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ABSTRACT

The relative effectiveness of current Job Corps vocational offerings was evaluated, and occupations suitable for addition to the Job Corps vocational curricula were identified. Characteristics of Job Corps enrollees and the occupations in which training was provided were identified. To assess their comparative effectiveness, training occupations were rated on job placement percent, average wage at job entry, cost per training year, cost per job placement, and labor market prospects (absolute employment growth from 1980-1990, and percentage employment growth from 1980-1990). No clear pattern emerged about which types of training occupations were consistently more effective. National contractors had the highest job placement rates and the highest entry wages. Contract centers had the lowest cost per training year and cost per job placement. Civilian Conservation Centers ranked in the middle of the four variables. Occupations identified as suitable for consideration as new Job Corps training programs encompassed these job clusters: clerical and sales, electrical/appliance repair, industrial production, health occupations, and potential computer-related occupations. These recommendations were made: initiate procedures to implement review findings, develop and implement a system for biennial training program review, develop center contacts with local labor market sources, and conduct followup research studies. (Four data tables are included.) (YLB)

JOB CORPS
VOCATIONAL OFFERINGS REVIEW

Final Report

October 1983

FINAL REPORT
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I. INTRODUCTION

This Final Report presents a summary of the major findings resulting from the Job Corps Vocational Offerings Review as well as principal recommendations.

Job Corps currently provides training in 120 recorded occupations. Vocational offerings have changed over the program's 18 year history in response to individual assessments of the effectiveness of particular offerings at specific locations. This review represents the first comprehensive national assessment of current vocational offerings in light of their relative effectiveness -- outcomes and costs -- and prospects in the overall labor market through the remainder of this decade.

The purpose of the review was twofold: to evaluate the relative effectiveness of current Job Corps vocational offerings and to identify occupations suitable for addition to the Job Corps vocational curricula. To accomplish this, attention was focused on (1) the extent to which vocational training is aligned with current and future labor market demands, (2) the relative effectiveness of occupational offerings and (3) the advisability of replacing less effective training programs with more effective or more promising training programs.

The review was not intended as an assessment of the overall effectiveness of the Job Corps program or vocational training in Job Corps. The overall effectiveness of the Job Corps program has been addressed through much more comprehensive, longitudinally-based studies. It is also not intended to be an assessment of overall center performance or of any

particular training delivery system. This review is restricted to (1) a comparison (with each other) of current training occupations, including -- where it exists -- a differentiation within occupations by major types of training providers, and (2) an analysis of additional occupations which represent potential Job Corps offerings

The basis for this approach was to focus on increasing effectiveness. Even though the major evaluation studies (e.g. "Evaluation of the Economic Impact of the Job Corps Program," Mathematica Policy Research, 1982) show Job Corps to be an effective education and training program on an overall basis, effectiveness can be enhanced by:

- eliminating current offerings with relatively poor performance and/or poor prospects in the labor market.
- retaining and/or expanding current offerings with relatively superior performance and/or good prospects in the labor market.
- adding new occupations with good labor market prospects.

Thus, the review focuses on internal comparisons of vocational offerings and an examination of potential new occupations.

This final report summarizes and references seven "Documentation Reports." They cover the (1) Job Corps vocational training activity in FY 1982, (2) identification of high growth occupations which might be added to those in which the Job Corps now trains, (3) assessment of training requirements for high demand occupations suitable for corpsmembers, (4) cost analysis for FY 1982 training occupations, (5) ranking of relative performance of occupational training, (6) decision-making on what occupations should be offered, and (7) options for further vocational education offerings reviews.

II. DATA COLLECTION

The analysis focused on three groups of data: (1) demographic and outcome data from the Job Corps Management Information System (MIS), (2) cost data by training occupation collected from the centers and national contractors, and (3) labor market information from the Bureau of Labor Statistics and the National Occupational Information Coordinating Committee (NOICC).

The Job Corps Management Information System (MIS) was the primary source for demographic and outcome data. This system contains data on Corpsmembers upon enrollment, at termination, and 3-6 months after termination from Job Corps. The MIS enrollment data is almost totally complete. Information on over 96% of all youth who enroll is present in the enrollment database. The termination and post-termination (placement) data are less complete, but still account for 80-90% of the Job Corps population. Data from seven centers (3 of which were in start-up or transition phases) were unavailable. In addition, those occupations with fewer than 25 corpsmembers were not included in the analysis. Not all of the data are specific to training occupations and not all of the occupation-specific data are reliable. Problems with the standardization of some of the variables in the termination and placement file led to their elimination in rating the relative effectiveness of Job Corps training occupations.

Characteristics of the corpsmembers; type, magnitude, and regional dispersion of the training occupation; and outcomes of the training, specifically, job placement outcomes, were examined closely.

The Job Corps Centers and National Contractors provided information on training years and vocational costs for specific training occupations --data used to calculate cost factors. This effort was not an easy task. Vocational costs had not been recorded at the specific occupational level since the Job Corps financial reporting requirements do not specify that accounting systems must maintain such data. Therefore, these costs had to be estimated at the majority of the Job Corps Centers.

National Occupational Information Coordinating Committee (NOICC) data on the educational level and training time required for potential new Job Corps training occupations was combined with Bureau of Labor Statistics (BLS) data on the projected growth of relevant occupations in actual numbers and percentages to identify occupations which were within the capabilities of corpsmembers. Further information on potential additions to Job Corps was gleaned from the Occupational Outlook Handbook and other identified labor market information. These data were used to identify new occupations which could be projected to do well in the Job Corps environment for the next decade and to determine which existing Job Corps occupations would continue to do well.

Achieving the ideal in measurement and analysis is rarely realized. This study was limited in scope by the time and available data. However, much new information was obtained about Job Corps vocational offerings. This review provides the most comprehensive analysis of the Job Corps vocational program to date. The following pages summarize the findings and recommendations of the Vocational Offerings Review. More detailed

and substantial information on each of the topics discussed here is available in the bulk of the analysis which is contained in Documentation Reports 1 through 7.

