

July 2005

# ECONOMIC PERFORMANCE

## Highlights of a Workshop on Economic Performance Measures



G A O

Accountability \* Integrity \* Reliability



Highlights of [GAO-05-796SP](#)

## Why GAO Convened This Workshop

Improving the economy and efficiency of federal programs has long been a key objective of the Government Accountability Office (GAO). To this end, GAO held a workshop on December 17, 2004, to discuss the use of economic analysis, such as benefit cost or cost effectiveness, for helping to measure the performance of federal programs. The workshop's purpose was to

- discuss the present state of economic performance measures and identify gaps in their application and the barriers and analytical issues that limit their use in helping assess the performance of federal programs and
- identify opportunities for the federal government and professional and academic institutions to improve (1) the use of economic performance measures for evaluating federal programs and (2) the general economic principles and guidance on which economic performance analysis is based.

[www.gao.gov/cgi-bin/getrpt?GAO-05-796SP](http://www.gao.gov/cgi-bin/getrpt?GAO-05-796SP).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Nancy R. Kingsbury at (202) 512-2700 or [kingsburyn@gao.gov](mailto:kingsburyn@gao.gov).

## ECONOMIC PERFORMANCE

### Highlights of a Workshop on Economic Performance Measures

#### What Participants Said

Workshop participants identified a number of issues regarding the use of economic performance analysis—benefit-cost or cost-effectiveness analysis—in evaluating federal program performance. They generally said the following:

- The quality of the economic performance assessment of federal programs has improved but is still highly variable and not sufficient to adequately inform decision makers.
- The gaps in applying economic performance measures are that they are not widely used, mechanisms for revisiting a regulation or program are lacking, retrospective analyses are often not done, and homeland security regulations present additional challenges and typically do not include economic analysis.
- Barriers include agencies' lack of resources and only limited demand from decision makers for benefit-cost analysis. In addition, some participants stated that organizational barriers called stovepipes or silos hinder communication.
- Some analytical issues that affect the application of economic performance measures are limited guidance on assessing unquantifiable benefits, equity, and distributional effects of federal actions; lack of agreement on some values for key assumptions; and lack of guidance on tools that do not monetize outcomes, such as multiobjective analysis.
- Opportunities to expand the use of measures include evaluation of existing programs retrospectively and application to homeland security issues.
- Ways to improve the general economic principles and guidance that economic performance analysis is based upon include developing a minimum set of principles and abbreviated guidelines for economic performance analysis, developing one-page summaries and scorecards of analysis results, standardizing some key values for assumptions, and creating an independent and flexible organization to provide guidance and develop standards.

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**Abbreviations**

AICPA	American Institute of Certified Public Accountants
APB	Accounting Principles Board
CDC	Centers for Disease Control and Prevention
DOE	Department of Energy
DOL	Department of Labor
DOT	Department of Transportation
EPA	Environmental Protection Agency
FASAB	Financial Accounting Standards Advisory Board
FASB	Financial Accounting Standards Board
GASB	Governmental Accounting Standards Board
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
PART	Program Assessment Rating Tool
USDA	U.S. Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

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United States Government Accountability Office  
Washington, D.C. 20548

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Improving the economy and efficiency of federal programs has long been a key objective of the U.S. Government Accountability Office (GAO). A focus on auditing the performance of government programs has complemented the agency's focus on accounting for decades. In a recent report, GAO highlighted the importance of a fundamental review of federal programs and policies in addressing the nation's long-term fiscal imbalance and in ensuring that the federal government's programs and priorities meet current and future challenges.<sup>1</sup> In this regard, measuring the economic performance of federal programs, such as the extent to which program benefits exceed costs (net benefits) or are achieved at least cost (cost effectiveness), could be a useful way to assess, in conjunction with other measures, the extent to which federal programs are meeting the nation's priorities.

The economic performance of some federal actions is presently assessed prospectively, through an Office of Management and Budget (OMB) review of proposed capital investments and regulations. However, few federal actions are monitored for their economic performance retrospectively. In addition, reviews by GAO have found that economic assessments that analyze regulations prospectively are often incomplete and inconsistent with general economic principles.<sup>2</sup> Moreover, the assessments are often not useful for comparisons across the government, because they are often based on different assumptions for the same key economic variables. Furthermore, new areas of federal action, such as homeland security, present additional challenges because of the difficulty of assessing uncertainty and risk, such as those associated with terrorist activities.

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<sup>1</sup>GAO, *21st Century Challenges: Reexamining the Base of the Federal Government*, GAO-05-325SP (Washington, D.C.: Feb. 2005).

<sup>2</sup>See GAO, *Regulatory Reform: Agencies Could Improve Development, Documentation, and Clarity of Regulatory Economic Analyses*, GAO/RCED-98-142 (Washington, D.C.: May 26, 1998), and *Clean Air Act: Observations on EPA's Cost-Benefit Analysis of Its Mercury Control Options*, GAO-05-252 (Washington, D.C.: Feb. 28, 2005).

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The Government Performance and Results Act of 1993 (Results Act) requires, among other things, agencies to establish budgetary performance goals and to identify measures to determine whether their programs are meeting those goals. Although economic performance measures are consistent with the act, they are generally not used. For example, GAO found that few measures under the act clearly linked program costs to the achievement of program goals or objectives.<sup>3</sup> In addition, although federal agencies use OMB's Program Assessment Rating Tool (PART) every year to assess the performance of their programs, almost 50 percent of the 234 programs assessed for fiscal year 2004 received a rating of "results not demonstrated." OMB had determined that program performance information, performance measures, or both were insufficient or inadequate.<sup>4</sup> In particular, OMB has indicated a preference for the use of more economic performance measures, including net benefits, in the PART process.

Accepted methods for estimating economic performance measures are based on general economic principles and guidelines derived from academic textbooks and research results presented in journal articles. Several federal agencies, such as the U.S. Department of Transportation and Environmental Protection Agency, have incorporated the principles and guidelines into guidance for agency economists to use in assessing economic performance. Unlike in some other professions, such as accounting, these principles and guidelines were not identified or created by a standard-setting authority representing the entire profession.

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## The Workshop's Objectives

GAO convened a workshop on December 17, 2004, to discuss the use of economic analysis, such as cost benefit or cost effectiveness, for helping to measure the performance of federal programs. The workshop's objectives were to

- discuss the present state of economic performance measures and identify the gaps in their application and the barriers and analytical

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<sup>3</sup>GAO, *Results-Oriented Government: GPRAs Have Established a Solid Foundation for Achieving Greater Results*, GAO-04-38, (Washington, D.C.: Mar. 10, 2004).

<sup>4</sup>GAO, *Performance Budgeting: Observations on the Use of OMB's Program Assessment Rating Tool for the Fiscal Year 2004 Budget*, GAO-04-174 (Washington, D.C.: Jan. 30, 2004).

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issues that limit their use in helping assess the performance of federal programs and

- identify opportunities for the federal government and professional and academic institutions to improve (1) the use of economic performance measures for evaluating federal programs and (2) the general economic principles and guidance on which economic performance analysis is based.

A summary of the workshop discussion is presented in the next section. The participants are listed in appendix I. A discussion paper prepared for the workshop by a number of GAO staff appears in appendix II.

We selected workshop participants from government and academia based on their professional publications about economic performance measures, their role in developing economic guidance, and the extent to which they have used economic performance measures in their agencies. In addition, four participants were asked to make presentations to the group on areas relating to the workshop objectives, including the use of economic performance measures for oversight in the executive branch, limitations of economic performance measures, the quality of agencies' economic regulatory assessments, and the use of standard-setting authorities to develop principles and standards of guidance for the accounting profession. GAO provided the participants with a discussion paper for background information before the workshop began.

After the workshop was conducted, we used content analysis to systematically analyze a transcript of the workshop discussion and to identify participants' views on key questions, as well as the key themes that developed from the discussion. As agreed by the participants, the purpose of the discussion was to engage in an open, not-for-attribution dialogue. As a result, this report is a synthesis of the key themes from the workshop, not a verbatim presentation of the participants' statements. In addition, it does not necessarily represent the views of any individual participant. We did not verify the participants' statements, and the views expressed do not necessarily represent the views of GAO.

We would like to thank the workshop's participants for taking the time to share their knowledge and providing their insight and perspective in an effort to improve government oversight accountability and performance.

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## Summary of Workshop Discussion

- The quality of economic performance assessments has improved but is still generally not sufficient.

- Economic performance measures are not widely used.
- Performance of regulations or programs is often not assessed retrospectively.
- Mechanisms for revisiting regulations or programs are lacking.
- Homeland security regulations present challenges and typically do not include economic analysis.

- Limited demand for benefit-cost analysis from decision makers.
- Little provision of resources to agencies to assess existing programs.
- Existence of organizational "stovepipes."

Although the workshop participants said that they recognized that the quality of federal agencies' economic assessments of regulations and programs has generally improved over the years, they said that they believed that the assessments' quality is still highly variable. Assessments vary in how they are performed and in the measures they use. The participants also said that many economic assessments conducted to support agency decisions are insufficient to inform decision makers whether proposed regulations and programs are achieving goals cost effectively or generating net benefits for the nation.

Participants identified gaps in the application of economic performance measures. First, economic performance measures are often not widely used for programs in the federal government. Second, while some agencies have done retrospective economic performance assessments, participants said that in general federal agencies often do not assess the performance of regulations or existing programs retrospectively, even though this information could be useful in managing programs. Third, once a program has been enacted, mechanisms often do not exist for determining whether actual performance is similar to predicted effectiveness. Fourth, regulations related to homeland security present additional challenges because of the difficulties associated with quantifying the probability of a terrorist attack and the benefits that might be generated as a result of proposals related to them. In addition, proposed regulations involving these issues generally do not measure their expected economic performance.

Some participants stated that economic performance measures are not widely used because of several barriers. They cited as an example a lack of demand from many decision makers to know the full costs of federal programs. In addition, participants pointed out that agencies often lack resources in terms of both funds and time for assessing the economic performance of programs already in place. Organizational stovepipes or silos that limit communication—between federal agencies and between the agencies and the economics profession—about how to conduct comprehensive and useful economic assessments were identified as another barrier.

The participants generally agreed that several analytical issues should be resolved to improve the consistency and credibility of economic performance measures. For example, they cited insufficient guidance for agencies to appropriately include benefits or costs of federal actions that



- Limited guidance on assessing unquantifiable benefits, equity, and distributional effects.
- Lack of agreement on some key values.
- Lack of guidance on tools that do not monetize outcomes, such as multiobjective analysis.

cannot be quantified or monetized or the effects of actions on different income, racial, or other population groups. In addition, lack of agreement and guidance regarding the most appropriate set of values to use for key economic assumptions, such as the benefit associated with a reduced risk of mortality, hinders the consistent application of economic performance measures across government agencies. Participants also cited lack of guidance for tools such as those used for multiobjective analysis of such things as the benefits of agency outcomes without putting the benefits into monetary terms.

- Expand use of analysis, particularly for retrospective evaluation of existing programs.
- Use economic performance measures to inform federal budgets and the risk and benefits of Homeland Security programs.

