

The Impact of COVID-19 on Vocational Rehabilitation Services of Social Security  
Beneficiaries. An Analysis of RSA-911 Data

Cristina C. Parsons, MOT, OTR/L

Andrew C. Persch, PhD, OTR/L, BCP

Colorado State University

*The research reported herein was performed pursuant to a grant from Policy Research, Inc. as part of the U.S. Social Security Administration's (SSA's) Analyzing Relationships Between Disability, Rehabilitation and Work. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of Policy Research, Inc., SSA or any other agency of the Federal Government.*

### Abstract

State vocational rehabilitation (VR) agencies provide integral services in supporting people with disabilities, including Social Security beneficiaries, prepare for and attain employment (U. S. Government Accountability Office [GAO], 2007). Research shows that Social Security beneficiaries who receive VR services have better employment outcomes compared to those who do not (Rogers et al., 2005). Further, studies have shown that higher numbers of VR services received is a strong predictor of exiting VR with positive employment status (Kaya et al., 2016; O’Neill et al., 2015). Little is known about the population of Social Security beneficiaries who apply for VR services (SSA VR applicants) and we have observed some of the impacts of the COVID-19 pandemic to all persons with disabilities, particularly in the form of unemployment. The purpose of this proposal is twofold: (1) to examine cohorts of SSA VR applicants both demographically and in terms of service use, and (2) to quantify the impact of COVID-19 being declared a global pandemic on the number of services SSA VR applicants received shortly thereafter. **The impact of COVID-19 on Social Security beneficiaries’ access and utilization of VR services is not known and could have important policy implications as we navigate a post-pandemic economic downturn.** Through examination of Rehabilitation Services Administration (RSA) data on SSA VR applicants service, we may begin to understand key features of how SSA beneficiaries on their road to employment engage with VR and have been impacted by COVID-19.

### Acronyms

VR = Vocational Rehabilitation

SSA VR applicants = VR applicants with Social Security benefits

COVID-19 = Coronavirus disease 2019

RSA = Rehabilitation Services Administration

ODEP = U.S. Department of Labor, Office of Disability Employment Policy

SSI = Supplemental Security Income

SSDI = Social Security Disability Insurance

PY2018 = Program Year 2018

PY2019 = Program Year 2019

DiD = Difference-In-Differences

SSA = Social Security Administration

IPE = Individualized Plan for Employment

WIOA = Workforce Innovation and Opportunity Act

MSG = Measurable Skill Gain

GAO = U. S. Government Accountability Office

WINTAC = Workforce Innovation Technical Assistance Center

The Impact of COVID-19 on Vocational Rehabilitation Services of Social Security Beneficiaries. An Analysis of RSA-911 Data

The positive health, social, and psychological effects of gainful employment are well-documented (Fryers, 2006; Helliwell et al., 2020); Ipsen, 2006). Unfortunately, the pervasive rate of unemployment amongst people with disabilities is also well-documented. In April 2022, the U.S. Department of Labor reports unemployment amongst people with disabilities at 8.3%, compared to just 3.1% of people without disabilities (U.S. Department of Labor, Office of Disability Employment Policy [ODEP], 2022). Unemployment problems are more acutely experienced by the disability community during times of economic downturn, such as the 2001–2002 recession and the global financial crisis of 2007–2008 (Chan et al., 2013; Leahy et al., 2014). The current recession due to the COVID-19 pandemic is no exception.

Historically, during a down economy, people with disabilities are more likely to exit the workforce and less likely to re-enter when the economy rebounds (Shaewitz & Yin, 2021). Specific to the COVID-19 pandemic, Christensen (2020) reported that in a sample of people with disabilities who were working on March 1<sup>st</sup>, 2020, 55% had been “furloughed, laid off, or needed to leave employment because of health and safety concerns” by mid-June 2020 (p.12). Later in the year, Domin and Butterworth (2020) showed people without disabilities were almost twice as likely to return to levels of pre-pandemic employment in a study of data from February to October 2020.

The COVID-19 pandemic has sparked the most unequal recession in modern American history (Long et al., 2020) and may disproportionately affect those with disabilities in the form of unemployment for years to come (Brooks, 2020). As we begin to unpack the implications of COVID-19 on Americans with disabilities seeking employment, it is helpful to start by understanding how COVID-19 has affected access to essential employment support programming, such as vocational rehabilitation (VR) services.

This manuscript examines people with disabilities or blindness who receive Supplemental Security Income (SSI), Social Security Disability Insurance (SSDI), or both SSI and SSDI, and have recently applied for VR services (during Program Years 2018 and 2019 [PY2018; PY2019]). VR applicants with Social Security benefits (SSA VR applicants) represent a large subgroup of people seeking VR services (Honeycutt et al., 2017) and Program Years run from July 1<sup>st</sup> to June 30<sup>th</sup> the following year (e.g. PY2019 is July 1<sup>st</sup>, 2019 to June 30<sup>th</sup>, 2020). First, we provide demographic and VR service information for SSA VR applicants in both PY2019 and PY2020. Then, we examine differences in VR services accessed by SSA VR applicants following the declaration of COVID-19 as a global pandemic on March 11<sup>th</sup>, 2020, compared to the same timeframe in the previous Program Year using Difference-In-Differences (DiD) estimation (Angrist & Pischke, 2008).

Through examination of SSA VR applicants and service use, the Social Security Administration (SSA) may begin to understand key features of beneficiaries seeking VR services and how SSA VR applicants on the road to employment have been acutely impacted by the COVID-19 pandemic.

