

Effect of Vocational Rehabilitation on Employment and Earnings of the Disabled: State Variations

by JOSEPH GREENBLUM*

Analysis of followup data in linked records of the Social Security Administration and the Rehabilitation Services Administration shows wide variation by State in 1972 employment and earnings of rehabilitants compared with those for other disabled persons whose cases were closed by State vocational rehabilitation agencies in fiscal year 1971. These State differences in the effect of rehabilitation occur for both men and women. When the States are ranked by the magnitude of the rehabilitation effect, a reasonable consistency is found among the rankings under the various measures of effect. Under the most valid measure used—employment percentage difference between rehabilitated and not rehabilitated clients—two patterns emerge: (1) The effect of rehabilitation among the States increases proportionally in South to North and West to East directions and (2) the relative effect favors women in more States than it does men and in more States than under the other measures.

A FOLLOWUP STUDY of all disabled persons whose cases were closed by State vocational rehabilitation agencies in fiscal year 1971 reveals that rehabilitants had a better employment and earnings record in calendar year 1972 than persons who were not rehabilitated and those referred but not accepted for services.¹ Further study has also demonstrated that the more favorable experience of successful clients cannot be accounted for by known selection factors such as work capacity or previous earnings but appears to reflect the effect of rehabilitation per se.²

* Division of Disability Studies, Office of Research and Statistics, Social Security Administration. Aaron Krute and Barry Bye offered valuable suggestions for data analysis and Florence Buffington prepared the tabulations. William J. Nelson, Division of Statistics, managed the statistical operations.

¹ See Joseph Greenblum, "Evaluating Vocational Rehabilitation Programs for the Disabled: National Long-Term Followup Study," *Social Security Bulletin*, October 1975.

² Joseph Greenblum, *The Effects of Vocational Rehabilitation on the Earnings of Disabled Persons* (Staff Paper No. 27), Office of Research and Statistics, Social Security Administration, 1977.

This study builds on previous research by exploring geographic differences in the effect of services on the employment and earnings of disabled persons. It reveals wide variations by State in the postclosure performance of rehabilitants, compared with that of other clients.

State vocational rehabilitation agencies provide services to persons referred from a broad variety of agencies, including the Social Security Administration. To qualify, such persons must demonstrate to an agency counselor both a substantial vocational handicap and a potential for rehabilitation. Those who successfully complete an individual plan for guidance, restoration, and training services and a brief period of employment³ are considered "rehabilitated" when their cases are closed. The cases of unsuccessful clients who had been accepted for services are closed as "not rehabilitated," and those of all other persons referred to the agency are closed as "not accepted."

The focus here is on State variations in postclosure employment and earnings of rehabilitants and the other two types of cases. Is the superior employment and earnings record of rehabilitants reflected in every one of the States? In which States do rehabilitants maintain and even increase the advantage found in the Nation as a whole, and in which States does the difference diminish and perhaps disappear? How do the States vary in rehabilitation impact, and what is their relative ranking in this respect? Since postclosure work experience of men and women may differ, do these State variations occur for both sexes or for only one?

SOURCE AND LIMITATIONS OF DATA

The findings presented here, as well as those in the reports cited above, are based on analyses of

³ The period was 1 month in fiscal year 1971, it has since been lengthened.

data in the linked records established by the Social Security Administration and the Rehabilitation Services Administration to aid in evaluating vocational rehabilitation programs for the disabled. A detailed description of the objectives and methods of the data link and definitions of terms used in the study appear in the technical note at the end of this article.

Before the records link was established, only data on employment and earnings at the time of closure were available and these were obtained largely for rehabilitants. In the absence of more valid indicators, such data and State rehabilitation rates have been used as criteria to determine program success.⁴ Followup studies of former vocational rehabilitation agency clients in which earnings data were obtained by questionnaire have been conducted in some States.⁵

Such studies, however, encounter severe problems in locating and eliciting information from respondents. Moreover, because they involve uncoordinated efforts, it is difficult to relate the findings in one State to those in others. The employment and earnings data in this report, which are based on information in social security records that is legally mandated and routinely reported across the Nation, are available for all types of closures and facilitate comparisons among States as well as with national results.

This report compares States rather than State vocational rehabilitation agencies. Many States have a vocational rehabilitation agency for the blind in addition to a general vocational rehabilitation agency, in the other States, all cases are included in a single vocational rehabilitation agency. To make the data comparable across States, cases in the agency for the blind have been combined with those in the general agency.

Six States were excluded from the analysis be-

cause it was not possible to obtain earnings information for rehabilitated persons. In New Jersey, North Carolina, and Washington, general vocational rehabilitation agency records on rehabilitants, as well as on persons accepted for services but not rehabilitated, could not be matched with social security records. New Jersey's agency did not submit any records. In Colorado, Montana, and Utah, classification problems precluded identification of almost all rehabilitated cases from both general and blind agencies. The remaining 44 States, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands are included in this report.

METHODOLOGY

Data for two measures of effectiveness—the percentage employed and mean earnings of the employed in 1972—are analyzed and presented here. Both variables are indicators of vocational performance during a period beginning at least one-half year after closure by the vocational rehabilitation agency. The employment variable refers to any involvement in remunerative work during the year, regardless of the amount of earnings or the length of the work period. It therefore does not take account of the stability or continuity of employment throughout the year. The variable on mean earnings among the employed is based on actual reported earnings up to the social security maximum taxable amount of \$9,000 in 1972. The degree of underestimation resulting from this limit is minor, since only 3 percent of the study population had earnings beyond it.

For each State, rehabilitants were compared with those who were not rehabilitated and those whose cases were not accepted by computing the difference in the percentage employed (rehabilitants minus each of the other closure types) and the mean earnings ratio (mean earnings of employed rehabilitants divided by the mean earnings of the employed among each of the other types). Two comparisons are possible in each State for each of the two variables of employment and earnings: (1) rehabilitated clients and those not rehabilitated and (2) the rehabilitated and those not accepted for services.

The principal analysis compares rehabilitated

⁴ See Alex Hawryluk, "Rehabilitation Gain: A Better Indicator Needed," *Journal of Rehabilitation*, September-October 1972, pages 22-25, and E. A. Hefferin and A. H. Katz, "Issues and Orientations in the Evaluation of Rehabilitation Programs: A Review Article," *Rehabilitation Literature*, March-April 1971.

⁵ For details on ongoing studies in Michigan, see R. D. Struthers, "MVRS Followup Studies—Questions Answered," *Journal of Rehabilitation*, July-August 1976, pages 30-34. See also H. E. A. Tinsley, R. G. Warnken, D. J. Weiss, et al., *A Followup Study of Former Clients of the Minnesota Division of Vocational Rehabilitation*, (Minnesota Studies in Vocational Rehabilitation, Bulletin 50) Industrial Relations Center, University of Minnesota, 1969.

clients with those who were not rehabilitated, with respect to employment. This comparison is more valid as a measure of rehabilitation impact than the other three. Employment tests the success of vocational rehabilitation more directly than the amount of earnings. It is a clearer indicator of the restoration of work capacity and the reduction or elimination of work disability—prime goals of the rehabilitation program. Amount of earnings, on the other hand, often reflects type of occupational and educational background rather than work capacity.

The comparison of rehabilitated clients with those not rehabilitated relates two groups with substantially similar degrees of disability severity. Members of both groups were judged by vocational rehabilitation agency counselors to be substantially handicapped in work but able to benefit from services. Furthermore, clients in both groups, by agreeing to the individual rehabilitation plan at the time of acceptance for services, had thereby signified at some time an interest in services. The comparison of rehabilitants with those not accepted for services, on the other hand, relates two disparate groups. The latter group has the widest variation of severity—those too severely handicapped to benefit from services as well as those with no substantial disability. Moreover, this group includes a relatively large number of persons with consistently low motivation for utilizing services.

The size of each of the employment differences and earnings ratios represents a measure of the gap between rehabilitants and others in subsequent vocational performance and is used in comparing and ranking the States by rehabilitation effect. The consistency of the rank numbers assigned to the States under the various measures of rehabilitation impact is determined by means of Kendall's Tau.⁶

The intergroup difference or ratio is a more nearly adequate measure of effect than the employment and earnings of rehabilitants alone. It is possible that the latter figures could be approx-

⁶The general interpretation of this correlation technique is that if any two States are drawn at random from a group of States, the difference between the probability that they will have the same order on any two specific impact measures and the probability that they will have a different order is equal to the value of Tau. See G. V. Glass and J. C. Stanley, *Statistical Methods in Education and Psychology*, Prentice-Hall, 1970, page 178.

imated in the other types of closure. The gap between rehabilitants and others may thus be minimal, even though the employment or earnings of rehabilitants in a given State may be among the highest in the Nation. Conversely, a relatively low employment or earnings level for rehabilitants in a State may result in a large gap if it is accompanied by extremely low levels for other types of closure. Distinctive labor-market conditions or client characteristics in a State may affect its employment or earnings levels regardless of status at closure. Measures relating the employment or earnings of rehabilitants and of other closure types rule out such effects.