III. ANALYSIS AND FINDINGS

A. Characteristics of Job Corps Enrollees

During FY 1982, Job Corps enrolled over 52,000 corpsmembers at 105 centers in 43 states and Puerto Rico. Slightly over one-half of the FY 1982 enrollees were assigned to Job Corps centers in their home state. After leaving Job Corps, at least 15 percent of the trainees relocate to a new locality instead of returning to their earlier residence. This information substantiates the fact that Job Corps, as a nationwide training program, provides service to locales beyond the borders of the local Job Corps training areas. It also makes the job of aligning training offerings with occupational employment demands in relevant labor markets very difficult at some centers.

Of the 52,902 recorded new Job Corps enrollees, 62 percent were male and 38 percent were female. Fifty-five percent of the corpsmembers were black, 30 percent white, 8.2 percent Hispanic, 3.6 percent American Indi and 3 percent Asian and Pacific Islander. Nineteen percent of the enrollees had completed 12 or more years of schooling and a similar percentage could read at over 8th grade level. While only 4.7 percent had completed 7 or fewer grades of school, over half could not read at the 7th grade level. The median school year completed was 10 and the median grade reading level was about 6. (See Documentation Report No. 1 for regional breakdowns.)

B. FY 82 Vocational Offerings, Outcomes, Costs and Labor Market Prospects

1. Occupations

Job Corps provided training in 120 recorded occupations to corpsmembers who were enrolled at least 90 days and who terminated in FY 1982. Eighty of the training occupations had at least 25 trainees who had been in Job Corps 90 days or longer. The largest 8 occupations accounted for 57.9 percent (18,568) of the 32,033 90 day + terminees. As Table 1 illustrates, during FY 1982, over 1,000 trainees were enrolled in each of the 8 largest occupations, led by Clerk Typist at 3,269. The largest twenty-two training occupations accounted for 84 percent of the 90 days + terminees. In each, at least 300 corpsmembers received training.

Table 1 also shows the percentage of males and females enrolled each of the 22 largest Job Corps occupations. Six of these had predominantly female enrollment -- Clerk Typist; Nurse's Assistant; Clerk, General; Retail Sales Clerk, Keypunch Operator; and Bookkeeper. An examination of females enrollments revealed that Job Corps trains a relatively high percentage of women in non-traditional occupations. For example, 18 percent of the trainees in the painter program are women. Likewise, 12.8 percent of those training to become electricians were women, (compared to 4.1 percent in Vocational Education programs nationally [1]) in addition to 11.9 percent in Custodial Maintenance, 8.5 percent in Auto Mechanic Helper and 8.1 percent in Auto Body Repair.

[1] U.S. Dept. of Education, National Center for Education Statistics, Vocational Education Data System.

TABLE 1

The Largest Job Corps Training Occupations (FY 1982)

Training Occupation	Number Trained ≥ 90 Days	Percent Male	Percent Female
Clerk Typist	3,269	17.7	82.3
Nurse's Assistant	3,081	15.7	84.3
Combination Welder	2,854	93.6	6.4
Cook	2,600	61.8	38.2
Carpenter	2,121	92.3	7.7
Custodial Maintenance	1,998	88.1	11.9
Auto Service Repairer	1,334	94.3	5.7
Brick and Stone Mason	1,311	96.0	4.0
Painter	982	82.0	18.0
Auto Body Repair	841	91.9	8.1
Electrician	793	87.2	12.8
Clerk, General	678	18.7	81.3
Auto Mechanic Helper	674	91.5	8.5
Welder, Spot	651	90.0	10.0
Electronic Assembler	631	61.6	38.4
Cement Mason	585	94.5	5.5
Plumber	508	96.3	3.7
Retail Sales Clerk	433	32.1	67.9
Landscaper	423	79.1	20.9
Heavy Equipment Operator	384	94.0	6.0
Keypunch Operator	370	22.8	77.2
Bookkeeper	313	33.2	66.8

Job Corps provides new corpsmembers with an opportunity to survey all center vocations through its Occupational Exploration Program. All corpsmembers have free access to entry into any occupation for which they have the requisite reading and math levels. Corpsmembers also have the option of changing vocational areas after program entry, and some choose to train in more than one occupation while in Job Corps.

2. Outcomes

Since the focus of this review was to assess vocational offerings, outcome data are restricted to reported terminees who were enrolled at least 90 days and, thus, had at least some opportunity to receive vocational training. Outcome data for these terminees is presented for two measures -- percent job placed and average wage at job entry. The job placement measure is defined differently from other job placement measures used in Job Corps to assess centers and overall program performance. Depending on the purpose -- i.e., what aspects of performance are being assessed -- a variety of measures are used.

The placement rate measure used in this review shows artificially low numbers compared to other related measures since it:

- does not include placements in the military
- does not include placements in further education and training such as vocational/technical schools, community colleges, and colleges.
- includes incomplete records for terminees whom placement agencies could not locate and who may have obtained jobs.

- focuses only on terminees who stayed at least 90 days
- excludes occupations with less than 25 terminees recorded in FY 82
- includes all such terminees whether or not those terminees were available for placement

The most broadly defined measure -- those placed in jobs, military or school as a percent of terminees available for placement -- shows a success rate of 86.6% for FY 82. A more restricted measure -- those placed in jobs as a percent of terminees available for placement-- showed 57.4% for FY 82. Even including those not available for placement, the overall job placement rate reported for FY 82 was 53.6%. The data restrictions placed on the measure used in the vocational review result in a 46.7% placement rate. While this undoubtedly understates the overall success rate for the program, the definition was consistently applied to the specific occupations and provides an adequate basis for comparative analysis of the existing offerings.

