The Benefits of Increasing the Labor Force Participation Rate for People with Disabilities

AERG

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ECONOMIC IMPACT OF INCREASING FLORIDA'S LABOR FORCE PARTICIPATION RATE FOR PEOPLE WITH DISABILITIES

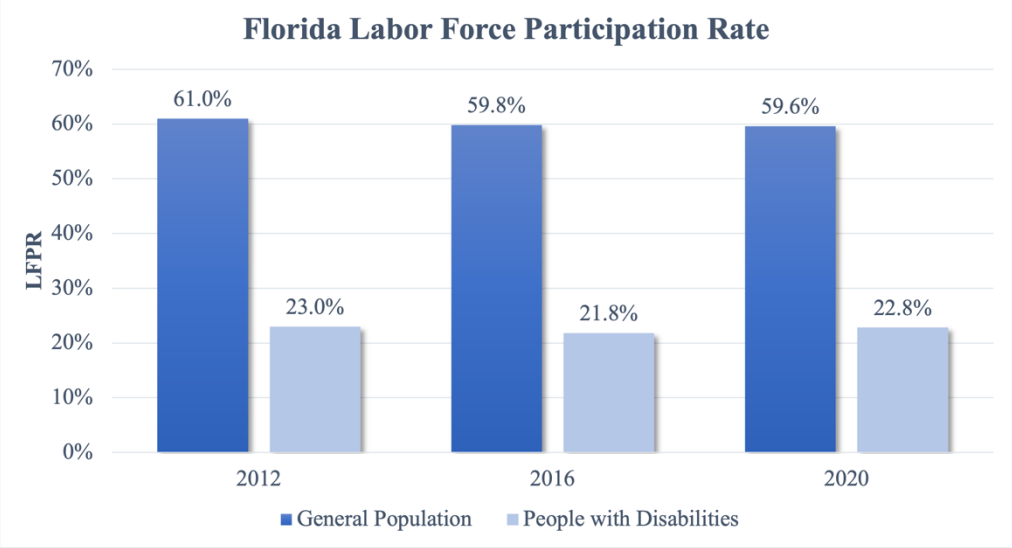
Carlos Bello, Sheridan Meek, Kieran Stewart-Phillips

Introduction

Florida's labor force participation rate for people with disabilities consistently trails the rate for the general population by about 40 percentage points. To address this, The Able Trust contracted AERG to analyze the economic impact of decreasing the gap between the general population labor force participation rate and the labor force participation rate for people with disabilities by 1 percentage point per year for 10 years. The Able Trust has set this goal in pursuit of their mission of obtaining meaningful employment for people with disabilities.

Background

In 2020 the labor force participation rate for people with disabilities was 22.8 percent, according to American Community Survey Data (ACS) while the labor force participation rate for the general population is 59.6 percent, a gap of nearly 40 percentage points.



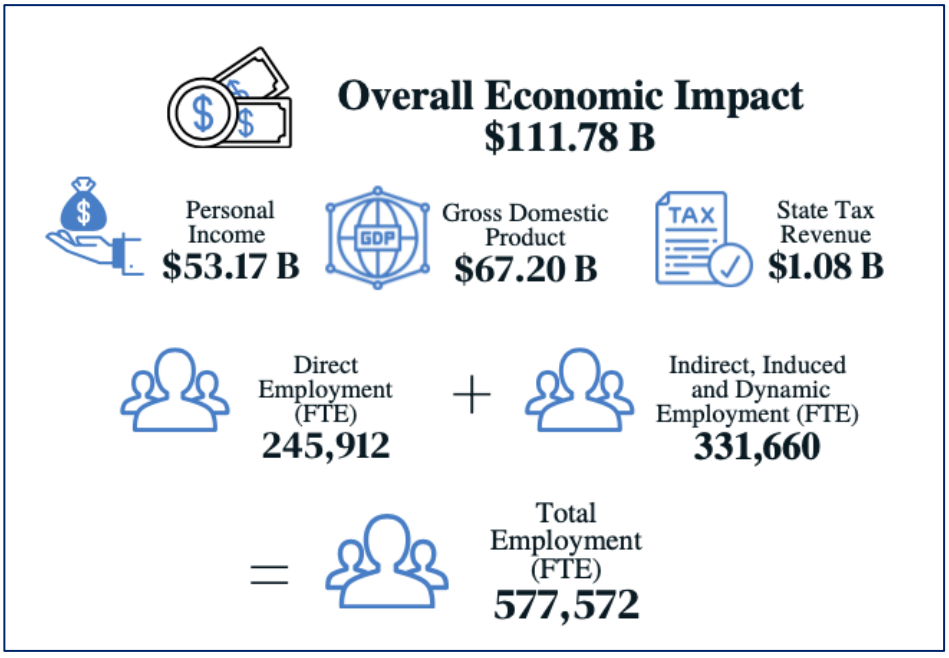
Approximately 2.67 million Floridians ages 16 or older report having a disability, which is 15.0 percent of the population. Accounting for the increase in the percentage of people reporting a disability in recent years, as well as overall population growth, a 1 percentage point increase in the labor force participation rate for people with disabilities per year for 10 years would result in 304,813 people with disabilities joining the labor force.

There is a sizeable difference between the number of hours and kinds of jobs worked by persons with disabilities as opposed to the general population. Approximately 72 percent of individuals in the general population who are employed work full-time while only 61 percent of people with disabilities who are employed work full-time, the remainder of those who are employed in each population are working part-time. The analysis performed in this report takes into account this difference between the two labor forces.

Methodology

In order to quantify the economic impact of The Able Trust's goal, we gathered data from the 2020 ACS 5-year estimates, which provide economic and demographic metrics on people with disabilities. From those estimates we calculated an input-output model PI+ constructed by Regional Economic Models, Inc. (REMI) as well as used IMPLAN to evaluate the benefits in expanded employment and increased tax revenue. Specifically, we input the number of people with disabilities which are added to the labor force if there is a 1 percentage point increase for each year from 2023 to 2032. These figures were forecasted using population projections from the Florida Office of Economic and Demographic Research and projected increases in the percentage of the general population with disabilities.

We estimate over 304,813 people with disabilities would be added to the labor force over a 10-year period.



Results

We estimate that adding 304,813 people with disabilities to the labor force would have an economic impact of $111.78 billion over the course of this 10-year period, from 2023-2032. This final net benefit is due to an increase of $53.17 billion in personal income, $67.20 billion in GDP and $1.08 billion in state tax revenue. Additionally, there will be a benefit of 245,912 jobs directly, and 331,660 jobs through indirect, induced and dynamic employment. We also take into consideration a different scenario, where the percentage of people with disabilities who work full-time increases to the same level as the general population. Results from this alternative

analysis provided additional insight into the potential benefit of obtaining meaningful employment for people with disabilities.

Table of Contents

Table of Figures

Introduction

There are 2.7 million Floridians ages 16 and older that report having a disability, which is over 15 percent of the state's population. Although nearly 1 in 6 Floridians fall into this category, this subset of Florida's population is distinct from the general population in many ways, a primary difference being their labor force. Despite making up a significant portion of Florida's population, only 22.8 percent of people with disabilities (PWD) are in the labor force. However, the labor force participation rate (LFPR) for the general population is 59.6 percent. This is almost a 40-percentage point gap between the LFPR in each population, a gap that has remained relatively unchanged in recent years.

The Able Trust, a 501(c)(3) public charity in Florida who is dedicated to helping people with disabilities obtain meaningful employment, believes there is significant potential for positive economic and social impacts if the gap were to shrink. They have set a goal of closing this 40-percentage gap an average of 1 percentage point per year for the next 10 years.

Created in 1990 to support vocational rehabilitation efforts in Florida, The Able Trust has supported programs throughout the state that address the needs of PWD who hope to enter the labor force, as well as creating and sustaining their own programs. As they look to the future, a key to pursuing an expansion of employment opportunities for PWD is widespread awareness of the untapped benefits this expansion would bring for the overall Florida population and economy.

The Able Trust has tasked Applied Economics Research Group (AERG) with finding the economic benefits of decreasing the gap between the general LFPR and the LFPR for PWD by 1 percentage point per year for the next 10 years. To calculate the economic impact of this goal, we used population projections and trends in the reporting of disabilities to calculate the number of PWD who would be added to the labor force to achieve this goal. We then used input-output models (REMI and IMPLAN) to find the impact of this increase of greater than 304,000 total PWD being added to the labor force between the years of 2023 and 2032.

