# Return on Investment of Vocational Rehabilitation Services for Transition-Age Youth With Disabilities in Maine

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**RESEARCH BRIEF**

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## Introduction

In 2020, the United States celebrated the 100th anniversary of the Vocational Rehabilitation (VR) Program, the first federally funded program to assist people with disabilities who did not acquire their disabilities as a result of serving in the military. VR programs, which are jointly funded by the Rehabilitation Services Administration (RSA) and state rehabilitation agencies, spend more than $3 billion and serve approximately 1.4 million clients each year (U.S. Department of Education, 2019). The VR Program is the largest workforce program to provide employment services to help people with disabilities to retain or obtain competitive integrated employment commensurate with their abilities and capabilities.

Increasingly, VR policy makers and researchers have access to data on how VR programs are serving their clients. Such data include individual administrative data collected through the Case Service Report (RSA 911) and state unemployment insurance (UI) records on employment and earning outcomes. The availability of these data, combined with public discussion of the limited resources available for people with disabilities, has led to rising interest in the return on investment (ROI) of VR programs. Measuring the relative benefits of VR programs against the costs of such programs is important because people with disabilities need such information to make an informed decision about whether to seek VR services. Policy makers and practitioners can use ROI information to assess program efficiency and decide on resource allocation. However, measuring the value of VR programs, both at the agency level and at an individual level, is a complex process.

Earlier studies on the ROI of VR programs have serious shortcomings, including outdated data, a focus on a small sample of VR clients that might not be generalizable to other clients, and analytical methods that cannot control for self-selection into receiving VR services. A recent series of articles by

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Dean et al. (2015, 2017, 2018, 2019) estimated structural models of service participation and examined the effects of VR services separately for individuals with cognitive, mental, and physical disabilities who applied for VR services in Virginia in 2000. The studies showed that VR services had positive employment effects in both the short run (initial 2 years from service participation) and the long run (beyond 2 years since service participation). These results provide empirical evidence of the benefits of VR services for adults with disabilities.

Although the existing literature highlights some evidence on the positive effects of VR services, such evidence is insufficient because most of it is concentrated in Virginia and most studies focus on adults with specific types of disabilities. In addition, prior studies focused on the effect of VR services on labor market outcomes at the time of VR case closure (for example, Dean & Dolan, 1991a; Nowak, 1983) and do not differentiate between outcomes seen while receiving VR services and outcomes after VR services (Dean et al., 2015, 2017, 2018, 2019). Estimating the benefits or effects of VR services during VR and after exiting from VR separately is important because clients may be placed in supported employment, which may inflate the benefit calculation. This method also captures the sustainability of VR program impact after individuals completely disengage from VR (Dutta-Gupta et al., 2016).

In this study, we try to bridge these gaps in the literature by examining the ROI of VR programs for transition-age youth with disabilities (aged 14–24) in Maine during and after VR exit. In this brief, we present our approach for calculating ROI in VR programs for both individual clients and state taxpayers. Our approach focuses on the aggregate costs and benefits of VR services for transition-age youth with disabilities, which is critical for policy making. However, stakeholders should also be mindful of the heterogeneous effects of VR services on youth with varying backgrounds and needs.

## The Focus on Transition-Age Youth With Disabilities

For youth with disabilities, the transition from adolescence into adulthood is a critical yet challenging phase that is crucial for human capital development and long-term success in the labor market (Gregg & Tominey, 2005; Heckman et al., 2006; Mroz & Savage, 2006). Despite the existence of legislation and public policy initiatives aimed at expanding services for youth with disabilities to support their transitions into adulthood, national data show persistent gaps in labor market participation and employment rates between youth with and without disabilities.

State VR agencies play a critical role in helping transition-age youth with disabilities achieve their labor market potential and obtain employment through a highly flexible and interactive process. Transition-age youth represent an increasingly large proportion of VR clients. Nationally, among all VR clients, the proportion of transition-age youth increased from less than one-third between 2004 and 2006 (Honeycutt et al., 2015) to 37% in program year 2017 (based on the authors' calculations using RSA 911 data and data from the American Community Survey). Furthermore, although early VR programs

