



Health, Education and Human Services Division

B-265924

September 7, 1995

The Honorable Christopher S. Bond  
The Honorable Charles E. Grassley  
United States Senate

The Corporation for National and Community Service (the Corporation) administers the AmeriCorps\*USA program, the largest national service volunteer program since the 1930s. AmeriCorps\*USA participants perform community services that match priorities established by the Corporation, such as addressing educational, environmental, and public safety needs. The Corporation provides grants to individual programs, which obtain additional resources from other federal agencies, state and local governments, and the private sector.

While there has been interest in assessing AmeriCorps\*USA's cost-effectiveness, such an assessment is difficult because the program has operated for less than a year. We recently reported on total resources available to support AmeriCorps\*USA programs in the 1994-95 program year and, to a lesser extent, on benefits of certain programs. We found that total resources available per AmeriCorps\*USA participant equaled about \$26,700 for program year 1994-95.<sup>1</sup> We also found that, at seven programs we visited, participants were providing benefits to their communities, but we did not attempt to quantify these benefits.

Recently, in an effort to provide perspective on the potential cost-effectiveness of AmeriCorps\*USA programs, a benefit-cost study was conducted of three AmeriCorps\*USA programs based on short-term and projected data.<sup>2</sup> The

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<sup>1</sup>National Service Programs: AmeriCorps\*USA--Early Program Resource and Benefit Information (GAO/HEHS-95-222, Aug. 29, 1995). This figure excludes private in-kind contributions.

<sup>2</sup>George R. Neumann, Roger C. Kormendi, Robert F. Tamura, and Cyrus J. Gardner, The Benefits and Costs of National Service: Methods for Benefit Assessment With Application to Three AmeriCorps Programs (Washington, D.C.: Kormendi\Gardner Partners, 1995).

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benefit-cost study was commissioned by financial sponsors of the three AmeriCorps\*USA programs it examined. The sponsors wanted more information about benefits derived from the programs relative to program costs. These programs were AmeriCorps for Math and Literacy, which targets at-risk children from kindergarten through second grade in Ohio and Texas schools; East Bay Conservation Corps, which addresses environmental needs in California; and Project First, which provides access to computers for students in Georgia, New York, and North Carolina. The study analyzed each program separately, and it did not claim that the three were representative of all AmeriCorps\*USA programs. The study estimated that these programs returned between \$1.68 and \$2.58 for each dollar invested.

Based on concerns you and others have raised about the study, you asked us to evaluate it. We agreed to

- provide an overview of benefit-cost analysis,
- evaluate how the study's specific methodology compares with that of other benefit-cost analyses, and
- assess the study's conclusions.

To develop this information, we reviewed the study, held extensive discussions with the authors and used some of the study's data to try to replicate its results. However, in most cases we accepted the study's calculations as given and did not verify them. We did our work in August 1995 in accordance with generally accepted government auditing standards.

#### BENEFIT-COST ANALYSIS: AN OVERVIEW

Economists typically use benefit-cost analysis to evaluate the worth of particular investment projects. Calculating the ratio of expected benefits to expected costs is one method analysts can use to provide policymakers with evidence as to whether a project is worth undertaking. The analysis results in a benefit-to-cost ratio that is either greater than 1 (meaning the project returns more than \$1 per \$1 invested) or less than 1 (meaning that less than \$1 is returned per \$1 invested). The analysis may also compare a variety of investments to see which one returns the greatest benefit per dollar of cost.

Office of Management and Budget (OMB) guidance on benefit-

cost analysis of federal programs<sup>3</sup> focuses on the entire economy, thus including net social benefits and costs. Social benefits of federal programs are the value of the program's output to private citizens, and this value is typically difficult to measure. Both direct and indirect benefits are usually included in the analysis. A job-training program, for example, may have the direct benefit of preparing individuals for employment, thus raising their future earnings. It may also have an indirect benefit of reducing welfare payments or crime rates, assuming that, had the individuals not received training, some might have received welfare or committed crimes. Even when the social benefits of a project are clear, attaching a dollar value to them is often problematic.

