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The impact of a written benefits analysis by Utah benefit counseling/WIPA program on vocational rehabilitation outcomes

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Abstract. The Utah State Office of Rehabilitation's Vocational Rehabilitation (VR) Program provides services to individuals with disabilities to assist them in preparing for and obtaining employment. One service available to Social Security Administration (SSA) beneficiaries is a written benefits analysis provided by a benefits counselor or certified work incentive counselor (CWIC) in the Work Incentives Planning and Assistance (WIPA) program. The written benefits analysis provided clients information on Social Security program rules and how employment earnings will impact their Social Security benefits as well as other public benefits they receive. The goal of the written analysis was to provide recipients with detailed information about the impact of increased earnings so they can make an informed choice about employment. Statistical analysis indicated that Utah Benefits Planning Assistance & Outreach Program (UBPAO) services are associated with improved earnings, employment outcomes and successful case closure status of VR clients. Multivariate analysis indicated a positive relationship between a written analysis and employment. Although, for those employed at least one quarter, a written analysis was not associated with an increase in their UI wages.

Keywords: Vocational rehabilitation, benefits counseling, social security, economics, policy, earnings, unemployment

1. Introduction

Vocational Rehabilitation (VR) clients that are eligible for Social Security benefits could also obtain a written benefit analysis from the Utah Benefits Planning Assistance & Outreach (UBPAO) Program. The analysis from the UBPAO program provides clients information on Social Security program rules and how employment earnings will impact their Social Security benefits as well as other public benefits they receive. The goal of the service was to provide recipients with information about the impact of working so they could make an informed choice about employment and changes in earnings. This study analyzed whether UBPAO services had an impact on the earning and employment outcomes and closure status of VR clients that received these services compared to those that did not receive UBPAO services.

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2. Description of USOR

The following outlines the mission and programs of the Utah State Office of Rehabilitation. In addition, it details the services of the Vocational Rehabilitation program and the Utah Benefits Planning Assistance and Outreach Program.

3. Mission and programs of USOR

The mission of the Utah State Office of Rehabilitation is to "assist eligible individuals with disabilities to prepare for and obtain employment and increase

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their independence" (Utah Office of Vocational Rehabilitation, 2006). There are several divisions within USOR that work to meet its mission; this research focuses on the Division of Rehabilitation Services, and its Vocational Rehabilitation program. The Vocational Rehabilitation (VR) program provides services to individuals whose disability creates a substantial impediment to employment. Services are available according to individual's needs, abilities, and choices. Vocational Rehabilitation services are provided through the USOR's Division of Rehabilitation Services and Division of Services for the Blind and Visually Impaired.

4. Vocational rehabilitation program

The mission of the Vocational Rehabilitation (VR) program is to assist eligible individuals with disabilities to prepare for and obtain employment. The services provided include assessment, counseling and guidance, restoration, training, job development and job placement. These services are individualized and are provided to those determined eligible due to having physical or mental impairments that result in a substantial impediment to employment. In addition, eligibility requires that a person can benefit from VR services and requires VR services to obtain an employment outcome.

5. Utah benefits planning assistance and outreach program (UBPAO)

One component of USOR was benefits counseling offered through the Utah Benefits Planning Assistance and Outreach Program (UBPAO) and the Work Incentives Planning and Assistance (WIPA) program. The programs provided services to Social Security disability beneficiaries who were considering employment. The goal was to give the beneficiary adequate information on how employment will affect their Social Security benefits including Supplemental Security Income (SSI) and/or Social Security Disability Insurance (SSDI) as well as other public benefits such as Medicaid, Medicare, food stamps, housing, and others. This information allowed individuals to make an informed choice about employment.

Services included: information and referral, intake into the UBPAO program when appropriate, preparation of a written benefits analysis, presentation of the analysis to the client, work incentive development, and follow-up, if needed. The written benefits analysis was a customized summary discussing the impact of employment on an individual's benefits. To prepare a written analysis, a specialist gathered, verified and analyzed information regarding the consumer and the public benefits they received.

UBPAO services were provided at no cost to the beneficiaries through a partnership between the Social Security Administration (SSA), Utah State Office of Rehabilitation (USOR), the Department of Workforce Services (DWS) and the Work Ability Utah Project.

