DISABILITY EMPLOYMENT: AN ANALYSIS OF THE EFFICACY OF STATE TAX CREDITS

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
at Georgetown University
to fulfill the requirement for
degree of
a Master of Arts in Public Policy

By

Matteo A. Lieb, B.A.

Washington, DC
April 29, 2021

DISABILITY EMPLOYMENT: AN ANALYSIS OF THE EFFICACY OF STATE TAX CREDITS

Matteo A. Lieb, B.A.

Thesis Advisor: Stipica Mudrazija, Ph.D.

ABSTRACT

People with disabilities are often excluded from the workforce. To address this ongoing challenge, lawmakers have enacted a series of legislative solutions including; the Rehabilitation Act of 1973 and the Americans with Disabilities Act. One solution that has seen limited implementation is the availability of state tax credits for businesses who hire people with disabilities. There are currently six states of differing demographic, economic, and political makeup that offer companies such tax credits. These tax credit programs are implemented to increase demand for employees with disabilities, and in turn improve disability employment outcomes.

This thesis presents detailed analysis on the efficacy of state disability employment programs in their effort to improve disability employment outcomes. It builds on existing literature to evaluate how previous research has used Case Service Report (RSA-911) data. Additionally, it considers how other authors have evaluated disability employment tax credits overseas, the impacts of the Work Opportunity Tax Credit (WOTC), and other state employment tax credits.

To conduct this analysis, this thesis uses Case Service Report (RSA-911) data from the U.S. Department of Education. It utilizes an OLS regression and propensity score matching analytical approach. This thesis identifies a statistically significant relationship between states offering tax credit programs and improved disability employment outcomes. Since many policymakers continue to be uncertain over the efficacy of such tax credits, this analysis offers valuable insight as to their potential benefits to the disability community and the need for further research.

To all the amazing faculty and staff members at the McCourt School of Public Policy at Georgetown University, thank you for your guidance and support along this journey!

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

The pursuit of greater diversity, equity and inclusion in the workplace has become an increased point of focus for many policymakers, advocates, and business leaders. One group of people that is likely to benefit from this increased focus is the disability community. This is particularly relevant given the significant barriers and limited access to the workforce that people with disabilities face in their professional lives. Whether it be stigma, limited access to accessibility, or transportation barriers, people with disabilities need public policy solutions to overcome these challenges. Over the past ten years, people over the age of sixteen with a disability have been employed at an average rate of 18.1% (Federal Reserve Bank of St. Louis, 2020). Given this history of workforce exclusion faced by the disability community, several policy solutions have been designed and implemented over the past several decades. These solutions include increasing the accessibility of work environments, mandating that employees with disabilities should have access to reasonable accommodations, and banning employment discrimination based on disability. Over time, these policies, including the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973, have been carefully examined and policy changes continue to emerge as perceptions and expectations of employees with disabilities evolve (Novak, 2015).

However, one solution to this problem continues to receive limited attention from both policymakers and researchers. This solution is a policy that incentivizes employers to hire people with disabilities; improving disability employment outcomes.

One such example of this type of policy is to incentivize private-sector employers to hire people with disabilities through tax credits. The Work Opportunity Tax Credit (WOTC), is a federal tax credit program designed to reward businesses for hiring people who are underrepresented in the workforce, including veterans, people convicted of felonies, and Supplemental Security Income (SSI) recipients (United States Census Bureau, 2020). It is important to acknowledge that the WOTC is not a disability specific policy and that no such tax credit program exists on a federal level that is targeted exclusively for the disability community. However, there are several states that have passed tax credit programs for their specific jurisdictions that motivate employers to hire people with disabilities, including Maryland and New York (Cornell University, n.d.). Since a large majority of states do not have such policies, it may be beneficial to better understand their efficacy at increasing access to the workforce for people with disabilities. While

different states utilize a variety of policy tools at their disposal to increase this access, it is not clear how much of an impact these state tax credit policies have in increasing disability employment outcomes.

This thesis seeks to shed light on whether or not these state tax credit policies actually incentivize employers to hire more people with disabilities. To assess this relationship, it compares the disability employment outcomes between states that do and states that do not have these state disability tax credit programs. Given that this thesis evaluates a dependent variable of disability employment outcomes, it is imperative to utilize a dataset that accurately depicts it. Therefore, this thesis utilizes the Case Service Report (RSA-911) from the US Department of Education. This dataset contains information on hundreds of thousands of Vocational Rehabilitation (VR) clients over time. This detailed information allows this thesis to utilize a fixed-effects multiple regression statistical approach to analyze this relationship.

I evaluates several themes in existing literature to inform the process that went into this analysis. I will also lay out the conceptual framework and associated research hypothesis. Additionally, information is provided on the RSA-911 data set and the methods used within the proposed thesis. This includes a breakdown of the specific variables being included in the analysis. These results have the potential to clarify and better understand the value that state disability tax credits offer in increasing disability employment. This is particularly important as states and other government entities seek to identify effective policy solutions to incentivizing employers to hire more people with disabilities.

LITERATURE REVIEW

Throughout the past several decades, extensive research has been conducted into factors that are correlated with positive employment outcomes. Prior to conducting this analysis, it is important to assess existing literature and evaluate their implications for this thesis. It will present information from studies that assess: the international landscape for disability employment tax credits, the efficacy of the Work Opportunity Tax Credit (WOTC), existing state tax credit initiatives, and other studies that utilize RSA-911 data. Evaluating the literature, including their approaches and methods, around these themes will offer greater clarity to the substance and methods of this thesis.

International Employment Tax Credits

Other nations have implemented disability specific employment programs to increase access to the workforce for people with disabilities. Although these approaches are not universal, it is important to

understand how and to what degree of efficacy other countries have incentivized employers to hire people with disabilities. One example is the study by Nikolay Angelov and Marcus Eliason that assessed the efficacy of a wage subsidy program for employees with disabilities in Sweden. As will be referenced in some of the studies below, Angelov and Eliason use a difference-in-differences approach to their analysis (Angelov & Eliason, 2018). They find that the program has statistically significant short-term positive effects on employment for people with disabilities, but that those effects diminish over time (Angelov & Eliason, 2018). That difference is relevant given that this thesis will only be evaluating short-term disability employment outcomes. This study went a step further and assessed several other key employment outcomes, including whether subsidies translated to unsubsidized employment and the impact it had on keeping people in the labor force. However, it is important to note that this study did not evaluate the impact of tax credits in Sweden, but rather wage subsidies. While these are similar in their intended impact, they are different approaches to incentivizing employers to hire people with disabilities and may need a different analytical approach.

The scale of these disability tax credit or subsidy programs varies greatly by country, with some impacting less than 1% of the working populations and others over 10% (Deuchert & Kauer, 2017). A study by Deuchert and Kauer evaluated disability employment wage subsidies in Switzerland. While their sample size for their randomization process may have been small, they did find that the subsidies were not effective across the board (Deuchert & Kauer, 2017). It is important to consider these international examples and how these disability specific programs have impacted each country when then looking at individual state results within the United States.

Work Opportunity Tax Credit (WOTC) Impact

The United States offers the Work Opportunity Tax Credit through the Internal Revenue Service (IRS) to employers who hire people from certain demographic groups. One of those groups are Supplemental Security Income (SSI) beneficiaries, who in order to meet eligibility must have a disability. In Fiscal Year 2017, the WOTC program accounted for an estimated $1.3 billion in credits through over two million certificates across the country (Congressional Research Service, 2018). However, it is important to note that this program benefits people from a multitude of demographics and therefore not exclusively people with disabilities.

Critical to this efficacy of the WOTC is the underlying economic concept that subsidizing employment for certain groups will increase demand for those groups (Hamersma, 2008). However, the evidence is not clear on the reality of this effect for the WOTC. In 2008, Sarah Hamersma conducted a difference-in-differences study that assessed the impact of the WOTC and the Welfare-to-Work (WtW) tax credit in Wisconsin. Much like in the previously referenced studies, Hamersma found that while there was a statistically significant short-term positive employment benefit for people who are WOTC eligible there were no quantifiable longer-term employment improvements (Hamersma, 2008). Once again, this is an important consideration given the short-term focus of this thesis. It is also important to recognize the limitations of this study in that it has external validity concerns given that it analyzed just the state of Wisconsin. Additionally, Hamersma's study was published in 2008, which means the results found may not be as applicable to the effects of the WOTC today given the changes the program has gone through in the extension process (Congressional Research Service, 2018). These are both factors that this thesis will pursue differently given its nationwide focus and use of more current data.

There are concerns with the incentive structure of the WOTC in that employers may want to pursue the substitution of workers (Ajilore, 2012). Unlike Hamersma's study, Ajilore assessed this problem using national data from the Current Population Survey. Ajilore's study also used a difference-in-differences method and did not find any evidence to suggest workers were being substituted and that the WOTC did have long term positive employment benefits (Ajilore, 2012). This result is significant given the thorough controls Ajilore used in the analysis. Given that the WOTC is designed to increase employment for several distinct groups, there are studies that have looked at WOTC's efficacy for individual groups. One of those was an evaluation of the efficacy of the program for veterans conducted by Paul Heaton in 2012. Heaton's study focused on an expansion of the WOTC for veterans with disabilities and found that this expansion had a positive relationship with hiring for that group (Heaton, 2012). However, it is important to note that this positive relationship was not consistent across all demographic groups within this veteran population. These studies highlight the uncertainty around the federal WOTC program and offer valuable insight into how one might evaluate similar programs on the state level.