Although the relative size of the employment difference or earnings ratio is a better measure of rehabilitation effect, a word of caution is in order. It is possible that selection factors could account for the differences or ratios found within a State. The earlier study of such factors⁷ focused on the national level, but its findings make it reasonable to assume that intrastate differences generally reflect the impact of the rehabilitation program. Another qualification flows from the nature of the followup data. Because employment and earnings data were available only through 1972, it cannot be determined whether the State patterns found in this analysis have persisted in subsequent years.

FINDINGS

State Variations

Data for each State are presented in tables 1 and 2 by type of closure. Table 1 portrays the percent employed and table 2 the mean earnings of the employed. Generally, the earnings differences in these tables are positive and the ratios are above 1, indicating some effect of rehabilitation.

Wide variations are evident among the States, however. The smallest differences or ratios are sufficiently low to suggest little or no impact of rehabilitation in some States. With respect to the proportion employed, the differences between the rehabilitated and those accepted but not rehabilitated range from a high of 40.6 percentage points.

⁷Joseph Greenblum, "The Effects of Vocational Rehabilitation on the Earnings of Disabled Persons," *op cit*

TABLE 1—Number of persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971 and percent employed in 1972, by type of closure, sex, and State

State ¹	Number of cases in study ²				Percent employed ³					
	Total	Rehabilitated	Not rehabilitated	Not accepted	Total	Rehabilitated	Not rehabilitated	Not accepted	Rehabilitated minus—	
									Not rehabilitated	Not accepted
Total ⁴	612,228	216,795	73,313	322,120	54.1	65.3	45.1	48.6	20.2	16.7
Alabama	10,104	5,050	1,424	3,630	51.0	58.2	37.1	46.2	21.1	12.0
Alaska	988	339	175	474	63.0	69.3	54.9	61.4	14.4	7.9
Arizona	5,185	1,436	440	3,309	63.3	76.0	48.4	59.7	27.6	16.3
Arkansas	9,034	4,284	790	3,960	56.8	62.4	50.1	52.0	12.3	10.4
California	76,124	13,932	13,281	48,911	51.9	68.4	46.1	48.8	22.3	19.6
Connecticut	5,052	2,205	793	2,054	55.0	68.7	41.5	45.5	27.2	23.2
Delaware	1,241	679	179	383	58.0	64.4	44.1	46.7	20.3	17.7
District of Columbia	5,355	2,261	734	2,360	50.3	59.0	38.6	45.7	20.4	13.3
Florida	42,776	12,582	5,296	24,898	55.0	71.6	47.8	48.2	23.8	23.4
Georgia	19,534	9,368	1,881	8,285	59.5	67.9	44.0	53.6	23.9	14.3
Guam	106	37	10	59	42.5	59.5	40.0	32.2	19.5	27.3
Hawaii	330	122	92	116	49.7	72.1	31.5	40.5	40.6	31.6
Idaho	695	229	62	404	69.9	74.7	38.7	72.0	36.0	2.7
Illinois	27,700	9,718	1,022	16,960	50.9	64.4	44.0	43.6	20.4	20.8
Indiana	6,505	2,550	702	3,253	64.0	72.9	48.0	60.4	24.9	12.5
Iowa	8,666	3,555	1,537	3,574	66.8	76.6	54.1	62.6	22.5	14.0
Kansas	2,947	1,303	494	1,150	66.4	77.5	55.1	58.7	22.4	18.8
Kentucky	14,877	8,340	1,380	5,157	49.8	54.6	37.6	45.2	17.0	9.4
Louisiana	9,049	4,216	1,200	3,633	55.6	58.3	49.4	54.6	8.9	3.7
Maine	1,748	652	236	860	53.9	61.7	46.6	50.1	15.1	11.6
Maryland	9,345	4,446	1,230	3,668	58.3	66.3	46.2	52.7	20.1	13.6
Massachusetts	8,073	3,415	935	3,723	54.0	62.2	42.4	49.5	19.8	12.7
Michigan	16,533	6,450	2,258	7,825	55.8	69.7	43.2	48.1	26.5	21.6
Minnesota	10,273	4,340	1,055	4,878	60.2	70.9	40.8	54.9	30.1	16.0
Mississippi	12,524	4,926	746	6,852	45.3	57.1	36.6	37.8	20.5	19.3
Missouri	11,439	4,424	1,110	5,905	58.8	67.5	50.0	53.9	17.5	13.6
Nebraska	2,710	1,412	500	798	68.5	75.8	57.8	62.3	18.0	13.6
Nevada	898	170	85	633	52.1	50.0	47.4	53.4	2.6	-3.4
New Hampshire	1,285	527	121	637	60.7	74.4	47.1	52.0	27.3	22.4
New Mexico	2,556	651	320	1,585	56.8	66.8	54.4	53.2	12.4	13.6
New York	30,394	9,101	5,200	16,093	50.6	64.5	40.9	45.7	23.6	18.8
North Dakota	2,139	1,125	251	763	59.0	68.6	43.4	49.8	25.2	18.8
Ohio	17,824	6,093	1,834	9,897	48.1	61.6	39.5	41.4	22.1	20.2
Oklahoma	13,242	7,013	1,650	4,579	60.6	62.1	51.6	61.7	10.5	4.4
Oregon	4,771	1,091	1,215	2,465	60.4	75.1	53.5	57.4	21.6	17.7
Pennsylvania	60,960	19,659	6,373	34,928	50.6	65.9	39.7	44.1	26.2	21.8
Puerto Rico	3,879	1,872	203	1,804	43.5	48.0	34.5	39.9	13.5	8.1
Rhode Island	2,224	1,195	118	911	57.3	59.9	38.1	56.4	21.8	3.5
South Carolina	22,637	9,067	1,988	11,582	56.2	68.7	43.4	48.5	25.3	20.2
South Dakota	1,656	735	254	567	63.4	70.1	41.3	64.7	28.8	5.4
Tennessee	12,781	5,443	1,258	6,080	53.7	65.2	40.7	46.0	24.5	19.2
Texas	46,278	17,251	6,706	22,321	54.3	64.4	49.2	48.0	15.2	16.4
Vermont	1,413	700	3	710	(?)	52.4	(?)	49.6	(?)	2.8
Virgin Islands	33	10	5	18	(?)	(?)	(?)	(?)	50.0	3.3
Virginia	23,502	11,035	1,271	11,196	59.5	67.0	41.5	54.1	25.5	12.9
West Virginia	8,129	2,978	434	4,717	42.7	53.4	39.9	36.3	13.5	17.1
Wisconsin	18,259	7,379	2,049	8,831	54.7	66.3	49.1	46.3	17.2	20.0
Wyoming	741	257	79	405	65.0	72.0	55.7	62.5	16.3	9.5

See footnotes at end of table

in Hawaii to a low of 2.6 points in Nevada. In a fourth of the States, differences are less than 17.1 percentage points, but in the fourth with the greatest effect the percentage differences are more than 25.3 points. When rehabilitants are compared with unaccepted clients, the range of differences is from 31.6 percentage points in Hawaii to -3.4 in Nevada, with the latter figure indicating a slightly higher percentage of employment among the rejected cases. In a fourth of the States, differences are less than 11.3 points, in the fourth showing the greatest impact, differences are more than 19.7 points.

When rehabilitants are compared with clients who were not rehabilitated, the mean earnings ratios range from 1.80 in Michigan to 1.10 in Louisiana, with the latter figure indicating that average earnings are only 10 percent higher among rehabilitants. Earnings of rehabilitants do not exceed those of nonrehabilitants by more than 28 percent in a fourth of the States, but in the fourth with the largest effect earnings are more than 52 percent higher. When rehabilitants are compared with those whose cases were not accepted, the highest ratio (1.51) is in Hawaii and the lowest (0.98) is in West Virginia. The latter

TABLE 1—Number of persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971 and percent employed in 1972, by type of closure, sex, and State—Continued

