

Federal Agency Benefit-Cost Analysis Principles and Standards for Social Programs

1.0 Introduction

When conducting benefit-cost analysis (BCA), federal agencies must comply with federal guidelines outlined by various regulations and guidelines from the Office of Management and Budget, White House, and Congress. The main guidelines include OMB Circulars A-4, A-11, A-94, as well as the White House's Executive Order 12866. In this section, we summarize each of these documents and present the relevant components necessary for BCA. The complete OMB circulars, the Executive Order and other documents referred to in this document can be found on the Benefit-Cost Center website at <http://www.evans.washington.edu/research/centers/benefit-cost-analysis/related-search>.

Within the guidelines of the OMB circulars and the White House Executive Order, federal agencies are free to develop departmental for BCA guidelines. In section 2, we summarize BCA guidelines for social programs and explore departments and agency principles and standards for BCA. Because not all federal agencies provide social programs (and by extension BCA of social programs), we limit our analysis of federal agencies to the following:

- U.S. Department of Justice
- Department of Housing and Urban Development
- Department of Health and Human Services
- Department of Education

1.1 OMB Circular A-4

The most recent OMB Circular A-4 was released on September 17, 2003 with intent to provide guidance to analysts in regulatory agencies as required under Section 6(a)(3)(c) of Executive Order 12866, as well as the Regulatory Right-to-Know Act of 1999 and the "Regulatory Planning and Review". Circular A-4 replaces previous OMB "best practices" document of 1996 as well as OMB Memorandum M-00-08. It also is meant to provide a standardized measure and report costs and benefits for Federal regulatory analysis.

OMB Circular A-4 provides the following guidelines for conducting BCA for Federal regulatory agencies:

- Explain how the actions required by the rule are linked to the expected benefits. For example, indicate how additional safety equipment will reduce safety risks. A similar analysis should be done for each of the alternatives.
- Identify a baseline. Benefits and costs are defined in comparison with a clearly stated alternative. This normally will be a "no action" baseline: what the world will be like if the proposed rule is not adopted. Comparisons to a "next best" alternative are also especially useful.
- Identify the expected undesirable side-effects and ancillary benefits of the proposed regulatory action and the alternatives. These should be added to the direct benefits and costs as appropriate (OMB Circular A-4 p. 2).

Specifically pertaining to non-monetized benefits and costs, OMB Circular A-4 states that:

...the most efficient alternative will not necessarily be the one with the largest quantified and monetized net-benefit estimate. In such cases, you should exercise

professional judgment in determining how important the non-quantified benefits or costs may be in the context of the overall analysis. If the non-quantified benefits and costs are likely to be important, you should carry out a “threshold” analysis to evaluate their significance. Threshold or a “break-even” analysis answers the question, “How small could the value of the non-quantified benefits be (or how large would the value of the non-quantified costs need to be) before the rule would yield zero net benefits?” In addition to threshold analysis you should indicate, where possible, which non-quantified effects are most important and why (OMB Circular 1-4 p. 2).

On discount rates, the OMB Circular refers to OMB Circular A-94 noting that a real discount rate of 7 percent should be used as a “base-case” for regulatory analysis (p. 33). It also notes that the 7 percent discount rate “is an estimate of the average before-tax rate of return for private capital in the U.S. economy” (p. 33). Furthermore, the circular states that when regulation directly influences private consumption it is pertinent to use a 3 percent discount rate (i.e., the social rate of time preference). When discounting intergenerationally, the circular states that the discount rate should be between 1 to 3 percent, and when pertinent, a sensitivity analysis should be conducted using discount rates of 3 to 7 percent. More information on OMB Circular A-94 can be found in section 1.3 below.

Further information on specific guidelines for conducting BCA can be found in the Circular from pages 14-42.

1.2 OMB Circular A-11

OMB Circular A-11 includes exhibit 300 which requires federal agencies to keep track of costs through various accounting methods. In particular, exhibit 300 use is summarized as the following:

The exhibit 300 is one component of your agency’s total performance budget justification (see section 51.2). OMB uses the exhibit 300 to make both quantitative decisions about budgetary resources consistent with the Administration’s program priorities, and qualitative assessments about whether the agency’s programming processes are consistent with OMB policy and guidance. OMB will be evaluating all elements of the business cases and will communicate the results of these evaluations in the course of the budget process. If additional supporting information is necessary, OMB will request from agencies the supporting evidence used to produce the exhibit 300. All information necessary to complete an exhibit 300 should already exist as part of the agency’s overall Information Resources Management activities and within project specific documentation. The materials used to produce the exhibit 300 should be readily available to OMB upon request (OMB Circular A-11 p. 581).