There was general agreement that the use of economic performance measures should be expanded, especially for retrospective analysis of existing programs. Besides providing information on the performance of existing programs, retrospective analysis could provide lessons on how to improve prospective analysis of proposed programs. Along these lines, analyzing economic performance could be one way to evaluate agencies' performance through budget processes. Some participants also indicated that economic performance measures could be used to evaluate the risk and uncertainty associated with homeland security programs and regulations.

- Develop a minimum set of principles and abbreviated guidelines.
- Develop guidance for dealing with Homeland Security issues.
- Develop one-page summaries and scorecards of economic performance analysis; use expert review to provide procedures and strategies.
- Standardize some key values.
- Develop an independent and flexible organization to provide guidance and develop standards.

The participants identified opportunities for the federal government and professional and academic institutions to improve economic principles and guidance that could ultimately enhance the use of economic performance measures for evaluating federal regulations and programs. For example, it was suggested that a minimum set of general economic principles and abbreviated guidelines might help agencies overcome barriers in assessing the economic performance of their regulations and programs. In addition, the analytical challenges of quantifying the risk and uncertainties associated with homeland security issues require more extensive guidance in order to deal with the development of regulations. Scorecards that rate the quality of economic assessments and one-page summaries of key results, as well as expert review of the agencies' economic assessments, were cited, by some, as tools for improving quality and credibility. Some participants indicated that standardizing some key values for economic assumptions could help improve quality throughout the government.

The participants identified a number of existing organizations that might more formally develop and improve principles and guidance for economic performance analysis. For example, several participants expressed interest in the accounting profession's use of standard-setting authorities to develop comprehensive principles, standards, and guidance to ensure the

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quality, consistency, and credibility of accounting and financial reporting. Some participants indicated, however, that professional economics institutions are not designed to govern or monitor the application of economics.

The participants identified some other organizational formats that could be used, such as those that the National Academies and National Bureau of Economic Research use. For example, the National Academies convene expert panels, workshops, and roundtables to examine science and technology issues. These formats might help resolve analytical issues and improve principles and guidance. Alternatively, it was generally agreed that creating a new organization, if it were organizationally independent and flexible enough, might help address a variety of significant issues.

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## Participants' Comments

We provided a draft of this report to the workshop participants for their review and comment. Seven of fourteen participants external to GAO chose to provide comments. They generally agreed with the summary of the workshop discussion and stated that it was fair and complete. In addition, they provided clarifying points and technical comments, which we incorporated as appropriate.

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If you would like additional information on the workshop or this document, please call (202) 512-2700. The workshop was planned and this report was prepared under the direction of Scott Farrow, Chief Economist. Other major contributors were Carol Bray, Alice Feldesman, Tim Guinane, Luanne Moy, and Penny Pickett.



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# Workshop Discussion

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## Background

Economists typically use economic assessments to measure the performance of federal regulations and programs. The assessments estimate the net benefits or cost effectiveness of federal actions on a nationwide basis.<sup>1</sup> Economic performance assessment differs from a straightforward financial appraisal in that all gains (benefits) and losses (costs) that accrue to society in general (not just to the government) as a result of the program are to be counted.

Although other professions, such as accounting, rely on standard-setting authorities to develop principles and guidance, economic performance measures are based on principles and guidance that have been developed in the economic literature over more than 75 years. This literature includes academic textbooks and research presented in journal articles as well as federal agency guidance. The agency guidance includes, among other things, Office of Management and Budget (OMB) Circulars A-4 and A-11, Part 7, Section 300, and A-94.<sup>2</sup>

Circular A-4 is designed to assist analysts in the regulatory agencies in estimating the benefits and costs of proposed regulatory actions. Circular A-11, Part 7, Section 300, establishes policy for the planning, budgeting, acquisition, and management of federal capital assets. It provides guidance for budgetary analysis of alternatives for making federal capital investments. Circular A-94 provides additional guidelines and appropriate discount rates for benefit-cost and cost-effectiveness analysis. While OMB's guidance for economic performance is useful both for producing economic assessments and auditing performance, it is distinctly less standardized than accounting guidance provided to accountants and auditors.

In addition, in some instances agencies use a multiobjective method of analysis to assess programs. In this type of analysis, program impacts are

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<sup>1</sup>Cost-effectiveness analysis measures the least costly way of achieving an objective. It is typically used when the outcomes can be quantified but not monetized.

<sup>2</sup>See OMB Circular No. A-4, 68 Fed. Reg. 58366 (Oct. 9, 2003); OMB Circular No. A-11, *Preparation, Submission, and Execution of the Budget* (May 17, 2005); OMB Circular No. A-94, 57 Fed. Reg. 53519 (Nov. 10, 1992). Under the Unfunded Mandates Reform Act of 1995, agencies are required to prepare a qualitative and quantitative assessment of the anticipated costs and benefits before issuing a regulation that may result in annual expenditures by state, local, and tribal governments or by the private sector of \$100 million annually. Under Executive Order 12866 and OMB Circular A-11, certain federal agencies are required to consider the benefits and costs of proposed regulatory actions and capital expenditures.

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not put into monetary terms. Instead, identified impacts are given a weighted ranking that allows decision makers to evaluate federal actions on the basis of their place in the ranked scale. The role of this analysis is somewhat uncertain in the context of economic performance measurement.

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## The State of Economic Performance Evaluation, Including Gaps, Barriers, and Analytical Issues

The workshop participants generally agreed that while economic performance analyses that assess government programs have improved somewhat, their quality is highly variable. In addition, the analyses often miss key information needed to inform decision makers about whether the government actions that are proposed can be expected to be cost effective or generate positive net benefits.

One participant said that a comparison of present economic assessments, using estimates of the program's cost per life saved, with assessments completed in the early 1980s had found a discernible improvement in analysis. Another participant agreed on the signs of increased sophistication in the types of measure used, such as the discount rate or approach to using discounting. In addition, there has been some diffusion of knowledge within the agencies from the economics literature about using a statistical value of life.

Despite these improvements, however, participants said that the quality of analysis is still highly variable—some analyses are quite good, others not. One participant said that there is incredible variability across agencies in how economic performance assessments are performed—whether an agency follows a fairly standard cost-benefit analytic framework or something else.

Another participant pointed out that many economic performance analyses are still not sufficient because they miss key information. For example, one participant said that the majority of economic performance evaluations reviewed did not discuss net benefits or analysis of alternatives to proposed regulatory options. In addition, only a fairly small number of analyses dealt well with the uncertainty associated with estimated benefits and costs; only a few provided both point estimates and a range of total costs or benefits.

These gaps limit the evaluations' usefulness to decision makers. Without more information about the uncertainty associated with the estimates, the assessments may not be sufficient to inform decision makers about

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whether proposed regulations and programs would be likely to achieve their goals cost effectively or generate positive net benefits for the nation.

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## Gaps in the Application of Economic Performance Assessments

Few agencies appear to use measures of economic performance, even though they are consistent with the Government Performance and Results Act. For example, in a survey of federal managers across the government, the percentage who reported having measures related to economic performance for their programs to a "great" or "very great" extent was 12 percentage points lower than any other type of measure GAO asked about. In addition, we found that of approximately 730 performance measures six federal agencies used to assess their programs, none involved net benefits, and only 19 linked some kind of cost to outcome. Of these 19, one agency used 16.

The participants identified some gaps in the application of economic performance analysis: (1) economic performance measures are generally not widely used for programs in the federal government, (2) retrospective analyses of programs are often not being done, (3) mechanisms for revisiting a program or regulation are often lacking, and (4) regulations involving homeland security issues present additional challenges and often do not include an economic assessment of the benefits and costs of proposed regulations and programs.<sup>3</sup>

The participants said that while some agencies have used economic performance measures, in general they were not widely used in the federal government. For example, one participant pointed out that while there has been progress on the quality of economic assessments being produced, there is still the issue of whether assessments are being done at all.

Participants observed that in some cases programs have been assessed retrospectively but that, generally, little retrospective analysis is being done. They believed that retrospective analysis is necessary to inform the Congress and other decision makers of the cost and effectiveness of legislative and regulatory decisions. One participant stated that about 100,000 new federal regulations have been adopted since 1981, when OMB began to keep records of them. About a thousand of these were judged to be economically significant—that is, imposing costs greater than \$100 million per year. However, the participant said, few of the set of regulations has ever been looked at to determine whether they have achieved their objectives, what they actually cost, and what their real benefits are. In fact, the participant added, little is known about the impact of regulations once they are adopted. Another participant pointed out that there is no consistent mechanism for reviewing a regulation once it has been enacted.

Some participants observed that a retrospective analysis might reveal that the costs or benefits of a regulation or program after enactment might vary significantly from those estimated in the prospective analysis. Because the

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<sup>3</sup>The sidebars appearing in the margins of this section (Workshop Discussion) are excerpts from the background paper distributed to the workshop participants. The full context of these excerpts can be seen in appendix II.

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A retrospective review of the Occupational Safety and Health Administration (OSHA) scaffold standards indicated that while still positive, the program's actual benefits were significantly less than the agency estimated when the rules were proposed. The program's annual net benefit was projected at \$204 million before implementation; retrospectively, annual benefit was estimated at \$63 million. Retrospective analysis can be useful to decision makers by providing information on whether a program has the potential to produce additional benefits or whether the benefits produced justify the costs.

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prospective analyses of a regulation's or program's benefits and costs are based on projections of likely future impact, the estimates might vary significantly from actual effects. Variation can occur on either the cost or benefit side of analysis. For example, one participant pointed out that it has been shown that some prospective analyses have overstated costs and understated benefits, while others have done the reverse.

Some participants also mentioned the use of economic performance measures for new areas of federal action, such as homeland security. They indicated that regulations the Department of Homeland Security is developing present additional challenges for analyzing risk and uncertainties associated with terrorist activities. In addition, a number of regulations are being proposed for homeland security without an assessment of whether the proposals' estimated benefits justify their estimated costs. One participant suggested that requiring an economic assessment for proposed homeland security regulations would be useful. Another responded that such a requirement raises the question of how to estimate the probability of future terrorist attacks or how to determine if any particular measure, such as airport screening or an extra border patrol, would reduce the probability of damages from a terrorist attack. Another participant said that the focus should be not only on reducing the consequences of an attack but also on the probability of an attack. Developing a process that reduces the impact of attack—or “public mitigation”—would reduce the expected value of disruption. Participants pointed to the little experience the United States has with quantifying terrorism issues and the time it will take to build a body of knowledge on how to quantify effects.

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## Major Barriers to the Use of Economic Performance Measures

The participants identified several major barriers that impede the use of economic performance measures. For example, they said that there is (1) frequently only limited demand from decision makers for assessments of program costs; (2) a lack of both time and funds for conducting economic assessments and, in some instances, a lack of incentive for agencies to use resources for implementing a program for conducting economic performance assessment, particularly when an agency has already decided to act; and (3) a number of organizational barriers, called stovepipes, that hinder communication within agencies, between agencies, and between economists and decision makers about how to conduct comprehensive and useful assessments.