## Background

The Social Security Administration (SSA) and Rehabilitation Services Administration (RSA) provide essential support programs to millions of Americans with disabilities each year (Stapleton & Martin, 2017). The Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI) programs directed through SSA offer employment support services and incentives to aid in facilitating the return to work of beneficiaries (SSA, 2020). Vocational Rehabilitation (VR) services are federally funded, state-run programs with the purpose of providing services to support disabled persons prepare for, enter, and retain employment (Rehabilitation Act of 1973, as amended through P.L. 114-95). Prominent VR services include assessment, career guidance and counseling, university training, on-the-job training, job coaching, job placement services, and transportation, among others (RSA, 2017). The purpose of this study is to explore demographic and service use of SSA VR applicants in a given program year and examine impacts of COVID-19 being declared a pandemic on access to VR services.

### Understanding SSA VR Applicant Process

There are four steps in the VR service path: (1) VR application, (2) VR service eligibility, (3) VR service provision, and (4) employment outcome at case closure (Mann et al., 2017; Shaewitz & Yin, 2021). Notably, almost one in five VR applicants are found ineligible and about a quarter of applicants exit the program after being deemed eligible but prior to receipt of VR services (Mann et al., 2017). Many SSA beneficiaries are presumably eligible for VR services due to their SSA defined disability and are in fact exempt from some VR program regulations that can slow down the eligibility determination process. For example, RSA released a Technical Assistance Circular (TAC) on April 22<sup>nd</sup>, 2022 to remind state VR agencies they are prohibited from applying financial needs tests or requiring cost participation for SSA VR applicants under titles II and XVI of the Social Security Act (34 C.F.R. § 361.54(b)(3)(ii)) (RSA, 2022).

Even with certain protections, SSA VR applicants may experience wide variation in time taken to establish an individualized plan for employment (IPE), a necessary step to begin VR services (Schimmel Hyde et al., 2014). Once an eligible applicant completes an IPE with a VR counselor, they can begin receiving services, which may come from a variety of sources, based on resources of the agency and needs of the applicant (Mann et al., 2017). Following receipt of services, an applicant's case may be closed with or without a successful employment outcome. Mann et al., (2017) reports about one quarter of applicants exit VR without any employment outcome following the receipt of services. Efforts are being made to better understand VR outcomes; Under section 116 of the Workforce Innovation and Opportunity Act (WIOA; P.L. 113-128), state VR programs are now required to submit annual performance reports including indicators of Measurable Skill Gain (MSG) and employment and earnings multiple quarters after exiting VR services.

Despite some hurdles in the path to VR services, studies show positive relationships between VR service use and employment outcomes, particularly among SSA beneficiaries (Dean et al., 2014; Kaya et al., 2016; Kaya et al., 2021; O'Neill et al., 2015; Rogers et al., 2005; Stapleton & Martin, 2017; U. S. Government Accountability Office [GAO], 2007). Broadly, the GAO (2007) found that around 40% of SSA beneficiaries increased annual earnings from the year before their VR application to the year after exiting VR services. Other studies have focused on personal characteristics and service factors of SSA VR applicants. For example, Kaya et al., (2021) examined youth with specific learning disabilities receipt of VR services and found that

regarding personal factors, age, gender, race, educational level, and SSA benefits were significantly predictive of employment outcomes, and after controlling for those predictive effects, job placement, occupational/vocational training, and on-the-job support services were most strongly related to positive employment outcomes. Despite Kaya et al., (2021) using RSA data from 2013 to represent a more typical economic landscape, the author group understood the importance of including implications for the current COVID-19 era.

### **Disability and COVID-19**

It is clear that the COVID-19 pandemic has disproportionately affected the disability community in a myriad of ways. Koyama et al., (2022) report that intellectual and developmental disabilities may predict worse COVID-19 outcomes, Down syndrome represents a twofold increased risk of mortality from COVID-19, and autism spectrum disorders were related to longer COVID-19 hospitalizations. In a study of people with pre-existing behavioral health disorders, those whose jobs changed as a result of the pandemic were more likely to report COVID-19 exposures, altered patterns of sleep, clinically significant symptoms of anxiety, and symptoms of both depression and anxiety (Cook et al., 2022). Bick et al. (2020) document the sharp and consistent increase of working from home during the course of the COVID-19 pandemic, and Schall et al., (2021) demonstrate the lack of access employees with intellectual and developmental disabilities have to the work from home option. Overall, employment rates between March and April 2020 decreased 18% for the general population, but 24% for workers with disabilities (Maroto & Pettinicchio, 2020).

In addition to greater susceptibility for unemployment, people with disabilities experienced great disruption to a range of necessary services and supports due to the COVID-19 pandemic (Schwartz et al., 2021). State VR agencies had to quickly pivot in determining the best way to provide supports for people they serve, with some services rerouting to virtual means, and others being paused until in-person contact could be safely resumed (Gaspar et al., 2020; Rumrill et al., 2021; Shaewitz & Yin, 2021). This study examines a crucial time in which VR service provision was made difficult by public health laws and guidance, and people with disabilities arguably needed more supports than ever before (Rumrill et al., 2021). Research questions guiding this work are as follows: (1) What is the demographic composition of SSA VR applicants? (2) What VR services are accessed by SSA VR applicants? and (3) Did COVID-19 being declared a global pandemic have a significant impact on the number of VR services accessed by SSA VR applicants? Pursuit of these questions is largely exploratory in nature and fills a gap in the literature that focuses chiefly on exit outcomes at the end of the VR service path. VR services are stepping stones on the road to employment and shifting focus to understand earlier stages in the provision of VR services is integral in improving the performance of both SSA and RSA to support persons with disabilities who want to work.

