

# **Job Attainment and Wages of Wyoming Vocational Rehabilitation Participants**

*by: Patrick Manning, Principal Economist*

**Editor's Note:** An abbreviated version of this article was published in the March 2010 issue of *Wyoming Labor Force Trends*. Due to space considerations in the printed copy, that version included links to several of the tables online. This version of the article includes those tables. The March 2010 issue of *Trends* is available at <http://doe.state.wy.us/LMI/0310/toc.htm>.

The URL for this standalone version of the article is:  
[http://doe.state.wy.us/LMI/0310/VR\\_full\\_article.pdf](http://doe.state.wy.us/LMI/0310/VR_full_article.pdf)



# Job Attainment and Wages of Wyoming Vocational Rehabilitation Participants

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*This article examines the success rate of participants who have completed the Wyoming Department of Workforce Services' Vocational Rehabilitation program. Clients with successful closures had a higher rate of job attainment one year after closure date (73%) than those with unsuccessful closures (43%).*

The purpose of the Wyoming Department of Workforce Services' Vocational Rehabilitation (VR) Division is to help "people with disabilities establish and reach vocational goals that help them become productive working citizens." (Wyoming Department of Workforce Services). In this article, Research & Planning (R&P) examines the outcome over time on Wyoming VR participants' employability and earnings based on closure status (whether successful or unsuccessful; see Definitions) and months of participation. Note: This study does not quantify the impacts of the VR program, such as the employment outcomes of people with or without the VR program's existence. As VR programs exist in all states, there is no way to identify a group of people with similar disabling conditions who received no VR services.

This study combines two main sources of information: VR program data and Wyoming Department of Employment administrative databases, which include wage records and demographic information (see related article, "What Are Wage Records," page 2).

This study found the rate of successful closures was relatively low (35.8%), but the rate of job attainment was substantially higher for clients with successful closures (72.6% employment one year after closure date) compared to clients with unsuccessful closures (43.2%). Successful completion often leads to lower levels of costs for publicly provided supportive services such

## Definitions

### *Closure:*

The date at which the VR program closed a participant's file. This can happen for many reasons.

### *Successful closure:*

For the purposes of this study, a successful closure is termed *closed rehabilitated* and all other closure types are considered unsuccessful.

### *Unsuccessful closure types include:*

Closed, not accepted for VR services, from the applicant status.

Closed, not accepted for VR services, from extended evaluation.

Closed, not rehabilitated, after individualized written rehabilitation program initiated.

Closed, not rehabilitated, before individualized written

rehabilitation program initiated.

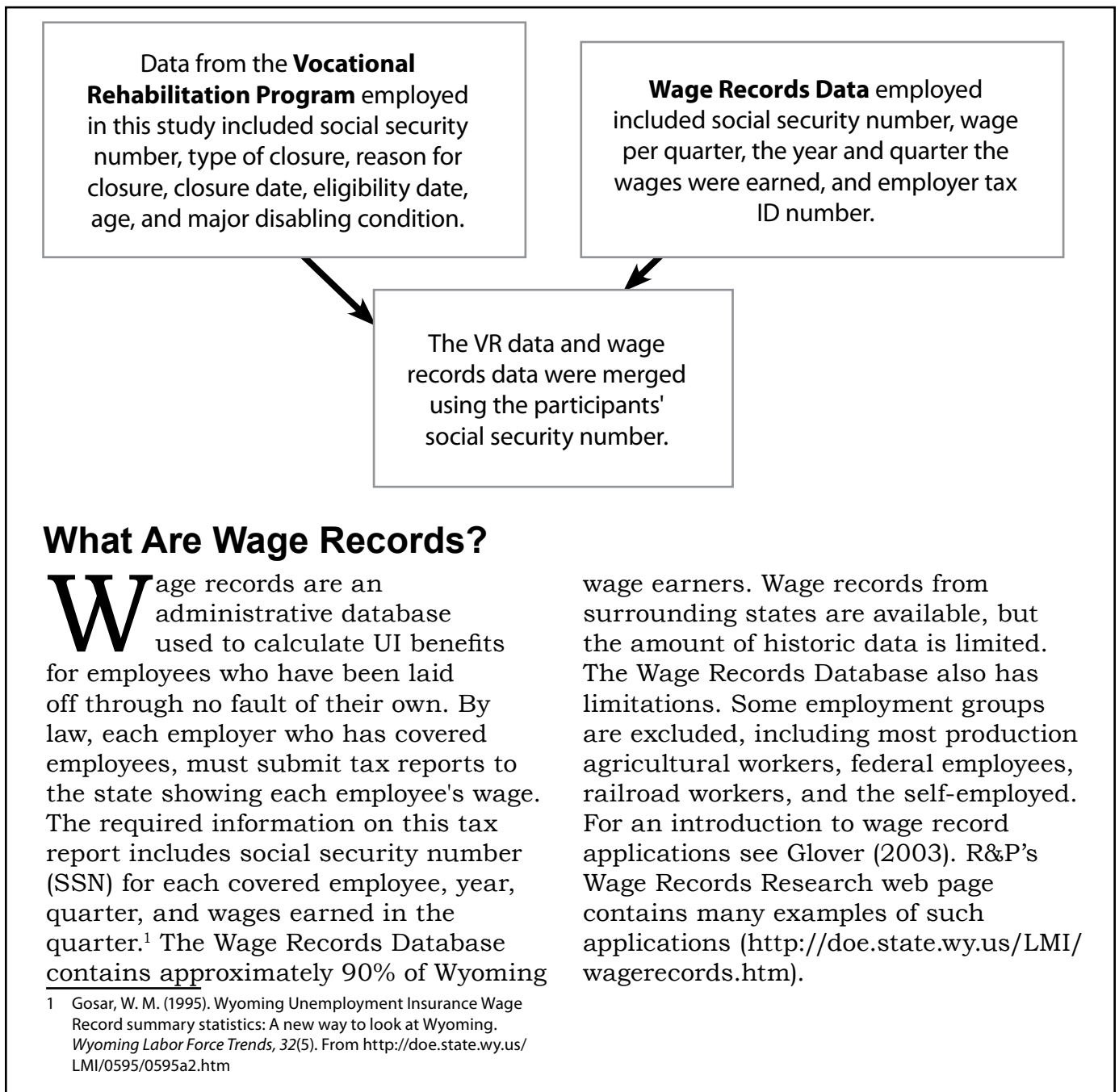
Closed from the pre-service listing.

as Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI).