6. Prior research

Several studies have examined the impact of benefits counseling as part of a package of supports for SSA beneficiaries. An early Vermont study found stronger increases in earnings for a group of vocational rehabilitation clients that received specialized benefits counseling compared with a matched group of VR clients (Tremblay et al., 2004). As part of SSA's Benefit Offset Pilot Demonstration projects, benefits counseling was provided to participants in all four of the pilot states along with a benefit offset. An analysis of the Vermont pilot indicated that benefits counseling, as a component of the benefit offset intervention, showed positive impact on earnings above Substantial Gainful Activity (Tremblay et al., 2011). Benefits counseling was seen as essential to fully communicating the effect of the new work incentive rules in the Utah Benefit Offset Demonstration (Chambless et al., 2011). A study in Connecticut also showed that the combination of vocational rehabilitation services and benefits counseling was associated with higher level of earnings compared with groups that only received either vocational rehabilitation or benefits counseling (Delin et al., 2010). A Wisconsin study analyzed data from both the State Partnership Initiative project and SSDI Employment Pilot and found work incentives counseling to be positively correlated with employment outcomes (Delin et al., 2010). This same analysis found a positive relationship between the number of hours ("dosage") of benefits counseling participants received and participant earnings levels (Delin et al., 2011). A California study observed that benefits counseling was not only essential to assist beneficiaries when they begin working, but long-term follow up is as important for maintaining employment outcomes (Ekstrom & Shea, 2011). These studies build a case for the idea that benefits counseling should be considered an essential core

service provided in conjunction with other employment services and supports for Social Security beneficiaries (Kregel & O'Mara, 2011). Kregel and O'Mara (2011) observed that benefits counseling on work incentive are a "crucial but insufficient" component of a comprehensive employment services and supports program for SSA beneficiaries. Given the positive results from prior studies, USOR wanted to evaluate the impact of benefits counseling on the earnings and employment of vocational rehabilitation clients in Utah.

7. Design and description of the study

7.1. Purpose

The purpose of the study was to determine the impact of a written benefits analysis by the UBPAO Program on VR clients' outcomes in terms of employment, earnings and VR closure status. The goal of the study is to answer three research questions.

1. Did VR clients that received a written benefits analysis from the UBPAO in addition to traditional VR services have better outcomes in terms of employment than those who did not receive a written benefits analysis?
2. Did VR clients that received a written benefits analysis from the UBPAO in addition to traditional VR services have better outcomes in terms of earnings than those who did not receive a written benefits analysis?
3. Did VR clients that received a written benefits analysis from the UBPAO in addition to traditional VR services have better outcomes in terms of VR closure status than those who did not receive a written benefits analysis?

7.2. Outcome measures

The outcome measures for this study were identified that would address the research questions. The measures are:

1. Quarterly earnings from Unemployment Insurance covered employment in Utah.
2. Weekly Earnings reported in the USOR 911 dataset at application for services and at case closure.
3. Quarterly employment rates from Unemployment Insurance covered employment in Utah.
4. Closure Status reported in USOR 911 dataset.

7.3. Data

Two data sources were used for this study:

1. The primary data comes from the USOR 911 dataset that is maintained as required by the Rehabilitation Services Administration (RSA). This dataset contains participant data including: background, services, and outcomes.
2. The second dataset was obtained from the Department of Workforce Services by matching quarterly earnings data for participants working in Unemployment Insurance covered employment for the 12 quarters prior to application and the 12 quarters after closure.

The analytic sample included individuals who were receiving SSI or SSDI at application for VR services and were closed in status 26 (successfully employed) or 28 (not successfully employed) with closure dates from October 1, 2004 through September 30, 2006 (2037 cases). The initial sample of 2037 was narrowed due to several factors. First, only individuals aged 14–64 were included. Older workers were excluded because they may make different decisions about labor market participation, which would affect their labor market outcomes. Workers as young as 14 were included because the legal age to work in Utah is 14 and workers who apply for benefits at 14 typically will not complete services until they have completed high school. Second, workers with an application date prior to October 1, 2001 were excluded because the Unemployment Insurance (UI) data was not available for 3 years prior to their application. This resulted in 467 individuals being dropped from the sample.

The resulting sample of 1425 consisted of 1271 in the control group and 154 in the program group. The program group consists of clients that receive a written analysis from the UBPAO.