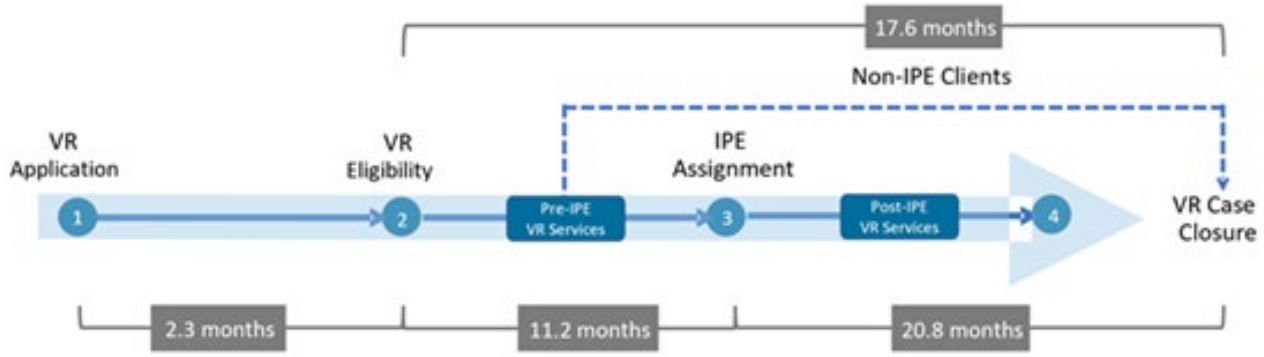
focused on serving adults with physical disabilities, current state VR programs are required to reserve 15% of state VR grants for pre-employment transition services as amended by the Workforce Innovation and Opportunity Act (WIOA). However, empirical evidence on the impact of VR programs on transition-age youth with disabilities is scarce, and the ROI of VR programs on this population has never been studied before. Therefore, this study fills a gap in the literature by using a rigorous quasi-experimental study design and administrative data from Maine.

## The Vocational Rehabilitation (VR) Service Process

State VR agencies serve both in-school and out-of-school transition-age youth with disabilities. For in-school students who are receiving VR services, VR agency staff often participate in secondary school transition planning, aiming to provide a seamless connection between public school and VR systems and a smooth transition from school to work. Transition-age youth who are not in school are usually referred to VR agencies through other channels, but once they are in the VR system, their service process is similar to that of in-school youth. The VR service process involves four key steps:

- VR counselors assess applicants' eligibility based on their disability type and severity, their vocational goals, and the VR agency's priorities and resources, among other criteria.
- Because of capacity constraints, among eligible clients, VR counselors prioritize the development of Individualized Plan[s] for Employment (IPEs) for clients with severe disabilities and clients who are deemed most likely to benefit from VR services.
- A series of VR services is provided to IPE participants, as prescribed by the IPE.
- The case is closed by the VR agency if the client achieves competitive employment for longer than 90 days (referred to as a "successful" closure by the VR agency) or if the individual is no longer eligible, is unavailable for diagnostic or planned services, or chooses not to participate (referred to as an "unsuccessful" closure by the VR agency).[1]

**Exhibit 1. VR Service Process and Duration Based on YWD Receiving VR Services in Maine**




[1] Unsuccessful closure does not necessarily mean that an individual is unemployed, because that person can seek and obtain competitive employment on their own. Most unsuccessful closures are a result of the VR agency being unable to contact clients.

## Our Data

Our data come from two main sources. First, we use administrative records from the Maine DVR on services offered to VR clients, as mandated by the Rehabilitation Act of 1973. These data include information on VR client background characteristics and dates of VR eligibility determination, IPE implementation, and VR case closure. Second, we use individual wage record data from the UI files from the Maine Department of Labor (DOL). For transition-age youth aged 14–24 at the time of VR application, the Maine DOL merged the VR client IDs with their UI wage records using individual Social Security numbers to create a longitudinal record of quarterly employment status and earnings for eight quarters prior to VR eligibility, all quarters between VR eligibility and VR case closure, and eight quarters after VR case closure. This resulted in 14,815 unique VR transition-age youth clients who became eligible for VR services between January 2005 and August 2017.

As shown in the VR service process (Exhibit 1), pre-IPE services are more diagnostic or exploratory in nature, while post-IPE services are tailored and oriented toward employment goals. We refer to individuals who were eligible for VR services but had left the system before an IPE was developed as the non-VR group. For transition-age youth who applied to receive Maine VR services between 2005 and mid-2017, it took about 2.3 months, on average, from VR application to eligibility determination. VR clients with an IPE had an 11-month wait on average before an IPE was developed and they received VR services for 20.8 months before a case was closed. For VR clients without an IPE, it took about 17.6 months from the time of VR eligibility to case closure.

