

Characteristics, Service Use and Employment Outcomes of Young Adults on the Autism Spectrum Who Engaged with Vocational Rehabilitation Services from 2017 to 2020

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Acronyms

DOL	U.S. Department of Labor
ETS	employment transition services
IDD	intellectual and developmental disabilities
IDEA	Individuals with Disabilities Education Act
IPE	individualized plan for employment
RSA	Rehabilitation Services Administration
RUF	restricted-use files
WIOA	Workforce Innovation and Opportunity Act
VR	Vocational Rehabilitation

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Executive Summary

Young adults on the autism spectrum can face unique challenges when transitioning from school to employment. Past research suggests that their participation rates in vocational or technical education and employment are lower than for young adults with other disabilities, and they also experience worse employment outcomes in the years after leaving high school. With the Research Support Services for Employment of Young Adults on the Autism Spectrum Project, the Office of Disability Employment Policy in the U.S. Department of Labor seeks to examine the barriers to and catalysts for improving employment outcomes and career development for young adults on the autism spectrum. This study examined the way young adults on the autism spectrum, ages 16 to 28, engaged with state Vocational Rehabilitation (VR) agencies, the characteristics of those who applied for VR services, the VR services that they used, and their employment outcomes. In particular, this study used Rehabilitation Services Administration—Case Service Reports (RSA-911) restricted-use files (RUF) for program years 2017 to 2019 to address the following six research questions:

1. Among young adults on the autism spectrum who applied for VR:
 - a. What were the most common sources of referral to VR?
 - b. What were their characteristics, and what barriers to employment did they face?
2. Among young adults on the autism spectrum who had a signed individualized plan for employment (IPE) through VR:
 - a. What types of VR services did they use?
 - b. What were their employment outcomes?
3. How did referral sources, service use, and employment outcomes vary across states?
4. How did referral sources, service experiences, and employment outcomes compare with those among young adults who were not autistic but had (1) an intellectual disability or (2) any other type of disability?
5. To what extent did referral sources, service experiences, and employment outcomes differ for subgroups of autistic young adults based on their age at time of application, sex, race, and ethnicity?
6. Were there any changes in VR applications, service use, and employment outcomes during the novel coronavirus disease 2019 (COVID-19) pandemic (i.e., between March 2020 and June 2021)?

Study design

To address the above research questions, we examined RSA case records for young adults (ages 16 to 28) who applied for VR services. For research questions 1 to 5, we used RSA-911 RUF for program years 2017 to 2019. For the exploratory analysis in research question 6, we also examined program year 2020 data. During 2017-2019, 566,367 young adults with disabilities applied for VR services. Of these, 14 percent (81,616 people) were on the autism spectrum. We identified young adults on the autism spectrum as VR applicants who had autism recorded as the source of either their primary (69,818 people or 86 percent) or secondary impairment (9,046 people or 11 percent) or both (2,752 people or 3 percent).

We used descriptive analysis to examine the referral sources and characteristics of autistic young adult VR clients (research question 1), their use of VR services and employment outcomes when they exited VR (research question 2), as well as variation in these measures by state (research question 3). We also examined how referral sources, service use, and employment outcomes might differ across (1) young

adults with different types of disabilities (research question 4) and (2) subgroups of young adults on the autism spectrum (research question 5). To do so, we used regression-based models that could account for differences in other factors, such as VR clients' characteristics and states. We also conducted exploratory analyses to examine whether and to what extent the number of applications, signed IPEs, and VR exits changed when the COVID-19 pandemic began (research question 6).

The study examined a select subsample of young adults on the autism spectrum who applied for VR. However, we expect that only a small share of all autistic young adults ever applies to VR agencies, so these estimates do not represent the characteristics or employment outcomes of the whole population.

Key findings

Below, we summarize the findings from our analyses, organized by research question. We define terminology in Chapter I of this report.

1. Among young adults on the autism spectrum who apply for VR: What were the most common sources of referral to VR? What were their characteristics, and what barriers to employment did they face?

- Educational institutions were the most common source of referral among autistic young adult VR applicants (48 percent), followed by self-referrals (19 percent).
- The average age at VR application for young adults on the autism spectrum was 20. About 47 percent of autistic young adult VR applicants were ages 16 to 18, 28 percent were ages 19 to 21, 14 percent ages 22 to 24, and the remaining 11 percent were ages 25-28.
- Most young adults on the autism spectrum who applied for VR were male (82 percent). This is consistent with documented differences in autism identification by sex, with boys being substantially more likely to be identified with autism than girls.
- The majority (69 percent) of young adults on the autism spectrum who applied for VR were non-Hispanic White, followed by Hispanic or Latino (13 percent) and non-Hispanic Black (12 percent). This is consistent with historical differences in autism identification rates by race and ethnicity, although they have grown smaller in recent years.
- For individuals with a signed IPE, VR counselors identified barriers to employment. Among autistic young adults, VR counselors identified having low household incomes as the most common barrier to obtaining employment (40 percent), followed by having basic skills deficiency or low levels of literacy (32 percent).

2. Among young adults on the autism spectrum who had a signed IPE through VR: What types of VR services did they use? What were their employment outcomes?

- About two thirds of young adult applicants with autism were deemed eligible for services and signed an IPE during the program year that they applied for VR (66 percent).
- Of autistic young adults with an IPE, nearly all (92 percent) used some VR services during their application year. About 33 percent of autistic young adults with an IPE used career services during their application year, an equal share (33 percent) used pre-employment transition services, 12 percent used training services, and 84 percent used other types of VR services.
- Among young adults on the autism spectrum with a signed IPE who exited VR during 2017-2019, 50 percent were employed.

- On average, young adults on the autism spectrum who exited with employment worked about 23 hours per week, earned about \$10 per hour, and were more likely to be employed in competitive integrated employment (71 percent) rather than supported or other employment.

3. How did referral sources, service experiences, and employment outcomes vary across states?

- Although elementary and secondary educational institutions were the most common sources of referral for young adult VR applicants on the autism spectrum in most states, there were some geographic differences. In four states and one U.S. territory (Connecticut, Indiana, North Carolina, Northern Marianas, Wyoming) young adults on the autism spectrum were more likely to refer themselves (ranging from 22 percent to 73 percent of applicants) than be referred by an elementary or secondary educational institution.
- The assessed barriers to employment faced by young adults on the autism spectrum varied substantially by state. For example, the share of autistic young adults in VR with low incomes was the highest in Iowa (83 percent) and lowest in Alabama (21 percent).
- In most states, the share of autistic young adult VR clients with an IPE who used any VR services in the year they applied for VR was above 80 percent; however, in a small number of states and territories it was substantially lower (for example, 24 percent in Puerto Rico; 54 percent in Kentucky and 55 percent in the District of Columbia).
- The share of autistic young adult VR applicants with a signed IPE who exited VR with employment varied substantially across states, from 27 percent (District of Columbia) to 68 percent (Delaware).

4. How did referral sources, service experiences, and employment outcomes compare with those among young adults who were not autistic but had (1) an intellectual disability or (2) any other type of disability?

- About 44 percent of all young adult VR applicants with an intellectual disability or any other kind of disability were female, compared with 18 percent of young adults on the autism spectrum.
- Young adult VR applicants on the autism spectrum were more often non-Hispanic White (69 percent) than young adults with an intellectual or any other kind of disability (49 and 53 percent, respectively). By contrast, the share of young adult VR applicants who were non-Hispanic Black was 12 percent for autistic applicants, 31 percent for applicants with an intellectual disability, and 21 percent for other applicants.
- Similar shares of autistic clients and non-autistic clients with an intellectual disability or other types of disabilities received VR training services, career services, pre-ETS, or other VR services.
- Almost half (49 percent) of all young adults on the autism spectrum who exited VR services were employed, compared to 44 percent of young adults with an intellectual disability or any other kind of disability.

5. To what extent did referral sources, service experiences, and employment outcomes differ for subgroups of autistic young adults based on their age at time of application, sex, race, and ethnicity?

- There were differences by age in the referral sources, service use, and employment outcomes of autistic young adult VR clients. The majority (55 percent) of younger VR applicants on the autism spectrum (ages 16 to 22 at the time of application) were referred by elementary or secondary educational institutions, while it was most common for older applicants (ages 23 to 28

at the time of application) to apply themselves (39 percent). A larger share of younger applicants used pre-employment transition services (40 percent compared with less than 1 percent of older applicants), while a larger share of older applicants used career services (56 percent compared with 28 percent of younger applicants). A larger share of older autistic young adults exited with employment compared with those who were younger (61 percent and 47 percent, respectively).

- We found few differences by sex in the referral sources and service use of autistic young adult VR clients, but male clients were slightly more likely to be employed at exit than female clients (49 percent and 46 percent, respectively).
- Among VR clients on the autism spectrum, there were small racial and ethnic differences in referral sources, service use, and employment outcomes. For example, a smaller share of autistic Hispanic and non-Hispanic Black young adults used any VR services in their application year (86 and 88 percent, respectively), compared with non-Hispanic White or other clients (91 and 92 percent, respectively). Non-Hispanic White young adults on the autism spectrum were also more likely to exit with employment (50 percent) than those who were non-Hispanic Black (46 percent), Hispanic (42 percent), or of another race (48 percent).

6. Were there any changes in VR applications, service use, and employment outcomes during the COVID-19 pandemic (i.e., between March 2020 and June 2021)?

- The number of applications dropped sharply when the pandemic hit the United States. During the fourth quarter of program year 2019 (April-June 2020), the average monthly number of applications was 859, compared with an average of 2,677 applications per month during the prior quarter (January-March 2020).
- The number of IPEs did not drop substantially during April-June 2020 compared with January-March 2020, but they also did not grow as they had done in prior program years.
- The number of VR cases that were closed per month also decreased slightly when the pandemic hit, especially when compared to time trends in prior program years. From April to June 2020, on average per month, 1,766 cases closed and 601 closed with employment, which represent decreases of 30 and 40 percent, respectively, from the monthly averages in the previous quarter.

This study makes several contributions to the research on young adults on the autism spectrum. First, it updates and consolidates findings from other analyses using RSA-911 data. The findings are based on recent data that reflect the changed service landscape because of WIOA and other factors such as increasing identification rates of autism over time. Second, data on young adults ages 16 to 28 capture the experiences of a slightly older population than the “transition-age” population (ages 14 to 24) that has been more commonly studied. Third, the findings add to the body of evidence on differences in VR referrals and service use by sex and race and ethnicity, with the potential to inform policy discussions of how to promote greater equity in the VR system. Fourth, the analyses explore how VR service engagement changed during the COVID-19 pandemic. Such findings speak to the recent literature showing that people with disabilities were disproportionately affected by the pandemic (Jesus et al. 2021) and shed light on the extent to which engagement with VR agencies was affected. Taken together, the study findings improve our understanding of the current service and policy context of young adults who use VR services in their pursuit of job training and employment. In turn, a better understanding of the service and policy context will provide insight that can inform discussions about which policy options and program development priorities might be worth pursuing.

I. Introduction

Vocational Rehabilitation (VR) agencies provide services to people with disabilities to help them prepare for, find, retain, or regain employment. The Rehabilitation Services Administration (RSA) in the U.S. Department of Education (ED) is responsible for federal VR funding and policy, as specified most recently in the 2014 Workforce Innovation and Opportunities Act (WIOA), but 78 separate agencies in states and territories administer the services (ED 2020). VR services may include but are not limited to assessment, career guidance and counseling, community college or university training, on-the-job training, job coaching, job placement services, and transportation ([RSA 2017](#)). As the largest publicly funded program dedicated to supporting people with disabilities to prepare for and engage in competitive integrated employment (CIE), the VR program has the potential to play an important role in the transition from school to work for autistic young adults.

Prior research has examined how young people on the autism spectrum interacted with VR agencies using data through 2016. For example, studies of youth on the autism spectrum have found that several VR services, such as job placement, on-the-job support, and on-the-job training, were associated with attaining competitive employment (Lawer et al. 2009; Kaya et al. 2018; Nye-Lengerman 2017). In contrast, another study found that high school students on the autism spectrum used job-related VR services, such as job search, job placement, and on-the-job supports, at rates below those of comparison groups of nonstudent youth and young adults who were also on the autism spectrum (Roux et al. 2021). Further, studies examining VR data between 2002 and 2016 showed that rates of VR service use and employment outcomes among autistic VR clients have varied widely across states (Burgess and Cimera 2014; Migliore et al. 2014; Roux et al. 2019a).

Yet little research has examined VR data from 2017 or later, which represents the beginning of data collection and reporting consistent with the implementation of the WIOA (RSA 2017). The WIOA made important changes to Title I of the Rehabilitation Act that affect the VR program. It updated the mandate for VR agencies by increasing the emphasis on CIE¹; expanded services to youth and students with disabilities, including those who have not yet applied for VR services; and introduced new reporting requirements. For example, WIOA requires state VR agencies to offer pre-employment transition services (pre-ETS) to students with disabilities and to allocate 15 percent of their federally allotted funding to those services (Rehabilitation Act of 1973/2015). As such, it has the potential to result in substantial changes in the way that autistic and other young adults with disabilities interact with VR services. However, most studies that have been conducted to date on autistic young adults' use of VR has used data from 2016 and earlier, before WIOA implementation could impact how the VR system engages and serves young adults on the autism spectrum. By analyzing more recent data (2017-2020), this report presents statistics from a time period after WIOA was implemented. The analyses presented are part of the Research Support Services for Employment of Young Adults on the Autism Spectrum Project, which the Office of Disability Employment Policy in the U.S. Department of Labor (DOL) has contracted with Mathematica to conduct.

¹ The Rehabilitation Act as amended by WIOA defines competitive integrated employment as full-time or part-time work for which an individual (1) is paid at least minimum wage at a rate comparable to other employees who do not have disabilities and who have similar training, experience, and skills and at least minimum wage; (2) works in a location where the individual interacts with people who do not have disabilities to the same extent that other employees who do not have disabilities and who have similar positions do; and (3) has opportunities for advancement similar to those for other employees who do not have disabilities and who have similar disabilities (Rehabilitation Act of 1973/2015).

For this report, we analyzed recent data (2017–2020) from RSA’s Case Service Reports (RSA-911) to analyze characteristics of VR applicants, service use, and employment outcomes among young adults on the autism spectrum (RSA 2017). The analyses examined the way young adults on the autism spectrum, ages 16 to 28, engaged with state VR agencies, the characteristics of those who applied for VR agencies, the VR services that they used, and their employment outcomes.

The analyses summarized in this report sought to answer the following research questions based on data from 2017-2020:

1. Among young adults on the autism spectrum who applied for VR:
 - a. What were the common sources of referral to VR?
 - b. What were their characteristics, and what barriers to employment did they face?
2. Among young adults on the autism spectrum who had a signed individualized plan for employment (IPE) through VR²:
 - a. What types of VR services did they use?
 - b. What were their employment outcomes?
3. How did referral sources, service experiences, and employment outcomes vary across states?
4. How did referral sources, service experiences, and employment outcomes compare with those among young adults who were not autistic but had (1) an intellectual disability or (2) any other type of disability?
5. To what extent did referral sources, service experiences, and employment outcomes differ for subgroups of autistic young adults based on their age at time of application, sex, race, and ethnicity?
6. Were there any changes in VR applications, service use and employment outcomes during the novel coronavirus disease 2019 (COVID-19) pandemic (i.e., between March 2020 and June 2021)³?

The remaining chapters of this report describe the analysis methods and present findings. Chapter II provides an overview of the study design including data and analytic methods. Chapter III presents the study findings that address each research question. Chapter IV outlines data and method limitations as well as context for interpreting the findings. Chapter IV discusses the findings and identifies areas for future research. Appendix A contains additional technical details on data and analysis methods, Appendix B contains tables that report the results of the analyses, and Appendix C contains a glossary of VR-related terminology used throughout the report.

² An IPE is a document that outlines a VR client’s employment goals and lists the services that a VR agency will provide to assist them in meeting those goals. Each VR client typically develops their IPE in collaboration with a VR counselor within 90 days of being determined eligible to receive VR services.

³ The COVID-19 pandemic initiated a public health emergency in the United States in March 2020. In response, 42 states and territories issued mandatory stay-at-home orders between March 15 and May 31 (Moreland et al. 2020). The unemployment rate peaked at 14.8 percent in April 2020 (Falk et al. 2021), and young adults with and without disabilities experienced a worsening of labor market outcomes (Hill et al. 2022).

II. Data and Analytic Methods

For this report, we conducted several types of analyses of RSA-911 records. In the sections that follow, we describe the data, study sample, and analytic methods used to address the research questions (for a detailed description, see Appendix A).

A. Data

We analyzed the RSA-911 restricted-use files (RUF) for program years 2017 to 2020 (hereafter referred to as 2017 to 2020). VR program years run from July through June of the following calendar year. We did not use data from 2016 or earlier because the format of the RSA-911 data files changed in coverage and content in 2017, making it inadvisable to combine data from before and after 2017.⁴ To answer research questions 1 to 5, we focused on data from 2017 to 2019 and did not use data from the program year 2020 in order to exclude data that were likely to be influenced by the COVID-19 pandemic. For research question 6, we included data from 2020 in order to understand patterns in outcomes over time and assess changes during the pandemic.⁵

We examined annual data on the 78 VR agencies that operate in the 50 states, the District of Columbia, Puerto Rico, and three territories. Most states and territories (34) have one agency that serve individuals with all types of disabilities; these are referred to as Combined VR agencies. In addition, 22 states and territories have established two VR agencies: one VR agency that serves individuals who are blind or have visual impairments, referred to as Blind VR agencies, and a separate VR agency that serves individuals with all other types of disabilities, referred to as General VR agencies. We combined data from different VR agencies within a state, and we did not differentiate between general, blind, and combined VR agencies. Collapsing agency data to the state-level helped us avoid reporting on VR agencies with a small number of autistic young adult clients, while still providing meaningful geographic comparisons.

RSA-911 RUF are de-identified, so we were not able to link individuals across program years. In other words, the data we examined were unique at the case-year level. During 2017-2019, there were more than 2.3 million case-year records of people with disabilities who were ages 16-28 when they applied for VR.

B. Study sample

The core sample comprised young adults defined as people aged 16-28 at the time of VR application who had engaged with a VR agency during program years 2017-2019. Although we cannot identify the unique

⁴ Before 2017, RSA-911 RUF for a program year only included VR cases that closed in that year. A young adult could not have appeared in multiple program years of data unless they opened and closed more than one VR case. Since 2017, the RSA-911 RUF for a program year includes cases that were open for any part of that year. Young adults can now appear in multiple program years of data if their VR case did not close within the program year it was opened. Further, because RSA-911 RUF are de-identified, observations on a single VR case cannot be linked across program years. For VR cases that are open for multiple years, we cannot connect services or outcomes recorded in different years. In addition, there were changes to the data elements between 2016 and 2017. For example, data before 2017 did not track pre-employment transition services. Due to these concerns, it is inadvisable to combine RUF data from before and after 2017. At the time of our data request, only RUF for program years 2017 to 2020 were available.

⁵ There were also changes to the RSA-911 files' format and content from 2019 to 2020. As one example, the date that IPE was amended, which indicates eligibility for VR services, was dropped in 2020. Therefore, we limited the scope of the analyses related to research question 6 to measures available across 2017 to 2020.

number of young adults who engaged with VR during this period, the data included over 2 million case-year records on young adults. In exploratory analyses, we also examined data from program year 2020, which included nearly 800,000 case-year records for young adults.

From 2017 to 2019, 566,367 young adults with disabilities applied for VR services (Figure 1).⁶ Of these young adult VR applicants, about 14 percent (or n=81,616) were on the autism spectrum.^{7,8} We identified autistic young adults as applicants who had autism recorded as the source of either their primary or secondary impairment.⁹ This identification method may have undercounted VR applicants on the autism spectrum because impairment information was missing for some cases and because this information is recorded by VR counselors, who have some discretion in deciding what to record in the case of multiple impairments.¹⁰ Of the autistic young adults who applied to VR during 2017-2019, 53,592 or 66 percent were assessed as eligible for services and went on to sign an IPE. Finally, of the 53,592 clients with an IPE, 15,582 young adults or 29 percent exited VR with employment (defined as having employment for 90 or more days) by the end of 2019.

For some analyses, we examined comparison groups of young adults who were not on the autism spectrum but had (1) intellectual disability or (2) any other type of disability. About 12 percent of young adult VR applicants (n=65,644) had an intellectual disability recorded as the primary or secondary impairment and did not have autism recorded as the primary or secondary impairment.¹¹ The remaining 61 percent of young adults in the study sample (n=346,004) had other types of disabilities, not including autism or intellectual disability, recorded as the primary or secondary impairment.

⁶ We dropped 16,938 records for new applicants with missing information on sex or race or ethnicity. After applying this restriction, the number of young adult applicants in 2017, 2018 and 2019 were 209,853, 199,065 and 157,449 respectively. In addition, in 2020, 137,852 young adults applied to VR.

⁷ In 2017, 26,127 or 12 percent of the 209,853 young adult VR applicants were autistic. In 2018, 29,648 or 15 percent of the 199,065 young adult VR applicants were autistic. In 2019, 25,841 or 16 percent of the 157,449 young adult VR applicants were autistic. In 2020, 24,007 or 17 percent of the 137,852 young adult VR applicants were autistic.

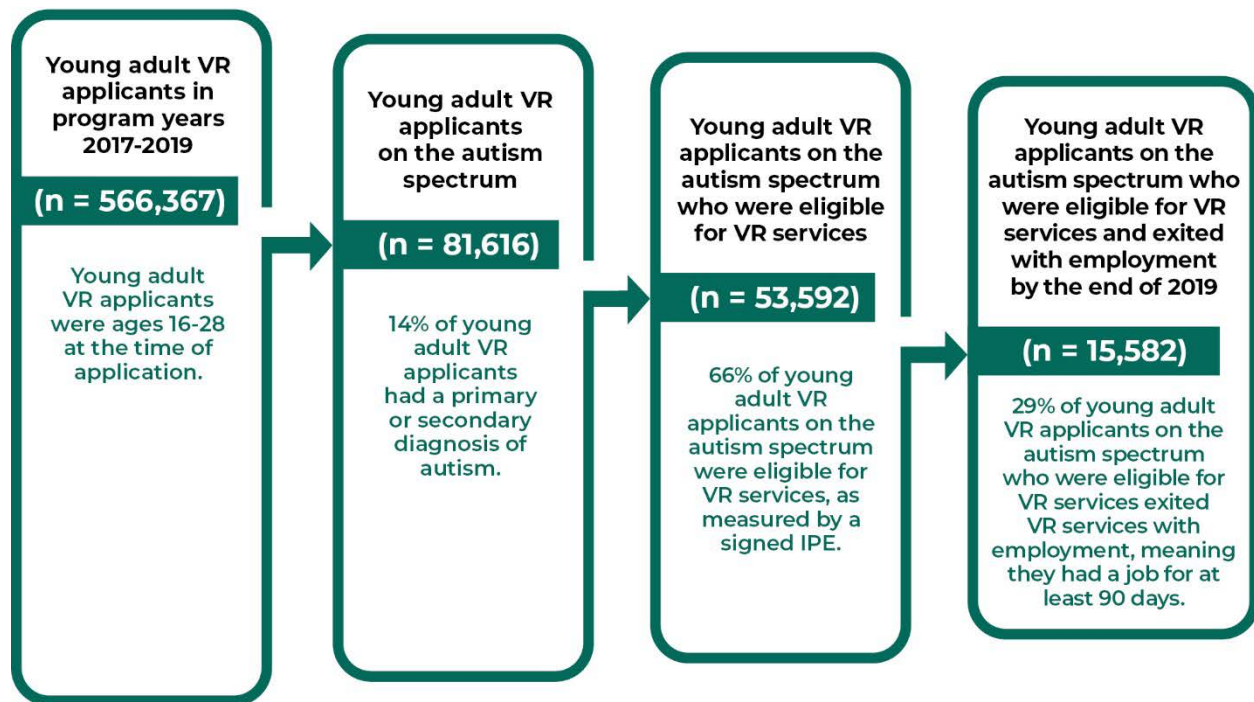
⁸ The share of VR clients who were identified as autistic has increased substantially in recent years. Among VR applicants aged 16 to 26, youth with autism represented 2 percent of cases closed in 2006 and 4 percent of cases closed in 2010 (Migliore 2014). In the current study of VR applicants aged 16 to 28, youth with autism represented 14 percent of cases closed in 2019 and 16 percent of cases closed in 2020.

⁹ VR counselors assign two codes for the type of disability a person has—an impairment (sensory/communicative, physical, mental) and a cause. Autism can be recorded as a cause for any impairment. We identified young adults on the autism spectrum as VR applicants who had autism recorded as the source of either their primary (69,818 people or 86 percent) or secondary impairment (9,046 people or 11 percent) or both (2,752 people or 3 percent).

¹⁰ Information on impairment type was missing for 73,103 or 13 percent of 566,367 young adult VR applicants with non-missing information on age, sex, race and ethnicity during program years 2017 to 2019.

¹¹ About 9 percent of autistic young adult VR applicants also had an intellectual disability recorded as an impairment. We counted these young adults in the autistic subgroup.

Figure 1. Key statistics on young adults who applied for vocational rehabilitation in 2017-2019



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 566,367 young adults who applied for VR during 2017-2019 and had non-missing information on age, sex, race and ethnicity. Employment outcomes as reported at VR exit by end of program year 2019. These statistics likely underestimate the rate of employment among young adults who exit with employment as some young adults may have gone on to become employed after 2019. Years refer to program years.