Previous longitudinal studies on the efficacy of the VR program have been conducted, including a national survey conducted by Hayward & Schmidt-Davis for the Rehabilitation Services Administration (RSA). The study began in January 1995 and was completed in January 2000. The survey consisted of 8,500 VR participants tracked over three years. Using a cohort design, researchers randomly selected 25%

of the sample from the population of people when they applied to VR, 50% of the sample from the population of people who were already receiving services, and 25% of the sample from the population who were exiting or had exited from VR services (Hayward and Schmidt-Davis). The study used an initial interview/survey and a three-year follow-up survey. “The study differs from prior studies of the VR program in that it

offered the opportunity to collect extensive data on individuals, services, and outcomes, expanding previous analytical bases and allowing a more thorough assessment of VR results than had previously been possible.” (Hayward and Schmidt-Davis, ES-2). “At the end of the VR longitudinal study’s data collection period, 17% of the study population was continuing to receive VR services three years after they entered the



### What Are Wage Records?

**W**age records are an administrative database used to calculate UI benefits for employees who have been laid off through no fault of their own. By law, each employer who has covered employees, must submit tax reports to the state showing each employee's wage. The required information on this tax report includes social security number (SSN) for each covered employee, year, quarter, and wages earned in the quarter.<sup>1</sup> The Wage Records Database contains approximately 90% of Wyoming

wage earners. Wage records from surrounding states are available, but the amount of historic data is limited. The Wage Records Database also has limitations. Some employment groups are excluded, including most production agricultural workers, federal employees, railroad workers, and the self-employed. For an introduction to wage record applications see Glover (2003). R&P's Wage Records Research web page contains many examples of such applications (<http://doe.state.wy.us/LMI/wagerecords.htm>).

<sup>1</sup> Gosar, W. M. (1995). Wyoming Unemployment Insurance Wage Record summary statistics: A new way to look at Wyoming. *Wyoming Labor Force Trends*, 32(5). From <http://doe.state.wy.us/LMI/0595/0595a2.htm>

study, 45% had achieved an employment outcome, and 21% had exited VR after services without an employment outcome.” The study found that “persons who receive VR services were likely to achieve a competitive employment outcome if:

- they had higher gross motor function;
- they had higher cognitive function;
- they were working at application for VR services;
- they had higher earnings at their most recent job prior to VR application;
- they had greater knowledge of different jobs;
- they had greater knowledge of the nonmonetary benefits of jobs.” (Hayward and Schmidt-Davis, ES-6).

While the RSA study provides thorough information regarding the factors influencing employability of VR participants, it is based on a national sample of the VR participants and is subject to response bias. Consequently, it is not clear if or to what extent national study findings are applicable at the state and local level. This R&P study captured employment and wage outcomes from administrative databases encompassing the vast majority of participants and avoided some of the data collection problems and costs associated with survey collection methods. This analysis offers an example of a way relevant state and local research may be conducted at a much lower cost than through a survey-based approach.

A U.S. Government Accountability Office report (GAO, 2005) examined the performance of VR participants in fiscal year 2003. The study found that nationally, one-third of VR participants who exited a program in FY 2003 obtained employment, and this rate varied significantly among state VR agencies. For Wyoming, 38.3% of participants “exited with employment,

after services under an employment plan.” (GAO, p. 47). This figure differs from the results of the R&P research (43.2%) in that the GAO study uses VR program data and examines employment at closure, while the R&P research relies on wage records and examines the first four quarters after closure.

The GAO initiated another study to identify ways to improve the VR program’s ability to benefit the subset of VR clients who were Social Security Administration (SSA) beneficiaries (GAO, 2007). The analysis group consisted of SSA beneficiaries who completed a VR program between 2001 and 2003. The GAO (2007, p. 3) analyzed outcomes by state agency using three earnings outcomes:

1. *the percentage of beneficiaries with earnings during the year after VR,*
2. *the average beneficiary’s annual earnings level during the year after VR, and*
3. *the percentage of beneficiaries that left the disability rolls by the close of 2005.*

Results for each state agency were not shown individually. The results indicated, “The proportion of beneficiaries with earnings during the year after their completion of the VR program ranged from as little as 0% in one state agency to as high as 75% in another. Similarly, average annual earnings levels among those SSA beneficiaries with earnings varied across state agencies from \$1,500 to \$17,000 in the year following VR. Additionally, the proportion of SSA beneficiaries who left the disability rolls varied greatly among agencies, with departure rates ranging anywhere from 0 to 20%.” A significant result was that “state unemployment rates and state per capita income levels accounted for a substantial proportion – as much as one-third – of the differences between state agencies’ VR outcomes for SSA beneficiaries.” (GAO, 2007. p.4).

Another longitudinal study using wage records to assess the efficacy of the VR program was conducted in Ohio in 2004 (Gordon, Schaff, & Shaw). The study found that participants with closures within the 1993-1999 time periods, the competitive employment rate (not employed in sheltered workshops or subsidized businesses, etc.) ranged from 74 to 81% after one year, and 68 to 70% after three years. (Although calculated slightly differently, these findings were similar to the R&P study's findings of 73% employment for participants with successful closure one year after the closure date). The authors stated, "The practical, general lesson to be learned from this project for workforce development is that wage records can be used to assess program outcomes. Wage records offer a viable alternative to traditional follow-up studies that often prove to be difficult, limited in coverage, and costly. The use of wage records affords a way to do such work efficiently and effectively – that is, to 'work smarter' in developing outcome measures that can serve to guide future investments in the workforce." (Gordon et al., p. 41).

