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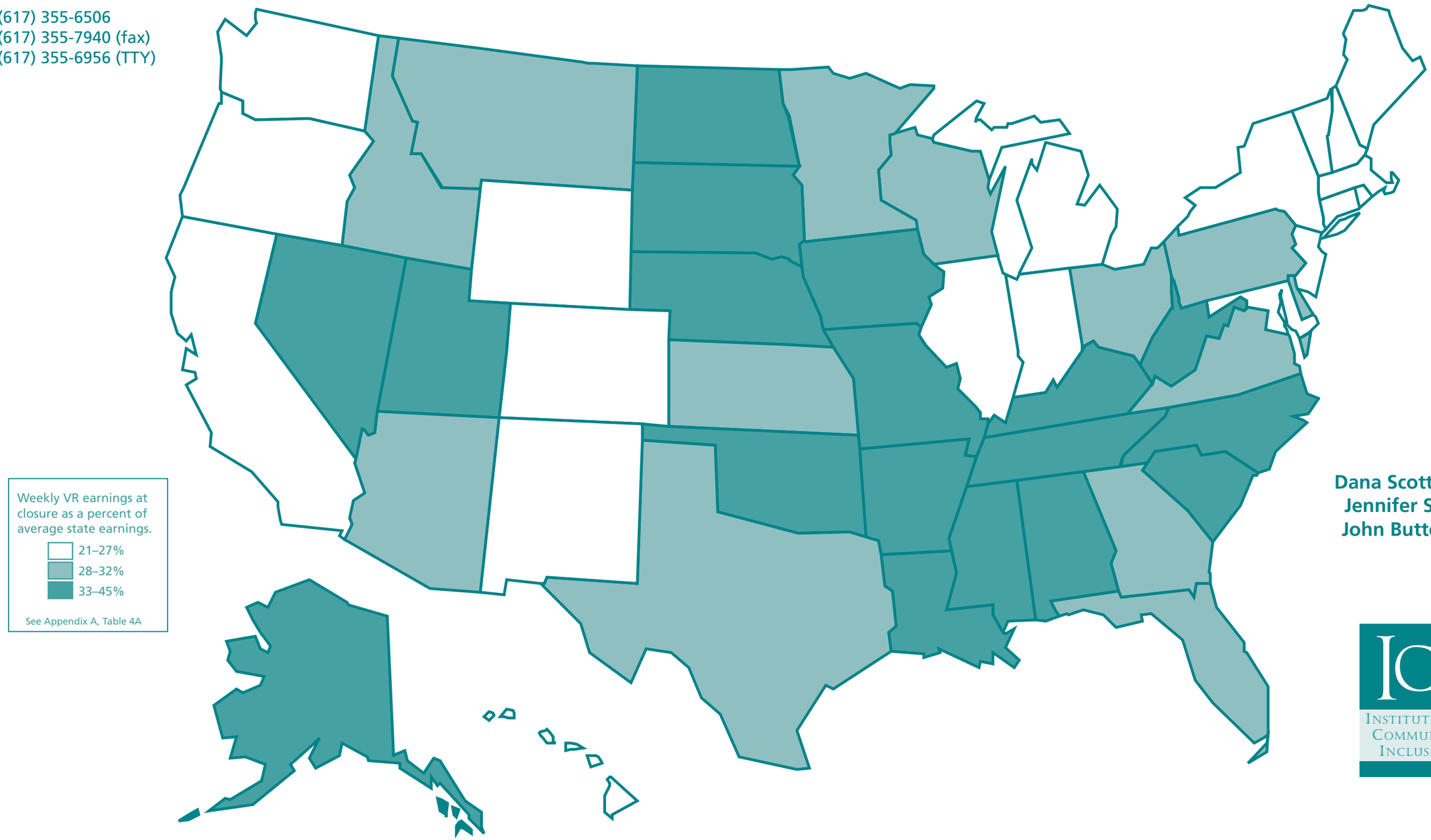
An Analysis of Trends from 1985 to 1998



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Abstract

This monograph presents the results of secondary analysis of the RSA-911 database from the Rehabilitation Services Administration. All successful VR closures for individuals with mental retardation, cerebral palsy, and epilepsy for six data points between 1985 and 1998 were investigated. Trends in competitive labor market and extended employment (sheltered workshops) closures were examined. The use of supported employment in the VR system and its outcomes were also discussed. Findings include increased incidence of competitive labor market closures and supported employment services, with a decrease in extended employment closures.

Comparisons of successful VR closure outcomes to trends in the general labor market were also made. A significant inverse correlation between VR competitive labor market closure rates and national unemployment rates suggests that VR closures rise and decline with the performance of the general economy. The data also indicated a decrease in real (inflation adjusted) earnings at closure of 43% over the study time period. While there was also a decrease in real earnings for the general population, the decrease was more severe for VR closures.

Introduction

The Rehabilitation Services Administration (RSA) exists within the U.S. Department of Education and maintains the legislative mandate to provide job placement and job training to all eligible persons with disabilities. This administrative office allocates resources to vocational rehabilitation (VR) offices in each state. The state/federal VR system is one of the largest federal efforts to address unemployment. This system closes approximately 600,000 cases annually, with 222,275 successful rehabilitations in 1998 (RSA, 2000). At the state level, a range of services and supports are delivered by rehabilitation professionals to persons with disabilities who are interested in obtaining employment. These employment services can include assessment, counseling, guidance, job placement, and post-employment support (Kiernan, Gilmore, & Butterworth, 1997).

Despite its broad scope and substantive outcomes, the VR system has received some criticism. Although there have been substantial changes in policy, only three out of ten working-age people with disabilities are actually working (National Organization on Disability, 1998). In addition, the services provided by VR may not be equally effective for people of varying severity of disability. The purpose of this study is to examine trends in VR outcomes and services for individuals with more severe disabilities, specifically mental retardation, cerebral palsy, and epilepsy. Of fundamental interest is how VR system outcomes have changed as a result of changes in policy, such as the Rehabilitation Act Amendments of 1992, and service delivery technology.

The Rehabilitation Services Administration uses the RSA-911 data reporting system to collect data on each individual case closed by state VR agencies. This system is one of the longest-standing national data collection efforts addressing employment of people with disabilities and serves as the basis for examining the employment activities of RSA (Kiernan et al., 1997). Information on consumer demographics, the nature of services provided, and the outcomes realized is collected. These data are then used to determine the effectiveness of the agencies in assisting individuals with disabilities in entering or returning to work. This collection effort not only allows for the analysis of trends in rehabilitation services for persons with disabilities, but also addresses the employment outcomes of individuals served within this public rehabilitation system.

There have been a number of studies that incorporate the use of Rehabilitation Services Administration caseload data in their examination of vocational rehabilitation outcomes. (Walls & Fullmer, 1997; Bellini, Neath & Bolton, 1995; Whitney-Thomas, Timmons, Thomas, Gilmore & Fesko, 1997; Hill, 1989). Furthermore, research studies led by federal agencies have incorporated the use of RSA-911 data to evaluate vocational outcomes for individuals served by the VR system. For example, the General Accounting Office (1993) used RSA-911 data to evaluate the effectiveness of the vocational rehabilitation system. In addition, RSA uses these data as part of their annual report to the President and to Congress (RSA, 1997).