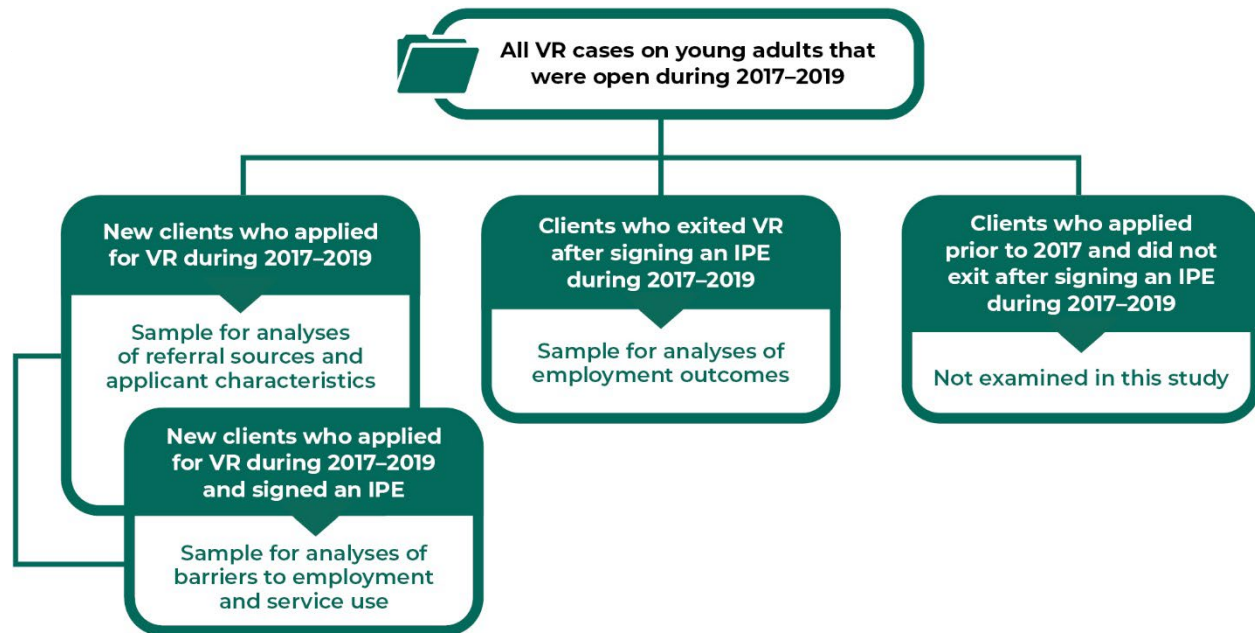
IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

The analytical samples used in this study do not include students with disabilities who did not apply to VR and only used pre-ETS. RSA-911 data do not have information about the impairments of non-applicants, and thus we cannot identify those on the autism spectrum. We also excluded cases with missing information about age, sex, race, ethnicity, or type of disability.¹²

We applied additional sample restrictions for specific analyses (Figure 2). First, when we examined referral sources, characteristics, and service use, we excluded case-year observations on VR clients in any year beside their application year. For example, a person might have applied in 2017 and had a case open until then exited in 2019, but we only counted their case-year observation from 2017, the year in which they applied. In contrast, when examining employment outcomes, we examined only case-year observations of young adult VR clients who exited VR between 2017 and 2019, regardless of when they had applied. Second, when we examined use of VR services and employment outcomes, we excluded applicants who exited VR without an IPE, as one is required before young adults can receive most VR services.

¹² The RSA policy directives use the term “sex” for the data elements that capture whether the applicant indicates that they are male or female (RSA 2017; 2020). Throughout the report, we use the term sex for consistency.

Figure 2. Sample restrictions on young adults who had open VR cases in 2017-2019



IPE = individualized plan for employment; VR = Vocational Rehabilitation.

C. Analytic methods

We used descriptive analysis to examine the referral sources and characteristics of young adults on the autism spectrum who applied for VR (research question 1), as well as their service use and employment outcomes (research question 2). For each of the measures examined, we report the mean for binary and continuous measures and the distribution for categorical measures.¹³ We also used descriptive analysis to examine how a subset of the measures examined in research questions 1 and 2 differ across states (research question 3) and report the mean of each measure by state.

We used regression-based models to examine how referral sources, service experiences, and employment outcomes might differ across (1) young adults with different types of disabilities (research question 4) and (2) subgroups of young adults on the autism spectrum (research question 5). We defined the first set of comparison groups as young adults who were not on the autism spectrum but had (1) intellectual disability or (2) any other type of disability. We defined the second set of comparison groups as young adults on the autism spectrum who differed by age (ages 16-22 or 23-28), sex (female or male), and race or ethnicity (White, non-Hispanic; Black or African American, non-Hispanic; Hispanic or Latino; or Other, non-Hispanic).

For outcomes that were binary or categorical, we estimated the equations using logit or multinomial logit regressions, respectively; for continuous outcomes, we used linear regressions. See Appendix A for further details on our modeling methods, including examples of regression specifications. We computed and reported regression-adjusted mean outcomes for each group and tested whether the difference between the adjusted mean outcome among autistic young adults and the adjusted mean outcome of the comparison group is statistically significant. Finally, we also calculated and reported the effect size of the

¹³ We limited extreme outliers of continuous measures including wages and hours worked among applicants who became employed. For more details, see Appendix A.

difference in terms of Cohen's d (Cohen 1988), which describe the differences between group means in terms of standard deviations. When discussing findings, we highlight differences across groups that are not only statistically significant but also of a medium or large effect size.¹⁴

We also conducted exploratory analyses to examine whether and to what extent the number of applications and IPEs changed when the pandemic began (research question 6). We examined the trends over time of a subset of measures used to answer research questions 1 and 2, defining time in terms of the date that the young adults applied for VR. For example, we tracked the number of autistic young adults who exited VR with employment over time. We produced time series plots and looked for changes in trends before the COVID-19 pandemic (January 2017 to February 2020) and during the first several months of the pandemic (March 2020 to June 2021).

Throughout the report, we use figures to illustrate key findings. In addition, complete results from the analyses are reported in Tables B.1-B.21 in Appendix B.

¹⁴ Cohen (1988, 1992) provided guidelines for the interpretation of these values: values of 0.20, 0.50, and 0.80 for Cohen's d are commonly considered to be indicative of small, medium, and large effects.

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III. Study Findings

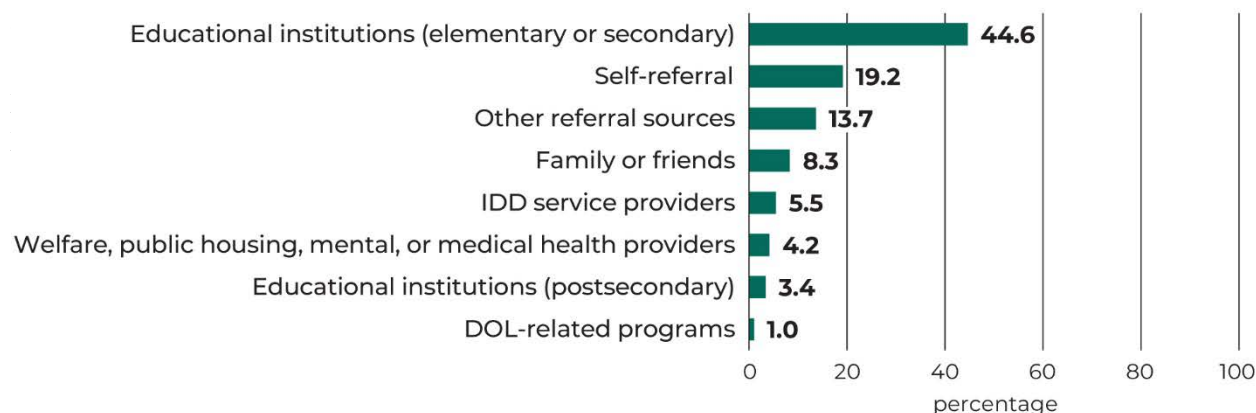
In this chapter, we present the findings from our analyses, organized by research question.

A. Characteristics of young adults on the autism spectrum applying for VR

1. Sources of referral

We examined the referral sources of the 81,616 young adults (ages 16 to 28) who applied to VR during 2017-2019. Of all young adult VR applicants on the autism spectrum, educational institutions referred almost half (Figure 3). Most of the referrals were from elementary or secondary educational institutions (45 percent), whereas a smaller share (3 percent) was from postsecondary institutions. About 19 percent of applicants referred themselves, followed by other referral sources such as community rehabilitation programs or other state agencies (14 percent); family and friends (8 percent); service providers for people with intellectual and developmental disabilities (IDD) (6 percent); welfare, public housing, or health providers (4 percent); and DOL-related programs (1 percent).

Figure 3. Sources of referral of young adults on the autism spectrum applying for VR



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 81,616 young adults on the autism spectrum who applied for VR during 2017-2019. Appendix Table C.1 contains definitions of these referral source categories. Percentages may not sum to 100 due to rounding. See Table B.1.

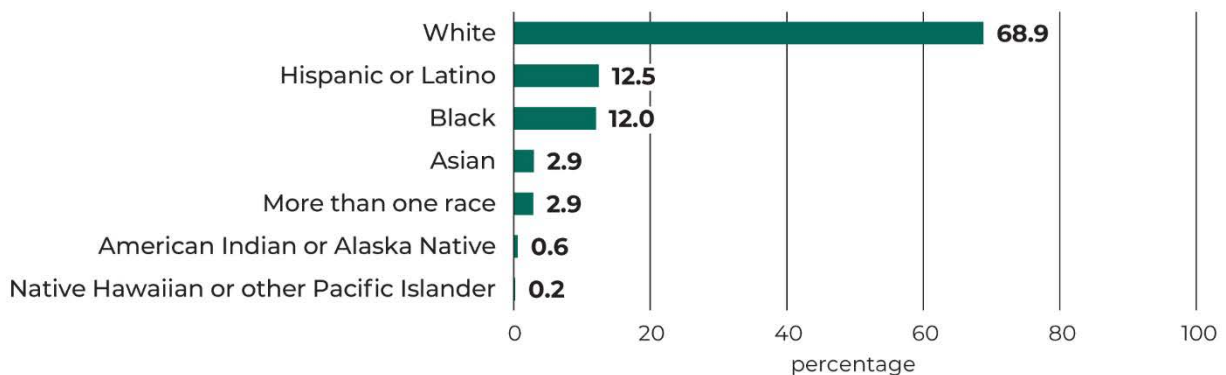
DOL=US Department of Labor; IDD=intellectual or developmental disabilities.

2. Demographic characteristics

Among the 81,616 young adult VR applicants during 2017-2019, the majority (69 percent) were non-Hispanic White; 13 percent were Hispanic or Latino; 12 percent were non-Hispanic Black; 3 percent were Asian; 3 percent were multiple races; and less than 1 percent were American Indian or Alaska Native or Native Hawaiian or Pacific Islander (Figure 4). This is consistent with prior research that has found that White children were historically more likely to be identified with autism than Black or Hispanic children (CDC 2021). About 18 percent of VR applicants on the autism spectrum self-reported their sex as female (Figure 5). The smaller share of female autistic applicants is also consistent with research that has found lower rates of autism identified among girls versus boys (Maenner et al. 2020; 2021).

Among our sample of applicants ages 16 to 28, the average age of applicants was 20; 47 percent were 16 to 18; 28 percent were 18 to 21, 14 percent were 22 to 24, and the remaining 11 percent were 25 or older (Table B.1). The young ages of the applicants are consistent with the earlier finding that these clients were typically referred by an elementary or secondary educational institution, which would likely have waited until youth were of transition age (typically defined as 14 or older) before referring them for VR. Consistent with their young ages, almost half of all applicants were considered by VR as a student with a disability (49 percent). These applicants were individuals with disabilities enrolled in education programs who were eligible for and receiving services under the Individuals with Disabilities Education Act (IDEA) at the time of application or when they began receiving pre-ETS.

Figure 4. Race and ethnicity of young adults on the autism spectrum applying for VR

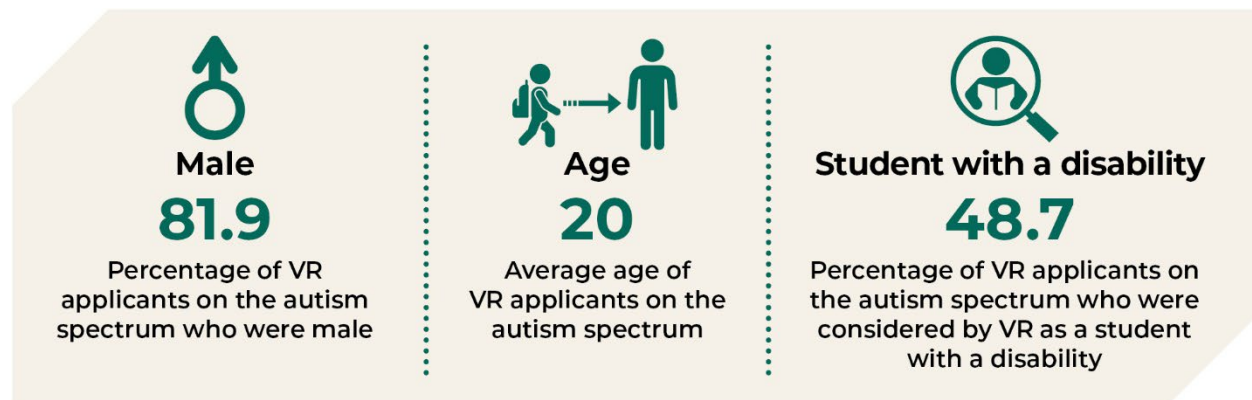


Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 81,616 young adults on the autism spectrum who applied for VR during 2017-2019. Race and ethnicity information was missing for about 3 percent of young adult VR applicants on the autism spectrum. Percentages may not sum to 100 due to rounding. See Table B.1.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Figure 5. Characteristics of young adults (ages 16-28) on the autism spectrum applying for VR



Source: RSA-911 data for program years 2017–2019.

Note: Characteristics as noted on VR application. Statistics are based on a sample of 81,616 young adults on the autism spectrum who applied for VR during 2017-2019. See Table B.1.

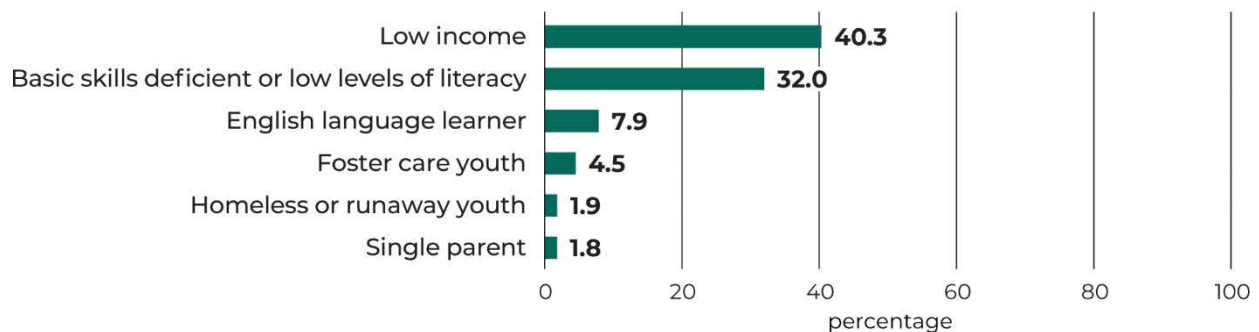
RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

3. Assessed barriers to employment

At the time of developing the initial IPE, VR counselors typically identify and record barriers to employment (see Appendix C for definitions of barriers). We examined these barriers among the 66 percent of autistic young adult VR applicants who signed an IPE in the year they applied for VR services (n = 53,592). Four in 10 such young adults were identified as living in households with low incomes (Figure 6).¹⁵ Almost one-third (32 percent) of autistic young adult VR applicants were identified as having basic skills deficiency.¹⁶ About 8 percent of autistic young adult VR applicants who signed an IPE were English language learners, and a small number had other challenges such as being in foster care (5 percent) or being homeless or a runaway youth (2 percent) or single parent (2 percent).

These statistics might not be representative of all autistic young adults who applied for VR, because barriers were only identified at the time of the IPE, and about one in five autistic young adult VR applicants exited without signing an IPE (Figure 1). In addition, some VR agencies were in order of selection, such that priority was given to serving individuals with the most significant disabilities if the VR agency was unable to serve all eligible individuals with disabilities.¹⁷ This scenario could have affected whether and which VR applicants went on to sign an IPE and have barriers identified.

Figure 6. Assessed barriers to employment of young adults on the autism spectrum with IPEs



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 53,592 young adults on the autism spectrum who applied for VR during 2017-2019 and signed an IPE. Barriers are assessed by VR counselors and clients may have more than one barrier to employment. See Table B.1.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

¹⁵ VR counselors identify clients as having low incomes based on criteria such as receiving or having a family member receive Supplemental Nutrition Assistance Program, Temporary Assistance for Needy Families, or Supplemental Security Income benefits in the past six months; being eligible for free or reduced-price lunch; or having family income that is below the poverty line.

¹⁶ VR counselors identified clients as having basic skills deficiency if they were young adults with literacy skills at or below the 8th-grade level or applicants of any age who were not able to solve problems or read, write, or speak English deemed necessary to function in a job or other setting.

¹⁷ The Rehabilitation Act of 1973, as amended by Title I of WIOA, requires each Vocational Rehabilitation program to serve individuals with the most significant disabilities first when there are not enough resources to serve everyone who is eligible for VR services (RSA 2023). Clients with the most significant disabilities are given a priority over those with less significant disabilities, a process called an "order of selection." As of October 26, 2022, 38 VR agencies were operating under an order of selection.

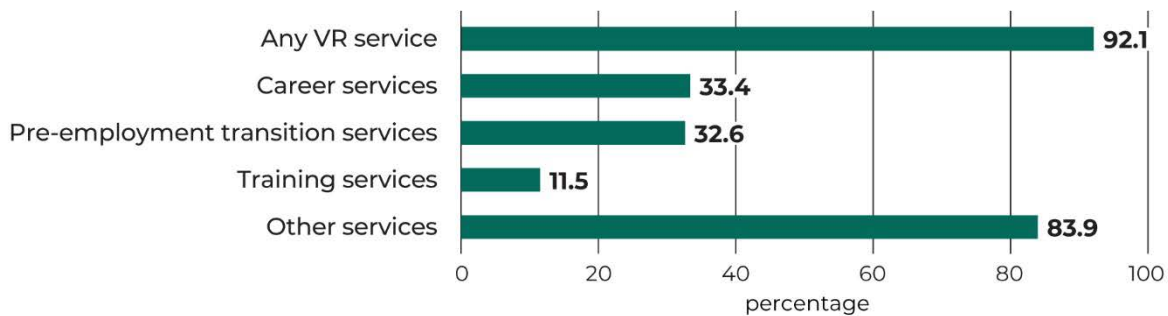
B. Service use and employment outcomes of VR clients on the autism spectrum

1. Service use

We examined use of VR services among 53,592 autistic young adult VR applicants who had a signed IPE, which is required before young adults can receive VR services.¹⁸ Appendix C provides a glossary with descriptions of the different types of VR services. We examined services that clients used during the program year in which they applied.¹⁹

About 92 percent of autistic young adults with an IPE used at least one VR service in the year they applied (Figure 7). About one third of autistic young adults received career services (33 percent) and pre-ETS (33 percent), 12 percent received training services, and 84 percent received other services (Table B.2). However, it is important to note that clients may continue to receive VR services in the years after they applied. Further, because we cannot follow applicants across years, our measures of service use are truncated and are less likely to capture services used by clients who applied for VR close to the end of the program year. For example, among 2017 applicants, 95 percent of young adults who applied in the first quarter used some VR services that year, whereas only 78 percent of those who applied in the fourth quarter did so.

Figure 7. VR services commonly used by young adults on the autism spectrum



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 53,592 young adults on the autism spectrum who applied for VR during 2017-2019 and signed an IPE. See Table B.2.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

VR counseling and guidance services were the most common type of service that autistic young adults used in the year they applied for services (Figure 8). This is expected, as this service includes information and support services to assist a person in exercising informed choice and assessment to determine eligibility for VR services and determine the nature and scope of VR services to include in the IPE. About 66 percent of autistic young adults used VR counseling and guidance services and 36 percent used assessment services during the year they applied for VR. Career services were another common type of service used by autistic young adult VR clients, especially job placement assistance (17 percent) and job search assistance (19 percent). A sizeable share of autistic young adult VR clients used some type of pre-

¹⁸ A notable exception is that students with a disability can access pre-ETS without applying for VR.

¹⁹ VR clients may have cases open for multiple years and receive different services in each year. Because we cannot uniquely identify clients across program years, we restrict our analyses to services used in the year they applied to avoid counting the same client twice.

ETS such as job exploration counseling (22 percent), workplace readiness training (16 percent), and work-based learning experience services (14 percent), which is not surprising given that many were young and students. Job readiness training, benefits counseling, and rehabilitation technology services were less commonly used; fewer than 10 percent of autistic young adult VR clients with an IPE used each of these types of services (Table B.2).

Figure 8. Most commonly used VR services among young adults on the autism spectrum



Source: RSA-911 data for program years 2017–2019.

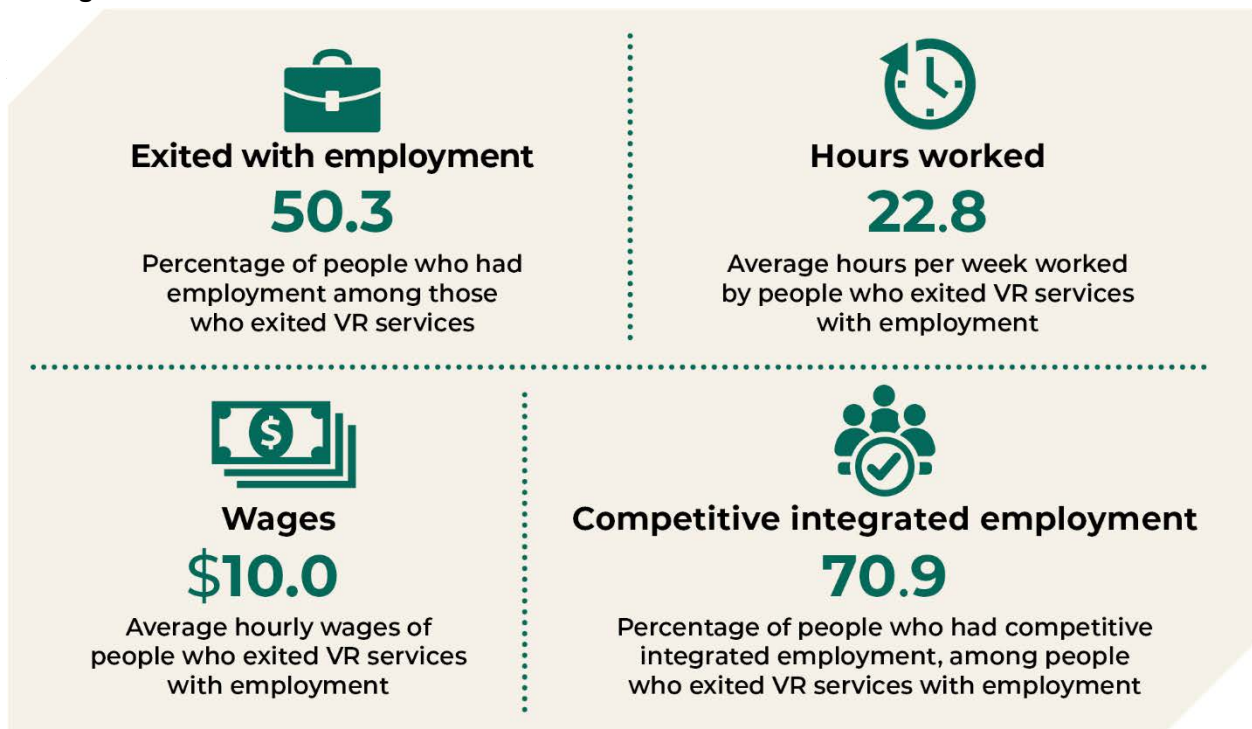
Note: Statistics are based on a sample of 53,592 young adults on the autism spectrum who applied for VR during 2017-2019 and signed an IPE. Figure shows the ten most commonly used services in this sample. This figure only shows services that at least 10 percent of the sample used. See Table B.2 in Appendix B for the shares of young adults who used other VR services.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

2. Employment outcomes

We examined employment outcomes among the 115,640 autistic young adult VR applicants with IPEs who exited VR from 2017 to 2019, regardless of when they had applied for VR. VR defines employment as holding a job (with or without supports) in an integrated workplace for at least 90 days. Half (50 percent) of all autistic young adult clients with IPEs who exited VR from 2017 to 2019 had employment at the time that their cases were closed (Figure 9). Further, among those who exited with employment, the vast majority (71 percent) held competitive integrated employment, while an additional 29 percent were employed in supported employment, that is, they received ongoing VR support services while employed in a competitive integrated job (Table B.3). On average, autistic young adults who exited with employment worked about 23 hours per week and earned \$10 per hour. Less than 1 percent were self-employed or employed in supported employment on a short-term basis.

Figure 9. Employment outcomes among young adults on the autism spectrum who exited VR during 2017-2019



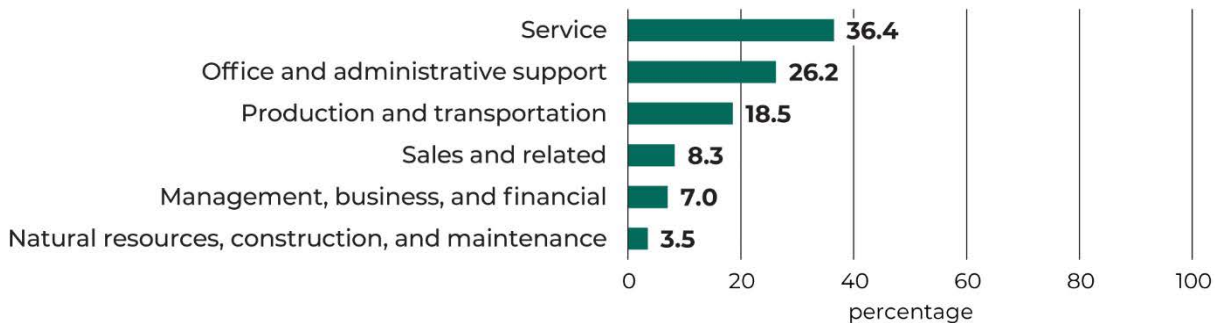
Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 115,640 young adults on the autism spectrum who exited VR during 2017-2019 after signing an IPE. Employment outcomes as reported at VR exit. Aside from those who exited with competitive integrated employment, almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR. See Table B.3.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

More than half of those who exited with employment worked in either a service occupation (36 percent; for example, as janitors, cleaners, dishwashers, food preparation workers, or cafeteria attendants) or an office and administrative support occupation (26 percent) (Figure 10). Another 19 percent worked in production and transportation occupations, 8 percent worked in sales and related occupations, and a small number worked in management and business (7 percent) or natural resources, construction, and maintenance occupations (4 percent).