State ¹	Number of cases in study ²				Percent employed ³					
	Total	Rehabilitated	Not rehabilitated	Not accepted	Total	Rehabilitated	Not rehabilitated	Not accepted	Rehabilitated minus—	
									Not reha bilitated	Not accepted
Men										
Total ⁴	372 754	118,142	48 060	206,552	59 1	74 3	49 4	52 7	24 9	21 6
Alabama.....	5,650	2 577	868	2,205	58 1	70 1	39 5	51 3	30 6	18 8
Alaska.....	590	178	109	303	69 8	78 1	59 6	68 6	18 5	9 5
Arizona.....	3,220	752	240	2,228	66 9	83 4	52 1	62 9	31 3	20 5
Arkansas.....	5,395	2,104	549	2,742	62 4	74 7	54 6	54 6	20 1	20 1
California.....	52 985	9,248	9,420	34 317	55 7	73 4	49 9	52 5	23 5	20 9
Connecticut.....	3,069	1,259	505	1,306	59 9	77 9	45 0	48 2	32 9	29 7
Delaware.....	634	317	111	206	61 8	74 8	43 2	51 9	31 6	22 9
District of Columbia.....	2 948	1,165	384	1 399	55 0	65 7	45 1	48 9	20 6	16 8
Florida.....	23,961	6,115	3 177	14 659	58 7	78 4	51 4	52 1	27 0	26 3
Georgia.....	9,988	4,260	1,121	4,607	65 0	77 3	47 2	58 0	30 1	19 3
Guam.....	79	26	7	46	(?)	61 5	(?)	34 8	(?)	26 7
Hawaii.....	195	65	63	67	51 3	76 9	33 3	43 3	43 6	33 6
Idaho.....	455	141	43	271	75 2	83 7	34 9	77 1	46 8	6 6
Illinois.....	17 113	5 193	681	11 239	55 0	72 0	48 2	47 6	23 8	24 4
Indiana.....	4 084	1,545	452	2,087	67 9	79 9	50 9	62 8	29 0	17 1
Iowa.....	5,723	2,253	1,114	2,356	72 6	84 0	58 8	68 3	25 2	15 7
Kansas.....	1 927	825	320	782	71 7	83 5	60 3	68 9	23 2	19 6
Kentucky.....	8,568	4,284	906	3,378	58 7	68 2	40 9	51 6	27 3	16 6
Louisiana.....	5,660	2 440	786	2,434	62 8	68 5	55 7	59 4	12 8	9 1
Maine.....	1,133	360	167	606	59 0	72 5	60 3	63 3	22 2	19 2
Maryland.....	5,606	2,466	794	2 346	63 4	74 7	49 4	56 4	25 3	18 3
Massachusetts.....	5 086	1,999	595	2 492	69 3	70 6	46 4	53 5	25 2	17 1
Michigan.....	10,379	3 773	1 429	5,177	81 0	77 8	47 9	52 3	29 9	25 5
Minnesota.....	6,729	2,694	710	3 325	65 1	77 4	46 5	59 1	30 9	18 3
Mississippi.....	6,560	2 211	400	3,949	49 7	66 4	39 5	41 3	26 9	25 1
Missouri.....	6,830	2,461	694	3 683	63 5	76 0	52 7	57 3	23 3	18 7
Nebraska.....	1,653	829	334	490	75 9	86 0	64 4	66 5	21 6	19 5
Nevada.....	527	96	55	376	56 0	54 2	50 9	57 2	3 3	-3 0
New Hampshire.....	851	328	82	441	66 4	81 1	54 9	57 6	26 2	23 5
New Mexico.....	1 756	392	242	1,122	61 5	74 2	58 7	57 7	15 5	16 5
New York.....	18,435	5 038	3 361	10,036	54 8	71 1	44 1	50 2	27 0	20 9
North Dakota.....	1,440	738	191	511	64 6	76 3	41 9	56 2	34 4	20 1
Ohio.....	11 475	3 622	1,205	6,648	52 8	69 9	43 0	45 3	26 9	24 6
Oklahoma.....	6,499	3,024	997	2,478	70 2	76 3	57 5	67 8	18 8	8 5
Oregon.....	3,146	723	838	1 585	65 8	81 3	58 7	62 5	22 6	18 8
Pennsylvania.....	37,121	10,857	3,933	22,331	55 1	74 3	43 6	47 7	30 7	26 6
Puerto Rico.....	2,555	1 133	144	1,278	47 4	53 3	39 6	43 1	13 7	10 2
Rhode Island.....	1,227	588	74	565	61 5	69 6	35 1	56 6	34 5	13 0
South Carolina.....	12,639	4,705	1,240	6 694	62 5	78 8	47 7	53 7	31 1	25 1
South Dakota.....	965	443	121	391	73 0	80 8	49 6	71 4	31 2	9 4
Tennessee.....	7 284	2,782	822	3 700	59 9	75 6	45 5	51 4	30 1	24 2
Texas.....	27,929	9,437	4,587	13,905	61 1	75 7	54 9	63 2	20 8	22 5
Vermont.....	855	391	7	461	(?)	61 1	(?)	54 7	(?)	6 4
Virgin Islands.....	19	7	3	9	63 2	(?)	(?)	55 6	(?)	(?)
Virginia.....	12,780	5,586	819	6,375	66 8	78 0	46 2	59 7	31 8	18 3
West Virginia.....	5,061	1,271	286	3 504	46 0	66 7	46 9	38 5	19 8	28 2
Wisconsin.....	12 213	4 732	1,524	5,957	58 4	72 0	52 6	49 0	19 4	23 0
Wyoming.....	449	139	50	260	73 7	84 2	56 0	71 5	28 2	12 7

See footnotes at end of table

figure reflects slightly lower earnings among rehabilitants. The ratio is less than 1.16 in the fourth of the States with the smallest effect; in the fourth where the impact is greatest, the ratio is more than 1.30. Note that the highest and lowest effects among the States are frequently registered by Hawaii and Nevada, respectively.

These tables also show that States vary widely in the impact of rehabilitation on employment and earnings for both men and women. The amount of interstate variation, as indicated by the interquartile range in table 3, is greater for women than for men, however.

This range encompasses half the States—the fourth with impact values immediately below the median value for all the States plus the fourth with values immediately above it. The percentage point difference in employment for rehabilitated men and those not rehabilitated, for example, ranges from 21.8 to 30.9, a spread of 9.1 points, the employment percentage difference between women with similar types of closure varies from 11.2 to 22.3, a spread of 11.1 points. This pattern of greater interstate variations for women appears to be more pronounced with respect to earnings ratios. The relative effect of rehabilita-

TABLE 1—Number of persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971 and percent employed in 1972, by type of closure, sex, and State—Continued

State ¹	Number of cases in study ²				Percent employed ³					
	Total	Rehabilitated	Not rehabilitated	Not accepted	Total	Rehabilitated	Not rehabilitated	Not accepted	Rehabilitated minus—	
									Not rehabilitated	Not accepted
Women										
Total ⁴	224 312	92 753	23 206	108,353	40 7	55 0	37 3	41 6	17 7	13 4
Alabama	4,290	2,391	536	1,363	42 5	46 5	34 3	38 9	12 2	7 6
Alaska	370	151	63	156	54 3	60 3	47 6	51 3	12 7	9 0
Arizona	1,842	652	187	1,003	58 6	68 6	46 0	54 4	22 6	14 2
Arkansas	3,469	2 109	225	1,144	49 3	51 1	40 9	47 6	10 2	3 5
California	21,559	4,415	3,588	13,556	43 7	59 0	37 0	40 5	22 0	18 5
Connecticut	1,704	787	263	654	48 6	59 8	35 4	40 4	24 4	19 4
Delaware	556	332	63	161	50 9	55 7	46 0	42 9	9 7	12 3
District of Columbia	2,209	1,000	326	883	46 7	54 6	33 1	42 7	21 5	11 9
Florida	17,895	6 197	1,985	9,713	50 7	65 5	42 7	42 9	22 8	22 6
Georgia	9 280	4 978	732	3,570	53 8	60 2	39 8	47 9	20 4	12 3
Guam	24	9	3	12	(?)	44 4	(?)	16 7	(?)	27 7
Hawaii	128	56	26	46	49 2	67 9	26 9	39 1	41 0	28 8
Idaho	215	76	17	122	60 0	56 6	52 9	63 1	3 7	-6 5
Illinois	10,011	4 286	309	5 416	44 7	56 3	37 2	35 9	19 1	20 4
Indiana	2 155	890	217	1,048	56 7	61 2	42 4	55 7	18 8	5 5
Iowa	2,690	1,195	383	1,112	55 7	63 7	42 3	51 6	21 4	12 1
Kansas	934	444	157	333	57 0	67 3	44 6	48 9	22 7	18 4
Kentucky	5,894	3 761	443	1,690	38 5	41 7	31 2	33 3	10 5	8 4
Louisiana	3,061	1,616	367	1,078	43 2	43 5	37 6	44 7	5 9	-1 2
Maine	587	276	64	227	45 1	49 3	39 1	41 9	10 2	7 4
Maryland	3,539	1,883	407	1,249	51 2	56 4	40 8	46 7	15 6	9 7
Massachusetts	2 009	1,228	302	1,079	46 1	52 1	38 1	41 6	14 0	10 5
Michigan	5 691	2,490	766	2,435	46 8	57 6	35 1	39 5	22 5	18 1
Minnesota	3,201	1,486	308	1,407	50 9	60 6	29 5	45 3	31 1	15 3
Mississippi	5 810	2 644	336	2,830	41 0	50 2	33 6	33 2	16 6	17 0
Missouri	4,351	1,862	371	2,118	52 4	57 5	46 6	49 0	10 9	8 5
Nebraska	948	522	149	277	57 5	61 5	45 0	56 7	16 5	4 8
Nevada	356	73	39	244	46 9	43 8	41 0	48 8	2 8	-5 0
New Hampshire	393	178	35	180	49 6	64 6	28 6	38 9	36 0	25 7
New Mexico	720	240	70	410	47 9	56 2	42 9	43 9	13 3	12 3
New York	10,690	3,595	1,556	5,538	43 2	55 9	35 5	37 1	20 4	18 8
North Dakota	656	364	58	234	47 6	54 1	48 3	37 2	5 8	16 9
Ohio	5,782	2,212	580	2,990	39 3	49 2	32 6	33 2	16 6	16 0
Oklahoma	6,420	3 821	596	2,003	51 9	51 7	43 1	54 9	8 6	-3 2
Oregon	1 525	353	349	823	50 7	63 5	42 7	48 6	20 8	14 9
Pennsylvania	22,643	8,367	2,286	11,990	43 7	55 8	33 6	37 3	22 3	18 5
Puerto Rico	1,162	640	50	472	38 5	43 3	24 0	33 5	19 3	9 8
Rhode Island	883	534	38	311	53 0	50 9	44 7	57 6	6 2	-6 7
South Carolina	9 675	4 226	713	4,736	48 6	58 3	36 3	41 8	22 0	16 5
South Dakota	547	270	125	152	49 0	55 6	33 6	50 0	22 0	5 6
Tennessee	5,256	2,578	416	2,262	45 8	54 7	32 0	38 1	22 7	16 6
Texas	17,197	7,434	1,908	7,855	45 1	51 4	38 8	40 7	12 6	10 7
Vermont	505	278	0	227	41 8	42 4		41 0		1 4
Virgin Islands	14	3	2	9	(?)	(?)	(?)	(?)	(?)	(?)
Virginia	10,135	5,163	416	4,556	51 3	56 3	33 2	47 3	23 1	9 0
West Virginia	2 949	1,667	138	1,144	37 8	43 9	25 4	30 4	18 5	13 5
Wisconsin	5,489	2,376	459	2,654	47 0	56 1	39 2	40 3	16 9	15 8
Wyoming	272	110	25	137	52 9	58 2	60 0	47 4	-1 8	10 8