Defining Disability

A myriad of physical, cognitive, and social impediments are commonly described by the term "disability", yet there currently exists no universal definition of "disability". This contributes to both misconceptions about people with disabilities and to difficulty compiling data about the population.

This lack of standards for data collection and identification on reporting disabilities was improved in part with the passage of the Affordable Care Act (ACA). The ACA's mission of ending health disparities in America has allowed for the improvement of data collection regarding differences in race, ethnicity, primary language, and disability. Section 4302 of the ACA puts provisions in place for uniform data collection for federal agencies regarding demographic and health-based variables. For disability specifically, a set of six questions that tries to capture six broad categories of disability has been set.

When used generally, the term "Person with Disability" in this report refers to an individual self-reporting one (or multiple) of the following: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty or independent living difficulty. These individuals were identified by responses to 6 questions set by the ACA and asked in the American Community Survey (ACS), which are included in Appendix 1. Due to the limited number of questions, and the potential of under-reporting, it is expected that the data may fail to identify all Floridians with disabilities.

The ACS estimates (which are those we use in our analysis) show a proportion of 10 percent-15 percent of the population reporting at least one disability (depending on the chosen age group). However, it is important to note that other sources, like the Center of Disease Control and Prevention, report that Florida's proportion of people with disabilities is closer to 26 percent. Using the same questions as the ACS, the Behavioral Risk Factor Surveillance System (BRFSS) estimates that in the 18-44 age range there are 19.6 percent of people with at least one disability.

The discrepancy between estimates could be tied to several factors. Higher comfort in reporting a disability to the CDC's BRFSS compared to the Census Bureau's ACS, differences in

assignment of sampling weights to such individuals, etc. It is important to note that our estimates are much lower which could mean a conservative estimate for this analysis.

Defining Labor Force Participation Rate

The labor force participation rate for a population is defined by the US Census Bureau as the proportion of the total 16-year-old and over population that is in the labor force. To be in the labor force, a person must be either employed or unemployed and have actively sought work in the past 4 weeks. It is important to make the distinction that being "in the labor force" is not interchangeable with "being employed". Similarly, "not being in the labor force" does not mean that a person is "unemployed". However, to be consistent with The Able Trust's mission of being a key leader in providing opportunities for successful employment for Floridians with disabilities, our analysis calculates the benefit of the increased labor force with the assumption that the PWD added to the labor force will also be employed.

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Demographics

The population and labor force for PWD have different characteristics than the general population, and therefore increasing the LFPR for PWD will have its own unique impact on Florida's economy.

Specifically, the AERG team analyzed and compared differences seen between the general population and PWD with regards to size of population, age, poverty levels and education levels. We also analyzed the characteristics of the employment rates, hours worked, and industries for PWD.

Population and Age

The two age groups most often considered in labor force analysis are the 16 and older age group, and the 16 to 65 age group. Figure 1 contains the approximate population values in Florida for both the 16 to 65 age group as well as the 16 and above age group in Florida.

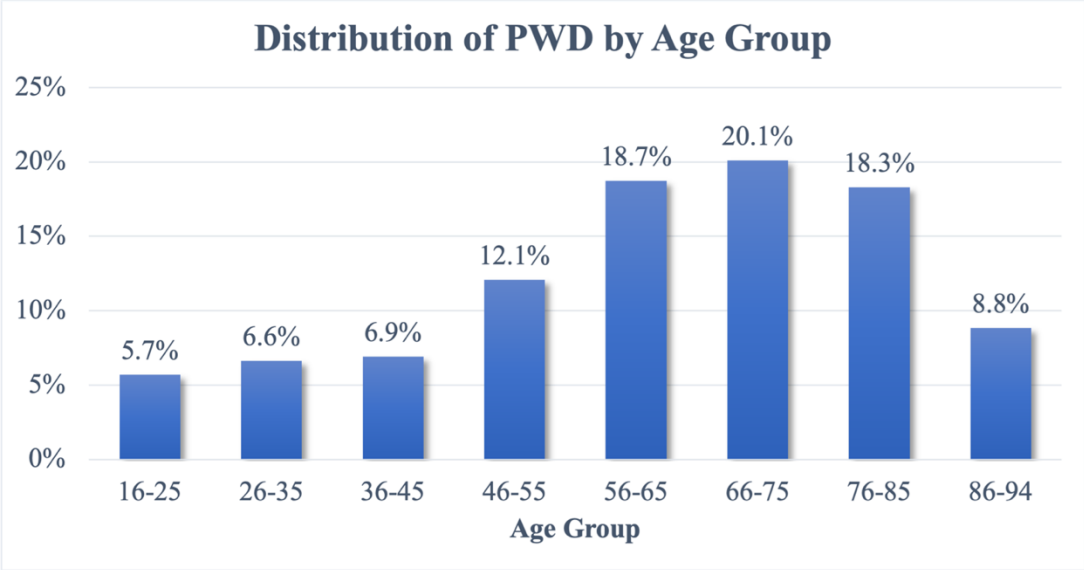
Figure 1: Populations by Age Group

	Population	PWD	Percent of Population with Disabilities
16-65	13,235,611	1,335,989	10.09%
16+	17,241,701	2,672,051	15.50%

Source: U.S. Census Bureau ACS

In 2020, there were 17 million people ages 16 and older living in Florida, 2.7 million of which reported having disabilities. This is about 15 percent of the population. Alternatively, from ages 16-65, this value falls to around 1.3 million PWD, which is about 10 percent of this population in Florida. This discrepancy in the values between both age ranges is largely a result of the fact that older individuals are seen to have disabilities more in the data than younger individuals. As illustrated in Figure 2 below, the highest percentage of PWD are between the ages of 66-75, with a substantial amount in the age range of 76-85. As a result, the 16 and above age range has about 1.3 million more individuals than the 16-65 age range.

Figure 2: Distribution of PWD Population by Age Group



Source: U.S. Census Bureau ACS

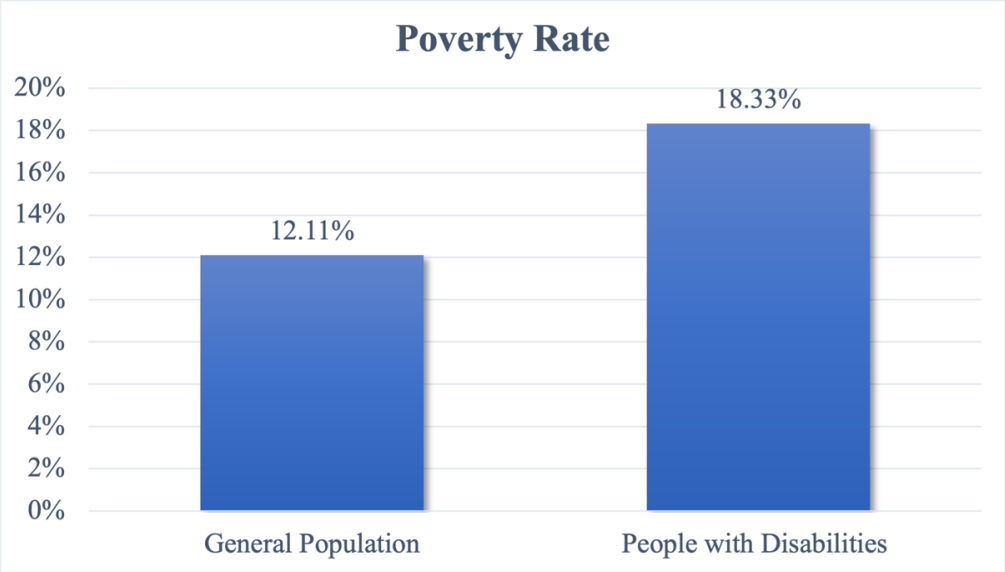
Our analysis will use data for Floridians ages 16 and older. Many similar studies focus on the age range of 16-65 because the population above 65 includes many who have disabilities but are retired and are not interested in joining the labor force. However, as Floridians begin to retire later, we have chosen to include this population in our analysis to avoid missing valuable individuals in our data. The consistent 40-percentage point gap between the general population and PWD LFPR that The Able Trust has a goal of reducing is in the 16 and older age range, and therefore we will be using this population in our analysis.