One caveat to the usefulness of the restricted measure applies to occupations with predominantly female enrollment. Job placement in some of the large occupations with primarily female enrollment was lower than that for some programs with primarily male enrollment. These results are at least partially due to the method of computing job placement rates in this study. Since, historically, many more ex-corpswomen leave the labor force upon termination than do corpsmen, the use of all terminees as the computational base instead of those available for placement undoubtedly yields relatively lower job placement rates for females.

Table 2 provides overall outcomes for each occupation by major training provider in terms of (1) the two major outcome measures -- job placement rate and job entry wage, (2) the two cost measures--cost per job placement and cost per training year, and (3) labor market measures--absolute and percent growth of the occupation. Other outcome measures, such as completion rates, training related placements and related measures, were considered and rejected due to data availability problems and other factors as discussed more fully in Documentation Report 1.

Occupational job placement rates varied from a high of 88% for Electronic Technicians to a low of 13% for Mail Clerk. Average wage at job entry varied from a high of $6.39 per hour for a Clerk Typist trained by a national contractor to a low of $3.35 per hour for Hospital Dietary Aide trained by center operators.

Documentation Reports 1 and 5 discuss these outcomes in more detail. The use of these outcome measures in assessing relative effectiveness as well as differences in training providers are summarized in Section C of this Final Report.

3. Costs

Table 2 also provides the direct training costs for each occupation by training provider in terms of two measures -- cost per training year and cost per job placement. Cost per training year ranged from a high of $8,923 for Engineer Aide/Rodman trained by a national contractor to $458 for Teller trained by center operators. Cost per job placement ranged from a high of $13,384 for Engineer Aide/Rodman trained by a national contractor to $607 for Pest Control trained by center operators.

TABLE 2

OUTCOME AND GROWTH DATA FOR JOB CORPS OCCUPATIONAL TRAINING

TRAINING OCCUPATION	TRAINING PROVIDER	NUMBER TRAINED	PERCENT JOB PLACED	AVERAGE WAGE OF JOB	COST PER JOB PLACEMENT	COST PER TRAINING YEAR	ABSOLUTE GROWTH	PERCENTAGE GROWTH
Sub-Professional								
Draftsman	Center	160	45.0	$ 4.14	$ 2,637	$1,124	87,000	27.8
Cosmetologist	Center	67	47.7	3.64	3,651	1,358	27,453	11.9
Eng. Aide/Rodman	I.U.O.E.	30	66.6	4.61	13,384	8,923	74,369	18.6
Electronic Tech.	Center	25	88.0	6.19	3,552	3,006	109,000	29.8
Prof. Prog. Aide	Center	42	38.0	3.89	959	480	21,891	17.2
Clerical/Sales								
Clerk Typist	Center	3,154	36.2	3.77	1,763	559	184,000	17.5
Clerk Typist	CCC	64	35.9	3.79	6,666	1,503	184,000	17.5
Clerk Typist	B.R.A.C.	51	80.3	6.39	7,780	3,097	184,000	17.5
Dupl. Mach. Opr.	Center	73	21.9	3.59	1,947	779	4,564	13.6
Keypunch Opr.	Center	359	42.6	3.90	2,404	971	-31,420	-9.7
Stock Clerk	CCC	85	50.5	4.11	4,817	3,046	142,000	17.4
Retail Sales Clerk	Center	433	43.6	3.51	1,215	588	465,000	17.7
Accounting Clerk	Center	276	44.9	3.91	2,095	689	94,000	13.3
Secretary	Center	69	49.2	3.50	4,409	1,189	700,000+	29.2
Bookkeeper	Center	313	38.3	3.75	2,148	633	168,000	18.8
Calc. Mach. Opr.	Center	47	34.0	3.47	1,305	596	885	17.3
Mail Clerk	AFL-CIO	38	13.1	3.39	10,046	1,092	13,405	16.7
Cashier/Checker	Center	161	34.7	3.60	1,520	545	446,000	28.7
Clerk, General	Center	598	42.4	3.89	1,340	606	366,000	15.4
Clerk, General	B.R.A.C.	62	67.8	4.45	2,556	3,158	366,000	15.4
Receptionist	Center	144	35.4	3.65	2,012	622	97,000	24.6
Teller	Center	27	40.7	3.87	1,209	458	108,000	25.3
Stenographer	Center	46	32.6	3.78	4,788	658	-25,317	-9.1
Ward Clerk	Center	188	44.1	3.73	1,575	589	366,000	15.4
Railway Clerk	B.R.A.C.	101	70.2	5.93	8,568	4,138	- 1,035	-10.6

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	TRAINING PROVIDER	NUMBER TRAINED	PERCENT JOB PLACED	AVERAGE WAGE OF JOB	COST PER JOB PLACEMENT	COST PER TRAINING YEAR	ABSOLUTE GROWTH	PERCENTAGE GROWTH
. int. int. int. rd sery aker	Center CCC N.A.H.B. Center Center Center	1,226 540 232 84 124 25	42.4 46.6 59.0 60.7 30.6 56.0	$ 3.92 3.85 3.72 3.75 3.40 4.15	$ 2,767 5,262 4,440 1,800 1,605 3,277	$1,068 2,516 1,601 927 1,245 3,277	491,000 491,000 491,000 152,000 78,056 10,222	18.3 18.3 18.3 23.6 18.8 12.9
len ons.	Center CCC Center	397 127 42	47.6 57.4 57.1	3.84 3.99 3.76	1,080 2,626 607	865 1,976 633	75,641 1,512 8,097	14.0 12.1 31.6
ess Order er	Center Center CCC Center Center Center Center/CCC*	31 1,940 646 244 71 54 32	51.6 39.2 48.6 35.6 59.1 62.9 68.7	3.35 3.65 3.87 3.77 4.05 3.76 3.61	2,174 1,737 5,169 2,338 2,321 1,859 1,822	2,174 711 2,687 869 1,037 2,107 1,145	361,000 86,720 86,720 9,758 23,923 93,000 231,000	21.4 25.8 25.8 21.8 13.5 21.4 27.7
P. Helper Helper e/Repairman e/Repairman e/Repairman ng. Repairman epairman epairman	Center CCC Center CCC U.A.W. Center Center U.A.W.	562 109 981 222 131 67 777 51	48.2 47.7 47.6 58.1 59.5 43.2 48.3 70.5	3.89 3.74 3.84 4.12 4.45 3.60 3.87 4.54	2,424 3,129 1,731 2,911 7,777 2,971 1,836 5,457	896 1,678 758 1,755 3,889 653 727 3,638	209,000 209,000 179,000 179,000 179,000 28,238 23,324 23,324	22.0 22.0 26.0 26.0 26.0 13.7 20.4 20.4