State Tax Credit Initiatives

A critical aspect of this thesis is that states differ in their approach to tax credits. This informed my analysis both from a methodological and substantive standpoint. One important consideration is whether any state tax credit program created new employment opportunities or simply subsidized hiring that would have occurred regardless (Faulk, 2002). As has been observed across the referenced studies, the effects of such employment tax credits vary. According to Dagney Faulk, larger employers experienced larger changes in employment when participating in an employment tax credit (Faulk, 2002). Overall, the study did find that companies participating in such a program generated roughly 25% more jobs that those that didn't (Faulk, 2002). However, it is important to consider that Faulk's study focused primarily on Georgia as opposed to considering a multitude of states. This is different to the approach being utilized by this thesis which will conduct state-level analysis across the entire nation.

Another study by Neumark and Grijalva takes this concern into account and evaluates several states with employment tax credits (Neumark & Grijalva, 2016). Much like other studies referenced above, they used a difference-in-differences approach to compare states that did and did utilize employment tax credits (Neumark & Grijalva, 2016). Once again, they concluded that the tax credits did not have a consistent level of efficacy across all demographics and that it is critical to look closely at the results (Neumark & Grijalva, 2016). Therefore, in evaluating state disability employment tax credits it is important to consider the variation that may be observed across different groups within the disability community.

Use of RSA-911 Data

Regardless of the disability, people with disabilities turn to VR services for support towards attaining employment. This support takes many forms, including pre-employment training, vocational education, and job placement and support. Therefore, the Case Service Report (RSA-911) data compiled by state VR agencies offers a comprehensive representation of disability employment outcomes. This dataset is utilized across a multitude of studies that assess disability employment outcomes within the United States. One of the critical aspects of this data set is its inclusion of variables that would otherwise be considered omitted. For example, a study that assessed vocational outcomes for people with epilepsy, which utilized the RSA-911 dataset, provided valuable information on the demographics within their data and was incorporated within their model (Sung, Muller, Jones, & Chan, 2014).

Similarly, a study by Edward Bell used this same dataset to evaluate competitive employment outcomes for people who are legally blind. In Bell's analysis, they discussed some of the challenges with the RSA-911 data, however, they highlighted what they had done to overcome those concerns (Bell, 2010). These two, and the many other studies in the disability employment field, highlight the value that the RSA-911 dataset offers in evaluating disability employment outcomes in the United States. However, it is important to consider whether the RSA-911 dataset is truly representative of the disability community at large. Given that not all employees access VR services, utilizing the RSA-911 dataset may offer external validity concerns which will be evaluated later in this thesis.

CONCEPTUAL FRAMEWORK

There are a multitude of individual factors that contribute to a person with a disability's likelihood of obtaining employment within a specific state. Individual demographic characteristics and macro-level factors have been found to impact the likelihood of a person with a disability's employment success (Vornholt, Uitdewilligen, & Nijhuis, 2013) (Yelin & Trupin, 2003). This thesis seeks to determine the efficacy of one of those macro-level components that has not been previously evaluated, the value of state disability tax credits in increasing disability employment within a state. The conceptual framework used is based on previous literature around state employment tax credits. Specifically, Dagney Faulk evaluated the impact of the value of a state tax credit and its associated cost to employers on the overall efficacy of a state employment tax credit program (Faulk, 2002). Figure 1 highlights this conceptual framework and the relationship between key variables discussed in this thesis.

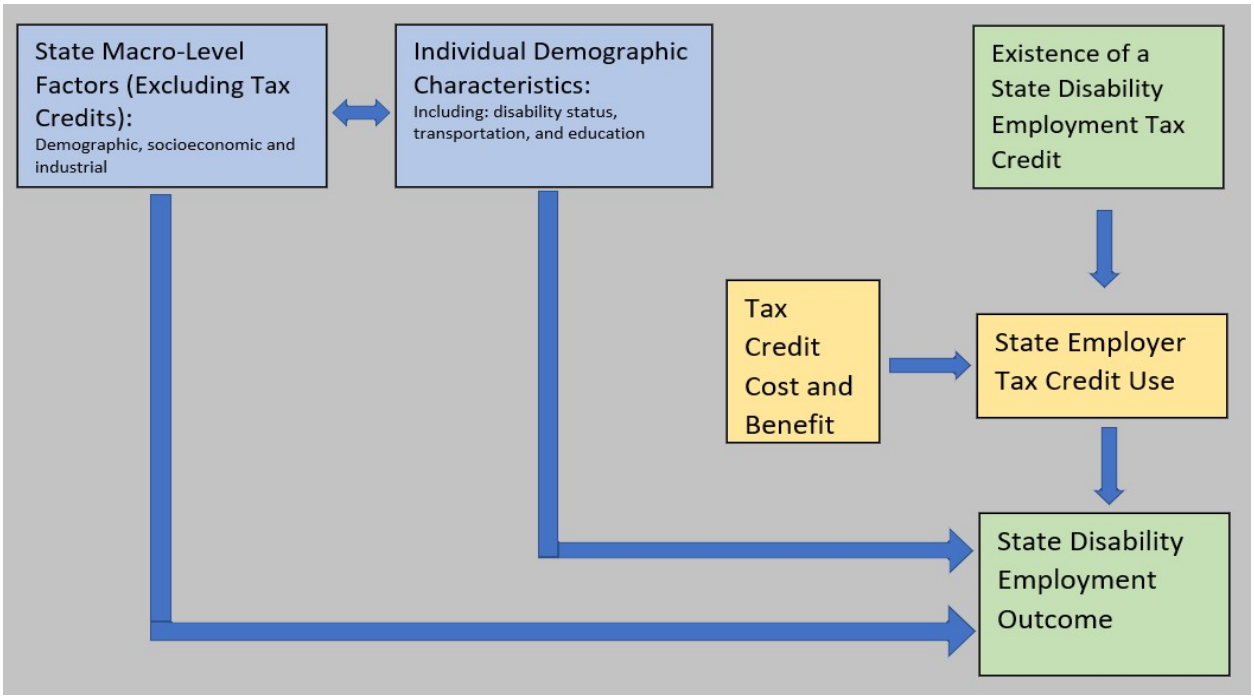

Figure 1: Conceptual Model for State Disability Employment Outcomes

As referenced above, individual demographic characteristics may have a causal relationship with a state's overall disability employment outcomes (Yelin & Trupin, 2003). Just like the overall labor market, factors including education, age, health status, and urban versus rural location impact the likelihood of employment for people with disabilities (Yelin & Trupin, 2003). These demographic characteristics vary both among individuals and states themselves. Therefore, it is critical to acknowledge the impact of these control variables and the role they may play in determining the relationship between state tax credits and that state's disability employment outcomes. Similarly, there are characteristics on a macro-level, including levels of stigma, employer makeup, and a state's overall economic performance that impact disability employment levels (Vornholt, Uitdewilligen, & Nijhuis, 2013). Given that these macro-level characteristics, aside from the presence of a state disability employment, may play a role in state disability employment levels, it is important to consider them in this conceptual framework.

The presence of state disability tax credits may not be enough to move the needle on a state's disability employment outcomes. As discussed by Faulk, the success of a state employment tax credit program can be measured by the utilization of credits from such a program (Faulk, 2002). While this thesis will not be evaluating the utilization of disability employment tax credits, it is important to include factors that determine their success in this analysis. When assessing utilization of state employment tax credits among employers,

Faulk looks at the benefit of the tax credit itself and the cost of participating in the tax credit program (Faulk, 2002). States do not offer the same value in their disability employment tax credit which may determine how much they are used and therefore how much of an impact they have on disability employment. Similarly, the cost associated with accessing the tax credit is important to consider. Small businesses may have trouble accessing these tax credits due to a lack of awareness or because of the administrative burdens. If the credits are only accessible to larger corporations due to their complexity, it may limit small-business involvement. Once again, the complexity of the tax credit is likely to determine employer utilization within a state and therefore its overall impact on disability employment.

Disability employment success on a state level can be assessed in a variety of ways. Given the use of RSA-911 data, this thesis will measure state disability outcomes using a state's successful VR closure rate. Specifically, a successful VR case closure is defined as one in which employment was attained at the time of closure. This macro-level analysis is critical in determining the overall impact of a state's disability employment tax credit. To assess the relationship between state disability employment tax credits and its associated disability employment rate, it will be important to consider all the aspects laid out in Figure 1. Controlling for state demographic and economic variables will offer a clearer picture of the true relationship between the independent and dependent variables laid out in this thesis.

Research Hypothesis

This thesis will be evaluating the following research hypothesis:

> *States that have implemented disability employment tax credits are more likely to have higher rates of disability employment than states that don't have those specific tax credit programs.*

DATA

This thesis relies on the ability to evaluate disability employment outcomes between states that do and do not have disability employment tax credits. Therefore, to effectively conduct this analysis, disability employment outcome data is needed that covers multiple states. I utilize data from a federal source, the United States Department of Education, through the Rehabilitation Services Administration. Specifically, this thesis uses the Case Service Report (RSA-911) data set from Federal Fiscal Years 2017 through 2019 (U.S. Department of Education, 2020). This dataset was requested through the U.S. Department of Education and is only available publicly for the purposes of research.

The RSA-911 data offers information on individual VR clients, who to be eligible for services must have a disability. Therefore, the unit of analysis for this data set is unique individuals. Within this client service data, this thesis will evaluate the closure data which highlights information about what occurred at the end of a client's time receiving services. This data set includes information on all clients who are closed within that year. The data is collected by state VR programs and reported to the Rehabilitation Services Administration. This data collection is mandated by the Rehabilitation Act of 1973 and is submitted on a quarterly basis (Rehabilitation Services Administration, 2017).