## Estimating the Benefits of VR on Labor Market Outcomes

The benefits of VR are quantified as the differences in employment rates and earnings between transition-age youth with disabilities who participated in the VR program and the outcomes for transition-age youth who did not participate in the program. The challenge of performing the estimation, however, is that we do not observe employment and earning outcomes for non-VR participants, if they had received VR services. In our study, we used an instrumental variable (IV) design to (1) identify the impact of VR services on labor market outcomes for transition-age youth with disabilities and (2) compare labor market outcomes for VR-eligible youth who received an IPE and corresponding services with youth who did not receive such services.

For clients with comparable background characteristics and a comparable likelihood of receiving VR services,[2] we found that receiving VR services (as prescribed by an IPE) increased participants' average quarterly earnings by $506.70 (a 51.4% increase from baseline) during VR services. For the eight

[2] We find that about 36% of VR-eligible transition-age youth are on the margin of IPE participation or receiving VR services.

quarters after VR case closure, receiving VR services increased participants' average quarterly employment rate by 15.4 percentage points (a 35.4% increase) and average quarterly earnings by $1,442 (an 84.5% increase). We estimated these impacts based on a quasi-experimental design (Yin et al., 2021).

## Estimating the Costs of Providing VR

The cost of providing VR services includes two key components: (1) "purchased" services provided by outside vendors; and (2) "in-house" services provided by VR agency personnel. To estimate the costs of providing VR services, we obtained administrative service data from the Maine DVR for purchased VR services for youth between 2014 and 2017, and we observed the exact payment amount for each service. For our transition-age youth sample, VR clients received an average of 11 paid services, while non-VR clients received an average of 0.6 paid services.

Expenditures on purchased VR services for VR participants averaged $2,525 per client compared with $120 for non-VR clients. According to RSA's annual monitoring report on Maine DVR's supported employment programs, expenditures on purchased services accounted for about 43% of the total expenditures (U.S. Department of Education, 2018). Assuming a constant scaling factor of 0.43 across the transition-age youth sample, we estimated a total cost of $5,872 ($2,525/0.43) for each IPE recipient and $278 ($120/0.43) for each non-IPE VR client, which is a difference of $5,594 in total cost per client by VR participation status.

## An Individual's Return on Investment

It is important to look at ROI at the individual client level because the benefits are reaped at the participant level in the form of increased wages and employment and, ultimately, better life outcomes. We calculated the ROI of VR services for individual VR clients as the ratio of the present value of total benefits of the program for VR clients and the present value of total costs of providing VR services. As explained in the previous section, participation in VR leads to increased earnings. These increased earnings translate to higher incomes and higher taxes paid back to society, as well as savings in Social Security and other public programs. The increased taxes are a cost to VR participants but a benefit to the public. To calculate the income and other taxes associated with increased earnings, we used the current rate of 6.2% to calculate payroll taxes (which covers Social Security and Medicaid) paid both by employers and by employees, which was 2.5% for federal income tax,[3] 5% for state income tax, and 5.5% for excise or sales tax.

[3] The source used was the Internal Revenue Service (IRS) Selected Income and Tax Items, by Size and Accumulated Size of Adjusted Gross Income. In 2017, the IRS reported that, for AGI between $5,000 and $10,000, the average tax rate was approximately 2.5%. Source: https://www.irs.gov/statistics/soi-tax-stats-individual-statistical-tables-by-size-of-adjusted-gross-income

With an increase in employment and earnings, workers will also accrue additional fringe benefits in the form of insurance, retirement or savings plan contributions, supplemental pay, paid leave, and other non-cash benefits. To estimate these additional benefits, we used information on average employer costs for employee compensation in 2017 as reported by the Bureau of Labor Statistics (BLS). The BLS reported that the ratio of fringe benefits (defined as paid leave plus paid insurances plus retirement plan contributions plus other benefits) to gross wages and salaries (including supplemental pay such as overtime) was approximately 25% between 2005 and 2017 for part-time workers and non-union workers in low-paying jobs (BLS, 2020). Using this estimate, we added a fringe benefit part to the total benefits for VR clients.

We found that the estimated benefit-to-cost ratio suggests that every $1 spent in the VR program returns $2.9 for the VR client within a 3.5-year window after initial VR service. Because VR agencies do not incur further costs after clients exit the system, the improved labor market outcomes will likely persist over time. Next, we estimated the lifelong ROI and found that the estimated benefit-to-cost ratio suggests that every $1 spent in the VR program returns $21.5 for the VR client within a 43-year working life span after initial VR service. See Exhibit 1 for detailed estimates and assumptions and Exhibit 2 for main findings.