### **Methods**

This study uses RSA's Case Service Report (RSA-911) for Program Years 2018 and 2019 (PY2018; PY2019) to develop application cohort files for SSA VR applicants from July 1<sup>st</sup>, 2018–June 30<sup>th</sup>, 2019, and July 1<sup>st</sup>, 2019–June 30<sup>th</sup>, 2020, respectively. RSA-911 data provides demographic, disability, and socioeconomic information about each applicant for VR services, with data elements designed for reporting at particular points along the VR service path (e.g., application, eligibility, IPE, etc.) (RSA, 2017). Cases included in this study were restricted to all

VR applicants who (a) had application dates within PY2018 or PY2019, and (b) received SSI and/or SSDI at the time of application. Records with significant missing data and were excluded from analyses.

We rely on descriptive statistics to characterize SSA VR applicants in PY2018 and PY2019 as well as VR service receipt. To estimate an impact on service receipt, we leverage Difference in Difference (DiD) estimation, a social sciences statistical technique designed to mimic an experimental design when using observational data (Angrist & Pischke, 2008). DiD is widely applicable to analyzing policy change and is appropriately adaptable to a major event like COVID-19. After confirming PY2018 and PY2019 follow similar trends, we examined SSA VR applications after March 11<sup>th</sup>, 2020, when COVID-19 was declared a global pandemic, and used DiD to model the change to the number of VR services applicants received from March 11<sup>th</sup>, 2020 through June 30<sup>th</sup>, 2020, compared to what we would have expected based on the same time period in 2019 (PY2018). This study was determined exempt by Colorado State University's Institutional Review Board (IRB).

### **Data Source**

RSA-911 data are administrative records entered by VR counselors on a quarterly basis. For quality assurance, VR agencies collect and report data consistent with extensive reporting manuals called RSA Policy Directives (PD), specifically PD-16-04 for PY2018 and PY2019 included in this study. Data were de-identified by RSA's Data Collection and Analysis Unit prior to their release. RSA maintains comprehensive edit checks to ensure the credibility of submitted data. Additionally, the Workforce Innovation Technical Assistance Center (WINTAC), a project funded through the U.S. Department of Education, has worked to support VR agencies in meeting the increased data element requirements imposed by WIOA since its passing in 2014.

### **Procedures**

PY2018 and PY2019 datasets were obtained via data use agreement. Both datasets were checked and cleaned using the same procedures in RStudio Version 1.2.5033 (RStudio Team, 2019). First, only records with SSI and/or SSDI at the time of application were retained, this step also eliminated records associated with VR agencies outside of the 50 states and Washington, D.C. Second, we restricted the sample to only records with application dates within the given program year. Finally, we merged both datasets into one for analysis. Across both program years, 325 records were excluded due to missingness. These steps yielded cohort samples of 128,660 SSA VR applicants for PY2018 and 102,528 SA VR applicants for PY2019.

As stated earlier, VR services may be provided by VR staff or other service providers. Services provided by different agencies (through VR purchase or by a comparable agency) were collapsed into one service variable for the purposes of this analysis. For example, "on-the-job training" is one career service variable, regardless of who provided the training. Similarly, to analyze number of VR services received by SSA VR applicants, we created aggregate variables for the three service categories (training, career, and other) as well as total services. We observed SSA VR applicants received as many as 5 training services, 8 career services, 5 other services, and 16 total services in a given program year.

### **Analytic Plan**

Following data transformations, we employed descriptive statistics to examine demographic characteristics of SSA VR applicants as well as service utilization in PY2018 and

PY2019. Demographic parameters of interest include sex, age, race/ethnicity, disability type, education level, and SSA benefit status. VR services include 31 different available services, categorized into training, career, and other services. As this proposal is exploratory in nature, we chose a descriptive approach because we were dealing largely with population data and were primarily interested in showing the range of SSA VR applicants and service use.

To examine the impact of COVID-19 being declared a global pandemic on SSA VR applicants' service access, we used a DiD regression technique. To begin, we checked three DiD model assumptions for the data. The first assumption is known as Stable Unit Treatment Values Assumption (SUTVA) which holds that there are not different versions of the impact and the response of one case is not influenced by other cases. SUTVA is achieved in this sample because the date COVID-19 was declared a global pandemic was experienced uniformly in all cases after that date (consistency) and VR service eligibility of one case does not impact or change eligibility of another case (no interference). The second assumption is exchangeability, meaning the control group is an adequate substitute for the outcome. Descriptive statistics assisted in meeting this assumption in that PY2018 was a suitable control group for the PY2019 cohort, which was affected by COVID-19. The third assumption is that of parallel trends, which situates that the two groups being studying follow similar trends prior to the impact being studied. This assumption was examined through visual inspection, by sub-setting the data into "before" and "after March 11<sup>th</sup>" groups in both PY2018 and PY2019. Plots produced satisfactory trends given many observations over many time points in the dataset. Following satisfaction of model assumptions, we elected to run DiD analyses on number of training, career, other, and total services received by SSA VR applicants. Dummy variables were created to indicate "pre" and "post" as well as "before" and "after" with DiD focused on the interaction term in the regression model.