The RSA-911 data includes data from state VR programs across the entire United States. This thesis will use data from all fifty states, the forty-four that do not feature disability employment tax credits ("non-tax credit states") and the six (Delaware, Iowa, Louisiana, New Maryland, New York, and Tennessee; collectively, "tax credit states") that do. Even though the sample of the data used does not represent all people with disabilities, it aims to make generalizations about that entire population. While not all people with disabilities access VR services, these services are the most widely available and accessed for people with disabilities seeking employment. VR is held to federal standards allowing for generalization nationwide. These assumptions present some of the limitations of the RSA-911 data and the sample being used in this thesis. As stated above, not all people with disabilities use VR services. These services are often accessed by people with more significant barriers and therefore VR clients may not be an accurate representation of the overall disability population. Similarly, this thesis will utilize a sample with data from several states. The relationships observed using these states may need to be further evaluated to ensure they are truly representative of the impact of disability employment tax credits in all states given the fundamental differences in the makeup of states.

The RSA-911 data features data on disability employment outcomes from individual observations. However, this does offer information on state specific variables. Notably, this thesis uses information from the Employer Assistance and Resource Network (EARN) to determine which states have a disability employment tax credit program (Cornell University, n.d.). Additionally, it utilizes data from the American Community Survey (ACS) which is published by the United States Census Bureau (United States Census Bureau, 2020). This data serves to provide state level information that will be important to consider in conducting this analysis.

Variables

The RSA-911 data offers extensive information on variables that this thesis aims to include as controls. Specifically, these variables offer information on the demographic and socioeconomic background of each VR client. It assesses variables that provide information on the primary disability, date of birth, race, gender, location, access to benefits, employment barriers, education, and access to transportation (Rehabilitation Services Administration, 2017). Specifically, the data elements being analyzed are:

- Individual characteristics (sex, race, etc.)
- Location information (focusing on State)
- Support (public benefits)
- Medical Insurance Coverage
- Disability Data Elements (including primary diagnosis)
- Barriers to employment
- Education (including highest degree attained)
- Employment data elements (hourly wage, employment status, etc.)
- Exit data elements (includes employment status at exit)

These are all critical variables to include in this thesis's model given the role they play in the likelihood of whether or not someone attains employment. Similarly, it includes variables from the ACS focused on state-wide information including; state employment rate, industry prevalence, median income, disability population rates, and access to broadband.

Using material from EARN, this thesis will have the appropriate information regarding the primary independent variable being assessed. EARN offers not only a list of which states have disability employment tax credits, but other supporting information as well (Cornell University, n.d.). Finally, the RSA-911 data includes key information on employment outcomes for VR clients. This thesis will focus on competitive integrated employment, work at the same wages and located in the community with those without disabilities, as the assessed dependent variable (Rehabilitation Services Administration, 2017). Competitive integrated employment was used as the dependent variable of choice as it is viewed as one of the more preferable employment options for people with disabilities.

METHODS

To evaluate the relationship between state disability employment tax credits and disability employment outcomes, this thesis uses an OLS regression model and propensity score matching. These two models use data from the same source, however, it is utilized in differing ways. There are two OLS regression models, one that uses individual level data and the other that uses aggregated state-level data (that was produced from the individual level data). The propensity score matching only uses the aggregated state level data in its analysis. However, prior to conducting this analysis it is important for this thesis to represent meaningful descriptive statistics. This descriptive analysis includes highlighting the diversity of disabilities, occupations, demographics, and more within the RSA-911 data. Additionally, the results presents descriptive statistics of state-level variables including information on the nature of the state tax credit programs within each of the tax credit states.

As stated earlier, the model will feature disability employment (represented by competitive integrated employment) as the dependent variable and the availability of a state disability employment tax credit program as the key independent variable. However, to better understand the impact of these disability employment tax credits, this thesis also presents a model where the size of the tax credit is used as a key independent variable. While it is different than a dummy variable that would indicate whether or not a state has a disability employment tax credit program, it acts in a similar manner as states without one would have a value of zero and tax credit states would have a positive number for this variable.

These models also include important control variables for both individual and state level demographic and socioeconomic characteristics. This method will present an interpretable model that aims to control any potential bias in the model. This individual level OLS regression model uses a dummy variable as both its dependent variable (successful employment outcome) and its key independent variable (presence of a state disability employment tax credit). However, for both the state-level OLS regression and propensity score matching, the key dependent variable is not represented by a dummy variable but rather the percentage of people within a state who attained competitive integrated employment.

$$EmploymentOutcome = \beta_0 + \beta_1 TaxCredit + \beta_2 StateEmploymentRate + \beta_3 DisabilitySignificance + \beta_4 PrimaryDisability + \cdots + \varepsilon$$

As illustrated above, this model will feature the dependent and key independent variables listed above, as well as several critical individual and state level controls. This model offers an effective approach to assessing this relationship given its interpretability and inclusion of key controls. While other similar studies have used a difference-in-differences approach, this thesis will utilize these alternative approaches. The difference-in-differences approach was not available due to the inability to compare differences in disability employment outcomes before and after a state implemented a disability employment tax credit program. This model does have some limitations, notably the selection bias discussed above and the potential for omitted variable bias (even though significant efforts have been made to limit this concern).

RESULTS

Descriptive Results

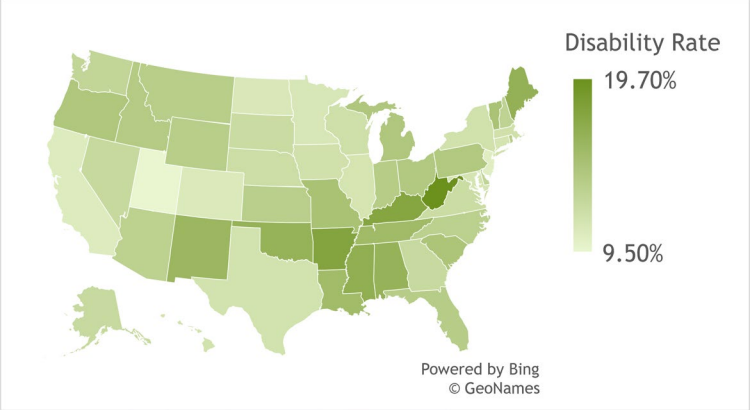

Figure 2: State Disability Distribution
Note: This figure represents the percentage of people within each state who are between the ages of 18 and 64, have a disability, and are not institutionalized.
Source: (United States Census Bureau, 2020)

There are over 60 million people with a disability in the United States (National Center on Birth Defects and Developmental Disabilities, 2020). This thesis aims to evaluate variation in state disability employment outcomes. It is therefore important to evaluate differences in key variables between states. Figures 2 through 4 present data from the American Community Survey (ACS) highlighting how states differed on average between 2017 and 2019 (United States Census Bureau, 2020). Specifically, Figure 2 highlights the difference in disability population rates which illustrates a higher concentration of people with disabilities in certain southeastern states (United States Census Bureau, 2020).

Similarly, the ACS data highlights state level differences in employment rates. Figure 3 shows the average percentage of working age people who are employed in each state between 2017 and 2019. This map highlights lower employment rates in the southeastern part of the United States and higher rates in the northern central part of the country (United States Census Bureau, 2020). Given the variation in employment rates, it is important to consider these differences when analyzing the impact of state disability employment tax credits.

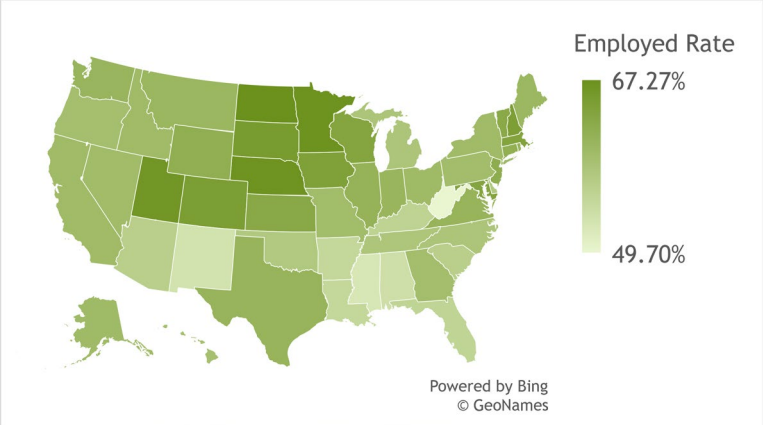

Figure 3: State Employment Rate Distribution
Note: This figure represents the employment rate within each state. The employment rate is the percentage of people over the age of sixteen who are employed over the entire population.
Source: (United States Census Bureau, 2020)

In addition to differences in employment rates among states, the ACS data highlights differences in the prevalence of jobs between different industries. In 2019 for example, 18.5% of jobs in Indiana were in manufacturing as opposed to 1.1% in the District of Columbia (United States Census Bureau, 2020). Similarly, in 2019 Delaware had 9.6% of its labor force in finance as compared to West Virginia which had 3.7% (United States Census Bureau, 2020). This thesis is analyzing differences between states that do and do not have disability employment tax credits. Figure 4 highlights the similarities in industries between the tax credit and non-tax credit states. While there are minor differences in some industries, Figure 3 shows a fair level of consistency between tax credit and non-tax credit states.