Given the nature of the data, the research strategy would require measuring outcomes that would not be present had the program not existed. A recent study (Leonard, 2009) conducted by R&P on a similar topic represents an example of this research strategy. The analysis focused on occupational injuries (Workers' Compensation claimants), and the treatment thereof, and used the same administrative and wage records databases used in this study. Ideally, a matched control group of non-participants would be created using methods similar to Leonard's. However, due to the lack of access to detailed medical information on the population in general, this would prove problematic for this study. Additionally, the VR participants differ from the worker compensation claimants in Leonard's study

as all employed persons are exposed to risks associated with the workplace and have the potential to become a workers' compensation claimant. Most of the population is not likely to have a medical condition severe enough to be eligible for VR programs, at least not within a specific category of disability. A frequency of the major disabling conditions for the participants in this study is shown in Table 1, see page 5. For 11.5% of the participants, the major condition is not recorded. Additionally, for many of the 15 most frequently occurring disability codes, the descriptions are rather vague. Along with the lack of medical information on the general population, this prevents the establishment of a non-participant control group.

## Methodology

This study compares the long-term effects of VR training on participants with a successful closure to those with an unsuccessful closure as defined by the program. To examine longitudinal outcomes, VR participants completing the program between January 1994 and December 1996 composed the analysis group. In the case of individuals with multiple closures, only the latest closure was examined. Participants with closure statuses of death, no disabling condition, or no impediment to employment were excluded from the analysis (253 people). Given these parameters, the data set contained 4,149 participants.

The data were categorized for analysis in two ways:

1. Participants were categorized by closure status. A closure type of closed rehabilitated was categorized as a success, with all other closure types categorized as unsuccessful.

2. Participants were categorized by the length of time they received VR services. This was termed months of participation and was defined as the number of months between the application date and the closure date. Ideally, a start date of participation would be used rather than date of application, but this date was not captured in the VR program dataset. The reason for this method of categorization is that participants may leave the program for a variety of reasons. For example, a participant may have participated in the program long enough to have obtained the requisite skills for employability, then left

the state for employment without notifying the VR program, and therefore would have likely been categorized as an unsuccessful closure. Four intervals of months of participation were analyzed: 0 to 3 months, 4 to 12 months, 13 to 24 months, and 24 or more months.

Within these two categories, the success rate of participants was calculated. Quarterly wage records were then used to calculate the number of participants who did and did not earn wages in Wyoming after their closure date, total wages, total quarters worked, total transactions, the

**Table 1: Fifteen Most Frequent Disabling Conditions of Vocational Rehabilitation (VR) Participants in Wyoming With Dates of Closure in 1994-96**

Category	Description	Count	Percent <sup>a</sup>
Other and ill-defined impairments (including trunk, back and spine)	All Other Accidents, injuries and Poisonings	641	15.4%
	Not coded	476	11.5%
Impairment involving one or both upper limbs (including hands, fingers and thumbs)	All Other Accidents, injuries and Poisonings	285	6.9%
Impairment involving one or both lower limbs (including feet and toes)	All Other Accidents, injuries and Poisonings	259	6.2%
Mental and emotional conditions	Mental and emotional disorders, not elsewhere classified	250	6.0%
Mental and emotional conditions	Neurotic disorders	187	4.5%
Mental and emotional conditions	Psychotic disorders	166	4.0%
Other specified disorders of the nervous system	Specific developmental disorders (learning disabilities)	160	3.9%
Mental and emotional conditions	Alcohol abuse or dependence	149	3.6%
Mental and emotional conditions	Mental retardation, mild	138	3.3%
Other and ill-defined impairments (including trunk, back, and spine)	Accidents and injuries involving the spinal cord	121	2.9%
Mental and emotional conditions	Mental retardation, moderate	52	1.3%
Impairment involving one or both lower limbs (including feet and toes)	Accidents and injuries involving the spinal cord	44	1.1%
Other disabling diseases and conditions not elsewhere classified	All other disabling and conditions	41	1.0%
Traumatic brain injury	Other mental and emotional disorders	40	1.0%

<sup>a</sup>Percentage of the 4,149 VR Participants.

Category and description of disabling conditions are found in U.S. Department of Education, 2005, p. 12-19.

Note: For a more recent listing of the causes of disability of VR participants please see Table 14 of *Wyoming Assessment of Rehabilitation Needs 2009* (Western Management Services, 2010).

average quarterly wage per participant, and the average number of employers per participant. This was examined at three intervals all starting the quarter following closure: 1, 5, and 10 years after closure. For the closure status category, the results were further partitioned by gender and age group. Wage data were inflation-adjusted using the Consumer Price Index (BLS, 2009). The base year for real wages was 2007.

Lastly, the economic conditions in Wyoming from 1994 through 2009 were briefly discussed to provide context regarding VR participants' employment outlook. While the focus of this article is the long-term impact of the VR program, the success rate of 2007-08 participants was examined to see if this rate changed substantially.

## Results

### *Closure Type Categorization*

Approximately two-thirds (64.2%) of those entering the VR program did not complete the program successfully, regardless of gender. The age distribution between successful and unsuccessful participants was similar. Neither age nor gender seemed to have substantial influence on whether a participant successfully completed the program (see Table 2, page 7).

Participants who completed the program successfully were much more likely to have earned wages after closure (see Table 3, page 8). One year after closure, 72.6% of successful participants appeared in the Wage Record Database compared to 43.2% of those who did not complete the program successfully. Ten years after closure, the percentages were 83.9% and 65.3%, respectively.

One reason for an unsuccessful closure is "Unable to locate or contact or moved," which may mean some participants had wage records in another state. Regardless, the VR program seems to have a strong positive influence on future employability.