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p. (cont'd...)								
lerk	Center	45	64.4	$ 3.86	$ 1,054	$ 577	465,000	17.7
Attendant	Center	121	47.9	3.74	2,565	1,055	74,100	19.0
Attendant	AFL-CIO	30	40.0	3.69	2,147	920	74,100	19.0
anic	Center	28	60.7	4.09	2,836	1,303	38,438	22.6
Repair	Center	75	40.0	4.02	8,278	2,484	10,003	11.2
Repair	I.U.O.E.	27	85.1	4.53	8,891	5,680	10,003	11.2
Trades								
onstruction	Center	693	43.1	3.79	2,742	907	119,000	17.8
onstruction	N.A.H.B.	220	54.1	3.94	3,824	1,463	119,000	17.8
onstruction	U.B.C.J.A.	1,228	57.9	4.70	8,117	3,968	119,000	17.8
	Center	623	47.8	3.98	1,644	666	90,000	17.9
	N.A.H.B	149	67.8	4.13	3,791	1,859	90,000	17.9
n	Center	52	42.3	3.68	3,018	1,185	37,098	35.9
n	CCC	55	65.4	3.93	3,945	2,449	37,098	35.9
n	N.A.H.B.	90	42.2	4.43	6.567	1,965	37,098	35.9
n	OP&CMI	338	56.2	4.69	5,801	2,662	37,098	35.9
Mason	Center	639	40.2	3.74	1,835	764	33,975	32.2
Mason	CCC	45	62.2	4.04	3,559	1,748	33,975	32.2
Mason	N.A.H.B.	88	54.6	4.02	4,879	1,436	33,975	32.2
Mason	I.M.I.	539	52.6	4.53	6,069	2,892	33,975	32.2
	Center	431	42.6	3.69	1,290	775	33,840	14.8
	N.A.H.B.	95	58.9	4.02	2,397	1,401	33,840	14.8
	I.B.P.A.T.	456	56.3	4.53	6,588	2,970	33,840	14.8
	Center	227	49.3	4.36	5,956	2,863	72,663	17.3
p. Operator	I.U.O.E.	158	67.7	5.14	11,337	6,318	72,663	17.3
p. Operator	Center	277	50.1	3.82	2,426	958	71,805	20.9
	N.A.H.B.	209	60.2	4.21	4,008	1,906	71,805	20.9
	OP&CMI	290	56.1	4.77	6,928	2,824	1,639	10.0

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								%
Construction Trades (cont'd...)								
Tilesetter	I.M.I.	58	60.3	$ 4.80	$ 6,313	$2,694	5,099	33.4
Const. Labor	CCC	93	55.9	3.89	5,493	3,283	250,000	10.4
Welder, Spot	Center	601	39.6	4.19	2,265	824	107,000	20.0
Welder, Spot	CCC	50	56.0	4.51	4,493	2,796	107,000	20.0
Floor Layer	Center/IBPAT	34	52.9	5.02	3,740	1,464	6,320	31.5
Insulation Worker	Center	25	52.0	3.98	1,499	487	12,977	30.6
Electrical/Appliance Repair								
Air/Cond. Ref. Mechanic	Center	245	46.1	3.72	1,873	989	30,389	20.6
Elec. Appl. Repairman	Center	103	49.5	3.83	1,643	650	3,928	7.9
Radio/TV Repairman	Center	47	42.5	3.86	2,570	619	13,506	26.2
Electrician Helper	Center	62	41.9	3.35	2,453	717	209,000	22.0
Solar Installer	N.A.H.B.	139	72.2	4.52	3,140	2,004	9,500**	18.6**
Telecommunications	AFL-CIO	56	48.2	3.76	2,214	996	11,515	15.4
Industrial Production								
Machine Operator	Center	82	78.0	4.87	1,711	883	29,080	17.1
Comb. Welder	Center	1,880	50.2	4.43	2,329	980	107,000	20.0
Comb. Welder	CCC	44	53.9	4.40	3,250	2,330	107,000	20.0
Comb. Welder	AFL-CIO	44	50.9	4.49	3,386	1,451	107,000	20.0
Sheet Metal Wkr.	Center	26	61.5	4.28	1,879	699	33,070	15.6
Furniture Upholsterer	Center	60	54.5	3.73	2,070	828	1,331	10.6
Electronics Assembler	Center	631	54.0	3.94	1,116	711	241,000	19.8
Offset Printer	Center	213	60.0	4.07	2,567	1,341	11,272	14.3
Weld, Gas Arc	Center	60	61.6	4.27	1,022	995	107,000	20.0
Machine Oper. Lathe	Center	45	57.7	3.89	2,358	1,022	29,404	16.1
Machinist	Center	87	57.4	4.27	2,325	1,086	44,255	16.1

* Data on trainees from two procurement groups were added to produce a sample of more than 25 trainees

**Statistics not available from BLS; figure shown is best estimate of Marvin Cetron, expert in labor market information

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Transportation								
Warehouseman	Center	180	58.3	$ 4.00	$1,000	$ 724	43,470	12.2
Forklift Operator	Center	27	66.6	4.31	1,163	837	59,356	14.9
Deckhand	I.M.U.	34	82.4	5.65	4,677	3,446	726	2.1
Health Occupations								
Nurse Assistant	Center	3,067	37.9	3.60	1,645	656	506,000	43.3
Dental Assistant	Center	87	59.7	4.02	1,957	1,082	54,360	39.6
Lic. Prac. Nurse	Center	76	53.9	5.04	4,954	1,813	177,000	34.9
Hosp. Diet Aide	Center	39	41.0	3.35	1,372	665	110,000	18.4
Medical Asst.	Center	100	41.0	3.95	3,492	974	26,447	29.8
Med. Lab. Tech.	*Center/AFL-CIO	27	18.5	3.47	5,537	814	31,040	35.4

*Data on trainees from two procurement groups were added to provide a sample of more than 25 trainees.