Exhibit 300 is pertinent because these costs will be used when conducting BCA for a program.

Another section of A-11 that is pertinent to BCA is the Earned Value Management (EVM) project management tool. Regarding EVM, OMB Circular A-11 states:

Earned value management (EVM) is a project (investment) management tool effectively integrating the investment scope of work with schedule and cost elements for optimum investment planning and control. The qualities and operating characteristics of earned value management systems (EVMS) are described in American National Standards

Institute (ANSI)/Electronic Industries Alliance (EIA) Standard –748–1998, Earned Value Management Systems, approved May 19, 1998. It was reaffirmed on August 28, 2002. In evaluation work, EVM estimated costs are used, and again, is pertinent to BCA in this regard.

1.3 OMB Circular A-94

OMB Circular A-94 establishes guidelines and discount rates for benefit cost analysis within federal agencies. This document replaces OMB Circular A-94 (from 1972) and A-104 (from 1986) and draws authority from the Budget Accounting Act of 1921. The states purpose is to “promote efficient resource allocation through well informed decision making by the Federal Government”.

Broadly, this document outlines the technique to use in BCA. The sections most pertinent to social programs are 5-10 and are summarized below.

Section 5 identifies the general concept of CBA and discusses the difference between Net Present Value (NPV), Cost Effectiveness Analysis (CEA), and the elements within NPV and CEA. These elements are: policy rational, explicit assumptions, evaluation of alternatives and verification.

Section 6 presents federal policy on how to identify and enumerate benefits and costs.

Section 7 discusses how to treat inflation and outlines the differences between real and nominal values.

Section 8 discusses the difference between real and nominal discount rates. This section identifies which type of discount rate should be used with the types of analysis in Section 5.

Section 9 discusses the role of uncertainty in CBA modeling assumptions. Guidelines are given for characterizing uncertainty, expected values and sensitivity analysis.

Section 10 discusses incidence and distributional effects. The process of targeting recipients of benefits leads to a discussion of how to measure impacts across diverse groups. Effectiveness should be measured in terms of the target group receiving benefits.

1.4 Executive Order 12866

Executive Order 12866 is the original executive order to mandate that federal agencies conduct cost benefit analysis for significant regulatory actions. The preamble identifies the philosophy and methods of the order:

EO. 12866 is designed to “maximize health, safety, environment and well-being and improve the performance of the economy without imposing unacceptable or unreasonable costs on society”. The goals of EO 12866 are operationalized by “enhancing planning and coordination with respect to both new and existing regulations”.

The body of the order is organized into 11 sections. Of these sections 1-3 address social issues inherent in cost benefit analysis and are summarized below. Section 4 outlines the planning mechanism of the order. Sections 5 and 6 outline exemptions and review. Sections 7 establishes protocols for resolving conflicts. Sections 8-11 address publication, agency authority, judicial review and revocations.

Section 1 identifies the goals, procedures and the population to be included in cost benefit analysis. “In deciding whether and how to regulation, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating.” The definition of costs and benefits include social values and costs difficult to quantify. “Costs and benefits shall be understood to include both quantifiable measures and qualitative measures of costs and benefits that are difficult to quantify”

When conducting cost benefit analysis the agency must include (Sec 1. B. 4) “risks posed” (Sec 1. B. 5) “distributive impacts, and equity” by regulator options.

Section 2 states that review of compliance with E.O. 12866 shall be conducted by the Office of Management and Budget (OMB).

Section 3 limits the type of regulations subject to E.O. 12866 to only “significant regulatory actions”. These actions are defined as (Sec 3. F. 1) “having an annual effect on the economy of \$100 million more... or adversely affect the environment, public health or safety”.

1.5 Table Summary

Table 1 below presents a brief summary of the pertinent OMB circulars and White House Executive Order 12866, while table 2 provides a summary of other laws and regulations that pertain to BCA or components of BCA.

