

EXECUTIVE SUMMARY

Job Corps is a major part of federal efforts to provide education and job training to disadvantaged youths. It provides comprehensive services: basic education, vocational skills training, health care and education, counseling, and residential support. More than 60,000 new students between the ages of 16 and 24 enroll in Job Corps each year, at an annual cost to the federal government of more than \$1 billion. Currently, the program provides training at 119 Job Corps centers nationwide. The National Job Corps Study is being conducted under contract with the U.S. Department of Labor to provide Congress and program managers with the information they need to assess how well Job Corps attains its goal of helping students become employable, productive citizens.

This report is one of a series presenting findings from the study. It presents estimates of the impacts of Job Corps on participants' literacy and numeracy skills needed to function in the workplace. It builds on the analysis and findings presented in our report on short-term impacts (Schochet et al. 2000). That report relied on interview data collected at baseline, and at 12 and 30 months after random assignment. The current report is based on an in-person literacy skills assessment administered to some sample members in conjunction with the 30-month follow-up interview. These test score data allow us to measure the extent to which Job Corps improves the functional literacy and numeracy skills of Job Corps participants.

STUDY DESIGN, DATA, AND METHODS

The cornerstone of the National Job Corps Study was the random assignment of all youths found eligible for Job Corps to either a program group or a control group. Program group members were permitted to enroll in Job Corps and control group members could not (although they could enroll in other education or training programs). The research sample for the study consists of approximately 9,400 program group members and 6,000 control group members randomly selected from among the nearly 81,000 applicants nationwide who applied to Job Corps for the first time between November 17, 1994 and December 16, 1995 and who were found eligible by February 1996.

The study to measure Job Corps impacts on participants' literacy and numeracy skills was based on a randomly selected subsample of program and control group members. Key features of the study design are as follows:

- C *A single round of skills measurement was conducted in conjunction with the 30-month follow-up interview.* Because of limited study resources, only a single round of testing could be conducted. We selected the 30-month measurement point under the assumption that the most important study goal is knowing whether and to what extent Job Corps produces differences after most program participants leave the program and spend some time in the workforce.

- C ***A total of 3,750 sample members (1,875 program group and 1,875 control group members) was randomly selected for the literacy study.*** The sample was selected from all program and control group members who were eligible for 30-month interviews and who were randomly assigned during the last 7 months of the 16-month sample intake period. The analysis sample contains 1,117 program and 1,156 control group members who completed the literacy test. The overall weighted response rate was 60.2 percent and was similar for program and control group members. On average, respondents attempted 85 percent of the tasks they were asked to perform.
- C ***The approach to literacy assessment developed by the Educational Testing Service (ETS) was used for the study.*** Specifically, this study used a version of the assessment instrument that ETS designed for the National Adult Literacy Survey (NALS). We also considered a range of other instruments, including the Test of Adult Basic Education (TABE), which the Job Corps academic education program uses as a diagnostic tool for program participants. We selected the instrument designed by ETS, however, because it focuses on *functional* literacy and numeracy skills rather than academic skills only. Assessing functional skills is meaningful because Job Corps' mission is to prepare its students for a job or for further education that will lead to a job. The ETS approach has been used also in several national studies with populations similar to the population of Job Corps students.

Program impacts were estimated by comparing the average test scores and the test score distributions of program and control group members. We estimated program impacts for the full sample and for key subgroups defined by the following baseline characteristics: gender, presence of children, age, educational attainment, and residential designation status.

HOW WE ASSESSED LITERACY SKILLS

The approach to literacy assessment developed by ETS measures the ability to perform a wide range of information-processing tasks that adults encounter in everyday life. The approach posits three dimensions of literacy:

1. ***Prose literacy***, the knowledge and skills necessary to understand and use information from texts
2. ***Document literacy***, the knowledge and skills necessary to locate and use information in tables, charts, graphs, and maps
3. ***Quantitative literacy***, the knowledge and skills necessary to perform different arithmetic operations using information embedded in prose and document materials

Proficiency in each of these domains is measured on a scale from 0 to 500. To estimate proficiency, ETS developed a large number of tasks of widely varying difficulty. Test takers are asked to attempt randomly chosen subsets of the tasks. Test results are then used to estimate proficiency levels for a population group of interest (the program and control groups in our case). A member of a group with a proficiency score of 290 on the prose scale, for example, has an 80 percent probability of correctly completing a prose task at the 290 difficulty level. This same person has a lower probability of completing more difficult tasks and a higher probability of completing less difficult ones.

To facilitate descriptions of the literacy scores of groups and cross-group comparisons, the ETS approach to assessment distinguishes five broad literacy levels. Scores below 225 represent the lowest level of proficiency. Tasks in this range include locating a piece of information in a simple form or document. Scores between 225 and 275 represent Level II proficiency. Level II tasks include locating a piece of information in a more complex document with a distractor or performing a simple calculation with numbers easily found in a document. Scores between 275 and 325 represent Level III, scores between 325 and 375 represent Level IV, and scores between 375 and 500 represent Level V. A score in Level V indicates advanced skills in performing a variety of tasks that involve the use of complex documents.