Despite the many uses of this database, there are only a few in-depth national longitudinal analyses of the RSA-911 data that examine national trends in employment outcomes for people with disabilities served by state VR agencies. Gilmore, Schuster, Timmons, & Butterworth (2000) examined RSA-911 data from 1985 through 1995 and have documented a decrease in sheltered workshop closures, an increase in competitive labor market closures, and changes in the types of services provided in the vocational rehabilitation system during this span of time. Changes in service delivery include an increase in on-the-job training and a decrease in work adjustment training.

A major longitudinal use of RSA data was the RSA-SSA datalink, in which data from RSA were matched with Social Security Administration's (SSA) earnings data. A 10% sample of cases from 1980 was matched with SSA earnings data giving information on people from eight years before receiving service to eight years after, 1972-1988. This matching allowed for pre- and post-VR service earnings to be examined for the purpose of long-range effectiveness measures of VR services. Dean, Dolan, and Schmidt (1999), used this data to examine the long-term cost-effectiveness of VR services by different disability groups and by gender. Their findings concluded that VR services were generally cost-effective, although not across all of the specific disability groups they examined.

Supported employment is one important service provided by the VR system that should receive special focus when examining employment outcomes, especially when considering people with severe disabilities. Since its formal definition, initiated by the Developmental Disabilities Assistance Act and Bill of Rights Act of 1984, there has been significant research that examines the role of supported employment in the lives of people with disabilities (Wehman & Kregel, 1995; Kregel, Shafer, Wehman & West, 1989; West, Revell & Wehman, 1992; Revell, Wehman, Kregel, West & Rayfield, 1994; Mank, 1994; Kiernan & Schalock, 1997). This research shows that throughout the last decade, supported employment has grown and evolved to become the most effective employment strategy for people with significant disabilities. Individuals who participate in supported employment generally have substantially greater earnings and more community interaction than their counterparts in sheltered workshops. They report increased satisfaction from their work experience, and find it to be economically and socially rewarding (Wehman & Kregel, 1995).

However, supported employment programs serve only a percentage of the population who could benefit from these services. Individuals with severe disabilities such as cerebral palsy and severe mental retardation have been traditionally under-represented in supported employment, as compared to their involvement in other adult day programs. In a national survey of day and employment programs, it was found that individuals with severe mental retardation, cerebral palsy, and epilepsy accounted for less than 20% of all the people with developmental disabilities who were receiving supported employment, work adjustment, and on-the-job training services from state VR agencies (Kiernan, McGaughey, Lynch, Schalock, & McNally, 1991). The low percentage of this population receiving supported employment services continues to be an issue when considering change in the policy and practices of the VR system.

In addition, it has been found that individuals with more severe disabilities who do receive supported employment services do not have as positive an outcome as individuals with less severe disabilities. They earn significantly less money, work for fewer hours per week, and have fewer interactions at work than individuals with less significant disabilities receiving the same services. They also are perceived as having lower work quality and fewer positive relationships with coworkers. The greater number of hours of direct support received by these individuals also leads to less integration in the workplace and a less typical employment situation than their counterparts with less severe disabilities. Indeed, there seems to be a strong correlation between wages, level of integration, and typicality in job settings (Mank, Cioffi, and Yovanoff, 1998).

Several researchers have considered implementation, growth, and trends in supported employment on a national scale as it relates to changing Rehabilitation Services Administration policy (Wehman, P., West, M., & Kregel, J. 1999, Wehman, 1991; Wehman, Kregel & Shafer 1989). Such policy includes the 1986 Amendments to the Rehabilitation Act of 1973, which involved extensive actions towards the implementation of supported employment. This included the establishment of Title VI Part C funds for all states to use specifically for supported employment services. In addition, Title III demonstration grants were awarded on a competitive basis starting in 1986. These grants were considered systems change model demonstration funds from the Rehabilitation Services Administration to encourage the conversion of traditional segregated day activity programs to supported employment programs as alternative vocational options (Wehman et. al., 1989).

In addition to the 1986 Amendments, the Americans with Disabilities Act of 1990, the reauthorization of the Individuals with Disabilities Education Act in 1991, and the 1992 Rehabilitation Act Amendments represent policy initiatives that promote greater opportunity in education, community life, employment, and service delivery for individuals with disabilities. The 1992 Rehabilitation Act Amendments in particular go beyond the civil rights and anti-discrimination focus of the ADA to emphasize competitive employment outcomes for individuals with disabilities (Leuchovius and Parker, 1994; In The Public Interest, 1992).

The 1992 Rehabilitation Act Amendments were chiefly concerned with streamlining the process of rehabilitation services, as well as including language about presumption of benefit and increased emphasis on providing services to people with more severe disabilities. These Amendments addressed three key areas: greater access to services, consumer involvement, and improved services. Greater access to services includes reducing overall time in the system, the use of preexisting information to expedite eligibility determination, a presumption of benefit of services to all individuals, and expanded access to individuals previously under served. Consumer involvement encompasses greater consumer participation in the development of the IWRP, more choice for a consumer to select agencies providing services, assistance with advocacy, and legal and administrative advice through Client Assistance Programs. Improved services addresses training for staff related to issues of assistive technology and accommodation. Under improved services there is also language concerning supported employment, mainly around the increased use of Title I, section 110 General Funds for increased access to supported employment for people with more severe disabilities (Whitney-Thomas, et al 1997). Employment outcomes in general and trends in VR outcomes more specifically must be considered, therefore, as they relate to such change in policy initiatives.

With the recent emphasis on employment of persons with disabilities, and the corresponding legislative mandates and initiatives to do so, a need exists to examine the RSA-911 national collection and reporting system to track the history of work results for individuals with disabilities in the VR system. As a result, an examination of the RSA-911 data tapes for 1985, 1988, 1991, 1993, 1995, and 1998 has been compiled and analyzed to determine trends in employment outcomes for persons with cerebral palsy, epilepsy, and mental retardation over this ten year span of time. This research further examines trends in VR outcomes as they relate to changes in service delivery such as supported employment. An exploration of additional factors, such as public policy, which may have impacted trends in VR outcomes will be considered in the discussion section.

Method

People

The Rehabilitation Services Administration serves over one million people annually (RSA, 1997). Of people receiving services, there are an average of over six hundred thousand cases closed annually (RSA 2000). On the RSA-911 there is information regarding the major and secondary disabling condition of each closure. This study is limited to people who had a major disabling condition reported as either mental retardation, cerebral palsy, or epilepsy. These categories were chosen as the best approximation of persons with a developmental disability. This group made up 11.8% of all closures in fiscal year 1998, and has remained relatively consistent over the time period discussed. Table 1 shows the distribution of major disabling conditions for this study.