Table 1: Baseline Federal Agency BCA Principles and Standards

White House Office of Management and Budget	
Circular A-4	<ul style="list-style-type: none"> • Provides guidelines and requirements for conducting BCA for analysts in regulatory agencies • Refers to OMB Circular A-94 for specific discount rates
Circular A-11	<ul style="list-style-type: none"> • Requires federal agencies to train staff in Earned Value Management (EVM) for estimating costs • Exhibit 300 pertinent for accounting methods
Circular A-94	<ul style="list-style-type: none"> • Establishes guidelines and discount rates for benefit cost analysis within federal agencies. • Reviews CBA methods • Establishes discount rates • Identifies uncertainty • Discusses distributional effects
White House	
Executive Order 12866	<ul style="list-style-type: none"> • The organic order • Establishes philosophy motivating use of BCA • Defines “significant regulatory actions” • Defines the population to be considered for costs and benefits

Table 2: Other pertinent laws and regulations

Law or regulation	Summary
Clinger-Cohen Act of 1996	<ul style="list-style-type: none"> • Requires that federal agencies purchase technology as a private enterprise and that all acquisition, planning and management of technology be treated as a “capital investment”

	<ul style="list-style-type: none"> • All facets of capital planning are used just as in private industry, and these include: <ul style="list-style-type: none"> ○ Cost/benefit ratio ○ Expected life of technology ○ Flexibility and possibility of multiple uses
Regulatory Right-to-Know Act of 1999	<ul style="list-style-type: none"> • Requires the OMB to provide an annual report to Congress on the total benefits and costs of federal regulatory programs, as well as recommendations for improving them. • Requires the OMB to report on the possible impact of federal regulations on small business, the private sector, the government, wages, and economic growth.
Regulatory Flexibility Act of 1980	<ul style="list-style-type: none"> • Federal agencies proposing rules or regulations that would have a “significant” economic impact on small businesses, small nonprofits, and small governmental organizations are required to prepare a Regulatory Flexibility Analysis. • Agencies must try to find a simpler and less burdensome method for small organizations to comply with federal requirements
Budget and Accounting Act of 1921	<ul style="list-style-type: none"> • Sec. 1111. 1. A. Improving economy and efficiency: To improve economy and efficiency in the United States Government, the President shall make a study of each agency to decide, and may send Congress recommendations, on changes that should be made in the organization, activities, and business methods of agencies;

2.0 Federal Departments

2.1 U.S. Department of Justice

When conducting BCA, the U.S. Department of Justice (DOJ) has departmental set of guidelines for different projects. For instance, when conducting BCA for a feasibility study for the department’s System Development Life Cycle Guidance Document (SDLC), the DOJ is required to include a statement of assumptions that are made regarding the present and future environments that the analysis is based on, as well as constraints, nonrecurring and recurring costs, and an analysis of tangible and intangible costs (U.S. DOJ p. 28).

More broadly, the department provides the following precautions for studies conducting BCA:

- Identifying and measuring all program costs and benefits. When important benefits are disregarded because they cannot be measured or monetized, the project may appear less efficient than it is; if certain costs are omitted, the project will seem more efficient than it is, resulting in misleading estimates.
- Expressing costs and benefits in terms of monetary values. Expressing all costs and benefits in terms of a common denominator, such as a monetary value, may not capture the essence of the outcome. For example, what value should be placed on providing treatment to child sexual abuse (CSA) victims (NIH 2004 p. A-2)?

Regarding discount rates, the DOJ recommends for land valuation that discount rates should be derived from and supported by direct market data and cites the *Federal Land Exchanges and Acquisitions: Appraisal Issues and Applications* (Uniform Appraisal). In general, however, the

USDOJ allows each department little guidance into specific discount rates, and suggests that when conducting BCA researchers use the “appropriate rate”.