## Results

### Demographics of SSA VR Applicants

Demographic data for SSA VR applicants in PY2018 and PY2019 are presented in Table 1 in both frequencies and percentages. As shown, the two cohorts are comparable across descriptive indicators of sex, age, race/ethnicity, disability type, education level, and SSA benefit status. Males comprise the majority of SSA VR applicants (55.7% in PY2018 and 55.9% in PY2019) and the average age was steady at 38.6 years. Over 60% of the sample in both cohorts identified as non-minority (White), with similar trends observed in race/ethnicity between program years. Most SSA VR applicants have mental impairment as their primary disability (55.8% in PY2018 and 57.8% in PY2019), which include both cognitive (e.g., learning, thinking, processing) and psychosocial (e.g., interpersonal, behavioral, coping) impairments. There were large amounts of missing data for highest educational level achieved (47.3% missingness in PY2018 and 41.2% missingness in PY2019), and of those reported, about a fifth of SSA VR applicants indicated "no educational level completed" (20.0% in PY2018 and 22.9% in PY2019). Of particular interest, most SSA VR applicants indicated participation in only SSI at the time of their VR application (51.9% in PY2018 and 51.1% in PY2019), compared to about 40% receiving only SSDI (39.2% in PY2018 and 40.2% in PY2019) and almost 9% receiving both SSI and SSDI (8.9% in PY2018 and 8.6% in PY2019).

**Table 1**

*Characteristics of Social Security Beneficiaries at Application of Vocational Rehabilitation Services by Program Year*

Characteristic	PY2018		PY2019	
	<i>n</i>	%	<i>n</i>	%
N	128,660	-	102,528	-
Sex				
Male	71,615	55.7	57,347	55.9
Female	56,544	43.9	44,745	43.6
Not identified	501	0.4	436	0.4
Average Age (years)	38.6	-	38.6	-
Race/Ethnicity				
White	80,793	62.8	64,972	63.4
Black	42,290	32.9	33,375	32.6
Native Hawaiian or Other Pacific Islander	875	0.7	612	0.6
Asian	2,795	2.2	2,220	2.2
American Indian or Alaska Native	3,414	2.7	2,710	2.6
Hispanic or Latino	13,149	10.2	10,930	10.7
Primary Disability				
Sensory/communicative impairments	13,690	10.6	11,626	11.3
Physical impairments	27,107	21.1	21,832	21.3
Mental impairments	71,741	55.8	59,301	57.8
No impairment	1,108	0.9	756	0.7
Missing	15,014	11.7	9,013	8.8
Highest Education				
No educational level completed	25,748	20.0	23,426	22.9
Secondary school diploma	16,761	13.0	14,823	14.5
Secondary school equivalency	4,283	3.3	3,549	3.5
Certificate of attendance or completion	3,164	2.5	2,602	2.5
One or more years postsecondary education	9,582	7.4	8,877	8.7
Postsecondary certification or license	1,903	1.5	1,639	1.6
Associate's Degree	2,419	1.9	2,035	2.0
Bachelor's Degree	2,956	2.3	2,527	2.5
Degree beyond a Bachelor's Degree	968	0.8	833	0.8
Missing	60,876	47.3	42,217	41.2
Social Security Benefits				
SSI only	66,757	51.9	52,433	51.1
SSDI only	50,434	39.2	41,231	40.2
SSI & SSDI	11,469	8.9	8,864	8.6

Note: PY= Program Year; SSI= Supplemental Security Income; SSDI= Social Security Disability Insurance. Individuals could identify themselves as members of multiple race/ethnicities. Consequently, cumulative percentages do not equal 100.

### **SSA VR Applicant Service Utilization**

As noted earlier, applicants in the VR service path commonly exit the program without receiving services, either before or after eligibility determination. Considering the inclusion criteria and data used for this study, we observed similar, and exacerbated patterns of low service use in our restricted sample of SSA VR applicants. In total, 67,007 PY2018 SSA applicants and 47,975 PY2019 SSA applicants were observed to have 0 VR service provisions within the observed timeframe (52% in PY2018 and 46.8% in PY2019). These data are not surprising when considering the known time spent “in the pipeline” to obtaining services and the drop-out rates that occur prior to initiation of services. As WIOA specifies, it may take up to 90 days after eligibility to develop an IPE, so it follows that much of our sample may still be in earlier stages of the VR service path.

Given these known limitations, Table 2 provides descriptive information for all VR services received by SSA beneficiaries within the same program year in which they applied, PY2018 and PY2019 respectfully. As such, we observe higher overall numbers of VR counseling and guidance (39.2% in PY2018 and 44.1% in PY2019), assessment (11.9% in PY2018 and 12.3% in PY2019), information and referral services (7.7% in PY2018 and 8.4% in PY2019), job placement assistance (5.3% in PY2018 and 6.1% in PY2019), benefits counseling (4.86% in PY2018 and 5.67% in PY2019), job search assistance (1.82% in PY2018 and 1.94% in PY2019), job readiness training (1.51% in PY2018 and 1.52% in PY2019), other services (1.38% in PY2018 and 1.35% in PY2019), and rehabilitation technology (1.32% in PY2018 and 1.46% in PY2019).

