foundation for estimating the wellbeing potential of different species on a single scale. By combining these estimates with assessments of how policies impact the quality of life for these species, they arrive at a framework for estimating the impact of policies on animal health and wellbeing. Their approach extrapolates from the monetary value of a human quality-adjusted life year (QALY) to the value of an animal QALY. The authors note that this approach provides a starting point for better integrating the value of changes in animal welfare into benefit–cost analysis, but that many challenges remain.

In sum, the Brocher Summer Academy and the nine articles in this special issue highlight important advances in the conduct of benefit–cost analysis, exploring alternative approaches from both ethical and pragmatic perspectives. These efforts lay the foundation for future research, suggesting areas where additional work is needed to ease and expand the application of these approaches and to further explore their implications. The results also emphasize the importance of economic evaluation more generally, whether conventional or innovative, to systematically investigate policy impacts and promote understanding of the trade-offs implicit in any policy choice. Clear communication of the normative foundations of whatever approach is used, and its implications, is key to promoting sound decisions.

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