Quarterly earnings and employment were impacted by several factors. A person was considered employed in a quarter when their earnings are greater than $50 so if earnings are below that level they are not counted as employed. Also UI data does not capture self-employment earnings or earnings for several other categories of employment, including some religious organizations and agricultural enterprises. These factors may result in earnings and employment estimates being lower than actual and therefore underestimate the impacts of the services provided by the State Office of Rehabilitation. Earnings were adjusted to 2010 dollars using the Consumer Price Index for All Urban Consumers (CPI-U).

8. Descriptive statistics

Before fitting models to the data to answer the net impact questions, descriptive statistics were computed for the program and control group samples.

Data from USOR was analyzed using descriptive statistics only and not the multivariate analysis because each person only has one observation for closure status and weekly earnings at closure.

8.1. Gender, race, ethnicity, education and disabilities

Table 1 below provides descriptive statistics from the USOR 911 dataset of consumers included in the sample. Included are the figures for the whole sample, the program group and the control group. The final two columns report the difference between the program and the control group and whether the difference is statistically significant. Only in isolated instances is there a significant difference between the control group and the program group indicating that any differences between the two groups are not likely to be systemic.

Table 1 includes descriptive statistics about the significance of disabilities of the study group. A simplified description of significance of disability is that an individual coded "most significant disability" faces limitations in at least two functional categories and requires multiple USOR services. An individual coded as "significant disability" faces limitations in at least one functional category and still requires multiple USOR services.

9. Labor market outcomes

For the whole sample being studied, the average quarterly earnings per Unemployment Insurance records (UI) prior to application were $496.56 and were $1066.60 after closure. This is a statistically significant difference of $570.04. This study will help to identify how much of this difference is associated with receipt of a written benefits analysis.

Table 2 provides data on the difference between the program group and the control group for average earnings from the Unemployment Insurance data whether or not the individual was employed. Earnings for the program and control group are not significantly different in the quarter immediately prior to application. However, for the first quarter after closure, the program group's earnings are $451.59 higher than the control group. Increased earnings could be the result of either an increase in hours or wages for those that are working. Increased earnings could also result from employment for some who had not previously been working. The multivariate analysis in the next section will explore this result to estimate how much of this effect is associated with differences in those who are in the program group versus the control group. The multivariate analysis will also estimate how much of the increase in earnings is associated with increased employment or with higher earnings.

Table 3 details the difference between the program and control groups' employment rates for the quarters immediately prior to application and after closure. There was a difference in the groups before application and after closure. The difference between the control group and the program group was significant after closure.

Table 4 details the primary source of support at closure, as reported by the USOR 911 dataset. Public support includes cash payments made by federal, state and/or local governments for any reason. Public assistance payments come from programs such as Veteran's Disability, Temporary Assistance to Needy Families (TANF), Supplemental Security Income (SSI), Social Security Disability Insurance (SSDI), General Assistance (GA), Worker's Compensation, and others. Individuals in the program group were significantly more likely to be supported by personal income and less likely to be supported by friends and family at case closure. The differences in the other categories were not significant.

If the individuals that participated in the Utah Benefits Offset Pilot Demonstration (UBOPD) project were excluded from this analysis, personal income as a primary source of support was not statistically significant. In August 2005, the SSA initiated a pilot demonstration in four states to test alternate methods of treating work activity in the Social Security Disability Insurance (SSDI) program. Using an experimental design with random assignment to either a control or treatment group, the Utah Benefit Offset Pilot Demonstration (UBOPD) project studied the difficulties of implementing changes to the SSDI program rules and performed preliminary analysis of the effect of a benefit offset on employment outcomes including wages, benefits, hours worked, and job retention. A benefit offset was a gradual reduction in benefits if an individual has earnings above set levels. A total of 50 people in this study were in the Benefit Offset program, 39 in the pilot and 11 in the control group. Of the 39 in the pilot, 14 received a