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One participant said that a main impediment to this kind of analysis is that some decision makers may not be interested in knowing how a favored program is performing. In addition, even though some agency decision makers may require an economic performance assessment of proposed regulations, they might not provide sufficient resources to the staff to conduct a thorough analysis. Another participant suggested that there seems to be little demand from decision makers to know the total economic cost of a federal action. Participants did agree, however, that decision makers should be aware that their actions have certain consequences and costs. For example, the effects of a regulation or program cannot be known if an analysis is not done.

Some participants mentioned the limited resources that agencies have for conducting economic performance analysis and the agencies' apparent reluctance to spend their resources, particularly when a decision to act may have already been made. One participant pointed out that funds are generally not authorized or appropriated for economic assessment. Consequently, in order to do these studies, agencies must use funds that are authorized and appropriated for program purposes. Using funds that would reduce resources for the program itself works as a disincentive for economic assessment. One participant observed that agency departments often seem to believe that analysis is done only after the decision to regulate is made. Under these conditions, analysis may or may not provide input into the final decision-making process. For example, instead of considering all the relevant policy alternatives, some analyses focus on just the preferred alternative. Another participant observed that one difficulty is the revisions an agency makes to a regulation after it has been proposed but before the rule is final. For example, an analysis completed to support a proposed rule may not represent the alternatives and other economic factors that make up the final rule.

Another participant said that despite what appears to be a long lead time between developing a regulation and issuing it, the economic assessment is often done in a very compressed period, limiting the time in which the agency's analysts can conduct the assessment. In addition, one participant said that regulations are often mandated by legislation and the legislation is generally not subject to economic performance assessment.

The participants also identified organizational "silos" as barriers to communication between agencies, within agencies, and between agencies and the economics profession on how to properly conduct assessments. One participant stated that it was surprising that interaction among



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analysts conducting the assessments was not more seamless. Another participant stated that the many silos within government departments limit interaction within the agencies. The participant noted having tried to obtain information from other departments but running into brick walls all the time—walls whose masonry is very firm.

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### Analytical Issues That Affect Consistency and Credibility

The participants generally agreed that the consistency and credibility of economic performance analysis of federal regulations and programs could be improved by resolving several analytical issues. These include, but are not limited to, how to appropriately consider the benefits that cannot be put into monetary terms and the effect of federal actions on different income, racial, or other population groups. The participants said that guidance is insufficient on how to appropriately include these issues in economic performance analyses.

In addition, some participants noted a general lack of agreement about the values to be used for key economic assumptions. One is the value of a statistical life, which is used to estimate the effect of safety, health, or environmental improvements in reducing the risk of mortality. The participants also indicated a lack of guidance on how to use alternative analytical tools, such as multiobjective analysis, which can be used to evaluate program benefits by ranking them with a weighted scale rather than in monetary terms.

Participants expressed concern, however, that leaving nonmonetized benefits or costs out might inappropriately bias estimates of the net benefits of the federal action being analyzed. For example, one participant pointed out that economic assessments typically conducted to support proposed health, safety, and environmental regulations quantify the benefits but do not express them in monetary terms. As a result, the net benefits estimates exclude the benefits that cannot be monetized. Another participant mentioned that the difficulty associated with quantifying and monetizing benefits is one of the underlying challenges related to homeland security. These benefits include such things as the gain from averting terrorist attacks, something that is very difficult to estimate.

In addition, one participant pointed out that a strict economic efficiency analysis—that is, one based on maximizing net benefits—might leave out important policy alternatives on fairness or equity that cannot be put in money terms. Equity issues include how a program might affect people in different income or racial groups. Another participant indicated the need

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Different agencies often use significantly different values for these same measures. For example, the U.S. Army Corps of Engineers tends not to value "statistical lives saved," while, at the time of the reports reviewed, the method of the Centers for Disease Control and Prevention valued statistical lives saved (of a 35-year-old man, for example) at \$0.94 million; the Department of Transportation, at \$2.7 million; and the Environmental Protection Agency, at \$6.1 million. Such differences make it difficult to compare economic performance measures across agencies.

for some rigorous analytical way to look at federal regulations that, by their very nature, cannot possibly be justified on economic grounds. For example, a program that might not provide the largest net benefits might be justified for other reasons, such as that it provides assistance to groups such as the nation's disabled or poor.

One participant said that when economists talk about distribution, they usually mean the distribution of income. In a regulatory setting, distribution often refers to the regulatory costs across other types of groups. For example, one participant indicated that expenditures on health could be reallocated from healthier people to people who are sick.

The participants also generally agreed that the consistency and credibility of economic performance measures could be improved if there was agreement on the most appropriate values to use for key assumptions in an analysis. For example, federal agencies use different estimates of the value of a statistical life to estimate the benefits associated with a reduction in the risk of mortality.

One participant indicated that some agencies use cost-effectiveness measures such as cost per health outcome, or quality-adjusted life-years, instead of net benefits. In any case, variability in the values of key assumptions and measures makes for a lack of consistency and for difficulty in comparing measures across agencies.

Participants also pointed out that agencies are dealing with the difficulty associated with monetizing benefits and assessing equity issues by using multiobjective evaluation measures. Although this type of analysis does not put impacts into monetary terms, it derives an estimate of impacts from a weighted ranking of the objectives of the federal action. One participant explained that in simplistic terms, this is done by identifying the multiple objectives of the proposed federal action and eliciting a weight by which to rank each objective on a scale. The weights come from an assessment of the variation and importance of the action. Another participant pointed to a link between these kinds of methods and economic performance analysis. Nonetheless, while agencies are using this type of analysis more frequently to evaluate federal actions, it is generally not mentioned in federal guidance, such as OMB's.

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## The Extension of Economic Performance Measures for Evaluating Federal Programs

The workshop's participants generally agreed that there were opportunities to expand the use of economic performance measures, especially in retrospective evaluations of existing programs. Along these lines, analyzing economic performance could be one way to evaluate agencies' performance through budget processes. In addition, participants indicated that economic performance measures could be used to assess the risk and uncertainty associated with homeland security programs and regulations.

Several participants said that retrospective evaluations of existing programs or regulations would not only inform decision makers about their performance but could also help to identify ways to improve prospective analyses. For example, comparing the actual benefits and costs achieved by a regulation with the prospective estimates developed for the proposed rule might be useful in identifying errors in the methods and assumptions that the economists used to develop the estimates. One participant said that we could identify the mistakes made in these analyses and transfer that knowledge to the next prospective analysis.

Economic performance measures have several potential uses. For example, EPA has received a report advising that its approach to estimating fines for noncompliance that are based on profits should consider incorporating probabilistic external costs, an economic performance concept. Changing government budgeting practice toward performance budgeting may create opportunities for incorporating economic performance information including OMB's PART reviews. OMB has indicated a preference for using more economic performance measures in the PART process.

Participants also pointed out that net benefits and cost effectiveness are important for assessing budgets as well as regulations. One participant indicated that OMB circulars A-11 and A-94 could be linked together to use economic performance analysis in examining the budgetary process. For example, Circular A-11 specifies that agencies provide at least three viable alternatives to proposed capital investments and that the economic performance criteria used to develop those alternatives be based on guidance from Circular A-94. The participant also said that while Circular A-94 guidance may not be as extensive as the more recent Circular A-4, it includes the same basic principles for assessing benefits and costs. Another participant asked whether we know how much the federal government spends on permanent laws, tax benefits, and entitlements. Economic performance measures could be used to evaluate them.

The participants generally agreed that economic performance measures could be used to evaluate the performance of homeland security programs and regulations. One participant suggested that a substantial fraction of the federal budget involves homeland security issues. However, other participants indicated that federal agencies would have to build on the analytical foundation for assessing whether the benefits of these investments exceed their costs. For example, developing ways to assess the probability of a terrorist attack, and the extent to which a program or regulation might reduce that probability, could help.

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## Improving General Economic Principles and Guidance

The participants generally agreed that opportunities exist for improving the principles and guidance agencies use for conducting benefit-cost analyses and assessing economic performance. For example, it might be useful to have abbreviated guidance on the minimum key principles for conducting an economic analysis. One participant said that when an agency has to do an evaluation and it is confronted with OMB's Circular A-4, it might throw up its hands, saying the resources are not available.

Another participant pointed out that we have to be concerned about "ossification" of the process agencies might have to go through to assess economic performance. For example, too many analytical requirements in too many different guidance documents might lead agencies to move away from doing any analysis. One participant suggested that Circular A-4 could represent the comprehensive end of a continuum of guidance documents, while more abbreviated guidance would facilitate performance analysis when fewer resources are available.

Another participant said that some progress in getting the agencies to do more analysis could be made if the guidance at least stipulated a minimally accepted set of principles that they could use. Minimum standards could include such things as whether an analysis used a discount rate.

The participants also generally agreed that the uncertainty and risk associated with investments in homeland security present additional challenges. Additional techniques are needed to help evaluate the uncertainty of terrorist activities, for example. One participant said that we need a serious effort to build an analytical capability to look hard at proposals that come under the homeland security banner, such as a framework for looking at proposals on the risk of terrorist activities.

One participant said that in time, if guidance such as Circular A-4 remains in place, agencies will develop technical expertise and will begin to conduct fuller and more complete economic analyses of homeland security issues. Another participant indicated that evaluating federal actions related to homeland security, particularly budgetary processes, requires clearly defining the objectives of an action. For example, the participants thought that it is probably not realistic to expect security in the United States to be restored to some level that existed before September 2001. It might be more realistic to engage in a mix of public and private sector activities designed to minimize the consequences of another attack. This may require developing additional principles and guidance.

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## One-Page Summaries

Economic performance measures are sometimes reported in a format similar to a statement of income. Published literature and government guidance are not clear about the format for such statements, and we did not find consistent reporting formats in the economics textbooks we reviewed.

OMB has asked agencies to report on a standard form in their annual regulatory accounting reports, but this form is not required for any other use.

Requiring that economic performance assessments include a one-page summary of the key results of the analysis could help improve consistency. The summary would present the analysis results concisely and understandably. The summary might include a statement of the program's objectives, a description of the baseline, and some discussion of at least the quantities, if not the actual monetization, of the direct inputs and outputs for the program activity. One participant expressed the strong feeling that a standard summary in front of an economic performance analysis that presents the results by providing the point estimates as well as the range of the estimated benefits and costs, to account for the uncertainty of the estimates, would be extremely useful. A good summary would allow reviewers to compare the results from different analyses.

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## Scorecards

Auditors use generally accepted auditing standards in rendering their professional opinion; this opinion can be thought of as a scorecard summary of a financial statement's consistency with generally accepted accounting principles. No federal guidance is available to link principles and guidelines to a formal quality evaluation of economic performance assessments of federal programs: There is no generally accepted scorecard.

Some participants stated that better consistency and coverage of economic performance measures could be achieved with tools like scorecards for rating the overall quality of assessments. For example, scorecards could be used, like checklists, to evaluate assessments for the extent to which they address a minimum set of economic criteria. The criteria might include whether the analysis estimated costs and benefits, used a discount rate to estimate present values, and considered a reasonable set of alternatives. One participant said that there should be a set of criteria for economic performance measures in the public domain that would allow us to monitor performance.