Social costs of a federal program are opportunity costs--the value of the forgone benefits had the program's resources been allocated to their best alternative use. Producing an additional unit of the program's output requires the reallocation of resources away from other productive activity. The opportunity cost of an additional unit of the program's output equals the sacrificed amount of some other productive activity's output occasioned by the resource reallocation. For example, if money used for a federal job-training program were obtained by reallocating funds earmarked for a federal bridge-building program, the opportunity cost of the job-training program would be the value of the services that the new bridges would have provided.

Comparing social benefits with social costs allows policymakers to determine whether the value of the output or services gained from a program is greater than the benefits sacrificed elsewhere when resources are reallocated. When the social benefits of a program exceed the social costs, there is a net gain to society from taking resources from elsewhere in the economy and devoting them to the program.

The comparison of benefits to costs can be expressed as a benefit-cost ratio (that is, social benefits divided by social costs) or as net benefits (that is, social benefits less social costs). The expression of net benefits is more straightforward. When the comparison is expressed as a ratio, decisions must be made about costs that can affect

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<sup>3</sup>OMB Circular A-94, Revised Transmittal Memorandum 64 (Oct. 29, 1992).

the ratio. For example, if building a bridge will result in time saved by commuters or delivery trucks, this can be seen as a benefit--time gained--or as a negative cost--reduced time lost. Whether it is included as a benefit or as a negative cost affects the magnitude of the ratio but not the underlying economic basis for any decision-making process.

Benefit-cost analysis results are typically very sensitive to the underlying assumptions. For example, a small change in the interest rate used to discount a stream of future benefits or costs can have a large impact on the outcome of such an analysis.<sup>4</sup> In addition, including or excluding certain items from either costs or benefits can greatly change the results.

#### OUR ANALYSIS OF THE KORMENDI\GARDNER STUDY

The goal of the benefit-cost study was to calculate the ratio of social benefits, net of nonfederal costs, to federal costs. On the basis of our review of the study and conversations with the authors, we believe the overall approach of the study appears to be consistent with this goal. Rather than dividing gross social benefits by gross social costs, it subtracted all nonfederal costs from the benefits and then calculated the ratio of the resulting net benefits to federal costs. The choice of what costs to subtract from the numerator, instead of adding to the denominator, affects the magnitude of the ratio, but it cannot affect whether the ratio is above or below 1. Given the goal of the study, the costs that are netted with benefits in the numerator do not seem unreasonable.

In addition to decisions about the placement of costs in the numerator or denominator, specific assumptions and other methodological decisions used to calculate components of the ratio affected the results of the study. Further, as the study appropriately recognized, without full program data, comparisons had to be made with historical data for similar programs, and the outcome was influenced by the choice of comparisons.

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<sup>4</sup>The discount rate is used to compute the present value of future benefits or costs. Even in the absence of inflation, a dollar today is worth more than one receivable in the future. For example, if the appropriate discount rate is 4 percent, then a payment of \$1 receivable in 10 years is worth only 68 cents today.

The Study's Methodology

The study summed three types of benefits deriving from the AmeriCorps\*USA programs: participant benefits, societal benefits, and net donor benefits. Participant benefits included wages, fringe benefits, a "citizenship" contribution,<sup>5</sup> an education award,<sup>6</sup> and the value of future education made possible by the award. Societal benefits, as defined in the study, included all benefits that accrued to nonparticipants, such as increased educational attainment or reduced crime and welfare incidence for children who were tutored by AmeriCorps\*USA participants. Net donor benefits equaled 0, because donor benefits were assumed to equal donor costs. The study then compared this sum with federal costs. To illustrate, we present these components, along with their values for one of the programs, Project First, in table 1.

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<sup>5</sup>The "citizenship" contribution was an estimate of the difference between what AmeriCorps\*USA participants received as compensation for their service and the larger amount that they could receive if employed at their market wage. The study counted this as a participant benefit because participants were assumed to derive a benefit in order to be willing to accept the lower compensation level. The study noted that this could be considered a societal benefit instead, because it was in effect a donation from the participant to society.