Table 1

Total number and distribution of closures by major disabling condition

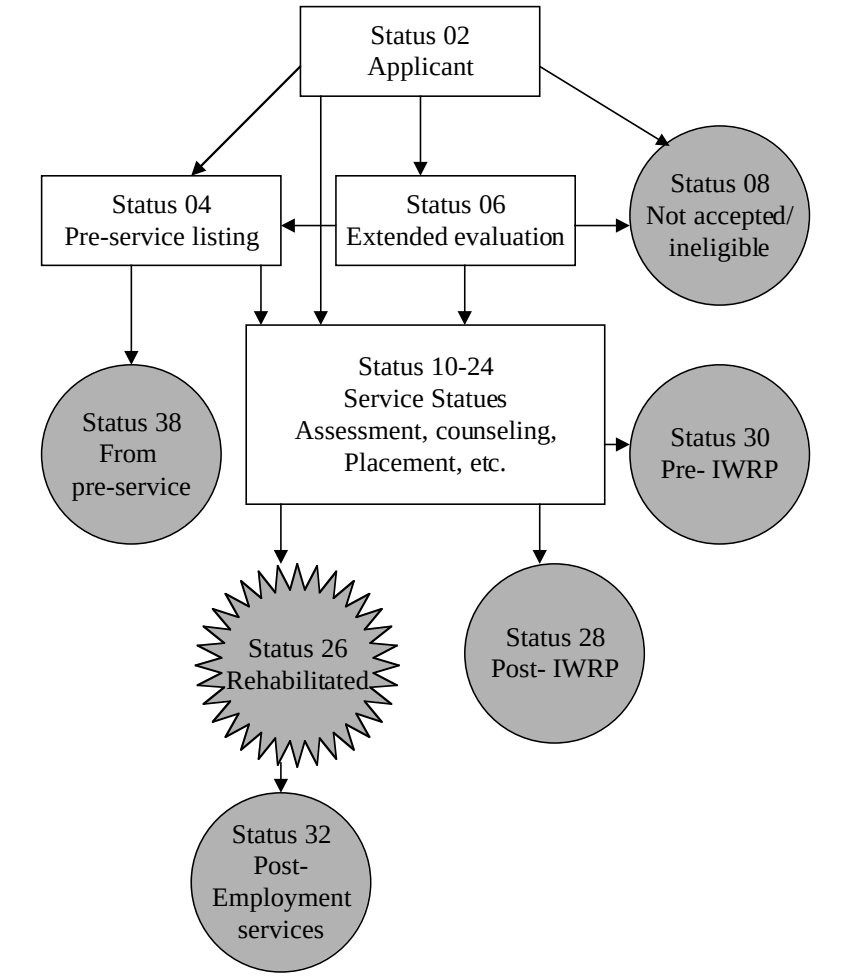
	Total number of closures						Percent of sample					
	1985	1988	1991	1993	1995	1998	1985	1988	1991	1993	1995	1998
Mental retardation												
Mild	36,338	35,838	32,130	34,314	34,408	35,150	49.8	48.7	47.7	50.6	48.7	50.4
Moderate	16,808	18,576	18,174	17,260	19,650	19,011	23.0	25.2	27.0	25.4	27.8	27.3
Severe	3,884	4,154	4,080	3,882	4,120	3,695	5.3	5.6	6.1	5.7	5.8	5.3
Cerebral Palsy	4,762	5,054	4,907	4,785	5,402	5,380	6.5	6.9	7.3	7.1	7.6	7.7
Epilepsy	11,204	9,993	8,065	7,582	7,091	6,507	15.3	13.6	12.0	11.2	10.0	9.3
Total	72,996	73,615	67,356	67,823	70,671	69,743						

Closures

To better understand the analysis and results presented hereafter, a brief overview of how a person receives services through VR is shown in Figure 1. The process can be viewed in three steps: 1. Application, in which one's eligibility is determined. If the applicant withdraws or is considered ineligible or if the person withdraws from application, the case is closed as not accepted for services (status 08). 2. Development of the Individualized Written Rehabilitation Plan (IWRP). If the person does not have an IWRP developed, the cased is closed as not successful (status 30), or the person moves on to step three. 3. Implementation of the IWRP. Here the person either obtains a job and maintains employment for a minimum of 90 days in which the case is closed as successful (status 26), or the person does not obtain or maintain employment and is closed as unsuccessful (status 28). Progress through the system is determined by each individual's needs.

Figure 1

Status Flow in the Vocational Rehabilitation Process



Since the primary goal of VR services is employment, the focus of this article will be on successful closures (status 26). It should be noted that a successful closure does not necessarily imply that the individual has entered competitive employment. There are six different categories of successful closures. These are: (1) Competitive labor market, (2) Extended employment (formerly Sheltered workshop), (3) Self employed, (4) Business enterprise program, (5) Homemaker, (6) Unpaid family worker. However, the vast majority of successful closures, 85% in FY1998, are in the first category. Also of specific interest are extended employment closures, the second largest category of successful closures for this sample. Table 2 shows the total number of closures in each category for each year. Note that groups three and four, and groups five and six, have been combined into single categories in this table. These categories comprise a very small percentage of the closures for the sample, on average less than 3% all combined, and therefore will not be addressed in this study. The last column in Table 2 shows the total number of successful closures (status 26) for each year.

Table 2

Total number and distribution of successful closures by work status[1]

	Total number of closures						Percent of sample					
	1985	1988	1991	1993	1995	1998	1985	1988	1991	1993	1995	1998
Competitive labor market	23,792	25,172	24,659	23,193	27,789	28,371	69.3	71.8	74.9	75.2	82.8	85.4
Extended employment	8,504	8,258	6,925	5,694	4,994	4,167	24.8	23.6	21.0	18.5	14.9	12.5
Business enterprise program and Self employed	404	428	304	1,022	253	217	1.2	1.2	0.9	3.3	0.8	1.4
Homemaker and Unpaid family worker	1,608	1,178	1,049	940	539	479	4.7	3.4	3.2	3.0	1.6	.7
Total successful closures	34,308	35,036	32,937	30,849	33,575	33,234						

[1] Includes all territories, American Samoa, Guam, Northern Marianas, Palau, Puerto Rico, Virgin Islands, and Washington DC

The Data

Yearly closure data have been gathered in various forms by RSA dating back to 1921. Starting in 1988 as part of an ongoing data collection effort funded by the Administration on Developmental Disabilities, the Institute for Community Inclusion has conducted secondary analysis of RSA-911 data. Typically, data is examined every two to three years. To date, analysis has been done for data from fiscal years 1985, 1988, 1991, 1993, 1995, and most recently 1998. It is from these points in time that trends have been regarded. For each closure on the RSA-911 database there is a code identifying which state it comes from. This allows for the data to be aggregated to the state level. Such an aggregation allows for easier handling of the data and eliminates the large sample bias of statistical testing.

Repeated measures analysis of variance (ANOVA) tests were used to perform all statistical tests to compare means from state to state over time. Time is used as the measure, i.e. the series of data for all fifty states and Washington, DC defined by the years 1985, 1988, 1991, 1993, 1995, and 1998. The majority of tests rely on all six points of time. State averages are reported in the text; national totals can be read from the tables. An alpha of .01 was chosen as the significant cutoff level. Due to the large number of ANOVAs performed and the large quantity of data, a low alpha was chosen to minimize the likelihood of Type I error due to random chance.