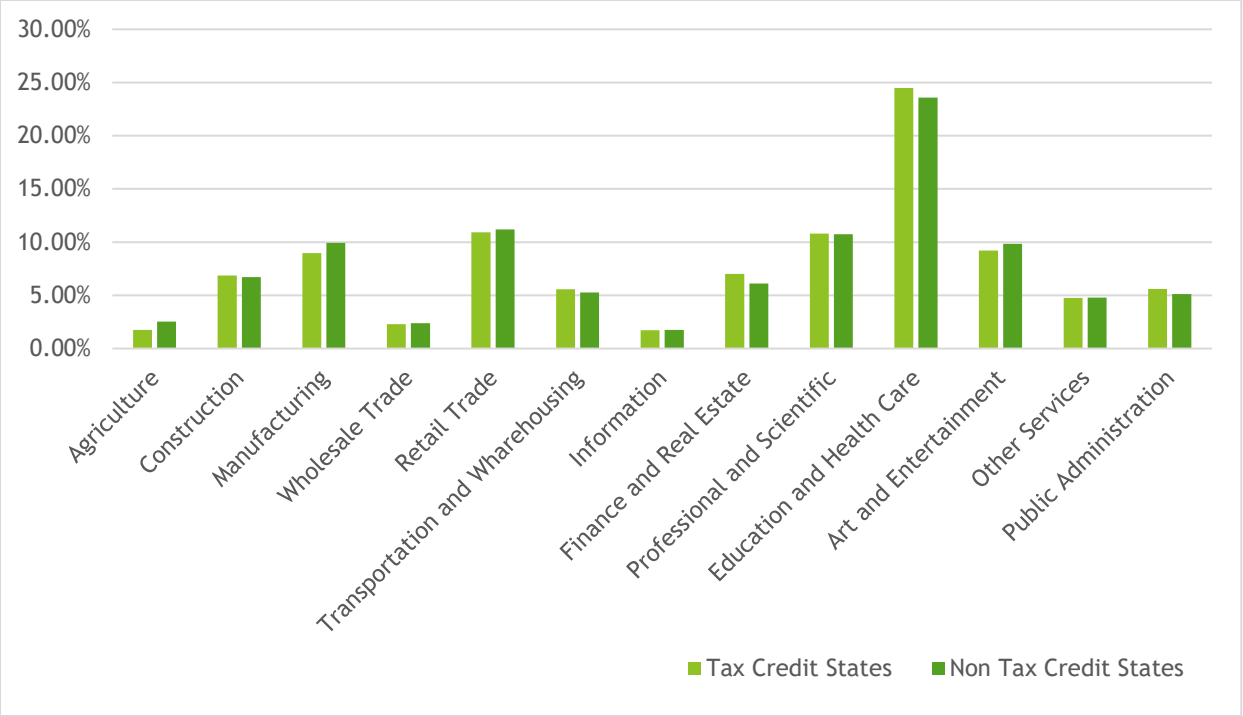

Figure 4: Industry Difference between Tax Credit and Non-Tax Credit States
Note: This represents the percentage of people who work in select industries (as an average of the three years between 2017 and 2019). It highlights the difference between states that have disability employment tax credits and those that do not.
Source: (United States Census Bureau, 2020) (Cornell University, n.d.)

There are also several key descriptive results from the RSA-911 Case Service Report data. Figure 5 represents the proportion of people within the sample with a certain primary disability for the years 2017 to 2019. It highlights that a significant portion of people either had a cognitive or psychosocial impairment. Additionally, it illustrates that the proportion of people within each primary impairment type did not significantly change between 2017 and 2019.

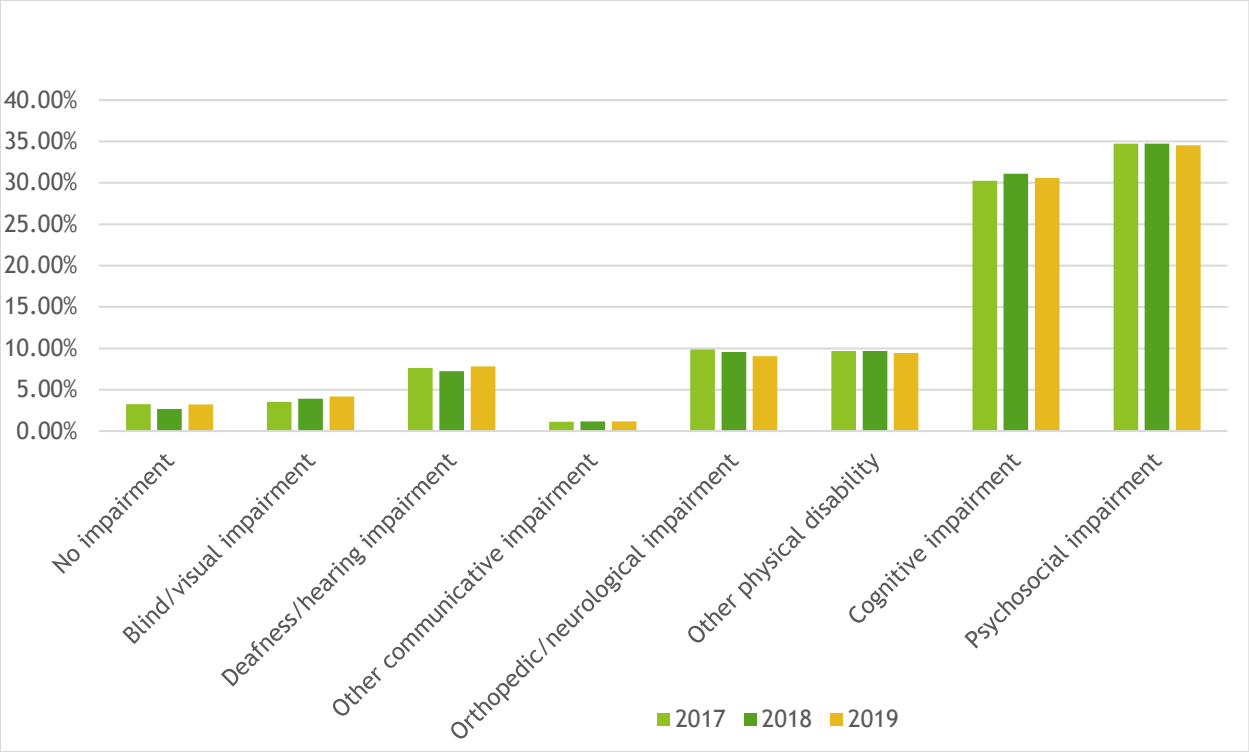

Figure 5: Distribution of Disabilities between 2017 and 2019
Note: This represents the distribution in the primary disability for the years 2017, 2018, and 2019.
Source: (U.S. Department of Education, 2020)

Another variable that the RSA-911 dataset sheds insight on is how education levels have changed throughout the years being evaluated. Figure 6 shows the proportion of people at various levels of highest completed education. It shares that for all three years, most people either completed a high school diploma or did not have any formal completed education at all. Additionally, it shows that the proportion of people with no completed education has grown while those with a high school diploma has decreased. Given that a majority of people in this sample do not have more than a high school diploma, it is important to consider the implications of this analysis for people with disabilities who have post-secondary levels of education.

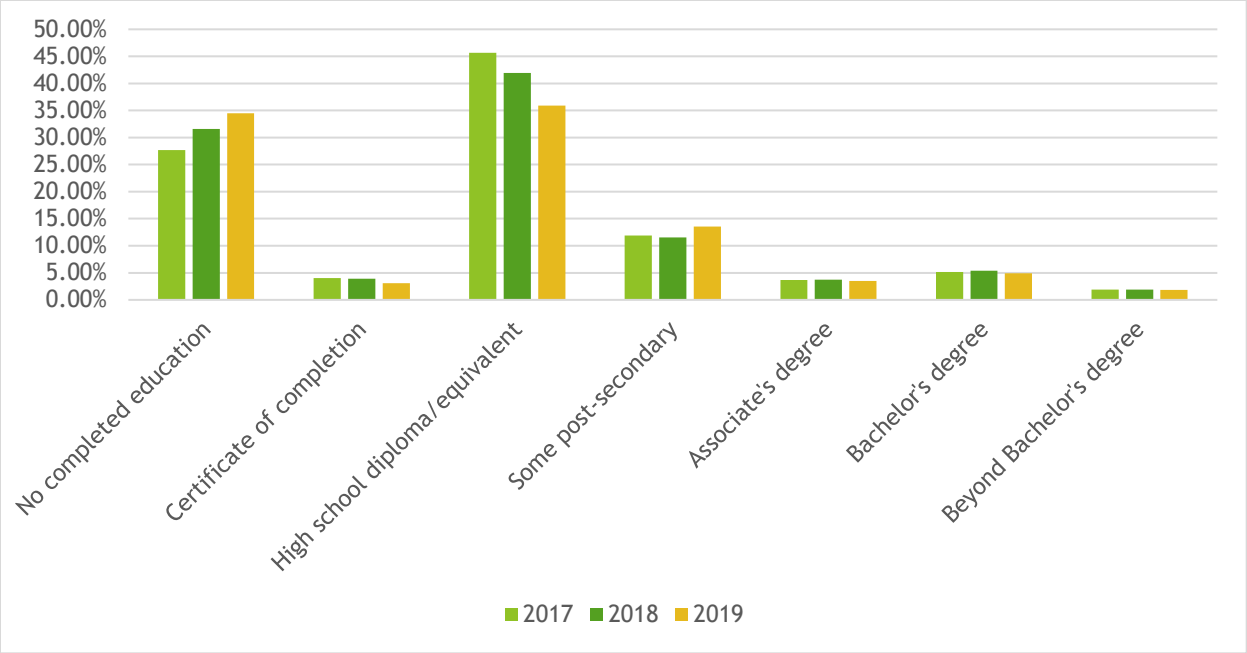

Figure 6: Highest Education Level Attained between 2017 and 2019
Note: This illustrates the distribution in education completion for the years 2017, 2018, and 2019. For most education levels there appears to consistency with two exceptions.
Source: (U.S. Department of Education, 2020)

Finally, Figure 7 highlights the difference in employment outcomes between tax credit and non-tax credit states from 2017 to 2019. It shows that for each of those three years, tax credit states had employment outcomes that were roughly seven percentage points lower. This relationship is counter to what one would expect given that these tax credits are supposed to improve disability employment outcomes.