Figure 10. Occupations among young adults on the autism spectrum who exited VR with employment during 2017-2019



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 58,110 young adults on the autism spectrum who exited VR with employment during 2017-2019 after signing an IPE. Employment outcomes as reported at VR exit. Percentages may not sum to 100 due to rounding. Appendix C contains more information on the occupational categories. See Table B.3.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

C. Variation by state and territory

In this section, we examined the extent to which referral sources, applicant characteristics, service use, and employment outcomes among young adult autistic VR clients varied by state and territory. Differences might be due to differences in the policies, practices, and operating environments of the VR agencies, or due to state-level variability in other factors such as demographics and labor markets.

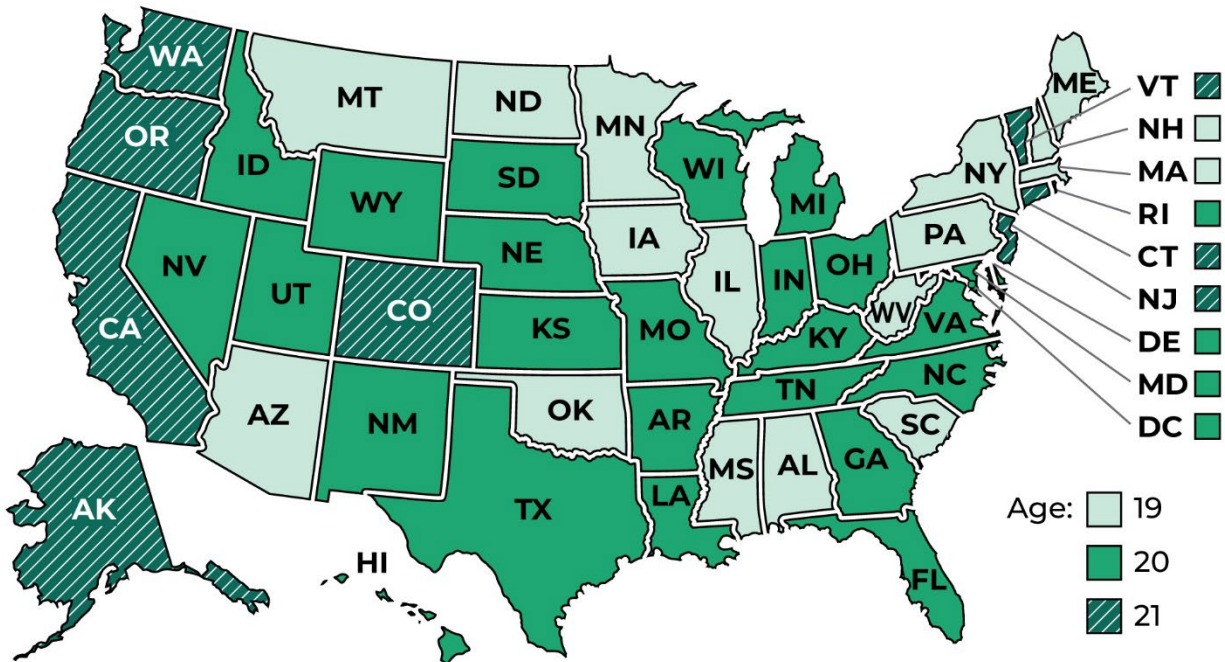
Across the United States, elementary and secondary educational institutions were typically the most common sources of referral for VR applicants on the autism spectrum (45 percent), but there were geographic differences (Table B.4). For example, more than 60 percent of autistic young adult VR applicants living in the District of Columbia, Illinois, Minnesota, New York, Rhode Island, and South Carolina were referred by this institution type. In contrast, in four states and one U.S. territory (Connecticut, Indiana, North Carolina, Northern Marianas, and Wyoming), it was more common for young adults on the autism spectrum to refer themselves than be referred by educational institutions. There was also substantial variation across states in other types of referrals. For example, in 19 states, IDD providers referred none or fewer than 1 percent of young adult applicants, but in five states (California, Colorado, Ohio, Oregon, Vermont) they referred between 16 percent and 36 percent of them.

Among young adults ages 16 to 28 at the time of VR application, the average age at application ranged from 18 to 21 across states (Figure 11). The average age of VR applicants who were autistic young adults was more than 21 years old in Connecticut and Oregon. Applicants in Puerto Rico were on average 18 years old at the time they applied and the youngest nationally (Table B.5).

Other characteristics of autistic young adult VR applicants also varied by state (Table B.5). For example, the share of female VR applicants across states ranged from 9 percent (Northern Marianas) to 28 percent (Wyoming). The shares of autistic young adult VR applicants in each race and ethnicity group differed across states, which is partly expected given the differing demographic compositions of state populations. Across all young adult autistic VR applicants, 13 percent were Hispanic or Latino; in five states or territories 30 percent or more were Hispanic or Latino (California, Florida, New Mexico, Puerto Rico,

and Texas). Overall, about 12 percent of young adult autistic VR applicants were non-Hispanic Black. In nine states, twice as many – 25 percent – were non-Hispanic Black (Alabama, Delaware, District of Columbia, Georgia, Louisiana, Maryland, Mississippi, North Carolina, and South Carolina).

Figure 11. Average age at VR application of young adults on the autism spectrum, by state



Source: RSA-911 data for program years 2017–2019.

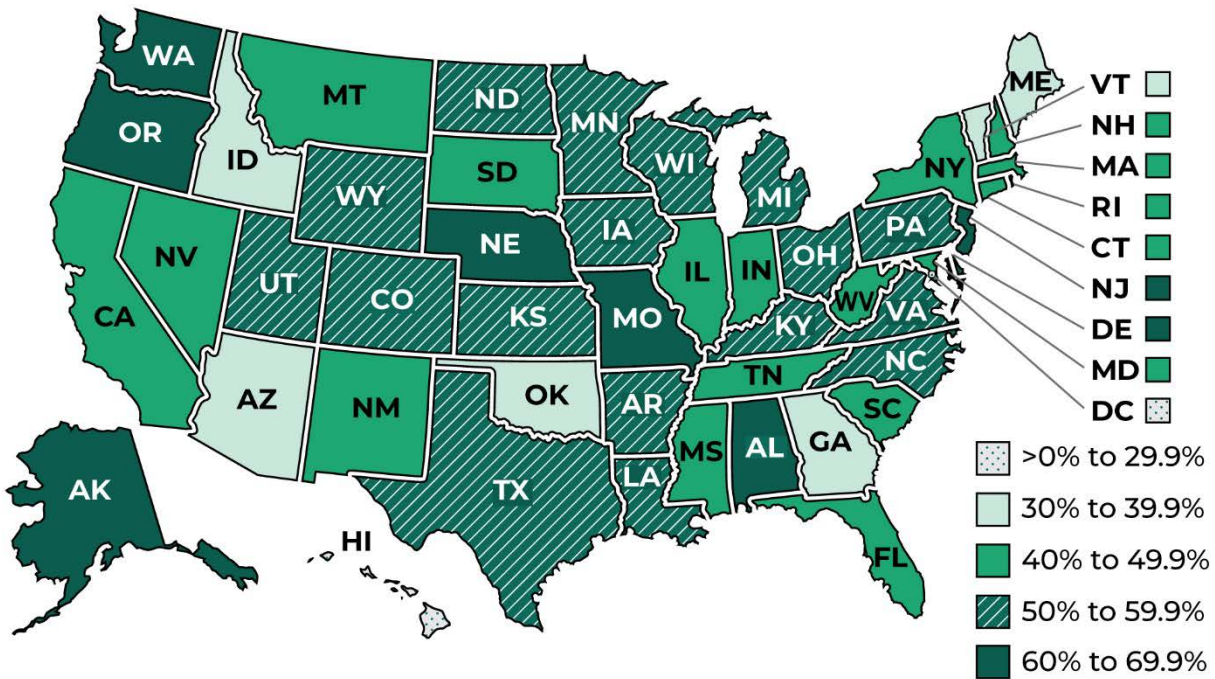
Note: Statistics are based on a sample of 81,616 young adults on the autism spectrum who applied for VR during 2017-2019. Age as reported at VR application. Statistics have been rounded to the next largest integer. Statistics for territories are not shown. See Table B.5.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Nationwide, the most common barrier to employment assessed by VR counselors for young adults on the autism spectrum with an IPE was having low income (40 percent of autistic young adults with an IPE). This share varied considerably by state, with the highest shares of VR applicants with a signed IPE experiencing this barrier in Iowa (83 percent), Oregon (76 percent), and New Mexico (70 percent) (Table B.6). These shares were lowest in Illinois, Alabama, and the Virgin Islands, where less than 25 percent of VR applicants with a signed IPE identified as low income. There was also substantial variation across states in the shares of young adults identified with other barriers, such as having basic skills deficiency or low levels of literacy. When interpreting the state-level variation in barriers, it is important to remember that although RSA outlines specific definitions for the barriers, variation is likely to occur across agencies and counselors in how barriers were assessed and recorded.

In most states, the share of autistic young adult VR clients with an IPE who used any VR services in the year they applied for VR was above 80 percent (Table B.7). However, in nine states and territories it was substantially lower (for example, 24 percent in Puerto Rico; 54 percent in Kentucky and 55 percent in the District of Columbia). Among young adult VR clients who exited VR after signing IPEs, there was substantial state-level variation in the shares that exited with employment, which ranged from 27 percent (District of Columbia) to 68 percent (Delaware) (Figure 12; Table B.8).

Figure 12. Share of young adults on the autism spectrum with IPEs who exited with employment by program year 2019, by state



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 115,640 young adults on the autism spectrum who exited VR during 2017-2019 after signing an IPE. Employment outcomes as reported at VR exit. We suppressed data when the sample size was too small to provide a reasonable state-level estimate, using a cutoff of 10 or more observations in the denominator. See Table B.8.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

D. Comparing characteristics and experiences of autistic young adult VR clients to their peers with other disabilities

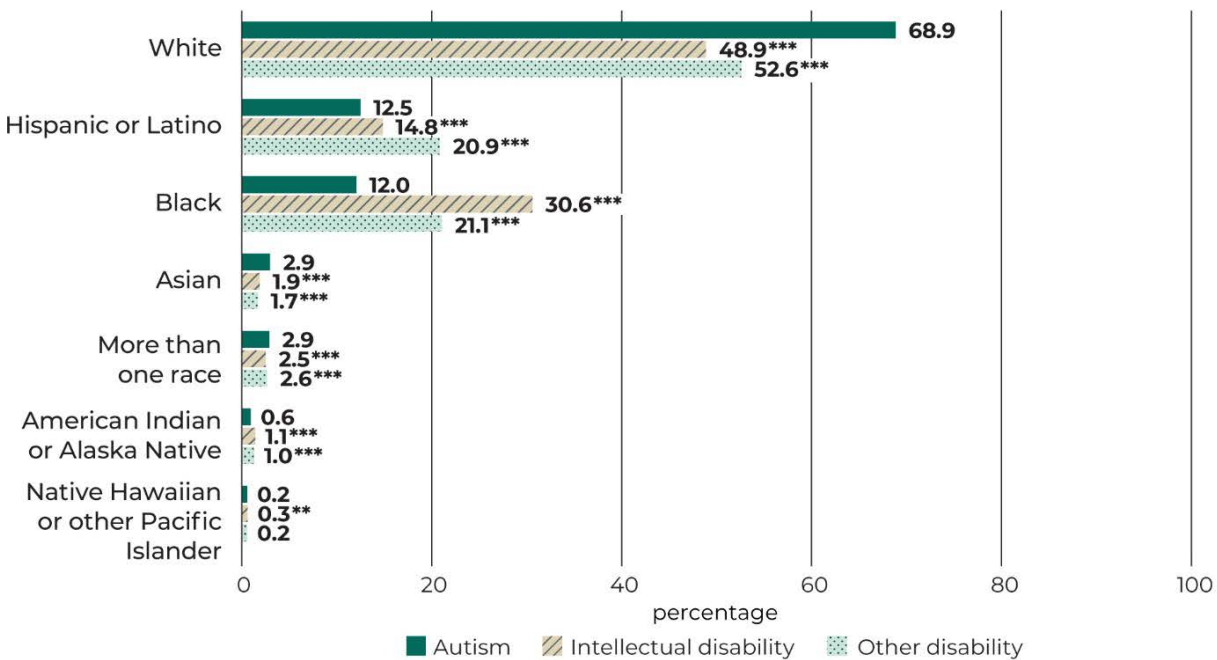
In this section, we present findings from comparing the characteristics of 492,136 young adult VR applicants and their service and employment experiences across three groups: autistic young adults, non-autistic young adults with an intellectual disability, and non-autistic young adults with any other disability. We present regression-adjusted means to control for other differences between subgroups, which indicate what the average outcome by subgroup would have looked like if the demographic composition of all groups would have been similar. Appendix A explains the data and methods in greater detail; Appendix B contains tables with the full set of estimates and additional inference statistics. In the remainder of this chapter, we comment on general patterns and highlight differences across the three groups that are of a substantial magnitude.²⁰

²⁰ Due to the large sample sizes examined, even small differences across groups were found to be statistically significant. We focus our discussion on differences that are not only statistically significant but also have effect sizes of Cohen’s *d* greater than 0.2. A value of *d* = 0.2 or smaller is considered to be a small effect size (Cohen 1988).

1. Relative to young adult VR applicants with other types of disabilities, autistic applicants were more likely to be non-Hispanic White and male.

The demographic composition of young adult VR applicants on the autism spectrum differed in some notable ways from young adult VR applicants with other types of disabilities. The share of young adult VR applicants who were non-Hispanic White was 69 percent for autistic applicants, 49 percent for applicants with an intellectual disability, and 53 percent for other applicants (Figure 13). By contrast, the share of young adult VR applicants who were non-Hispanic Black was 12 percent for autistic applicants, 31 percent for applicants with an intellectual disability, and 21 percent for other applicants. While only 18 percent of autistic young adult VR applicants were female, the share was about 44 percent for non-autistic young adults with an intellectual disability and those with any other kind of disability. The average age at application was about 20 for young adults in all three groups (Table B.9). About half of the young adults in each group were students (49 percent each of young adult applicants on the autism spectrum and those with an intellectual disability and 47 percent of applicants with any other kind of disability).

Figure 13. Race and ethnicity of young adult VR applicants, by type of disability



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 492,126 young adults who applied for VR during 2017-2019. Characteristics as noted on VR application. Percentages may not sum to 100 due to rounding. See Table B.9.

*/**/*** indicates the difference between the comparison group and young adults on the autism spectrum is statistically significant (p -value less than .10/.05/.01).

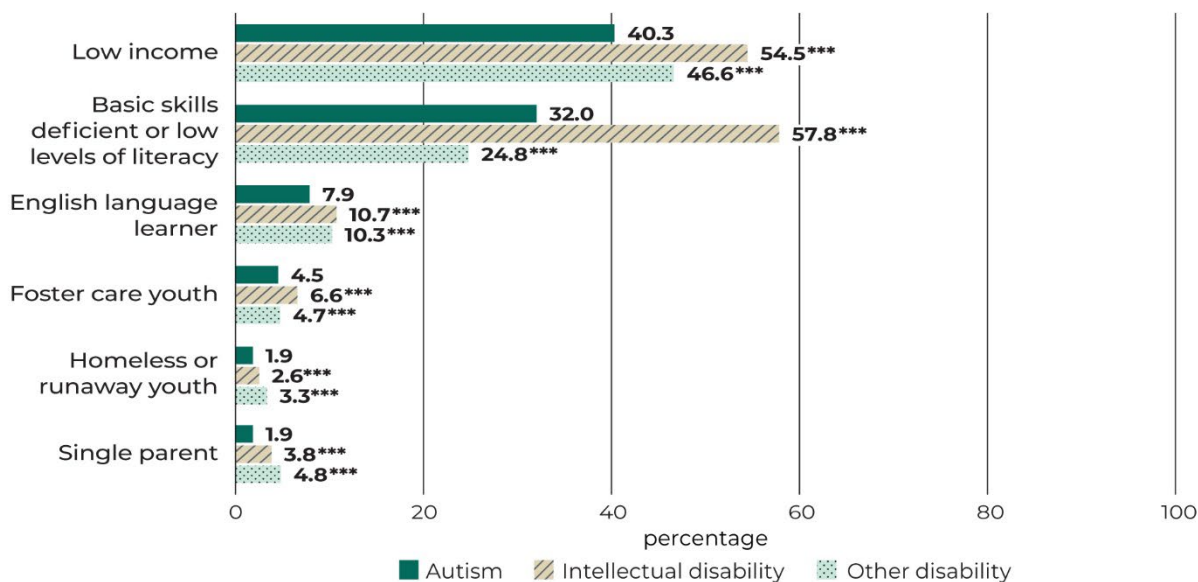
RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Referral sources differed somewhat across young adult VR applicants with different types of disabilities. Young adults with autism were less likely to be referred by IDD providers than young adults with an intellectual disability (6 percent and 8 percent, respectively). They were more likely to be referred by a welfare, public housing, or health provider (4 percent) compared with young adults with an intellectual disability (3 percent), but less so than young adults with any other disability (8 percent). Finally, of the

three groups, young adults with autism were most likely to be referred by family and friends (9 percent, compared with 5 and 7 percent).

Among young adult VR clients with an IPE, we found small differences by disability type in the barriers to employment that VR counselors assessed. The shares of clients with basic skills deficiency and low incomes were highest among young adults with an intellectual disability (58 percent and 55 percent, respectively), whereas these shares were lower among autistic young adults (32 percent and 40 percent, respectively) and young adults with any other disability (25 percent and 47 percent, respectively) (Figure 14).

Figure 14. Assessed barriers to employment of young adults with IPEs, by type of disability



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 296,579 young adults who applied for VR during 2017-2019 and signed an IPE. Barriers were assessed by VR counselors and an individual may have more than one barrier. Statistics represent regression-adjusted means. See Table B.9.

*/**/*** indicates the difference between the comparison group and young adults on the autism spectrum is statistically significant (p -value less than .10/.05/.01).

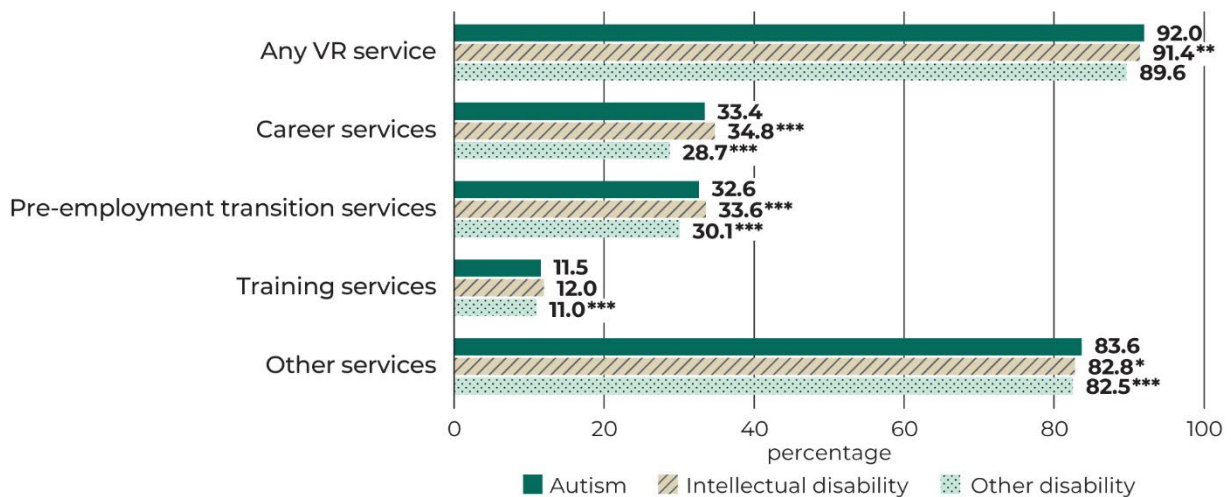
IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

2. In general, autistic clients and non-autistic clients with an intellectual disability were similarly likely to receive VR services.

About nine in every 10 young adult VR clients with an IPE used at least some VR services in the year they applied for VR, regardless of their type of impairment (90 to 92 percent; Figure 15). Similar shares of autistic clients and non-autistic clients with an intellectual disability received training services (12 percent each), career services (33 percent and 35 percent, respectively), pre-ETS (33 percent and 34 percent), and other services (84 percent and 83 percent). The most notable difference based on impairment type was that young adult VR clients with autism and those with an intellectual disability were more likely to use supported employment services than peers with any other disability (8 percent and 12 percent versus 4 percent, respectively; Table B.10). However, those with an intellectual disability

were less likely to use four-year college or university training (0 percent) or rehabilitation technology (1 percent) compared with young adults with autism (0.1 percent and 2 percent, respectively). Compared with young adults with autism, those with disabilities other than autism or intellectual disabilities were less likely to use job placement assistance (14 percent, compared with 18 percent of those with autism) but were more likely to use services related to four-year college or university training (0.2 percent compared with 0.1 percent), diagnosis and treatment of impairments (14 percent compared with 11 percent), maintenance (8 percent compared with 5 percent), and rehabilitation technology (4 percent compared with 2 percent). Compared to young adults with autism, those with intellectual disabilities were less likely to use four-year college or university training or rehabilitation technology but were more likely to use support employment services.

Figure 15. VR services commonly used by young adults on the autism spectrum with IPEs, by disability



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 298,052 young adults who applied for VR during 2017-2019 and signed an IPE. Statistics represent regression-adjusted means. See Table B.10.

*/**/** indicates the difference between the age groups is statistically significant (p -value less than .10/.05/.01).

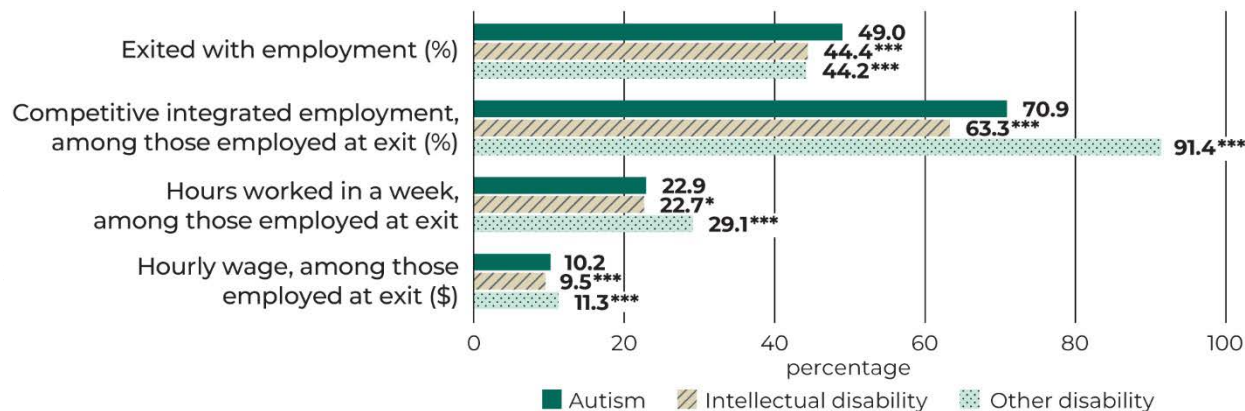
RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

3. Among young adult VR clients who exited VR from 2017 to 2019, those on the autism spectrum were slightly more likely to exit with employment.

Controlling for age at application, sex, race, educational attainment, and state and year fixed effects, among young adults who had an IPE and exited VR from 2017 to 2019, a slightly larger share of young adults with autism exited with employment (49 percent) compared with young adults with an intellectual disability (44 percent) or any other disability (44 percent), though the effect size of these differences was small (Figure 16; Table B.11). Among young adults who exited VR with employment, a larger share of autistic young adults had competitive integrated employment than clients with an intellectual disability (71 percent compared to 63 percent, though the effect size of this difference was small); however, they worked a similar number of hours per week and earned a similar hourly wage, on average, if employed. Among young adults who exited VR with employment, those with autism were substantially less likely to have competitive integrated employment than clients with disabilities other than autism or an intellectual

disability (71 percent compared to 91 percent), They also worked fewer hours per week and earned a lower hourly wage on average compared with clients with disabilities other than autism or an intellectual disability, but the effect sizes of these differences were small.

Figure 16. Employment outcomes, by type of disability



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 803,183 young adults who exited VR during 2017-2019. Employment outcomes as reported at VR exit by end of program year 2019. Statistics represent regression-adjusted means. Aside from those who exited with competitive integrated employment, almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR. See Table B.11.

*/**/** indicates the difference between the comparison group and young adults on the autism spectrum is statistically significant (p -value less than .10/.05/.01).