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## Expert Review

The participants also suggested that external experts could review economic performance analyses and suggest procedures and strategies on how to develop and use such measures as the value of statistical life. For example, one participant recommended peer review of the procedures agencies use to conduct the analyses and particular decisions about assumptions and measures in the analysis. The strategies developed through this review by experts could be either general or very specific.

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## Standardizing Key Values

Economics textbook authors and academics we consulted pointed out that the quality of economic performance analysis could be improved by better standardization of, among other things, value of days lost from work and values for cases of various diseases and mortality.

Several participants indicated that standardizing some values for key assumptions would improve the quality and consistency of federal agencies' economic performance assessments. The use of common values for such things as the value of a statistical life would make it possible to compare the results of analyses across agencies. One participant said that instead of recommending that agencies develop their own best practices for assessments, they should be encouraged to collaborate on methods and key assumptions.

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## New Organizations and Processes

General principles and guidelines that economists use in assessing economic performance are based on textbook presentations, research in journal articles, and federal agency guidance but are not identified or created by standard-setting authorities. In contrast, accountants and auditors have several standard-setting authorities, as well as academic literature and agency guidance, to improve quality, consistency, and comparability.

Generally accepted accounting principles provide layers of guidance to those who produce financial statements and to auditors. At the top of a hierarchy are pronouncements by professional standards groups, the Financial Accounting Standards Board for the private sector and nonprofit organizations, Governmental Accounting Standards Board for state and local governments, Federal Accounting Standards Advisory Board for the federal government. Below these in acceptance are textbooks, published articles, and guidance from agencies.

The participants identified a number of organizations that could serve as examples in developing and improving economic principles for measuring the economic performance of federal programs.

In response to a presentation by GAO's Chief Accountant, participants discussed accounting and auditing standards and how those standards are established. The Chief Accountant defined the difference between accounting and auditing standards. In general, boards of professionals and highly qualified subject matter experts develop the standards. Through deliberation, public exposure and comments, and other processes, the boards develop a hierarchy of standards broadly applicable to accounting and auditing. In both accounting and auditing, consistency and quality are important aspects of financial reporting.

While several of the workshop participants expressed interest in the accounting model for setting standards, they also expressed concern about adopting such a model for economic performance evaluation. One participant pointed out that the types of issues assessed in the federal government are more diverse than in accounting. Although there is certainly virtue in standardization, it is not clear what would constitute a set of standards for all benefit-cost analyses. Other participants, however, acknowledged that economics institutions such as the American Economic Association are not designed to govern or monitor the application of economics.

The participants identified other types of standard-setting organizations that could be turned to for improving economics principles and guidance. For example, the National Academies convene expert consensus committees, workshops, and roundtables. Because of the National

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Academies' strict conflict of interest standards, their expert consensus panels include academicians but not members from sponsors. Workshops are often day gatherings that bring together experts who present and review papers. A roundtable is an ongoing series of meetings that bring together representatives from industry, government, and academia to discuss recent research.

Other types of organizations the participants mentioned included Brookings Institution type panels and working groups convened by the National Bureau of Economic Research. The panels and working groups typically consist of distinguished economists given a mandate to assess government programs. Research conferences were also suggested as a way to convene experts to discuss benefit-cost analysis issues and then produce a book of conference papers. The participants also mentioned, in general terms, the possibility of creating a new organization, such as a government management or performance advisory board, to assess government performance. One participant mentioned that funding a new organization could prove to be a major issue. Some participants agreed that if such an institution were established, it should be organizationally independent and flexible enough to address a variety of issues and settings.

# Economic Performance Workshop

## Participants: December 17, 2004

Name	Title	Organization
<b>External to GAO</b>		
Neil R. Eisner	Assistant General Counsel, Office of Regulation and Enforcement	U.S. Department of Transportation
John Graham	Administrator	Office of Management and Budget, Office of Information and Regulatory Affairs
Robert Hahn	Executive Director	AEI-Brookings Joint Center for Regulatory Studies
Robert Haveman	Professor Emeritus	University of Wisconsin, La Follette School of Public Affairs
Arlene Holen	Associate Director for Research and Reports	Congressional Budget Office
Sally Katzen	Professor	University of Michigan, Law School
Thomas McGarity	Professor	University of Texas, School of Law
Albert M. McGartland	Director, National Center for Environmental Economics	U.S. Environmental Protection Agency
Wilhelmine Miller	Senior Program Officer	Institute of Medicine
John F. Morall III	Branch Chief, Health, Transportation and General Government Branch	Office of Management and Budget, Office of Information and Regulatory Affairs
Daniel H. Newlon	Economics Program Director	National Science Foundation
Greg Parnell	Professor, and President, Decision Analysis Society	U.S. Military Academy, West Point
V. Kerry Smith	University Distinguished Professor	North Carolina State University
Richard Zerbe	Professor	University of Washington
<b>GAO staff</b>		
Robert F. Dacey	Chief Accountant	U.S. Government Accountability Office
Scott Farrow	Chief Economist	U.S. Government Accountability Office

Source: GAO.



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# Economic Performance Assessment: Uses, Principles, and Opportunities

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## Introduction

The impact of federal programs and tax preferences on the U.S. economy, including their costs and benefits, is substantial.<sup>1</sup> The cost to implement all federal programs was about \$2.2 trillion in 2003, or roughly 20 percent of the U.S. gross domestic product. Similarly, federal tax preferences were estimated to be approximately \$700 billion in 2003. The overall economic benefits of these programs have not been estimated, but they are believed to be substantial.

Because federal agencies generally do not monitor the economic performance of their programs, the extent to which each program generates positive net benefits (benefits minus costs) or whether it achieves its goals cost effectively (for the lowest possible cost) is uncertain. We have reported that federal agencies are generally required to assess the potential economic performance of proposed major regulatory actions and some investments but that their assessments are often inconsistent with general economic principles and guidelines.<sup>2</sup> Without assessments that include elements of quality such as consistency and comparability, federal decision makers may be missing information that would aid in oversight and accountability.

Economic performance measures such as net benefits and cost effectiveness are based, to the extent feasible, on quantifying and valuing all material impacts on a nation's citizens. Such measures create a structure in which to report costs and benefits, evaluate cost savings, and, with a number of assumptions, evaluate whether the nation's well-being is improved. The appeal of the measures is demonstrated by the requirement in several statutes and executive orders that economic performance be assessed and factored into federal agency decision making.<sup>3</sup> Nonetheless, critics of economic performance measures question their usefulness because of imprecision in valuation and difficulties in determining the

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<sup>1</sup>Scott Farrow, Tim Guinane, Carol Bray, Phillip Calder, Elizabeth Curda, Andrea Levine, Robert Martin, and Don Neff prepared this paper for discussion at the December 17, 2004, GAO Workshop on Economic Performance Measures, with assistance from Pat Dalton, Joe Kile, Nancy Kingsbury, Paul Posner, and Jeff Steinhoff. We are grateful to Jay Fountain, Edward Gramlich, Aidan Vining, and Richard Zerbe for their help in reviewing the paper. It has been edited for this report.

<sup>2</sup>GAO/RCED-98-142.

<sup>3</sup>See, for example, Unfunded Mandates Reform Act of 1995, 2 U.S.C. §§1501-56, and Executive Order 12866.

effect of federal programs on the nation's well-being. We assume in this study that economic performance measures are used in conjunction with other measures to evaluate federal programs and policies.

The objectives of our work were to assess the potential for improving the quality and expanding the application of economic measures. Specifically, we reviewed the extent to which

1. federal agencies are required or have chosen to measure the economic performance of their programs,
2. general economic principles and guidelines are available for creating and evaluating economic performance assessments of federal programs, and
3. the federal government can improve its oversight and accountability of the economic performance of federal programs as part of its overall performance objectives.

To meet these objectives, we formed a GAO team with expertise in assessing the economic, accounting, budgetary, and performance effects of federal programs. We also solicited input from several external experts from the economics and accounting professions.

For objective 1, we identified commonly known applications of economics measures and reviewed six federal agencies' performance reports on the status of their programs under the Government Performance and Results Act of 1993 (Results Act) as of 2002.<sup>4</sup> We chose the agencies judgmentally, as agencies with programs for which economic performance assessments were more rather than less likely to be conducted. In addition, we reviewed GAO reports on the extent to which agencies have used economic assessments of the potential impact of major regulatory actions and infrastructure investments.

For objective 2, we reviewed OMB guidance on conducting economic assessments, and we reviewed elements of accounting standards and economic principles and guidelines for conducting economic assessments.

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<sup>4</sup>The six agencies were the Department of Agriculture (USDA), Department of Education (Education), Department of Energy (DOE), Department of Labor (DOL), Department of Transportation (DOT), and Environmental Protection Agency (EPA).

For objective 3, we used GAO economic evaluations of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the USDA Cotton Program to demonstrate two of many ways in which consistency could be improved.<sup>5</sup> We also reviewed and supplemented the Department of Labor’s (DOL) Occupational Safety and Health Administration (OSHA) economic analysis of construction industry safety standards for scaffolds. To do this, we used information from the *Federal Register* notice and other published sources. The assessments generally reflect the programs and conditions as they were at the time of original publication. We chose the OSHA analysis, USDA Cotton Program, and WIC because economic assessments were readily available, the programs were relevant but not highly controversial, and they illustrated several measures of net benefit.

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## Summary

Even though federal agencies are required to assess the prospective economic performance of proposed major regulatory actions, and some other activities, agencies are not required, and generally do not choose, to evaluate programs retrospectively. And when agencies are encouraged to use economic performance measures retrospectively, such as under the Results Act, they use few such measures. In a recent survey, for example, GAO found fewer federal managers reporting having measures that linked program costs to program results to a “great” or “very great” extent, compared to all other types of Results Act measures.<sup>6</sup> In addition, at the time of the analysis, GAO found that of approximately 730 performance measures six federal agencies used to assess their programs, none involved net benefits, and only about 19 linked some measure of cost to outcome. DOE used 16 of these 19.

General principles and guidelines are available for assessing the economic performance of federal programs, but certain aspects of them may be too general to ensure that the assessments address some elements of quality, such as consistency and comparability. In addition, while economists generally accept the principles and guidelines, some agencies and

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<sup>5</sup>GAO, *Cotton Program: Costly and Complex Government Program Needs to Be Reassessed*, GAO/RCED-95-107 (Washington, D.C.: June 20, 1995), and *Early Intervention: Federal Investments Like WIC Can Produce Savings*, GAO/HRD-92-18 (Washington, D.C.: Apr. 7, 1992).

<sup>6</sup>GAO-04-38.

noneconomists are less accepting. For example, in conducting economic assessments, some agencies do not account for benefits like the value of reduced risk of mortality, because they disagree that these benefits can be appropriately valued. However, assessments that do not account for these benefits are inconsistent with general economic principles and guidelines. Moreover, when agencies do account for these benefits, different agencies often use significantly different values, generating results that are not comparable.

In general, economic principles and guidelines are based on the economics literature and federal guidance. In our opinion, these principles and guidelines are too general in certain areas, because no standard-setting authority in the economics profession identifies or creates more specific practices for assessing economic performance. The accounting profession, in contrast, has standard-setting authorities that identify or create generally accepted accounting principles for financial reporting and generally accepted auditing standards for auditing financial statements. This guidance helps ensure the quality of financial reporting by, among other things, improving consistency and comparability.