<sup>6</sup>AmeriCorps\*USA participants receive an education award, which can be used to pay future higher education expenses or to repay student loans, upon successful completion of their service. For a full-time participant, the value of the award is \$4,725 per year of service, for a maximum of 2 years.

Table 1: Benefits and Costs for Project First

Item	Value
<b>Benefits</b>	
Participant benefits	\$25,976
Wages and fringe benefits	9,804
Federally paid	8,211
Donor-paid	1,593
Citizenship	8,195
Education award	4,725
Future education	3,252
Net societal benefits	26,330
Net donor benefits	0
Donor benefits	10,350
(Less) donor costs	-10,350
Total benefits	\$52,306
<b>Costs</b>	
Federally paid participant costs	\$12,396
Federally paid wages and fringe benefits	8,211
Education award (federally paid)	4,725
Federally paid overhead costs	7,789
Total costs	\$20,725

To determine the benefit-cost ratio for Project First, the study netted nonfederal costs and benefits in the numerator rather than including gross benefits in the numerator and gross costs in the denominator. For example, the benefits for donors of matching funds were assumed to equal the costs, and they were netted in the numerator.

A more complex example is the participant's "future education" component. According to our conversations with the authors, this component was the difference between (1) future earnings the participant will have with the additional education made possible by the education award

and (2) future earnings he or she would have had in the absence of the award.<sup>7</sup> The authors also told us they calculated the difference between these earnings streams net of the participant's labor costs during the year in AmeriCorps\*USA--that is, the future education benefit component was calculated subtracting out the participant's labor costs for the program year. The difference between the earnings streams did not include the benefits produced during the year; these were included as societal benefits. Because the costs that were subtracted were federal costs, they had to be added back into the numerator to calculate the desired ratio--social benefits, net of nonfederal costs, relative to federal costs. While the logic the authors described to us is understandable, we did not verify the details of all of the computations.

The choice of which costs to net out of benefits, in the numerator, and which to include as costs, in the denominator, is an important one. For example, according to the study, the net value of future education for a Project First participant was \$3,252. This was approximately the difference, for the average participant, between a discounted lifetime income of \$745,040 with the additional education and \$741,790 in the absence of the additional education. One way to measure gross benefits and gross costs would be to include \$745,040 as part of the benefit and \$741,790 as the lifetime opportunity cost of producing that benefit. This methodology would probably not be an improvement over that of the study; these dollar figures would dominate the ratio relative to other benefits and costs, placing undue importance on this aspect of the entire study.

The valuation of benefits deriving from private donations would be optimistic if these donations were partly offset by federal tax deductions. For private sector donors, if part of the benefit were derived from tax deductions, the lost tax revenue should be counted as a cost if taxpayers ultimately have to make up for it. The authors told us that for the three programs analyzed in the study, this factor was not relevant because private donations came from tax-exempt foundations, but this point should be kept in

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<sup>7</sup>The study assumed only a portion of the participants would actually attain more education because of the award--the results were for the average--and the income streams were discounted back to the current year.

mind for future analyses.<sup>8</sup> In addition, as with the value of future education discussed above, an alternative calculation could include only donor benefits in the numerator and include donor costs in the denominator, rather than netting them to 0 in the numerator. While this would reduce the measured benefit-cost ratio, it could not make it fall below 1, and the measure of net social benefits would be unaffected.

#### Other Methodological Decisions Could Affect Benefit-Cost Ratios

The study made several other assumptions and methodological choices that affect the benefit-cost ratios. The study failed to recognize the costs associated with raising tax revenues to pay for new government spending programs. We also believe it may have made an optimistic assumption in one case about results of AmeriCorps\*USA participants' work. In addition, as the study noted, benefit-cost ratios given in the study did not incorporate certain unquantifiable benefits, which would raise the reported ratios if they could be included.