Findings

Work status trends

The 1992 and 1998 amendments make it clear that competitive employment outcomes are the primary goal of rehabilitation services. The data show fluctuations in the number of competitive labor market closures over time with a large increase in the more recent years. These changes are shown to be statistically significant, $F(5, 245) = 3.32$, $MSE = 84{,}230.37$, $p < .005$. Table 2 demonstrates VR's emphasis on competitive employment. Although the increasing number of competitive labor market closures has not been a consistent trend during all of the years examined, since 1993 it has increased steadily, complemented by a decrease in extended employment closures (as noted in the following paragraph). This shift in the distribution of closures illustrates a change in the type of employment outcomes that individuals are achieving. These closures represent 85% of the successful

rehabilitations in 1998, and have increased steadily from 69% in 1985. This substantial increase in the percentage of closures into competitive employment is confirmed to be significant, $F(5, 245) = 38.18$, MSE = .20, $p < .000$.

The other key work status to be considered for this sample is closures into extended employment. In general there is not a major reliance on the use of extended employment as a rehabilitation outcome in the VR system. However, in this study population there is a much higher prevalence of extended employment closures, 12.5%, as opposed to 1.8% of all other successful closures in FY98. This fact has been consistent over time, with the difference at its lowest in 1998. However, as is evident in Table 2, there has been a significant decrease in the number and percentage of extended employment closures over the years studied. The total number closed into extended employment decreased significantly, from just over 8,500 in 1985 to under 4,250 in 1998, $F(5, 245) = 10.85$, MSE = 64,276.80, $p < .000$. The percentage of individuals closed into extended employment also decreased significantly, from 24.8% in 1985 to 12.5% in 1998, $F(5, 245) = 23.40$, MSE = .10, $p < .000$.

Trends in earnings per week and hours worked per week

The RSA-911 includes information on earnings per week and hours worked per week at the time of closure. These two variables provide a basic examination of the quality of employment. Table 3 shows the mean and standard deviation of hours worked and weekly earnings for competitive labor market closures across the thirteen years. Year to year there has been very little change in either earnings or hours worked. The mean number of hours worked each week has declined gradually but significantly from 31.5 to 27.9 over these years, $F(4, 184) = 3.85$, MSE = 86.70, $p < .005$. The nature of this difference will be made more apparent in the supported employment section. Weekly unadjusted earnings increased significantly from $143 per week in 1985 to $167 per week in 1998, with most of the increase occurring between 1995 and 1998, $F(5, 240) = 17.60$, MSE = 3,418.16, $p < .005$. At first this significant increase in earnings may appear to be a positive outcome. However, the wage trends reverse when an adjustment for inflation is included. After adjusting all earnings to be equivalent to 1985 dollars based on consumer price index (CPI) data, there was found to be a decrease in earnings over this time, from $143 per week in 1985 to $82 in 1998, $F(5, 240) = 290.92$, MSE = 29,589.03, $p < .000$. Clearly the buying power of $167 is substantially less in 1998 than it was in 1985.

Table 3

Mean hours worked and earnings per week for competitive labor market closures

	1985	1988	1991	1993	1995	1998
Hours worked						
M	Missing	31.51	31.32	29.77	28.56	27.92
SD		12.55	9.48	10.09	10.40	10.81
Weekly earnings						
M	142.92	146.33	147.07	148.63	147.56	167.11
SD	64.92	76.63	84.89	87.38	92.03	101.69
Weekly earnings: Adjusted for inflation						
M	142.92	130.77	108.14	98.04	86.38	82.05
SD	64.92	68.54	62.54	57.52	53.87	49.93

Trends in supported employment

To examine the delivery of supported employment services two items were added to the RSA-911 database in 1990. The first of these two items collects information on what funds were used to pay for supported employment services. This measure can be used to reflect the impact of the 1986 amendments, which established Title VI-C funds for use for supported employment and supported employment systems change grants. This item measures whether some Title VI-C funds were used or no Title VI-C funds were used for each supported employment case (when no Title VI-C funding is used, the source of funding is from Title I General Funds). The second item collects information on the outcome of supported employment cases. This is recorded as whether or not the case was competitively employed in an integrated setting along with the need for ongoing supports, the specific criteria being; 1. Identification as a supported employment case; 2. Placement into the competitive labor market; 3. Placement into an integrated work setting; and 4. Receipt of ongoing support services at closure. The outcomes are measured as some criteria met or all criteria met.

Table 4 shows for each year the mean number per state and the national total of supported employment cases. On the most general level of analysis, the mean number of supported employment closures per state has increased significantly from 125 in 1991 to 240 in 1998, $F(3, 150) = 18.24$, $MSE = 141{,}900.66$, $p < .000$. It is also important to note that there has been an increase in the percent of total successful closures relying on supported employment, rising from 21.9% in 1991 to 37.5% in 1998, $F(3, 150) = 24.53$, $MSE = .25$, $p < .000$. The use of both Title VI-C and Title I funds has increased significantly over this time period. Cases in which Title VI-C funds were used increased from a mean of 89 to 134 per state, $FVIC(3, 150) = 12.97$, $MSE = 30{,}692.38$, $p < .000$, while the use of Title I funds alone has also significantly increased from a mean of 36 to 106 cases per state, $FI(3, 150) = 7.37$, $MSE = 44{,}837.00$, $p < .000$. The fact that two out of every three supported employment cases were funded using at least some Title VI-C dollars suggests that dedicated supported employment funds continue to be a significant factor in the outcomes of individuals served by the VR system. While this percentage has fallen over time, from 75% in 1991 to 66% in 1998, this change is not significant $F(3, 129) < 2.11$.

Table 4

Mean number of successful supported employment cases per state by funding type

	1991	1993	1995	1998
Some Title VI-C funds used	89	96	135	134
No Title VI-C funds used	36	57	77	106
All supported employment	125	153	212	240
National total	6,396	7,802	10,835	12,246

Supported employment outcomes can be examined by comparing the weekly earnings and hours worked for supported employment cases versus non-supported employment cases over time. Table 5 shows the difference in earnings per week and hours worked for supported employment, using successful supported employment cases where all four special criteria were met, versus non-supported employment closures, (i.e., successful competitive labor market closures). For each year a paired sample t-test was used to test for differences between earnings for the two groups. Weekly earnings were significantly lower for supported employment participants in each year. In FY1998 individuals in supported employment earned only $125.01 per week, compared to $198.54 for other competitive labor market closures. The mean difference was shown to be significant, $T(48) = 16.66$, $p < .000$. Individuals in supported employment also worked significantly fewer hours in each year, in 1998 (M, supported employment=22.14, SD=3.45, M, not supported employment=30.28, SD=3.75), $T(48)=14.50$, $p<.000$.