The federal government could improve its oversight and accountability of federal programs, regulations, and taxes by expanding its use of economic performance measures and improving the quality of its economic performance assessments, both prospective and retrospective. Specifically, oversight, accountability, and quality could be improved by

1. expanding the use of economic performance measures, especially for retrospective analysis of existing programs, and
2. using a consistent reporting format and developing a scorecard, based on existing economic principles and guidelines and best practices, for evaluating the quality of economic assessments.

In illustrating the use of economic performance measures for new applications, our retrospective review of OSHA's construction industry safety standards for scaffolds demonstrated that the program's benefits have been significantly less than the agency estimated when the standards were proposed, so that additional improvements may be possible. Our use of a consistent reporting format for the existing GAO economic assessments of the USDA Cotton Program and WIC demonstrated how such a format supports comparability in presentation, as does a scorecard in the evaluation of the quality of an assessment.

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## Background

The economic performance of government programs is typically assessed by economists using estimates of the nationwide net benefit or cost effectiveness of the programs.<sup>7</sup> Economics literature of more than 75 years supports these methods. Economic performance assessment differs from a straightforward financial appraisal in that all gains (benefits) and losses (costs) that accrue to society in general (not just to government) as a result of a program are to be counted. In general, if the discounted value of the benefits exceeds the costs, the net benefits are positive. If these positive net benefits exceed the net benefits of alternatives, the program is economically worthwhile, although decision makers may consider other performance criteria as well, such as geographic or socioeconomic impact. Cost effectiveness, or the cost to achieve a particular objective expressed in nonmonetary terms (for example, reductions in tons of pollutants), is a special case of net-benefits analysis, in which the benefits of a program are quantified but not valued in dollar terms.

While some programs may result in benefits that are greater or less than costs, other programs may have benefits that are just equal to costs because of an equal transfer from one party to another. These benefits merely redistribute income or transfer resources between social groups but do not affect production or productivity. Such programs are called transfer programs and are not counted as having net benefits. Transfer programs typically include Social Security, interest on federal debt held by the public, and some types of welfare programs. In some cases, however, it can be difficult to determine whether a program has an impact on an economic performance measure or just transfers resources between social groups.

By including monetary based measures (monetization), economic performance assessment allows the aggregation of program impacts. Costs are usually measured in terms of a program's actual money costs. In general, benefits are more difficult to measure, because many benefits may have no observable market providing prices. In these cases, it is necessary to construct representational, or "surrogate," markets—that is, models—in ways that are generally accepted by economists, in order to estimate the monetary value of the benefit.

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<sup>7</sup>Cost-effectiveness analysis is closely related to net-benefit analysis, but the two types of analyses ask different questions. Cost effectiveness asks, what is the least costly way of achieving a particular objective? Cost-effectiveness analysis is used when there are difficulties in assigning monetary values to the outcomes of projects but the outcomes can be quantified along one nonmonetary dimension.

Modeling can present substantial problems and areas of ambiguity that can lead to imprecise measurement and fundamental disagreements among economists and noneconomists. One such ambiguity is in determining a monetary amount to estimate the value of a reduction in the risk of mortality. This value generally represents a statistical assessment of the amount of money individuals would be willing to pay to reduce the risk of one death in a population. Other instances are benefits that cannot be expressed in monetary terms and noneconomic factors that are part of a program's performance. For example, a welfare program may represent a transfer in economic terms but decision makers may consider the resulting income redistribution worthwhile. In this case, economic assessments expressing benefits in money terms would best be used in conjunction with other performance measures.

Agencies assess the economic performance of federal programs in several circumstances. Although with many exceptions, the Unfunded Mandates Reform Act of 1995 requires agencies to prepare a qualitative and quantitative assessment of anticipated costs and benefits before issuing a regulation that may result in annual expenditures by state, local, and tribal governments of \$100 million annually, in the aggregate or by the private sector. In addition, under Executive Order 12866 and Circular A-11, Part 7, Section 300, certain federal agencies are required to consider the benefits and costs of proposed regulatory actions and infrastructure investments before selecting a regulatory alternative or a capital investment.<sup>8</sup> In this context, OMB and some other federal agencies have developed guidance that functions as general economic principles and best practices for assessing economic performance.

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<sup>8</sup>Under Executive Order 12866, agencies are required to assess the benefits and costs of proposed regulations that are expected to have an annual effect on the economy of \$100 million or more.

In addition, under the Results Act, federal agencies are required to establish performance goals and to choose measures to determine whether their programs are meeting these goals. In response to congressional requests, GAO has sometimes used economic principles and best practices to assess the economic performance of government programs. Examples include reports on the progress of the USDA Cotton Program and WIC.<sup>9</sup>

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## Agency Economic Assessments

Although federal agencies are generally required to assess the potential economic performance of proposed major regulatory actions, they generally do not monitor how these and other federal programs have actually performed.<sup>10</sup> In addition, although measures of economic performance are consistent with the Results Act, few agencies appear to use them. For example, in our survey of federal managers at grades GS-13 and above, the percentage of managers who reported having measures related to economic performance for their programs to a “great” or “very great” extent was 12 percentage points lower than any other type of Results Act measure we asked about.<sup>11</sup> In addition, in our staff study, we found that of approximately 730 performance measures six federal agencies used to assess their programs, none involved net benefits and only 19 linked some kind of cost to outcome; one agency used 16 of these 19.<sup>12</sup> Examples of a partial measure that linked cost to outcome are average cost per case receiving medical services and the administrative cost per grant application.

Table 1 gives a preliminary summary of examples for which prospective economic assessments are required. The broad-based uses are for regulatory and investment purposes.

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<sup>9</sup>GAO/RCED-95-107 and GAO/HRD-92-18.

<sup>10</sup>One example of retrospective analysis from GAO’s work is *Environmental Protection: Assessing Impacts of EPA’s Regulations through Retrospective Studies*, GAO/RCED-99-250 (Washington, D.C.: Sept. 14, 1999).

<sup>11</sup>GAO-04-38. Only 31 percent of the federal managers we surveyed reported having performance measures that linked product or service costs with the results achieved to a “great” or “very great” extent.

<sup>12</sup>These numbers depend on how the agencies enumerated their measures in 2002, the year of our review, and involved evaluating the text in the Results Act reports. The evaluation required a degree of professional judgment to determine the total number of indicators and measures linking cost to program outcome. Nonetheless, the general result did not depend on the specific result of the number used.

**Appendix II  
Economic Performance Assessment: Uses,  
Principles, and Opportunities**

**Table 1: The Use of Economic Performance Measures for Prospective Assessment of Federal Programs**

<b>Economic performance measure</b>	<b>Authority or guidance</b>	<b>Reporting form</b>	<b>Required?</b>	<b>Timing</b>	<b>Note</b>
Budget planning: investment (general)	OMB Circular A-11; OMB Circular A-94; congressional mandates	Benefit-cost statement; guidance; not much detail on form	Yes	Before implementation	
Regulatory evaluation	Executive order and regulatory accounting statement	Varies widely; guidance is for a benefit-cost analysis	Yes, for major regulations	Before implementation	
Agency-specific statutes	Specific statutes	Usually specifies a benefit-cost analysis	Yes, if exists	Some before and some after implementation	U.S. Army Corps of Engineers offshore oil and gas leasing and pipeline safety, and some EPA programs

Source: GAO analysis.

In addition, as table 2 shows, retrospective economic assessments—after program implementation—are generally not required.

**Table 2: The Use of Economic Performance Measures for Retrospective Assessment of Federal Programs**

<b>Economic performance measure</b>	<b>Authority or guidance</b>	<b>Reporting form</b>	<b>Required?</b>	<b>Timing</b>
Government Performance and Results Act	Cost effectiveness named in committee report; net benefits not so named	Varies but generally cost per unit outcome	No	After implementation
Program Assessment Rating Tool (PART) review	OMB's suggestion to agencies to include such measures	Cost effectiveness and net benefit	No	After implementation
Program evaluation	Used on an ad hoc basis	Varies; cost effectiveness or net benefit	No	After implementation
Economic analysis; for example, GAO self-initiated or congressional request	GAO statutory authority; congressional request	Varies	No	After implementation

Source: GAO analysis.

Under the Results Act, federal agencies are required to establish performance goals for the results of their programs and to track progress. These assessments are retrospective—occurring after a program's implementation. In these studies, cost-effectiveness (cost efficiency)



measures are encouraged, along with quantity impacts and other measures. Net-benefit measures are not specifically cited but are consistent with the act in that such measures provide objective information on the relative effectiveness of federal programs and spending.<sup>13</sup> Although economic performance measures are encouraged, they are often not used, as we discussed above.

As table 2 shows, agencies may conduct economic assessments in instances other than to follow the Results Act. These include Program Assessment Rating Tool (PART) reviews and ad hoc assessments to monitor program progress. OMB has indicated a preference for using more economic performance measures in the PART process. In addition, GAO conducted several retrospective reviews in response to congressional requests to monitor the progress of the USDA Cotton Program and WIC.

Other potential uses for economic performance measures exist. EPA has received a report advising that its approach to estimating fines for noncompliance that are based on profits should also consider incorporating probabilistic external costs—an economic performance concept. Changes in government budgeting practice toward performance budgeting may also create opportunities for incorporating economic performance information in budget material.

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## **Economic Principles and Guidelines**

Certain aspects of the general economic principles and guidelines available for assessing economic performance may be too general to ensure some aspects of their quality, such as their consistency and comparability. For example, in conducting economic assessments not associated with the Results Act, some agencies do not account for benefits like the value of reduced risk of mortality, because they disagree with economists that these benefits can be appropriately valued or expressed in a cost-effectiveness measure.<sup>14</sup> Nonetheless, assessments that do not account for these benefits are inconsistent with general economic principles and guidelines. And when different agencies do account for these benefits, they often use significantly different values, generating results that are not comparable.

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<sup>13</sup>See S. Rep. No. 103-58, at 29-30 (1993).

<sup>14</sup>Typically, economists use an estimate of the value of a statistical life to estimate the value of reduced risk of mortality. This is the amount people are willing to pay to avoid the risk of one more death in a population.

The accounting profession has authorities that identify or create generally accepted accounting principles for financial reporting and generally accepted auditing standards for auditing financial statements. This guidance helps ensure the quality of financial reporting by, among other things, improving consistency and comparability. No standard-setting authority in the economics profession identifies or creates credible practices for agencies when they need to work through specific difficulties in assessing economic performance.

General principles and guidelines economists use for assessing economic performance are based on textbook presentations, research reported in journal articles, and federal agency guidance. In contrast, accountants and auditors have several standard-setting authorities to identify or create standards and principles, in addition to academic literature and agency guidance that provide specific guidance to improve consistency and comparability. Generally accepted accounting principles provide layers of guidance to those who produce financial statements.

Pronouncements by professional standards groups, such as the Financial Accounting Standards Board (FASB) for the private sector and nonprofit groups, Governmental Accounting Standards Board (GASB) for state and local governments, and Federal Accounting Standards Advisory Board (FASAB) for the federal government, are at the top of the hierarchy. (The hierarchy is described briefly in enclosure I.) Below these in acceptability are materials such as textbooks, published articles, and guidance from agencies. Guidance for economic performance measurement and reporting is at a comparably low level in terms of acceptable standards.