When comparing quarterly wages between the two groups, successful participants tended to earn more income in the first four quarters after closure than participants with an unsuccessful completion. Table 4 (see page 10) demonstrates that in the 12 combinations of age and gender that were compared, participants who successfully completed the program earned more income in 10 of the comparisons than participants who did not successfully complete the program. For example, men in the 35 to 44 age group who successfully completed the program earned \$2,990 on average per quarter compared to \$2,605 for their unsuccessful counterparts. While not as dramatically, this relationship tended to hold true at the five-year mark as well. The average quarterly wage per participant is normally distributed around the overall mean (\$2,051).

Generally, participants with successful closures tended to have fewer employers on average, which suggests they had a higher retention rate with employers (see Tables 3-6, pages 8 to 12). This did not hold true for the most senior age group. However, the number of observations was small – 58 successful and 48 unsuccessful participants in the 10-year, after-closure period (see Table 6, page 12). Therefore, no strong conclusions regarding the most senior age group can be generalized.

VR participants, regardless of whether the program was completed successfully, lagged well behind in quarterly wages compared to the overall Wyoming population

(Text continued on page 9)



Table 2: Demographic Frequencies

Table 2A: Closure Status of Vocational Rehabilitation (VR) Participants in Wyoming by Age Group, Closure Date 1994-1996

Age Group	Successful		Result Not Successful		Overall	
	n	%	n	%	n	%
16 - 19	19	1.3%	176	6.6%	195	4.7%
20 - 24	193	13.0%	347	13.0%	540	13.0%
25 - 34	402	27.1%	707	26.5%	1,109	26.7%
35 - 44	502	33.8%	817	30.7%	1,319	31.8%
45 - 54	284	19.1%	497	18.7%	781	18.8%
55+	85	5.7%	120	4.5%	205	4.9%
<b>Total</b>	<b>1,485</b>	<b>100.0%</b>	<b>2,664</b>	<b>100.0%</b>	<b>4,149</b>	<b>100.0%</b>
<b>% of Total</b>		<b>35.8%</b>		<b>64.2%</b>		<b>100.0%</b>

Table 2B: Closure Status of Female VR Participants in Wyoming by Age Group, Closure Date 1994-1996

Age Group	Successful		Result Not Successful		Overall	
	n	%	n	%	n	%
16 - 19	7	1.1%	69	6.2%	76	4.3%
20 - 24	88	13.5%	138	12.4%	226	12.8%
25 - 34	154	23.6%	284	25.6%	438	24.8%
35 - 44	223	34.2%	354	31.9%	577	32.7%
45 - 54	142	21.7%	219	19.7%	361	20.5%
55+	39	6.0%	47	4.2%	86	4.9%
<b>Total</b>	<b>653</b>	<b>100.0%</b>	<b>1,111</b>	<b>100.0%</b>	<b>1,764</b>	<b>100.0%</b>
<b>% of Total</b>		<b>37.0%</b>		<b>63.0%</b>		<b>42.5%</b>

Table 2C: Closure Status of Male VR Participants in Wyoming by Age Group, Closure Date 1994-1996

Age Group	Successful		Result Not Successful		Overall	
	n	%	n	%	n	%
16 - 19	12	1.4%	107	6.9%	119	5.0%
20 - 24	105	12.6%	209	13.5%	314	13.2%
25 - 34	248	29.8%	423	27.2%	671	28.1%
35 - 44	279	33.5%	463	29.8%	742	31.1%
45 - 54	142	17.1%	278	17.9%	420	17.6%
55+	46	5.5%	73	4.7%	119	5.0%
<b>Total</b>	<b>832</b>	<b>100.0%</b>	<b>1,553</b>	<b>100.0%</b>	<b>2,385</b>	<b>100.0%</b>
<b>% of Total</b>		<b>34.9%</b>		<b>65.1%</b>		<b>57.5%</b>

**Table 3: Frequency of Vocational Rehabilitation Closure Status in Wyoming by Age Group and Gender and Wage Record Data by Closure Status and Gender at 1, 5, and 10 Years After Closure, Closure Date 1994-1996**

Category	Successful Closure			Unsuccessful Closure		
	Men n	Women n	Total n	Men n	Women n	Total n
Age 00-19	12	7	19	107	69	176
Age 20-24	105	88	193	209	138	347
Age 25-34	248	154	402	423	284	707
Age 35-44	279	223	502	463	354	817
Age 45-54	142	142	284	278	219	497
Age 55+	46	39	85	73	47	120
<b>Total</b>	<b>832</b>	<b>653</b>	<b>1,485</b>	<b>1,553</b>	<b>1,111</b>	<b>2,664</b>
<b>% of Total for Closure Type</b>	<b>56.0%</b>	<b>44.0%</b>	<b>100.0%</b>	<b>58.3%</b>	<b>41.7%</b>	<b>100.0%</b>
<b>Wage Records One Year After Closure</b>						
Had Wages After Closure	589	489	1,078	690	460	1,150
No Wages After Closure	243	164	407	863	651	1,514
Total Wages	\$4,781,644	\$2,582,689	\$7,364,332	\$4,171,258	\$1,734,543	\$5,905,801
Total Quarters Worked	1,958	1,598	3,556	1,950	1,247	3,197
Total Transactions	2,368	1,996	4,364	2,495	1,565	4,060
Average Quarterly Wage	\$2,442	\$1,616	\$2,071	\$2,139	\$1,391	\$1,847
Average Number of Employers	1.7	1.8	1.7	2.0	1.8	1.9
<b>Wage Records Five Years After Closure</b>						
Had Wages After Closure	659	544	1,203	927	665	1,592
No Wages After Closure	173	109	282	626	446	1,072
Total Wages	\$26,730,693	\$13,165,160	\$39,895,853	\$26,820,141	\$10,341,014	\$37,161,155
Total Quarters Worked	8,482	6,612	15,094	9,013	6,004	15,017
Total Transactions	10,186	8,112	18,298	11,317	7,559	18,876
Average Quarterly Wage	\$3,151	\$1,991	\$2,643	\$2,976	\$1,722	\$2,475
Average Number of Employers	3.7	3.6	3.7	4.3	3.9	4.2