Following this strong correlation between age and disability, the team will show how age ranges compare in economic outcomes. These comparisons will shed light on how these outcomes vary not only from disability, but also in conjunction with age groups.

Poverty Levels

Another important factor that tends to differentiate PWD from the general population is the percentage of people in the population under the federal poverty-line. PWD experience poverty at a higher rate than individuals in the general population.

Figure 3: Poverty Rate by Population

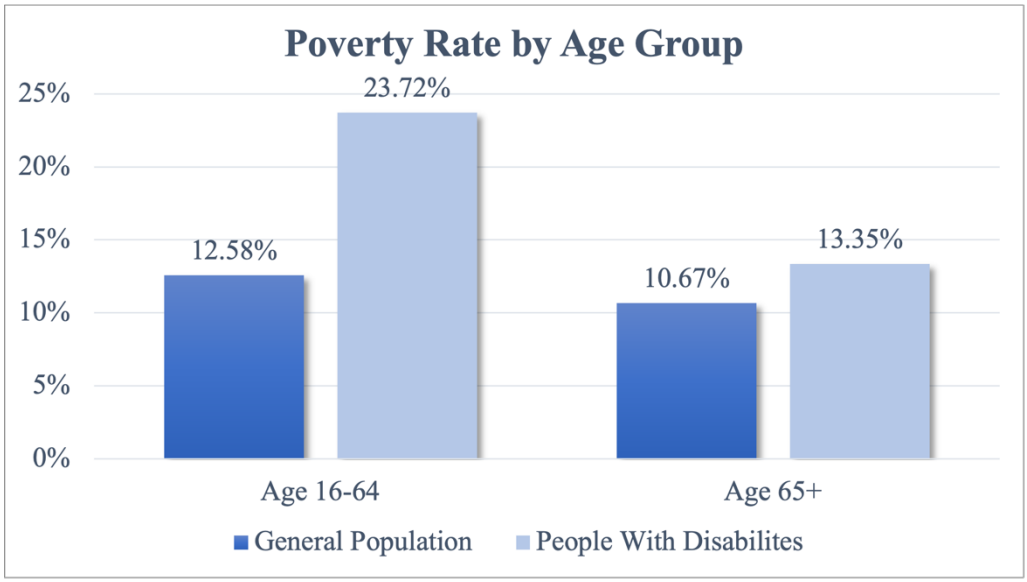


Source: U.S. Census Bureau ACS

Figure 3 above depicts the percentage of individuals below the poverty line in Florida for the year 2020. These values are being calculated using the poverty thresholds established by the Social Security Administration. They vary depending on household factors such as size of family and age of family members, with an average household of four in 2020 having a cut-off at $26,496.

In 2020, the amount of PWD who were living below the poverty line was 18.33 percent, over 6 percentage points higher than in the general population. The proportion of working individuals experiencing poverty in a population will have an effect on the overall economic impact when adding new members of that population to the workforce. The higher levels of poverty seen in the PWD population is impacted by other economic gaps present in the data between PWD and the general population. In this analysis, the AERG team examined the data for such factors, specifically unemployment levels, educational attainment, levels of income, and hours worked between both populations as they all likely could be contributors. When comparing age groups, the poverty outcomes show more striking results.

Figure 4: Poverty Rate by Age Group and Population



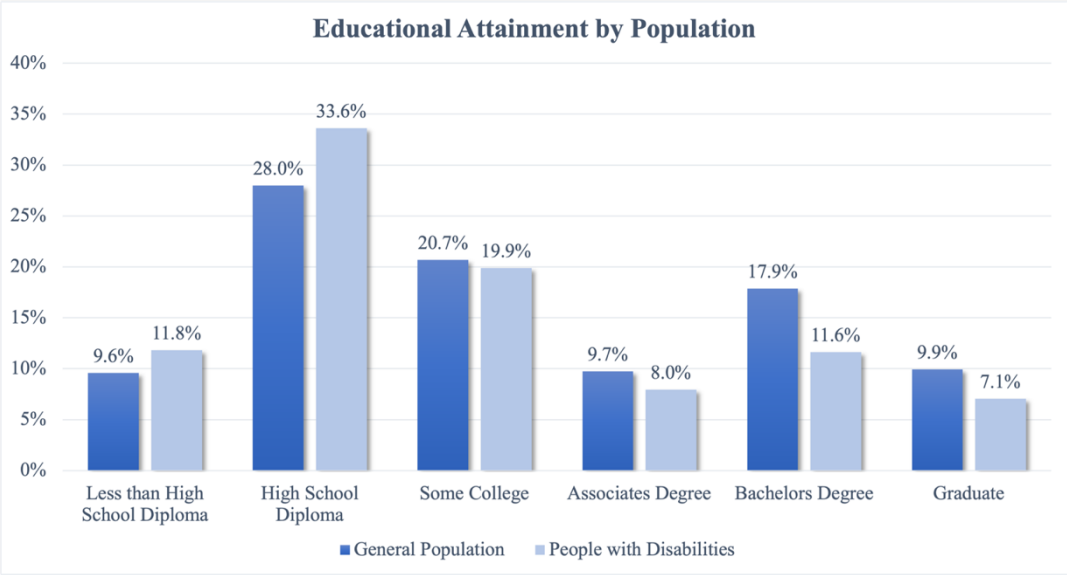
Source: U.S. Census Bureau ACS (2020)

As can be seen in Figure 4 above, the poverty gap between the general population and people with disabilities is more than 11 percentage points in the 16-64 age range compared to the less than 3 percentage point gap in the 65+ group. These differences in outcomes show evidence that if not considered, the age bias in disability reporting might conceal an especially vulnerable group of people.

Education Levels

Figure 5 below compares educational attainment levels for the general population and PWD. Overall, the general population has higher levels of educational attainment - almost 28 percent have a bachelor's degree or higher, compared to 19 percent of the population of PWD. Both populations have similar levels who have completed some college, but PWD have a higher ratio of the population with less than a college education. Over 45 percent of PWD have a high school diploma or below, compared to about 37 percent of the general population.

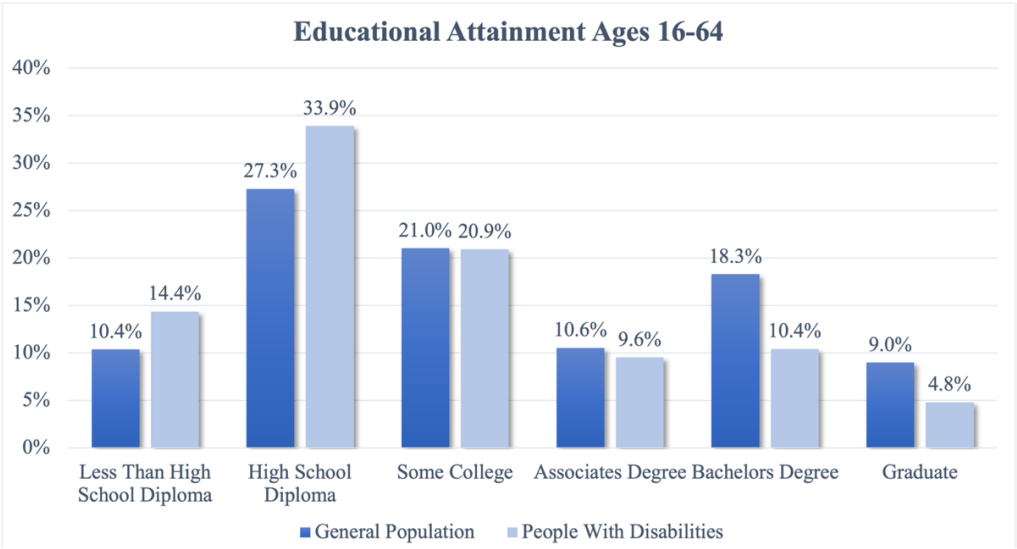
Figure 5: Educational Attainment by Population



Source: U.S. Census Bureau ACS

Due to the close relationship between education attainment and employment, the variation in educational attainment between PWD and the general population does not seem meaningful enough to explain the stark gaps in employment and poverty outcomes. While no causal claim can be made from this analysis, more research regarding the role of education in the disparity of employment outcomes between groups could be very meaningful in creating a better understanding of the issue. Even when controlling for ages, the outcomes do not change much.