Table 5

Mean hours worked and weekly earning for successful closures by supported employment status

	1991	1993	1995	1998
Supported employment case				
Hours worked	26.03	24.38	23.98	23.54
Weekly earnings	104.69	103.18	107.14	125.01
Not supported employment case				
Hours worked	32.59	31.82	31.05	30.73
Weekly earnings	159.40	164.98	169.41	193.54

In order to determine whether the difference in outcomes was due to the fact that supported employment cases represent people with more severe disabilities, the 1998 data were more closely examined. RSA's coding for severity of disability was considered. However, since 94% of the successful closures were considered to have a severe disability, this distinction is not selective enough to compare differences across groups. This 94% is reflected across all disabilities; every diagnosis/disability type had a high percentage of people considered to have a severe disability, ranging from 89% for people with epilepsy to 100% for people with severe mental retardation. This fact makes severity across different disability groups an insufficiently distinctive comparison. Specific disability, regardless of severity, was compared, and revealed some interesting differences. Table 6 shows the distribution of disability across supported employment and non-supported employment closures, along with data on weekly earnings and hours worked. In every disability group, lower weekly earnings and hours worked were noted for those receiving supported employment services. For people with epilepsy and cerebral palsy, the differences are most apparent. More in-depth analysis of the characteristics of these groups may explain some of the differences in employment outcomes. Secondary disabling conditions, age, and work history could be factors however; these items are beyond the scope of this study.

Table 6

Number of closures and employment outcomes by supported employment (SE) status: For 1998

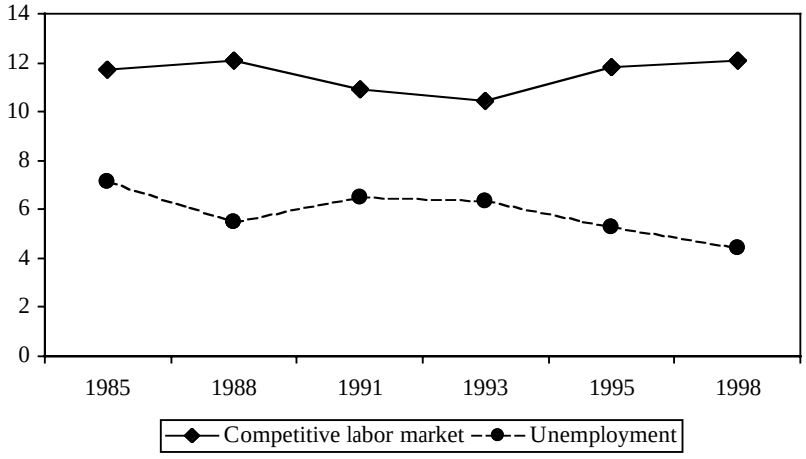
		Not SE case	SE case
Mild mental retardation	Total number	9,721	5,407
	Weekly earnings	187.62	134.76
	Hours worked	31	24
Moderate mental retardation	Total number	3,567	4,274
	Weekly earnings	165.01	117.37
	Hours worked	28	22
Severe mental retardation	Total number	354	713
	Weekly earnings	135.51	97.40
	Hours worked	25	21
Cerebral Palsy	Total number	1,457	436
	Weekly earnings	245.37	122.97
	Hours worked	31	22
Epilepsy	Total number	1,872	259
	Weekly earnings	259.74	150.02
	Hours worked	34	25

Comparison to general employment trends

With the examination of more data from the 1990s, some emerging trends can be noted. The general competitive labor market closure trend, as can be seen in Figure 2, shows a slight decrease through the early 1990s with a sharp increase after 1993. Initially this trend was associated with changes brought about by the Rehabilitation Act Amendments of 1992 (Gilmore et al., 2000); however looking at additional data may offer an alternative explanation of this trend. Along with the competitive labor market placement rate data on Figure 2, national unemployment rates are plotted using data taken from The Bureau of Labor Statistics, (BLS). Note that competitive labor market closure rates were used (total closures per 100,000 state population) to closely scale the data to unemployment rates. The apparent mirror image of the two lines suggests a relationship. As the unemployment rate falls, competitive labor market closures rates rise, and vice-versa. A simple Pearson correlation of the data was run and a significant inverse relationship is noted, $r = -.2$, $p < .000$. In other words, the increase in competitive employment may be due not to policy changes but the overall economic conditions that have fostered a decrease in unemployment for all people.

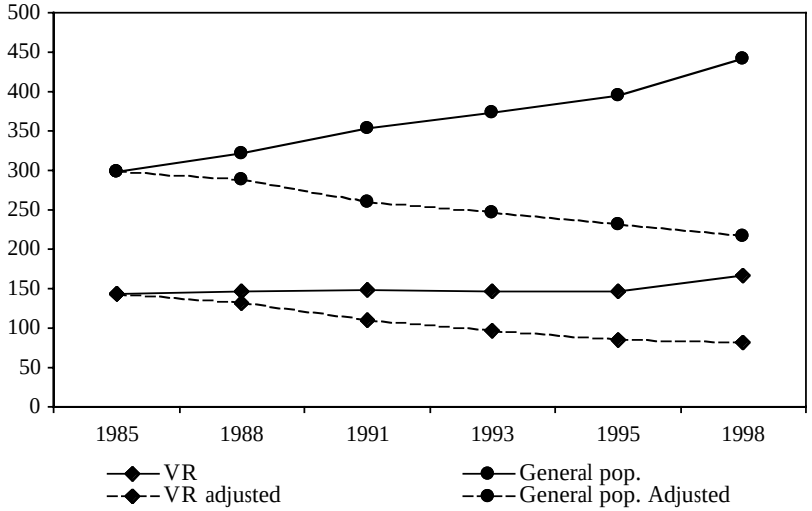
Figure 2

Competitive labor market (closures/100K state population) and unemployment rates



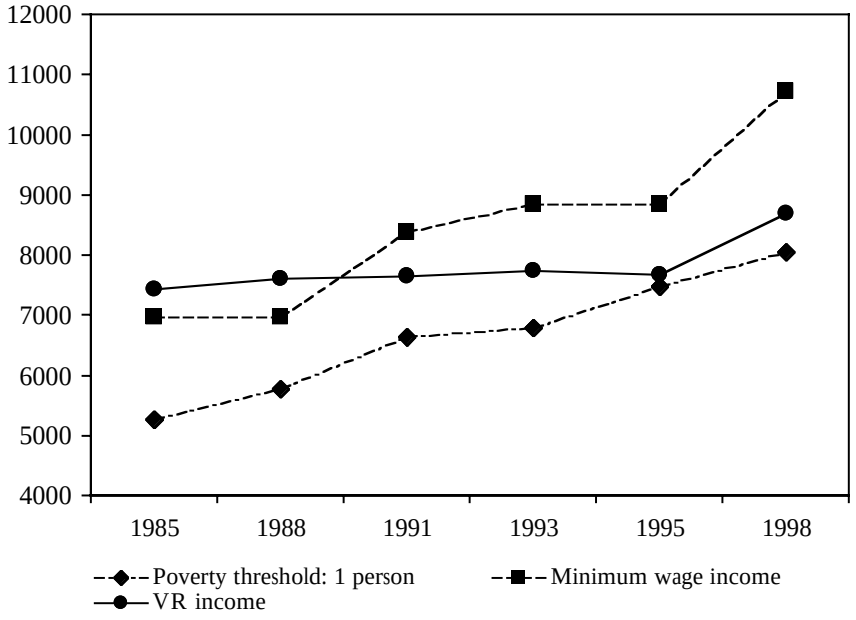
Using earnings data from the Bureau of Economic Analysis (BEA), within the Department of Commerce, comparisons with the earnings trends of the general population can be made. Figure 3 plots the BEA earnings data for workers (defined as production workers in mining and manufacturing; construction workers in construction; and nonsupervisory workers in transportation and public utilities, wholesale and retail trade, finance, insurance and real estate, and services) against VR competitive labor market earnings at closure data. Comparisons of earnings levels between VR outcomes and general population employment outcomes are not the point here, as the differences in earnings are quite obviously significant. The point to examine is the changes in earnings over time. It is clear from looking at the slopes of the two lines that the general population experienced a much larger increase in earnings. When adjusted for inflation, the general population suffered from a decrease in real earnings; however, this decrease was not quite the same magnitude as our sample. The 1998 real income of the general population is about 72% of their adjusted 1985 income, as opposed to the income of our sample, which is about 57% of their adjusted 1985 income.