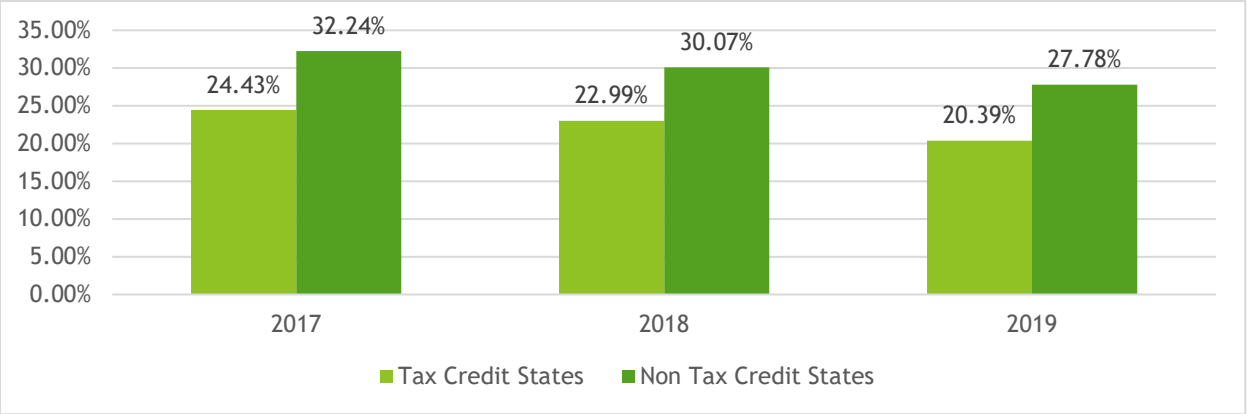

Figure 7: Employment Outcomes for Tax Credit and Non-Tax Credit States from 2017 to 2019
Note: This highlights the difference in employment rates at exit between states that do and do not have disability employment tax credits for the years 2017, 2018, and 2019.
Source: (U.S. Department of Education, 2020) (Cornell University, n.d.)

Each of the state disability employment tax credit programs differs in their approach. Table 1 displays some key details among the tax credit states. It includes information about the maximum tax credit per employee and the percentage of employee wages offered as a tax credit. Figure 7 highlights the stark differences between the state tax credit programs. In particular, the maximum tax credit per employee ranges from $1,500 in Delaware to $20,000 in Iowa. Given these program differences, it is important to consider their potential impact on disability employment outcomes. Several of the models described below utilize the amount of the tax credit as an explanatory variable in their analysis.

Table 1: Disability Employment Tax Credit States
This highlights the differences in the six disability employment state tax credit programs.
*The state of Louisiana does not have an explicit maximum tax credit. An assumption was therefore made to calculate an estimate. The average individual income for a person with a disability in the state of Louisiana in 2016 was $21,318 (ADA-PARC, n.d.). Given that the credit is 50% for the first four months and then 30%, an assumption was made to apply the median annual income to calculate a maximum tax credit.
Source: (Cornell University, n.d.)

State	Max Tax Credit per Employee	% of Wages Offered as a Tax Credit (First Four Months)	% of Wages Offered as a Tax Credit (Rest of the First Year)	% of Wages Offered as a Tax Credit (After the First Year)	Comments
Delaware	$1,500	10%	10%	10%	Employee must be referred by VR
Iowa	$20,000	65%	65%	0%	Limited to small businesses
Louisiana	$9,949*	50%	30%	30%	Each company can claim a maximum of 100 credits within a year
Maryland	$2,700	30% of the first $9000	30% of the first $9000	30% of the first $9000	Credit available for only the first two years
New York	$2,100	0%	0%	35% of the first $6,000	There is a separate credit for businesses who hire those with developmental disabilities
Tennessee	$5,000	Not Applicable	Not Applicable	Not Applicable	Employees must receive services from the state to be eligible

Inferential Results

While the descriptive results suggest that states with disability employment tax credits have lower employment outcomes, this thesis conducted further analysis to better understand this relationship. Using three different approaches, all which used a combination of the RSA-911 Case Service Report, American Community Survey data, and information from Cornell University, this thesis evaluated the efficacy of

disability tax credits in all tax credit states. The three approaches are an individual-level OLS regression, a state-level OLS regression, and a state-level propensity score matching. They are each presented given the varying results they produce, and the unique perspectives they offer to better understanding this relationship.

Individual Level Analysis

The individual-level OLS regression model predominantly used data from the RSA-911 Case Service Report. This dataset had a total of 1,471,576 individual observations over three years (2017 through 2019). Due to this high volume of observations, a subsample was created to conduct analysis. This subsample was created by randomly selecting 10% of observations each year that utilized VR services, which resulted in a subsample of 121,237 observations over the three years.

Table 2 outlines the results from this OLS regression model. It highlights that while the variable representing whether a state does or does not have a disability employment tax credit program, does have a minimally positive coefficient, is not statistically significant. Specifically, the model highlights that individuals who live in a state with a disability employment tax credit are associated with roughly a 1 percentage point higher employment outcome. This relationship is what one would expect, and what the hypothesis in this thesis lays out, that these tax credits would improve disability employment outcomes. However, given a p-value of 0.212, this value should be evaluated with skepticism. Additionally, the amount of the state tax credit had a minimally negative coefficient which is not statistically significant.

Therefore, this model did not find any concrete relationship between states with disability employment tax credits and employment outcomes. However, the model did find statistically significant results regarding the type of disability, education status, low-income status, macro-level state characteristics and others. One example is that as compared to people without any formal level of education, people with disabilities who attain at least a high school diploma have increasingly positive employment outcomes.

Table 2: Individual-Level OLS Regression

Linear Regression n = 121,237 R-Squared = 0.0741 Root MSE = .47905						
Employed at Exit	Coefficient	Standard Error	T-Score	P Value	95% Confidence Interval	
Tax Credit State	0.011	0.009	1.250	0.212	-0.007	0.029
Lives in Group Residence	-0.002	0.006	-0.300	0.767	-0.014	0.010
Experiencing Homelessness	-0.101***	0.011	-8.850	0.000	-0.123	-0.079
Relies on Public Support	-0.058***	0.003	-17.490	0.000	-0.065	-0.052
Medicaid at Application	-0.057***	0.003	-18.040	0.000	-0.063	-0.051
Physical Disability	0.017***	0.004	4.210	0.000	0.009	0.025
Cognitive Disability	0.047***	0.004	12.740	0.000	0.040	0.054
Existence of a Secondary Disability	-0.023***	0.003	-7.940	0.000	-0.029	-0.018
Significant Disability	-0.101***	0.007	-13.940	0.000	-0.115	-0.087
Most Significant Disability	-0.116***	0.007	-15.760	0.000	-0.131	-0.102
Attained High School Diploma or Equivalent	0.057***	0.004	15.570	0.000	0.050	0.064
Associate's Degree	0.105***	0.008	13.460	0.000	0.090	0.120
Bachelor's Degree	0.129***	0.007	18.810	0.000	0.116	0.143
Long Term Unemployed	-0.091***	0.003	-29.740	0.000	-0.097	-0.085
Low Income Status	-0.009***	0.003	-3.030	0.002	-0.016	-0.003
State Poverty Rate	-0.467**	0.190	-2.460	0.014	-0.839	-0.095

Note: This table reflects some of the results from the OLS regression using individual level data. The full results are found in the appendix in Table A. Significance is indicated using the following: *p< 10%, **p<5%, and *p<1%.
Source: Author's calculations, (U.S. Department of Education, 2020), (United States Census Bureau, 2020), (Cornell University, n.d.)

State Level Analysis

In light of the inclusive results from the individual level analysis, I also used a state level model. This sample was created by aggregating the RSA-911 Case Service Report data into 153 observations. These represent 3 years of data for each of the fifty states plus the District of Columbia. The results of this model are included in Table 3. This model used the logged amount of the state tax credit to evaluate the relationship between the availability of state disability employment tax credits and employment outcomes. Once again, these results do not offer any insight as to whether disability employment state tax credits have either a positive or negative relationship with disability employment outcomes. Much like the individual level model, this

model had other variables of interest. One of those is the proportion of people who are low income within a state. That variable shows a negative relationship between that proportion and the state's disability employment outcome.

Table 3: State-Level OLS Regression

Linear Regression n = 153 R-Squared = 0.338 Root MSE = 0.09						
Robust						
Employed at Exit	Coefficient	Standard Error	T-Score	P Value	95% Confidence Interval	
Logged State Tax Credit Amount	-0.001	0.002	-0.750	0.459	-0.005	0.002
Relies on Public Support	-0.160	0.132	-1.210	0.232	-0.425	0.105
Physical Disability	0.072	0.173	0.420	0.676	-0.274	0.419
Psychosocial Disability	-0.347**	0.171	-2.030	0.047	-0.690	-0.004
Existence of a Secondary Disability	-0.027	0.062	-0.450	0.658	-0.151	0.096
Most Significant Disability	0.008	0.035	0.230	0.819	-0.062	0.078
Attained Certification of Completion	-0.711***	0.211	-3.370	0.001	-1.135	-0.288
Long Term Unemployed	-0.092	0.057	-1.610	0.113	-0.207	0.023
Low Income Status	-0.108*	0.055	-1.940	0.058	-0.219	0.004
English Language Learner	0.084	0.069	1.230	0.226	-0.054	0.223
Basic Skills Deficiency	0.354***	0.101	3.510	0.001	0.151	0.557
State Unemployment Rate	-0.744	1.132	-0.660	0.514	-3.017	1.528
Logged Median Income	0.035	0.047	0.740	0.462	-0.060	0.130

This table reflects some of the results from the OLS regression using aggregated state-level data. The full results are found in the appendix in Table B. Significance is indicated using the following: *p< 10%, **p<5%, and *p<1%.