Figure 6: Educational Attainment Ages 16-64



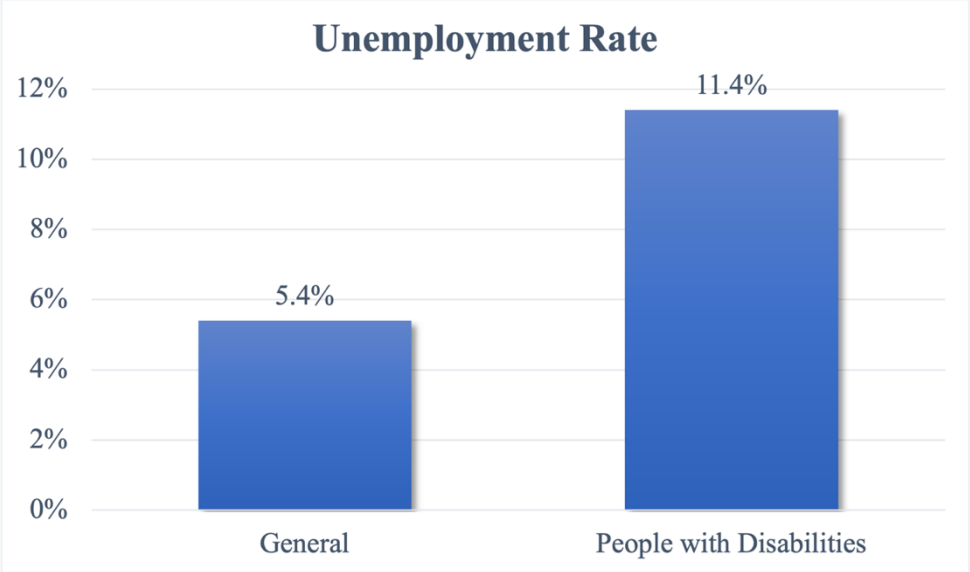
Source: U.S. Census Bureau ACS

As can be seen in Figure 6 when considering age in educational attainment, the results do not change much. There are higher disparities at the extremes, where people with disabilities seem to be overrepresented in lower educational attainments. Where the educational outcomes show more equal distribution is with some college and associate degree attainment. This could be due to the increase in awareness and push from the state to improve access to community colleges.

Employment

Between the two groups, there is a large disparity seen between the overall involvement within the labor force. Within the data, this difference is seen through an unemployment rate for PWD that is more than double that of the general population.

Figure 7: Unemployment Rate by Population

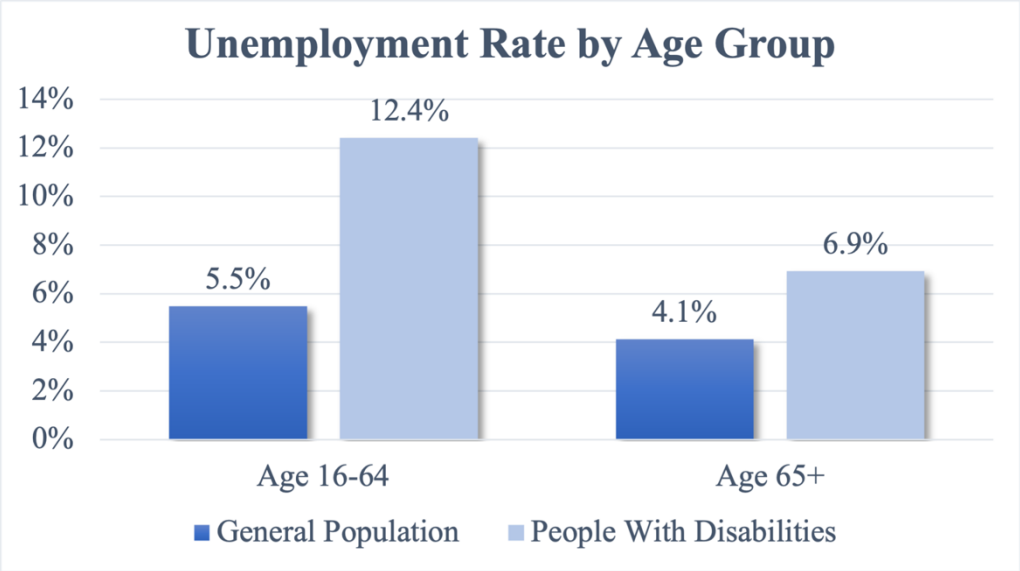


Source: U.S. Census Bureau ACS

Figure 7 above compares the unemployment rate between both populations. This gap in unemployment shows a disparity between the groups. Factors at play that could explain this difference could be issues of job matching, which might come at play if people with disabilities have a more inelastic approach to job seeking and have unique needs. It could also be possible

that systemic biases are at play here. When looking at unemployment rate by age groups, the team found some discrepancies between the groups.

Figure 8: Unemployment Rate by Age Group and Population



Source: U.S. Census Bureau ACS (2020)

As seen in Figure 8 above, the younger age group in the labor force sees higher levels of unemployment. As people age, it can be argued that they get skills that make them more likely to get and maintain employment. What is also present is the older population biasing the scale. As mentioned before, age and disability are highly correlated factors. Meaning that older people that report a disability could have gotten that disability at a later age, after they were able to develop their skills in the labor force. Whereas younger people that already present a disability might be more vulnerable to systemic differences or issues of job matching.

Part-Time and Full-Time Employment

A major difference between the general labor force and the labor force for PWD is the breakdown of part-time and full-time employment.

Approximately 38.50 percent of PWD who are employed work part-time, which is more than 10 percentage points greater than in the general population (see Figure 9). As a result, a larger portion of the general population is employed full-time than in the population of PWD.

Figure 9: Part-Time and Full-Time Employment for 16+ Age Range

	Full-Time	Part-Time
PwD (Percentage)	61.50%	38.50%
General Population (Percentage)	72.8%	27.20%

Source: U.S. Census Bureau ACS

For the purposes of this analysis, the AERG team has made the distinction that a person works "part-time" if they work below an average of 40 hours-per-week. To be considered "full-time", a person works an average of 40 hours or more a week. Further discussion about this cut-off point will be found in the methodology section.

When looking at the 16-65 age group in Figure 10 below, the full-time/part-time gap seems to slightly decrease to 9 percentage point gap. More research into the reasons why people with disabilities seem to get more part-time employment would shed light into this phenomenon.

Figure 10: Part-Time and Full-Time Employment for 16-65 Age Range

	Full-Time	Part-Time
PwD (Percentage)	65.34%	34.66%
General Population (Percentage)	74.35%	25.65%

Source: U.S. Census Bureau ACS

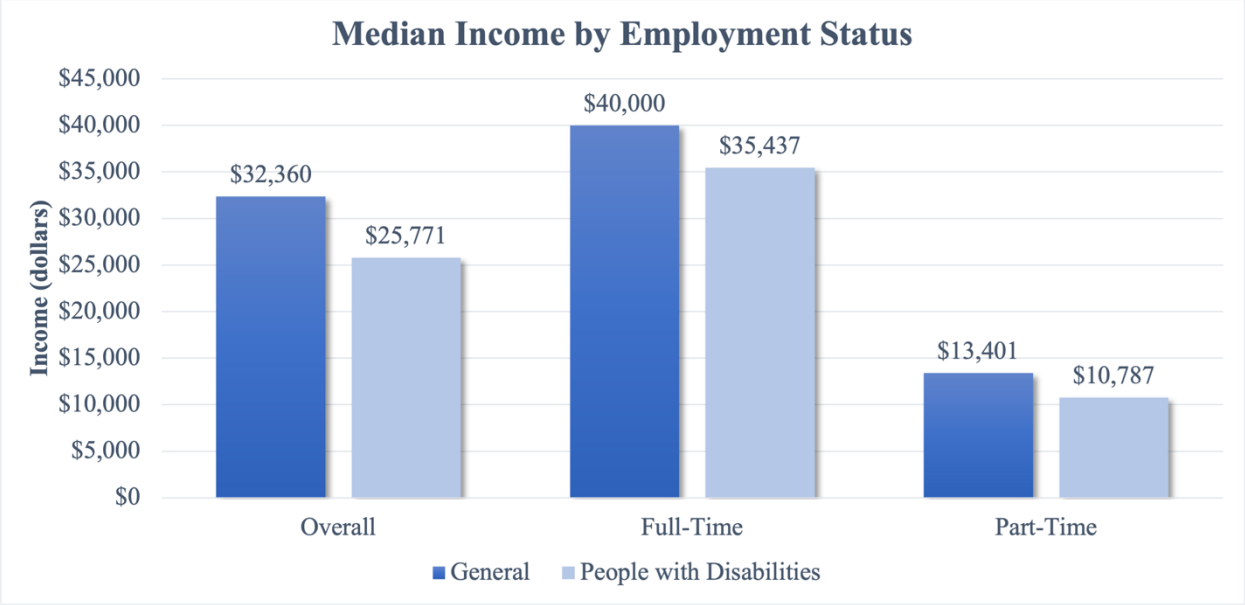
Income

Further contrast is seen in the income disparity between the two populations. The median incomes for each overall population, and for each status of employment, are illustrated in Figure

11. The median annual income for PWD is just below $26,000, which is about $7,000 less than the median annual income of the general population. This difference is not surprising considering the higher proportion of part-time work for PWD.