#### Loss Associated With Generating Tax Revenues

Economists recognize that there are costs associated with raising tax revenues to pay for a new spending program. These costs can arise, for example, as some people change their behavior to avoid paying more taxes. OMB cites an estimated loss of 25 percent due to the process of generating the revenues, and it recommends calculating supplementary benefit-cost ratios including this adjustment to costs. Increasing the programs' cost by 25 percent would diminish the benefit-cost ratio.

#### Perry Project Comparison

As an estimate of future gains for preschool students whom

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<sup>8</sup>When matching donations come from the public sector, the issues are more complicated. According to the authors, no non-Corporation federal, state, or local government funds were involved for the programs in the study. However, one of the three was a program we sampled for our previous review, and much of the matching funds it reported to us came from local government sources. Our data were gathered more recently than the data the authors had, which may explain the discrepancy.



AmeriCorps\*USA participants tutored, the study used results from the Perry Preschool Project, an intensive intervention in a particular school in the 1960s on which much long-term research has been conducted. The intensity of effort in the Perry Project appeared to be much greater than in the AmeriCorps\*USA programs. Comparison with some prior research is necessary, but it may have been optimistic to use the results from the Perry Project. This concern with the study has been raised previously in another assessment.<sup>9</sup>

#### Benefits That Could Not Be Quantified

As the study notes, some benefits of AmeriCorps\*USA projects could not be quantified and thus were not accounted for in the benefit-cost ratios. During site visits we conducted as part of our earlier study, we observed benefits that may also apply to the three programs the study analyzed, including strengthening communities and fostering civic responsibility. Inclusion of an estimate for the value of these benefits would raise the reported benefit-cost ratios. One of the limitations of benefit-cost analysis is that intangible benefits such as these cannot easily be incorporated into the analysis.

#### ASSESSMENT OF STUDY'S CONCLUSIONS

The study concluded that programs such as the three AmeriCorps\*USA programs it reviewed "generally can be an important societal investment" because the benefit-cost ratios exceeded 1 "by a substantial margin." As we pointed out earlier, the magnitude of the ratios depends in part on the assumptions and methodological choices that are made. Even if the three AmeriCorps\*USA programs' benefit-cost ratios exceeded 1, in an era of constrained federal budgets, the ratios should be compared with those of other programs performing similar services, such as Volunteers in Service to America (VISTA), to see whether AmeriCorps\*USA is a more efficient program. As the authors concluded, the three programs they analyzed would appear to be worthwhile federal investments. But until comparisons with other

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<sup>9</sup>David W. Murray and Thomas Riley, "Costs and Benefits of National Service: Unanswered Questions" (Washington, D.C.: Statistical Assessment Service, 1995). See also George R. Neumann, Roger C. Kormendi, Robert F. Tamura, and Cyrus J. Gardner, "Response to STATS' Unanswered Questions" (Washington, D.C.: Kormendi\Gardner Partners, 1995).

programs are done, decisionmakers will not know whether there are preferable uses of federal funds.

STUDY AUTHORS' COMMENTS

In commenting on a draft of this correspondence, the study's authors told us that they believed we had characterized the study fairly. They thought our breakdown of the benefit and cost components was helpful in illuminating their methodology. They agreed that their results were sensitive to methodological issues such as the choice of comparison groups. They emphasized, however, that a balanced view--which they believed was taken in this correspondence--recognizes that this sensitivity goes in both directions. They said that they stood by their overall conclusions that their results were reasonable and conservative. The authors believe that this type of study should be undertaken for other AmeriCorps\*USA programs and for similar federal programs.

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We are sending copies of this correspondence to the Chief Executive Officer of the Corporation for National and Community Service, the authors of the study, appropriate congressional committees, and other interested parties. If you have any questions or would like to discuss this material further, please call me or Cornelia M. Blanchette, Associate Director, at (202) 512-7014 or James R. White, Acting Chief Economist, at (202) 512-6209. Major contributors to this correspondence were Wayne B. Upshaw, Assistant Director; Harold J. Brumm, senior economist; and James W. Spaulding, senior evaluator, (202) 512-7035.

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