Table continued on page 9



**Table 4: Wage Record Data of Vocational Rehabilitation Participants in Wyoming by Age Group, Gender, and Closure Type One Year After Closure, Closure Date 1994-1996**

Age Group	Successful Closure				Unsuccessful Closure			
	Men	Women	Total	%	Men	Women	Total	%
<b>Had Wages</b>								
00-19	10	6	16	1.5%	65	37	102	8.9%
20-24	84	66	150	13.9%	116	65	181	15.7%
25-34	188	115	303	28.1%	232	122	354	30.8%
35-44	200	175	375	34.8%	185	140	325	28.3%
45-54	83	107	190	17.6%	75	83	158	13.7%
55+	24	20	44	4.1%	17	13	30	2.6%
<b>Total</b>	<b>589</b>	<b>489</b>	<b>1,078</b>		<b>690</b>	<b>460</b>	<b>1,150</b>	
<b>%</b>	<b>54.6%</b>	<b>45.4%</b>		<b>100.0%</b>	<b>60.0%</b>	<b>40.0%</b>		<b>100.0%</b>
<b>Had No Wages</b>								
00-19	2	1	3	0.7%	42	32	74	4.9%
20-24	21	22	43	10.6%	93	73	166	11.0%
25-34	60	39	99	24.3%	191	162	353	23.3%
35-44	79	48	127	31.2%	278	214	492	32.5%
45-54	59	35	94	23.1%	203	136	339	22.4%
55+	22	19	41	10.1%	56	34	90	5.9%
<b>Total</b>	<b>243</b>	<b>164</b>	<b>407</b>		<b>863</b>	<b>651</b>	<b>1,514</b>	
<b>%</b>	<b>22.5%</b>	<b>15.2%</b>		<b>100.0%</b>	<b>57.0%</b>	<b>43.0%</b>		<b>100.0%</b>
<b>Total Wages</b>								
00-19	\$65,311	\$13,970	\$79,282		\$186,064	\$78,727	\$264,791	
20-24	\$498,682	\$268,624	\$767,306		\$595,134	\$170,461	\$765,594	
25-34	\$1,480,301	\$667,227	\$2,147,528		\$1,506,723	\$521,150	\$2,027,874	
35-44	\$2,012,184	\$898,996	\$2,911,180		\$1,315,398	\$534,929	\$1,850,327	
45-54	\$548,236	\$650,025	\$1,198,260		\$490,362	\$364,115	\$854,477	
55+	\$176,929	\$83,847	\$260,776		\$77,576	\$65,162	\$142,738	
<b>Total Quarters Worked</b>								
00-19	37	13	50		168	92	260	
20-24	273	219	492		347	165	512	
25-34	656	382	1,038		678	349	1,027	
35-44	673	558	1,231		505	377	882	
45-54	241	361	602		207	228	435	
55+	78	65	143		45	36	81	
<b>Total Transactions</b>								
00-19	46	13	59		216	117	333	
20-24	322	269	591		466	208	674	
25-34	807	491	1,298		866	452	1,318	
35-44	808	690	1,498		632	475	1,107	
45-54	297	453	750		265	269	534	
55+	88	80	168		50	44	94	
<b>Average Quarterly Wage</b>								
00-19	\$1,765	\$1,075	\$1,586		\$1,108	\$856	\$1,018	
20-24	\$1,827	\$1,227	\$1,560		\$1,715	\$1,033	\$1,495	
25-34	\$2,257	\$1,747	\$2,069		\$2,222	\$1,493	\$1,975	
35-44	\$2,990	\$1,611	\$2,365		\$2,605	\$1,419	\$2,098	
45-54	\$2,275	\$1,801	\$1,990		\$2,369	\$1,597	\$1,964	
55+	\$2,268	\$1,290	\$1,824		\$1,724	\$1,810	\$1,762	
<b>Average Number of Employers</b>								
00-19	1.9	1.2	1.6		2.2	2.0	2.1	
20-24	1.7	1.8	1.7		2.2	1.9	2.1	
25-34	1.8	1.9	1.8		2.1	1.9	2.0	
35-44	1.7	1.8	1.7		1.8	1.7	1.8	
45-54	1.6	1.6	1.6		2.0	1.7	1.8	
55+	1.5	1.5	1.5		1.4	1.6	1.5	

**Table 5: Wage Record Data of Vocational Rehabilitation Participants in Wyoming by Age Group, Gender, and Closure Type Five Years After Closure, Closure Date 1994-1996**