Table 1
Background characteristics of sample

Characteristics	Whole sample	Program group	Control group	Difference	Significant at the 10% level?
Sample size	1425	154	1271		
Gender Percentages					
Male	55.79%	54.55%	55.94%	1.39%	No
Female	44.21%	45.45%	44.06%	−1.39%	No
Age at time of VR case closure percentages					
14–21	4.91%	4.55%	4.96%	0.41%	No
22–34	34.81%	25.97%	35.88%	9.90%	Yes
35–44	22.74%	22.08%	22.82%	0.74%	No
45–54	23.02%	34.42%	21.64%	−12.78%	Yes
55–64	14.53%	12.99%	14.71%	1.73%	No
Education at application percentages (% may not sum to 100 due to rounding)					
No formal schooling	0.63%	0.00%	0.71%	0.71%	No
Elementary education (grades 1–8)	2.88%	2.60%	2.91%	0.31%	No
Secondary education, No high School diploma	13.54%	14.94%	13.38%	−1.56%	No
Special education certificate of completion	10.60%	4.55%	11.33%	6.78%	Yes
High school graduate or equivalency certificate	42.53%	47.40%	41.94%	−5.47%	No
Post-secondary education, no degree	19.09%	16.23%	19.43%	3.20%	No
Associate degree or vocational/technical	4.98%	7.14%	4.72%	−2.42%	No
Bachelor's degree	4.07%	4.55%	4.01%	−0.53%	No
Master's degree or higher	1.68%	2.60%	1.57%	−1.02%	No
Race percentages					
White	93.26%	95.45%	93.00%	−2.46%	No
Black	3.09%	1.95%	3.23%	1.28%	No
Indian	2.60%	2.60%	2.60%	0.00%	No
Asian	1.40%	1.95%	1.34%	−0.61%	No
Pacific islander	1.26%	0.65%	1.34%	0.69%	No
Significant disability percentages					
Non-significant disability	0.00%	0.00%	0.00%	0.00%	No
Significant disability	46.53%	46.10%	46.58%	0.47%	No
Most significant disability	53.47%	53.90%	53.42%	−0.47%	No

Table 2
Quarterly earnings per unemployment insurance records at application and closure

	Whole sample ($N = 1425$)	Program ($N = 154$)	Control ($N = 1271$)	Difference between program and control	Significant at the 10% level?
Quarter prior to application	$496.56	$416.46	$506.26	$89.80	No
Quarter after closure	$1066.60	$1469.38	$1017.79	−$451.59	Yes

Table 3
Average quarterly employment rates per UI data

	Whole sample ($N = 1425$)	Program ($N = 154$)	Control ($N = 1271$)	Difference	Significant at the 10% level?
Quarter prior to application	25.89%	20.78%	26.51%	5.74%	No
Quarter after closure	42.53%	55.84%	40.91%	−14.93%	Yes

Table 4
Primary source of support at closure per the USOR 911 dataset

	Whole Sample ($N = 1425$)	Program ($N = 154$)	Control ($N = 1271$)	Difference between program and control	Significant at the 10% level?
Personal income	34.05%	41.78%	33.03%	−8.75%	Yes
Friends and family	6.67%	2.05%	7.27%	5.22%	Yes
Public support	58.49%	56.16%	58.80%	2.63%	No
Other support	0.79%	0.00%	0.90%	0.90%	No

Table 5
Closure status (For individuals with written analysis prior to VR case closure)

	Whole Sample ($N = 1425$)	Program ($N = 154$)	Control ($N = 1271$)	Difference between program and control	Significant at the 10% level?
Successfully employed (closure status 26)	51.78%	66.99%	50.04%	−18.95%	Yes
Not Successfully employed (closure status 28)	48.22%	33.01%	49.96%	−18.95%	Yes

written analysis and 25 did not. Excluding UBOPD participants from the analysis did not make a difference in the labor market experiences of the individuals included in this analysis. The one exception was in the area of primary source of support as noted in the discussion of Table 4.

Table 5 details the closure status of individuals. The group that received a written analysis prior to Vocational Rehabilitation (VR) case closure was much more likely to have the closure status of successfully employed. This supports the findings reported in the analysis of average quarterly employment rates (see discussion of Table 3) that the average quarterly employment rate from UI data is statistically higher for the program group.

10. Multivariate analysis

10.1. Model specification and predictors

Several predictors were used to explain the variation in earnings and employment. The model is similar to another analysis of the economic impact of USOR services in general (Wilhelm & Robinson, 2010). An observation is a person/quarter. The key predictors were:

- TIME: the numbers of quarters prior to eligibility or post closure. For example, TIME = −1 one quarter prior to eligibility determination and TIME = +1 for one quarter after case closure.
- EPOCH: a categorical variable indicating whether prior to eligibility or after closure.
- SERVICE: a categorical variable indicating whether the individual is in the program or control group, whether or not they received a written benefits analysis.
- BENOFF: a categorical variable indicating whether the individual is in the Benefit Offset program, either in the control or pilot group.
- BENOFFPILOT: a categorical variable indicating whether the individual is in the pilot group of the Benefit Offset program.
- LENGTH: time elapsed between eligibility and closure, the length of services received.
- UNEMPLOYMENT: the unemployment rate for Utah for the quarter.