Simple Z-tests for two proportions statistics indicate with asterisks (\*) where there is sufficient evidence to conclude the PY2018 and PY2019 cohorts differ significantly with respect to percentages of service utilization. Positive Z-scores are representative of the proportion of service utilization being greater in the PY2019 cohort as compared to the proportion of the same service received in the PY2018 cohort. Herein, our results indicate notably increased utilization in the PY2019 cohort of the following services: VR counseling and guidance ( $z = 24.04$ ), reader services ( $z = 9.87$ ), customized training ( $z = 9.26$ ), job placement assistance ( $z = 9.1$ ), benefits counseling ( $z = 8.66$ ), information and referral services ( $z = 6.61$ ), basic academic or remedial literacy training ( $z = 6.21$ ), technical assistance services ( $z = 6.2$ ), assessment ( $z = 3.52$ ), and interpreter services ( $z = 3.39$ ). The PY2019 cohort accessed the following services in significantly fewer cases: occupational or vocational training ( $z = -7.34$ ), maintenance ( $z = -5.99$ ), transportation ( $z = -4.49$ ), and diagnosis and treatment of impairments ( $z = -3.63$ ). Caution is given to the reader here in that no inference about COVID-19 can be drawn from these reported statistics, but it is helpful to understand year over year trends in service use both for programmatic implications as well as interpretation of the following DiD regression model.

**Table 2**

*Vocational Rehabilitation Services of Social Security Beneficiaries by Program Year*

Characteristic	PY2018		PY2019		Z
	n	%	n	%	
N	128,660	-	102,528		
<b>Training Services</b>					
Graduate college or university	10	0.01	3	0.00	-1.54
Four-year college or university	46	0.04	23	0.02	-1.84
Junior or community college training	36	0.03	20	0.02	-1.3
Occupational or vocational training	240	0.19	75	0.07	-7.34*
On-the-job training	188	0.15	188	0.18	2.21
Registered apprenticeship training	-	-	-	-	-
Basic academic remedial or literacy training	61	0.05	124	0.12	6.21*
Job readiness training	1,937	1.51	1,554	1.52	0.2
Disability related skills training	578	0.45	479	0.47	0.64
Miscellaneous training	231	0.18	163	0.16	-1.19
Randolph-Sheppard entrepreneurial training	4	0.00	8	0.01	1.56
Customized training	15	0.01	101	0.1	9.26*
<b>Career Services</b>					
Assessment	15,260	11.86	12,653	12.34	3.52*
Diagnosis and treatment of impairments	1,217	0.95	824	0.8	-3.63*
VR counseling and guidance	50,366	39.15	45,217	44.1	24.04*
Job search assistance	2,343	1.82	1,985	1.94	2.03
Job placement assistance	6,758	5.25	6,287	6.13	9.1*
Short-term job supports	1,133	0.88	999	0.97	2.34
Supported employment services	1,099	0.85	813	0.79	-1.62
Information and referral services	9,854	7.66	8,622	8.41	6.61*
Benefits counseling	6,252	4.86	5,809	5.67	8.66*
Customized employment services	79	0.06	35	0.03	-2.93
Extended services	95	0.07	43	0.04	-3.12
<b>Other Services</b>					
Transportation	1,511	1.17	1,004	0.98	-4.49*
Maintenance	1,305	1.01	796	0.78	-5.99*
Rehabilitation technology	1,701	1.32	1,495	1.46	2.78
Personal assistance services	43	0.03	51	0.05	1.93
Technical assistance services	66	0.05	130	0.13	6.2*
Reader services	6	0.00	92	0.09	9.87*
Interpreter services	249	0.19	267	0.26	3.39*
Other services	1,775	1.38	1,380	1.35	-0.69

Note: PY= Program Year; Z = Z-Test for Two Proportions, \*Z critical value = 3.14, Bonferroni adjusted alpha 0.05/31=0.0016

**Difference in Differences Estimation**

We use the quasi-experimental approach of DiD to estimate a causal effect of COVID-19 being declared a global pandemic on the number of services SSA VR applicants received. DiD is usually implemented as an interaction term between time (“before and after”) and treatment (“pre and post”) group dummy variables in a regression model:

$$Y = \beta_0 + \beta_1*[Time] + \beta_2*[Treatment] + \beta_3*[Time*Treatment] + \beta_4*[Covariates] + \varepsilon$$

The date the World Health Organization declared COVID-19 a global pandemic (March 11<sup>th</sup>, 2020) was used as the pseudo-“treatment” mark, in which applications before this date within the program year comprise the “before” and applications after this date, the “after.” The PY2018 cohort, which did not experience a global pandemic at that time, was used as the control group. Herein, those who applied between July 1<sup>st</sup>, 2018 and March 11<sup>th</sup>, 2019 were “before/pre”, those who applied between March 12<sup>th</sup>, 2019 and June 30<sup>th</sup>, 2019 were “after/pre”. Similarly, those who applied between July 1<sup>st</sup>, 2019 and March 11<sup>th</sup>, 2020 were “before/post”, those who applied between March 12<sup>th</sup>, 2019 and June 30<sup>th</sup>, 2019 were “after/post”. We established that DiD model assumptions held through descriptive statistics and visualization. Four DiD models were pursued on number of training services, number of career services, number of other services, and total number of services (Table 3). According to the results, SSA VR applicants received significantly more career services, other services, and total services after COVID-19 was declared a global pandemic.

