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R E P O R T



Valuing Benefits in Benefit-Cost Studies of Social Programs

Lynn A. Karoly

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1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
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Summary

There is growing interest in the application of benefit-cost analysis (BCA) to evaluate the economic returns from investing in social programs that seek to improve the lives of children, youth, and families. The use of BCA for this purpose requires estimates of the economic value, or “shadow price,” associated with the various short- and long-term outcomes that may be affected by a particular social program. This study assesses the state of the art with respect to the measurement and use of shadow prices in the application of BCA to social program evaluation and identifies directions for future methodological research to strengthen the use of BCA to assess the economic returns from investing in such programs.

The study examines 39 effective social programs whose effects have been evaluated using scientifically rigorous methods. These programs were selected because they have been identified by one or more of three organizations that screen social programs for the soundness of their evaluations and evidence of their effectiveness:

- the Blueprints for Violence Prevention project at the University of Colorado at Boulder (10 “Model” programs)
- RAND’s Promising Practices Network (20 “Proven” programs)
- the Coalition for Evidence-Based Policy (20 “Social Programs That Work”).

The 39 programs intervene with populations across the life course and often work simultaneously with two generations (i.e., parents and children). They can be categorized into the following social policy areas: early childhood interventions (10 programs); K–12 education interventions (7 programs); general youth development programs (1 program); mental health supports and behavior modification interventions (6 programs); substance abuse prevention programs (5 programs); teen pregnancy prevention programs (2 programs); crime/violence prevention programs (3 programs); and adult employment and welfare programs (5 programs).

The outcomes affected by these social programs are diverse across programs, and often within programs, with measured favorable effects in such domains as physical and mental health; individual and family behavior; motivation, approaches to learning, and other noncognitive skills; child maltreatment; cognitive skills, school achievement, and other education outcomes; crime and delinquency; smoking, substance abuse, and other risky behaviors; contraceptive use and teen pregnancy; employment and earnings; utilization of social welfare programs; and utilization of other services (e.g., health care, child welfare systems). All 39 programs have proven effectiveness in settings within the United States.

One or more BCAs have been conducted for 22 of the 39 programs, either a BCA specific to the program itself or one that is part of multiprogram BCA studies conducted by independent analysts. The fact that only about one in two social programs with a proven track record of effectiveness has an associated BCA indicates that many social programs produce outcomes that cannot be readily translated into dollar benefits, given the current state of the art, and thus cannot be assessed in an economic framework. Key findings from a comparison of the outcomes measured in the evaluations and the monetization of benefits in the BCAs studied here include the following:

- **Many important benefits that accrue from effective social programs are rarely, if ever, monetized.** Certain favorable outcomes of social programs are generally not monetized in benefit-cost studies. These include benefits in the domains of cognition (e.g., IQ), socio-emotional behavior, mental health, and family behavior (e.g., parenting skills or adult-child interactions). To a lesser extent, academic achievement measures such as test scores and grades are also not directly monetized. For some programs, these benefits may be a subset of the outcomes measured, and other benefits may accrue in domains that can be monetized. In such cases, analysts focus on valuing enough benefits so that the benefit-cost ratio is greater than 1 and then argue that their estimates of the economic returns are conservative. For other programs, however, the main benefits accrue in the domains that are not monetized, which limits the feasibility of employing the benefit-cost methodology. Indeed, only one in five of the interventions we reviewed that focus on mental health supports and behavior modification of children and youth has an associated BCA. Only one of seven of the K–12 education interventions has been assessed using a BCA. Attaching shadow prices to these outcomes is complicated by the nonexistence of markets from which to derive prices and the lack of direct

effects on public-sector outlays or revenues. These are benefits that are more likely to accrue to program participants or to generate spillover effects in other domains where the outcomes can be monetized, but those outcomes may be realized only with longer-term follow-up. To date, other methods for valuing such benefits used in the application of BCA in other areas of public policy—e.g., contingent valuation or hedonic methods—have not been applied.