The general form of the earnings regression model was:

$$\begin{aligned} Y_{ij} = {} & \beta_{0i} + \beta_1 \mathrm{TIME}_{ij} + \beta_2 \mathrm{TIME}^2{}_{ij} + \beta_3 \mathrm{EPOCH}_{ij} \\ & + \beta_4 \mathrm{EPOCH}_{ij} * \mathrm{TIME}_{ij} + \beta_5 \mathrm{EPOCH}_{ij} \\ & * \mathrm{TIME}^2{}_{ij} + \beta_6 \mathrm{SERVICE} * \mathrm{TIME}_{ij} \\ & + \beta_7 \mathrm{SERVICE}_i * \mathrm{TIME}^2{}_{ij} + \beta_8 \mathrm{SERVICE}_i \\ & * \mathrm{EPOCH}_{ij} + \beta_9 \mathrm{EPOCH}_{ij} * \mathrm{SERVICE}_i \\ & * \mathrm{TIME}_{ij} + \beta_{10} \mathrm{EPOCH}_{ij} * \mathrm{SERVICE}_i \\ & * \mathrm{TIME}^2{}_{ij} + \beta_{11} \mathrm{UNEMPLOYMENT}_j \\ & + \beta_{12} \mathrm{LENGTH}_i * \mathrm{EPOCH}_{ij} + \beta_{13} \mathrm{LENGTH}_i \\ & * \mathrm{EPOCH}_{ij} * \mathrm{SERVICE}_i + \beta_{14} \mathrm{EPOCH}_{ij} \\ & * \mathrm{BENOFFPILOT}_i + \varepsilon_{ij} \end{aligned}$$

In this model, Y_{ij} represents the quarterly earnings for individual i at time j. The first three terms (B_0-B_2) of the equation represent the earnings trajectory prior to application for USOR services. The next three terms (B_3-B_5) represent the change in that trajectory after the case is closed. The following two terms (B_6-B_7) represent the change in the earnings trajectory for those who received services. The next three terms (B_8-B_{10}) show the change in the earnings trajectory for those who have received services after their case is closed. It is these coefficients that will answer the questions "How do earnings change after an individual receives services?" B_{11} represents the effect that a proxy for state economic conditions (unemployment rate) has on earnings. B_{12} and B_{13} measure whether the length of time an individual is receiving services affects their earnings. B_{14} measure the affect of being in the pilot group of the Benefit Offset program.

Given the key questions of what effects do written benefits analyses have on earnings and employment, two separate analyses were done to distinguish the effects on earnings and the effects on employment. The

Table 6
Regression results for wages

	Coefficient	Standard error	Significant at the 10% level?
Pre eligibility			
TIME	−256.5174	39.18017	Yes
TIME2	−12.69813	3.027537	Yes
Post eligibility			
EPOCH	842.5428	164.7841	Yes
EPOCH*TIME	246.7651	51.15708	Yes
EPOCH*TIME^2	15.36384	4.141755	Yes
Services and their interactions with eligibility and time			
SERVICE*TIME	7.343528	82.24206	No
SERVICE*TIME^2	4.512003	6.956429	No
SERVICE*EPOCH	−335.5651	392.8132	No
SERVICE*EPOCH*TIME	33.94329	118.0789	No
SERVICE*EPOCH*TIME^2	−3.68219	9.450744	No
Length of service and its interactions with service and Epoch			
LENGTH*EPOCH	−152.7987	49.13759	Yes
LENGTH*SERVICE*EPOCH	54.96401	133.8784	No
Participation in the benefit offset pilot			
EPOCH* BENOFFPILOT	−1069.408	232.1461	Yes
Other			
REGIONAL UNEMPLOYMENT RATE	−151.9964	28.06157	Yes
Intercept	2442.994	193.3801	Yes
Number of individuals with observations	1029		

analysis of earnings is described above and included only those participants who were employed before and after receipt of services from VR and for the program group UBPAO. The employment analysis was designed similarly to the earnings analysis except that the dependent variable was an indicator of whether or not the individual was employed for that person/quarter. More technically, a logit estimation was performed because the dependent variable was dichotomous. Clustered standard errors by individual were used to control for any variation in individual earnings or employment that were not included in the equations, such as education, experience, occupation, industry, etc., called the unobserved individual effect.