**Table 3**

*Difference-in-Difference Estimates of the Impact of COVID-19 Declared a Global Pandemic on Number of Vocational Rehabilitation Services Received by Social Security Beneficiaries by Service Category*

	$\beta$	SE	R <sup>2</sup>
Training Services	-0.0008292	0.0021045	0.002694
Career Services	0.040911***	0.010692	0.02802
Other Services	0.018113***	0.003593	0.003178
Total Services	0.058195***	0.013011	0.02583

Note: Abbreviation: SE, standard error

\*\*\* P < 0.001

**Discussion**

The Office of Disability Employment Policy (ODEP; 2022) analyzed trends during two years of the COVID-19 pandemic and reports that chronic disparity in unemployment and labor force participation between people with disabilities and people without disabilities persists today. It is imperative to understand how federal-state programs through SSA and RSA interact with each other, with the disability communities they serve, and adapt to challenges such as global

pandemics and economic fluctuations. This study makes several important contributions to knowledge base of SSA beneficiaries on the VR service path.

First, we are among the few to use RSA administrative data to explore the beginning steps of the VR service path. This analytic approach is a relatively new affordance of changes implemented as a result of section 116 of WIOA which requires VR agency reporting on open cases (as opposed to previously only reporting on closed cases) and reporting on a quarterly basis (versus federal fiscal year). While others have focused on exit outcomes, we provide a cross-sectional view of SSA beneficiaries seeking VR services. Using recent cohorts from PY2018 and PY2019, our results reveal similar demographic trends of SSA VR applicants, who are most likely to be male, aged 38.6, non-minority, and SSI beneficiaries only. Understanding who is being served by employment support programs is an important step in working to better connect and utilize governmental resources. In the past, Rogers et al., (2005) emphasized the importance of instituting means of identifying individuals most likely to benefit from VR services to the success of the Ticket to Work program. We suggest there is still work to be done in discerning effective combinations of services to improve employment outcomes of SSA beneficiaries.

Secondly, in examining service use amongst SSA VR applicants, our findings are consistent with prior research that overall service utilization is low, despite studies linking more services to better employment outcomes. Our study used a more restricted timeframe than existing literature, so our observed marked underutilization of services may be attributable to both applicants exiting VR and applicants in queue to initiate services. Given our methodology, our results may suggest that services we observed in greater numbers, such as VR counseling and guidance, assessment, information and referral services, and job placement assistance, may be more likely to be provided earlier in the VR service path, though further analysis is warranted to substantiate this claim.

Finally, we've demonstrated through Difference in Differences estimation that COVID-19 being declared a global pandemic had a significant and positive impact on SSA VR applicants' number of career services, other services, and total number of services in the last quarter of PY2019. It is surprising that despite incredible challenges to providing services in their traditional format, we observe higher numbers of services for SSA VR applicants who applied during the crux of the COVID-19 pandemic.

### **SSA Program Implications**

Findings from this study may be used to improve SSA programs and outreach in several ways. Most prominently, the demographic trends highlighted here indicate that the majority of SSA beneficiaries connected with VR services are White and male. SSA may wish to engage in outreach with diverse communities to ensure equity in VR service use, particularly as aligned with the Ticket to Work program. Similarly, when selecting a service provider for the Ticket to Work program, <https://choosework.ssa.gov/> advises that individuals requiring more costly services, such as intense training, vehicle modifications, or funds for college classes typically work with State VR agencies. Our findings contradict this advice in that most SSA VR applicants use services like VR counseling and guidance, assessment, information and referral services, and job placement assistance early in the VR service path. In fact, college or university training and transportation were among the least utilized services for SSA VR applicants in our analysis, and trending downwards over time. For those enrolled in Ticket to Work, Social Security may consider these findings when assisting beneficiaries to understand the breadth of services State VR may provide them.

### **Limitations and Future Research**

This study provides descriptive information about SSA VR applicants demographic make-up as well as service utilization and demonstrates those Social Security beneficiaries who applied to VR after COVID-19 was declared a global pandemic accessed higher numbers of services than we otherwise would have expected. However, several limitations to this exploratory research should be noted. First, this study analyzed only two program years of data, making this research a “snapshot” of Social Security beneficiaries involved in the VR system. Further examination using three or more program years of data is warranted to capture more complete pictures of SSA VR applicants through the entire VR service path, including case closures.

Second, this study relies on de-identified administrative data only. Although there are data quality measures in place, RSA-911 data is entered by VR counselors, not individual consumers, and as such may not be fully representative of how SSA beneficiaries self-identify or all aspects of an individual’s makeup. Additionally, our analysis included a limited selection of individual and service variables included in RSA-911 and is largely descriptive in nature. Future areas of research should investigate the influence of other variables including student status, employment at IPE, and referral source.

Thirdly, the DiD technique is focused on the global event of COVID-19 being declared a pandemic and as such, does not account for known variance between states nor agencies. This is a limitation of meeting the assumptions of the statistical technique and observed in the limited variance explained by the model. There is an emerged body of literature to support the influence of economic and state-level variation on employment exit outcomes of VR consumers (Alsaman & Lee, 2017; Chan et al., 2013) and the same techniques (i.e. multi-level analyses, merged data) will be useful in studies positioned to study service access and utilization. Further, the interpretability of our quantitative findings would be enhanced through qualitative inquiry to identify why and how SSA beneficiaries received higher numbers of career and training services during a switch to mostly virtual service delivery means.

### **Conclusion**

Overall, this research adds to the literature of SSA and RSA overlap by (1) providing a cross-sectional view of SSA VR applicants personal characteristics and service use patterns in PY2018 and PY2019, and (2) identifying that SSA beneficiaries who applied to VR after COVID-19 was declared a global pandemic accessed higher numbers of services than we otherwise would have expected. These findings highlight the utility of RSA administrative data to examine how SSA beneficiaries navigate the VR service path at earlier stages on their road to employment and how advanced statistical techniques may be used to infer causality in these datasets.