Age Group	Successful Closure				Unsuccessful Closure			
	Men	Women	Total	%	Men	Women	Total	%
<b>Had Wages</b>								
00-19	10	6	16	1.3%	85	43	128	8.0%
20-24	89	77	166	13.8%	159	99	258	16.2%
25-34	206	130	336	27.9%	291	182	473	29.7%
35-44	223	193	416	34.6%	261	206	467	29.3%
45-54	102	114	216	18.0%	106	117	223	14.0%
55+	29	24	53	4.4%	25	18	43	2.7%
<b>Total</b>	<b>659</b>	<b>544</b>	<b>1,203</b>		<b>927</b>	<b>665</b>	<b>1,592</b>	
<b>%</b>	<b>54.8%</b>	<b>45.2%</b>		<b>100.0%</b>	<b>58.2%</b>	<b>41.8%</b>		<b>100.0%</b>
<b>Had No Wages</b>								
00-19	2	1	3	1.1%	22	26	48	4.5%
20-24	16	11	27	9.6%	50	39	89	8.3%
25-34	42	24	66	23.4%	132	102	234	21.8%
35-44	56	30	86	30.5%	202	148	350	32.6%
45-54	40	28	68	24.1%	172	102	274	25.6%
55+	17	15	32	11.3%	48	28	77	7.2%
<b>Total</b>	<b>173</b>	<b>109</b>	<b>282</b>		<b>626</b>	<b>446</b>	<b>1,072</b>	
<b>%</b>	<b>14.4%</b>	<b>9.1%</b>		<b>100.0%</b>	<b>58.4%</b>	<b>41.6%</b>		<b>100.0%</b>
<b>Total Wages</b>								
00-19	\$366,979	\$61,678	\$428,657		\$1,721,658	\$621,744	\$2,343,402	
20-24	\$2,896,799	\$1,473,680	\$4,370,480		\$4,091,093	\$1,280,177	\$5,371,270	
25-34	\$8,410,370	\$3,309,201	\$11,719,571		\$9,086,366	\$3,071,699	\$12,158,064	
35-44	\$11,060,065	\$4,970,386	\$16,030,451		\$8,176,142	\$3,389,111	\$11,565,253	
45-54	\$3,242,387	\$2,934,401	\$6,176,788		\$3,452,715	\$1,805,933	\$5,258,649	
55+	\$754,092	\$415,815	\$1,169,907		\$292,167	\$172,349	\$464,517	
<b>Total Quarters Worked</b>								
00-19	165	50	215		735	448	1,183	
20-24	1,161	889	2,050		1,648	829	2,477	
25-34	2,805	1,599	4,404		3,081	1,724	4,805	
35-44	2,935	2,400	5,335		2,389	1,919	4,308	
45-54	1,081	1,409	2,490		990	969	1,959	
55+	335	265	600		170	115	285	
<b>Total Transactions</b>								
00-19	218	56	274		1,019	599	1,618	
20-24	1,420	1,066	2,486		2,167	1,076	3,243	
25-34	3,390	1,971	5,361		3,872	2,228	6,100	
35-44	3,463	2,930	6,393		2,869	2,371	5,240	
45-54	1,331	1,772	3,103		1,205	1,144	2,349	
55+	364	317	681		185	141	326	
<b>Average Quarterly Wage</b>								
00-19	\$2,224	\$1,234	\$1,994		\$2,342	\$1,388	\$1,981	
20-24	\$2,495	\$1,658	\$2,132		\$2,482	\$1,544	\$2,168	
25-34	\$2,998	\$2,070	\$2,661		\$2,949	\$1,782	\$2,530	
35-44	\$3,768	\$2,071	\$3,005		\$3,422	\$1,766	\$2,685	
45-54	\$2,999	\$2,083	\$2,481		\$3,488	\$1,864	\$2,684	
55+	\$2,251	\$1,569	\$1,950		\$1,719	\$1,499	\$1,630	
<b>Average Number of Employers</b>								
00-19	6.7	3.7	5.6		5.7	5.7	5.7	
20-24	4.3	3.7	4.0		5.1	4.3	4.8	
25-34	4.0	4.0	4.0		4.7	4.4	4.6	
35-44	3.4	3.7	3.6		3.7	3.8	3.7	
45-54	3.1	3.1	3.1		3.4	2.8	3.1	
55+	2.3	2.8	2.5		2.0	2.6	2.2	

**Table 6: Wage Record Data of Vocational Rehabilitation Participants in Wyoming by Age Group, Gender, and Closure Type 10 Years After Closure, Closure Date 1994-1996**

Age Group	Successful Closure				Unsuccessful Closure			
	Men	Women	Total	%	Men	Women	Total	%
<b>Had Wages</b>								
00-19	11	6	17	1.4%	87	48	135	7.8%
20-24	93	79	172	13.8%	167	114	281	16.2%
25-34	213	136	349	28.0%	314	201	515	29.6%
35-44	231	197	428	34.3%	283	231	514	29.6%
45-54	106	116	222	17.8%	120	126	246	14.1%
55+	32	26	58	4.7%	30	18	48	2.8%
<b>Total</b>	<b>686</b>	<b>560</b>	<b>1,246</b>		<b>1,001</b>	<b>738</b>	<b>1,739</b>	
<b>%</b>	<b>55.1%</b>	<b>44.9%</b>		<b>100.0%</b>	<b>57.6%</b>	<b>42.4%</b>		<b>100.0%</b>
<b>Had No Wages</b>								
00-19	1	1	2	0.8%	20	21	41	4.4%
20-24	12	9	21	8.8%	42	24	66	7.1%
25-34	35	18	53	22.2%	109	83	192	20.8%
35-44	48	26	74	31.0%	180	123	303	32.8%
45-54	36	26	62	25.9%	158	93	251	27.1%
55+	14	13	27	11.3%	43	29	72	7.8%
<b>Total</b>	<b>146</b>	<b>93</b>	<b>239</b>		<b>552</b>	<b>373</b>	<b>925</b>	
<b>%</b>	<b>11.7%</b>	<b>7.5%</b>		<b>100.0%</b>	<b>59.7%</b>	<b>40.3%</b>		<b>100.0%</b>
<b>Total Wages</b>								
00-19	\$866,785	\$296,006	\$1,162,791		\$5,217,453	\$1,567,801	\$6,785,254	
20-24	\$7,205,913	\$3,590,383	\$10,796,297		\$11,687,233	\$3,668,803	\$15,356,036	
25-34	\$20,144,646	\$7,564,712	\$27,709,359		\$23,065,155	\$7,492,590	\$30,557,745	
35-44	\$25,067,739	\$11,794,130	\$36,861,870		\$20,143,466	\$8,817,377	\$28,960,843	
45-54	\$8,399,884	\$5,882,666	\$14,282,550		\$8,187,941	\$4,136,851	\$12,324,792	
55+	\$1,259,925	\$836,740	\$2,096,665		\$603,108	\$207,980	\$811,087	
<b>Total Quarters Worked</b>								
00-19	322	112	434		1,591	859	2,450	
20-24	2,134	1,629	3,763		3,194	1,669	4,863	
25-34	5,196	2,904	8,100		5,748	3,296	9,044	
35-44	5,273	4,216	9,489		4,551	3,628	8,179	
45-54	2,050	2,344	4,394		1,829	1,827	3,656	
55+	487	462	949		301	158	459	
<b>Total Transactions</b>								
00-19	433	123	556		2,115	1,121	3,236	
20-24	2,618	1,927	4,545		4,069	2,113	6,182	
25-34	6,234	3,502	9,736		7,092	4,257	11,349	
35-44	6,073	5,017	11,090		5,366	4,470	9,836	
45-54	2,469	2,908	5,377		2,209	2,135	4,344	
55+	527	537	1,064		322	187	509	
<b>Average Quarterly Wage</b>								
00-19	\$2,692	\$2,643	\$2,679		\$3,279	\$1,825	\$2,769	
20-24	\$3,377	\$2,204	\$2,869		\$3,659	\$2,198	\$3,158	
25-34	\$3,877	\$2,605	\$3,421		\$4,013	\$2,273	\$3,379	
35-44	\$4,754	\$2,797	\$3,885		\$4,426	\$2,430	\$3,541	
45-54	\$4,098	\$2,510	\$3,250		\$4,477	\$2,264	\$3,371	
55+	\$2,587	\$1,811	\$2,209		\$2,004	\$1,316	\$1,767	
<b>Average Number of Employers</b>								
00-19	9.7	6.7	8.6		9.6	8.0	9.0	
20-24	6.1	5.8	6.0		7.5	6.2	7.0	
25-34	5.8	5.6	5.7		6.7	6.3	6.5	
35-44	4.8	5.0	4.9		5.2	5.2	5.2	
45-54	4.0	4.4	4.2		4.4	4.1	4.2	
55+	2.6	3.3	2.9		2.3	3.1	2.6	