Figure 3
VR and general population average weekly earnings



A more appropriate comparison of income levels is to poverty thresholds and minimum wage earnings. These are better comparisons as people at these income levels tend to be eligible for income and living supports such as SSI, food stamps, or subsidized housing. Figure 4 is a projection of three different income levels. First on the dashed line with diamonds is the Department of Health and Human Services (DHHS) poverty thresholds for a single person over the period examined. The second dashed line with squares is a projected 40 hour a week income based on minimum wage earnings (i.e. 2080 hours multiplied by the prevailing federal minimum wage at the given time). In 1991, the minimum

Figure 4
Projected incomes over time



wage changed in April; therefore an average of the two was used to project yearly earnings. The final solid line is projected yearly income based on the mean weekly earnings for all successful competitive labor market closures. The three lines show that consistently over time, earnings for this group tend to be tied to minimum wage, which hovers quite close to the poverty threshold line.

Discussion

This study documents important changes over the past thirteen years for people with mental retardation and related conditions. Over this period there has been no major fluctuation in general closure patterns, as noted by no significant change in either the total number of people being closed or the number of successful closures for this particular population. The most important changes have been in the types of employment people are entering. There has been a significant reduction in the number of closures into extended employment. At the same time, the number of competitive labor market closures has increased, leading to the trend of a higher percentage of successful closures being into competitive employment. This demonstrates a greater emphasis on the use of competitive employment as a preferred outcome to extended employment.

While this study shows improved access to competitive employment for people with mental retardation, progress in hours worked and earnings is still needed. Increased use of supported employment has been documented, but the computed yearly earnings for a supported employment closure in 1998 was only $6,500, as compared to the earnings for non-supported employment closures of $10,064. More in-depth analysis of who is receiving supported employment is needed in order to determine why their employment outcomes are significantly lower than those of people not receiving supported employment services. If, indeed there is more access to competitive employment for people who would have been served in extended employment settings, this is a positive trend. However, the challenge now is to find employment that will yield above-poverty level outcomes.

The income levels achieved by people in competitive employment, both supported employment and non-supported employment closures, are certainly better than the computed yearly income of people in extended employment settings of $2,747 per year in 1998. However, their incomes are still quite low compared to the national yearly income figure of $29,319 for the general population. A more appropriate comparison for our sample is to minimum wage and poverty level income figures. As will be shown, these incomes are much closer to those of our sample. Also these earnings are in the range of incomes eligible for state and federal income maintenance programs, such as SSI and TANF, designed to improve the standard of living for people around the poverty level. In 1998 the federal minimum wage of $5.15/hour would yield an annual, full-time income of $10,712, only slightly higher than that of our sample. The poverty level for a one-person household in 1998 was $8,050 and $10,850 for a family of two. Generally speaking people in supported employment are earning below poverty-level wages.

In the latter half of the 1990s there was an increase in the number of competitive labor market closures, offsetting the low points earlier in the decade. When compared with unemployment data, a clear pattern can be noted. In 1993, unemployment rates for the American population as a whole reached a peak, and have fallen each year since. As the unemployment rate has fallen, the number of competitive labor market closures has increased, suggesting a relationship between the recent economic expansion and closure patterns in the VR

system. However, the earnings data for VR closures show a trend that is different than the trend of earnings for the general population. Earnings for people in our sample remained very constant as contrasted to the gains made by the general population. However, when adjusted for inflation both groups show a decrease in earnings, although the general population did not suffer as great a loss as did our sample. This suggests that while somewhat related to general employment trends, outcomes for people with mental retardation are not closely tied to the overall economic status of the country. Although the general economy showed improvement through the 1990s, and employment opportunities for people with developmental disabilities improved, the employment outcomes have been consistently tied to the minimum wage and poverty-level incomes.

Consistent with the 1992 Amendments, there has been an increase in the use of supported employment across both Title I and Title VI-C funding sources (see Table 4). However, the proportion of all successful closures using supported employment also has grown over time, showing that supported employment is an increasingly preferred service for our sample. Over time the percentage of supported employment cases funded by Title I only has been increasing, from 25% to 34%; however, this increase does not reflect a significant change. Although the use of supported employment has increased over time, there has not been an increased emphasis on using Title I General Funds beyond the specific supported employment funds (Title VI-C), i.e., the funding ratio for supported employment has remained constant over time. However, it does appear that if the current trend continues, a significant increase in the reliance on Title I funds will be noted within a couple of years.

Implications for future policy

The thirteen years from 1985 to 1998 show changes in closure patterns for people with mental retardation, cerebral palsy, and epilepsy. These changes have been precipitated by major changes to the Rehabilitation Act. The 1986 Amendments introduced a specific supported employment funding stream, resulting in a steady increase in the implementation of supported employment. The data also suggest that these amendments opened up greater access to competitive employment outcomes for people with more severe disabilities. With the 1992 Amendments, there was again an increase in the use of supported employment across all funding sources, leading to an expansion in the provision of supported employment services for people with more severe disabilities. This direct correlation of amendments and increased access to competitive employment for people with more severe disabilities should be noted. However, more change is still needed to ensure that supported employment remains a likely and desirable outcome for these individuals.

The Rehabilitation Act of 1973 has been incorporated into Title IV of the Workforce Investment Act (WIA). A major goal of the rewrite and amendments is to closely tie state VR agencies with state One-Stop Centers for the provision of employment and training services for people with disabilities (Silverstein, 1999). WIA will hopefully result in expansion of service options and choices for people with disabilities, not only as a result of the mandated partnership of VR as part of the One-Stop system, but through the availability of a wide range of other non-disability specific services that are part of WIA and the One-Stop system. These data along with future data from the Department of Labor and studies focusing on the use of One-stop services by people with disabilities, provide a basis to study the impact of such changes.

In July of 1999, the Supreme Court made a decision in the Olmstead case that will affect the types of services

people with mental retardation will receive. The ruling stated that people could not be refused community services (residential in this particular case) even when cheaper, alternative options were available. This ruling could have an impact on employment services. People who want integrated employment services but are not receiving them may now have some legal recourse to obtain such services. As important as this decision is, a recent proposed rule change by RSA, which further strengthens RSA's commitment to integrated employment, could surpass the importance of the Olmstead decision, at least in regards to VR employment services. Under the proposed rule, closures into extended employment would not be counted as successful closures (Status 26) (State Vocational Rehabilitation Services Program; Proposed Rule Federal Register, 2000). The elimination of extended employment as a successful rehabilitation outcome is quite in step with the rulings under the Olmstead decision. Such policy changes are important to the growth of employment opportunities for people with developmental disabilities, and the impact should be closely followed.