The selection of these measures as well as other cost measures considered is discussed in Documentation Report 4. Documentation Reports 4 and 5 discuss these outcomes in detail. The use of these outcome measures in assessing overall relative effectiveness as well as differences in training providers are summarized in Section C of this Final Report.

4. Labor Market Prospects

Table 2 also provides two measures of labor market prospects for each of the current Job Corps occupations -- absolute growth in numbers employed from 1980 to 1990 and percentage growth for the same period. When ranked in terms of the absolute growth in the number of jobs for the period 1980-1990, the top decile included several clerical, retail and medical occupations. The bottom decile had a variety of unrelated occupations. When training occupations were ranked and broken into deciles on percentage growth, the top decile contained 4 medical occupations and 3 construction occupations. The bottom decile had unrelated occupations similar to those in the absolute growth ranked list.

Documentation Reports 2 and 3 discuss the identification of high demand occupations. Documentation Report 5 and Section C of this Final Report discuss the use of labor market measures in assessing relative effectiveness of the occupations currently offered.

C. Assessment of the Relative Effectiveness of Current Occupations

One of the main purposes of the Vocational Offerings Review Project was to assess the relative or comparative effectiveness of the training

occupations within Job Corps; which occupations have been more successful in the Job Corps environment and which have been less successful. The project was limited in the number and type of variables that could be used as criteria to assess relative effectiveness. The six criteria shown in Table 2 were chosen because they represent a balance between performance measures, cost measures, and future placement potential. All 80 Job Corps training occupations with more than 25 FY 1982 trainees enrolled in Job Corps for 90 or more days, were rated on (1) Job Placement Percent, (2) Average Wage at Job Entry, (3) Cost Per Training Year, (4) Cost Per Job Placement, (5) Absolute Employment Growth from 1980-1990, and (6) Percentage Employment Growth from 1980-1990. There was no attempt to measure prestige of training occupations or other value or quality-of-life oriented variables that may be related to the relative effectiveness of training occupations but that are based on value judgements.

The two cost variables, cost per job placement and cost per training year, were basic units of comparison between the training occupations within Job Corps. Use of these variables was not intended to provide a cost/benefit analysis. They were derived from dividing the total vocational training costs in each training occupation by the amount of time spent in training (training years) and the number of job placements they produce (cost per job placement). These costs did not include capital costs (equipment, facilities, etc.) or management/support costs (administration, security, etc.) and there was no attempt to measure the difference in quality of instruction provided.

When there was more than one group providing training in an occupation, i.e., center staff, civilian conservation staff, or national contractors, data for these groups were separated to produce differing ratings for a training occupation based on the training provider. There were 108 training "occupations" rated by this analysis after the original 80 were separated by training provider.

The raw data collected in the analysis of Job Corps training occupations were used to determine a relative (comparative) assessment of individual occupations rather than an absolute judgement of each. As indicated earlier, these data were collected from 99 of the 105 current Job Corps Centers. Training occupations with too few trainees to compare adequately with larger, more established training occupations were eliminated from the analysis. The overall results (raw data) generally understated Job Corps' overall performance on these criteria because the most restricted and conservative measures of performance were used at all times. However, these artificially low numbers were used because it was not the individual performance of the training occupations but rather their effectiveness when compared to the other occupations in Job Corps which was the research issue under study.

Training occupations were scored by ranking them on each of the six criteria and awarding points from one to ten depending on how positive their ranking was on each criterion. Each of the criteria was weighted according to those considered most important for judging training

occupation effectiveness in Job Corps by Job Corps national managers prior to the scoring. Figure 1 shows the weights of the six rating variables as they were assigned by the Job Corps managers.

FIGURE 1

WEIGHTS OF VARIABLES

CRITERIA	WEIGHT
1. Percent Job Placed	4
2. Average Wage of Job	1
3. Cost Per Job Placement	4
4. Cost Per Training Year	2
5. Absolute Employment Growth, 1980-1990	2
6. Percentage Employment Growth, 1980-1990	1

Rank scores (deciles) for each training occupation were multiplied by the weight assigned to each of the six ranking variables to produce a weighted score for each current Job Corps training occupation. Value judgements are inherent in any weighting system; therefore, the results of this weighting scheme were checked against scores with no weights computed. The final ranked list produced by the weighted scoring provided similar results to the ranked list produced by unweighted scoring (see Table V-C, Documentation Report No. 5). The result indicates that the weights provided by the Job Corps managers were relatively balanced between outcomes measures and cost variables; slightly less emphasis was placed on labor market projections in the weighted scheme, causing some shifts.

Table 3 presents the 108 training occupations (80 occupations separated by training provider) ranked according to their total weighted score on the rating. The mean score on this list was 78 with a standard deviation score of 18. The list was divided into upper, middle and lower groups with lines drawn to indicate scores that were more than one standard deviation above and below the mean. Some of the occupations have a dollar sign ($) or an ampersand (&) after their score. Those with the dollar sign have been flagged for having cost per job placement exceeding twice the national average of $3,076. per job placement. Those with the ampersand have been flagged for having negative growth (less than 1000) employment increase in the decade of the 1980's.