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

E. Differences by age, sex, and race and ethnicity in the referral sources, service use, and employment outcomes of autistic young adult VR applicants

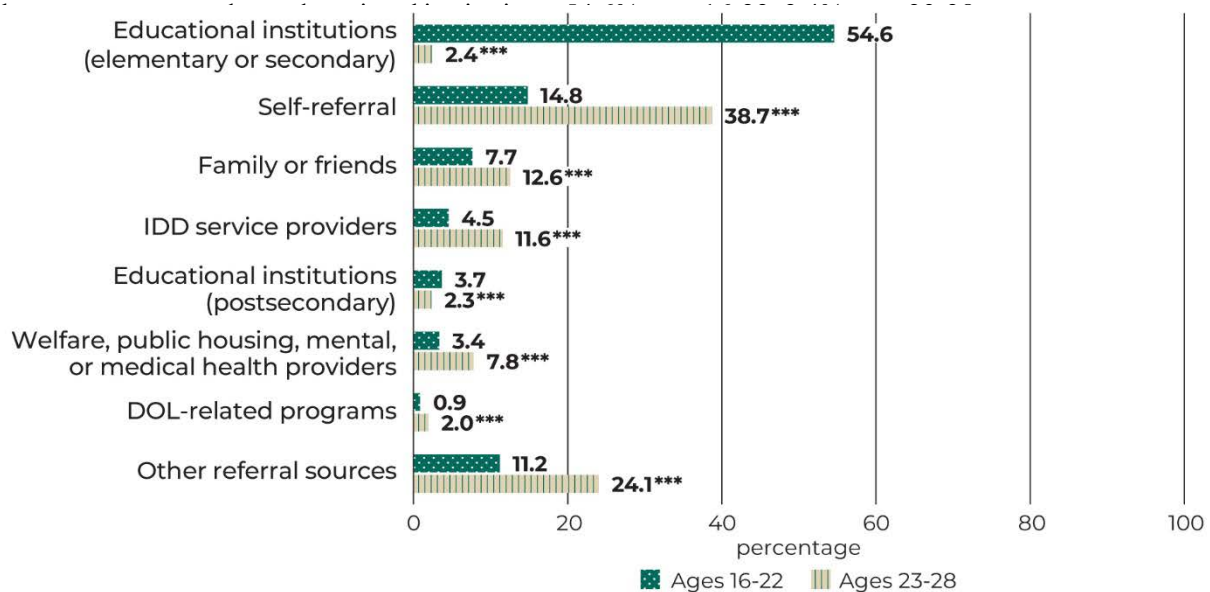
We examined three subgroups of young adults on the autism spectrum defined by age, sex, and race and ethnicity. As in the above section, we present regression-adjusted means to control for other differences between subgroups and comment on differences across the three groups that are of a substantial magnitude.

1. Whether autistic VR clients were younger than 22 years old at the time of application played a role in their referral sources, service use, and employment outcomes.

We found substantial differences in the sources of referral of autistic VR applicants by age at application, which likely reflect age-based differences in institutional connections and networks (Figure 17; Table B.12). Younger VR applicants on the autism spectrum (ages 16 to 22 at the time of application) were substantially more likely to be referred by elementary and secondary educational institutions (55 percent) compared to older applicants (ages 23 to 28 at the time of application; 2 percent). In most states, young adults with disabilities can only receive special education services until they turn 22 years old, so it is not surprising that only a small share of autistic clients who were older than 22 at the time of their application

were referred by educational institutions.²¹ Older autistic applicants were most likely to apply themselves (self-referral; 39 percent), followed by referral from other sources (24 percent), IDD providers (12 percent), and welfare, public housing, mental, or medical health providers (8 percent); the shares of younger applicants referred by these sources were substantially smaller.

Figure 17. Sources of referral of young adults on the autism spectrum applying for VR, by age



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 81,556 young adults who applied for VR during 2017-2019. Percentages may not sum to 100 due to rounding. Statistics represent regression-adjusted means. See Table B.12.

*/**/** indicates the difference between the age groups is statistically significant (p -value less than .10/.05/.01).

DOL = U.S. Department of Labor; RSA = Rehabilitation Services Administration; IDD=intellectual or developmental disabilities; VR = Vocational Rehabilitation.

Differences in barriers to employment were also evident by age at application (Figure 18). Younger applicants were less likely to be identified as living in households with low incomes (37 percent) compared with older applicants (56 percent). They were more likely to have basic skills deficiency (33 percent) compared with older applicants (26 percent), but the effect size of this difference is small. We did not find large differences in race and ethnicity, sex, or other barriers to employment by age.

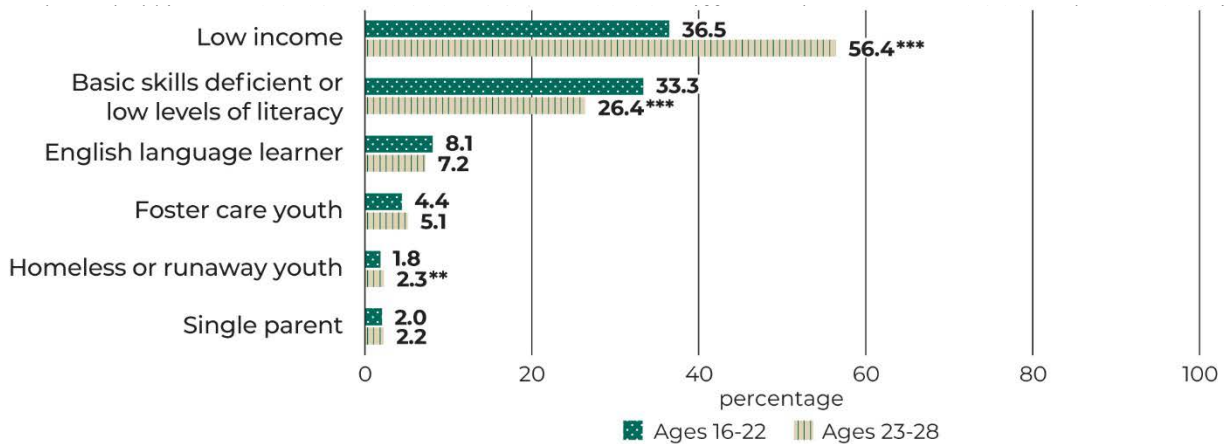
Substantial differences by age existed in the services that autistic young adult VR applicants used (Figure 19; Table B.13). Less than one percent of older applicants used pre-ETS, such as instruction in self-advocacy services, job exploration counseling services, work-based learning experience services, and workplace readiness training. This is expected, given that pre-ETS are aimed at students with a disability who are still enrolled in secondary school and age 21 or younger (Rehabilitation Act of 1973/2015). In contrast, 40 percent of younger applicants used pre-ETS. A larger share of older applicants relative to younger applicants used career services (56 percent versus 28 percent). A larger share of older applicants

²¹ The Individuals With Disabilities Education Act of 2004 required that states receiving federal government funds for special education services must provide a free appropriate public education to children ages 3 through 21 with disabilities.

used career services such as job placement assistance services (32 percent versus 16 percent of younger applicants), job search assistance services (35 percent versus 17 percent), and supported employment services (16 percent versus 6 percent). Compared to younger applicants, older applicants were also more likely to receive other services (89 percent versus 79 percent), such as assessment services (48 percent versus 35 percent) and benefits counseling (12 percent versus 5 percent).

Among VR cases closed from 2017 to 2019, older autistic applicants were more likely to have employment (61 percent) than younger applicants (47 percent; Table B.14). However, it is important to note that substantial differences might exist between the two groups, for example, in their education, goals, prior VR engagement, and work history at the time of their VR application. Among young adults who exited VR with employment from 2017 to 2019, there were no substantial differences by age in the share who had competitive integrated employment, nor in wages or hours worked.

Figure 18. Assessed barriers to employment of young adults on the autism spectrum with IPEs, by age



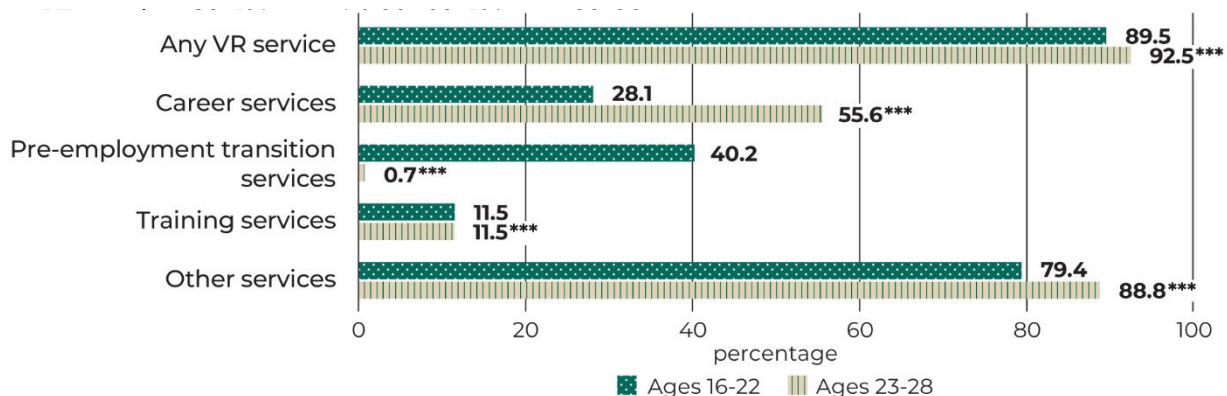
Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 53,454 young adults who applied for VR during 2017-2019 and signed an IPE. Statistics represent regression-adjusted means. See Table B.12.

*/**/** indicates the difference between the age groups is statistically significant (p -value less than .10/.05/.01).

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration.

Figure 19. VR services commonly used by young adults on the autism spectrum with IPEs, by age



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 53,592 young adults who applied for VR during 2017-2019 and signed an IPE. Statistics represent regression-adjusted means. See Table B.13.

*/**/***/ indicates the difference between the age groups is statistically significant (p -value less than .10/.05/.01).

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

2. Differences by sex in the referral sources and service use of autistic young adult VR clients were small; male clients were slightly more likely to be employed at exit than female clients.

The shares of young adults referred to VR by various sources and demographic characteristics (age and race and ethnicity) were similar for male and female autistic young adults (Table B.15)). A higher share of female applicants was referred by welfare, public housing, mental or medical health providers (5 percent) and a lower share of female applicants were referred by educational institutions (42 percent) compared with male applicants (4 percent and 45 percent, respectively); but the effect sizes were small. Similarly, service use patterns were largely the same across male and female autistic young adults (Table B.16). Among young adults who signed an IPE, a slightly larger share of female than male autistic clients used services related to four-year college or university training, but the shares were less than half a percent for either group.

Among young adults who exited VR from 2017 to 2019, the share of clients that were employed was slightly larger among male clients (49 percent) than female clients (46 percent; Table B.17), though the effect size was small. Among autistic young adults who exited with employment, male and female clients earned a similar hourly wage and worked a similar number of hours per week.

3. Among autistic young adult VR clients, some racial and ethnic differences existed in barriers to employment, service use and employment outcomes.

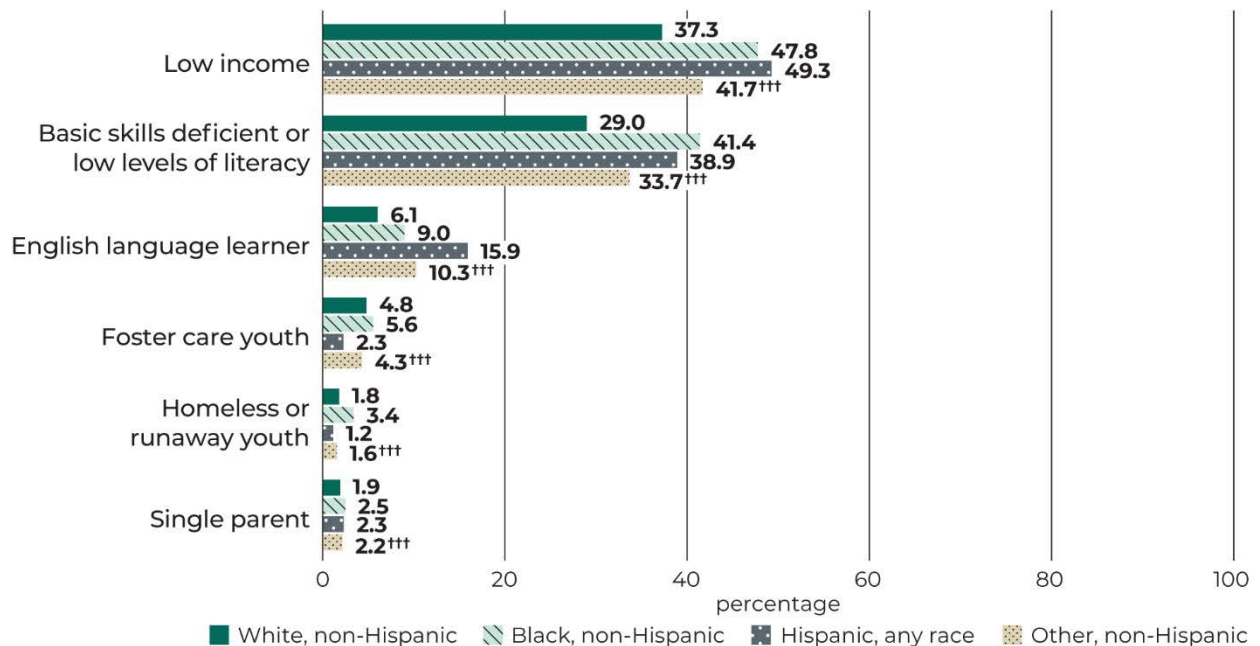
We did not find large differences in referral sources by race and ethnicity among young adults on the autism spectrum, but we did find some differences in the barriers to employment that VR counselors identified at the time of developing an IPE (Table B.18). Compared to non-Hispanic White clients, Hispanic and non-Hispanic Black young adults were more likely to be identified as having families with low incomes (49 percent of Hispanic applicants, 48 percent of Black applicants, and 37 percent of White applicants; Figure 20). Similarly, higher shares of young adults were identified as having basic skills deficiency or low levels of literacy among Black applicants (41 percent) and Hispanic applicants (39 percent) compared with White applicants (29 percent). This is consistent with recent statistics that show Hispanic and Black children are at greater risk of living in poverty and score lower on reading proficiency tests on average (Creamer 2022; ED 2022). Among young adult autistic VR clients, a larger share of Hispanic clients (16 percent) were English language learners, compared to non-Hispanic Black or White clients (9 and 6 percent, respectively). We did not find notable differences by race and ethnicity in young adults' sources of referral for VR.

In general, there were few differences by race and ethnicity in the types of services used by young adult autistic VR clients, and the effect sizes tended to be small. A slightly larger share of non-Hispanic White young adults used at least some VR services during the year they applied for VR (91 percent) compared to non-Hispanic Black or Hispanic young adults (88 percent and 86 percent, respectively) (Table B.19). Some notable differences existed by race and ethnicity in the use of specific services. Compared to non-Hispanic White young adults, non-Hispanic Black young adults were less likely to receive on-the-job-training but were more likely to use transportation services, whereas young adults who were neither

Hispanic nor non-Hispanic White or Black were more likely to use disability-related skills training services.

We also found small differences in employment outcomes by race and ethnicity. Among autistic young adult VR clients who exited VR from 2017 to 2019, a larger share of non-Hispanic White clients exited with employment (50 percent) than those who were non-Hispanic Black (46 percent), Hispanic (42 percent), or another race and ethnicity (48 percent) (Figure 20; Table B.20). Among those who exited with employment, non-Hispanic White and Hispanic young adults had the highest rates of competitive integrated employment (above 70 percent), whereas this rate was lowest (63 percent) for non-Hispanic Black young adults (Figure 21; Table B.20). There was a notable racial disparity in hourly wages among autistic young adults who were employed at VR exit, with non-Hispanic White clients earning 10.1 dollars per hour, on average, while non-Hispanic black clients earned 9.4 dollars per hour, on average.

Figure 20. Assessed barriers to employment of young adults on the autism spectrum with IPEs, by race and ethnicity



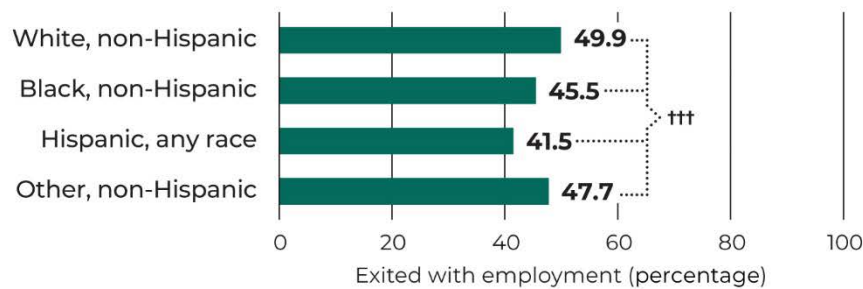
Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 53,454 young adults who applied for VR during 2017-2019 and signed an IPE. Statistics represent regression-adjusted means. See Table B.18.

†/††/††† indicates that the means for the subgroups are statistically significantly different from each other (p -value less than .10/.05/.01).

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration.

Figure 21. Share of young adults on the autism spectrum with IPEs who exited with employment by program year 2019, by race and ethnicity



Source: RSA-911 data for program years 2017–2019.

Note: Statistics are based on a sample of 115,640 young adults who exited VR during 2017-2019 and signed an IPE. Employment outcomes as reported at VR exit by end of program year 2019. Statistics represent regression-adjusted means. See Table B.20.

†/††/††† indicates that the means for the subgroups are statistically significantly different from each other (p -value less than .10/.05/.01).

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

F. Patterns over time from July 2017 to June 2021

Figure 22 and Table B.21 show the monthly number of autistic young adults who (1) applied for VR, (2) signed an initial or amended IPE, (3) exited VR services (case closed), and (4) exited VR services with employment during each month from July 2017 to June 2021. These counts reflect all young adults with open cases during this period. Hence, counts of signed IPEs and exits from VR services include those who applied in prior years, across all VR agencies nationwide.

The number of VR applicants varied within program years. In 2018 and 2019, the number of applications dipped in June, which is the last month of the program year. This is likely associated with the end of the school year, as schools were a key source of referrals for VR for autistic young adults. The number of IPEs signed per month is typically greater than the number of new applications; this is because the count of signed IPEs includes initial IPEs (which must be signed within 90 days of application) as well as amendments to existing IPEs for clients who have been engaged in VR for some time. In contrast to applications, the number of IPEs tends to be highest in the last few months in a program year, which is likely an artifact of the data because the RSA data record the most recent date of signing an IPE (initial or amended) within that year. The number of cases closed and the number that closed with employment were relatively steady across months in program years 2017 and 2018.

On March 13, 2020, the rapidly spreading outbreak of the novel coronavirus disease 2019 (COVID-19) prompted the president to declare a national emergency in the United States (Proclamation No. 9994, 85 FR 15337 2020), quickly followed by a series of restrictions on the operations of non-essential businesses and public services. To assess the extent to which the COVID-19 pandemic might have affected VR operations, we can compare statistics in the third quarter (January–March 2020) and fourth quarter (April–June 2020) of program year 2019 to those from the third and fourth quarter of the prior program year (January–March 2019 and April–June 2019).

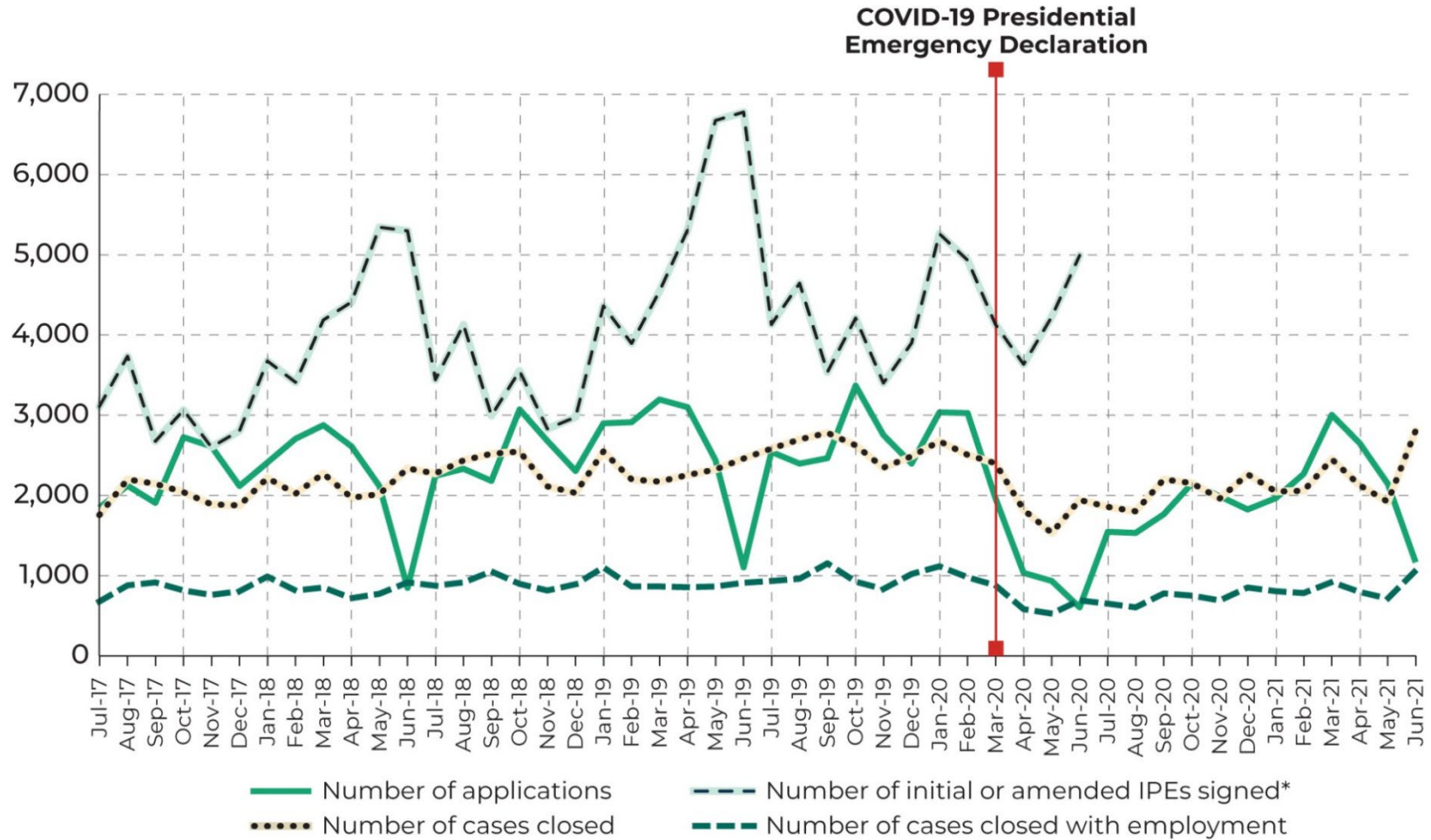
The number of applications dropped sharply when the pandemic hit the United States. During the fourth quarter of program year 2019, the average monthly number of applications was 859, compared to an

average of 2,677 applications per month during the four months immediately preceding March 2020. It is also reasonable to interpret that this drop is due at least in part to the pandemic rather than seasonality in applications alone, because this reflects a substantially larger decrease from the prior quarter (68 percent) than for the same period in the prior year (26 percent).

The number of IPEs did not drop substantially in the fourth quarter (April-June 2020), but they also did not grow as they had done over the same period in the prior two program years. During April-June 2020, the average monthly number of IPEs signed was 4,285, which represents a 10 percent decrease from the average of 4,774 in January-March 2020. However, in prior years, the number of IPEs usually grew in this period—for example, they grew by 47 percent between January-March 2019 and April-June 2019.

The number of VR cases that were closed per month also decreased slightly when the pandemic hit, especially when compared to time trends in prior program years. From April to June 2020, on average per month, 1,766 cases closed and 601 closed with employment, which represent decreases of 30 and 40 percent, respectively, from the monthly averages in the previous quarter. In contrast, in the prior year, the number of cases closed per month during April-June 2019 was 2 percent higher and the number closed with employment was 7 percent lower than in the previous quarter.

Figure 22. Statistics on VR engagement among young adult clients on the autism spectrum, by month



Source: RSA-911 data for program years 2017-2020.

Note: We only show the number of initial or amended IPEs signed through program year 2019; beginning in 2020, RSA-911 data only record the date of initial IPE.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

IV. Discussion

A. Study considerations

In this section, we outline several considerations related to data and method limitations as well as context for interpreting the findings.

The study examined a select subsample of young adults on the autism spectrum who applied for VR. However, only a small share of autistic young adults is expected to have applied for VR, so these estimates should not be taken to indicate the characteristics of or the employment outcomes of the whole population. Further, we identified autistic young adults as applicants for whom the source of their primary or secondary impairment is identified as autism in the RSA-911 records. To the extent that someone on the autism spectrum has other co-occurring conditions that are listed as the sources of their primary and secondary impairments, we undercounted the number of autistic young adults, and these young adults were included in the comparison groups of young adults with other disabilities. In addition, students can receive pre-ETS without applying for VR. Because we could not examine non-applicants, we likely underestimated the number of autistic young adults who used VR services. For analyses where we pooled data from VR agencies, the findings reflect average characteristics and experiences of young adult VR clients but could mask substantial variation at the state and agency level. Any use of the study findings for informing policy or practice should consider the variability in state VR programs and their operating context.

There are also several data limitations. We examined RSA-911 data from program year 2017 and later that contained all cases that were open during the program year; we did not examine data from program year 2016 and earlier because they only contained cases that were closed in that program year. Because the RSA-911 data are de-identified and not linkable across program years, a young adult might appear in multiple program years, and we observed them as multiple unlinked observations. For this reason, we restricted our analyses to either the program year an applicant entered or exited VR services. However, because many VR clients engage with VR over multiple program years, our analyses only capture a snapshot of their full experiences. Further, for people who exited VR from 2017 to 2019, we do not have information on the services they used in years prior to the year that they exited, which precludes us from studying the associations between services and employment outcomes. Finally, the case file data rely heavily on VR counselors' assessment and recording of information. For example, we only have information on the barriers to employment that VR counselors assess and report, but we do not know the extent to which VR counselors carefully and consistently collected this information for each case.

Finally, there are two key considerations related to the timeframe studied. First, we are examining VR clients who had cases open from 2017 to 2019, but this sample include people who have been engaged with VR for varying amounts of time, such that the composition of the sample might differ across analyses. The analyses of applicants' characteristics and service use outcomes focus on the year in which the person applied for VR, and therefore they examine relatively recent cohorts of applicants (since the implementation of WIOA). In comparison, the analyses of employment outcomes focus on the year in which the client exited VR, such that the sample likely skews toward older cohorts of applicants because young adults tend to be engaged in VR for many years. Importantly, this does not allow a full examination of the effects of recent legislation such as WIOA, because many of the young adults who exited from 2017 to 2019 likely applied for VR before WIOA was fully implemented within the VR

system.²² A second limitation of the time period examined is that it overlapped with the COVID-19 pandemic. The pandemic affected the ability of VR agencies to reach out to, serve, and support young adults with disabilities. Further, the pandemic put young people with disabilities at heightened risk of worse labor market outcomes (Hill et al. 2022). As a result, data after February 2020 are likely not representative of the typical service experience or outcomes of all young people on the autism spectrum who are engaged with VR.