However, this discrepancy in income does not seem to be explained by this difference alone. Even within the full-time and part-time status, PWD still make less than the general population by around $5,000 and $3,000, respectively.

Figure 11: Median Income by Employment Status



Source: U.S. Census Bureau ACS

Industries

The industries most often worked in are also a key characteristic of a population's labor force and will dictate how the economy will be impacted in the case of an increase in the labor force. Figures 12 and 13 below outline the three industries employing the highest percentage of PWD for both part-time and full-time work. Retail Trade, Health Care, and Social Assistance are among the highest for both employment levels. Retail trade is almost 10 percentage points higher in the part-time group due to the prevalence of part-time employment in this industry sector.

There is not a big disparity regarding the industries worked between the general population and that of the people with disabilities. See Appendices 2 and 3 for a full comparison of employment by industries for both PWD and the general population.

Figure 12: Top 3 Industries for PWD Working Part-Time

Industry Name	Full-Time PWD
Health Care and Social Assistance	12.38%
Retail Trade	9.91%
Construction	9.38%

Source: U.S. Census Bureau ACS

Figure 13: Top 3 Industries for PWD Working Full-Time

Industry Name	Part-Time PWD
Retail Trade	20.09%
Accommodation and Food Services	13.18%
Health Care and Social Assistance	11.87%

Source: U.S. Census Bureau ACS

The biggest disparity between the general population and the PWD's industries worked comes from the increased presence of part-time work for people with disabilities. The team took this difference into account to calculate the inputs for our analysis. More discussion on this will be found in the Methodology section "Impact on Florida's Economy" subsection.

Methodology

To complete the task of finding the economic impact of a one percentage point reduction in the gap between the LFPR of PWD and that of the general population in Florida per year for 10 years, the AERG team needed to figure out two main challenges:

- How many people will be added to the labor force to close the gap by one percentage point per year for 10 years?
- How will those individuals joining the labor force impact Florida's economy?

To tackle these questions, The AERG team utilized population estimates from the American Community Survey (ACS) 5-year estimates 2015-2020.

Data Source

The ACS is a survey conducted by the U.S. Census Bureau that collects demographic and economic data on individuals and households throughout the United States. The team in AERG chose this data source due to its inclusion of disability related questions (see Appendix 1) and its detailed figures regarding labor force status, income, hours worked, industry of employment, etc. While it is a survey that samples individuals and households from the population and therefore is subjected to some of the caveats of self-reporting, the U.S. Census Bureau calculates sample weights that are assigned to each observation depending on how representative it is of the population in that area. This is possible thanks to the U.S. Census that occurs every 10 years and allows us to calculate potential population estimates from the sample of data.

From this data set we picked relevant variables for the analysis. The most relevant ones have to do with disability, which according to the United States Department of Health and Human Services (HSS) are assigned using the data standard for survey questions on disability. Other variables key to the analysis were usual hours worked per week and industry of work. Other variables were useful to calculate summary statistics and understand the different population groups, but the aforementioned variables were necessary to the methodology of our economic impact study.

After retrieving relevant variables, the team limited the sample to noninstitutionalized people in Florida of the ages 16 and older. This is the same limitation that is used in calculations of labor force participation. Taking out the institutionalized population could also negatively bias the representation of disability, but as the study wants to focus on people that can participate in the labor force, it is a necessary exclusion.

Once the sample was limited to the desired subgroup of noninstitutionalized 16 years and older, the AERG team calculated the proportion of people that reported having a disability from Florida's population using our ACS estimates. As shown in Figure 1 in the demographics section, it is estimated that 15.5 percent of people in Florida report having a disability. That accounts for 2,672,051 out of 17,241,701 Floridians. To estimate a flat increase of a percentage point in the persons with disabilities LFPR, that is just a one percent of the subgroup of people with disabilities, therefore it is around 26,720 in the year 2020. To calculate the future increases in a percentage point of the labor force participation rate of PWD, the team accounted for population growth and changes in the proportion of people claiming disabilities.

Data Concerns

Due to concerns of surveys in 2020, the AERG team avoided using single year estimates and used the 5-year estimate from 2015-2020. This means that the survey was conducted continuously for 5 years and gathered information from people throughout the US. Compared to 1-year estimates, the 5-year estimates provide more reliability at the cost of being less current. In the case of this report, we are also able to obtain some of the currency through using some data collected for 2020. It is more reliable to use it in this format because there are four other years that weigh against the possible errors of the 2020 estimates.

A concern relating to the 5-year estimates is the underestimation of the impacts of the COVID-19 pandemic. Whereas this is not too relevant for our analysis, COVID-19 has impacted economic metrics in ways we are still experiencing today. While the survey does contain information on 2020, the same weights that are safeguarding the data from error are also weighing down the possible impacts and differences created by the pandemic. This is an important consideration to have moving forward as the economy might be irrevocably different in aspects like increased telework and higher awareness of diseases.

Other robust sources can be found in the Florida Department of Economic Opportunity (DEO), but concerns over its disability figures dissuaded the team from using it. The DEO uses data collected from employers to capture the working population. While this is an effective way of capturing metrics like income, working individuals that have a disability may feel better not to report it as it might bring stigma or other perceived negative consequences.

There are concerns of underreporting of disability in the ACS as well. The Center of Disease Control and Prevention says that around 26 percent of the 18+ age population in Florida has at least one disability using the same criteria as the one the ACS is using. It is therefore possible that the self-reporting or the weights being ascribed to the samples are underpredicting the actual presence of disabilities in the population. This could be due to a bias against reporting that they have a disability due to negative perceptions or no positive incentives to do so.

Florida's Population Growth

To account for population growth in the next ten years, the team decided to look for population forecasts done by relevant institutions in the state. The Office of Economic and Demographic Research (EDR) and the University of Florida's Bureau of Economic and Business Research (BEBR) both have done population forecasts for the state. To calculate each individual year's percentage point increase, we decided to go with the EDR's population growth estimates as they provided year to year changes.

Figure 14: Estimated Population Growth Each Year

Year	Estimate of Population Growth from Previous Year (EDR)
2020	1.0167
2021	1.0164
2022	1.0159
2023	1.0142
2024	1.0135
2025	1.0129
2026	1.0123
2027	1.016
2028	1.0111
2029	1.0104

2030	1.0099
2031	1.0093
2032	1.0087

Source: The Office of Economic and Demographic Research (EDR)

Figure 14 shows each year's estimated population growth coefficient. The year 2032 was not included in the EDR projection and was obtained by trending the decreasing behavior of the population growth estimates. As their projections include people younger than 16 years old and institutionalized people, we took the rate of change of each year and used it in our subpopulation.

$$Y_t = \frac{(PE_{t-1} \cdot PG_t)PPWD_t}{100}$$

The formula to calculate a 1 percentage point of the predicted population of people with disability Y at a given year t is given above. We multiplied the population estimate from the previous year PE from previous year t-1 to the estimated population growth PG at year t, that gives us the estimated population for this year. Then, we multiplied to this year's predicted proportion of people with disabilities PPWD at year t and divide the result by 100.