¹ Data combined for general and blind agencies. State distribution excludes New Jersey, North Carolina, and Washington because general agency records for persons rehabilitated and not rehabilitated could not be matched to social security earnings records also excludes Colorado, Montana, and Utah because almost all rehabilitated cases appear to be classified as type of closure unknown.

² Matched to social security earnings records, excludes cases with type of closure unknown.

³ Reported in covered employment.

⁴ Includes cases with sex unreported.

⁵ Total includes available data for States omitted from the State distribution.

⁶ Based on 10 or fewer cases in closure status.

⁷ Data not available, fewer than 5 matched cases, data not available, fewer than 5 matched cases for either men or women, or data omitted to avoid identification of individuals with given characteristics.

tion in a State can be estimated by relating its employment differences or earnings ratios in tables 1 and 2 to the interquartile ranges and the medians among the States presented in table 3.

Table 4 assigns rank numbers to the States and the other jurisdictions according to the size of the employment percentage difference or earnings ratio. Since rank number 1 is assigned to the State with the greatest difference or ratio,

larger numbers therefore indicate the decreasing effect of rehabilitation. Under the primary measure—the difference in the proportions of rehabilitated and unrehabilitated clients with employment—a tabulation by region reveals that Northeastern and North Central States tend to have small rank numbers, Southern States the larger numbers, and Western States both small and large numbers (table 5). Among persons who had been accepted

TABLE 2—Number and mean earnings in 1972 of employed persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by type of closure, sex, and State

State ¹	Employed persons									
	Number ²				Mean earnings ³					
					Amount				Ratio of rehabilitated to—	
	Total	Rehabilitated	Not rehabilitated	Not accepted	Total	Rehabilitated	Not rehabilitated	Not accepted	Not rehabilitated	Not accepted
Total ⁴	331,367	141,635	33,036	156,696	\$3,277	\$3,661	\$2,647	\$3,063	1 38	1 20
Alabama.....	5 148	2,941	529	1,678	2,091	3,188	2 594	2 772	1 23	1 15
Alaska.....	622	235	96	291	3,406	3,945	3 066	3 084	1 29	1 28
Arizona.....	3 282	1 092	213	1,977	3 093	3 740	2,902	2,756	1 29	1 36
Arkansas.....	5 132	2,675	396	2 061	3 154	3,501	2 736	2,785	1 25	1 26
California.....	39,504	9 525	6,121	23,858	3 278	4 013	2,732	3,124	1 47	1 28
Connecticut.....	2,778	1,514	229	935	3,877	3,883	2 563	2 845	1 52	1 36
Delaware.....	695	437	79	179	3,416	3,757	2 962	2 785	1 27	1 35
District of Columbia.....	2,694	1,333	263	1,078	2 651	3 069	2,175	2,258	1 41	1 38
Florida.....	23 541	9 005	2,529	12,007	2 991	3 264	2 486	2,892	1 31	1 13
Georgia.....	11 629	6,364	828	4,437	3,181	3,500	2 592	2 833	1 35	1 24
Guam.....	45	22	4	19	2 671	3 070	2 817	2,220	1 17	1 38
Hawaii.....	164	88	29	47	3,341	3,864	3,023	2,559	1 28	1 51
Idaho.....	486	171	24	291	3,623	4,274	3,138	3,280	1 36	1 30
Illinois.....	14 104	6,263	450	7,391	3 687	4,016	2 587	3 475	1 55	1 16
Indiana.....	4,163	1,860	337	1,966	3,755	4 465	2,825	3,242	1 58	1 38
Iowa.....	5,792	2,723	831	2,238	3,529	4 065	2,694	3,188	1 51	1 28
Kansas.....	1,957	1,010	272	675	3,190	3,775	2 505	2 670	1 64	1 35
Kentucky.....	7,406	4 557	619	2,830	3,098	3 269	2,427	2,912	1 35	1 12
Louisiana.....	5 031	2,456	593	1,982	3 549	3,889	3 545	3 129	1 10	1 24
Maine.....	943	402	110	431	3,044	3,477	2,386	2,808	1 46	1 24
Maryland.....	5 450	2 948	568	1,834	3 272	3,588	2,613	2,983	1 37	1 20
Massachusetts.....	4,363	2,124	396	1,843	3,406	3,837	2 898	3 018	1 32	1 27
Michigan.....	9,220	4 494	975	3,761	3,651	4,251	2,300	3,269	1 80	1 30
Minnesota.....	6,185	3,077	430	2,678	3,533	3,770	2,454	3,435	1 54	1 10
Mississippi.....	5,677	2 815	273	2,589	2,738	2 976	2,350	2,520	1 27	1 18
Missouri.....	6,728	2,988	555	3,185	2,988	3,392	2,195	2 748	1 55	1 28
Nebraska.....	1 857	1,071	289	497	3,485	3,764	3,306	2,990	1 14	1 17
Nevada.....	468	85	45	338	2 792	3,210	2,340	2,748	1 37	1 27
New Hampshire.....	780	392	57	331	3,514	3,693	3 689	3,445	1 37	1 07
New Mexico.....	1,453	435	174	844	2,880	3 298	2,856	2,669	1 15	1 24
New York.....	15,352	5,896	2,127	7,359	3 581	3,997	2 876	3 453	1 39	1 16
North Dakota.....	1,261	772	109	380	3,544	3 809	2,134	3,411	1 78	1 12
Ohio.....	8,579	3,754	725	4,100	3 537	3,848	2,691	3,402	1 43	1 13
Oklahoma.....	8 028	4,354	851	2 823	3,269	3,645	2,314	2 825	1 30	1 29
Oregon.....	2,884	819	650	1,415	3,270	4 084	2,911	2,964	1 40	1 38
Pennsylvania.....	30,871	12 951	2,533	15 387	3,534	4,252	2,692	3,270	1 58	1 30
Puerto Rico.....	1 688	899	70	719	2,948	3,196	2,779	2,654	1 15	1 20
Rhode Island.....	1,275	716	45	514	3 681	4,129	2,311	3,177	1 79	1 30
South Carolina.....	12,712	6,226	863	5,623	3 050	3,316	2 700	2,810	1 23	1 18
South Dakota.....	987	515	105	367	3,615	4 054	2,457	3,329	1 65	1 22
Tennessee.....	6,859	3,548	512	2,799	3 007	3,255	2,340	2 816	1 39	1 16
Texas.....	25,128	11,108	3,300	10,720	2,905	3,184	2,519	2,754	1 26	1 15
Vermont.....	(?)	367	(?)	352	(?)	3 024	(?)	2,875	(?)	1 05
Virgin Islands.....	(?)	(?)	(?)	(?)	(?)	(?)	(?)	(?)	96	2 30
Virginia.....	13,974	7 390	528	6,056	2 998	3,221	2 174	2 798	1 48	1 15
West Virginia.....	3 473	1,589	173	1,711	3 375	3,875	2 746	3,438	1 23	98
Wisconsin.....	9,987	4,890	1,006	4 091	3,711	3 965	2,645	3 670	1 50	1 08
Wyoming.....	482	185	44	253	3,244	3,754	2,496	3,001	1 50	1 25

See footnotes at end of table

for services, a greater impact of rehabilitation on employment is evident in proportionally more States in a South-to-North direction and, in the North, from the western to the eastern States

A scanning of the four columns in table 4 provides a quick method of determining, for each State, the consistency of the relative effect of rehabilitation under the various measures. A lack of consistency is apparent. The rank number of the States under the measure of employment percentage differences between rehabilitated clients and

those not rehabilitated is reasonably, though not highly, correlated with the rank numbers under two of the other three measures. Employment percentage difference between rehabilitants and those whose cases were not accepted and the ratio of rehabilitants' mean earnings to those of clients who were not rehabilitated.