2.2 Department of Housing and Urban Development

The Department of Housing and Urban Development provides some guidance when conducting BCA. For instance, citing Hausman 1979, the department recommends discount rates of approximately 25 for air conditioners. Of course varying projects will use different discount rates, and further information on discount rates can be found in the *Housing Impact Analysis* (also available on the BCAC website). When looking at discount rates for energy policy, HUD recommends the following considerations when determining a discount rate:

- The discount rate is a crucial parameter for projecting technology investment levels or household adoption of new technologies such as those involved in energy conservation. For example, discount rates higher than prevailing interest rates in the credit market indicate reluctance on the part of the consumer to invest in new technology.
- The discount rate is an indicator of real estate market efficiency. In a perfectly competitive market where technology is produced to match buyer’s preferences, homebuyers should be willing to invest in new technologies until the marginal value of the benefits equals the marginal cost of the innovation. According to financial theory, the appropriate rate of return would be the homebuyers’ opportunity cost of capital. In thermal technologies if the lifetimes match that of the house (such as insulation) and the benefit is net of taxes, the appropriate opportunity interest rate may be equal to the after-tax mortgage interest rate.
- Household discount rates that are substantially higher than the prevailing interest rate (e.g., after-tax mortgage rate), indicates uncertainty due to: insufficient information for the homeowner, appraiser, or lender; limitations of homeowner income; or other imperfections in the real estate market. These imperfections could help justify some modification of behavior or intervention such as communication and education by the private sector acting alone, public and quasi-public agencies, or interested non-profit associations.
- Conversely, discount rates lower than opportunity cost might indicate that homebuyers are viewing the added expenditures on new technology as “consumers” rather than as pure investors. They might find that additional functional or non-quantifiable benefit in attributes of a technology, such as improved appearance or health, outweighs higher price (U.S. HUD 2001 p. 12).

HUD uses their internal System of Development Methodology that includes a CBA template as well as a CBA checklist (links to these documents can be found on the BCAC website). Further information on HUD’s internal System of Development Methodology can be found on their website, and a link is also available on the BCAC website. In general, however, HUD provides those conducting BCA in the agency leeway in deciding the most appropriate discount rate given the analysis.

2.3 Department of Health and Human Services

The Department of Health and Human Service (DHHS) refers to E.O. 12866 and Cir. A-4 in their online guidelines for BCA and CEA analysis. DHHS identifies when to conduct BCA and CEA given the nature of the federal rulemaking. From the A-4 the DHHS quotes:

"You should prepare a CEA for all major rulemakings for which the primary benefits are improved public health and safety to the extent that a valid effectiveness measure can be developed to represent expected health and safety outcomes.

You should also perform a BCA for major health and safety rulemakings to the extent that valid monetary values can be assigned to the primary expected health and safety outcomes. In undertaking these analyses, it is important to keep in mind the larger objective of analytical consistency in estimating benefits and costs across regulations and agencies, subject to statutory limitations. Failure to maintain such consistency may prevent achievement of the most risk reduction for a given level of resource expenditure.

For all other major rulemakings, you should carry out a BCA. If some of the primary benefit categories cannot be expressed in monetary units, you should also conduct a CEA. In unusual cases where no quantified information on benefits, costs and effectiveness can be produced, the regulatory analysis should present a qualitative discussion of the issues and evidence."

Two other sources are identified to guide CBA and CEA in the DHSS. The first of these is a study the OMB commissioned from the Institute of Medicine (IOM). The IOM study provides the agencies and OMB "useful insight into how to improve the measurement of effectiveness of public health and safety regulations".

The second source is a workshop the OMB commissioned from Resources for the Future (RFF). The RFF workshop explored the implications of using cost-effectiveness versus cost-benefit analysis in regulatory impact analyses. The RFF workshop included Cost-Utility Analysis (CUA) as a tool to consider the appropriateness of alternative medical interventions as well as to analyze health policy.

2.4 Department of Education

It appears the Department of Education has no internal guidelines but does follow the guidelines set forth by the OMB. Further it appears that outside contractors do not necessarily conform to the OMB guidelines, though this is not firmly established by us yet.

7.0 Summary

Across federal agencies that conduct BCA it is evident that all follow the OMB A-4, A-11, A-94, as well as E.O. 12866. Within each agency it appears that there are loose recommendations for conducting BCA, and in some instances, specific information such as discount rates are provided for certain types of resources. It appears that when federal agencies contract out BCA projects, they do not necessarily require that the BCA follow the OMB and EO guidelines. Instead, it seems that the federal agencies prefer that the contractors rely on the available literature on certain types of BCA projects. Within the confines of OMB A-4, A-11, A-94 and E.O. 12866 federal agencies may use principals and standards more appropriate to their agency. These include choosing between BCA, CUA and CEA.

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