We corroborated EDR's population growth estimates with BEBR's forecasted population for 2030. BEBR has three scenarios and EDR's projections were remarkably close to the moderate growth projection of BEBR, which served as an assurance of their forecasted figures. Appendices 4 and 5 show both BEBR and EDR predictions.

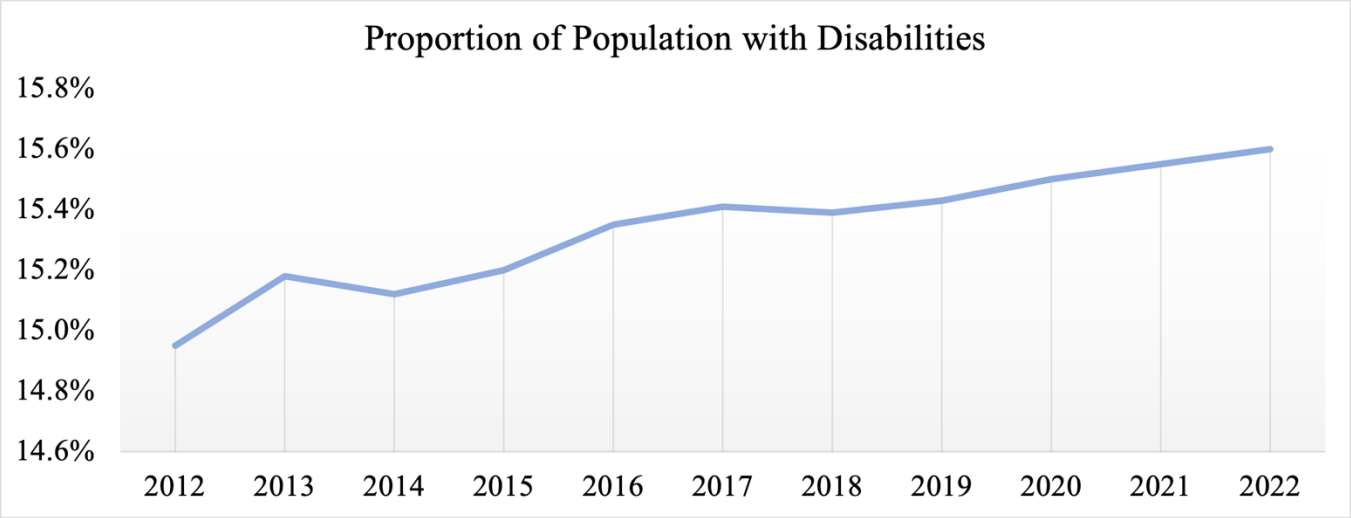
A concern regarding population growth that the team ran into was that migration is not random. It is highly likely that the people that migrate to the country/state would be less likely to have disabilities, which if not considered, could make our population growth estimates overestimate the presence of people with disabilities. While this could be the case, in the following section we show how the proportion of people that report having a disability has been increasing over time. This has been the case while the population has been increasing. Furthermore, there is already a chance that the estimates of people that report having a disability are an underestimate of Florida's people with disability population. While this is a valid concern,

we believe that not accounting for population growth will be pushing down the estimates to an unrealistic conservative estimate.

Growth in Disabilities Reporting

Another way that the team wanted to account for changes in time was to see if there has been a trend in the proportion of people in Florida who report having disabilities. We used the ACS multiyear samples for every year since the current questions pertaining to disability were first included and plotted a graph of the proportion of PWD of each year. The fact that these are multi-year means that changes over time are bound to be smoother as samples share years in their estimates.

Figure 15: Proportion of Population with Disabilities

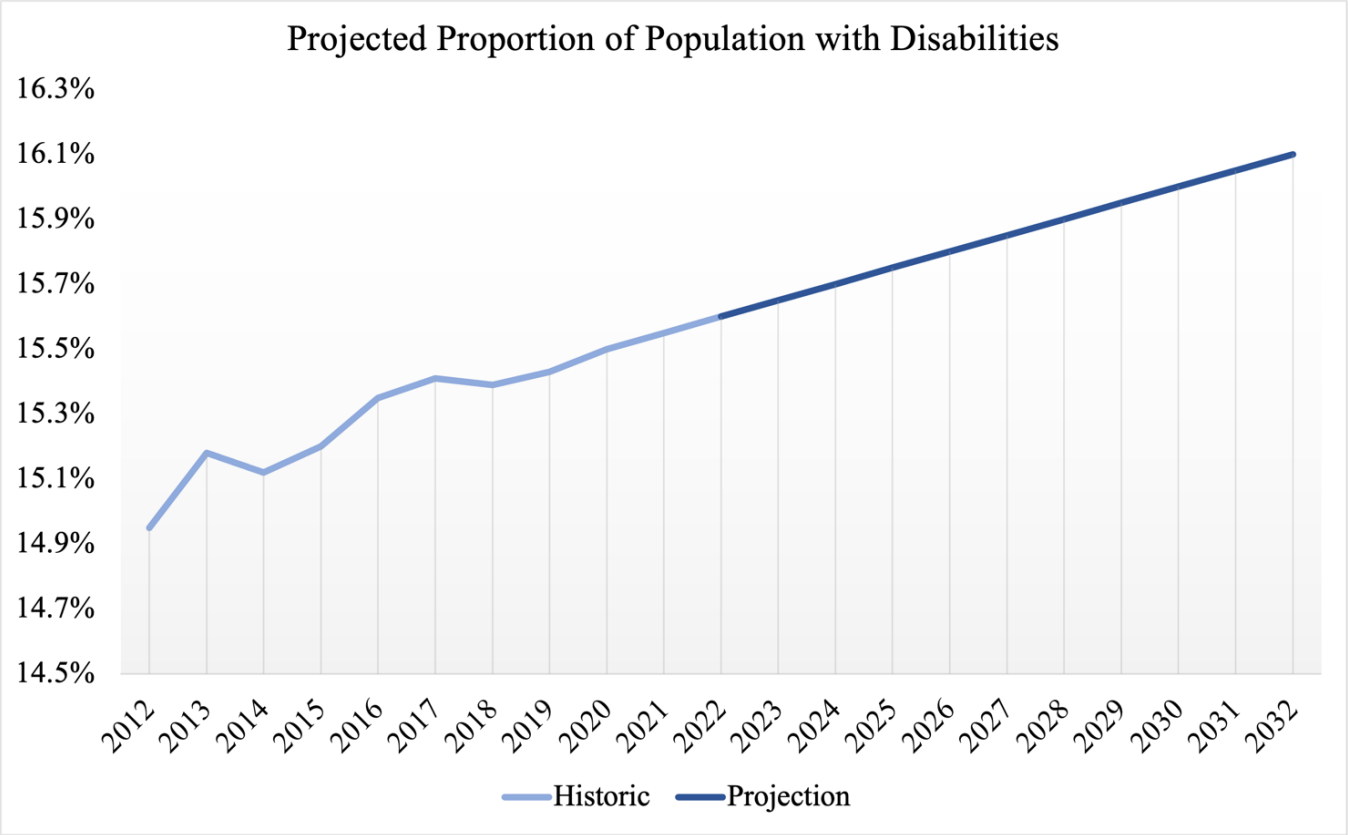


Source: U.S. Census Bureau ACS

As you can see in Figure 15 there is an increase of 0.5 percentage points over 8 years in the proportion of people that report having a disability. This trend could be a result of sampling weight error from the census, it could also be the increasing share of the aging population. As stated before, our estimates of the proportion of people with disabilities might be underrepresenting the actual proportions. This trend could also be people reporting disabilities. For whatever reason, this trend is present and there is no reason to believe that it will stop,

therefore we decided to control for it. Figure 16 below shows the original trend with the forecasted trend of 0.5 percentage points increase through the 10 years.

Figure 16: Projected Proportion of Population with Disabilities



Source: U.S. Census Bureau ACS

Once the team was able to find specific values for the population growth and the increasing trend of reporting of disabilities, we took the ACS population estimate for the population 16 and calculated each year's prediction based upon the rate of change of the forecasted population growth prediction. Then, following the trend of increasing reporting of disability, we calculated each year's forecasted proportion of reporting of disability and multiplied by its respective year Florida population estimate.

$$Total\ addition\ to\ the\ Labor\ Force = \sum_{2023}^{2032} Yt$$

After calculating the predicted 1 percentage point values for each year from 2023 to 2032, the sum of these ends up being the predicted number of people with disabilities joining the labor force given that The Able Trust accomplishes its goal. This number is 304,813 people added to the labor force. Appendix 6 shows a table with all the values and the resulting calculation.