Source: Author's calculations, (U.S. Department of Education, 2020), (United States Census Bureau, 2020), (Cornell University, n.d.)

Propensity Score Matching

The final method used the aggregated state level data for propensity score matching. Given that the observations in this analysis were not randomly assigned the treatment, which in this case was whether a state does or does not have a disability employment tax credit, this model was a logit model using the average treatment effect on the treated. This model used the same explanatory variables that were used in the state-level OLS regression reported above. However, one significant difference is that instead of using the size of the disability employment tax credit, this model used the treatment dummy. This treatment dummy indicates whether or not a state has a disability employment tax credit program. Table 4 outlines

the results from this model. In this case the coefficient for the presence of a disability employment tax credit was positive. However, in this model the coefficient is statistically significant at a 99% level which does allow for some analysis of the relationship between state disability employment tax credits and disability employment outcomes.

Table 4: State-Level Propensity Score Matching

Treatment-effects estimation Estimator: propensity-score matching Treatment model: logit						
AI Robust						
Employed at Exit	Coefficient	Standard Error	Z-score	P value	95% Confidence Interval	
Average Treatment Effect on the Treated						
Disability Tax Credit dummy = 1	0.023***	0.008	2.86	0.004	0.007	0.038

This table reflects the results of the propensity-score matching using the aggregated state-level data. Significance is indicated using the following: *p< 10%, **p<5%, and *p<1%.
Source: Author's calculations, (U.S. Department of Education, 2020), (United States Census Bureau, 2020), (Cornell University, n.d.)

Specifically, this propensity score model reported a coefficient of 0.023 with an associated p value of 0.004. Given this result, this model predicts that states that have a disability employment tax credit program are associated with a 2.3 percentage point increase in disability employment outcomes. This model specifically looked at the treated, which in this case are those states who had a disability employment tax credit program.

The results presented by the OLS regression models above, and others not reported in this thesis, all failed to find any significance as it relates to state disability tax credits. However, the propensity score matching which evaluated the average treatment effect on the treated did find a positive relationship between state disability employment tax credits and disability employment outcomes. This following section will discuss the implications of this result and the need for further evaluation of these state tax credit programs to better determine their efficacy.

DISCUSSION AND CONCLUSION

Using data from the RSA-911 Case Service Report, this thesis used a variety of methods to assess differences in disability employment outcomes. The hypothesis above shares that states with a disability employment tax credit program have higher disability employment outcomes. I evaluated the tax credit

states, taking into consideration that each program operates slightly differently. Across the state and individual level OLS regression models, the results failed to find a statistically significant relationship between the availability of disability employment tax credits and improved disability employment outcomes. The individual level OLS regression model did find a positive correlation between whether a person with a disability lives in a state with a disability employment tax credit and their employment outcome. However, this positive result is uncertain since it is less than 80% statistically significant.

The propensity score matching on the other hand, did find a statistically significant result. Specifically, the model found that states with a disability employment tax credit program are associated with a 2.3 percentage point increase in disability employment outcomes. Considering that the average employment rate at exit for all states in this sample was 28.8%, this difference represents a noticeable improvement. This is important evidence that these state level disability employment tax credit programs have the potential to positively impact disability employment outcomes. However, given the sensitivity of the propensity score matching model, low utilization levels, and the inclusive nature of the OLS regression results, additional research would offer greatly clarity on this topic.

Policy Implications

Through legislation, including the Rehabilitation Act of 1973 and the Americans with Disabilities Act, policymakers have tried to make the workplace more accessible for people with disabilities. While there are only six states that currently offer these tax credits, there are serious debates as to whether they are an effective policy option for increasing disability employment outcomes. Many of these tax credit programs provide thousands, and in certain cases tens of thousands, of dollars in tax credits to employers to reward them for hiring people with disabilities. On a national level, employment tax credits have the potential to bear a significant cost. In 2020, roughly 1.6 million credits were issued through WOTC at a total cost of roughly $3.8 billion (Work Opportunity Tax Credit – WOTC – Statistics 2020, 2021). This lost tax revenue should be considered when policymakers evaluate the efficacy of these tax credit programs.

These disability employment tax credit programs have also been considered at the federal level. One such example is the proposed federal legislation, *the Disability Employment Incentive Act,* which has been reintroduced in the 117th Congress (S.630 - Disability Employment Incentive Act, 2021). This legislation would expand the Work Opportunity Tax Credit to provide greater financial incentives to employers who hire people with disabilities. Given the statistically significant, but limited, impact of these state disability

employment tax credits, state and federal lawmakers need to consider the return on investment for such a program. Policymakers must therefore continue to evaluate alternative options that improve disability employment outcomes. Alternate options include greater access to training for people with disabilities, increased funding for supportive services and engagement with private sector employers. These options, including disability employment tax credits, require further analysis in order that they can be meaningfully evaluated.

Study Limitations

While this thesis had access to some of the most comprehensive disability employment outcome data, there were methodological and data limitations. With regards to data access, this thesis only had access to three years of the RSA-911 Case Service Report. Additional years of data would have provided further insight and allowed for other methodological approaches. For example, the credit began in 1984 in the state of Iowa (The Iowa Legislature, 2012). Therefore, this data may not provide a complete picture of the impact of state disability employment tax credits. As stated in this thesis' literature review, previous studies have utilized a difference-in-differences method to assess the efficacy of state tax credits. This method was not possible given the limited available years of data. If utilized, a difference-in-differences model would have painted a clearer picture using information before and after a state implemented a disability employment tax credit program. Similarly, a state-fixed model was not able to be used due to a lack of variation among states which is what led to the use of an OLS regression model and propensity score matching.

Even if there were additional years, the RSA-911 Case Service data may have limitations in its representation of people with disabilities. While the data is made up of a broad group of people with a variety of disabilities, not all people with disabilities access VR services. People with disabilities access VR services if they are looking for assistance attaining and maintaining employment. According to a 2003 report from the Department of Education, only 16 percent of working age people with disabilities would benefit from VR services (Hayward & Schmidt-Davis, 2003). This highlights the potential concern that this data is not representative of working-age people with disabilities. Additionally, the data available for the tax credits themselves came with several limitations.

This thesis only utilized the immediate amount of each tax credit in its analysis. This is not necessarily representative of the true effect of each tax credit as they differed long-term among the states. For example, Iowa does not offer the tax credit after the first year of employment whereas Louisiana does not limit the

number of years a business can claim the credit. This difference in long-term structure of the tax credit may impact their efficacy to incentivize businesses hiring people with disabilities. Additionally, I made an assumption about the maximum credit eligible to be claimed in the state of Louisiana. After reviewing the state tax code, it did not appear as though the state had any maximum in place (Louisiana State Legislature). Another significant limitation of this study is tax credit utilization rates among these six states. According to a report produced by the Center for Economic Research in Tennessee (a tax-credit state), between 2015 and 2018, less than ten companies within Tennessee accessed their disability employment tax credit (Center for Economic Research in Tennessee, 2021). This limited utilization presents concerns on just how effective these tax credits can be in promoting disability employment. Finally, while the propensity score matching model found statistically significant results, it was quite sensitive. This may be due to the limited number of observations in that model, 153 state-year observations, and therefore additional research should be conducted to build on these results.

Need for Additional Research

Additional research would build on this thesis and provide greater information on the efficacy of state disability employment tax credits. As discussed earlier, access to additional years of data would offer the ability to conduct additional research using alternative methods, including a difference-in-differences model. I evaluated how the availability of state disability employment tax credits may impact disability employment outcomes. Future research can also approach this question from a different perspective - that of employers. Utilization is a serious concern within these state level programs. While federal level programs like WOTC have seen widespread utilization, this is not the case at the state level. While these tax credits may incentivize employers to hire more people with disabilities, further research needs to evaluate why they are not being commonly utilized in certain states. Previous studies have analyzed utilization data on a company-by-company basis. This would offer insight into not only whether the availability of credits has an impact on disability employment, but also whether the utilization of the credits is of any relevance. These additional approaches would offer greater clarity into whether disability employment tax credits are an effective policy option to increase disability employment outcomes.

Finally, another approach to better understand the impact of state disability employment tax credits would be to conduct analysis on specific state programs. This thesis evaluated all six states with a disability employment state tax credit program. However, if research focused on any specific program, it could

develop a more detailed understanding of how they may impact that state's disability employment outcomes. For example, it could take local-level factors into account from municipal and county level data sources. This analysis would control for variation within a state, something that this thesis did not take into consideration.

Conclusion

The results presented in this thesis do identify a positive relationship between states that offer a disability employment tax credit program and improved disability employment outcomes. The scale of this relationship is something that policymakers will need to assess when evaluating whether to expand these programs across other states. These results present the need for additional research on the efficacy of disability employment tax credits. This thesis used comprehensive data, the RSA-911 Case Service Report, with several hundred thousand observations in this analysis. Given the available data, it used methods to best evaluate the relationship between disability employment outcomes and the availability of state disability employment tax credits. Disability employment outcomes continue to not be lower than what many advocates believe is possible and equitable. At a time when the expectations for people with disabilities and the importance of diversity and inclusion continues to rise, this thesis highlights one policy solution that has the potential to improve these outcomes across all states.