### References

- Alsaman, M. A., & Lee, C.-L. (2017). Employment Outcomes of Youth With Disabilities in Vocational Rehabilitation: A Multilevel Analysis of RSA-911 Data. *Rehabilitation Counseling Bulletin, 60*(2), 98–107. <https://doi.org/10.1177/0034355216632363>
- Angrist, J. D., & Pischke, J.-S. (2008). Mostly Harmless Econometrics: An Empiricist's Companion. In *Mostly Harmless Econometrics*. Princeton University Press. <https://doi.org/10.1515/9781400829828>
- Bick, A., Blandin, A., & Mertins, K. (2020). *Work from Home Before and After the COVID-19 Outbreak* [Discussion Paper Series]. <https://repec.cepr.org/repec/cpr/ceprdp/DP15000.pdf>
- Brooks, J. D. (2020). *Workers with Disabilities May Remain Unemployed Long after the COVID-19 Pandemic*. 3.
- Chan, J., Wang, C.-C., Ditchman, N., Kim, J. H., Pete, J., Chan, F., & Dries, B. (2013). State Unemployment Rates and Vocational Rehabilitation Outcomes: A Multilevel Analysis. *Rehabilitation Counseling Bulletin, 57*, 209–218. <https://doi.org/10.1177/0034355213509855>
- Christensen, J. J. (2020). Employment First in a Time of Pandemic. *Developmental Disabilities Network Journal, 1*(1), 11–14. <https://doi.org/10.26077/Z9J6-DQ66>
- Cook, J. A., Swarbrick, M., Boss, K. A., Steigman, P. J., Nemec, P., Jonikas, J. A., Brice, G. H., & Aranda, F. (2022). The importance of employment to workers with preexisting behavioral health disorders during the COVID-19 pandemic. *Psychiatric Rehabilitation Journal, 45*(1), 11–17. <https://doi.org/10.1037/prj0000499>
- Dean, D., Pepper, J. V., Schmidt, R. M., & Stern, S. (2014). State vocational rehabilitation programs and federal disability insurance: An analysis of Virginia's vocational

- rehabilitation program. *IZA Journal of Labor Policy*, 3(1), 7.  
<https://doi.org/10.1186/2193-9004-3-7>
- Domin, D., & Butterworth, J. (2020). *The Impact of COVID-19 on the Employment Status of People With and Without Disabilities* (DataNote 69; DataNote Series, p. 2). University of Massachusetts Boston, Institute for Community Inclusion.  
[https://www.statedata.info/sites/statedata.info/files/files/DN\\_69\\_D2.pdf](https://www.statedata.info/sites/statedata.info/files/files/DN_69_D2.pdf)
- Fryers, T. (2006). Work, identity and health. *Clinical Practice and Epidemiology in Mental Health : CP & EMH*, 2, 12. <https://doi.org/10.1186/1745-0179-2-12>
- Gaspar, J., Eastman, J., & Hoff, D. (2020). *COVID-19 Day and Employment Services* (Tools for Inclusion Issue 38; COVID-19 Day and Employment Services, p. 6). University of Massachusetts Boston.
- Helliwell, J., Layard, R., Sachs, J., & De Neve, J.-E. (2020). *World Happiness Report 2020*.  
<https://happiness-report.s3.amazonaws.com/2020/WHR20.pdf>
- Honeycutt, T. C., Thompkins, A. V., Bardos, M. E., & Stern, S. N. (2017). Youth With Disabilities at the Crossroads: The Intersection of Vocational Rehabilitation and Disability Benefits for Youth With Disabilities. *Rehabilitation Counseling Bulletin*, 60(3), 131–144. <https://doi.org/10.1177/0034355215621897>
- Ipsen, C. (2006). Health, Secondary Conditions, and Employment Outcomes for Adults With Disabilities. *Journal of Disability Policy Studies*, 17(2), 77–87.  
<https://doi.org/10.1177/10442073060170020401>
- Kaya, C., Chan, F., Rumrill, P., Hartman, E., Wehman, P., Iwanaga, K., Pai, C.-H., & Avellone, L. (2016). Vocational rehabilitation services and competitive employment for transition-

- age youth with autism spectrum disorders. *Journal of Vocational Rehabilitation*, 45(1), 73–83. <https://doi.org/10.3233/JVR-160812>
- Kaya, C., Hsu, S., Rumrill, P. D., Hanley-Maxwell, C., & Chan, F. (2021). Differential vocational rehabilitation service patterns and outcomes for transition-age youth with specific learning disabilities: Implications in the COVID-19 era. *Journal of Vocational Rehabilitation*, 54(1), 59–70. <https://doi.org/10.3233/JVR-201118>
- Koyama, A. K., Koumans, E. H., Sircar, K., Lavery, A., Hsu, J., Ryerson, A. B., & Siegel, D. A. (2022). Severe Outcomes, Readmission, and Length of Stay Among COVID-19 Patients with Intellectual and Developmental Disabilities. *International Journal of Infectious Diseases*, 0(0). <https://doi.org/10.1016/j.ijid.2022.01.038>
- Leahy, M. J., Chan, F., Lui, J., Rosenthal, D., Tansey, T., Wehman, P., Kundu, M., Dutta, A., Anderson, C. A., Del Valle, R., Sherman, S., & Menz, F. E. (2014). An analysis of evidence-based best practices in the public vocational rehabilitation program: Gaps, future directions, and recommended steps to move forward. *Journal of Vocational Rehabilitation*, 41(2), 147–163. <https://doi.org/10.3233/JVR-140707>
- Long, H., Dam, A. V., Fowers, A., & Shapiro, L. (2020). *The covid-19 recession is the most unequal in modern U.S. history*. Washington Post. <https://www.washingtonpost.com/graphics/2020/business/coronavirus-recession-equality/>
- Mann, D. R., Honeycutt, T., Bailey, M. S., & O’Neill, J. (2017). Using administrative data to explore the employment and benefit receipt outcomes of vocational rehabilitation applicants years after program exit. *Journal of Vocational Rehabilitation*, 46(2), 159–176. <https://doi.org/10.3233/JVR-160852>