While OMB guidance is useful in producing economic assessments and auditing performance evaluations, it is distinctly less standardized than guidance for accountants and auditors. Existing general guidance on conducting a program's economic assessment appears to leave many practical gaps for federal applications that reduce consistency and comparability. Issues for which guidance is general may include, but may not be limited to, the value of days lost from work, values for various diseases and mortality, efficiency losses from taxation, the incorporation of multiple sources of estimates, changes in risk, benefits from improvements in information, and estimates of the efficiency effects of incentives implicit in transfers.

Guidance is general in that it recommends assigning monetary values to benefits but it does not specify which value to use. For example, for

programs that might reduce the risk of fatalities, OMB's guidance encourages agencies to include the value of the risk reduction (based on the value of a "statistical" life) as a benefit of a federal program. But OMB does not require this assessment or provide guidance on the generally accepted value of a statistical life to use in estimating the benefit. As a result, agencies' economic assessments often do not include these benefits or, when they do, estimates of the benefit are based on different values. For example, the U.S. Army Corps of Engineers tends not to value statistical lives saved, while the Centers for Disease Control and Prevention (CDC) values statistical lives saved (based on the life of a 35-year-old man, for example) at \$0.94 million, DOT at \$2.7 million, and EPA at \$6.1 million.<sup>15</sup> Such differences create difficulty in comparing economic performance measures across agencies.

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## Improving Measures' Use and Improving Their Quality

The federal government could strengthen program oversight and accountability by expanding the retrospective analysis of existing programs and by adopting a consistent reporting format, and a scorecard, for evaluating their quality.

A retrospective review of program performance could provide benefits through the expanded application of economic performance measures. For example, our review of OSHA's construction industry safety standards for scaffolds demonstrated that retrospective analysis can be informative. The actual benefits of the program are now estimated to be significantly less than the agency estimated when the standards were proposed.

Our use of a trial reporting format for our economic assessments of the USDA Cotton Program and WIC demonstrated how a consistent format enhances the synthesis of information, for both individual assessments and several assessments compared across applications, as does using a scorecard to evaluate an assessment's quality. (Enclosure II describes the programs; details of the scorecard are in enclosure III.)

Before OSHA's program was implemented, the annual net benefit was projected at \$204 million, taking into account costs to the private sector and government and benefits resulting from reduced injury and death in the private sector. Retrospectively, the annual benefit was estimated at \$63

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<sup>15</sup>These are late 1990 values, which would have generally increased with inflation by 2005.

**Appendix II**  
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million (see table 3 and enc. IV).<sup>16</sup> This kind of finding could assist congressional oversight by better informing federal decision makers about whether a program has the potential to produce additional benefits or whether the benefits produced justify the costs.

**Table 3: Summary of Three Programs' Net Benefits**

Dollars in millions

Economic performance measure	Prospective	Retrospective	Retrospective	
	OSHA scaffold rule	OSHA scaffold rule	USDA Cotton Program	WIC
Benefit: Total annual in money terms	\$217	\$76	\$770	\$1,036
Cost: Total annual in money terms	13	13	1,509	296
Net benefits: Total annual in money terms	204	63	-739	740
Nonmoney or noneconomic benefits <sup>a</sup>	Not identified	Not identified	Ensuring producer income	Lower anemia rates <sup>b</sup>

Source: GAO analysis.

<sup>a</sup>Includes, for example, benefits that accrue from encouraging small businesses, helping minorities, or redistributing income to society's less fortunate persons.

<sup>b</sup>Nonmonetized benefits also include better maternal health, improved nutritional status, and improved health of children born subsequently.

Quality, including aspects of consistency and comparability, can also be improved by using a consistent format for reporting the results of economic assessments. As various economics textbook authors and academics we consulted pointed out, quality could be improved by better standardization of such things as value of days lost from work, values for cases of various diseases and mortality, efficiency losses from taxation, incorporating multiple sources of estimates, changes in risk, benefits of improvements in information, and estimating the efficiency effects of incentives implicit in transfers.

Accounting has a set of standard financial statements, including balance sheets and statements of income. Economic performance measures are sometimes reported in a format similar to that of a statement of income, although the time covered may be long and value may be reported as

<sup>16</sup>We did not retrospectively investigate assumptions of the prospective assessment, other than the evidence on the changes in fatalities.

present value. Such statements can also summarize outcomes that cannot be put in monetary terms, such as distributional and qualitative outcomes and uncertainty or sensitivity results. Published literature and government guidance are not clear about the format for such statements. We did not find consistent reporting formats in the economics textbooks we reviewed. OMB has asked agencies to report their annual regulatory accounting reports on a standard form, but the form is not required for any other use.<sup>17</sup>

A consistent format for reporting the results of an economic assessment would make it easier to (1) integrate major program impacts, (2) understand the bottom line of the economic performance analysis, and (3) compare results between assessments. For example, in our review of the three economic assessments shown in table 3, we found that the results of each one were distributed throughout their reports. This is not unusual for such assessments. The lack of a common form comparable to a financial statement also hindered the synthesis of information. The results of the case studies are presented in table 3 in a consistent, but highly abbreviated, format. The more detailed example we provide in enclosure II would assist in identifying major impacts that cannot be valued and would account for uncertainty.

The type of consistency shown in table 3 (and in enclosure II) would enable a noneconomist to note key components of the benefits and their magnitude and whether they were positive or negative. Trained readers might be sensitive to complexities or assumptions of the analysis without further explanation. For example, in addition to clearly showing the benefits retrospectively attributable to the programs, the summary in table 3 can facilitate synthesis of information.<sup>18</sup> Two of the programs have positive benefits, one negative. These results are somewhat unexpected. For example, as a type of welfare program, WIC might be considered a transfer program with zero net benefits, since income is merely transferred from one social group to another.

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<sup>17</sup>OMB, Office of Information and Regulatory Affairs, *Informing Regulatory Decisions: 2003 Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities* (Washington, D.C.: Sept. 2003).

<sup>18</sup>In a direct comparison of the net benefits, it is assumed that the methodologies used to measure those benefits have been standardized, making such comparisons feasible. All the studies, for example, would have had to include the same value of a statistical life, if applicable.

In fact, the economic assessment of the program illustrates that WIC is estimated to have an impact through increasing birth weights, as well as reducing neonatal mortality and the incidence of iron deficiencies. All these factors are linked to behavioral and development problems in children, which, if avoided, could reduce medical, education, and other costs. In addition, OMB has classified many farm programs, such as the USDA Cotton Program, as transfer programs with no economic effect. This assessment, however, shows that the program has significant effects on the economy that are negative. This demonstrates the type of confusion that often surrounds transfers. A common format for reporting would better inform decision makers about programs' economic performance.

Developing a scorecard, based on existing principles and guidelines, for evaluating the quality of economic assessments would also improve comparability. For example, auditors use generally accepted auditing standards in rendering their professional opinion. This opinion can be thought of as a scorecard summary of the consistency of financial statements with generally accepted accounting principles. The opinion may be

1. "unqualified," indicating that the audited financial statements are in conformity with generally accepted accounting principles;
2. "qualified," indicating that except for the effects of the matter to which the qualification relates, the financial statements are in conformity with generally accepted accounting principles;
3. "adverse," indicating that the financial statements are not in conformity with generally accepted accounting principles; or
4. "disclaimer of opinion," indicating that the auditor is unable to form an opinion as to the financial statements' conformity with generally accepted accounting principles.

In economics, no professional or federal guidance is available to link principles and guidelines to a formal, quality evaluation of economic performance assessments of federal programs. Therefore, there is no generally accepted scorecard for evaluating them.

A scorecard would clearly and concisely illustrate the extent to which an assessment complies with general principles and guidelines for assessing economic performance. For example, it could show whether a discount

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**Appendix II**  
**Economic Performance Assessment: Uses,**  
**Principles, and Opportunities**

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rate was used in an assessment and whether it was used correctly. Table 4 gives examples of general principles and illustrations of economic opinions from a scorecard applied to the OSHA, USDA Cotton Program, and WIC studies.<sup>19</sup>

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<sup>19</sup>Since GAO developed the criteria and the initial reports on the Cotton and WIC programs, this evaluation was not independent. In addition, the standards for rendering an economics opinion have not been formally developed. Nonetheless, for illustration and discussion purposes only, we rendered an opinion of “unqualified” since the limitations (“N” and “P” in table 4) did not appear to be significant.

**Appendix II  
Economic Performance Assessment: Uses,  
Principles, and Opportunities**

**Table 4: Evaluating Economic Performance Assessments with a Scorecard**

General principle <sup>a</sup>	Primary principle	How assessment meets principle <sup>b</sup>		
		OSHA scaffold rule	USDA Cotton program	WIC
Accounting entity	The responsible unit—the source initiating the impact (i.e., the federal program)	A	A	A
	Measures nationwide impact	A	A	A
	Accounts for net impact and not transfers	A	A	A
Discount rate	Discount rate is based on OMB guidance or another rate developed by appropriate techniques	N	NA	A
Consistent format	Presentation summarizes the key results, using a consistent format	N	N	N
Transparent	Presentation explicitly identifies and evaluates data, models, inferences, and assumptions	N	A	A
	Presentation and documentation are sufficient to permit readers to replicate and quantify the effects of key assumptions	NA	A	NA
Comprehensive monetization		P	A	P
Economic performance	Net benefits or cost effectiveness reported	A	A	A
Internal quality control		NA	A	A
External quality control	Peer review was done	NA	A	A
Opinion of economic analysis		<sup>c</sup>	Unqualified	Unqualified

Source: GAO analysis.

<sup>a</sup>Based on OMB guidelines and GAO analysis.

<sup>b</sup>A = fully meets requirement; P = partially meets requirement; N = meets not at all; NA = not applicable.

<sup>c</sup>No opinion, since the OSHA example was not a complete economic assessment.

Enclosure III details the complete scorecard that we developed from OMB guidance, supplementing it from comparisons with accounting standards. As can be seen in the partial scorecard in table 4, we evaluated the three assessments relative to the augmented OMB guidelines. By summarizing what the assessments did and how they ranked in quality, this type of scorecard could inform federal decision makers about the quality of economic performance measures. The USDA Cotton Program and WIC assessments in table 4 were rated with an economic “unqualified” opinion, because the principles were generally followed; the OSHA scaffold rule was not rated, because the assessment was incomplete.



# The Hierarchy of Generally Accepted Accounting Principles

Generally accepted accounting principles are presented as a hierarchy for accountants to determine appropriate accounting principles for transactions and auditors forming opinions on financial statements. For nongovernment and federal government entities, principles in category “a” are ranked highest. Those in category “e”—guidance from regulatory agencies and sources such as textbooks, handbooks, and articles—have the lowest rank. Sources from category “e”—in the absence of literature comparable to “a” to “d”—provide guidance for economic assessments.