Impact on Florida's Economy

After we found the number of people that would need to be added to the labor force, the team needed to find out what economic impact this addition to the labor force would have on Florida's economy. To tackle this second challenge, we analyzed the ways in which the subpopulation of persons with disabilities that is already in the labor force compared to that of the general population.

As shown in the demographics section, the team found out that people with disabilities are employed part time at a higher percentage compared to the general population. We defined part-time employment as working less than 40 hours per week, and full-time employment as 40 hours or more per week. There are other cut-offs that could work here, however we decided on 40 hours a week as it is a threshold companies tend to use to provide employees with benefits.

This difference in full-time employment attainment could be caused by many factors, skewed educational attainment, which does not seem the case from what is shown in the demographics section, job mismatch from differences in schedule preferences and a myriad of other factors. Following this trend, we also found that people employed full-time and part-time tend to work in different industries. This is not a new finding, but thanks to our data we are able to control for that in the analysis.

$$FTY_t = Y_t \cdot 0.615$$

$$PTY_t = Y_t \cdot 0.385$$

To gather the economic impact of Florida's economy. The AERG team took the number of people that would be added in each forecasted year and separated them into distinct groups depending on the proportions that already exist on the population. First, separating each year's added PWD labor force participants into full-time (*FTYt*) and part-time (*PTYt*) groups.

This was done using the 61.5 percent Full-time and 38.5 part-time proportions, which for the sake of analysis we assume to stay the same throughout the 10 years. The equations above show the calculation for each year's addition to the labor force divided by the different full-time and part-time groups. Appendix 7 shows the detailed table with each year's specific amount per group.

$$Z_{it} = (FTY_t \cdot FTX_i) + 0.625(PTY_t \cdot PTX_i)$$

After gathering each year's labor force addition grouped by their predicted work status (*FTYt* and *PTYt*), the team took breakdowns of industries worked by the two full-time and part-time groups and proportionally allocated the newly added individuals in each industry sector. The equation above portrays this calculation. *Zit* is the PWD allocated to industry sector *i* at year *t*, *FTXi* and *PTXi* are the proportion of people that work in industry sector *i* between the FT and PT groups. This was done under the assumption that the breakdown of industry will stay the same during the 10 years and that people will be employed following that pattern.

Figure 17: Model Input Diagram

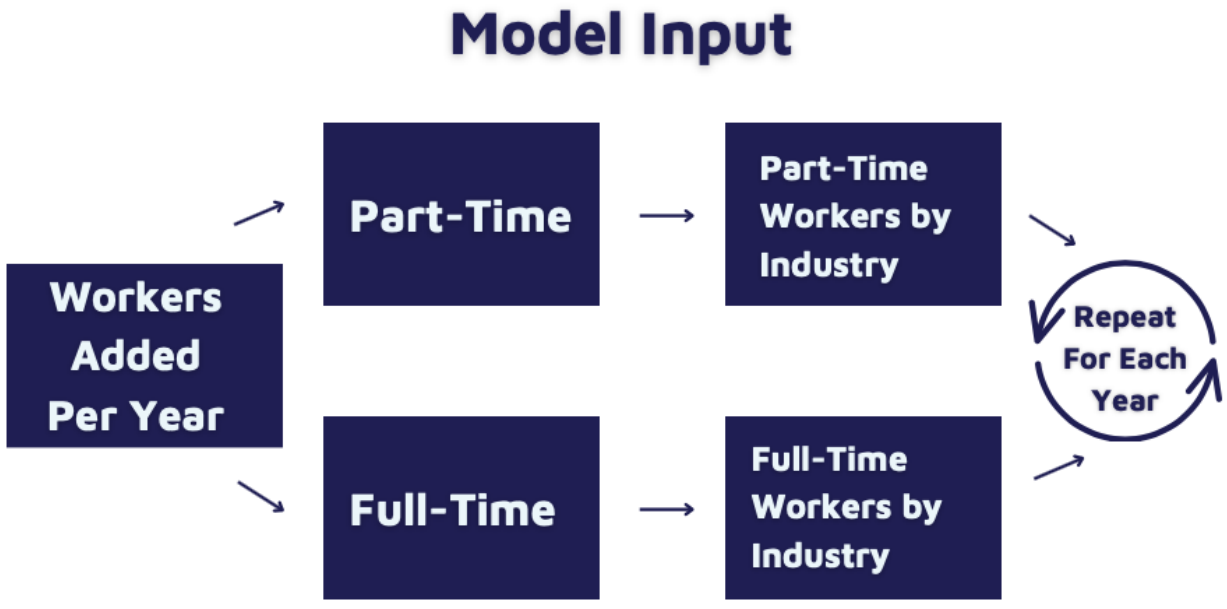


Figure 17 above shows a visual of the process to get the added PWD to the labor force by work group and industry sector. There are 20 industry sectors ordered using the North American Industry Classification System (NAICS) codes.

Now that all the inputs are calculated and grouped by in relevant groups, the team used Input-Output models to estimate the impact on Florida's economy.

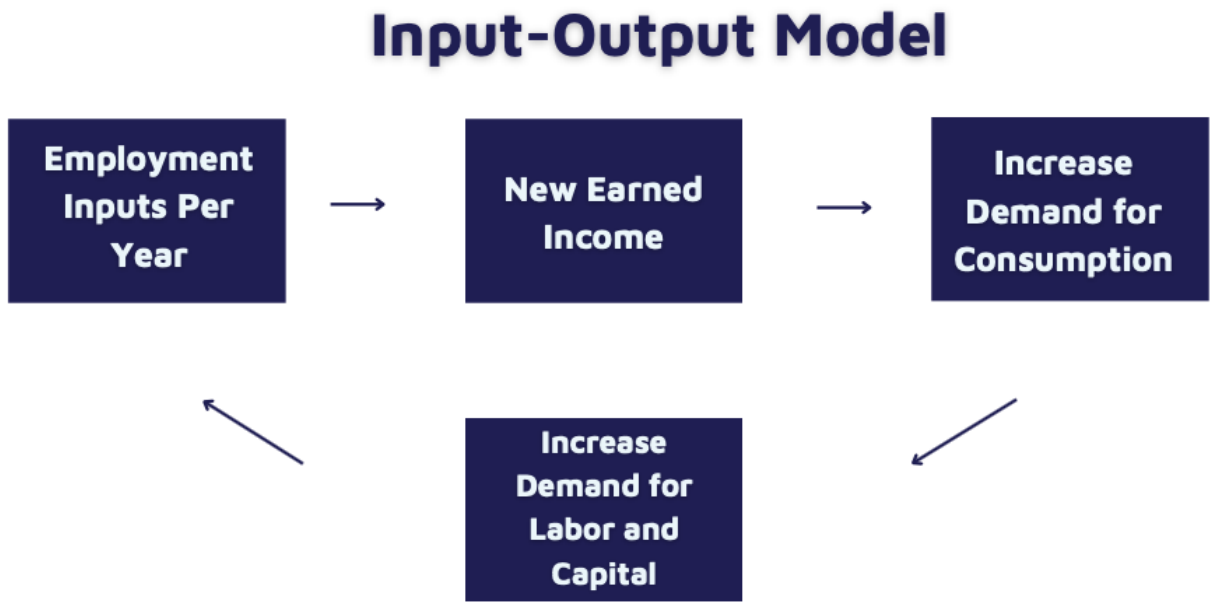
Input-Output Model

An Input-Output model (I-O Model) is a form of macroeconomic analysis based on the interdependencies between different industry sectors. It was initially conceived by the economist Wassily Leontief who won a Nobel Prize thanks to his work on Input-Output models. These models are commonly used to analyze the economic impact of investments and policy changes in regional economies.

The Input-Output model takes the initial result of an investment or policy change, which are commonly referred to as Direct Effects, and calculates secondary effects resulting from that initial direct impact. The basis of these models is the idea that industries in the economy are a web of interconnected links. Where if something changes in one place it impacts all the nearby links to some extent and by extension creates an effect on the economy. The direct effects can be changes in employment, output, or income.