LITERACY SKILLS OF ELIGIBLE JOB CORPS APPLICANTS COMPARED TO THOSE OF OTHER YOUNG ADULTS

The typical youth served by Job Corps has lower functional literacy scores than the typical young adult in the U.S., especially in the quantitative literacy domain. The average proficiency scores of control group members were 248 for prose, 256 for document, and 231 for quantitative literacy. In comparison, young adults nationally averaged 280 points on the prose and document scales and 277 on the quantitative scale, as reported in the NALS. While 14 percent of young adults nationally performed at the lowest skill level in prose and in document literacy, 28 percent of Job Corps control group members scored at that level on prose and 20 percent on document literacy. For quantitative literacy the gap was considerably wider. About 16 percent of young adults nationally scored in Level I on the quantitative scale, compared to 44 percent of Job Corps control group members.

Part of the reason for these deficits is that Job Corps applicants have considerably lower levels of educational attainment than the general population. Looking within education level, the Job Corps sample more nearly resembled the NALS sample in literacy proficiency. Remaining differences could be explained by a variety of factors. For example, high school dropouts who apply to Job Corps are more skilled in nonquantitative areas than dropouts in the general population, possibly reflecting a greater level of ability among dropouts who apply to Job Corps than dropouts generally.

IMPACTS ON LITERACY SKILLS

The impacts of Job Corps on participants' functional literacy skills were positive in all three domains (see Table 1). Job Corps raised participants' average test scores by about 4 points on the prose scale, 2 points on the document scale, and 5 points on the quantitative scale. The impacts on prose and quantitative literacy are statistically significant (different from zero) at the 10 percent level.

Program impacts on tests scores are often expressed as effect sizes or changes in percentile ranking among the full population. The effect size is the fraction of a standard deviation, which in the case of the literacy assessment used in this study is about 40 points. The effect sizes of the estimated impacts on Job Corps participants are about 0.09 for prose literacy, 0.04 for document literacy, and 0.10 for quantitative literacy. Taking someone who scores at the 50th percentile of a distribution, these effect sizes correspond to increases to the 53rd, 52nd, and 54th percentile of that distribution.

In terms of discrete proficiency levels, Job Corps moved some participants out of Level I. About 3 percent of participants are estimated to have moved out of the lowest proficiency level on the prose scale (2 percent on the document scale and 5 percent on the quantitative scale) and a comparable fraction into Levels II and III. Again, this effect is statistically significant for prose and quantitative literacy, but not for document literacy. Very few members of the program or control groups scored in the top two proficiency levels in any of the three literacy scales.

Positive impacts were found broadly across most key subgroups of students. Nearly all of the impacts estimated at the subgroup level were between 3 and 6 points per Job Corps program participant, although most are not statistically significant because of small sample sizes. Estimated impacts, however, were somewhat larger for older applicants who did not have a GED or high school diploma at random assignment--a group with particularly low skills. Impacts for this group were 6 points on both the prose and document literacy scales, and 11 points on the quantitative scale.

INTERPRETATION OF THE IMPACT FINDINGS

In order to interpret the literacy impact findings, we examined the extent to which the estimated impacts on literacy skills are consistent with our impact findings on other key outcomes that are associated with basic skills. We analyzed the statistical relationships among literacy scores, educational experiences, and labor market experiences for our basic skills sample by combining information on their test scores with information from their baseline and follow-up interviews. We then tried to reconcile the findings.

The analysis relied on a simplified path model of the relationship between family background, schooling, literacy skills, and labor market outcomes. Literacy is considered to be an intermediate (mediating) outcome that is affected by schooling *and* work experience, and that affects later outcomes such as earnings.

TABLE 1
IMPACTS ON AVERAGE LITERACY SCORES

Literacy Domain	Program Group	Control Group	Estimated Impact per Eligible Applicant ^a	Estimated Impact per Participant ^b
Prose	251.0	248.3	2.7*	3.7*
Document	257.6	256.4	1.1	1.6
Quantitative	234.8	231.2	3.6*	4.9*
Sample Size	1,117	1,156		

SOURCE: Job Corps Literacy Assessment data.

NOTE: All estimates, including program group means, control group means, participant means, and impacts, are regression adjusted.

^aEstimated impacts for eligible applicants are measured as the difference between the regression-adjusted means for program and control group members.

^bEstimated impacts for Job Corps participants are measured as the estimated impacts for eligible applicants divided by the proportion of program group members who enrolled in Job Corps. Standard errors for these estimates were inflated to account for the estimation error in the Job Corps participation rate.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

Results of this analysis suggest that the impacts on test scores are broadly consistent with what one might expect on the basis of the schooling and employment experiences of our sample members. Although the estimated impacts on literacy skills appear small relative to the impact on time spent in education and training programs--which was equivalent to about one school year--the two sets of findings are in fact very consistent. The positive impacts on time spent in education and training programs led to gains of about 5 points in the test scores of the program group relative to those of the control group. However, the control group worked more during the 30-month follow-up period. Because work experience appears to improve skills, the greater amount of work by the control group partially offset the gains of the program group due to more hours of schooling. Thus, these two factors combined led to implied program and control group differences on literacy skills that were similar to the observed impacts on literacy skills. The impacts on test scores are also consistent with the large impacts that we found on the attainment of a GED certificate.

We find also that the short-term impacts on earnings were larger than can be explained by the impacts on literacy skills alone, because the association between literacy scores and earnings is very modest within the limited range of literacy skills observed in our sample. Hence, the earnings gains were likely to have been due to other factors influenced by Job Corps that are not captured in the test scores. These factors might include impacts on vocational skills for a specific job that are not captured in the literacy test, improvements in social skills and attitudes about work, and credentialing effects from obtaining a GED or vocational certificate.