As the following figures show, the correlation is highest (.38) with the rank numbers under the measure of employment percentage differences be-

TABLE 2—Number and mean earnings in 1972 of employed persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by type of closure, sex, and State—Continued

State ¹	Employed persons									
	Number ²				Mean earnings ³					
	Total	Rehabilitated	Not rehabilitated	Not accepted	Amount				Ratio of rehabilitated to—	
					Total	Rehabilitated	Not rehabilitated	Not accepted	Not rehabilitated	Not accepted
Total⁴	220,422	87,804	23,728	108,890	3,671	4,188	2,897	3,424	1,45	1,22
Alabama	3,282	1,807	343	1,132	3,478	3,779	2,939	3,162	1,29	1,20
Alaska	2,412	139	65	208	3,554	4,212	3,145	3,243	1,34	1,30
Arizona	2,453	627	125	1,401	3,413	4,208	3,582	3,070	1,24	1,38
Arkansas	3,368	1,572	300	1,496	3,586	4,186	3,005	3,072	1,39	1,36
California	29,499	6,787	4,704	18,008	3,536	4,358	2,961	3,377	1,47	1,29
Connecticut	1,837	981	227	629	3,613	4,111	2,780	3,137	1,48	1,31
Delaware	392	237	43	107	3,846	4,289	3,070	3,201	1,41	1,34
District of Columbia	1,622	476	173	684	2,726	3,167	2,086	2,393	1,62	1,32
Florida	14,062	4,796	1,633	7,633	3,480	3,903	2,818	3,336	1,39	1,16
Georgia	6,494	3,291	529	2,674	3,637	4,085	2,879	3,236	1,42	1,26
Guam	(⁷)	16	(⁷)	16	(⁷)	2,926	(⁷)	2,490	(⁷)	1,18
Hawaii	100	50	21	29	3,900	4,389	3,760	3,159	1,17	1,39
Idaho	342	118	15	209	4,163	4,729	4,005	3,855	1,18	1,23
Illinois	9,415	3,740	328	5,347	4,153	4,673	2,592	3,885	1,80	1,20
Indiana	2,774	1,234	250	1,310	4,256	5,060	3,103	3,702	1,63	1,37
Iowa	4,156	1,892	655	1,609	3,934	4,539	2,923	3,635	1,55	1,25
Kansas	1,382	689	193	500	3,524	4,288	2,551	2,846	1,68	1,51
Kentucky	5,033	2,920	371	1,742	3,436	3,716	2,908	3,100	1,46	1,18
Louisiana	3,554	1,671	378	1,445	4,018	4,475	3,896	3,527	1,15	1,27
Maine	668	261	84	323	3,367	4,007	2,621	3,043	1,53	1,32
Maryland	3,557	1,841	392	1,324	3,568	3,955	2,753	3,271	1,44	1,21
Massachusetts	3,014	1,411	270	1,333	3,680	4,192	3,180	3,239	1,32	1,29
Michigan	6,331	2,937	684	2,710	4,007	4,703	2,670	3,591	1,76	1,31
Minnesota	4,379	2,084	350	1,965	3,909	4,221	2,599	3,799	1,62	1,11
Mississippi	3,258	1,469	158	1,631	3,176	3,537	2,770	2,891	1,28	1,22
Missouri	4,340	1,863	366	2,111	3,386	3,942	2,356	3,075	1,67	1,28
Nebraska	1,264	713	215	326	3,992	4,276	3,801	3,498	1,12	1,22
Nevada	295	52	28	215	3,097	3,602	2,568	3,044	1,40	1,18
New Hampshire	565	266	45	254	3,807	3,979	2,734	3,817	1,46	1,04
New Mexico	1,080	291	142	647	3,098	3,631	3,048	2,870	1,19	1,27
New York	10,107	3,582	1,483	5,042	3,866	4,413	3,032	3,723	1,46	1,19
North Dakota	950	563	80	287	3,949	4,225	2,271	3,875	1,86	1,09
Ohio	6,057	2,550	518	3,009	3,954	4,365	2,949	3,780	1,48	1,15
Oklahoma	4,560	2,508	573	1,679	3,936	4,502	3,274	3,383	1,38	1,33
Oregon	2,071	588	492	991	3,689	4,539	3,307	3,375	1,37	1,34
Pennsylvania	20,440	8,066	1,713	10,662	4,071	4,876	3,009	3,633	1,62	1,34
Puerto Rico	1,212	604	57	551	3,058	3,381	2,669	2,745	1,27	1,23
Rhode Island	755	409	26	320	4,122	4,592	3,184	3,598	1,44	1,28
South Carolina	7,895	3,706	592	3,597	3,483	3,837	3,058	3,189	1,25	1,20
South Dakota	697	358	60	279	4,123	4,657	2,993	3,680	1,56	1,27
Tennessee	4,365	2,088	374	1,903	3,374	3,742	2,489	3,144	1,50	1,19
Texas	17,059	7,146	2,517	7,396	3,277	3,628	2,701	3,133	1,34	1,16
Vermont	(⁷)	239	(⁷)	252	(⁷)	3,471	(⁷)	3,026	(⁷)	1,15
Virgin Islands	12	(⁷)	(⁷)	5	4,789	(⁷)	(⁷)	2,703	(⁷)	(⁷)
Virginia	8,543	4,359	378	3,806	3,448	3,739	2,365	3,223	1,58	1,16
West Virginia	2,330	848	134	1,348	3,862	4,081	2,944	3,816	1,39	1,07
Wisconsin	7,128	3,408	801	2,919	4,067	4,384	2,738	4,062	1,60	1,08
Wyoming	331	117	28	186	3,637	4,173	2,954	3,492	1,41	1,23

See footnotes at end of table

tween rehabilitants and those with cases not accepted

Measures	Correlation ¹ (Kendall's Tau)
Employment percentage difference	
Rehabilitated/not accepted	38
Mean earnings ratio	
Rehabilitated/not rehabilitated	30
Rehabilitated/not accepted	10

Almost no correlation (10) is found with the rank numbers under the measure involving comparison with the most disparate group (persons not accepted for services) under the more indirect indicator of rehabilitation success—average earnings. Since a correlation of 30 is considered to be a reasonable agreement between two sets of rank numbers considerable consistency is seen among the first three measures in the relative impact of rehabilitation in a given State.

¹ Excludes jurisdictions with data not available or with no more than 10 cases of the relevant type of closure

TABLE 2—Number and mean earnings in 1972 of employed persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by type of closure, sex, and State—Continued