- **Shadow prices for outcomes valued in BCAs of social programs do not consistently capture the full range of societal benefits or costs.** The application of BCA to social programs is not firmly grounded in the economic foundations of the benefit-cost framework. Typically, analysts value the economic costs or benefits that are most readily measured rather than performing a complete accounting. Examples of this gap between theory and application include the failure to account for the value of participants' time—time associated with either the intervention itself or its outcomes. Equilibrium effects of programs on markets, such as prices (e.g., effects on equilibrium wages) or quantities (e.g., displacement of workers in programs that generate labor market benefits), if they are implemented on a large scale, are usually not taken into account. This shortcoming means that analyses can be viewed as incomplete and potentially not credible when decisionmakers make choices among competing programs.
- **Even when there is a well-established literature for valuing outcomes, the use of shadow prices is not consistent across studies of social programs.** To some extent, there is a measure of built-in consistency in the use of shadow prices for 14 of the 22 programs we examined that have an associated BCA. This is because the programs are assessed in the context of a multiprogram comparison in which a common set of shadow prices is applied across all programs. When the distinct methodologies are compared across all 22 BCAs, there is still variation in the use of shadow prices even in areas where the methodology is relatively well established. This results in part from the desire to value benefits and costs in a specific geographic locale or to use more or less conservative shadow prices based on the existing literature. An example is the value attached to the intangible costs of crime for crime victims: Some studies exclude this component altogether, while others use differing estimates. In light of these differences, it is unfortunate that analysts seldom examine the sensitivity of their estimates to a range of shadow prices.

- **Program benefits that extend into the future may be monetized, but uncertainty associated with future projects needs to be recognized.** For some social programs, the most significant economic benefits do not accrue until some years after the program has ended. This is especially true for programs that intervene early in the lives of children and their families. While some BCAs use methods to project future outcomes (e.g., labor market earnings) based on early outcomes (e.g., school achievement measures), such approaches have yet to become routine and standardized. Moreover, the added uncertainty associated with these estimates is often not explored. In the absence of such projections, the benefits from programs without long-term follow-up cannot be readily monetized. For such programs, BCAs have therefore been conducted only when there is sufficient long-term follow-up. Among the 10 early childhood interventions included in our review, for example, four of the six that have an associated BCA had a minimum follow-up period to age 15, and three had follow-up periods at least to early adulthood. The other two early childhood programs with BCAs had only short-term outcomes at the time the BCA was conducted, and for one of those programs, the BCA valued no benefits. Until longer-term projection models are developed to link early outcomes with later-life outcomes that have economic consequences or until sufficient time has passed to measure long-term benefits, there will be only a limited ability to apply the benefit-cost methodology to fully account for the expected benefits from such programs.

In light of these findings, we conclude that further investments in methodology to support BCA for social programs will advance the state of the art. These advancements will support the broader use of BCA for proven programs, where the analyses would be comprehensive and comparable, more aligned with economic theory, and more transparent in the sensitivity of findings to the methodological approach. The following areas of investment merit further consideration:

- ***Building a consensus among experts on the best practices for the application of BCA to social programs and publishing guidelines for BCA analysts.*** The use of BCA in other policy arenas has benefited from expert guidance in defining best practices that support more consistent and comparable use of BCA.

- *Developing shadow prices for outcomes that are rarely monetized but that are significant in social program evaluations and likely to have important economic impacts.* Among the outcomes affected by the programs reviewed in this study, the most promising candidates for the development of shadow prices are child and adult mental health outcomes and school performance measures such as suspensions, expulsions, attendance, and engagement. These outcomes are significantly improved by mental health and behavior modification interventions and K–12 education programs.
- *Refining current methods for valuing the long-term benefits of improved outcomes in early childhood or the school-age years.* Methods to project long-term outcomes from short-term benefits have been developed and applied in the BCAs reviewed in this study. New longitudinal data should support improvements in methods for estimating causal linkages of outcomes through time.

While this analysis has not fully assessed the costs associated with these methodological investments, the growing importance of BCA in evaluating social programs in the United States means that there is likely to be a multiplier effect in terms of the payoff from improving the methodology used to estimate benefits and costs across a multiplicity of social programs and that the payoff could thus more than outweigh the associated costs.