Auto Parts Clerk received the highest score based on the six weighted criteria followed by Welder - Gas Metal Arc and Forklift Operator. Of the nineteen training occupations above the upper standard deviation line, six were clerical. Of the sixteen below the lower standard deviation line, six were also clerical. No clear pattern emerged about which types of training occupations were consistently more effective.

D. Assessment of the Three Groups of Training Providers

Definite differences were noted on the effectiveness criteria for National Contractors, Centers, and CCCs. Generally speaking, the National Contractors had the highest job placement rates and the highest entry wages. Contract Centers had the lowest cost per training year and cost per job placement. Civilian Conservation Centers ranked in the middle of these two groups on these four variables.

TABLE 3

TRAINING OCCUPATION RELATIVE EFFECTIVENESS RANK

UPPER GROUP

RAINING OCCUPATION FFECTIVENESS RANK	NUMBER OF TRAINEES	TRAINING PROVIDER	TOTAL SCORE
1. Auto Parts Clerk	45	Center	126
2. Welder, Gas Metal Arc.	60	Center	116
3. Forklift Operator	27	Center	113
4. Kitchen Helper*	32	Center/CCC	111
5. Electronics Assem.	631	Center	110
6. Security Guard	84	Center	109
7. Machine Operator	82	Center	108
8. Sheet Metal Worker	26	Center	108
9. Warehouseman	180	Center	106
10. Pest Control	42	Center	103
11. Retail Sales Clerk	433	Center	102
12. Insulation Worker	25	Center	101
13. Electrician	623	Center	99
14. Dental Assistant	87	Center	99
15. Cook, Short Order	54	Center	99
16. Ward Clerk	188	Center	98
17. Clerk, General	62	B.R.A.C.	98
18. Teller	27	Center	97
19. Clerk, General	598	Center	96
20. Electronic Tech.	25	Center	95
21. Nurse's Assistant	3,067	Center	94
22. Auto Service/Repairer	981	Center	94
23. Auto Service/Repairer	222	CCC	93
24. Cashier/Checker	161	Center	91
25. Diesel Mechanic	28	Center	91
26. Electrician	149	N.A.H.B.	90
27. Landscaper	397	Center	89
28. Auto Mechanic Helper	562	Center	88
29. Hosp. Diet. Aide	39	Center	88
30. Clerk-Typist	3,154	Center	87
31. Brick/Stone Mason	45	CCC	87
32. Auto Body Repair	777	Center	86
33. Painter	95	N.A.H.B.	86
34. Meat Cutter	71	Center	85

X Upper Standard Deviation Line
Mean Score = 78

TABLE 3

TRAINING OCCUPATION RELATIVE EFFECTIVENESS RANK

MIDDLE GROUP

RAINING OCCUPATION FFECTIVENESS RANK	NUMBER OF TRAINEES	TRAINING PROVIDER	TOTAL SCORE
5. Combination Welder	1,880	Center	84
6. Accounting Clerk	276	Center	84
7. Machinist	87	Center	84
8. Waiter/Waitress	31	Center	84
9. Painter	431	Center	83
0. Electricial Appl.	103	Center	83
1. Machine Operator, Lathe	45	Center	83
2. Professional Program Aide	42	Center	83
3. Plumber	277	Center	81
4. Custodial Maint.	232	N.A.H.B.	80
5. Solor Installer	139	N.A.H.B.	80
6. Licensed Prac. Nurse	76	Center	80
7. Cement Mason	55	CCC	80
8. Brick/Stone Mason	639	Center	79
9. Bookkeeper	313	Center	79
0. Clerk Typist	51	B.R.A.C.	79 ($)
1. Cook	1,940	Center	78
2. Welder, Spot	601	Center	78
3. Air Cond/Ref. Mech.	245	Center	78
4. Offset Printer	213	Center	78
5. Electrician Helper	62	Center	78
6. Plumber	209	N.A.H.B.	77
7. Draftsman	160	Center	76
8. Custodial Maint.	1,226	Center	75
9. Brick/Stone Mason	88	N.A.H.B	75
0. Receptionist	144	Center	74
1. Welder, Combination	930	CCC	74
2. Auto Ser. Repair	131	U.A.W.	73 ($)
3. Ser. Stat. Atten.	121	Center	73
4. Telecommunications	56	AFL-CIO	73
5. Welder, Spot	50	CCC	73
6. Secretary	69	Center	72
7. Furniture Uphol.	60	Center	72
8. Auto Body Repair	51	U.A.W.	72
9. Carpenter Const.	693	Center	71
0. Carpenter Const.	220	N.A.H.B.	71
1. Radio/TV Repair	47	Center	71
2. Floor Layer*	34	Center/IBPAT	71

TABLE 3

TRAINING OCCUPATION RELATIVE EFFECTIVENESS RANK

LOWER GROUP

TRAINING OCCUPATION EFFECTIVENESS RANK	NUMBER OF TRAINEES	TRAINING PROVIDER	TOTAL SCORE	
73. Service Stat. Att.	30	AFL-CIO	70	
74. Carpenter Const.	1,228	U.B.C.J.A.	69	
75. Cement Mason	338	OPE/CMI	69	
76. Teacher/Nursery	124	Center	69	
77. Combination Welder	44	AFL-CIO	69	
78. Engineer Aide/	30	I.U.O.E.	69 ($)	
79. Heavy Equip. Oper.	158	I.U.O.E.	68 ($)	
80. Auto Mech. Helper	109	CCC	68	
81. Tilesetter	58	I.M.I.	68 ($)	
82. Stock Clerk	85	CCC	67	
83. Small Gas Eng. Rep.	67	Center	67	
84. Calc. Mach. Oper.	47	Center	67 (&)	
85. Deckhand	34	I.M.U.	67 (&)	
86. Brick/Stone Mason	539	I.M.I.	65	
87. Forestry/Conser.	127	CCC	64	
88. Cement Mason	52	Center	64	
89. Medical Assistant	100	Center	63	
90. Painter	456	I.B.P.A.T.	62	
91. Animal Caretaker	25	Center	62	
92. Conts. Labor	93	CCC	62	
93. Heavy Equip. Rep.	27	I.U.O.E.	61 ($)	
94. Custodial Maint.	540	CCC	60	XX
95. Railway Clerk	101	B.R.A.C.	59 ($) (&)	
96. Cook	646	CCC	57	
97. Keypunch Operator	359	Center	57 (&)	
98. Baker	244	Center	57	
99. Heavy Equip. Oper.	227	Center	56	
100. Duplicating Machine Operator	73	Center	55	
101. Cement Mason	90	N.A.H.B.	54 ($)	
102. Cosmetologist	67	Center	54	
103. Plasterer	290	O.P.C.M.I	49 ($)	
104. Medical Lab Ass't.	27	Center/AFL-CIO	47	
105. Clerk-Typist	64	CCC	43 ($)	
106. Stenographer	46	Center	41 (&)	
107. Heavy Equip. Rep.	75	Center	31 ($)	
108. Mail Clerk	38	AFL-CIO	29 ($)	