State ¹	Employed persons									
	Number ²				Mean earnings ³					
					Amount				Ratio of rehabilitated to—	
	Total	Rehabilitated	Not rehabilitated	Not accepted	Total	Rehabilitated	Not rehabilitated	Not accepted	Not rehabilitated	Not accepted
Women										
Total ⁴	104,793	51,054	8,663	45,076	2,446	2,744	1,966	2,202	1.40	1.25
Alabama.....	1,825	1,111	184	530	2,105	2,215	1,959	1,926	1.13	1.15
Alaska.....	201	91	30	80	3,092	3,556	2,845	2,656	1.25	1.34
Arizona.....	1,079	447	86	546	2,480	3,105	2,208	2,012	1.41	1.64
Arkansas.....	1,710	1,074	92	544	2,303	2,490	1,913	1,998	1.30	1.25
California.....	9,427	2,606	1,326	5,495	2,498	3,141	1,924	2,331	1.63	1.35
Connecticut.....	828	471	83	264	2,488	3,448	2,103	2,166	1.64	1.59
Delaware.....	283	185	29	69	2,825	3,037	2,929	2,214	1.04	1.37
District of Columbia.....	1,031	546	108	377	2,503	2,885	2,272	2,017	1.27	1.43
Florida.....	9,074	4,060	847	4,167	2,231	2,508	1,883	2,032	1.33	1.23
Georgia.....	4,985	2,995	291	1,709	2,569	2,835	2,054	2,191	1.38	1.29
Guam.....	(⁵)		(⁶)	2	(⁷)	2,201	(⁸)	902	(⁹)	(¹⁰)
Hawaii.....	63	38	7	18	2,505	3,174	1,215	1,592	2.61	1.99
Idaho.....	129	43	9	77	2,039	2,746	1,688	1,686	1.63	1.63
Illinois.....	4,474	2,414	115	1,945	2,702	2,988	2,568	2,355	1.16	1.27
Indiana.....	1,221	545	92	584	2,623	3,075	2,320	2,248	1.82	1.37
Iowa.....	1,497	761	162	574	2,361	2,810	1,800	1,924	1.56	1.46
Kansas.....	532	299	70	163	2,314	2,612	1,598	2,077	1.63	1.26
Kentucky.....	2,270	1,570	138	562	2,321	2,418	2,006	2,128	1.21	1.14
Louisiana.....	1,323	703	138	482	2,288	2,493	2,383	1,960	1.05	1.27
Maine.....	256	136	25	95	2,177	2,445	1,480	1,977	1.65	1.24
Maryland.....	1,811	1,062	166	593	2,692	2,958	2,183	2,351	1.36	1.26
Massachusetts.....	1,204	640	115	449	2,715	3,053	2,208	2,362	1.38	1.29
Michigan.....	2,665	1,435	269	961	2,814	3,313	1,587	2,412	2.09	1.37
Minnesota.....	1,630	901	91	638	2,654	2,740	1,913	2,383	1.43	1.15
Mississippi.....	2,380	1,328	113	939	2,144	2,351	1,799	1,891	1.31	1.24
Missouri.....	2,282	1,071	173	1,038	2,431	2,431	1,899	2,088	1.28	1.16
Nebraska.....	545	321	67	157	2,309	2,580	1,628	2,044	1.58	1.26
Nevada.....	167	82	16	119	2,324	2,610	2,062	2,283	1.27	1.14
New Hampshire.....	195	115	30	70	2,733	3,012	2,954	2,243	1.02	1.34
New Mexico.....	345	135	30	180	2,209	2,637	2,131	1,901	1.24	1.39
New York.....	4,619	2,011	552	2,006	2,970	3,227	2,492	2,846	1.29	1.13
North Dakota.....	312	197	28	87	2,332	2,637	1,689	1,848	1.56	1.43
Ohio.....	2,270	1,089	189	992	2,426	2,630	1,990	2,285	1.32	1.15
Oklahoma.....	3,832	1,975	257	1,100	2,344	2,638	1,732	1,959	1.52	1.35
Oregon.....	773	224	149	400	2,163	2,931	1,658	1,921	1.77	1.53
Pennsylvania.....	9,901	4,668	766	4,467	2,745	3,181	2,018	2,414	1.58	1.32
Puerto Rico.....	447	277	12	158	2,689	2,863	3,404	2,331	.84	1.23
Rhode Island.....	468	272	17	179	2,922	3,379	1,188	2,394	2.84	1.41
South Carolina.....	4,700	2,463	259	1,978	2,316	2,526	1,840	2,118	1.37	1.19
South Dakota.....	208	150	42	76	2,295	2,682	1,534	1,951	1.75	1.37
Tennessee.....	2,406	1,411	133	862	2,317	2,501	1,849	2,087	1.35	1.20
Texas.....	7,758	3,822	740	3,196	2,089	2,300	1,872	1,888	1.23	1.22
Vermont.....	211	118	---	93	2,277	2,156	---	2,431	---	.89
Virgin Islands.....	(⁵)	(⁶)	(⁶)	(⁶)	(⁷)	(⁷)	(⁸)	(⁹)	(⁹)	(¹⁰)
Virginia.....	5,197	2,905	138	2,154	2,255	2,427	1,642	2,061	1.48	1.18
West Virginia.....	1,115	732	35	348	2,353	2,558	2,108	1,946	1.21	1.31
Wisconsin.....	2,581	1,332	180	1,069	2,708	2,894	2,115	2,576	1.37	1.12
Wyoming.....	144	64	15	65	2,290	2,891	1,605	1,856	1.80	1.56

¹ See table 1, footnote 1
² See table 1, footnote 3
³ Aggregate earnings divided by number with earnings in 1972
⁴ See table 1, footnote 4

⁵ See table 1, footnote 5
⁶ See table 1, footnote 6
⁷ See table 1, footnote 7

Variation by State and Sex

Is the effect of rehabilitation greater for men or women within a State or is it similar for both sexes? Is the effect consistent for the four earnings measures? Although men are expected to have higher employment rates and earnings than women, regardless of status at closure, the rehabilitation effect as expressed in the gap in employ-

ment and earnings between rehabilitants and other clients could be similar for both men and women or could be greater for women. The gap would be the same if the greater availability of men for work or their higher earnings occur in similar proportions among both types of clients, it would be greater for women if the higher employment rates or earnings of men occur in greater proportions among nonrehabilitants.

TABLE 3—Interquartile range and median among States for employment percentage difference and mean earnings ratio in 1972 for persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by sex¹

Type of closure	Total ²	Men	Women
Percent employed			
Rehabilitated minus— Not rehabilitated			
Interquartile range	17 1-25 3	21 8-30 9	11 2-22 3
Median	21 7	26 9	18 7
Not accepted			
Interquartile range	11 3-19 7	16 6-24 2	8 0-17 0
Median	15 2	19 4	12 2
Mean earnings ratio			
Ratio of rehabilitated to— Not rehabilitated			
Interquartile range	1 28-1 52	1 34-1 56	1 27-1 58
Median	1 38	1 44	1 37
Not accepted			
Interquartile range	1 16-1 30	1 18-1 31	1 21-1 39
Median	1 24	1 25	1 29

¹ Includes data only for States with more than 10 cases in closure status
² Includes cases with sex unreported

This analysis compares a State's ranking for men with that for women under each measure of rehabilitation effect rather than the size of the difference or ratio for men and women in a State. A consistently greater difference or ratio for one sex than the other may exist in each State. As table 1 shows, the employment percentage differences are greater for men in most States, reflecting a large national average gap between the sexes. This is not the case for the earnings ratios shown in table 2. The rank numbers of the States for men or women relate the impact in a State to those in other States. These relative effects are compared in table 6, which shows rank numbers for the States according to the magnitude of the employment percentage differences and earnings ratios for each sex.

The extent of agreement between the rankings for men and women on each measure is presented in table 7. Little agreement is found under either employment or earnings measures that compare rehabilitated and nonrehabilitated clients, but the correlations are firm under the measures involving persons not accepted for services. Thus, a greater probability exists in a given State that the relative impact of rehabilitation differs for men and women accepted for vocational rehabilitation agency services.

The relative effect of rehabilitation on employment was greater for women who were accepted for services than for men. Except under the prime measure, the effect was the same or smaller for

women than for men. Table 7 shows that in 27 States, women ranked higher than men with respect to employment percentage differences involving those accepted for services but not rehabilitated, in 18 States, they ranked lower. Under each of the other three measures, the number of States in which women ranked lower than men exceeded or was similar to the number in which they ranked higher.

SUMMARY

Analysis of followup data on all disabled persons whose cases were closed by State vocational rehabilitation agencies in fiscal year 1971 shows considerable State variation in the effect of rehabilitation on employment and earnings in calendar year 1972. Furthermore, reasonable consistency was found among the four measures used in the analysis to compare postclosure employment and earnings of rehabilitated and other clients.

Wide variations among the States were found under all measures, even when the data were controlled for sex, although interstate variation was greater for women. Under the most valid measure of rehabilitation impact—employment percentage difference between rehabilitated and nonrehabilitated clients—the magnitude of the effect among the States tended to increase proportionally in southern to northern and eastern to western directions. The ranking of a particular State under this measure was reasonably correlated with rankings under two of the other three measures of rehabilitation impact. The remaining measure is the least valid.

Separate ranking of the States for men and women under each measure reveals that the relative effect of rehabilitation in a State on both employment and earnings is different for men and women who had been accepted for services. The rankings on the measures involving comparisons with persons rejected for services show considerable agreement. The differential impact does not always favor men, however. Under the employment comparisons of rehabilitants with persons accepted for services but not rehabilitated, the relative effect clearly favors women in more States than it does men.