APPENDIX

Table A: Full Individual-Level OLS Regression

EmployedatExit	Coefficient	Standard Error	T score	P value	95% Conf. Interval	
TaxCreditState	0.011	0.009	1.250	0.212	-0.007	0.029
female	-0.024***	0.003	-8.470	0.000	-0.029	-0.018
White	0.017***	0.002	8.870	0.000	0.013	0.021
groupres	-0.002	0.006	-0.300	0.767	-0.014	0.010
homelessres	-0.101***	0.011	-8.850	0.000	-0.123	-0.079
publicsup	-0.058***	0.003	-17.490	0.000	-0.065	-0.052
appMedicaid	-0.057***	0.003	-18.040	0.000	-0.063	-0.051
Referral7_2	0.020***	0.003	6.260	0.000	0.014	0.026
PrimaryDis_1	-0.329***	0.024	-14.000	0.000	-0.375	-0.283
commdis	0.165***	0.005	35.350	0.000	0.155	0.174
physicaldis	0.017***	0.004	4.210	0.000	0.009	0.025
cognitivedis	0.047***	0.004	12.740	0.000	0.040	0.054
SecondaryDis	-0.023***	0.003	-7.940	0.000	-0.029	-0.018
DisabilitySig_2	-0.101***	0.007	-13.940	0.000	-0.115	-0.087
DisabilitySig_3	-0.116***	0.007	-15.760	0.000	-0.131	-0.102
EdLevelCompleted7_2	0.068***	0.008	8.600	0.000	0.052	0.083
EdLevelCompleted7_3	0.057***	0.004	15.570	0.000	0.050	0.064
EdLevelCompleted7_4	0.085***	0.005	17.320	0.000	0.076	0.095
EdLevelCompleted7_5	0.105***	0.008	13.460	0.000	0.090	0.120
EdLevelCompleted7_6	0.129***	0.007	18.810	0.000	0.116	0.143
EdLevelCompleted7_7	0.147***	0.011	13.750	0.000	0.126	0.168
LongTermUnemp	-0.091***	0.003	-29.740	0.000	-0.097	-0.085
BasicSkillsDeficient	0.027***	0.004	7.220	0.000	0.020	0.035
LowIncomeStatus	-0.009***	0.003	-3.030	0.002	-0.016	-0.003
currstudent	-0.069***	0.004	-17.740	0.000	-0.077	-0.062
workingagedis_perc	1.418***	0.185	7.680	0.000	1.056	1.780

Table A (Continued):

EmployedatExit	Coefficient	Standard Error	T score	P value	95% Conf. Interval	
unemploy_rate	2.190***	0.332	6.600	0.000	1.540	2.840
agriculture_industry	-0.003	0.614	0.000	0.996	-1.206	1.200
construction_industry	-0.125	0.647	-0.190	0.847	-1.394	1.143
manufacturing_industry	-0.868	0.558	-1.560	0.120	-1.962	0.226
wholesaletrade_industry	-4.198***	0.929	-4.520	0.000	-6.019	-2.377
retail_industry	-2.130***	0.583	-3.650	0.000	-3.273	-0.986
transportation_industry	-2.355***	0.572	-4.110	0.000	-3.477	-1.233
information_industry	-3.188***	0.775	-4.110	0.000	-4.708	-1.668
finance_industry	1.847***	0.619	2.980	0.003	0.634	3.061
professional_indstry	-1.941***	0.656	-2.960	0.003	-3.227	-0.655
education_indsutry	-2.106***	0.546	-3.860	0.000	-3.177	-1.036
artsentertainment_industry	-2.291***	0.555	-4.130	0.000	-3.379	-1.204
public_industry	-2.808***	0.636	-4.410	0.000	-4.054	-1.561
medianincome	0.000***	0.000	9.820	0.000	0.000	0.000
povertyrate	-0.467**	0.190	-2.460	0.014	-0.839	-0.095
broadbandaccess	-1.367***	0.123	-11.080	0.000	-1.609	-1.125
taxcreditamount	-0.00000331***	0.000000892	-3.71	0	-0.00000506	-0.00000156
_cons	2.734***	0.520	5.260	0.000	1.716	3.753

Note: This table presents the entire results from the OLS regression model using the individual level data. Significance is indicated using the following: *p< 10%, **p<5%, and *p<1%.

Source: Author's calculations, (U.S. Department of Education, 2020), (United States Census Bureau, 2020), (Cornell University, n.d.)

Table B: Full State-Level OLS Regression

Robust						
EmployedatExit	Coefficient	Standard Error	T score	P value	95% Conf. Interval	
logtaxcredit	-0.001	0.002	-0.750	0.459	-0.005	0.002
White	-0.078	0.052	-1.500	0.139	-0.183	0.026
publicsup	-0.161	0.132	-1.220	0.228	-0.426	0.104
commdis	-0.141	0.150	-0.930	0.355	-0.443	0.162
physicaldis	0.072	0.173	0.420	0.676	-0.274	0.419
cognitivedis	-0.229	0.188	-1.220	0.229	-0.606	0.149
psychdis	-0.347**	0.171	-2.030	0.047	-0.690	-0.004
SecondaryDis	-0.027	0.062	-0.450	0.658	-0.151	0.096
DisabilitySig_3	0.008	0.035	0.230	0.819	-0.062	0.078
EdLevelCompleted7_1	-0.098	0.146	-0.670	0.507	-0.392	0.196
EdLevelCompleted7_2	-0.711***	0.211	-3.370	0.001	-1.135	-0.288
EdLevelCompleted7_3	0.153	0.232	0.660	0.511	-0.312	0.619
LongTermUnemp	-0.092	0.057	-1.610	0.113	-0.207	0.023
LowIncomeStatus	-0.108*	0.055	-1.940	0.058	-0.219	0.004
EnglishLearner	0.084	0.069	1.230	0.226	-0.054	0.223
BasicSkillsDeficient	0.354***	0.101	3.510	0.001	0.151	0.557
unemploy_rate	-0.744	1.132	-0.660	0.514	-3.017	1.528
agriculture_industry	-0.062	0.338	-0.180	0.856	-0.741	0.618
manufacturing_industry	0.095	0.189	0.500	0.620	-0.286	0.475
logmedianincome	0.035	0.047	0.740	0.462	-0.060	0.130
_cons	0.258	0.572	0.450	0.653	-0.890	1.407

Note: This table presents the entire results from the OLS regression model using the aggregated state level data.
Source: Author's calculations, (U.S. Department of Education, 2020), (United States Census Bureau, 2020), (Cornell University, n.d.)

Table C: Key Variable State Averages

State	SecondaryDis	DisabilitySig_3	EdLevelCompleted7_1	LongTermUnemp	LowIncomeStatus	publicsup	psychdis
Alabama	0.397	0.252	0.389	0.189	0.206	0.175	0.193
Alaska	0.705	0.437	0.232	0.499	0.805	0.356	0.438
Arizona	0.725	0.779	0.334	0.622	0.579	0.328	0.436
Arkansas	0.567	0.517	0.125	0.412	0.372	0.225	0.202
California	0.416	0.337	0.411	0.510	0.768	0.330	0.348
Colorado	0.590	0.694	0.294	0.385	0.624	0.311	0.335
Connecticut	0.497	0.539	0.111	0.420	0.384	0.344	0.331
Delaware	0.524	0.383	0.452	0.458	0.494	0.285	0.313
District of Columbia	0.622	0.645	0.274	0.644	0.692	0.440	0.490
Florida	0.668	0.519	0.167	0.440	0.586	0.357	0.389
Georgia	0.374	0.511	0.323	0.131	0.900	0.280	0.318
Hawaii	0.437	0.637	0.157	0.513	0.766	0.358	0.372
Idaho	0.585	0.399	0.343	0.263	0.631	0.242	0.521
Illinois	0.294	0.911	0.543	0.334	0.340	0.279	0.272
Indiana	0.717	0.675	0.388	0.204	0.461	0.373	0.310
Iowa	0.662	0.438	0.412	0.212	0.903	0.319	0.375
Kansas	0.679	0.665	0.171	0.453	0.645	0.365	0.438
Kentucky	0.664	0.740	0.245	0.272	0.445	0.219	0.387
Louisiana	0.498	0.919	0.355	0.482	0.460	0.358	0.424
Maine	0.683	0.533	0.386	0.300	0.538	0.426	0.388
Maryland	0.497	0.773	0.379	0.444	0.673	0.485	0.451
Massachusetts	0.632	0.734	0.254	0.572	0.409	0.426	0.491
Michigan	0.475	0.671	0.335	0.266	0.479	0.275	0.337
Minnesota	0.562	0.757	0.123	0.350	0.454	0.339	0.384
Mississippi	0.162	0.286	0.286	0.152	0.260	0.134	0.200
Missouri	0.543	0.534	0.526	0.191	0.340	0.274	0.455
Montana	0.718	0.515	0.186	0.083	0.156	0.332	0.347

Table C (Continued):

State	SecondaryDis	DisabilitySig_3	EdLevelCompleted7_1	LongTermUnemp	LowIncomeStatus	publicsup	Psychdis
Nebraska	0.638	0.650	0.133	0.242	0.412	0.269	0.393
Nevada	0.422	0.697	0.558	0.231	0.336	0.311	0.290
New Hampshire	0.654	0.477	0.314	0.369	0.495	0.344	0.348
New Jersey	0.488	0.809	0.448	0.319	0.392	0.348	0.346
New Mexico	0.614	0.428	0.364	0.410	0.791	0.411	0.381
New York	0.533	0.526	0.248	0.442	0.539	0.296	0.350
North Carolina	0.507	0.286	0.315	0.579	0.552	0.283	0.414
North Dakota	0.709	0.652	0.368	0.512	0.536	0.208	0.414
Ohio	0.534	0.492	0.470	0.551	0.534	0.248	0.374
Oklahoma	0.541	0.405	0.499	0.399	0.533	0.258	0.346
Oregon	0.661	0.642	0.255	0.387	0.741	0.464	0.323
Pennsylvania	0.529	0.815	0.385	0.109	0.292	0.318	0.279
Rhode Island	0.867	0.904	0.348	0.580	0.589	0.390	0.454
South Carolina	0.420	0.276	0.355	0.354	0.451	0.227	0.461
South Dakota	0.658	0.860	0.304	0.240	0.529	0.356	0.341
Tennessee	0.557	0.593	0.214	0.639	0.560	0.339	0.326
Texas	0.394	0.273	0.152	0.140	0.136	0.225	0.195
Utah	0.589	0.298	0.307	0.431	0.609	0.199	0.461
Vermont	0.552	0.649	0.364	0.389	0.496	0.360	0.482
Virginia	0.556	0.926	0.573	0.421	0.563	0.292	0.394
Washington	0.666	0.613	0.022	0.154	0.124	0.549	0.302
West Virginia	0.454	0.438	0.308	0.096	0.453	0.167	0.287
Wisconsin	0.687	0.411	0.308	0.451	0.568	0.395	0.305
Wyoming	0.688	0.479	0.147	0.421	0.514	0.264	0.382

Note: This table presents the average (across the years 2017 to 2019) for select variables for each of the fifty states (plus the District of Columbia). These values were aggregated using the individual level data from the RSA-911 Case Service Report. The highlighted states are ones that have a disability employment tax credit program.