**Table 5: The Hierarchy of Generally Accepted Accounting Principles**

Category	Principles of accounting for	
	Nongovernment	Federal government
a	<ul style="list-style-type: none"> <li>Financial Accounting Standards Board (FASB) Statements and Interpretations;</li> <li>Accounting Principles Board (APB) Opinions; and</li> <li>American Institute of Certified Public Accountants (AICPA), Accounting Research Bulletins.</li> </ul>	<ul style="list-style-type: none"> <li>FASAB Statements and Interpretations and</li> <li>AICPA and FASB pronouncements if made applicable to federal government entities by FASAB Statements and Interpretations.</li> </ul>
b	<ul style="list-style-type: none"> <li>FASB Technical Bulletins and</li> <li>AICPA Industry Guides and Statements of Position if they have been cleared.</li> </ul>	<ul style="list-style-type: none"> <li>FASAB Technical Bulletins and</li> <li>Cleared AICPA Industry Guides and Statements of Position if specifically applicable to federal government entities.</li> </ul>
c	<ul style="list-style-type: none"> <li>Consensus positions of the FASB Emerging Issues Task Force and</li> <li>Cleared AICPA Practice Bulletins.</li> </ul>	<ul style="list-style-type: none"> <li>AICPA Practice Bulletins if specifically applicable to federal government and cleared by FASAB and</li> <li>FASAB Accounting and Auditing Policy Committee technical releases.</li> </ul>
d	<ul style="list-style-type: none"> <li>AICPA accounting interpretations;</li> <li>FASB “Q and As”;</li> <li>Industry practices if widely recognized and prevalent; and</li> <li>FASB, AICPA audit guides, SOPs, and practice bulletins that have not been cleared.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation guides FASAB staff publishes and</li> <li>Practices widely recognized and prevalent in the federal government.</li> </ul>
e	<ul style="list-style-type: none"> <li>Other accounting literature, including FASB concept statements, AICPA Issues Papers, International Accounting Standards Committee statements, Governmental Accounting Standards Board (GASB) statements, interpretations, and Technical Bulletins;</li> <li>Pronouncements of other professional associations or AICPA technical practice aids and regulatory agencies; and</li> <li>Accounting textbooks, handbooks, and articles.</li> </ul>	<ul style="list-style-type: none"> <li>Pronouncements in hierarchy categories “a” through “d” for nongovernment entities when not specifically applicable to federal government entities;</li> <li>Other accounting literature, including FASB concept statements, AICPA Issues Papers, International Accounting Standards Committee statements, GASB statements, interpretations, Technical Bulletins, and concept statements;</li> <li>Pronouncements of other professional associations or AICPA technical practice aids and regulatory agencies; and</li> <li>Accounting textbooks, handbooks, and articles.</li> </ul>

Source: D. M. Pallais, M. L. Reed, and C. A. Hartfield, *PPC's Guide to GAAS: Standards for Audits, Compilations, Reviews, Attestations, Consulting, Quality Control and Ethics: Audit Reports* (Fort Worth, Texas: Practitioners Publications Co., Oct. 2002), ch. 18, exhibit 18-1.

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# A Consistent Reporting Format for Economic Assessments

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To demonstrate how a consistent format could be used to synthesize information in a comparable way, we used GAO economic assessments of USDA's Cotton Program and WIC and our retrospective review of OSHA's scaffold regulation for the construction industry.<sup>1</sup> We selected these assessments because they were readily available, the programs were relevant but not highly controversial, and the programs illustrated income transfers and other measures of net benefit.

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## WIC

USDA's Food and Nutrition Service administers WIC. The program is designed for eligible pregnant, breastfeeding, and post partum women and for infants and children up to age 5. Participants must have family incomes at or below 185 percent of the federal poverty level and must be at nutritional risk, as judged by a competent professional. WIC provides supplementary food, nutrition, and health education and referral to health and social services. In particular, participants are given coupons for purchasing specified kinds of food.

GAO conducted an economic assessment of WIC to estimate the extent to which the program can reduce the cost of other federally funded programs, such as Medicaid. WIC might be viewed as a transfer program, merely transferring income from one group in society to another, with no economic impact. Our assessment, however, indicated that the program does have an impact through such benefits as increasing birth weight and reducing neonatal mortality and the incidence of iron deficiency. Low birth weight and iron deficiency are linked to children's behavior and development.

Some of the program's benefits cannot be monetized, and distributional considerations, such as equity, may be significant in determining benefits. Nevertheless, we concluded, at that time, that given what can be valued, the program's benefits exceed the costs. The monetized benefits are in health care cost savings and special education, which are resource savings to the economy.

We summarize these in table 6 in a format we used for the two other programs. The results for all three are reported in a format similar to a statement of income. We designed this format to include information on

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<sup>1</sup>GAO/RCED-95-107 and GAO/HRD-92-1.

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key quantitative measures, benefits, and costs. It allows the net benefits (or cost-effective results) to be seen and its major components understood.

**Table 6: Consistent Reporting Format: GAO's WIC Assessment**

Category	Expected value		Range of dollar values		
	Quantity: Number of births (in thousands)	Unit value: Averted cost per birth	Medium	Low	High
<b>Key quantitative measure</b>					
Total low birth weight births averted	36.5	\$28.4			
Total low birth weight births (first-year survivors)	30.8	\$33.7			
<b>Benefit of WIC (for WIC dollars spent)</b>					
Federal savings			\$1.14	\$1.12	\$1.51
State and local government savings			1.04		
Private sector savings			1.32		
Total annual monetized benefit			\$3.50	\$3.46	\$3.50
<b>Total benefit from averted expenditures</b>			<b>\$1,036</b>		
<b>Cost of WIC</b>					
Government cost			\$296		
<b>Total annual monetized cost</b>			<b>\$296</b>		
<b>Performance measure</b>					
Net monetized benefits			<b>\$740</b>		
<b>Nonmonetizable impact</b>					
Benefits			a		
Costs			b		
Size of nonmonetized benefits needed to change sign			<b>-\$740</b>		

Source: GAO analysis.

Note: Values are average annual values. Averted cost per birth is in thousands of dollars; benefit of WIC for WIC dollars spent is in dollars; all other dollars are in millions.

<sup>a</sup>Nonmonetized benefits include better maternal health, lower anemia rates, improved nutritional status, and improved health of children born subsequently.

<sup>b</sup>Nonmonetized costs include medical costs for nondisabled low birth-weight children.

As shown in table 6, WIC services were estimated to save \$1.036 billion annually, because an estimated 36.5 thousand births at low birth weights were estimated to have been averted and 30.8 thousand low birth weight babies survived the first year. Providing WIC services to pregnant women

who delivered their babies in 1990 cost the federal government \$296 million. The program resulted in a net benefit of \$740 million (\$1.036 billion minus \$296 million).

The expected return on the investment in prenatal WIC services is large, because low birth weight is a socially expensive outcome. Low birth weight infants, especially those with very low birth weights (under 3.3 pounds), have higher initial hospitalization costs. In addition, a smaller portion of these infants survive their initial hospitalization. Finally, they typically require more care because of disability or special education, which is expensive. Additional information, such as the unit value of savings distributed to various segments of society (in this case, various government levels) is also provided in table 6.

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## USDA Cotton Program

USDA's Cotton Program is designed to support cotton farmers' income and cotton exports. GAO conducted an evaluation of the program to estimate its costs. From 1986 through 1993 (the period GAO evaluated), about 90 percent of all acreage devoted to cotton was enrolled in the program. The program has since been changed.

As a program that shifts money from taxpayers to farmers, it initially appears to be a transfer program. In fact, OMB typically classifies agricultural programs like this one as transfer programs with no economic impact.<sup>2</sup> However, the reasonably predictable results of the program design affect cotton production and prices and, therefore, have an impact on the economy. This impact occurs because in addition to the program's basic components—to support producers' income—the program required producers to idle acreage. Through program benefits, the government pays producers not to produce on the idled acres. With land taken out of production, society is prevented from benefiting economically from potential crops or using the land for other purposes. We concluded that, based on what can be valued, the program benefits were less than costs, resulting in a negative net benefit.

The results of our economic assessment are summarized in table 7, the same type of table as table 6.

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<sup>2</sup>OMB, *Informing Regulatory Decisions*.

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**Table 7: Consistent Reporting Format: GAO's USDA Cotton Program Assessment**

Dollars in millions

Category	Expected value		Range of dollar values		
	Quantity: million pounds	Unit value: per pound	Medium	Low	High
<b>Key quantitative measure</b>					
Average in the absence of program	7,524	\$0.66			
Program average	6,865	\$0.66			
<b>Benefit of USDA Cotton Program</b>					
Net gain to buyers			\$16	-\$38	\$63
Net gain to producers			754	659	866
Total annual monetized benefit			770	621	929
<b>Total benefit from USDA Cotton Program</b>			<b>\$770</b>	<b>\$621</b>	<b>\$929</b>
<b>Cost of USDA Cotton Program</b>					
Government cost					\$1,509
<b>Total annual monetized cost</b>			<b>\$1,509</b>	<b>\$1,509</b>	<b>\$1,509</b>
<b>Performance measure</b>					
Net monetized benefits			<b>-\$739</b>	<b>-\$888</b>	<b>-\$580</b>
<b>Nonmonetizable impact</b>					
Benefits			<sup>a</sup>		
Costs			<sup>b</sup>		
Size of nonmonetized benefits needed to change sign			\$739	\$888	\$580

Source: GAO analysis.

Note: Values are average annual values.

<sup>a</sup>Nonmonetized benefits include ensuring producer income.

<sup>b</sup>Not identified.

As the table shows, the program cost taxpayers, through the federal government, an average of \$1.5 billion annually in program payments. Because of provisions of the program that required farmers to idle acreage, however, benefits to farmers were estimated to be only \$770 million. This is because, among other things, the idled acreage was economically inefficient. As a result, the program net benefits were negative—an annual loss of \$739 million, on average, for crop years 1986–93.<sup>3</sup>

This assessment illustrates that while OMB typically identifies farm programs as transfers, standard economic analysis suggests that these programs have real net national impact.<sup>4</sup> In addition, this impact may be negative—farmers gaining and consumers incurring larger costs than they would have without the program.

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## OSHA's Safety Standards for Scaffolds

OSHA administers the safety standards for scaffolds used in the construction industry; the standards are designed to protect employees in that industry from falls, structural instability, electrocution, and overloading. The standards can be viewed as an element of a regulatory program—that is, a rule on occupational safety. When the rule was written, OSHA determined that approximately 9 percent of all fatalities in the construction industry were attributable to accidents related to scaffolding. Although OSHA's final rule on scaffolds did not require an economic analysis under Executive Order 12866, OSHA did a prospective economic analysis to help inform the federal decision making.

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<sup>3</sup>In general, consumers did not gain from the program—they paid higher prices than they would have paid in the absence of the program. The assessment shows a small gain for consumers for one year that affected the average. The gain occurred because the government released cotton, accumulated under the program in previous years, from government stock, lowering prices from what they would have been otherwise.

<sup>4</sup>There are no economic gains from a pure transfer payment because the benefits to those who receive such a transfer are matched by the costs borne by those who pay for it. Therefore, transfers should be excluded from the calculation of net present value. It should also be recognized that a transfer program might have benefits that are less than the program's real economic costs because of inefficiencies that can arise in program delivery of benefits and in financing.