These patterns of interstate variation in the effect of rehabilitation on employment and earn-

TABLE 4—Rank number of States by magnitude of employment percentage difference and of mean earnings ratio in 1972 for persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971¹

State	Rank by—			
	Percent employed, rehabilitated minus—		Mean earnings ratio of rehabilitated to—	
	Not reha bilitated	Not accepted	Not reha bilitated	Not accepted
Alabama	25 0	34 0	40 0	38 0
Alaska	40 0	40 0	32 5	17 0
Arizona	6 0	22 0	32 5	8 0
Arkansas	44 0	36 0	34 5	30 5
California	21 0	12 0	16 0	17 0
Connecticut	8 0	4 0	11 0	8 0
Delaware	29 0	18 5	36 5	10 0
District of Columbia	27 5	30 0	19 0	8 0
Florida	17 0	3 0	30 0	40 5
Georgia	16 0	24 0	27 5	24 5
Guam	32 0	2 0	42 0	5 0
Hawaii	2 0	1 0	34 5	2 0
Idaho	3 0	46 0	26 0	12 5
Illinois	27 5	8 0	8 5	35 0
Indiana	14 0	33 0	6 5	5 0
Iowa	19 0	25 0	12 0	17 0
Kansas	20 0	16 0	5 0	3 0
Kentucky	36 0	38 0	27 5	42 5
Louisiana	46 0	42 0	46 0	24 5
Maine	39 0	35 0	17 0	24 5
Maryland	30 0	27 0	24 0	29 5
Massachusetts	31 0	32 0	29 0	19 0
Michigan	9 0	7 0	1 0	12 5
Minnesota	4 0	23 0	10 0	44 0
Mississippi	26 0	13 0	36 5	31 5
Missouri	34 0	27 0	8 5	27 0
Nebraska	33 0	29 0	45 0	20 5
Nevada	47 0	48 0	24 0	33 0
New Hampshire	7 0	5 0	24 0	46 0
New Mexico	43 0	27 0	43 5	24 5
New York	18 0	16 0	21 5	35 0
North Dakota	13 0	16 0	3 0	42 5
Ohio	22 0	9 5	18 0	40 5
Oklahoma	45 0	47 0	31 0	15 0
Oregon	24 0	18 5	20 0	5 0
Pennsylvania	10 0	6 0	6 5	12 5
Puerto Rico	41 5	39 0	43 5	29 5
Rhode Island	23 0	43 0	2 0	12 5
South Carolina	12 0	9 5	40 0	31 5
South Dakota	5 0	41 0	4 0	28 0
Tennessee	15 0	14 0	21 5	35 0
Texas	38 0	21 0	38 0	38 0
Vermont	(²)	45 0	(³)	47 0
Virgin Islands	1 0	44 0	47 0	1 0
Virginia	11 0	31 0	15 0	38 0
West Virginia	41 5	20 0	40 0	48 0
Wisconsin	35 0	11 0	13 5	45 0
Wyoming	37 0	37 0	13 5	22 0

¹ Largest difference or ratio is designated as rank number 1, smallest as the highest rank number. For negative differences the largest is designated as the highest rank number. A midpoint rank number is computed for States with the same difference or ratio.

² Based on 10 or fewer cases in closure status.

³ Data not available, fewer than 5 matched cases; data not available, fewer than 5 matched cases for either men or women, or data omitted to avoid identification of individuals with given characteristics.

ings may reflect either social and economic conditions in a State or program characteristics in the vocational rehabilitation agencies that shape rehabilitation effects. The smaller effect on employment in Southern States among persons accepted for services, for example, may be related to the relatively lower socioeconomic status of this region. The analysis of such conditions and characteristics, however, is beyond the scope of this article. Future studies will examine the influence of social, economic, and program factors.

Technical Note

The Social Security Administration and the Rehabilitation Services Administration both have programs whose broad goals are to restore disabled persons to productive, remunerative work and to reduce economic dependence. To aid in evaluating these programs, a linkage of their record data was established that provides a long-term followup system on all disabled persons whose cases were closed by State vocational rehabilitation agencies in the fiscal year 1971. The major objectives of the data link are to investigate the impact of rehabilitation services on (1) subsequent employment and earnings and (2) subsequent receipt of social security disability insurance benefits.

Definitions

State vocational rehabilitation agencies provide services to persons referred from various sources, including the Social Security Administration, who have been evaluated by counselors as having both a substantial employment handicap and "rehabilitation potential"—that is, that rehabilitation services may render them fit for gainful employment.

Individuals whose cases are closed as "rehabilitated" have successfully completed a plan formulated with a counselor for guidance, restoration, and training services and have been employed for at least 30 days. Accepted cases are closed as "not rehabilitated" if the individual is not able to meet one or more of these criteria. Individuals whose cases are closed as "not accepted" have been found

TABLE 5—Regional ranking of States by, magnitude of employment percentage difference in 1972 between rehabilitated and not rehabilitated persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971

Rank	Number of States, by census region ¹			
	Northeast	North Central	South	West
Total	7	12	16	9
1-11	3	3	2	3
12-22	2	5	3	1
23-33	1	4	5	1
34-44	1	0	6	4

¹ Excludes States with data not available or with 10 or fewer cases in closure status. Includes the District of Columbia but excludes Guam, Puerto Rico, and the Virgin Islands.

TABLE 6—Rank number of States by magnitude of employment percentage difference and of mean earnings ratio in 1972 for persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by sex¹

State	Rank by—							
	Percent employed				Mean earnings			
	Rehabilitated minus not rehabilitated		Rehabilitated minus not accepted		Ratio of rehabilitated to not rehabilitated		Ratio of rehabilitated to not accepted	
	Men	Women	Men	Women	Men	Women	Men	Women
Alabama.....	13 0	33 0	26 5	36 0	36 0	41 0	31 0	41 0
Alaska.....	41 0	31 0	41 0	32 5	33 5	35 0	14 0	19 5
Arizona.....	8 0	9 0	19 0	20 0	40 0	19 0	3 0	6 0
Arkansas.....	37 0	36 5	20 5	41 0	29 0	30 0	5 0	30 0
California.....	29 0	13 0	17 5	8 5	18 0	10 0	15 5	17 5
Connecticut.....	5 0	4 0	2 0	6 0	16 5	8 0	12 5	4 0
Delaware.....	7 0	38 0	15 0	22 0	25 5	43 0	7 0	14 5
District of Columbia.....	36 0	15 0	34 0	26 0	14 0	33 5	10 5	9 5
Florida.....	20 5	6 0	6 0	4 0	29 0	26 0	39 0	33 5
Georgia.....	14 5	18 5	24 0	23 5	24 0	20 5	22 0	23 5
Guam.....	(²)	(²)	4 0	* 2 0	(²)	(²)	36 0	* 1 0
Hawaii.....	2 0	1 0	1 0	1 0	43 0	* 2 0	2 0	2 0
Idaho.....	1 0	43 0	45 0	46 0	42 0	* 10 0	25 0	3 0
Illinois.....	28 0	21 0	11 0	5 0	2 0	40 0	31 0	25 5
Indiana.....	17 0	22 0	32 5	39 0	6 0	27 5	4 0	14 5
Iowa.....	26 5	16 0	37 0	25 0	12 0	14 5	23 0	8 0
Kansas.....	31 0	7 5	22 0	10 0	4 0	10 0	1 0	28 0
Kentucky.....	19 0	35 0	35 0	35 0	21 0	38 5	36 0	43 5
Louisiana.....	44 0	41 0	43 0	43 0	44 0	42 0	20 0	25 5
Maine.....	33 0	36 5	25 0	37 0	13 0	7 0	10 5	31 5
Maryland.....	25 0	28 0	30 0	31 0	22 5	24 0	29 0	28 0
Massachusetts.....	26 5	29 0	32 5	29 0	35 0	20 5	15 5	23 5
Michigan.....	16 0	10 0	7 0	11 0	3 0	3 0	12 5	14 5
Minnesota.....	11 0	3 0	30 0	18 0	7 5	18 0	43 0	41 0
Mississippi.....	22 5	25 5	8 5	12 0	37 0	29 0	27 5	31 5
Missouri.....	30 0	34 0	28 0	34 0	5 0	32 0	17 5	39 0
Nebraska.....	34 0	27 0	23 0	40 0	45 0	12 5	27 5	28 0
Nevada.....	45 0	44 0	47 0	45 0	27 0	33 5	36 0	43 5
New Hampshire.....	24 0	2 0	13 0	3 0	19 5	* 44 0	47 0	19 5
New Mexico.....	42 0	30 0	36 0	23 5	41 0	36 0	20 0	12 0
New York.....	20 5	18 5	17 5	7 0	19 5	31 0	33 5	45 0
North Dakota.....	4 0	42 0	20 5	13 0	1 0	14 5	44 0	9 5
Ohio.....	22 5	25 5	10 0	16 0	16 5	27 5	41 5	41 0
Oklahoma.....	40 0	39 0	44 0	44 0	31 0	44 0	9 0	17 5
Oregon.....	32 0	17 0	26 5	19 0	32 0	5 0	7 0	7 0
Pennsylvania.....	12 0	11 0	5 0	8 5	7 5	12 5	7 0	21 0
Puerto Rico.....	43 0	20 0	40 0	30 0	38 0	45 0	25 0	33 5
Rhode Island.....	3 0	40 0	38 0	47 0	22 5	1 0	17 5	11 0
South Carolina.....	10 0	13 0	8 5	15 0	39 0	22 5	31 0	37 0
South Dakota.....	9 0	13 0	42 0	38 0	11 0	6 0	20 0	14 5
Tennessee.....	14 5	7 5	12 0	14 0	1a 0	25 0	33 5	36 0
Texas.....	35 0	32 0	16 0	28 0	33 5	37 0	39 0	35 0
Vermont.....	(²)	(²)	46 0	42 0	(²)	(²)	41 5	47 0
Virgin Islands.....	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
Virginia.....	6 0	5 0	30 0	32 5	10 0	17 0	39 0	38 0
West Virginia.....	38 0	23 0	3 0	21 0	29 0	38 5	46 0	22 0
Wisconsin.....	39 0	24 0	14 0	17 0	9 0	22 5	45 0	46 0
Wyoming.....	18 0	45 0	39 0	27 0	25 5	4 0	25 0	5 0