Despite these limitations, this analysis makes several contributions to the research on young adults on the autism spectrum. First, the study updates and consolidates findings from other analyses using RSA-911 data. The findings are based on recent data that reflect the changed service landscape because of WIOA and other factors such as increasing identification rates of autism over time. Second, data on young adults ages 16 to 28 capture the experiences of a slightly older population than the “transition-age” population (ages 14 to 24) that aligns with the Rehabilitation Act’s definition of “youth with a disability” and has been more commonly studied (Rehabilitation Act of 1973/2015). Third, the findings add to the body of evidence on differences in VR engagement patterns such as referrals and service use by sex and race and ethnicity, with the potential to inform policy discussions of how to promote greater equity in the VR system. Fourth, the analyses explore how VR service use changed during the COVID-19 pandemic. Such findings speak to the recent literature showing that people with disabilities were disproportionately affected by the pandemic (Jesus et al. 2021) and shed light on the extent to which engagement with VR agencies was affected. Taken together, the findings of the RSA-911 data analyses improve our understanding of the current service and policy context of young adults who use VR services in their pursuit of job training and employment. In turn, a better understanding of the service and policy context will provide insight that can inform discussions about which policy options and program development priorities might be worth pursuing.

B. Key findings and implications for research

In this section, we discuss key findings from the study and suggest areas for further research.

1. The characteristics and referral sources of autistic young adult VR applicants during 2017-2019 underscore their need for supportive services and for collaboration among organizations that serve them.

The average age of autistic young adult VR applicants was 20, and about half were students at the time they applied. More than eight in every 10 autistic young adult VR applicants were male, while about seven in 10 were non-Hispanic White. At the time of developing the initial IPE, VR counselors identified that four in 10 autistic young adults were living in households with low incomes. This is consistent with recent estimates that suggest that a little more than half of children with autism live in lower-income households (below 200 percent of the federal poverty level) (Anderson et al. 2020, 2022). Further, VR counselors identified that about one-third of autistic young adult VR clients had basic skills deficiency or low levels of literacy.

Data on the sources of referral to VR point to the importance of schools as a crucial pipeline for young adults on the autism spectrum to become engaged with VR. Of all VR applicants on the autism spectrum who were referred for VR services from 2017 to 2019, educational institutions referred 48 percent (45 percent elementary and secondary institutions and 3 percent postsecondary institutions), which makes

²² Among autistic young adult VR clients who exited VR during 2017-2019, about 18 percent had applied in 2014 or earlier, while about 40 percent had applied in 2015-2016.

sense given the large share who were students. However, about 20 percent of autistic young adult applicants applied by themselves or relied on family or friends for referrals, and this share was even higher among autistic applicants over the age of 22 who are likely to have left the school system.

Future research should assess whether: (1) there is untapped potential for more referral partnerships between VR and other programs—especially those that interact with autistic young adults who are not in the school system—such as American Job Centers and state welfare agencies, and (2) whether referral partnerships can connect more young adults to VR, especially those from communities or social networks that might have less information or access to VR, or can connect them to VR at a younger age.

2. Autistic young adults engaged in VR services, including those focused on work such as career services and pre-ETS, at comparable rates to other VR clients.

About two in every three autistic young adults who applied for VR during 2017-2019 was assessed as eligible for services and then signed an IPE, which is the first step toward using VR services. Among autistic young adults with an IPE, at least nine in every 10 clients used some VR services in the year that they applied for VR and at least some of the remaining young adults are expected to have used or use services in subsequent years. A prior study that examined pre-WIOA data found that only 68 percent of autistic VR clients who were eligible for services had used any VR services (Roux et al. 2016). This suggests that there might be attrition at the IPE development stage that reduces the share of youth using VR services. In other words, a nontrivial share of autistic VR clients who are eligible for services might not get to the stage of signing an IPE, which is required to receive services; however, among those that do, most go on to receive at least one VR service.

Many autistic young adult VR clients used career services (33 percent) and pre-ETS (33 percent) during the year they applied for VR. Similar shares of autistic young adults and young adults with an intellectual disability used career services, and autistic young adults were more likely to use job placement assistance and supported employment services than young adults with disabilities other than autism or an intellectual disability. This is encouraging because studies have found that young adult autistic clients who used career or job-related services had substantially higher odds of employment at VR exit (Butterworth, Migliore, & Timmons 2010; Chen et al. 2015; Kaya et al. 2016; Migliore et al. 2012).

About 33 percent of autistic young adult VR clients used at least one type of pre-ETS that year. This is a substantial share, considering that half the autistic young adult VR applicants were not students and thus did not qualify for pre-ETS.²³ Similar shares of young adults with intellectual and other disabilities used pre-ETS in the year they applied to VR. As yet, there is little rigorous evidence on the effectiveness of pre-ETS because they have only been available for a short time—their longer-term effects might not yet have manifested in the employment outcomes of young adults exiting VR today.

Future research should seek to improve our understanding of how VR services unfold over time and the effectiveness of those services for different types of VR clients. Studies could examine the typical service pathways of autistic VR clients or other patterns of service use and assess the extent to which VR services, including newer offerings like pre-ETS, result in better case outcomes for different clients. For example, studies could develop correlational evidence on the effects of pre-ETS by comparing the outcomes of recent cohorts of autistic student applicants to the outcomes of similar applicants in prior cohorts (that applied before pre-ETS became available). More rigorous analyses could be made possible

²³ About 40 percent of non-autistic clients used at least one pre-ETS in their application year (results not shown). Among students with an IPE, these shares were 55 percent for autistic clients and 51 percent for other clients (results not shown).

by de-identified RSA data that facilitate the linking of observations across years. Future research on service patterns and effectiveness can shed light on whether and to what extent a specific type or ordering of services can benefit different subgroups of young adults.

3. Among young adults on the autism spectrum with a signed IPE who exited VR from 2017 to 2019, about half exited with employment.

The employment rate among autistic young adults who exited VR after signing an IPE (50 percent) is slightly higher than among VR clients in general who exited VR after receiving services (46 percent in 2019; ED 2020). Further, of those who were employed, more than seven in 10 held competitive integrated employment, and nearly all the rest held supported employment, which means they received ongoing VR support services to obtain and maintain employment in a competitive integrated job. Previous studies that used pre-WIOA data estimated that about 55 to 60 percent of autistic young adult VR clients who received VR services were employed at the time of VR exit (Migliore et al. 2012; Kaya et al. 2016 Roux et al. 2016; Nye-Lengerman 2017).²⁴

Below, we list three factors that we expect to have substantially influenced employment rates among autistic VR clients during the period examined in this study:

- **Implementation of WIOA.** WIOA introduced pre-ETS and encouraged application for traditional VR services as early as possible in the transition years (ED 2016) and encouraged VR agencies to serve more youth and young adults. Since WIOA was implemented, VR agencies have begun serving more students and youth who typically require services over a longer period of time and who are likely less focused on attaining employment than on preparing for employment, compared to older clients. Fifty-one percent of people served by VR in 2018 were ages 14 to 24 compared to 35 percent in 2010-2014 (ED 2020).²⁵ As result of this direction, VR agencies have been serving fewer adults who were ready to seek or achieve employment (ED 2020). In addition to changing the composition of VR clients, WIOA has also affected VR operations. VR funds previously available to meet the VR service needs of all eligible individuals have been reduced due to the WIOA requirement to reserve a minimum of 15 percent for providing pre-ETS. As VR agencies have closed priority categories in their orders of selection, they have been serving more people with the most significant disabilities (ED 2020).
- **Increasing rates of autism identification.** The share of children being identified with autism has grown in recent decades; at the same time, autism identification gaps have been shrinking among some racial and ethnic groups (CDC 2019; Maenner et al. 2020; Maenner et al. 2021), which could also affect which autistic young adults are entering VR. As a result of these factors, VR applicants in recent years differ in composition from applicants in prior years, and this might be associated with

²⁴ The employment rate estimated in this study should not be directly compared to estimates from previous studies that used pre-WIOA data, which examined the subset of autistic young adult VR clients who had an IPE and received at least one VR service (Migliore et al. 2012; Kaya et al. 2016 Roux et al. 2016; Nye-Lengerman 2017). Because of changes in the RSA-911 data in 2017, we were unable to impose the same sample restriction because we cannot identify a client's service use in years prior to the year they exited VR; thus, the estimated employment rate in this study included young adults who had a signed IPE but might not have received any VR services. In addition, the age ranges of clients included in the studies varied.

²⁵ As noted elsewhere, substantial changes prior to program year 2017 make it inadvisable to directly compare these statistics. Before program year 2017, RSA-911 RUF for a program year only included VR cases that closed in that year. Since program-year 2017, the RSA-911 RUF for a program year includes cases that were open for any part of that year.

differences in employment outcomes even in the absence of VR services, as well as differences in VR services used and case durations.

- **COVID-19 pandemic.** The COVID-19 pandemic initiated a public health emergency in March 2020 and dampened employment opportunities for young adults with disabilities (Hill et al. 2022). Across all VR clients, the employment rate at exit dipped from about 48 percent in program year 2018 to 46 percent in program year 2019 (which included March-June 2020) and 43 percent in program year 2020 (July 2020-June 2021) before increasing to 46 percent in program year 2021 (RSA 2022). However, it is not known how average outcomes at VR exit among young adult autistic clients changed as the economy recovered during 2021 and 2022, when the employment levels of people with disabilities reached pre-pandemic levels (Kessler Foundation 2023).

Future research can continue tracking employment rates among autistic young adults who engage with VR to identify whether there is a clear trend over time. Empirical analyses can explore how much of the trend can be explained by the changing composition of autistic young adult VR clients. This could be done, for example, by studying trends over time in the employment rates at exit for a fixed age-group of clients or, alternatively, by assessing the extent to which the trend might be explained by the changing composition of VR applicants in terms of the barriers to employment that they face. In addition, future research should examine the types and quality of employment held by autistic young adults exiting VR.

4. Substantial variation exists at the state level in referral sources, service use, and employment outcomes of autistics young adults engaged with VR.

Prior research that has documented substantial differences across states in the VR experiences of transition-age youth ages 14-24 with disabilities (Burgess and Cimera 2014; Migliore et al. 2014; Honeycutt et al. 2015; Roux et al. 2019a; 2020; RSA 2022). For example, a descriptive study that examined young adults ages 14 to 24 with autism who exited VR from 2014 to 2016 found 30 to 60 percentage point spreads across states in the share who received VR services, entered VR services during secondary school, had timely development of an IPE, and exited VR with employment (Roux et al. 2020). The current study, which uses more recent data and examines an older population of VR applicants, also found that state-level differences in service use were quite substantial, ranging from about 25 percent to 100 percent of applicants who used any VR services (representing a 75 percentage point spread across states). Similarly, rates of employment outcomes at VR exit ranged from 27 percent to 69 percent across states, representing a 42 percentage point spread.

Prior research suggests that the state-level variation in employment outcomes for autistic VR clients cannot be fully explained by variation in demographic and impairment characteristics (Kaya et al. 2016), nor by state unemployment rates or funds a state might have available for social services (Roux, Rast, & Shattuck 2019). It is possible that some of the variation is due to differences in how VR agencies approach serving autistic clients. As of 2017, each state has a unique, federally approved plan for implementing the WIOA, which updated the legal framework for the VR program. A document analysis of WIOA state plans revealed that plans differed in the extent to which they develop or adapt services for those with autism and have strategies explicitly aimed at improving employment for those with autism (Roux et al. 2019b).

Future research can examine updates to WIOA state plans and the on-the-ground realities of their implementation in order to understand why young adults with autism in some states have better employment outcomes than in others. Future research can also examine variation across states in agency operations and clients' service use and employment outcomes during the COVID-19 pandemic.

Identifying which agencies were better able to avoid service disconnections and how they did so could provide lessons to prepare for potential disruptions due to emerging diseases and climate-related disasters.

5. There are some notable differences by sex and race/ethnicity among young adult VR clients; understanding the causes of these disparities will be important for developing policy and practice to promote equitable VR access and outcomes.

Relative to young adult VR applicants with other disabilities, those on the autism spectrum were substantially more likely to be male and non-Hispanic White rather than female or a person of color. One factor that might be related to this pattern is disparities in autism identification rates. Research suggests that the male to female ratio among children meeting the criteria for autism is between 3:1 and 4:1 (Loomes et al. 2017), and that autism identification rates were historically higher among non-Hispanic White children than Black and Hispanic children (Durkin et al. 2017). It has been suggested that biases (such as in diagnostic criteria and providers' perceptions) and systemic inequalities (for example, in access to health care) might contribute to the under-identification of autism among some subgroups defined by sex and race/ethnicity (Geelhand et al. 2019; Haney 2016; Liptak et al. 2008; Magaña et al. 2012; Mandell et al. 2009; Russell et al. 2011; Zuckerman et al. 2013). These sex and racial/ethnic disparities in autism identification might replicate themselves in disparities in VR engagement, especially because a formal identification of autism is typically required for access to special education and VR services. However, another factor that might be contributing to this pattern is information about and access to VR services among young adults who have been identified with autism. Autistic young adults who are female or belong to historically marginalized communities might be less likely to learn about or be referred to VR due to differences in their social and institutional networks, access to and quality of service providers, or others' perceptions of their service needs.

We also found small but notable differences by sex, race, and ethnicity in employment outcomes at the time of VR exit. Among autistic young adults who exited VR from 2017 to 2019, non-Hispanic White clients were more likely to be employed than clients who were non-Hispanic Black, Hispanic, or another race or ethnicity, and male clients were more likely to be employed than female clients. In addition, among autistic young adults who were employed at the time of exit, average wages were lower for non-Hispanic Black clients than non-Hispanic White clients. Although the effect sizes of these differences were sometimes small, it is important to identify the factors contributing to them as they can still contribute to larger economic inequities. Women and people of color with disabilities can face unique systemic challenges as a result of their intersecting identities, which can produce stark economic inequalities (National Disability Institute 2020).

Future research can continue to examine disparities by sex and race and ethnicity among autistic young adults and try to shed light on whether and why female and non-White autistic young adults face greater barriers to connecting with VR services or have different service experiences once they are connected. Qualitative research should consider examining potential contributing factors such as whether implicit biases (for example, in referral providers' beliefs about who can benefit from VR and in VR counselors' expectations and perceptions of students' needs and abilities) influence key VR processes such as the development of IPEs. For example, this study found that, among autistic young adults, Hispanic VR applicants were more likely to be students and thus be eligible for pre-ETS but a smaller share of them used pre-ETS compared to non-Hispanic White peers, and the current findings do not suggest a clear explanation for this pattern. Another possibility to explore is whether fewer resources and funds are available to state VR agencies that serve a larger share of on-White autistic young adults, such that racial and ethnic disparities really reflect state- or agency-level differences. A third possibility that can be

explored is the extent to which racial and sex disparities in employment outcomes at VR exit reflect local labor market inequalities. Future research could shed light on the causal mechanisms behind these disparities, to inform how policy and programming can promote greater equity.

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References

- Anderson, K. A., Rast, J. E., Roux, A. M., Garfield, T., and P. T. Shattuck. “National Autism Indicators Report: Children on the Autism Spectrum and Family Financial Hardship.” Life Course Outcomes Program, A.J. Drexel Autism Institute, Drexel University, May 2020.
- Anderson, K. A., Roux, A. M., Steinberg, H., Garfield, T., Rast, J. E., Shattuck, P. T., and L. L. Shea. “National Autism Indicators Report: The Intersection of Autism, Health, Poverty and Racial Inequity.” Philadelphia: Policy and Analytics Center and Life Course Outcomes Research Program, A.J. Drexel Autism Institute, Drexel University, April 2022.
- Burgess, S., and R. E. Cimera. “Employment Outcomes of Transition-Aged Adults with Autism Spectrum Disorders: A State of the States Report.” *American Journal on Intellectual and Developmental Disabilities*, vol. 119, no. 1, 2014, pp. 64–83.
- Butterworth, J., Migliore, A., and J. Timmons. “Services and outcomes for transition age young adults with autism spectrum disorders: Secondary analysis of the NLTS2 and RSA 911.” Boston, MA: Institute for Community Inclusion, 2010.
- Chen, J. L., Sung, C., and S. Pi. “Vocational rehabilitation service patterns and outcomes for individuals with autism of different ages.” *Journal of Autism and Developmental Disorders*, vol. 45, no. 9, 2015, pp. 3015–3029.
- Creamer, J., Shrider, E. A., Burns, K., and F. Chen. “Poverty in the United States: 2021”, U.S. Census Bureau, Current Population Reports, P60-277, Washington, DC: U.S. Government Publishing Office, 2022.
- Centers for Disease Control and Prevention. *Spotlight on racial and ethnic differences in children identified with autism spectrum disorder (ASD)*. 2021. <https://www.cdc.gov/ncbddd/autism/addm-community-report/differences-in-children.html>.
- Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*, 2nd ed. Lawrence Erlbaum Associates, 1988.
- Durkin, M.S., Maenner, M.J., Baio, J., Christensen, D., Daniels, J., Fitzgerald, R., Imm, P., et al. “Autism Spectrum Disorder Among US Children (2002–2010): Socioeconomic, Racial, and Ethnic Disparities.” *American Journal of Public Health*, vol. 107, no. 11, 2017, pp. 1818–1826.
- Falk, G., Carter, J. A., Nicchitta, I. A., Nyhof, E. C., and P. D. Romero. “Unemployment Rates During the COVID-19 Pandemic: In Brief.” U.S. Congressional Research Service. R46554. 2021.
- Geelhand, P., Bernard, P., Klein, O., van Tiel, B., and M. Kissine. “The Role of Sex in the Perception of Autism Symptom Severity and Future Behavioural Development.” *Molecular Autism*, vol. 10, no. 16, 2019, pp. 1–8.
- Haney, J. L. “Autism, Females, and the DSM-5: Sex Bias in Autism Diagnosis.” *Social Work in Mental Health*, vol. 14, no. 4, 2016, pp. 396–407.
- Hill, A., Patnaik, A., and I. Musse. “How Did the COVID-19 Pandemic Affect the Education and Employment of Young People with Disabilities? Findings from the Promoting Readiness of Minors in Supplemental Security Income (PROMISE) Evaluation.” Washington, DC: Mathematica, 2022.

References

- Honeycutt, T., Thompkins, A., Bardos, M., and S. Stern. “State Differences in the Vocational Rehabilitation Experiences of Transition-Age Youth with Disabilities.” *Journal of Vocational Rehabilitation*, vol. 42, no. 1, 2015, pp. 17–30.
- Individuals With Disabilities Education Act of 2004. Pub. L. No. 101-476 § 1412(a). 2004. <https://sites.ed.gov/idea/statute-chapter-33/subchapter-ii/1412>.
- Jesus, T. S., Bhattacharjya, S., Papadimitriou, C., Bogdanova, Y., Bentley, J., Arango-Lasprilla, J. C., Kamalakannan, S., et al. “Lockdown-Related Disparities Experienced by People with Disabilities During the First Wave of the COVID-19 Pandemic: Scoping Review with Thematic Analysis.” *International Journal of Environmental Research and Public Health*, vol. 18, no. 12: 6178, 2021.
- Kaya, C., Chan, F., Rumrill, P., Hartman, E., Wehman, P., Iwanaga, K., et al. “Vocational rehabilitation services and competitive employment for transition-age youth with autism spectrum disorders.” *Journal of Vocational Rehabilitation*, vol. 45, no. 1, 2016, pp. 73–83.
- Kaya, C., Hanley-Maxwell, C., Chan, F., and Tansey, T. “Differential Vocational Rehabilitation Service Patterns and Outcomes for Transition-Age Youth on the Autism Spectrum.” *Journal of Applied Research in Intellectual Disabilities*, vol. 31, 2018, pp. 862–872.
- Kessler Foundation. “People with Disabilities Reached New Employment Levels in 2022, Outperforming Their Peers Without Disabilities.” Press release based on the National Trends in Disability Employment (nTIDE) 2022 Year-End Special Edition. 2023.
- Kogan, M. D., Vladutiu, C. J., Schieve, L. A., Ghandour, R. M., Blumberg, S. J., Zablotsky, B., Perrin, J. M., et al. “The Prevalence of Parent-Reported Autism Spectrum Disorder Among US Children.” *Pediatrics*, vol. 142, no. 6, 2018, article e20174161.
- Lawer, L., Brusilovskiy, E., Salzer, M. S., and D. S. Mandell. “Use of Vocational Rehabilitative Services Among Adults with Autism.” *Journal of Autism and Developmental Disorders*, vol. 39, no. 3, 2009, pp. 487–494.
- Liptak, G. S., Benzoni, L. B., Mruzek, D. W., Nolan, K. W., Thingvoll, M. A., Wade, C. M., and G. E. Fryer. “Disparities in Diagnosis and Access to Health Services for Children With Autism: Data From the National Survey of Children's Health.” *Journal of Developmental & Behavioral Pediatrics*, vol. 29, no. 3, 2008, pp. 152–160.
- Maenner, M. J., Shaw, K. A., and J. Baio. “Prevalence of autism spectrum disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 sites, United States, 2016.” *Morbidity and Mortality Weekly Report: Surveillance Summaries*, vol. 69, no. 4. 2020, pp. 1.
- Maenner, M. J., Shaw, K.A., Bakian, A. V., Bilder, D. A., Durkin, M. S., Esler, A., Furnier, S. M., et al. “Prevalence and Characteristics of Autism Spectrum Disorder Among Children Aged 8 Years—Autism and Developmental Disabilities Monitoring Network, 11 Sites, United States, 2018.” *Morbidity and Mortality Weekly Report: Surveillance Summaries*, vol. 70, no. 11, 2021, pp. 1–16.
- Magaña, S., Parish, S. L., Rose, R. A., Timberlake, M., and J. G. Swaine. “Racial and ethnic disparities in quality of health care among children with autism and other developmental disabilities.” *Intellectual and Developmental Disabilities*, vol. 50, 2012, pp. 287–299.

References

- Mandell, D. S., Wiggins, L. D., Carpenter, L. A., Daniels, J., DiGuseppi, C., Durkin, M. S., Giarelli, E., Morrier, M. J., Nicholas, J. S., Pinto-Martin, J. A., Shattuck, P. T., Thomas, K. C., Yeargin-Allsopp, M., and Kirby, R. S. “Racial/Ethnic Disparities in the Identification of Children With Autism Spectrum Disorders.” *American Journal of Public Health*, vol. 99, no. 3, 2009, pp. 493–498.
- Migliore, A., Timmons, J., Butterworth, J., and J. Lugas. “Predictors of employment and postsecondary education of youth with autism.” *Rehabilitation Counseling Bulletin*, vol. 55, no. 3, 2012, pp. 176–184.
- Migliore, A., Butterworth, J., & Zalewska, A. “Trends in Vocational Rehabilitation Services and Outcomes of Youth With Autism: 2006–2010.” *Rehabilitation Counseling Bulletin*, vol. 57, no. 2, 2014, pp. 80–89.
- Moreland, A., Herlihy, C., Tynan, M. A., et al. “Timing of State and Territorial COVID-19 Stay-at-Home Orders and Changes in Population Movement — United States, March 1–May 31, 2020.” *Morbidity and Mortality Weekly Report*, 69, 2020, pp. 1198-1203.
- National Disability Institute, “Race, Ethnicity and Disability: The Financial Impact of Systemic Inequality and Intersectionality,” August 2020.
<https://www.nationaldisabilityinstitute.org/wp-content/uploads/2020/08/race-ethnicity-and-disability-financial-impact.pdf>
- Nye-Lengerman, K. “Vocational Rehabilitation Service Usage and Outcomes for Individuals with Autism Spectrum Disorder.” *Research in Autism Spectrum Disorders*, vol. 41, 2017, pp. 39–50.
- Rast, J. E., Roux, A. M., and P. T. Shattuck. “Use of Vocational Rehabilitation Supports for Postsecondary Education Among Transition-Age Youth on the Autism Spectrum.” *Journal of Autism and Developmental Disorders*, vol. 50, no. 6, 2020, pp. 2164–2173.
- Rehabilitation Act of 1973 [as amended through Pub. L. No. 114-195]. 2015.
- Rehabilitation Services Administration. “Revision of Policy Directive (PD) 16-04 Instructions for the Completion of the Case Service Report Manual (RSA-911) for the State Vocational Rehabilitation Services Program and the State Supported Employment Services Program (RSA-PD-16-04).” 2017.
<https://rsa.ed.gov/sites/default/files/subregulatory/pd-16-04.pdf>.
- Rehabilitation Services Administration. “Instructions for the Completion of the Case Service Report (RSA-911) for the State Vocational Rehabilitation Services Program and the State Supported Employment Services Program.” Policy Directive RSA-PD-19-03. Office of Special Education and Rehabilitative Services, U.S. Department of Education, May 6, 2019.
<https://www2.ed.gov/policy/speced/guid/rsa/subregulatory/pd-19-03.pdf>.
- Rehabilitation Services Administration. “The Data Reality: Setting the Stage for Change and Success.” Presentation at the 10th General Session. November 1, 2022.
- Rehabilitation Services Administration. “Order of Selection Information.” 2023.
<https://rsa.ed.gov/about/programs/vocational-rehabilitation-state-grants/order-of-selection-information>
- Roux, A. M., Rast, J. E., Anderson, K. A., and P. T. Shattuck. “National Autism Indicators Report: Vocational Rehabilitation.” Life Course Outcomes Research Program, A.J. Drexel Autism Institute, Drexel University, 2016.
<https://drexel.edu/~media/Files/autismoutcomes/publications/National%20Autism%20Indicators%20Report%20Vocational%20Rehabilitation%20August%202016.ashx>.