10.2. Results of the multivariate analysis

Separate analyses were performed to ascertain the connection between written analyses and both employment and earnings. The analysis of earnings included any participant who was employed one or more quarters included during the period of analysis ($n = 1029$). The employment analysis included any participant that had at least one change in employment status. This means their UI earnings indicate that they either stopped working or started working at least once during the period of analysis ($n = 980$).

10.3. Earning impact

Multivariate analysis was used to test for a difference in UI quarterly earnings while controlling for individual and labor market characteristics. The variables used in the multivariate to measure the impact of the written analyses had coefficients (or results) that were not significantly different than zero. This means there was no significant difference. This is only for individuals who were employed at least one quarter before and/or after receipt of services. Thus, for those employed at least one of the quarters, having a written analysis was not associated with an increase in their earnings. Details of the multivariate results can be viewed in Table 6.

10.4. Employment impact

Unlike earnings, the relationship with employment of written analyses was positive. The impact on employment analyzed data for those individuals whose employment status changed at least once during any of the 12 quarters prior to application or any of the 12 quarters post closure. So if an individual was employed the entire time, changes in their earnings were analyzed. For those that were unemployed the entire time, there was no change due to services thus they are not included in the analysis. In order to ensure that the higher employ-

Table 7
Regression results for employed

	Coefficient	Standard error	Significant at the 10% Level?
Pre eligibility			
TIME	−0.0463754	0.0300513	No
TIME2	−0.0093742	0.0023329	Yes
Post eligibility			
EPOCH	0.8973338	0.1334126	Yes
EPOCH*TIME	0.071571	0.0423088	Yes
EPOCH*TIME^2	0.0018381	0.0034185	No
Services and their interactions with eligibility and time			
SERVICE*TIME	−0.0297002	0.0424009	No
SERVICE*TIME^2	0.001581	0.0040589	No
SERVICE*EPOCH	0.7446046	0.2769015	Yes
SERVICE*EPOCH*TIME	0.0330415	0.0905619	No
SERVICE*EPOCH*TIME^2	−0.0046283	0.0072257	No
Length of service and its interactions with service and Epoch			
LENGTH*EPOCH	0.1773754	0.0314123	Yes
LENGTH*SERVICE*EPOCH	0.0065366	0.0780785	No
Participation in the benefit offset pilot			
EPOCH* BENOFFPILOT	0.8152157	0.1509701	Yes
Other			
REGIONAL UNEMPLOYMENT RATE	0.1166292	0.0219787	Yes
Intercept	−2.256379	0.1441914	Yes
Number of individuals with observations	980		

ment rates for the program group are not based on an unobservable systemic difference in the program group versus the control group, we used multivariate analysis while controlling for individual and labor market characteristics. For individuals that had at least one change in employment status, the multivariate analysis tested the difference in employment between the two groups. On average, those who received a written analysis were 18.4% more likely to be employed. Regression results are in Table 7.

Figure 1 is a graphical representation of the results of the multivariate analysis of employment ($n = 980$). It shows the likelihood of employment for the average applicant prior to application and after application for both those that received UBPAO services and those that did not. The vertical axis illustrates quarterly earnings. The horizontal axis represents the period: either quarters before application or quarters post closure. For example, -2 indicates 2 quarters before application, while 2 represents 2 quarters after closure. The initial difference of 18.4% diminishes to 16.7% by the 12th quarter after closure. We cannot extrapolate from the data whether the difference will continue to shrink or level off in the period beyond 12 quarters after closure. It is interesting to note that the likelihood of employment for the program group closely mirrors the pattern of the control group's likelihood of employment.

11. Limitations of the study

The study has several limitations that are discussed in the following sections.

11.1. Limited external validity

Since the analytic sample is not a random sample of individuals with disabilities in Utah, the external validity is limited. In other words, we cannot generalize our findings to the population of people with disabilities. However, we can expect similar results from eligible applicants to the Vocational Rehabilitation Program.