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Appendix A
National Tables

1A. Successful competitive labor market closures: Total number, by year, of successful (status 26) competitive labor market closures by state, with a national total.[1]

2A. Successful extended employment closures: Total number, by year of status 26 extended employment closures by state, with a national total.[1]

3A. Percent of successful closures by work status, competitive labor market and extended employment only: Distribution of work status at closure, status 26, by year for each state with a national average of the states. Because only two of the six different work status categories are included, the sum of any given year may not add up to 100%. [2]

4A. Comparison of successful competitive labor market closure earnings with average state earnings for 1998. VR earnings are a projection based on multiplying weekly earnings at closure by 52. The average state earnings data are from the Bureau of Economic Analysis and are for workers defined as production workers in mining and manufacturing; construction workers in construction; and nonsupervisory workers in transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services for 1998. The third column is a ratio of the yearly VR earnings to the state average. For the sake of comparison the table is sorted by this column.

5A. Total successful supported employment closures and % of successful closures using supported employment. The first column is the total number of successful supported employment closures that meet all criteria, (see Trends in supported employment section for criteria). The second column is the percent of all competitive labor market closures for which supported employment, all successful criteria met, was listed as an outcome.

[1] Table 2 totals (page 10) include all territories and are therefore slightly higher than Appendix Tables 1A & 2A. Territories included are: American Samoa, Guam, Northern Marianas, Palau, Puerto Rico, and the Virgin Islands.

[2] Table 3A national averages are unweighted averages, and therefore do not match the percent of sample columns on Table 2 (page 10).

Table1A

Successful competitive labor market closures

State	1985	1988	1991	1993	1995	1998
AK	31	94	53	38	73	52
AL	1014	1256	1454	1525	1637	1767
AR	297	286	289	176	244	199
AZ	198	198	294	246	225	238
CA	1277	1793	2462	1993	2391	2432
CO	391	383	433	325	327	344
CT	248	263	236	182	245	268
DC	112	137	64	60	56	42
DE	155	160	100	145	133	144
FL	missing	648	733	700	768	846
GA	1592	1326	1146	954	954	797
HI	66	113	103	70	52	66
IA	291	371	381	351	533	577
ID	108	159	168	169	222	234
IL	918	1229	959	774	972	1060
IN	320	634	723	600	864	760
KS	213	201	165	264	334	365
KY	211	255	267	340	487	539
LA	184	226	336	381	507	708
MA	528	466	404	372	490	495
MD	330	371	424	367	506	486
ME	58	79	76	112	114	135
MI	1006	959	919	980	1185	1209
MN	638	596	603	502	532	488
MO	860	735	702	625	862	814
MS	521	316	412	448	374	312
MT	58	82	93	89	66	92
NC	2007	1282	1261	1234	916	1367
ND	72	92	83	80	92	84
NE	192	208	186	162	198	291
NH	157	182	159	161	158	165
NJ	347	257	154	188	253	360
NM	48	85	93	120	115	111
NV	45	51	37	41	98	101
NY	1198	1414	1323	1013	2299	1995
OH	835	725	805	712	1037	1248
OK	340	287	266	336	369	306
OR	124	309	265	283	269	396
PA	1155	1242	802	806	1047	1106
RI	78	58	49	30	75	76
SC	1685	1490	862	817	720	561
SD	74	105	118	129	149	183
TN	339	466	460	526	770	868
TX	913	913	1112	1056	1132	1021
UT	285	300	291	257	261	284
VA	681	770	525	587	552	730
VT	80	85	84	90	111	149
WA	258	315	344	425	566	531
WI	714	622	560	564	582	589
WV	184	220	186	175	203	191
WY	43	22	46	44	62	38
Total	23,479	24,836	24,070	22,624	27,187	28,220

Table 2A

Successful extended employment (sheltered workshop) closures

State	1985	1988	1991	1993	1995	1998
AK	7	6	34	24	4	10
AL	99	84	56	61	90	79
AR	117	81	78	89	79	63
AZ	24	32	36	36	121	26
CA	43	34	33	23	10	13
CO	137	69	53	29	24	20
CT	196	91	108	52	36	28
DC	62	18	15	17	22	19
DE	45	22	16	1	3	1
FL	missing	129	102	89	56	20
GA	111	90	116	94	74	89
HI	58	46	39	35	25	34
IA	153	185	182	154	119	106
ID	30	43	26	20	25	36
IL	679	798	482	380	275	246
IN	682	884	555	465	235	167
KS	58	51	37	46	38	33
KY	70	38	50	59	76	72
LA	87	61	94	69	49	47
MA	274	251	151	60	45	43
MD	139	133	78	39	29	58
ME	29	13	16	5	3	8
MI	146	139	56	67	91	101
MN	335	226	168	139	154	133
MO	640	706	647	493	492	592
MS	5	0	1	3	2	4
MT	13	19	21	15	9	6
NC	76	47	41	22	15	23
ND	7	16	1	0	2	5
NE	13	5	5	4	4	11
NH	34	13	3	1	4	4
NJ	328	313	216	268	266	171
NM	29	57	32	30	25	18
NV	32	26	18	11	12	36
NY	1596	1532	1566	1512	1209	871
OH	703	335	116	103	84	99
OK	23	43	49	39	64	90
OR	91	69	46	47	30	0
PA	270	369	187	134	165	215
RI	51	53	34	16	13	40
SC	13	4	8	9	6	2
SD	16	14	17	10	9	10
TN	52	64	118	146	177	95
TX	372	583	411	225	175	98
UT	45	62	23	19	22	23
VA	256	225	231	216	154	176
VT	26	6	11	0	1	1
WA	55	58	65	57	48	58
WI	65	31	36	27	28	26
WV	92	70	99	69	55	36
WY	9	7	19	12	4	1
Total	8493	8251	6602	5541	4758	4163

Table 3A

% of successful closures by work status, competitive labor market and extended employment only