¹ See table 4, footnote 1

² See table 4, footnote 3

* See table 4, footnote 2

ineligible for or have refused services, or have dropped out before eligibility was determined

Disabled beneficiaries under the social security program have severe employment handicaps "Disability" is defined by the Social Security Administration as inability to engage in substantial gainful activity and is based on medical evidence of physical or mental impairment that can be expected to result in death or to last for at least 12 months. The termination of disability benefits because of restored capacity to earn adequate income through employment defines "recovery" and generally follows a period of sustained employment and earnings

Sources of Data Link

Three sets of records are used for the data link, two from the Social Security Administration and one from the Rehabilitation Services Administration

Case Service Report (RSA-300)—This statistical record of clients identified under the reporting system of the Rehabilitation Services Administration is completed in State vocational rehabilitation agencies for each referred person whose case is closed during the year. It includes information on the referral and its outcome, the services provided, and the personal background and disabling condition of the client

TABLE 7—Number of States with different ranking position for men and women under measures of employment percentage difference and of mean earnings ratio in 1972 for persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971¹

Ranking difference	Percent employed, rehabilitated minus—		Mean earnings, ratio of rehabilitated to—	
	Not rehabilitated	Not accepted	Not rehabilitated	Not accepted
Total number of States ..	45	46	42	46
Higher rank for women ..	27	20	17	18
Same rank, men and women ..	0	4	1	2
Lower rank for women ..	18	22	24	28
Correlation between State rankings for men and women (Kendall's Tau) ..	.24	.60	.22	.41

¹ Excludes States with no available data or with 10 or fewer cases of a closure type under a measure

Earnings Summary Record (ESR)—This record provides a continuous history of wages and self-employment income reported to the Social Security Administration. Earnings of more than 9 out of 10 employed persons in the United States are covered. Excluded are workers covered by the Federal civil service and persons in some occupations such as household or farm work who do not meet certain conditions defined in the Social Security Act. Earnings beyond the maximum taxable limit are not reported.

Master Beneficiary Record (MBR)—This benefit payment record of the Social Security Administration for each beneficiary contains information about monthly cash benefits under the old-age, survivors, and disability insurance program. Three categories of disability benefits are distinguished: (1) Disabled insured workers under age 65, (2) adults disabled since childhood who are dependent children of insured workers, and (3) disabled widows or widowers, aged 50 or over, of insured workers.

Study Design

Two types of information corresponding to the study objectives are followed up in the longitudinal design developed to utilize the linked data. These types of data are analyzed separately in two series of reports.

The study design for employment and earnings data focuses on all persons with cases closed by the vocational rehabilitation agencies. Their employment and earnings history is traced from the calendar year preceding the year of referral (which varies by client) to calendar year 1972 (the year following closure) and to subsequent years.

The followup plan for benefit-status informa-

tion focuses on persons who had been disabled-worker beneficiaries. Primary interest centers on the proportion of those whose benefits were terminated for recovery in the years following closure. Data on employment and earnings after closure are also tabulated by benefit status.

Employment, earnings, and benefit-status data are cross-tabulated by closure status, and comparisons between rehabilitated clients and each of the other two types of closed cases are made. These comparisons constitute the basic element of the analytic plan. Some comparisons involving additional variables in these cross-tabulations may be restricted to "rehabilitated" and "not rehabilitated" cases because information for some variables on "not accepted" cases is not available or not required to be reported.

Comparisons with data for persons who had not been accepted for services must take into account the fact that this category includes probably the widest variations in severity of disability. Persons whose handicaps are too severe for them to benefit from services, at one extreme, to those who exhibit no substantial vocational handicaps, at the other. Uncooperative clients and persons uninterested in agency services are also found frequently in this closure category. Thus, clients accepted for services, whether rehabilitated or not, represent an optimum degree of severity and a relatively high degree of motivation to use services.

In computing various measures of earnings, such as the mean, it was decided not to estimate beyond the maximum taxable limit under the social security program. The proportions of persons beyond the limit proved to be very small—3 percent in both the prereferral year and in 1972 and 4 percent in 1971. By closure type, the figures varied by only one or two percentage points. Furthermore, the assumption underlying such estimations—continued work and earnings—is questionable in a population that became disabled at some time before referral for rehabilitation services and thereafter was continually subject to a relatively high risk of recidivism.

Study Population

The population of the study is the total number of closures with available case records matchable

to social security records. The degree to which the total universe of closures was attained depends largely upon the number of case records received by the Rehabilitation Services Administration from State agencies and the completeness of reporting the social security number in these records.

In fiscal year 1971, State agencies reported 824,699 closures. Of these, 756,716 case records, or 92 percent of the total reported, were received by the Rehabilitation Services Administration. Some of the records received (15 percent of the total cases) lacked a valid social security number and therefore were not matchable. Seventy-seven percent of all closures were linked. About 636,900 cases were thus available for analysis. Because the basic analytic plan excluded cases with unknown closure status, which constitute about 4 percent of the total number matched, the study population was reduced to 612,228.

The success of the linking effort can also be estimated by relating the number of cases matched to the number of records received. Of the total records, 84 percent were matched, 14 percent lacked a social security number, and 2 percent had invalid numbers.

Table 8 indicates that distribution by type of closure among matched cases is essentially similar to that among total reported closures. It is also similar to the distribution for all closures with case records when the cases with unknown closure

TABLE 8—Percentage distribution of persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by type of closure and record status

Type of closure	Total reported ¹	With case records			
		Total ²	Matched ³	Not matched	
				No social security number	Invalid social security number
Total number...	824,699	756,716	636,900	107,434	12,382
Total percent...	100.0	100.0	100.0	100.0	100.0
Rehabilitated	35.3	29.8	34.0	---	69.3
Not rehabilitated	11.7	9.8	11.5	---	9.2
Not accepted	53.0	45.5	50.6	18.5	20.4
Unknown	---	14.9	3.9	81.5	1.1

¹ Cases reported by State vocational rehabilitation agencies to the Rehabilitation Services Administration. Data derived from *Caseload Statistics, State Vocational Rehabilitation Agencies, 1972*, table 7, Rehabilitation Services Administration.

² RSA-300 case records submitted to RSA by State vocational rehabilitation agencies.

³ RSA-300 case records matched to the Earnings Summary Record.

status are apportioned among the known closure types. The relatively large proportion of unknown type of closure (15 percent) among all closures with case records results from the fact that closure status could not be ascertained for more than 4 in 5 of the unmatched records without a social security number. Type of closure was unknown for 4 percent of the matched records. All of the remaining unmatched records without a number are for persons not accepted for services—the major difference in closure type when these records are compared with the matched records.

Table 9, which presents selected characteristics of matched cases and unmatched cases that lacked social security numbers, indicates that persons in the latter category were more likely to be women and under age 20 at the time of referral to vocational rehabilitation agencies. Such persons were also more frequently referred from educational institutions, public welfare agencies, and correctional institutions, and much less often from Social Security Administration offices.

TABLE 9—Percentage distribution of persons with cases closed by State vocational rehabilitation agencies in fiscal year 1971, by selected characteristics and record status

Characteristic	Case record	
	Matched ¹	Not matched, no social security number
Total number.....	636,900	107,434
Total percent.....	100.0	100.0
Sex		
Men.....	60.9	54.1
Women.....	36.6	45.7
Unknown.....	2.5	.2
Age at referral		
Under 20.....	18.6	38.9
20-29.....	24.9	20.3
30-39.....	16.6	12.2
40-49.....	18.8	12.6
50-59.....	16.2	10.7
60-64.....	3.3	2.7
65 and over.....	1.3	2.0
Unknown.....	2	6
Source of referral		
Educational institutions.....	10.7	21.7
Mental hospitals.....	6.8	8.8
Other hospitals.....	5.6	6.1
Health organizations/agencies.....	4.6	5.7
Public welfare agencies.....	10.7	13.9
Social Security Administration		
Disability Determination Unit.....	15.5	3.6
District Office.....	8	4
Workmen's compensation.....	1.3	1.5
State Employment Service.....	5.0	2.4
Correctional institutions.....	5.4	8.6
Private organizations/agencies.....	2.0	1.4
Self-referred.....	10.4	6.6
Physician.....	6.6	6.0
Other individual.....	9.2	8.0
Other.....	4.2	3.5
Unknown.....	1.2	1.6

¹ Matched to social security earnings records.