Source: Author's calculations, (U.S. Department of Education, 2020), (United States Census Bureau, 2020), (Cornell University, n.d.)

REFERENCES

ADA-PARC. (n.d.). *Median Individual Income of People with and without Disabilities with Earnings, Age 16 and Above, 2016*. Retrieved from https://www.centerondisability.org/ada_parc/utils/indicators.php?id=30&palette=3

Ajilore, O. (2012). Did the Work Opportunity Tax Credit Cause Subsidized Worker Substitution? *Economic Development Quarterly, 26*(3), 231 - 237. doi:10.1177/0891242412453306

American Community Survey. (2010). *Poverty Status in the Past 12 Months*. Retrieved from United States Census Bureau: https://data.census.gov/cedsci/table?t=Poverty&g=0100000US.04000.001&y=2010&tid=ACSST1Y2010.S1701&hidePreview=false

American Community Survey. (2019). *Poverty Status in the Past 12 Months*. Retrieved from United States Census Bureau: https://data.census.gov/cedsci/table?q=poverty%20rate&g=0100000US.04000.001&y=2019&tid=ACSST1Y2019.S1701&hidePreview=false

Angelov, N., & Eliason, M. (2018). Wage subsidies targeted to jobseekers with disabilities: subsequent employment and disability retirement. *IZA Journal of Labor Policy, 7*(12). doi:https://doi.org/10.1186/s40173-018-0105-9

Bell, E. (2010, March 1). Competitive employment for consumers who are legally blind: A 10-year retrospective study. *Journal of Rehabilitation Research & Development, 47*(2), 109 - 116. doi:10.1682/JRRD.2009.08.0120

Center for Economic Research in Tennessee. (2021). *Evaluation of Tennessee's Business Tax Credits (2015-2018).* Tennessee Department of Economic and Community Development. Retrieved from https://tnecd.com/wp-content/uploads/2021/01/Business-Tax-Credit-Evaluation_01-14-2021-FINAL-1.pdf

Chaudry, A., Wimer, C., Macartney, S., Frohlich, L., Campbell, C., Swenson, K., . . . Hauan, S. (2016). *Poverty in the United States: 50-Year Trends and Safety Net Impacts.* Washington: U.S. Department of Health and Human Services. Retrieved from https://aspe.hhs.gov/system/files/pdf/154286/50YearTrends.pdf

Chetty, R., Stepner, M., & Abraham, S. (2016). The Association Between Income and Life Expectancy in the United States, 2001-2014. *The Journal of the American Medical Association*, 1750 - 1766. doi:10.1001/jama.2016.4226

Congressional Research Service. (2018). *The Work Opportunity Tax Credit.* Washington: Congressional Research Service. Retrieved from https://fas.org/sgp/crs/misc/R43729.pdf

Cornell University. (n.d.). *Employer Financial Incentives*. Retrieved from Employer Assistance and Resource Network on Disability Inclusion: https://askearn.org/topics/laws-regulations/employer_financial_incentives/

DeSilver, D. (2018). *For most U.S. workers, real wages have barely budged in decades.* Pew Research Center. Retrieved from https://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/

Deuchert, E., & Kauer, L. (2017). Hiring subsidies for people with a disability: Evidence from a small-scale social field experiment. *International Labour Review, 156*(2), 269 - 285.

Dube, A. (2019). Minimum Wages and the Distribution of Family Incomes. *American Economic Journal: Applied Economics, 11*(4), 268 - 304. doi:10.1257/app.20170085

Faulk, D. (2002, June). Do State Economic Development Incentives Create Jobs? An Analysis of State Employment Tax Credits. *National Tax Journal, 55*(2), 263 - 280.

Federal Reserve Bank of St. Louis. (2020, September 4). *Employment-Population Ratio - With a Disability, 16 Years and Over*. Retrieved from FRED Economic Data: https://fred.stlouisfed.org/series/LNU02374597

Hamersma, S. (2008). The Effects of an Employer Subsidy on Employment Outcomes: A Study of the Work Opportunity and Welfare-to-Work Tax Credits. *Journal of Policy Analysis and Management, 27*(3), 498 - 520. doi:10.1002/pam.20354

Hayward, B. J., & Schmidt-Davis, H. (2003). *How Consumer Characteristics Affect Access to, Receipt of, and Outcomes of VR Services.* RTI International. Retrieved from https://www2.ed.gov/rschstat/eval/rehab/vr-final-report-1.pdf

Heaton, P. (2012). The Effects of Hiring Tax Credits on Employment of Disabled Veterans. Retrieved from https://apps.dtic.mil/sti/pdfs/ADA585435.pdf

Louisiana State Legislature. (n.d.). *RS 47:297.13.* Retrieved from http://legis.la.gov/legis/Law.aspx?d=965291

Mishel, L., Gould, E., & Bivens, J. (2015). *Wage Stagnation in Nine Charts.* Washington: Economic Policy Institute. Retrieved from https://www.epi.org/publication/charting-wage-stagnation/

National Center on Birth Defects and Developmental Disabilities. (2020, September 16). *Disability Impacts All of Us*. Retrieved from Centers for Disease Control and Prevention: https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html

Neumark, D., & Grijalva, D. (2016, December 27). The Employment Effects of State Hiring Credits. *ILR Review, 70*(5), 1111 - 1145. doi:10.1177/0019793916683930

Novak, J. (2015). Raising Expectations for U.S. Youth with Disabilities: Federal Disability Policy Advances Integrated Employment. *Center for Educational Policy Studies Journal, 5*(1), 91-110.

Quinn, J. F., & Cahill, K. E. (2017). The Relative Effectiveness of the Minimum Wage and the Earned Income Tax Credit as Anti-Poverty Tools. *Religions, 8*(4). doi:10.3390/rel8040069

Rehabilitation Services Administration. (2017). *Policy Directive (PD) 16-04.* Office of Special Education and Rehabilitation Services. Washington: United States Department of Education. Retrieved from https://www2.ed.gov/policy/speced/guid/rsa/subregulatory/pd-16-04.pdf

S.630 - Disability Employment Incentive Act. (2021). Retrieved from CONGRESS.GOV: https://www.congress.gov/bill/117th-congress/senate-bill/630?s=1&r=13

Sung, C., Muller, V., Jones, J. E., & Chan, F. (2014). Vocational rehabilitation service patterns and employment outcomes of people with epilepsy. *Epilepsy Research, 108*(8), 1469 -1479. doi:https://doi.org/10.1016/j.eplepsyres.2014.06.016

The Iowa Legislature. (2012, September). *Iowa Rule 701.40.21*. Retrieved from https://www.legis.iowa.gov/docs/ACO/IAC/LINC/09-19-2012.Rule.701.40.21.pdf

U.S. Department of Education. (2020). *Case Service Report (RSA-911)*. Retrieved from Rehabilitation Services Administration: https://rsa.ed.gov/performance-data/rsa-911-policy-directive

United States Census Bureau. (2020). *American Community Survey (ACS)*. Retrieved from https://www.census.gov/programs-surveys/acs

United States Census Bureau. (2020). *American Community Survey (ACS)*. Retrieved from https://www.census.gov/programs-surveys/acs

Vornholt, K., Uitdewilligen, S., & Nijhuis, F. N. (2013, February 12). Factors Affecting the Acceptance of People with Disabilities at Work: A Literature Review. *Journal of Occupational Rehabilitation, 23*(4), 463 - 475. doi:10.1007/s10926-013-9426-0

Wage and Hour Division. (2020, January). *Changes in Basic Minimum Wages in Non-Farm Employment Under State Law: Selected Years 1968 to 2019*. (U. D. Labor, Producer) Retrieved from https://www.dol.gov/agencies/whd/state/minimum-wage/history

Wage and Hour Division. (n.d.). *History of Federal Minimum Wage Rates Under the Fair Labor Standards Act, 1938 - 2009*. (U. D. Labor, Producer) Retrieved from https://www.dol.gov/agencies/whd/minimum-wage/history/chart

Work Opportunity Tax Credit – WOTC – Statistics 2020. (2021, March 9). Retrieved from Cost Management Services, LLC: https://www.cmswotc.com/work-opportunity-tax-credit-wotc-statistics-2020/#:~:text=MARCH%202020%20%E2%80%93%20The%20latest%20statistics,the%20United%20States%20in%202020.

Yelin, E. H., & Trupin, L. (2003, May). Disability and the characteristics of employment. *Monthly Labor Review*, 20 - 31. Retrieved from https://www.bls.gov/opub/mlr/2003/05/art3full.pdf