References

- Roux, A. M., Garfield, T., and P. T. Shattuck. "Employment policy and autism: Analysis of state Workforce Innovation and Opportunity Act (WIOA) implementation plans." *Journal of Vocational Rehabilitation*, vol. 51, no. 3, 2019b, pp. 285-298.
- Roux, A. M., Rast, J. E., and P. T. Shattuck. "State-Level Variation in Vocational Rehabilitation Service Use and Related Outcomes Among Transition-Age Youth on the Autism Spectrum." *Journal of Autism and Developmental Disorders*, vol. 50, 2020, pp. 2449-2461.
- Roux, A. M., Rast, J. E., Anderson, K.A., Garfield, T., and P.T. Shattuck. "Vocational Rehabilitation Service Utilization and Employment Outcomes Among Secondary Students on the Autism Spectrum." *Journal of Autism and Developmental Disorders*, vol. 51, 2021, pp. 212-226.
- Roux, A. M., Rast, J. E., Nye-Lengerman, K., Purtle, J., Lello, A., and P. T. Shattuck. "Identifying Patterns of State Vocational Rehabilitation Performance in Serving Transition-Age Youth on the Autism Spectrum." *Autism in Adulthood*, vol. 1, 2019a, pp. 101-111.
- Russell, G., Steer, C., and J. Golding. "Social and Demographic Factors That Influence the Diagnosis of Autistic Spectrum Disorders." *Social Psychiatry and Psychiatric Epidemiology*, vol. 46, no. 12, 2011, pp. 1283-1293.
- Travers, J. C., Krezmien, M. P., Mulcahy, C., and M. Tincani,. "Racial disparity in administrative autism identification across the United States during 2000 and 2007." *The Journal of Special Education*, vol. 48, no. 3, 2014, pp. 155-166.
- U.S. Department of Education. "State Vocational Rehabilitation Services Program; State Supported Employment Services Program; Limitations on Use of Subminimum Wage (81 FR 55629)." August 2016.
<https://www.federalregister.gov/documents/2016/08/19/2016-15980/state-vocational-rehabilitation-services-program-state-supported-employment-services-program>
- U.S. Department of Education, Office of Special Education and Rehabilitative Services, Rehabilitation Services Administration, "The State Vocational Rehabilitation Services Program Before and After the Workforce Innovation and Opportunity Act Report for April 2020", Washington, D.C., 2020.
<https://rsa.ed.gov/sites/default/files/publications/state-of-vr-program-after-wioa.pdf>
- Workforce Innovation Technical Assistance Center. "Pre-ETS Notice." 2016.
<http://www.wintac.org/topic-areas/pre-employment-transition-services/overview/job-exploration-counseling#overlay-context=topic-areas/pre-employment-transition-services/overview/job-exploration-counseling>.
- Zuckerman, K. E., Mattox, K., Donelan, K., Batbayar, O., Baghaee, A., and C. Bethell. "Pediatrician Identification of Latino Children at Risk for Autism Spectrum Disorder." *Pediatrics*, vol. 132, 2013, pp. 445-453.

Appendix A

Technical Details

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In this appendix, we describe the sources of data, samples, and outcome measures used in this study.

A. Data

From RSA, we obtained restricted use files of the annual RSA-911 case service reports for program years 2017, 2018, 2019 and 2020. These files contain information on cases that were open during each program year, including information for everyone who applied for VR services, used VR services, or exited from VR during the program year, as well as some persons who exited before the program year but for whom the VR agency continued to report outcomes after exit. Data from RSA-911 records are de-identified such that we cannot link people across program years. Thus, the data are unique at the case-year level. The RSA-911 contain detailed information on individuals' characteristics at the time of their VR application and (for those with an IPE) barriers to employment and services use during the program year. For clients who exited VR during the program year, the data contain information on why they exited, whether they had employment at the time of exit (defined as having had a job for 90 days), and the nature of that employment.

In general, we analyzed the data exactly as they are recorded in the case reports, with one notable exception. When examining continuous measures such as hours worked per week and hourly wages, we used a three-step process to mitigate the influence of outliers. First, we identified extreme outliers, defined as non-zero values that were either (1) more than three times the interquartile range above the 75th percentile, or (2) more than three times the interquartile range below the 25th percentile of the distribution of non-zero values. Second, we identified the 99th percentile of the distribution of non-zero values that were not extreme outliers. Third, we set all observations with values greater than the 99th percentile identified in step 2 to that value. The number of observations affected by this process was less than one percent of all values (including zero values).

B. Analytical samples

The core sample comprised young adults (defined as people aged 16-28 at the time of VR application) who had engaged with a VR agency during program years 2017-2019. Although we cannot identify the unique number of young adults who engaged with VR during this period, the data included more than 2.3 million case-year records on young adults. In exploratory analyses, we also examined data from program year 2020, which included 792,416 case-year records.

Our analyses focused on young adults on the autism spectrum, and we sometimes compared them to other young adults engaged with VR. We identified young adults on the autism spectrum as those who had autism recorded as the source of their primary or secondary impairment (regardless of the impairment or other sources of impairments). For example, if a young adult had autism recorded as the source of their secondary impairment and intellectual disability recorded as the source of their primary impairment, they were counted as autistic. We identified young adults with an intellectual disability as those who had intellectual disability recorded as the source of their primary or secondary impairment and who did not have autism recorded as the source of their primary or secondary impairment. We identified young adults with other disabilities as those who did not have autism or intellectual disability recorded as the source of their primary or secondary impairment.

We imposed some sample restrictions for all analyses. First, we excluded cases where data were missing on self-identified race and ethnicity or on sex ($n=16,938$). Second, we excluded cases where data were missing on the cause of the primary and secondary disability, as this was needed to identify youth with autism ($n=73,103$). Third, we excluded youth who had never applied for VR services. This restriction

resulted in excluding youth who only used pre-employment transition services as students without applying for VR.²⁶ We excluded them because it was not possible to identify autistic youth from among these clients, because the RSA-911 data do not contain impairment information for non-applicants. It is possible that our analytical sample is older and less likely to be enrolled in school than the full population of autistic young adults who engaged with VR agencies, but it is not possible to confirm this using the RSA-911 data.

In addition, in order to avoid counting a client more than once, we imposed sample restrictions that varied depending on the data being examined, as described below:

- When we examined sources of referral, demographic characteristics, barriers to employment, and services used, we limited the sample to new applicants (that is, young adults who opened VR cases) in each of the program years 2017, 2018 and 2019. This is because VR clients can have cases open for many years, and we intended to examine more recent cohorts of young adults engaged with VR. This restriction led to an analytical sample of 493,264 young adults who applied to VR during program years 2017-2019, including 81,616 autistic applicants.
- When we examined barriers to employment and service use, we further limited the sample to young adults who had a signed IPE during the year they applied for VR. This is because barriers to employment were assessed by VR counselors at the time of IPE development, and an IPE is required before a client can use VR services. This sample restriction resulted in an analytical sample of 298,052 young adults, including 53,592 who were autistic.
- When we examined employment outcomes, we did not limit the sample to new applicants but instead we limited the sample to young adults who had IPEs and who exited VR (that is, closed their VR cases) in each of the program years 2017, 2018 and 2019. As VR cases can stay open for many years, examining employment among all VR cases (regardless of whether they closed) in a program year would provide an unrealistic picture of the success rate of VR. This resulted in a sample of 803,183 young adults who had IPEs, exited VR during 2017-2019, and had non-missing information about outcomes at exit; 115,640 of these clients were autistic.
- When we examined the nature of employment held by young adults, we limited the sample to the 58,110 young adults who had IPEs and exited VR with employment in each of the program years 2017, 2018 and 2019. The data recorded information about clients who closed their VR cases; if they became employed and retained employment for 90 or more days, they were recorded as having exited VR with employment.

Finally, as described in more detail in the next section, we use both descriptive and regression analyses in this study. As a result, the analytical samples might differ across analyses due to missing information on regression covariates.

C. Analytic methods

We used descriptive analysis to examine referral sources, demographic characteristics, barriers to employment and services used by young adults on the autism spectrum who applied for VR, and employment outcomes among young adults on the autism spectrum who exited VR. For each of the measures examined, we reported the mean for binary and continuous measures and the distribution for

²⁶ Students with disabilities receiving only pre-employment transition services were not required to apply for or be determined eligible for the VR program services.

categorical measures. We also used descriptive analysis to examine state-level variation in these measures.

When comparing subgroups of young adults, we used two types of approaches. In the first approach, when examining demographic characteristics (age, sex, race/ethnicity), we used descriptive analyses as described above. In the second approach, we used regression-based models to examine how all other measures (including referral sources, services, and employment outcomes) differed across (1) young adults with different types of disabilities and (2) subgroups of young adults on the autism spectrum (research question 5).

For outcomes that were binary or categorical, we estimated the equations using logit or multinomial logit regressions, respectively; for continuous outcomes, we used linear regressions. Regardless of the type of regression used, we reported results in terms of regression-adjusted means for each subgroup. For example, to analyze whether hourly wages differed by type of impairment among VR clients who exited with employment, we estimated the following equation:

$$Wage_i = \alpha + \beta_1 IDD_i + \beta_2 Other\ disability_i + X_i' \omega + \delta_i + \theta_s + \varepsilon_i. \quad (1)$$

In this equation, the dependent variable or outcome measure ($Wage_i$) is the hourly wage the you adult earned at the job in which they were employed when they exited VR. The independent variables include an indicator variable that equals one if the young adult has an intellectual disability but do not have autism (IDD_i) and an indicator variable that equals one if they have another disability that is not intellectual disability and do not have autism ($Other\ disability_i$); the reference category is autistic young adults. We included a set of control variables X to account for socio-economic characteristics including age at application, sex, race and ethnicity, and education, as well as state fixed effects θ_s and program year fixed effects δ_i , and ε_i represents the error term.

To analyze whether hourly wages differ for employed young adults on the autism spectrum by age at application, sex or race/ethnicity, we estimated the following equation:

$$Wage_i = \alpha + \gamma_1 Above22_i + \gamma_2 Female_i + \gamma_3 Black_i + \gamma_4 Hispanic_i + \gamma_5 Other_i + \gamma_6 Education_i + \delta_i + \theta_s + \varepsilon_i \quad (2)$$

The independent variables include indicator variables that equal one if the young adult on the autism spectrum is older than 22 ($Above22_i$), female ($Female_i$), non-Hispanic Black ($Black_i$), Hispanic ($Hispanic_i$), or belongs to another non-Hispanic race/ethnicity group ($Other_i$). The reference group for race and ethnicity is non-Hispanic White young adults on the autism spectrum, such that the coefficients for all other race/ethnicity groups ($\gamma_3, \gamma_4, \gamma_5$) captures the difference in hourly wages relative to non-Hispanic White autistic young adults after accounting for other factors that affect wages.

We tested whether the differences in average outcomes across subgroups were statistically significant and reported the p -values estimated from the tests. To test whether differences in unadjusted means were statistically significant, we calculated t-tests for continuous variables, two-sample tests of proportions for binary variables, and Pearson's chi-square tests for categorical variables. When examining differences in regression-adjusted means, we tested if the coefficients on the indicator variables were significantly

different from 0. For example, in equation (1) we tested whether $\beta_1 = 0$ and reported the p-value from this test on whether the difference in average adjusted wages between youth on the autism spectrum and youth with an intellectual disability was significantly different from 0. Similarly, we tested whether $\beta_2 = 0$ to determine whether the difference in adjusted average wages between youth on the autism spectrum and youth with other disabilities was significantly different from 0. We considered p -values less than 0.05 to be statistically significant, and values less than 0.10 to be marginally statistically significant.

We calculated effect sizes using Cohen's d for binary and continuous variables. Cohen's d is a standardized effect size for measuring the difference between two group means. It is calculated as the difference between two means, divided by the pooled standard deviation. We followed standard practice by considering effect size values of between 0.20 and 0.49, between 0.51 and 0.79, and 0.80 or greater to be indicative of small, medium, and large effects, respectively.

Appendix B

Additional Findings

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Table B.1. Characteristics of young adults on the autism spectrum who applied for VR

Characteristic	Young adults on the autism spectrum
Source of referral at application (%)	-
Educational institutions (elementary/secondary)	44.6
Self-referral	19.2
Family or friends	8.3
IDD providers	5.5
Educational institutions (postsecondary)	3.4
Welfare, public housing, mental, or medical health provider	4.2
Department of Labor-related programs	1.0
Other	13.7
Age at application (%)	-
Age 16	9.5
Age 17	18.3
Age 18	19.5
Age 19	11.6
Age 20	9.1
Age 21	7.4
Age 22	5.5
Age 23	4.4
Age 24	3.9
Age 25	3.3
Age 26	2.9
Age 27	2.5
Age 28	2.0
Age at application (mean)	19.7
Female (%)	18.1
Race and ethnicity (%)	-
American Indian or Alaska Native, non-Hispanic	0.6
Asian, non-Hispanic	2.9
Black or African American, non-Hispanic	12.0
Native Hawaiian or Other Pacific Islander, non-Hispanic	0.2
White, non-Hispanic	68.9
Hispanic or Latino	12.5
More than one race	2.9
Student with a disability (%)	48.7
Sample size	81,616
Assessed barriers to employment, among those with IPEs (%)	-
Low income	40.3
Basic skills deficient or low levels of literacy	32.0

Table B.1 (*continued*)

Characteristic	Young adults on the autism spectrum
English language learner	7.9
Foster care youth	4.5
Homeless individuals, homeless children and youths, or runaway youth	1.9
Is a single parent	1.8
Sample size	53,592

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults on the autism spectrum who applied for VR during program years 2017-2019. Sources of referral and the assessed barriers to employment are described further in Appendix C. Data on barriers are only available for youth who signed an IPE; we examined youth who signed or amended an IPE in the year that they applied for VR. Appendix C describes RSA's definitions for barriers to employment. Percentages may not sum to 100 due to rounding.

IDD = intellectual or developmental disabilities; IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.2. Use of VR services by young adults on the autism spectrum with signed IPEs

Service (%)	Young adults on the autism spectrum
Any VR services	92.1
Career services	33.4
Job placement assistance	17.0
Job search assistance	18.8
Short-term job supports	7.0
Supported employment services	7.5
Training services	11.5
Four-year college or university training	0.1
Disability-related skills training	1.5
Job-readiness training	7.8
On-the-job training	2.9
Pre-employment transition services	32.6
Counseling on enrollment opportunities	10.7
Instruction in self-advocacy	10.1
Job exploration counseling	22.1
Work-based learning experiences	14.3
Workplace readiness training	16.2
Other services	83.6
Assessment	35.9
Benefits counseling	5.3
Diagnosis and treatment of impairments	11.3
Maintenance	4.8
Rehabilitation technology	1.5
Transportation	11.0
VR counseling and guidance	65.9
Other services	5.6
Sample size	53,592

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults on the autism spectrum who applied for VR during program years 2017-2019. The sample is limited to young adults that have an IPE, which is required before they can receive services. We examined services used during the year of application. VR services are described in more detail in Appendix C.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.3. Employment outcomes among young adults on the autism spectrum who exited VR after signing an IPE

Employment outcome	Young adults on the autism spectrum who exited VR with employment
Exited with employment (%)	50.3
Sample size	115,640
Employment type (%), among the employed	-
Competitive integrated employment	70.9
Self-employment	0.2
Business enterprise program	0.0
Supported employment in competitive integrated employment	28.6
Supported employment on short-term basis	0.2
Primary occupation (%), among the employed	-
Service	36.4
Office and administrative support	26.2
Production and transportation	18.5
Sales and related	8.3
Management, business, and financial	7.0
Natural resources, construction, and maintenance	3.5
Hours worked in a week (mean), among the employed	22.8
Hourly wage (\$), among the employed	10.0
Sample size	58,110

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults on the autism spectrum who had an IPE and exited VR during program years 2017-2019. Employment outcomes are measured at the time of VR exit. Percentages may not sum to 100 due to rounding. See Section D in Appendix C for more information on the occupational categories.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.4. Sources of referral to VR for young adults on the autism spectrum, by state (%)

State or territory	Educational institutions (elementary /secondary)	Self-referral	Family or friends	IDD providers	Educational institutions (post-secondary)	Welfare, public housing, mental, or medical health provider	DOL-related programs	Other
Alabama	56.5	21.8	7.3	0.0	1.0	3.9	0.5	9.1
Alaska	37.5	13.0	16.3	6.0	4.3	3.8	0.5	18.5
Arizona	41.4	34.3	0.7	0.0	1.7	3.3	0.0	18.6
Arkansas	46.5	24.8	8.1	1.0	3.5	2.8	0.0	13.4
California	24.8	13.9	6.7	16.7	7.3	2.4	0.8	27.4
Colorado	36.8	18.9	7.4	20.1	2.1	3.7	1.0	10.2
Connecticut	27.2	36.5	11.8	4.5	4.7	6.1	0.3	9.0
Delaware	41.4	15.5	3.1	8.5	2.5	3.7	0.0	25.4
District of Columbia	60.9	23.9	0.0	0.0	0.0	6.5	1.4	7.2
Florida	41.3	22.7	9.7	1.0	5.7	4.4	0.9	14.4
Georgia	45.1	36.2	4.5	3.3	2.1	2.1	0.2	6.5
Guam	s	s	s	s	s	s	s	s
Hawaii	46.3	17.5	17.5	0.0	2.5	8.8	0.0	7.5
Idaho	28.0	15.7	12.4	5.7	1.0	8.8	1.4	27.0
Illinois	64.9	11.8	10.5	0.7	1.1	0.8	0.3	9.9
Indiana	18.2	22.2	21.6	5.0	2.1	3.1	1.3	26.4
Iowa	53.9	9.4	7.2	0.7	2.8	6.7	1.2	18.2
Kansas	0.7	0.0	0.0	8.6	35.7	17.7	2.7	34.6
Kentucky	43.8	19.9	13.9	1.0	3.7	7.1	0.4	10.2
Louisiana	38.4	26.4	0.0	0.0	1.2	2.8	0.2	30.9
Maine	42.3	11.4	6.1	0.7	0.2	5.7	0.5	33.1
Maryland	32.1	18.9	25.9	2.2	1.1	3.9	8.0	8.0
Massachusetts	51.3	13.2	12.8	2.1	3.6	4.1	0.6	12.3
Michigan	57.8	14.0	7.6	1.8	2.5	7.2	1.5	7.7
Minnesota	67.2	12.7	2.9	0.8	1.6	5.6	0.5	8.7
Mississippi	57.3	19.2	9.8	2.9	3.1	1.7	0.6	5.4
Missouri	47.1	20.1	10.6	3.7	1.3	2.5	0.3	14.4
Montana	39.2	13.1	14.9	4.5	2.3	9.0	1.8	15.3
Nebraska	55.5	16.7	0.0	8.4	1.7	3.0	0.4	14.3
Nevada	50.1	18.7	1.8	5.2	3.4	6.1	1.6	13.2
New Hampshire	49.1	17.7	9.3	4.2	0.9	2.4	0.9	15.5
New Jersey	38.4	20.1	9.9	0.6	3.8	4.1	0.9	22.3
New Mexico	36.3	19.2	8.1	3.2	8.4	4.7	1.2	18.9

Appendix B Additional Findings

Table B.4 (continued)

State or territory	Educational institutions (elementary/secondary)	Self-referral	Family or friends	IDD providers	Educational institutions (post-secondary)	Welfare, public housing, mental, or medical health provider	DOL-related programs	Other
New York	61.8	14.7	2.7	2.0	2.7	2.7	0.2	13.2
North Carolina	31.3	47.5	10.9	0.5	1.4	3.4	0.4	4.5
North Dakota	51.3	12.3	9.0	8.1	1.0	5.5	2.9	10.0
Northern Marianas	18.2	72.7	0.0	0.0	9.1	0.0	0.0	0.0
Ohio	38.6	13.4	9.8	27.5	2.1	4.1	0.5	4.0
Oklahoma	56.3	8.1	7.3	0.0	4.5	4.0	0.4	19.3
Oregon	21.1	15.0	8.8	36.0	4.5	4.7	0.6	9.4
Pennsylvania	50.7	19.6	3.0	4.9	4.6	7.0	0.5	9.6
Puerto Rico	53.4	31.0	2.5	0.0	0.9	2.5	4.6	5.1
Rhode Island	62.0	6.6	0.0	0.0	0.4	4.1	0.0	26.9
South Carolina	60.1	16.2	6.2	5.3	1.7	3.3	0.5	6.7
South Dakota	49.6	16.7	7.5	10.8	0.5	4.3	2.2	8.4
Tennessee	42.2	32.9	0.4	0.1	3.9	6.8	1.1	12.7
Texas	55.4	16.9	6.5	0.6	4.3	2.8	3.9	9.7
Utah	35.3	10.4	15.5	2.7	7.1	7.1	1.5	20.4
Vermont	39.8	14.2	8.3	15.9	0.3	11.1	2.1	8.3
Virginia	46.4	28.8	11.7	1.2	0.2	4.8	0.4	6.5
Virgin Islands	s	s	s	s	s	s	s	s
Washington	31.4	26.0	10.4	6.0	2.6	6.4	0.7	16.4
West Virginia	47.1	22.3	14.9	0.3	3.1	4.0	0.6	7.7
Wisconsin	46.3	9.9	12.5	1.5	3.5	3.2	0.9	22.3
Wyoming	30.2	52.3	0.6	0.0	1.7	1.7	0.0	13.4

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults on the autism spectrum who applied for VR during program years 2017-2019 (n = 81,616). Sources of referral are described further in Appendix C. Percentages may not sum to 100 due to rounding. s = We suppressed estimates with a cell size of 10 or fewer observations.

DOL = U.S. Department of Labor; IDD = intellectual or developmental disabilities; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.5. Characteristics of young adults on the autism spectrum who applied for VR, by state

State or territory	Age at application (mean)	Female (%)	Race and ethnicity				Student with a disability (%)
			White, non-Hispanic (%)	Black or African American, non-Hispanic (%)	Hispanic or Latino (%)	Other, non-Hispanic (%)	
Alabama	19.1	16.3	71.9	25.0	2.4	0.8	62.6
Alaska	20.5	17.4	64.1	6.0	3.3	26.6	29.9
Arizona	19.2	18.4	62.1	5.6	23.2	9.1	62.0
Arkansas	19.6	16.5	77.2	12.2	6.6	4.0	54.3
California	20.6	16.7	47.0	6.4	30.7	15.9	33.7
Colorado	20.6	18.5	77.6	4.3	12.1	6.0	37.2
Connecticut	21.4	16.1	70.1	10.2	14.7	5.0	33.0
Delaware	20.2	16.1	63.7	25.1	7.0	4.2	37.2
District of Columbia	20.1	11.6	13.0	82.6	2.2	2.2	69.6
Florida	19.8	18.5	53.4	12.8	30.3	3.5	59.6
Georgia	19.8	18.6	57.6	36.3	1.7	4.4	31.0
Guam	s	s	s	s	s	s	s
Hawaii	19.6	10.0	32.5	5.0	12.5	50.0	47.5
Idaho	20.3	23.0	88.2	0.6	7.0	4.2	26.1
Illinois	18.9	14.8	68.7	13.6	12.1	5.7	0.5
Indiana	20.2	20.4	85.2	7.5	3.1	4.2	38.4
Iowa	19.1	18.2	88.5	3.2	3.6	4.7	65.3
Kansas	20.3	20.2	79.7	5.9	7.0	7.4	35.6
Kentucky	19.5	18.6	87.4	9.6	1.3	1.7	46.8
Louisiana	20.0	15.4	65.3	28.0	2.8	3.9	37.8
Maine	19.2	19.3	94.1	1.1	2.0	2.9	57.6
Maryland	20.0	19.5	55.4	33.0	4.2	7.5	42.9
Massachusetts	19.4	18.2	79.0	7.5	8.7	4.8	67.6
Michigan	19.8	17.8	81.5	10.6	3.0	4.9	56.1

Appendix B Additional Findings

Table B.5 (continued)

State or territory	Age at application (mean)	Female (%)	Race and ethnicity				Student with a disability (%)
			White, non-Hispanic (%)	Black or African American, non-Hispanic (%)	Hispanic or Latino (%)	Other, non-Hispanic (%)	
Minnesota	19.3	19.7	77.5	5.7	6.1	10.7	67.9
Mississippi	19.1	16.0	60.0	35.0	2.5	2.5	54.6
Missouri	19.8	18.1	80.0	11.9	2.7	5.4	47.2
Montana	19.0	21.2	85.1	0.9	5.9	8.1	54.5
Nebraska	20.4	19.3	84.2	4.3	6.6	4.9	76.0
Nevada	19.7	18.5	51.2	10.6	24.2	14.0	58.6
New Hampshire	19.4	17.7	93.4	0.9	0.9	4.9	49.3
New Jersey	20.8	17.7	64.3	13.5	14.5	7.7	14.9
New Mexico	19.7	19.8	55.8	2.0	34.3	7.8	41.3
New York	19.2	16.6	68.3	11.4	14.0	6.3	63.2
North Carolina	19.6	17.7	64.8	24.9	5.3	5.0	57.0
North Dakota	19.4	23.9	90.3	1.3	1.3	7.1	52.3
Northern Marianas	20.5	9.1	0.0	0.0	0.0	100.0	18.2
Ohio	19.5	18.7	78.7	13.0	3.5	4.8	52.2
Oklahoma	18.6	19.3	59.8	7.8	10.7	21.8	54.0
Oregon	21.4	18.8	81.6	2.0	8.2	8.2	5.9
Pennsylvania	18.9	19.4	77.5	11.0	7.3	4.1	72.3
Puerto Rico	18.1	12.5	0.2	0.0	99.8	0.0	73.0
Rhode Island	19.5	20.7	86.0	4.5	6.6	2.9	66.5
South Carolina	18.8	16.4	62.6	28.7	6.0	2.6	63.9
South Dakota	19.6	20.2	85.4	1.9	4.0	8.6	54.4
Tennessee	19.9	16.5	75.7	16.4	4.1	3.9	52.3
Texas	19.5	16.8	51.4	12.6	29.9	6.1	51.1
Utah	20.1	23.1	85.2	1.1	8.8	5.0	28.2
Vermont	20.5	16.3	92.0	1.0	2.1	4.8	39.4
Virginia	19.9	18.1	66.2	21.6	5.7	6.5	51.1

Appendix B Additional Findings

Table B.5 (continued)