**Table 8: Results Five Years After Closure by Months of Participation in Wyoming Vocational Rehabilitation (VR), Closure Date 1994-1996**

Gender		Months of Participation in VR				Total
		0 to 3 Months	4 to 12 Months	13 to 24 Months	24+ Months	
Male	Had Wages	295	600	397	294	<b>1,586</b>
	No Wages	146	316	179	158	<b>799</b>
	% in Wage Records	66.9%	65.5%	68.9%	65.0%	<b>66.5%</b>
	Total Wages	\$8,347,016	\$17,686,883	\$15,126,365	\$12,390,571	<b>\$53,550,835</b>
	Total Quarters Worked	2,858	6,112	4,917	3,608	<b>17,495</b>
	Total Transactions	3,599	7,465	6,053	4,386	<b>21,503</b>
	Average Quarterly Wage	\$2,651	\$2,471	\$2,570	\$3,141	<b>\$2,694</b>
	Average Number of Employers	4.0	3.6	3.9	3.4	<b>3.7</b>
	Total Number of Employers	1,351	2,345	1,634	1,118	<b>6,448</b>
Female	Had Wages	175	481	335	218	<b>1,209</b>
	No Wages	107	200	144	104	<b>555</b>
	% in Wage Records	62.1%	70.6%	69.9%	67.7%	<b>68.5%</b>
	Total Wages	\$2,886,111	\$8,626,889	\$6,933,489	\$5,059,685	<b>\$23,506,174</b>
	Total Quarters Worked	1,652	4,849	3,732	2,383	<b>12,616</b>
	Total Transactions	2,086	5,956	4,679	2,950	<b>15,671</b>
	Average Quarterly Wage	\$1,620	\$1,703	\$1,642	\$2,062	<b>\$1,738</b>
	Average Number of Employers	3.8	3.9	3.7	3.1	<b>3.7</b>
	Total Number of Employers	701	1,814	1,292	774	<b>4,581</b>
Total	Had Wages	470	1,081	732	512	<b>2,795</b>
	No Wages	253	516	323	262	<b>1,354</b>
	% in Wage Records	65.0%	67.7%	69.4%	66.1%	<b>67.4%</b>
	Total Wages	\$11,233,128	\$26,313,772	\$22,059,854	\$17,450,256	<b>\$77,057,008</b>
	Total Quarters Worked	4,510	10,961	8,649	5,991	<b>30,111</b>
	Total Transactions	5,685	13,421	10,732	7,336	<b>37,174</b>
	Average Quarterly Wage	\$2,096	\$2,117	\$2,142	\$2,650	<b>\$2,235</b>
	Average Number of Employers	3.9	3.7	3.8	3.3	<b>3.7</b>
	Number of Employers	2,052	4,159	2,926	1,892	<b>11,029</b>

how do more recent program participants fare in terms of program completion and wage earnings?

To address this question, participants with closure dates within the 2007-08 period were examined (see Table 9, page 15). The success rate of the program has increased compared to the 1994-96 period. The overall effect may be even greater given that the definition of success is more

rigorous in the later period. Success in both periods was determined as having a type of closure of “03.” However, the definition of this closure type in the earlier period was closed rehabilitated, while in the later period it was exited with an employment outcome. Given that in the later period there was also a closure type of “04” defined as exited without an employment outcome, after receiving services, the later period’s definition of success was more restrictive.



**Further Research**

A more complete analysis would include the wage records of surrounding states to fully capture the wages of participants who moved out of state after closure. These data are available for approximately the last five years.

Two elements of the vocational rehabilitation data have not yet been examined: the severity of the injury or disability and the type of rehabilitation provided. Also, this study examined only the wage records of participants after closure. It may be useful to look at participants' work history prior to admittance to the VR program. By looking at the participants' pre- and post-closure history, a measure of the replacement of prior wages could be calculated.

**Table 9: Success Rates of Vocational Rehabilitation Participants in Wyoming with Closure Dates in 2007 or 2008**

<b>Closure Year</b>	<b>Result</b>	<b>Count</b>	<b>Percent</b>
2007	Not Successful	1,027	58.6%
	Success	725	41.4%
	<b>Total</b>	<b>1,752</b>	<b>100.0%</b>
2008	Not Successful	798	60.1%
	Success	530	39.9%
	<b>Total</b>	<b>1,328</b>	<b>100.0%</b>

A cost-benefit analysis of the VR program could be conducted. The cost of each participant's rehabilitation is included in the dataset, as well as some information regarding public assistance received. Combined with wage record data, the cost effectiveness of the VR program could be estimated.