The rule's key benefits were forecast as coming from reduced injuries and deaths.<sup>5</sup> OSHA did not originally value the risk of mortality, so from an economic performance perspective, the net benefits are undervalued.<sup>6</sup> The prospective rule, however, was cost beneficial, even without valuing fatalities avoided. In OSHA's prospective analysis, the agency reported a positive annual net benefit for the rule, based only on monetizing the value of work days lost from injuries and the estimated cost of compliance and government costs.

We monetized the value of fatalities avoided by the scaffold rule, by applying EPA's value of a statistical life (\$6.1 million), DOT's (\$2.7 million), and CDC's (\$0.94 million) as estimated at the time of the rule.<sup>7</sup> When fatalities avoided are monetized, the estimated net benefits increase by tens to hundreds of millions of dollars per year. Table 8 summarizes the results of our assessment, in the same format as we applied to the USDA Cotton Program and WIC.

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<sup>5</sup>We did not investigate agency material cited as being publicly available in the regulation docket; we used only information from the *Federal Register* notice and other published sources. Consequently, the OSHA example is for illustration and might be materially different if the supporting information were investigated.

<sup>6</sup>Since we completed this analysis, OSHA has used the EPA value of a statistical life for a proposed regulation.

<sup>7</sup>This uses CDC's methodology for a 35-year-old man.

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**Table 8: Consistent Reporting Format: GAO's OSHA Scaffold Assessment**

Category	Expected value		Range of dollar values		
	Quantity: Number	Unit value: Cost per statistical life	Medium	Low <sup>a</sup>	High <sup>b</sup>
<b>Key quantitative measure</b>					
Injuries avoided	4,455	\$20.2 <sup>c</sup>			
Fatalities avoided	47	\$2.7 <sup>d</sup>			
<b>Benefit of scaffold rule</b>					
Gain from injuries avoided			\$90	\$90	\$90
Gain from fatalities avoided			127	44	287
Total annual monetized benefit			217	134	377
<b>Total benefit from scaffold rule</b>			<b>\$217</b>	<b>\$134</b>	<b>\$377</b>
<b>Cost of scaffold rule</b>					
Inspections			\$5	\$5	\$5
Training			2	2	\$2
Protection against falls			6	6	6
<b>Total annual monetized costs</b>			<b>\$13</b>	<b>\$13</b>	<b>\$13</b>
<b>Performance measure<sup>e</sup></b>					
Net monetized benefits			<b>\$204</b>	\$122	\$364
Cost effectiveness (fatality avoided per cost)			0 cost per life saved	0 cost per life saved	0 cost per life saved
Present value net benefit 7%			\$2,918	\$1,737	\$5,201
<b>Nonmonetizable impact</b>					
Benefits			f		
Costs			f		
Size of nonmonetized benefits needed to change sign			-\$204	-\$122	-\$364

Source: GAO assessment using OSHA, Centers for Disease Control and Prevention, Environmental Protection Agency, and Department of Transportation data or methods.

Note: Values are average annual values. Dollars are in millions.

<sup>a</sup>Based on Centers for Disease Control and Prevention's methodology, yielding \$0.94 million for the value of a statistical life of a 35-year-old man.

<sup>b</sup>Based on Environmental Protection Agency's value of \$6.1 million per value of statistical life.

<sup>c</sup>Here, a constant cost per injury is assumed, based on the total value provided and the number of injuries.

<sup>d</sup>Based on Department of Transportation's value of \$2.7 million per value of statistical life.

<sup>e</sup>OSHA omitted the value of life, with a net benefit of \$77 million.

<sup>f</sup>Not identified.



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**Enclosure II**  
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As shown in table 8, if fatalities avoided are included, the rule is estimated to generate \$204 million in annual national net benefits. That value can be as low as \$122 million and as high as \$364 million, depending on the value of statistical life used. As the benefits of the rule exceed the costs, even if fatalities are omitted, the cost per life saved (a cost-effectiveness measure) is zero.

# A Scorecard for Evaluating Economic Program Assessments

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We developed a scorecard from OMB guidance, and other relevant criteria, in order to illustrate links between accounting and economics criteria. To demonstrate how the scorecard could be used, we applied it to the OSHA, USDA Cotton Program, and WIC programs previously discussed. The scorecard includes reference to an opinion, similar to opinions rendered in financial statement audits, that indicate the extent to which the economic assessments met the criteria.<sup>1</sup>

The scorecard's categories are illustrative rather than comprehensive. Since our scope and methodology did not investigate OSHA's data in detail, many items in OSHA's assessment of the scaffold rule were identified as "not applicable." Therefore, we were not able to render an opinion on that assessment. The categories in the scorecard present nonetheless a consistent format for evaluating the extent to which an economic assessment adhered to accepted principles and guidelines.

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<sup>1</sup>Since GAO developed both the standards and the reports, which were evaluated using the standards, the evaluation was clearly not independent. Recognizing this, we provide the scorecard for illustration and discussion.

**Enclosure III  
A Scorecard for Evaluating Economic  
Program Assessments**

**Table 9: A Scorecard for Evaluating Economic Performance Assessments**

General principle <sup>a</sup>	Primary principle	How assessment meets principle <sup>b</sup>		
		OSHA scaffold rule	USDA Cotton Program	WIC
Accounting entity	The responsible unit—the source causing the impact (i.e., the federal program)	A	A	A
	Measures nationwide impact	A	A	A
	Accounts for net impacts and not transfers	A	A	A
Reliability	Results of assessment are verifiable	NA	P	P
	Data and assumptions used are a faithful representation of what actually happened	NA	P	P
	Precision of results is made explicit	N	A	A
	Data, assumptions, and descriptions are unbiased	NA	A	A
Comparable	Similar methods and assumptions are used when analyzing different entities	NA	A	A
Consistent	Similar methods and assumptions are used for analyzing similar events in different time periods	NA	A	NA
Revenue and benefits recognition	Accounts for revenues and benefits when they are realized and earned	A	A	A
General measurement standard	Estimates dollar value of material impact resulting from, or affected by, program	N	A	A
	Estimates quantitative material impacts but does not monetize them	P	P	P
Alternative plans	Evaluates most likely conditions expected, with and without the program	A	A	A
	Analyzes all reasonable alternative courses of action	N	A	A
	Considers extent to which entities comply with related laws and regulations	A	A	P
Discount rate	Discount rate is based on OMB guidance or other rate developed through appropriate techniques	N	NA	A
Uncertainty	Considers the effect of uncertainty on results	N	A	A

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A Scorecard for Evaluating Economic  
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(Continued From Previous Page)

General principle <sup>a</sup>	Primary principle	How assessment meets principle <sup>b</sup>		
		OSHA scaffold rule	USDA Cotton Program	WIC
Clear rationale	Presents justification for program (e.g., market failure, legislative requirement)	NA	NA	A
Consistent format used	Presentation summarizes key results consistently	N	N	N
Transparent	Presentation explicitly identifies and evaluates data, models, inferences, and assumptions	N	A	A
	Presentation and documentation are enough to permit readers to replicate and quantify the effects of key assumptions	NA	A	NA
Comprehensive monetization		P	A	P
Economic performance	Net benefits or cost effectiveness are reported	A	A	A
Internal quality control		NA	A	A
External quality control	Peer review was done	NA	A	A
Opinion of economic analysis		<sup>c</sup>	Unqualified	Unqualified

Source: GAO analysis.

<sup>a</sup>Based on OMB guidelines and GAO analysis.

<sup>b</sup>A = fully meets requirement; P = partially meets requirement; N = meets not at all; NA = not applicable.

<sup>c</sup>No opinion, since the OSHA example was not a complete economic assessment.

# Assessing OSHA's Scaffold Rule by Retrospective Analysis

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A retrospective analysis of OSHA's scaffold rule, when compared to the results of the prospective analysis in enclosure II, provides information on the net benefits estimated before the rule was implemented, which can be compared with the net benefits after the rule had been in effect for some time. Most economic performance measures are estimated prospectively for regulatory or capital spending purposes. Feedback on what occurs after a program has been implemented can assist in a program's oversight and modification, if appropriate, and can help improve the quality of other prospective studies.

Seong and Mendeloff recently reported a retrospective analysis of OSHA's scaffold rule.<sup>1</sup> Their study focused on benefits; no retrospective information on costs is known to be available. In table 10, the prospective assessment is compared with the retrospective assessment.

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<sup>1</sup>Si Kyung Seong and John Mendeloff, "Assessing the Accuracy of OSHA's Estimation of the Benefit of Safety Standards," paper presented at the Research Conference of the Association for Public Policy Analysis and Management, Dallas, Texas, November 7-9, 2002; a revised version is available at [www.aei-brookings.org](http://www.aei-brookings.org) (December 3, 2003).

Enclosure IV  
 Assessing OSHA's Scaffold Rule by  
 Retrospective Analysis

**Table 10: Prospective and Retrospective Assessments of OSHA's Scaffold Rule Compared**

Dollars in millions

Category	Expected value			
	Prospective		Retrospective	
	Quantity	Value <sup>a</sup>	Quantity	Value
<b>Key quantitative measure</b>				
Injuries avoided	4,455		1,564	
Fatalities avoided	47		17	
<b>Benefit of scaffold rule</b>				
Injuries avoided: Gain		\$90		\$32
Fatalities avoided: Gain		127		45
Total annual monetized benefit		<b>\$217</b>		<b>\$76</b>
<b>Cost of scaffold rule</b>				
Inspections		\$5		\$5
Training		2		2
Protection against falls		6		6
Total annual monetized cost		<b>\$13</b>		<b>\$13</b>
<b>Performance measure</b>				
Net monetized benefits (annual)		<b>\$204</b>		<b>\$63</b>
Cost-effectiveness (fatality avoided per cost)		0 cost per life saved		0 cost per life saved
Present value net benefit 7%		\$2,918		\$908
<b>Nonmonetizable impact</b>				
Benefits		b		b
Costs		b		b
Size of unmonetized benefits needed to change sign		-\$204		-\$63

Source: GAO analysis.

Note: Values are average annual values.

<sup>a</sup>Value based on Department of Transportation value of a statistical life of \$2.7 million.

<sup>b</sup>Not identified.

As table 10 shows, in the prospective assessment, injuries avoided were estimated at 4,455, fatalities avoided at 47; in the retrospective assessment, injuries avoided were estimated at 1,564, fatalities 17. In addition, prospectively, the annual benefits of the program were projected to be \$204 million; retrospectively, \$63 million.<sup>2</sup>

These estimates, based on realizations of deaths in the construction industry, indicate that the expected benefits of the OSHA scaffold rule have not been fully realized, since the number of fatalities has not decreased as much as expected. Even with the lower realization of safety benefits in the retrospective assessment, however, it appears that the rule has a favorable economic performance evaluation. However, the retrospective analysis suggests that (1) additional safety benefits may be obtained from the rule and (2) OSHA may usefully investigate the difference between the expected number of fatalities avoided and the estimated number actually avoided. If the difference is found to be an understandable forecasting error, that result could potentially inform future estimates for this and other related programs.

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<sup>2</sup>We did not retrospectively verify other assumptions in the prospective analysis.