*Data on trainees from two procurement groups were added together to have a smaple of more than 25 trainees.

$Cost Per Job Placement exceeds twice the National Average of $3,076.

TABLE C

CODE KEY FOR TRAINING PROVIDERS

CODE	EXPLANATION
AFL-CIO	American Federation of Labor Congress of Industrial Organizations
B.R.A.C.	Brotherhood of Railway and Airline Clerks
CENTER	Contract Center
CCC	Civilian Conservation Center
I.B.P.A.T.	International Brotherhood of Painters and Allied Trades
I.M.I.	International Masonry Institute
I.M.U.	International Maritime Union
I.U.O.E.	International Union of Operating Engineers
N.A.H.B.	National Association of Homebuilders
O.P./C.M.I.	Operation Plasterers and Cement Mason's International Association
U.A.W.	United Automobile Workers
U.B.C.J.A.	United Brotherhood of Carpenters and Joiners of America

When all the training occupations were scored using all six criteria as measures of relative effectiveness within Job Corps, some patterns were noted. The upper group was dominated by center trained occupations. Out of the top 34 occupations, 28 were center trained. In contrast, out of the bottom 36 occupations, only 13 were center trained. There were a disproportionate number of nationally contracted training occupations in the lowere group (15 out of 27). Civilian Conservation Center programs had a similar proportion of their training occupations in the bottom group (7 out of 12) on this comparative scale. Generally, center training occupations did better than the other two groups on this set of rating criteria.

E. New High Growth Occupations

The Vocational Offerings Review Project studied labor force projections from the Bureau of Labor Statistics (BLS) and labor market information from NOICC and BLS to choose new occupations that may be suitable for addition to Job Corps vocational offerings. All 670 Occupational Employment Survey (OES) occupational titles in BLS's publicly available projections of employment changes 180-1990 were screened for the reading level required to learn the skills of the occupation and the length of specific vocational preparation they require. About one-half met the screening criteria and a substantial majority of these "high employment growth" occupations are currently being taught in Job Corps. The Job Corps vocational training is already fairly well targeted to labor market demand. Three out of five corpsmembers were trained in the 26 occupations in which employment growth of over 100,000 was projected, using the BLS Occupational Employment Survey (OES) occupational titles that are within the range of corpsmembers. Almost 95 percent of all

was projected to increase 10,000 or more.

Occupations in which Job Corps is currently not training or is providing training to fewer than 25 corpsmembers were selected from the initial BLS list for further evaluation. Each of those occupations was evaluated using the following criteria:

(1) Absolute change in numbers employed in projected to increase 10,000 or more by 1990,

(2) Percent growth is projected to be at least 18.5% from 1980 to 1990.

(3) The occupation requires an educational level of twelfth grade or less,

(4) The occupation requires a training time of two years or less,

(5) Employer hiring practices, including age requirements and preferred education and training levels, are commensurate with corpsmember experiences and,

(6) The occupation was recommended by a panel of Job Corps employees who have knowledge of corpsmembers and of current Job Corps vocational training programs.

Occupations meeting at least five of the criteria were selected for further consideration as new Job Corps training offerings.

Table 7 lists the recommended "new" occupations. The list is not long because Job Corps is already providing training in most of the high growth occupations suited to corpsmembers' ability levels. Job Corps is currently not providing training in sixty-one occupations identified as having growth potential. Of these, twelve were identified as suitable f · consideration as new Job Corps training programs.

Factors such as hiring biases in the labor market (e.g., age or educational preferences of employers), little or no training time, or inappropriateness to Job Corps environment screened out all other occupations. The recommended new occupations encompass several Job Corps training clusters.

Proposed new training offerings which appear promising in the business/clerical program area include Word Processing Machine Operator, Data Entry Operator, Bookkeeping Machine Operator, Proof Machine Operator, and Payroll Clerk. Individuals who can operate word processing machines and perform data entry operations on computer terminals are currently in demand. Continued good job prospects are expected in the coming years. Many employers now prefer clerical applicants with word processing or data entry experience; some require it. Just as the electric typewriter superseded manual typewriters, word processing machines and computer terminals are now becoming standard office equipment. Bookkeeping clerk occupations are expected to grow slightly faster than the average for all occupations in the coming decade. Clerks are needed to operate electronic machines and perform data entry tasks.

Possible additions to the training offerings in the Job Corps health occupations include Emergency Medical Technicians, Surgical Technicians, and X-Ray Technicians. All three occupations are expected to increase in numbers. All of these health offerings require certification or licensing on a state and/or a national level.