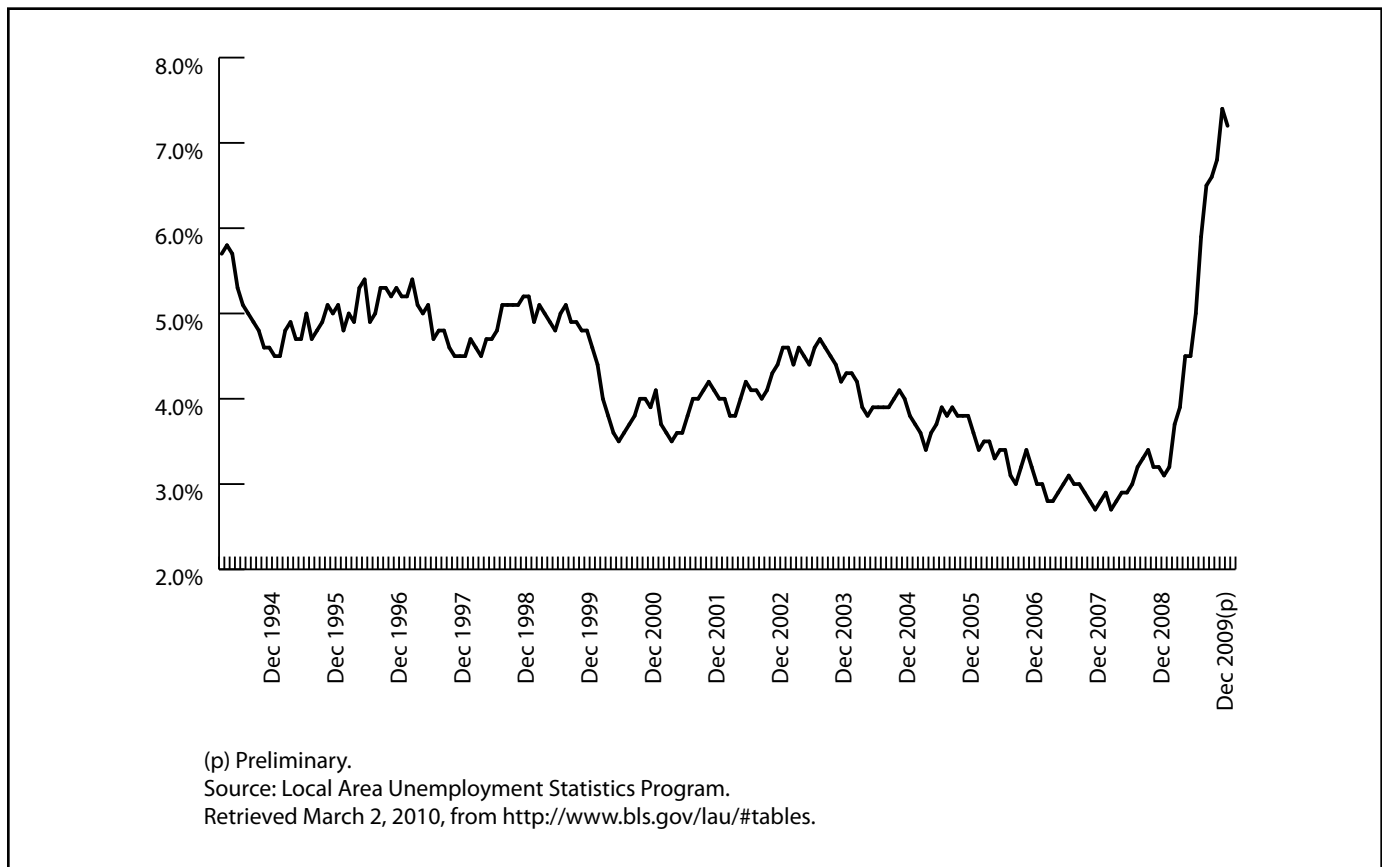


Figure 1: Wyoming Seasonally Adjusted Unemployment Rate, December 1994 to December 2009

## *Benefits to Using the Wage Records Database to Assess the Efficacy of the VR Program*

Every three years, the Wyoming Division of Vocational Rehabilitation (DVR) must submit a statewide needs assessment that “must examine the need to establish, develop, or improve community rehabilitation programs within the state.” (Western Management Services, p. 3). Special attention must be given to four disability populations: veterans with disabilities, students in transition, participants with an acquired brain injury, and minorities with disabilities.

The use of the Wage Records Database could aid in the preparation of this assessment as it provides a less expensive means of wage data collection. For the 2009 report, surveys were used to collect wage information; this was an unnecessary re-doubling of efforts as these data are already captured by the UI Wage Records Database. Rather than gathering data from a small sample of VR participants, wage data for the vast majority of participants could be analyzed. In addition, the longitudinal nature of the data allows for long-term impact assessment that is not possible by any other means.

As an example of enhancements that the wage record data could provide, please see Table 14 in the 2009 Wyoming assessment publication. (Western Management Services, p. 19). This table lists the causes of disability, the number of participants in each category, and the percentage of the total participants. By using the wage record data, this table could be expanded to include the number of participants that appeared in the Wage Records Database before and after their respective closure dates along with the number of quarters worked and their average quarterly wages. For example, in

the case of those 148 participants with an acquired brain injury (ABI) who had closure dates in calendar year 2007 or 2008, 92.6% had wage records prior to the quarter of their closure, and 56.1% had wage records post closure. Each cause of disability could be examined and ranked in terms of employment outcomes. These could be used to identify potential improvements in the VR program and to set benchmarks for improvement.

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