## Social Returns on Investment

Determining the social ROIs for the VR program is complex because it is not always clear, based on the federal and state perspectives, what counts as a benefit or a cost. The improved labor market outcomes from receiving VR services likely lead to increased tax revenue and decreased reliance on social welfare programs. Although the estimation of tax benefits is straightforward, quantifying the decreased amount of disability benefits, food stamps, or other public assistance and unemployment benefits is complicated. In August 2021, the average sum of monthly Social Security and Supplemental Security Income (SSI) for beneficiaries with disabilities under age 65 was $1,299 (SSA, 2021). The amount of SSI federal benefit depends on an individual's countable income, which includes both earned and unearned income. Because we do not have access to data on unearned income or on SSI/SSDI status before VR participation, we are unable to reliably estimate the decrease in SSI/SSDI income due to increases in employment and earnings. However, the most direct social benefits include taxes earned by the state once individuals with disabilities benefiting from VR services enter the labor force and become employed. Our estimated benefit-to-cost ratio suggests that every $1 spent in the VR program returns $0.5 to the state in the form of taxes within a 3.5-year window after initial VR service, and $3.9 to the state in the form of taxes within a 43-year working life span window after initial VR service.

# Conclusion and Implications for Policy Makers

Improved labor market outcomes among transition-age youth in the VR program lead to significant ROIs for both the individual and the state. Our findings show that VR programs have sustained positive effects for VR participants after VR case closure, which suggests that VR services increase human capital for transition-age youth with disabilities, especially for younger youth, and likely have a beneficial impact on their future employment prospects and earnings.

The improved labor market outcomes also convey a number of social benefits, and some may lead to indirect benefits. For instance, higher wages and employment rates may lead to lower crime rates (Machin & Meghir, 2004) and improved health outcomes due to greater access to employer-based insurance. There are also spillovers or externalities from better labor market outcomes. Investing in VR programs for one generation may have long-term positive effects for subsequent generations. Although we can estimate the general effects of additional investments in VR programs, precisely calculating the exact aggregate benefits of VR programs is close to impossible. Therefore, our estimated ROIs for individuals and the state are within the lower bound of the true returns.

Investing in VR programs confers considerable and far-reaching benefits not only for program participants but also for society. Aside from the direct benefits we quantified in this study in the form of taxes, investments in VR programs could also yield a more equitable and diverse workforce and improve social inclusion for the whole of society. When deciding on new policies and funding for VR programs, policy makers should identify the outcomes they hope to achieve and the subpopulations who may be most affected. For example, our study shows that transition-age youth with disabilities benefit greatly from VR program participation, especially younger adults. VR programs may want to focus on increasing access to VR services among youth with disabilities.

Although VR programs offer a variety of services, our study did not investigate the relative impact of different types of services or the sequence of services that lead to most improved labor market outcomes. Future studies that investigate the cost benefit of service sequence or pathways to employment may generate more guidance on policy design. In addition, youth and adults with different types of disabilities have different employment needs and goals. Research on the cost and benefits of providing services by disability type can also generate strong policy implications.

**Exhibit 2. Estimates of Program Benefits**

| Benefit/Cost | First 6 quarters post VR start (USD) | | 166* quarters post VR case closure (USD) | | Assumptions |
|---|---|---|---|---|---|
| | Participant | State | Participant | State | |
| **Benefits** | | | | | |
| Earnings | 2,968 | 0 | 110,898 | 0 | |
| Fringe benefits | 742 | 0 | 27,725 | 0 | Rate of 25% |
| **Taxes** | | | | | |
| Payroll tax | -184 | 184 | -6876 | 6876 | Rate of 6.2% |
| Sales/excise tax | -163 | 163 | -6099 | 6099 | Rate of 5.5% |
| Federal income tax | -74 | 74 | -2772 | 2772 | Rate of 2.5% |
| State income tax | -148 | 148 | -5545 | 5545 | Rate of 5.0% |
| *Net benefits* | *3140* | *570* | *117330* | *21292* | |

*Assuming working life span of 43 years.

**Exhibit 3 Benefit-to-Cost Ratios (USD)**

| | Participant | State |
|---|---|---|
| Aggregated over 3.5 years | | |
| Aggregated benefits | 14247 | 2585 |
| Aggregated costs | 0 | 5594 |
| *3.5-year ROI* | *2.55* | *0.46* |
| Aggregated over lifetime | | |
| Aggregated benefits | 120470 | 21862 |
| Aggregated costs | 0 | 5594 |
| *Lifetime ROI* | *21.54* | *3.91* |

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