State or territory	Age at application (mean)	Female (%)	Race and ethnicity				Student with a disability (%)
			White, non-Hispanic (%)	Black or African American, non-Hispanic (%)	Hispanic or Latino (%)	Other, non-Hispanic (%)	
Virgin Islands	s	s	s	s	s	s	s
Washington	20.9	20.6	72.6	3.4	9.5	14.5	42.9
West Virginia	18.9	17.4	92.6	3.7	1.7	2.0	58.9
Wisconsin	19.5	19.8	81.9	5.6	6.5	5.9	62.7
Wyoming	20.2	27.9	84.9	0.6	5.8	8.7	50.0

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults on the autism spectrum who applied for VR during program years 2017-2019 (n = 81,616). s = We suppressed estimates with a cell size of 10 or fewer observations. Percentages may not sum to 100 due to rounding

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.6. Assessed barriers to employment for young adults on the autism spectrum with signed IPEs, by state (%)

State or territory	Low income	Basic skills deficient or low levels of literacy	English language learner	Foster care youth	Homeless or runaway youth	Is a single parent
Alabama	21.1	17.3	0.3	0.3	0.2	0.0
Alaska	56.4	24.8	3.4	3.4	4.3	0.0
Arizona	42.9	42.9	6.7	2.2	0.9	0.2
Arkansas	50.3	38.0	5.6	2.4	1.9	0.6
California	63.2	38.6	6.7	2.2	0.9	1.8
Colorado	45.8	30.3	1.1	0.6	1.3	0.4
Connecticut	34.5	21.7	7.4	2.8	0.0	0.8
Delaware	45.5	65.1	2.1	3.0	72.3	16.6
District of Columbia	52.6	52.6	15.8	0.0	3.2	0.0
Florida	49.3	37.1	9.0	2.4	0.8	1.4
Georgia	54.5	19.9	33.8	32.4	31.5	0.2
Guam	s	s	s	s	s	s
Hawaii	63.0	63.0	11.1	7.4	3.7	0.0
Idaho	57.0	42.6	10.9	8.4	2.8	0.2
Illinois	23.2	44.8	6.9	0.5	0.4	1.1
Indiana	41.8	31.9	9.2	34.6	1.1	27.3
Iowa	83.1	45.5	0.8	1.6	0.8	1.0
Kansas	47.9	29.6	7.4	1.6	1.1	0.4
Kentucky	49.5	30.6	5.4	2.2	0.2	0.3
Louisiana	38.6	27.4	1.1	0.8	0.0	0.0
Maine	42.0	26.2	1.9	9.1	1.1	0.4
Maryland	44.6	32.7	6.1	3.3	0.7	2.7
Massachusetts	31.4	14.8	8.0	0.8	1.7	0.6
Michigan	29.2	26.2	5.8	1.3	0.4	0.6
Minnesota	30.1	33.5	6.5	1.8	0.9	0.9
Mississippi	36.3	32.4	2.1	0.3	0.3	0.6
Missouri	26.3	17.9	1.1	22.9	0.6	0.3
Montana	s	s	s	s	s	s
Nebraska	47.4	22.8	5.3	1.8	3.5	0.0
Nevada	29.1	35.4	3.3	13.4	0.0	15.2
New Hampshire	38.6	23.3	0.0	3.5	0.5	0.5
New Jersey	39.7	26.4	2.6	1.5	0.1	0.5
New Mexico	69.9	50.0	7.1	14.3	0.0	4.7
New York	29.9	21.6	8.0	1.3	0.7	0.5
North Carolina	31.1	37.9	10.3	2.2	2.1	0.0
North Dakota	46.4	24.5	2.1	8.6	1.3	0.0

Appendix B Additional Findings

Table B.6 (continued)

State or territory	Low income	Basic skills deficient or low levels of literacy	English language learner	Foster care youth	Homeless or runaway youth	Is a single parent
Northern Marianas	s	s	s	s	s	s
Ohio	37.8	40.0	0.8	5.2	0.4	0.3
Oklahoma	41.3	12.5	5.6	2.8	0.0	1.3
Oregon	75.7	33.3	1.9	8.1	3.2	2.3
Pennsylvania	43.2	9.8	8.4	0.3	0.1	0.2
Puerto Rico	48.2	29.1	38.5	0.7	0.2	1.9
Rhode Island	46.5	43.0	1.2	2.3	0.0	0.0
South Carolina	31.9	34.4	8.4	1.2	2.8	1.6
South Dakota	27.6	26.9	0.0	0.0	0.0	0.0
Tennessee	32.2	39.8	8.2	1.5	1.0	0.3
Texas	26.6	29.7	28.0	1.0	1.0	5.3
Utah	55.2	39.0	4.6	6.5	1.1	0.4
Vermont	49.8	31.6	2.5	2.1	0.8	0.0
Virginia	41.2	24.5	1.7	1.7	1.2	0.6
Virgin Islands	s	s	s	s	s	s
Washington	38.2	38.1	1.8	1.1	0.8	1.4
West Virginia	36.6	27.2	1.0	1.5	0.5	0.7
Wisconsin	41.7	43.5	4.0	5.7	1.0	0.3
Wyoming	39.3	38.5	14.8	0.7	1.5	0.8

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults on the autism spectrum who applied for VR during program years 2017-2019 (n = 53,592). Data on assessed barriers are only available for youth who signed an IPE; we examined youth who signed or amended an IPE in the year that they applied for VR. Appendix C describes RSA's definitions for assessed barriers to employment. Percentages may not sum to 100 due to rounding. s = We suppressed estimates with a cell size of 10 or fewer observations.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.7. Service use among young adults on the autism spectrum with signed IPEs, by state

State or territory	Used any VR services (%)	State or territory	Used any VR services (%)
Alabama	93.9	Nebraska	94.7
Alaska	100.0	Nevada	82.3
Arizona	91.0	New Hampshire	100.0
Arkansas	75.7	New Jersey	86.6
California	99.7	New Mexico	86.7
Colorado	97.0	New York	100.0
Connecticut	97.7	North Carolina	s
Delaware	68.9	North Dakota	100.0
District of Columbia	54.7	Northern Marianas	s
Florida	100.0	Ohio	86.8
Georgia	71.5	Oklahoma	60.3
Guam	s	Oregon	87.8
Hawaii	100.0	Pennsylvania	69.4
Idaho	84.2	Puerto Rico	24.4
Illinois	100.0	Rhode Island	89.5
Indiana	99.9	South Carolina	100.0
Iowa	99.9	South Dakota	99.0
Kansas	66.7	Tennessee	86.5
Kentucky	53.9	Texas	87.9
Louisiana	99.7	Utah	87.6
Maine	94.8	Vermont	92.8
Maryland	94.5	Virginia	99.4
Massachusetts	99.7	Virgin Islands	s
Michigan	94.3	Washington	99.1
Minnesota	97.3	West Virginia	94.1
Mississippi	91.3	Wisconsin	95.2
Missouri	99.6	Wyoming	83.0
Montana	s	-	-
Sample size	53,592	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adult VR clients on the autism spectrum who applied for VR during program years 2017-2019 (n = 53,592). Service use captures only the program year in which clients applied for VR. s = We suppressed estimates with a cell size of 10 or fewer observations.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.8. Employment outcomes at VR exit among young adults on the autism spectrum who exited VR after signing an IPE, by state

State or territory	Employed (%)	Competitive integrated employment (%) among the employed ^a	Hours worked in a week (mean) among the employed	Hourly wage (mean; \$) among the employed
Alabama	64.5	41.1	8.9	24.9
Alaska	61.8	75.4	11.7	22.0
Arizona	38.0	89.2	11.1	23.9
Arkansas	50.9	80.7	9.9	27.9
California	42.0	62.2	12.6	26.2
Colorado	54.4	73.9	11.5	23.9
Connecticut	46.7	93.1	11.9	25.6
Delaware	67.9	41.9	10.0	24.9
District of Columbia	26.7	60.8	13.8	26.5
Florida	40.9	53.8	9.9	23.3
Georgia	39.2	73.3	9.1	25.5
Guam	47.6	s	s	s
Hawaii	28.3	100.0	10.4	25.3
Idaho	36.0	63.5	9.0	20.6
Illinois	45.1	97.2	0.0 ^b	0.0 ^b
Indiana	47.2	50.6	9.1	22.8
Iowa	53.6	64.6	10.2	23.6
Kansas	56.8	64.9	9.4	23.3
Kentucky	50.5	48.6	9.7	22.9
Louisiana	51.0	99.4	8.9	22.8
Maine	35.4	75.4	10.8	18.7
Maryland	43.8	65.8	11.3	22.7
Massachusetts	44.0	94.3	12.6	23.3
Michigan	54.5	97.1	10.4	25.1
Minnesota	50.2	79.6	11.5	25.1
Mississippi	41.8	78.0	9.2	29.8
Missouri	64.2	55.6	9.6	24.6
Montana	41.6	69.1	10.1	19.3
Nebraska	69.0	42.2	10.5	23.8
Nevada	44.2	69.5	9.9	24.8
New Hampshire	48.6	67.6	10.4	20.0
New Jersey	60.9	77.1	10.4	22.0
New Mexico	40.6	91.7	9.5	22.8
New York	46.2	71.3	11.0	7.0
North Carolina	56.0	50.9	9.1	21.3

Appendix B Additional Findings

Table B.8 (continued)

State or territory	Employed (%)	Competitive integrated employment (%) among the employed ^a	Hours worked in a week (mean) among the employed	Hourly wage (mean; \$) among the employed
North Dakota	52.2	67.3	10.8	23.6
Northern Marianas	s	s	s	s
Ohio	50.1	67.8	9.7	23.3
Oklahoma	39.6	82.9	9.5	26.7
Oregon	62.0	69.2	11.6	19.9
Pennsylvania	50.7	67.3	10.6	26.2
Puerto Rico	28.2	69.1	8.5	27.6
Rhode Island	48.8	61.3	11.3	21.4
South Carolina	47.6	81.5	9.3	27.9
South Dakota	49.9	87.4	10.1	24.1
Tennessee	48.4	58.4	9.5	24.0
Texas	59.2	89.0	9.5	23.9
Utah	57.8	84.6	10.1	23.7
Vermont	37.1	39.9	11.7	22.3
Virginia	55.9	45.1	10.0	24.7
Virgin Islands	s	s	s	s
Washington	63.9	77.9	12.6	19.4
West Virginia	45.6	91.7	10.3	25.0
Wisconsin	56.8	80.1	9.9	20.8
Wyoming	54.7	82.8	9.5	21.5

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adult VR clients on the autism spectrum who had an IPE and exited VR during program years 2017-2019 (n = 115,640). Employment outcomes were measured at the time of VR exit. Competitive integrated employment, average hours worked in a week and hourly wages were only examined among employed (n = 58,110). s = We suppressed estimates with a cell size of 10 or fewer observations.

^a Almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR.

^b All the records of hours worked and hourly wages equaled 0 for people who exited VR services with employment during program years 2017-2019 in the state of Illinois.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Table B.9. Characteristics of young adults with disabilities who applied for VR, by type of disability

Characteristic	Young adults on the autism spectrum	Young adults with an intellectual disability			Young adults with any other disability		
	Mean	Mean	p-value	Effect size	Mean	p-value	Effect size
Source of referral at application (%)	-	-	-	-	-	-	-
Educational institutions (elementary/secondary)	44.6	47.9	0.00***	0.34	46.0	0.22	0.01
Self-referral	19.2	18.7	0.00***	-0.18	19.9	0.00***	-0.06
Family or friends	8.5	5.4	0.00***	-0.29	6.7	0.00***	-0.09
Intellectual and developmental disabilities providers	5.6	8.4	0.00***	0.25	1.2	0.00***	-0.91
Educational institutions (postsecondary)	3.4	2.4	0.00***	-0.18	3.4	0.01**	-0.03
Welfare, public housing, mental or medical health provider	4.2	3.4	0.00***	-0.21	8.4	0.00***	0.37
Department of Labor-related programs	1.0	1.1	0.52	-0.02	1.4	0.00***	0.11
Other	13.7	13.0	0.00***	-0.03	13.2	0.00***	-0.05
Age (mean)	19.7	20.2	0.00***	0.15	20.0	0.00***	0.08
Female (%)	18.1	43.8	0.00***	0.59	43.7	0.00***	0.54
Race/ethnicity (%)	-	-	-	-	-	-	-
American Indian or Alaska Native, not Hispanic	0.6	1.1	0.00***	0.05	1.0	0.00***	0.04
Asian, not Hispanic	2.9	1.9	0.00***	-0.07	1.7	0.00***	-0.09
Black or African American, not Hispanic	12.0	30.6	0.00***	0.47	21.1	0.00***	0.23
Native Hawaiian or Other Pacific Islander, not Hispanic	0.2	0.3	0.05**	0.01	0.2	0.41	0.00
White, not Hispanic	68.9	48.9	0.00***	-0.42	52.6	0.00***	-0.33
Hispanic or Latino	12.5	14.8	0.00***	0.07	20.9	0.00***	0.21
More than one race	2.9	2.5	0.00***	-0.02	2.6	0.00***	-0.01
Student with a disability (%)	48.7	49.0	0.00***	0.22	46.5	0.00***	-0.10
Sample size	81,556	65,620	-	-	344,950	-	-
Assessed barriers to employment (%)	-	-	-	-	-	-	-
Low income	40.3	54.5	0.00***	0.27	46.6	0.00***	0.10
Basic skills deficient or low levels of literacy	32.0	57.8	0.00***	0.60	24.8	0.00***	-0.19
English language learner	7.9	10.7	0.00***	0.16	10.3	0.00***	0.06
Foster care youth	4.5	6.6	0.00***	0.16	4.7	0.00***	0.17
Homeless individuals, homeless children and youths, or runaway youth	1.9	2.6	0.00***	0.11	3.3	0.00***	0.39
Is a single parent	1.9	3.8	0.00***	0.12	4.8	0.00***	0.35
Sample size	53,454	42,400	-	-	200,725	-	-

Source: RSA-911 case files, program years 2017–2019.

Table B.9 (*continued*)

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics for sources of referral, student with a disability and barriers to employment were estimated using regression-adjusted models that controlled for age at application, sex, race, educational attainment, and state and year fixed effects. Sources of referral are described further in Appendix C. Data on barriers are only available for youth who signed an IPE; we examined youth who signed or amended an IPE in the year that they applied for VR. Note that the variable “Is a single parent” had a higher prevalence of missing values than the other variables. Appendix C describes RSA’s definitions for barriers to employment. Percentages may not sum to 100 due to rounding.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the comparison group and for young adults on the autism spectrum are significantly different from each other (p-value less than .10/.05/.01).

Table B.10. Use of VR services by young adult VR clients with signed IPEs, by type of disability

Service (%)	Young adults on the autism spectrum	Young adults with an intellectual disability			Young adults with any other disability		
	Mean	Mean	p-value	Effect size	Mean	p-value	Effect size
Any VR services	92.0	91.4	0.02**	0.04	89.6	0.62	-0.01
Career services	33.4	34.8	0.00***	0.06	28.7	0.00***	-0.15
Job placement assistance	17.9	17.4	0.01**	0.03	14.0	0.00***	-0.20
Job search assistance	19.1	19.8	0.06*	0.02	19.7	0.00***	-0.06
Short-term job supports	7.2	7.0	0.01***	-0.04	5.3	0.00***	-0.14
Supported employment services	7.9	11.6	0.00***	0.22	3.5	0.00***	-0.58
Training services	11.5	12.0	0.15	0.02	11.0	0.00***	-0.13
Four-year college or university training	0.1	0.0	0.01**	-0.60	0.2	0.00***	0.65
Disability-related skills training	1.6	1.2	0.00***	-0.10	1.7	0.01***	0.06
Job-readiness training	8.2	9.1	0.10	-0.02	7.5	0.00***	-0.19
On-the-job training	3.1	2.7	0.74	0.01	2.9	0.00***	-0.12
Pre-employment transition services	32.6	33.6	0.00***	0.09	30.1	0.00***	-0.09
Counseling on enrollment opportunities	10.9	9.5	0.07*	-0.03	13.3	0.00***	0.10
Instruction in self-advocacy	10.2	10.8	0.00***	0.08	9.8	0.00***	-0.05
Job exploration counseling	22.1	22.3	0.00***	0.06	20.3	0.00***	-0.05
Work-based learning experiences	14.3	14.7	0.00***	0.13	11.5	0.00***	-0.15
Workplace readiness training	16.2	18.9	0.00***	0.10	13.6	0.00***	-0.15
Other services	83.6	82.8	0.08*	0.02	82.5	0.00***	0.05
Assessment	37.8	43.2	0.06*	-0.02	32.9	0.00***	-0.08
Benefits counseling	6.2	7.8	0.00***	0.19	3.6	0.00***	-0.30
Diagnosis and treatment of impairments	11.3	9.6	0.00***	-0.06	14.4	0.00***	0.20
Maintenance	4.8	7.3	0.00***	0.19	8.0	0.00***	0.27
Rehabilitation technology	1.5	1.0	0.00***	-0.23	4.3	0.00***	0.58
Transportation	11.0	12.9	0.00***	0.04	12.4	0.00***	0.11
VR counseling and guidance	66.5	58.5	0.11	-0.02	67.4	0.00***	0.04
Other services	5.6	5.6	0.30	0.02	7.6	0.00***	0.18
Sample size	53,592	42,473	-	-	201,987	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017–2019. Statistics were estimated using regression-adjusted models that controlled for age at application, sex, race, educational attainment, and state and year fixed effects. The sample is limited to young adults that have an IPE, which is required before they can receive services. We examined services used during the year of application. VR services are described in more detail in Appendix C.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/*** indicates that the means for the comparison group and for young adults on the autism spectrum are significantly different from each other (p-value less than .10/.05/.01).

Table B.11. Employment outcomes among young adults on the autism spectrum who exited VR after signing an IPE, by type of disability

Employment outcome	Young adults on the autism spectrum	Young adults with an intellectual disability			Young adults with any other disability		
	Mean	Mean	p-value	Effect size	Mean	p-value	Effect size
Exited with employment (%)	49.0	44.4	0.00***	-0.09	44.2	0.00***	-0.13
Sample size	115,640	113,148	-	-	574,395	-	-
Competitive integrated employment (%), among the employed ^a	70.9	63.3	0.00***	-0.16	91.4	0.00***	0.80
Hours worked in a week (mean), among the employed	22.9	22.7	0.09*	0.00	29.1	0.00***	0.05
Hourly wage (\$ mean), among the employed	10.2	9.6	0.00***	0.00	11.3	0.00***	0.02
Sample size	54,037	48,311	-	-	223,092	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adult VR clients who had an IPE and exited VR during program years 2017-2019. Employment outcomes were measured at the time of VR exit. Statistics were estimated using regression-adjusted models that controlled for age at application, sex, race, educational attainment, and state and year fixed effects.

^a Almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the comparison group and for young adults on the autism spectrum are significantly different from each other (p-value less than .10/.05/.01).

Table B.12. Characteristics of young adults on the autism spectrum who applied for VR, by age

Characteristic	Young adults ages 16–22	Young adults ages 23–28	p-value	Effect size
	Mean	Mean		
Source of referral at application (%)	-	-	-	-
Educational institutions (elementary/secondary)	54.6	2.4	0.00***	2.17
Self-referral	14.8	38.7	0.00***	-0.78
Family or friends	7.7	12.6	0.00***	-0.28
Intellectual and developmental disabilities providers	4.5	11.6	0.00***	-0.51
Educational institutions (postsecondary)	3.7	2.3	0.00***	0.32
Welfare, public housing, mental or medical health provider	3.4	7.8	0.00***	-0.49
Department of Labor-related programs	0.9	2.0	0.00***	-0.49
Other	11.2	24.1	0.00***	-0.50
Age (mean)	18.5	25.1	0.00	3.84
Female (%)	17.8	19.4	0.00	0.04
Race/ethnicity (%)	-	-	-	-
American Indian or Alaska Native, not Hispanic	0.6	0.5	0.02**	-0.02
Asian, not Hispanic	2.9	3.1	0.16	0.01
Black or African American, not Hispanic	12.5	10.2	0.00***	-0.07
Native Hawaiian or Other Pacific Islander, not Hispanic	0.2	0.2	0.66	0.00
White, not Hispanic	67.6	74.4	0.00***	0.15
Hispanic or Latino	13.3	8.8	0.00***	-0.14
More than one race	2.9	2.9	0.95	0.00
Student with a disability (%)	59.6	2.4	0.00***	2.37
Sample size	66,048	15,508	-	-
Assessed barriers to employment (%)	-	-	-	-
Low income	36.5	56.4	0.00***	-0.46
Basic skills deficient or low levels of literacy	33.3	26.4	0.00***	0.18
English language learner	8.1	7.2	0.38	-0.02
Foster care youth	4.4	5.1	0.27	-0.03
Homeless individuals, homeless children and youths, or runaway youth	1.8	2.3	0.04**	-0.10
Is a single parent	2.0	2.2	0.66	-0.02
Sample size	43,156	10,298	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics for sources of referral, student with a disability and barriers to employment were estimated using regression-adjusted models that controlled for sex, race, educational attainment, and state and year fixed effects. Sources of referral are described further in Appendix C. Data on barriers are only available for youth who signed an IPE; we examined youth who signed or amended an IPE in the year that they applied for VR. Appendix C describes RSA’s definitions for barriers to employment. Percentages may not sum to 100 due to rounding.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/*** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.13. Use of VR services by young adults on the autism spectrum with signed IPEs, by age

Service (%)	Young adults ages 16–22	Young adults ages 23–28	p-value	Effect size
	Mean	Mean		
Any VR Services	89.5	92.5	0.00***	-0.11
Career services	28.1	55.6	0.00***	-0.75
Job placement assistance	15.9	32.2	0.00***	-0.62
Job search assistance	16.7	35.2	0.00***	-0.71
Short-term job supports	6.7	12.5	0.00***	-0.40
Supported employment services	6.0	16.3	0.00***	-0.63
Training services	11.5	11.5	0.00***	-0.08
Four-year college or university training	0.2	0.2	0.73	0.09
Disability-related skills training	2.1	1.6	0.11	0.09
Job-readiness training	8.0	10.0	0.00***	-0.21
On-the-job training	3.8	2.0	0.00***	0.32
Pre-employment transition services	40.2	0.7	0.00***	2.54
Counseling on enrollment opportunities	13.6	0.1	0.00***	2.62
Instruction in self-advocacy	12.7	0.2	0.00***	2.34
Job exploration counseling	27.3	0.4	0.00***	2.53
Work-based learning experiences	17.6	0.3	0.00***	2.48
Workplace readiness training	20.3	0.4	0.00***	2.26
Other services	79.4	88.8	0.00***	-0.43
Assessment	35.4	47.6	0.00***	-0.36
Benefits counseling	5.2	12.1	0.00***	-0.48
Diagnosis and treatment of impairments	11.9	12.3	0.00***	-0.14
Maintenance	4.4	8.0	0.00***	-0.31
Rehabilitation technology	1.5	1.7	0.27	-0.05
Transportation	10.3	14.1	0.00***	-0.16
VR counseling and guidance	60.7	64.9	0.00***	-0.13
Other services	5.6	6.0	0.00***	-0.08
Sample size	43,275	10,317	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics were estimated using regression-adjusted models that controlled for sex, race, educational attainment, and state and year fixed effects. The sample is limited to young adults that have an IPE, which is required before they can receive services. We examined services used during the year of application. VR services are described in more detail in Appendix C.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.14. Employment outcomes among young adults on the autism spectrum who exited VR after signing an IPE, by age

Employment outcome	Young adults ages 16–22	Young adults ages 23–28	p-value	Effect size
	Mean	Mean		
Exited with employment (%)	47.0	61.4	0.00***	-0.32
Sample size	93,671	21,969	-	-
Competitive integrated employment (%), among the employed ^a	72.0	67.0	0.00***	0.12
Hours worked in a week (mean), among the employed	21.7	22.6	0.00***	0.00
Hourly wage (\$ mean), among the employed	9.9	10.6	0.00***	0.00
Sample size	41,366	12,513	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adult VR clients who had an IPE and exited VR during program years 2017-2019. Employment outcomes were measured at the time of VR exit. Statistics were estimated using regression-adjusted models that controlled for sex, race, educational attainment, and state and year fixed effects.