TABLE 4

New Job Corps Training Offerings

A. CLERICAL AND SALES CLUSTER

1. Word Processing Machine Operator
2. Data Entry Operator
3. Bookkeeping/Billing Machine Operator
4. Payroll Clerk
5. Proof Machine Operator

B. ELECTRICIAL/APPLIANCE REPAIR

1. Office Machine Repairer

C. INDUSTRIAL PRODUCTION

1. Production Painter

D. HEALTH OCCUPATIONS

1. Emergency Medical Technician
2. Surgical Technician
3. X-Ray Technician

E. POTENTIAL COMPUTER RELATED OCCUPATIONS

1. Computer and Peripheral EDP Equipment Operator
2. Computer Service Technician

In the area of industrial production and repair, Office Machine Repairer appears to be a promising field during the coming years. As new types of office machines are being installed, they must be serviced and maintained. Also, the occupation of Industrial Production Painter is projected to increase during the 1980's. Demand for this occupation may vary according to geographic location.

Finally, possible computer related additions to Job Corps programs include the Computer Operator and Computer Service Technician Occupations. The need for computer operators is projected to increase over 70 percent in the coming decade, as more and more firms invest in computers. The training time required is within Job Corps' mandate, and opportunities for further training and advancement would be available to many people employed in this field. The need for Computer Service Technicians is also projected to increase over 70 percent in the next ten years. Opportunities for individuals who can repair and service computers appear to be excellent, and advancement potential is good.

Inasmuch as training in these computer-related occupations is likely to involve substantial training equipment capital costs, Job Corps training should be undertaken in them on a controlled experimental and demonstration basis until their viability in Job Corps is established and it can be determined how best to arrange for such training.

Specific recommendations for delivering training in these occupations are contained in Documentation Report 6.

IV. RECOMMENDATIONS

The preceding sections of the report have set forth the key findings on current occupational training offerings and expected growth occupations of the future. The following recommendations emerge from the findings of this study:

1. Initiate Procedures to Implement Review Findings

Based on the findings in this study, the National Office of Job Corps will ask center contractors, CCC's, and national contractors to examine their vocational training offerings. Each center, CCC and national contractor will review the training programs offered in light of the assessment of vocational offerings initiated in this review, assessment of placement potential in each occupation according to labor market projections in the regional areas where their job placement are made, and the capabilities of corpsmembers.

The occupational ranking scheme developed in this study provides two "break points" for further examination of center programs (see Table 3). First, the offerings appearing below the lower standard deviation line of the occupational ranking are open to serious question. Centers with these offerings should be required to delete the offerings unless they can submit substantial justification and a preponderance of supporting evidence for retaining the programs in any location. If offerings are deleted, centers should be asked to replace them with more promising current Job Corps occupations (the top 19 on the ranked list) or with new offerings from the list contained in this study, once local and regional labor market demand has been ascertained and illustrated in support of the choices. Centers that change

training offerings should respond with proposals for the occupations to be offered, except that the National Office will centrally procure standardized curricula, equipment and initial training of local instructors for selected new occupations where economies of scale achieve cost savings.

Next, the occupations appearing in the lower ranking group of all the occupations but above the standard deviation line and all other occupations that have been flagged for excessive costs or negative employment growth are the second candidates for examination. Centers with these training offerings should also be required to submit justification for the retention of these programs and present alternative training programs if performance and labor market opportunity support the need for change.

The ratings on the Job Corps occupations in this review are based on a national aggregated average of their performance according to a set of specific criteria. A low rating for a particular occupation or training provider on a national aggregated basis does not mean that each center providing that training would receive a low rating. Certain occupations may work well at a specific center or in a particular labor market. Center by center response should be elicited to confirm the performance of the occupation at each center prior to making a final recommendation to delete a specific training program.

Too, elimination of certain occupations would increase operating costs at individual centers. For example, a center offering baking as an occupation is supplied with bread products at minimal cost. Likewise, a center offering VST experience as part of the training program has

some of its maintenance or construction needs met through the VST projects. These are tangible benefits to the center; however, the center must demonstrate that it operates a viable training program in terms of corpsmember job placement in order for the occupation to be retained as a training offering. Finally, exceptions to the elimination of occupations in the lower group on the ranked list should be made for certain "step-off" occupations essential in the curricula of a higher level occupation being offered.

2. Develop and Implement a System for Biennial Training Program Review

Decisions on vocational training offerings should be made through a system of national management guided by center participation. In such a system, national Job Corps management would issue biennial training program recommendations to training providers based on the type of assessment of training offerings initiated in this review. The program recommendations would be based on a list of current Job Corps training occupations which have been ranked according to performance on specified variables, such as the list contained in this study or an expanded list of variables. Improvements in MIS and cost data collection should be made to further refine the variables used in ranking the relative effectiveness of vocational offerings.

The National Office would require the centers to follow the procedures outlined in recommendation number one. Such a management approach would assure ETA that the substantial majority of Job Corps enrollees had the opportunity to be trained in occupations with the best overall performance records; that new high growth occupations would be systematically

introduced into the Job Corps system; that demonstrably poor performing occupations are regularly identified, reviewed, and eliminated unless special circumstances warranted their continuation, and that Job Corps centers would retain the flexibility needed to tailor their training programs to corpsmembers' needs.

3. Develop Center Contacts with Local Labor Market Sources

In recent years, Job Corps has encouraged corpsmember enrollment at a center close to the corpsmember's home. Although not all corpsmembers remain in the state or locality of the Job Corps center where they receive their training, Job Corps should ensure that centers contact their State Occupational Information Coordinating Committee and State Employment Security Agency to obtain local/state occupational supply and demand information when making decisions on vocational training. Evidence that these contacts have been made should be a part of the contracting process.

4. Conduct Follow-up Research Studies

Before conducting subsequent vocational reviews, efforts must be made to insure the standardization of any additional data that could be used to expand the scope of this study. Data collection and reporting processes should be reviewed and tested in advance of future review projects to maximize the validity and reliability of the information reported. Further efforts should be directed into exploring the issues uncovered by this initial study including the possibility that more sophisticated statistical techniques (multivariate) may be applied to the data to maximize the knowledge gained from subsequent reviews.