- Maroto, M., & Pettinicchio, D. (2020, May 21). An unequal labor market means that COVID-19 has been especially harmful for vulnerable groups including people with disabilities. *USAPP - American Politics and Policy at LSE*.  
<https://blogs.lse.ac.uk/usappblog/2020/05/21/an-unequal-labor-market-means-that-covid-19-has-been-especially-harmful-for-vulnerable-groups-including-people-with-disabilities/>
- O'Neill, J., Mamun, A. A., Potamites, E., Chan, F., & da Silva Cordoso, E. (2015). Return to work of disability insurance beneficiaries who do and do not access state vocational rehabilitation agency services. *Journal of Disability Policy Studies*, 26(2), 111–123.  
<https://doi.org/10.1177/1044207315583900>
- Rehabilitation Service Administration. (2017). *Reporting manual for the case service report (RSA-911)* (RSA PD-16-04).
- Rogers, J., Bishop, M., & Crystal, R. (2005). Predicting Rehabilitation Outcome for Supplemental Security Income and Social Security Disability Income Recipients: Implications for Consideration with the Ticket to Work Program. *Ma*, 71(3).  
<https://search.proquest.com/openview/a7e0120f4ee396b3df25840a4f26a548/1?pq-origsite=gscholar&cbl=37110>
- RStudio Team. (2019). *R Studio: Integrated Development for R*. RStudio, Inc.  
<http://www.rstudio.com/>
- Rumrill, P. D., Koch, L. C., & Strauser, D. R. (2021). Introduction to the special issue: Employment and vocational rehabilitation considerations for people with disabilities during and after the COVID-19 pandemic. *Journal of Vocational Rehabilitation*, 54(1), 1–3. <https://doi.org/10.3233/JVR-201121>

- Schall, C., Brooke, V., Rounds, R., & Lynch, A. (2021). The resiliency of employees with intellectual and developmental disabilities during the COVID-19 pandemic and economic shutdown: A retrospective review of employment files. *Journal of Vocational Rehabilitation, 54*(1), 15–24. <https://doi.org/10.3233/JVR-201113>
- Schimmel Hyde, J., Honeycutt, T., & Stapleton, D. (2014). The relationship between timely delivery of vocational rehabilitation services and subsequent federal disability benefit application and receipt. *IZA Journal of Labor Policy, 3*, 15. <https://doi.org/10.1186/2193-9004-3-15>
- Schwartz, A. E., Munsell, E. G. S., Schmidt, E. K., Colón-Semenza, C., Carolan, K., & Gassner, D. L. (2021). Impact of COVID-19 on services for people with disabilities and chronic health conditions. *Disability and Health Journal, 14*(3), 101090. <https://doi.org/10.1016/j.dhjo.2021.101090>
- Shaewitz, D. M., & Yin, D. M. (2021). *Serving All Consumers: Identifying Racial Disparities in the Vocational Rehabilitation System* (p. 15) [Policy Brief]. Northwestern School of Education and Social Policy.
- Social Security Administration. (2020). *The Red Book—A summary guide to employment supports for people with disabilities under the social security disability insurance (SSDI) and supplemental security income (SSI) programs* (SSA Publication No. 64-030). <https://www.ssa.gov/redbook/>
- Stapleton, D., & Martin, F. (2017). What have we learned using merged administrative data from the Social Security Administration and the Rehabilitation Services Administration? *Journal of Vocational Rehabilitation, 46*(2), 121–136. <https://doi.org/10.3233/JVR-160849>

- U. S. Government Accountability Office. (2007). *Vocational Rehabilitation: Improved Information and Practices May Enhance State Agency Earnings Outcomes for SSA Beneficiaries* (GAO-07-521). <https://www.gao.gov/products/gao-07-521>
- U.S. Department of Education, Office of Special Education and Rehabilitative Services, Rehabilitation Services Administration. (2017). *Policy Directive 16-04* (Policy Directive RSA-PD-16-04).
- U.S. Department of Education, Office of Special Education and Rehabilitative Services, Rehabilitation Services Administration. (2022). *Prohibition against applying financial needs tests or requiring cost participation as a condition for the receipt of vocational rehabilitation services for SSI and SSDI recipients*.  
[https://rsa.ed.gov/sites/default/files/subregulatory/RSA-TAC-22-03\\_0.pdf](https://rsa.ed.gov/sites/default/files/subregulatory/RSA-TAC-22-03_0.pdf)
- U.S. Department of Labor, Office of Disability Employment Policy. (2022a). *Disability Statistics*. <https://www.dol.gov/agencies/odep>
- U.S. Department of Labor, Office of Disability Employment Policy. (2022b). *Employment of Persons with a Disability: Analysis of Trends during the COVID-19 Pandemic*.