^a Almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.15. Characteristics of young adults on the autism spectrum who applied for VR, by sex

Characteristic	Female	Male	p-value	Effect size
	Mean	Mean		
Source of referral at application (%)	-	-	-	-
Educational institutions (elementary/secondary)	42.4	45.2	0.00***	-0.04
Self-referral	19.4	19.4	0.33	-0.01
Family or friends	8.7	8.6	0.61	-0.01
Intellectual and developmental disabilities providers	5.9	5.9	0.25	-0.03
Educational institutions (postsecondary)	3.7	3.4	0.04**	0.06
Welfare, public housing, mental or medical health provider	5.4	3.9	0.00***	0.15
Department of Labor-related programs	1.2	1.0	0.12	0.08
Other	14.1	13.6	0.45	0.01
Age (mean)	19.9	19.7	0.00***	-0.05
Race/ethnicity (%)	-	-	-	-
American Indian or Alaska Native, not Hispanic	0.6	0.6	0.63	0.00
Asian, not Hispanic	3.0	2.9	0.87	0.00
Black or African American, not Hispanic	10.9	12.3	0.00***	0.04
Native Hawaiian or Other Pacific Islander, not Hispanic	0.2	0.2	0.57	-0.01
White, not Hispanic	71.5	68.3	0.00***	-0.07
Hispanic or Latino	10.7	12.9	0.00***	0.07
More than one race	3.2	2.8	0.02**	-0.02
Student with a disability (%)	47.1	48.9	0.50	-0.01
Sample size	14,746	66,810	-	-
Assessed barriers to employment (%)	-	-	-	-
Low income	41.4	40.1	0.08*	0.02
Basic skills deficient or low levels of literacy	32.7	31.9	0.01**	0.04
English language learner	7.4	8.1	0.33	-0.02
Foster care youth	5.0	4.5	0.25	0.04
Homeless individuals, homeless children and youths, or runaway youth	1.9	1.9	0.98	0.00
Is a single parent	2.5	2.0	0.01**	0.13
Sample size	9,500	43,954	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics for sources of referral, student with a disability and barriers to employment were estimated using regression-adjusted models that controlled for age at application, race, educational attainment, and state and year fixed effects. Sources of referral are described further in Appendix C. Data on barriers are only available for youth who signed an IPE; we examined youth who signed or amended an IPE in the year that they applied for VR. Appendix C describes RSA's definitions for barriers to employment. Percentages may not sum to 100 due to rounding.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.16. Use of VR services by young adults on the autism spectrum with signed IPEs, by sex

Service (%)	Female	Male	p-value	Effect size
	Mean	Mean		
Any VR Services	90.1	90.1	0.70	-0.01
Career services	32.4	33.6	0.00***	-0.05
Job placement assistance	18.2	19.3	0.00***	-0.07
Job search assistance	19.3	20.4	0.11	-0.03
Short-term job supports	7.4	7.9	0.04**	-0.05
Supported employment services	7.7	8.1	0.22	-0.03
Training services	11.5	11.5	0.21	0.03
Four-year college or university training	0.3	0.1	0.03**	0.50
Disability-related skills training	2.4	1.9	0.01**	0.12
Job-readiness training	8.1	8.4	0.80	-0.01
On-the-job training	3.4	3.5	0.25	0.05
Pre-employment transition services	31.6	32.9	0.44	-0.01
Counseling on enrollment opportunities	11.1	11.0	0.16	0.03
Instruction in self-advocacy	10.0	10.3	0.83	0.00
Job exploration counseling	21.7	22.2	0.91	0.00
Work-based learning experiences	13.8	14.4	0.24	-0.02
Workplace readiness training	16.3	16.5	0.10	0.03
Other services	80.8	81.4	0.48	-0.01
Assessment	38.4	37.7	0.96	0.00
Benefits counseling	6.8	6.4	0.89	0.00
Diagnosis and treatment of impairments	5.3	5.1	0.31	0.03
Maintenance	12.8	11.8	0.02**	0.06
Rehabilitation technology	1.8	1.5	0.06*	0.09
Transportation	11.0	11.0	0.90	0.00
VR counseling and guidance	60.8	61.7	0.57	-0.01
Other services	5.6	5.7	0.97	0.00
Sample size	9,525	44,067	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics were estimated using regression-adjusted models that controlled for age at application, race, educational attainment, and state and year fixed effects. The sample is limited to young adults that have an IPE, which is required before they can receive services. We examined services used during the year of application. VR services are described in more detail in Appendix C.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.17. Employment outcomes among young adults on the autism spectrum who exited VR after signing an IPE, by sex

Employment outcome	Female	Male	p-value	Effect size
	Mean	Mean		
Exited with employment (%)	45.6	48.9	0.00***	-0.09
Sample size	20,336	95,304	-	-
Competitive integrated employment (%), among the employed ^a	69.6	71.1	0.00***	-0.04
Hours worked in a week (mean), among the employed	20.3	22.3	0.00***	0.00
Hourly wage (\$ mean), among the employed	9.8	10.1	0.00***	0.00
Sample size	8,985	44,894	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Employment outcomes were measured at the time of VR exit. Statistics were estimated using regression-adjusted models that controlled for age at application, race, educational attainment, and state and year fixed effects.

^a Almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.18. Characteristics of young adults on the autism spectrum who applied for VR, by race and ethnicity

Characteristic	White, non-Hispanic	Black or African American, non-Hispanic	Hispanic or Latino		Other, non-Hispanic		p-value	
	Mean	Mean	Effect size	Mean	Effect size	Mean		Effect size
Source of referral at application (%)	-	-	-	-	-	-	-	-
Educational institutions (elementary/secondary)	43.4	47.6	0.04	48.7	0.10	44.6	0.07	0.00***
Self-referral	19.4	21.8	0.01	17.5	-0.03	17.8	-0.02	0.00***
Family or friends	9.1	9.3	0.02	5.8	-0.16	7.1	-0.12	0.00***
Intellectual and developmental disabilities providers	6.2	4.5	-0.01	5.0	-0.07	7.6	0.02	0.00***
Educational institutions (postsecondary)	3.3	2.6	-0.05	4.7	0.06	3.9	0.01	0.00***
Welfare, public housing, mental or medical health provider	4.6	2.8	-0.19	3.4	-0.02	3.9	-0.05	0.00***
Department of Labor-related programs	1.0	1.2	0.01	1.4	-0.02	1.1	0.01	0.00***
Other	13.9	11.1	0.00	14.3	0.00	15.0	-0.02	0.00***
Age (mean)	19.8	19.6	-0.07	19.3	-0.17	19.8	0.00	0.00***
Female (%)	18.8	16.4	-0.06	15.4	-0.08	18.9	0.00	0.00***
Student with a disability	47.8	49.7	0.04	52.7	0.11	49.0	0.03	0.00***
Sample size	56,169	9,823	-	10,163	-	5,401	-	-
Assessed barriers to employment (%)	-	-	-	-	-	-	-	-
Foster care youth	4.8	5.6	0.09	2.3	-0.10	4.3	0.05	0.00***
Homeless individuals, homeless children and youths, or runaway youth	1.8	3.4	-0.05	1.2	0.03	1.6	-0.07	0.00***
Low income	37.3	47.8	0.35	49.3	0.29	41.7	0.06	0.00***
English language learner	6.1	9.0	0.11	15.9	0.40	10.3	0.34	0.00***
Basic skills deficient or low levels of literacy	29.0	41.4	0.34	38.9	0.22	33.7	0.09	0.00***
Is a single parent	1.9	2.5	0.18	2.3	0.08	2.2	0.09	0.00***
Sample size	36,941	6,219	-	6,799	-	3,495	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics for sources of referral, student with a disability and barriers to employment were estimated using regression-adjusted models that controlled for age at application, sex, educational attainment, and state and year fixed effects. Sources of referral are described further in Appendix C. Data on barriers are only available for youth who signed an IPE; we examined youth who signed or amended an IPE in the year that they applied for VR. Appendix C describes RSA's definitions for barriers to employment. Percentages may not sum to 100 due to rounding.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/***/ indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.19. Use of VR services by young adults on the autism spectrum with signed IPEs, by race and ethnicity

Service (%)	White, non-Hispanic	Black/African American, non-Hispanic		Hispanic or Latino		Other, non-Hispanic		p-value
	Mean	Mean	Effect size	Mean	Effect size	Mean	Effect size	
Any VR services	91.0	88.0	-0.12	85.8	-0.08	91.8	-0.09	0.00***
Career services	35.0	31.7	-0.02	26.5	-0.11	33.5	-0.09	0.00***
Job placement assistance	20.0	17.2	-0.02	15.5	-0.03	20.1	-0.05	0.00***
Job search assistance	20.4	18.3	-0.04	19.9	-0.11	23.0	-0.07	0.00***
Short-term job supports	8.7	6.2	-0.08	5.1	-0.13	6.5	-0.14	0.00***
Supported employment services	8.2	9.7	0.10	5.6	-0.13	8.1	-0.02	0.00***
Training services	11.6	12.2	-0.10	10.0	-0.07	12.1	0.08	0.00***
Four-year college or university training	-	-	-	-	-	-	-	-
Disability-related skills training	2.0	1.4	-0.12	1.9	-0.06	3.4	0.25	0.00***
Job-readiness training	8.3	9.9	-0.05	7.2	-0.04	8.4	0.03	0.00***
On-the-job training	3.6	3.0	-0.21	3.1	-0.19	3.3	0.02	0.00***
Pre-employment transition services	33.0	33.1	-0.02	31.1	0.08	30.7	0.06	0.00***
Counseling on enrollment opportunities	11.6	10.2	-0.07	8.9	-0.02	10.5	0.04	0.00***
Instruction in self-advocacy	10.4	10.8	-0.02	9.0	0.03	10.2	0.05	0.00***
Job exploration counseling	22.3	22.7	-0.01	21.5	0.12	20.0	0.05	0.00***
Work-based learning experiences	15.1	12.7	-0.04	10.9	-0.09	15.0	0.02	0.00***
Workplace readiness training	16.7	17.5	0.00	14.9	0.01	15.4	0.02	0.00***
Other services	81.4	79.1	-0.06	81.0	0.01	84.2	-0.08	0.00***
Assessment	40.3	40.9	-0.02	24.8	-0.03	31.4	-0.06	0.00***
Benefits counseling	6.2	7.2	0.20	6.4	0.04	8.4	0.09	0.00***
Diagnosis and treatment of impairments	4.9	5.4	0.18	6.0	0.10	5.7	-0.01	0.00***
Maintenance	11.1	13.3	-0.03	17.1	0.03	8.6	0.00	0.00***
Rehabilitation technology	1.6	1.7	-0.10	1.1	-0.03	1.6	0.09	0.00***
Transportation	10.2	12.4	0.23	13.1	0.10	13.2	0.04	0.00***
VR counseling and guidance	60.6	54.4	-0.11	69.7	0.00	69.2	-0.04	0.00***
Other services	5.4	5.7	0.05	7.4	0.10	5.7	0.04	0.00***
Sample size	37,046	6,225	-	6,810	-	3,511	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adults who applied for VR during program years 2017-2019. Statistics were estimated using regression-adjusted models that controlled for age at application, sex, educational attainment, and state and year fixed effects. The sample is limited to young adults that have an IPE, which is required before they can receive services. We examined services used during the year of

Table B.19 (*continued*)

application. We were unable to estimate regressions for “four-year college or university training” due to small cell sizes. VR services are described in more detail in Appendix C.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/*** indicates that the means for the subgroups are significantly different from each other (p -value less than .10/.05/.01).

Table B.20. Employment outcomes among young adults on the autism spectrum who exited VR after signing an IPE, by race and ethnicity

Employment outcome	White, non-Hispanic	Black or African American, non-Hispanic		Hispanic or Latino		Other, non-Hispanic		p-value
	Mean	Mean	Effect size	Mean	Effect size	Mean	Effect size	
Exited with employment (%)	49.9	45.5	-0.09	41.5	-0.10	47.7	-0.01	0.00***
Sample size	85,514	12,213	-	11,196	-	6,717	-	-
Competitive integrated employment (%), among the employed ^a	71.7	62.5	-0.18	74.0	0.01	68.4	-0.11	0.00***
Hours worked in a week (mean), among the employed	22.0	21.2	-0.13	22.1	0.02	21.9	-0.01	0.00***
Hourly wage (\$ mean), among the employed	10.1	9.4	-0.29	10.1	0.03	10.7	0.30	0.00***
Sample size	40,772	5,436	-	4,566	-	3,105	-	-

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adult VR clients who had an IPE and exited VR during program years 2017-2019. Employment outcomes were measured at the time of VR exit. Statistics were estimated using regression-adjusted models that controlled for age at application, sex, educational attainment, and state and year fixed effects.

^a Almost all of the remaining people who exited with employment held supported employment in competitive integrated employment, which means they were employed in competitive integrated jobs while receiving ongoing support services from VR.

RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

*/**/*** indicates that the means for the subgroups are significantly different from each other (p-value less than .10/.05/.01).

Table B.21. Monthly statistics on VR engagement among young adults on the autism spectrum who applied for VR

Month and year	Number of applications	Number of IPEs signed or amended	Number of cases closed	Number of cases closed with employment
Program year 2017				
July 2017	1,848	3,108	1,755	678
August 2017	2,120	3,737	2,202	881
September 2017	1,907	2,673	2,143	917
October 2017	2,723	3,064	2,040	817
November 2017	2,610	2,601	1,889	763
December 2017	2,116	2,806	1,875	808
January 2018	2,411	3,674	2,219	990
February 2018	2,707	3,409	2,022	816
March 2018	2,876	4,189	2,274	852
April 2018	2,613	4,413	1,973	718
May 2018	2,117	5,344	2,018	773
June 2018	849	5,297	2,335	915
Program year 2018				
July 2018	2,244	3,444	2,271	873
August 2018	2,334	4,128	2,437	916
September 2018	2,183	2,996	2,520	1,055
October 2018	3,074	3,554	2,547	898
November 2018	2,680	2,829	2,115	817
December 2018	2,303	2,978	2,033	892
January 2019	2,897	4,361	2,545	1,103
February 2019	2,913	3,894	2,202	865
March 2019	3,198	4,543	2,174	865
April 2019	3,100	5,311	2,253	858
May 2019	2,441	6,672	2,323	866
June 2019	1,102	6,777	2,459	911
Program year 2019				
July 2019	2,542	4,130	2,583	933
August 2019	2,396	4,645	2,700	963
September 2019	2,464	3,538	2,779	1,152
October 2019	3,371	4,212	2,627	926
November 2019	2,753	3,402	2,347	833
December 2019	2,397	3,899	2,486	1,023
January 2020	3,038	5,262	2,676	1,118
February 2020	3,027	4,931	2,505	981
March 2020	1,965	4,130	2,399	880
April 2020	1,037	3,635	1,822	583

Appendix B Additional Findings

Table B.21 (continued)

Month and year	Number of applications	Number of IPEs signed or amended	Number of cases closed	Number of cases closed with employment
May 2020	934	4,229	1,531	527
June 2020	607	4,991	1,946	692
Program year 2021				
July 2020	1,545	n.a.	1858	650
August 2020	1,532	n.a.	1803	607
September 2020	1,766	n.a.	2199	779
October 2020	2,146	n.a.	2155	752
November 2020	1,991	n.a.	1964	691
December 2020	1,824	n.a.	2266	853
January 2021	1,967	n.a.	2050	808
February 2021	2,270	n.a.	2058	785
March 2021	3,003	n.a.	2452	920
April 2021	2,653	n.a.	2127	799
May 2021	2,143	n.a.	1920	713
June 2021	1,167	n.a.	2807	1063

Source: RSA-911 case files, program years 2017–2020.

Note: The analytical sample includes young adults on the autism spectrum who had a VR case open during program years 2017-2019. The number of applications were counted if the date fell within the program year of the file it was on; for example, only dates between July 1, 2017, and June 30, 2018, were counted on the 2017 program year file. Similarly, the number of IPEs signed were counted if the date fell within the program year, and the number of exits were counted if the exit date fell within the program year. IPEs signed and exited include all VR applicants who signed IPEs and exited VR services in these months; that is, they were not restricted to VR applicants who applied after July 1, 2017.

n.a. = not available; program year files from program year 2020 onward contain the date the initial IPE was signed rather than the most recent date that an initial or amended IPE was signed.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

Appendix C

Glossary

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In this appendix we include definitions of sources of referral to VR services (Table C.1) and definitions of the types of VR services that applicants with signed IPEs could receive. The definitions are based on the RSA-911 Policy Directives (PDs). We referred to both the PD-16-04, which provided guidance to VR agencies reporting in program years 2017, 2018, and 2019, and the PD-19-03, which went into effect in program year 2020.

A. Sources of referral to VR agencies

At the time of VR application, VR counselors must record the individual, agency, or other entity that first referred the applicant to the VR agency. If the applicant approached the VR agency on his or her own, they were recorded as a self-referral. Table C.1 provides more information about the types of referral sources that we grouped together into broader categories.

Table C.1. Sources of referral

Category	Referral sources
DOL-related programs	DOL Employment and Training Service Programs for adults, dislocated workers, and youth Wagner-Peyser Employment Service Program Other one-stop partner Other WIOA-funded programs including Job Corps, YouthBuild, Indian and Native Americans, and Migrant and Seasonal Farmworker programs
Welfare, public housing, mental, or medical health provider	Medical health provider Mental health provider Public housing authority Temporary Assistance for Needy Families Welfare agency
Other referral sources	Adult education and literacy programs American Indian VR services program Centers for Independent Living Child Protective Services Community Rehabilitation Programs Consumer organizations or advocacy groups Employers Extended employment providers Faith based organizations Social Security Administration State Department of Correction/Juvenile Justice Veteran’s Benefits Administration Veteran’s Health Administration Other sources Other state agencies Other VR state agencies

Note: DOL = U.S. Department of Labor; VR = Vocational Rehabilitation; WIOA = Workforce Innovation and Opportunity Act.

Source: RSA (2017).

B. Definitions of barriers to employment

Section 116 of title I of WIOA requires VR and other agencies that implement the core programs to report certain data elements, including information on barriers to employment for participants. An individual is a “participant” if he or she has an approved IPE and has begun receiving VR services. We examined a subset of the barriers to employment that WIOA requires programs to track, focusing on six barriers that are more likely to be prevalent among our sample of young adults. VR counselors assessed barriers at the time of developing an IPE, and could assess more than one barrier per client. Below we list the six barriers as well as their definitions per RSA’s policy directive PD-16-03 (RSA 2017):

- **Low income:** An individual is considered low income if he/she: (a) receives, or in the 6 months prior to VR application has received, or is a member of a family that is receiving or in the past 6 months prior to application to the program has received assistance through the supplemental nutrition assistance program, temporary assistance for needy families program, Supplemental security income program or state or local income-based public assistance; (b) is in a family with income that does not exceed the higher of the poverty line or 70 percent of the lower living standard income level; (c) is a youth who receives, or is eligible to receive a free or reduced price lunch; (d) is a foster child on behalf of whom State or local government payments are made; (e) is an individual with a disability whose own income is below the poverty line but who is a member of a family whose income does not meet this requirement; (f) is a homeless individual or a homeless child or youth or runaway youth; (g) is a youth living in a high poverty area.
- **Basic skills deficient or low levels of literacy:** An individual is considered to be basic skills deficient/low levels of literacy if he/she is either: (a) a youth, who has English reading, writing, or computing skills at or below the 8th grade level on a generally accepted standardized test; or (b) a youth or adult, who is unable to compute and solve problems, or read, write, or speak English at a level necessary to function on the job, in the individual’s family, or in society.
- **English language learner:** An individual is considered an English language learner if he/she is a person who has limited ability in speaking, reading, writing or understanding the English language and also meets at least one of the following two conditions (a) his or her native language is a language other than English, or (b) he or she lives in a family or community environment where a language other than English is the dominant language.
- **Foster care youth:** Individual is currently in foster care or has aged out of the foster care system.
- **Homeless individuals, homeless children and youths, or runaway youth:** An individual who either: (a) lacks a fixed, regular, and adequate nighttime residence; or (b) has a primary nighttime residence that is a public or private place not designed for or ordinarily used as a regular sleeping accommodation for human beings, such as a car, park, abandoned building, bus or train station, airport, or camping ground; or (c) is a migratory child who in the preceding 36 months was required to move from one school district to another due to changes in the parent’s or parent’s spouse’s seasonal employment in agriculture, dairy, or fishing work; or (d) is under 18 years of age and absents himself or herself from home or place of legal residence without the permission of his or her family (i.e., runaway youth).
- **Is a single parent:** An individual is a single parent if they are single, separated, divorced, or widowed, and have primary responsibility for one or more dependent children under age 18 (including single pregnant woman).

C. Definitions of VR services

Below we describe the types of VR services recorded in the RSA case records (RSA 2017).

Career services refer to the services described in WIOA Sec 134(c)(2)(A)(xii). They include:

- **Job placement assistance.** Referral to a specific job resulting in an interview.
- **Job search assistance.** Activities that support and assist an individual in searching for an appropriate job, such as resume preparation, identifying appropriate job opportunities, developing interview skills, and contacting companies on behalf of the consumer.
- **Short-term job supports.**
- **Supported employment.** Ongoing support services, including customized employment, and other appropriate services needed to support and maintain a person with a most significant disability in supported employment. Typically, services are provided to support the transition to competitive integrated employment and are offered in a time-limited capacity (not to exceed 24 months, unless under special circumstances).

Training services refer to services described in WIOA Sec 134(c)(3). They are designed to help people improve educationally or vocationally or to adjust to the functional limitations of his or her impairment. They include:

- **Four-year college or university training.** Full-time or part-time academic training leading to a baccalaureate degree, a certificate, or another recognized credential less than the postgraduate level.
- **Disability-related skills training.** Augmentative skills training including but not limited to orientation and mobility; rehabilitation teaching; training in the use of low-vision aids; braille; speech reading; sign language; and cognitive training/retraining.
- **Job-readiness training.** Training provided to prepare a person for work, such as work behaviors, interpersonal communication skills, or increasing productivity.
- **On-the-job training.** Training in specific job skills by a prospective employer. Generally, the trainee is paid during this training.

Pre-employment transition services (pre-ETS) offer students with disabilities an early start at career exploration and preparation for adult life. Beginning at age 14, students with disabilities can connect with VR agencies for pre-ETS. The required pre-ETS include:

- **Counseling on opportunities for enrollment** in comprehensive transition or postsecondary educational programs at institutions of higher education.
- **Instruction in self-advocacy** (including instruction in person-centered planning), which may include peer mentoring (including peer mentoring from people with disabilities working in competitive integrated employment).
- **Job exploration counseling**, or career counseling, which can include a wide variety of professional activities which help people with career-related issues (Workforce Innovation Technical Assistance Center 2022).
- **Work-based learning experiences**, which may include in-school or after school opportunities, or experience outside the traditional school setting (including internships), that is provided in an integrated environment in the community to the maximum extent possible.

- **Workplace readiness training** to develop social skills and independent living.

Other services include:

- **Assessment.** Services provided and activities performed to determine a person’s eligibility for VR services, to assign a person to a priority category of a VR program that operates under an order of selection, and/or to determine the nature and scope of VR services to be included in the IPE.
- **Benefits counseling.** Assistance provided to a person who is interested in becoming employed but is uncertain of the impact work income may have on any disability benefits and entitlements they receive, and/or is not aware of benefits, such as access to healthcare, that might be available to support employment efforts.
- **Diagnosis and treatment of impairments.** Corrective surgery or therapeutic treatment, diagnosis and treatment of mental and emotional disorders, dentistry, nursing services, necessary hospitalization, drugs and supplies, prosthetics, eyeglasses, podiatry, physical therapy, occupation therapy, speech or hearing therapy, mental health services, treatment of acute or chronic medical complications, other medical or medically related rehabilitation services.
- **Maintenance.** Monetary support that a person receives for living expenses such as food, shelter and clothing that are in excess of the normal expenses of the person.
- **Rehabilitation technology.** Systematic application of technologies, engineering methodologies, or scientific principles to meet the needs of, and address the barriers confronted by, people with disabilities.
- **Transportation.** Travel and related expenses that are necessary to enable an applicant or eligible person to participate in a VR service, including expenses for training in the use of public transportation vehicles and systems.
- **VR counseling and guidance.** Information and support services to assist an individual in exercising informed choice (distinct from case management).
- **Other services.** Services that cannot be recorded elsewhere, such as provision of funds for occupational licenses, tools and equipment, or initial stocks and supplies.

D. Definitions of occupations

For an individual who is employed, VR records the six-digit standard occupational classification (SOC) that best describes the individual’s primary occupation at VR exit (RSA 2017). The 2018 SOC system includes 867 occupations across 23 major occupational groups that can be identified using the first two digits of the occupational codes. For clarity and conciseness, we collapsed these major occupational groups further in the report to obtain the categories below. We excluded military specific occupations (55-0000) since these are distinctively different from other occupations and only concerns a small number of people (0.0 percent or 22). Table C.2 shows the distribution of the two-digit occupational groups across the 58,110 autistic youth who had an IPE and exited VR with employment during program years 2017 to 2019.

- Service.
 - Healthcare support occupations (31-0000)
 - Protective service occupations (33-0000)
 - Food preparation and serving related occupations (35-0000)

- Building and grounds cleaning and maintenance occupations (37-0000)
- Personal care and service occupations (39-0000)
- Office and administrative support.
 - Office and administrative support occupations (43-0000)
- Production and transportation.
 - Production occupations (51-0000)
 - Transportation and material moving occupations (53-0000)
- Sales and related.
 - Sales and related occupations (41-0000)
- Management, business and financial.
 - Management occupations (11-0000)
 - Business and financial operations occupations (13-0000).
 - Computer and mathematical occupations (15-000)
 - Architecture and engineering occupations (17-0000)
 - Life, physical, and social science occupations (19-0000)
 - Community and social service occupations (21-0000)
 - Legal occupations (23-0000)
 - Educational instruction and library occupations (25-0000)
 - Arts, design, entertainment, sports, and media occupations (27-0000)
 - Healthcare practitioners and technical occupations (29-0000)
- Natural resources, construction, and maintenance.
 - Farming, Fishing, and Forestry Occupations (45-000)
 - Construction and extraction occupations (47-0000)
 - Installation, Maintenance, and Repair Occupations (49-0000)

Table C.2. Occupations among autistic young adults that signed an IPE and exited VR with employment during program years 2017-2019

Occupational family (%)	Young adults on the autism spectrum who exited VR with employment
Management occupations (11-0000)	0.3
Business and financial operations occupations (13-0000)	0.5
Computer and mathematical occupations (15-0000)	2.0
Architecture and engineering occupations (17-0000)	0.6
Life, physical, and social science occupations (19-0000)	0.3
Community and social service occupations (21-0000)	0.4
Legal occupations (23-0000)	0.1
Educational instruction and library occupations (25-0000)	0.9
Arts, design, entertainment, sports, and media occupations (27-0000)	0.9
Healthcare practitioners and technical occupations (29-0000)	0.6
Healthcare support occupations (31-0000)	0.9
Protective service occupations (33-0000)	0.6
Food preparation and serving related occupations (35-0000)	17.3
Building and grounds cleaning and maintenance occupations (37-0000)	9.0
Personal care and service occupations (39-0000)	4.6
Sales and related occupations (41-0000)	7.4
Office and administrative support occupations (43-0000)	23.4
Farming, fishing, and forestry occupations (45-0000)	0.3
Construction and extraction occupations (47-0000)	0.5
Installation, maintenance, and repair occupations (49-0000)	2.3
Production occupations (51-0000)	8.1
Transportation and material moving occupations (53-0000)	8.5
Military specific occupations (55-0000)	0.0
Missing	10.7
Sample size	58,110

Source: RSA-911 case files, program years 2017–2019.

Note: The analytical sample includes young adult VR clients who had an IPE and exited VR with employment during program years 2017-2019. Percentages may not sum to 100 due to rounding. Number in parentheses refers to the six-digit standard occupational classification (SOC) code.

IPE = individualized plan for employment; RSA = Rehabilitation Services Administration; VR = Vocational Rehabilitation.

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