11.2. Limitations of using nonexperimental data

Due to selection bias we cannot ultimately determine if the written analysis caused the differences that were observed. To completely eliminate selection bias we would need to create an experiment where individuals were randomly assigned to receive written analyses or not. However, we have used statistical techniques to minimize the effects of selection bias in our results. Namely, we used an analytic approach that allowed us to control for differences between the program group and the control group.

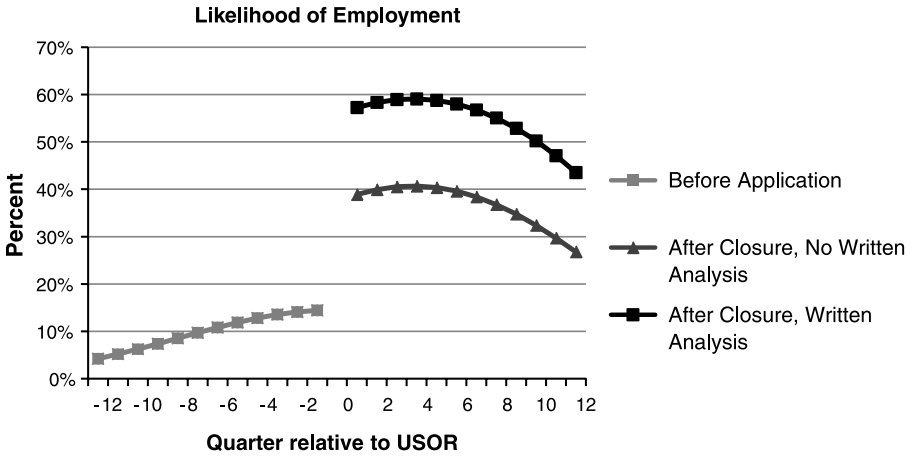

Fig. 1. Likelihood of employment.

11.3. Service definitions

Services were defined as a dichotomy in the analysis; either an individual received written analysis or they did not. In reality, the quality of the written analysis may vary. Thus, it is possible that differences in services resulted in differences in outcome measures that were not captured.

11.4. Data limitations

In this study, we encountered several data limitations. We lacked data on several individual characteristics such as time of onset of disability and employer characteristics that would have allowed us to more appropriately explain some of the variation in earnings. The Unemployment Insurance data does not cover all employees. No data for a participant in a quarter was interpreted as representing $0 in that quarter (recognizing that UI data does not capture self-employment earnings, nor those for several other categories of employment, including for religious organizations and some agricultural enterprises).

12. Conclusion

This analysis focused on three questions: did receipt of a written benefits analysis from UBPAO result in better VR outcomes in terms of employment, closure status and earnings. In summary, the analysis found that the UBPAO program had a positive effect on employment, and that recipients were more likely to have a closure status of successfully employed. VR clients that received UBPAO services also had higher earnings but this appears to be linked to the increased likelihood of employment not higher earnings.

Participants in the UBPAO written analysis program had higher earnings after their case was closed than those who did not participate. This was found in both the Unemployment Insurance quarterly data and the USOR 911 dataset. Based on the multivariate analysis, most of the increase in average UI earnings appears to be related to an increased likelihood of employment, and not higher earnings for participants who were already working in any quarter.

The written analysis employed by the UBPAO program has shown to have positive effects on the likelihood of employment for participants. Both the descriptive statistics and the more complex multivariate analysis found a positive correlation. According to the multivariate analysis, individuals who have received a written analysis are 18.4% more likely to be employed in the first quarter after closure than those who did not receive a written analysis. This correlation diminishes to 16.7% by the 12th quarter after closure. We cannot extrapolate about whether the difference will continue to diminish beyond 12 quarters after closure.

Based on the descriptive statistics, those who received a written analysis prior to Vocational Rehabilitation case closure were 18.95% more likely to have the closure status of "successfully employed". Multivariate analysis for this variable could not be done because each individual only has one observation (instead of 24 for the wages and employment outcomes).

The findings from the analysis presented in this report are consistent with most of the findings in the previous literature. The results indicate that the benefits of

written benefit analyses to Utah Vocational Rehabilitation clients provide support for maintaining and possibly expanding the program. Further research could explore variations between the effectiveness of written benefits analysis across states, with particular attention to process and outcome variations across states. This additional inquiry will move the literature toward a better understanding of best practices in written benefits analysis.

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