	Competitive Labor Market						Extended employment (sheltered workshop)					
	1985	1988	1991	1993	1995	1998	1985	1988	1991	1993	1995	1998
State												
AK	78	92	61	59	92	83	18	6	39	38	5	16
AL	86	88	93	92	92	93	8	6	4	4	5	4
AR	58	70	72	63	71	74	23	20	20	32	23	24
AZ	87	86	88	87	64	89	11	14	11	13	35	10
CA	94	97	98	98	99	99	3	2	1	1	0	1
CO	71	80	86	89	90	91	25	14	11	8	7	5
CT	55	74	67	77	87	91	44	25	31	22	13	9
DC	64	88	79	76	72	69	35	12	19	22	28	31
DE	77	87	86	99	98	99	22	12	14	1	2	1
FL	--	81	86	87	93	97	--	16	12	11	7	2
GA	82	81	76	84	90	86	6	5	8	8	7	10
HI	50	68	71	65	66	64	44	28	27	32	32	33
IA	60	63	64	66	79	82	32	31	31	29	18	15
ID	76	78	86	89	89	86	21	21	13	11	10	13
IL	51	55	62	64	76	76	38	36	31	31	21	18
IN	31	41	56	56	78	81	66	57	43	43	21	18
KS	75	78	79	83	85	89	20	20	18	14	10	8
KY	68	83	78	79	83	84	23	12	15	14	13	11
LA	58	65	68	84	90	93	27	17	19	15	9	6
MA	64	63	70	81	89	91	33	34	26	13	8	8
MD	68	72	84	90	94	89	28	26	15	10	5	11
ME	59	86	81	94	97	91	30	14	17	4	3	5
MI	86	84	93	92	92	92	12	12	6	6	7	8
MN	64	72	77	77	77	77	34	27	21	21	22	21
MO	55	50	51	55	63	57	41	48	47	43	36	42
MS	89	99	99	98	98	98	1	0	0	1	1	1
MT	74	78	76	84	86	91	17	18	17	14	12	6
NC	91	95	94	95	98	96	3	3	3	2	2	2
ND	84	80	93	99	96	93	8	14	1	0	2	6
NE	85	94	94	95	96	93	6	2	3	2	2	4
NH	81	91	92	96	94	95	17	6	2	1	2	2
NJ	51	45	41	41	48	68	48	55	58	59	51	32
NM	58	59	72	78	77	82	35	39	25	19	17	13
NV	58	65	66	79	89	72	42	33	32	21	11	26
NY	41	46	45	30	64	68	55	50	53	45	34	30
OH	52	67	87	86	92	92	44	31	12	12	7	7
OK	81	73	72	75	75	73	5	11	13	9	13	21
OR	57	80	85	84	88	99	42	18	15	14	10	0
PA	76	72	78	83	84	82	18	22	18	14	13	16
RI	57	50	58	63	83	63	37	46	40	33	14	33
SC	99	98	98	96	98	99	1	0	1	1	1	0
SD	77	84	86	92	94	95	17	11	12	7	6	5
TN	82	84	77	75	78	88	13	12	20	21	18	10
TX	69	60	72	81	85	90	28	38	26	17	13	9
UT	80	76	87	86	89	90	13	16	7	6	8	7
VA	71	77	68	72	77	80	27	22	30	26	21	19
VT	70	89	86	99	96	96	23	6	11	0	1	1
WA	79	83	83	88	92	90	17	15	16	12	8	10
WI	86	93	92	94	93	94	8	5	6	4	4	4
WV	60	70	61	66	74	80	30	22	33	26	20	15
WY	77	73	71	77	93	97	16	23	29	21	6	3
Total	70	76	77	80	85	86	24	20	19	16	13	12

Table 4A

Comparison of successful competitive labor market closure earnings with average state earnings for 1998

State	VR earnings	State earnings[1]	% VR of State[2]
AR	10665	23856	45
MS	9366	23203	40
OK	9954	24591	40
AL	10352	26295	39
ND	8917	22641	39
SC	9911	25517	39
SD	8382	22168	38
KY	9667	26033	37
WV	9076	24639	37
AK	11557	33163	35
LA	9033	26161	35
NC	9345	27618	34
TN	9505	27840	34
UT	9105	26423	34
IA	8311	25334	33
MO	9092	28206	32
NE	8281	25524	32
NV	9781	30510	32
DE	9963	32980	30
GA	9128	30230	30
TX	9121	30864	30
VA	9426	30982	30
AZ	8479	28987	29
DC	13954	47787	29
KS	7661	26250	29
MN	8932	31300	29
OH	8571	29741	29
PA	9003	30887	29
WI	8014	27869	29
FL	7759	27863	28
ID	6886	24422	28
MT	6390	22425	28
HI	7869	28868	27
IN	7697	28472	27
NM	7057	25689	27
CO	8246	31577	26
MA	9442	36825	26
MD	8461	32664	26
NJ	9949	38448	26
OR	7398	29075	25
RI	7431	29399	25
VT	6500	25883	25
IL	8183	34125	24
WA	7989	33381	24
WY	6001	24609	24
CA	7869	34690	23
MI	7556	33767	22
NH	6525	30322	22
CT	8480	40064	21
ME	5365	25385	21
NY	8379	39751	21
National average	8627	29319	30

1. Data source Bureau of Economic Analysis, 2. Table is sorted by this column.

Table 5A

Total successful supported employment closures and % of successful closures using supported employment

	Total successful supported employment closures				% of successful closures using supported employment			
	1991	1993	1995	1998	1991	1993	1995	1998
State								
AK	23	29	29	63	26%	45%	37%	100%
AL		117	150	166	0	7	8	9
AR	84	72	95	30	21	26	28	11
AZ	111	90	213	107	33	32	61	40
CA	1609	1333	1761	1896	64	66	73	77
CO	4	81	101	84	1	22	28	22
CT	82	56	82	40	23	24	29	14
DC	8	1	7	2	10	1	9	3
DE	13	25	37	38	11	17	27	26
FL	263	235	360	400	31	29	43	46
GA	161	174	288	223	11	15	27	24
HI		17	14	20	0	16	18	19
IA	114	123	287	367	19	23	43	52
ID	64	86	119	143	33	45	48	53
IL	183	122	182	200	12	10	14	14
IN		353	560	550	0	33	50	59
KS	77	169	204	139	37	53	52	34
KY		110	209	200	0	26	35	31
LA	118	137	211	391	24	30	38	52
MA	7	6	15	27	1	1	3	5
MD	250	209	336	347	49	51	62	64
ME	28	33	33	29	30	28	28	20
MI	240	364	349	324	24	34	27	25
MN	290	323	362	311	37	50	53	49
MO	170	198	416	335	12	17	30	24
MS	53	75	54	97	13	16	14	31
MT	55	46	44	40	44	43	57	40
NC	159	198	281	476	12	15	30	34
ND	31	39	47	31	35	48	49	34
NE	38	43	75	169	19	25	36	54
NH	28	35	41	72	16	21	24	41
NJ	33	66	103	158	9	14	20	30
NM	11	51	54	33	9	33	36	24
NV		19	80	101	0	37	73	72
NY	540	906	1369	1397	18	27	38	48
OH	196	145	297	384	21	18	26	28
OK	27	122	139	153	7	27	28	36
OR	132	111	82	87	42	33	27	22
PA	74	74	146	605	7	8	12	45
RI	34	13	52	75	40	27	58	63
SC		4	27	104	0	0	4	18
SD	54	49	84	78	39	35	53	40
TN	141	172	219	221	24	25	22	22
TX	219	296	387	485	14	23	29	43
UT	77	70	93	108	23	23	32	34
VA	186	260	224	380	24	32	31	41
VT	67	60	79	119	68	66	68	77
WA	108	200	26	48	26	41	4	8
WI	193	209	274	294	32	35	44	47
WV		39	90	68	0	15	33	28
WY	41	37	48	31	63	65	72	79
Total	6396	7802	10,835	12,246	22	29	35	38