The secondary effects from that initial change in inputs is what the model estimates. These are referred to as indirect and induced effects. Indirect effects are understood as the change in demand for intermediate goods, which would require more inputs of labor and capital to meet the changes caused by the direct effect. Induced Effects are the effects of the additional income that will be spent on consumption and will increase the demand for these consumer goods, also increasing the output to produce them. These secondary effects combined with the direct impact is called the total impact. Figure 18 shows one of the chains that I-O models calculate.

Figure 18: Input-Output Model Diagram



If we put in employment as inputs, the model would calculate earned income depending on industry, occupation, and region. Then, it will calculate the increase in demand for consumption from this new income, which in turn will increase the equilibrium output and increase the demand for labor and capital, creating a feedback loop that repeats this process.

Thanks to the complexity of the model, REMI adds another secondary effect called dynamic employment. It is the remainder of the total effect that it forecasts when subtracting the direct, indirect, and induced effects.

The main model used by the team was the Regional Economic Model, Inc. (REMI) and the IMPLAN model was used to calculate tax revenue. REMI is a dynamic Input Output model that incorporates its own forecast of the economy and measures how much the directs impacts may impact this forecast through the total impact. Appendix 8 shows the actual structural REMI model with all its components. It shows how these models have increased in complexity over the years.

Limitations of the Input-Output Analysis

One issue that the AERG team ran into was that the model itself does not have a metric to differentiate between part-time and full-time employment. To effectively use this model, we had to adjust our employment numbers to become Full-Time Equivalents (FTE). To do this, we found the average hours worked by the part-time PWD group and found that they work a median of 25 hours per week and a mean of 23.5 hours per week. We chose the figure of 25 hours a week and created an (FTE) ratio by dividing median part-time hours/median full-time hours. The result was 0.625, which means that one part time worker can be represented (in terms of output) as 0.625 of a full-time employee. This approach has its limitations as one does not know whether people that work part-time are completely comparable to the people that work full-time. There might be some inherent differences at the average, but that is an assumption of our model.

Something to note about REMI is that it does not have a public administration industry sector which means there is an underprediction on the direct impacts. The total number of predicted jobs that would go to public administration jobs in the 10 years is 14,301 in FTE. This in turn would underpredict the actual total impact of decreasing the gap by the desired goal. Appendix 9 shows the table of all the jobs by industry sector and year input into REMI and IMPLAN.

Another shortcoming of using an I-O model for this analysis would be that the model cannot account for any particularities regarding people with disabilities. If it is believed that people with disabilities are not comparable with people from the general population regarding their capabilities, spending habits, or other behaviors that the model bases its interactions upon, then the results would not be completely representative. This is something that would call for future research. While there is an argument for overestimating the predicted impact, the team believes that in other aspects this finding is not considering important aspects of this issue discussed in the Conclusion and Considerations Section.

IMPLAN

The AERG team also wanted to calculate the tax revenue that would be collected by the state thanks to this increase in employment. For that the team also used the I-O model IMPLAN as it provides detailed predictions on tax revenues at the distinct levels of government.

IMPLAN works differently from REMI in the sense that it is a static model and can only predict the effect one year at a time. Therefore, the team aggregated the numbers of new employees per industry sector and input them into the model. This would assume that the linkages between industries stay constant for all 10 years, and that the initial impact to these industries is more sudden than what REMI would predict. To account for the time variable that is not present in IMPLAN we are discounting the result using present value discounting at a rate of 6 percent. This rate is commonly used when doing policy analysis and checking for viability of investment.

Results

Decreasing the gap between the LFPR for the general population and the LFPR for PWD by one percentage point per year for 10 years benefits Florida's economy through increased employment, personal income, GDP, and state tax revenue. The total results are illustrated below in Figures 19 and 20.

Figure 19: Final Results: Economic Impact in Employment

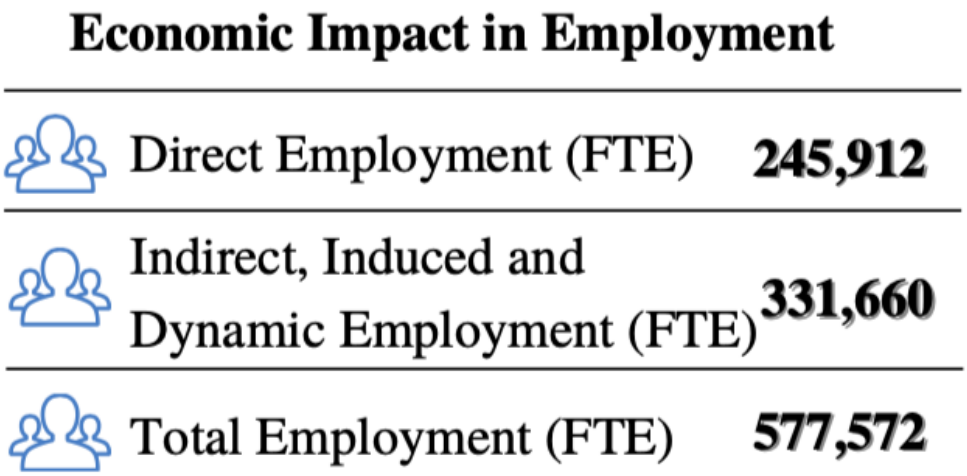
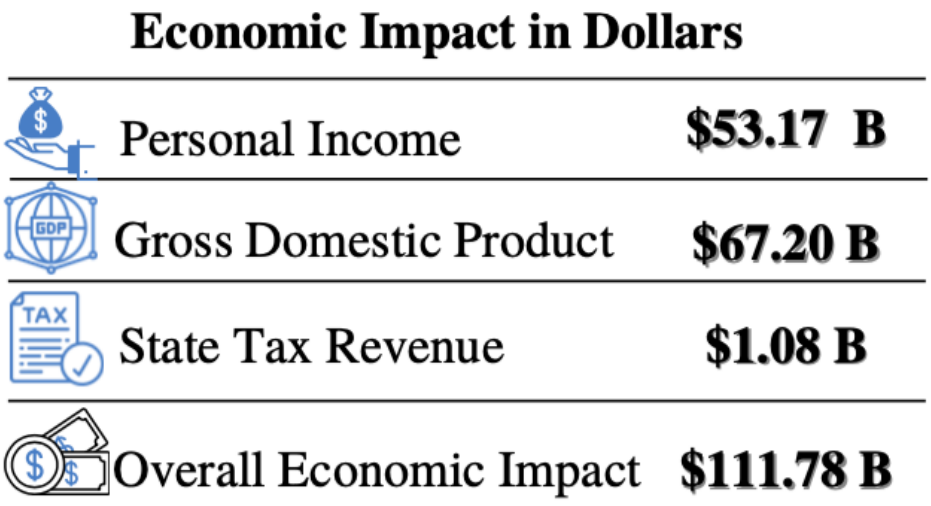


Figure 20: Final Results: Economic Impact in Dollars



Employment Impact

The addition of 304,813 people with disabilities to the labor force, 38.5 percent of which would work part-time and 71.5 percent who would work full-time, impacted the economy through 245,912 full-time jobs directly and another 331,660 full-time jobs through the ripple effects in the economy.

These new jobs through secondary effects are divided into 58,768 through indirect employment, 126,416 through induced employment and 146,476 on dynamic employment. Appendix 10 shows a detailed table of the impact on each year.

Looking more closely by industry sector, REMI predicts that the three industries that would see the biggest effects in employment gains would be Construction with 71,626 jobs, Retail Trade with 65,763 jobs, and Accommodation Hospitality with 41,844 jobs added. In terms of output, however, the industries that would be producing more output for the economy are Construction, Real State and Retail Trade. Producing an estimated 12.81, 11.81 and 10.85 billion USD to the economy, respectively. Appendix 11 provides more detailed figures on the most impactful industries.

Financial Impact

The impact from this 10-year increase to the labor force will impact the tax revenue of the state and local governments. For the state of Florida, the state tax revenue from this project is estimated to be $1,968,579,459 for the 10 years. As money in the future is worth less than money today, we did a present value calculation to find what the present value of this amount would be. Using a 6 percent discount rate, the present value is estimated to be $1,080,379,313.

For the Federal government tax revenue is estimated to be $4,276,562,94. The team also calculated the present value for this figure which amounts to $2,350,538,981.

Overall, this total economic impact breaks down to a benefit of $367,000 total per person added to the labor force after the 10-year period.

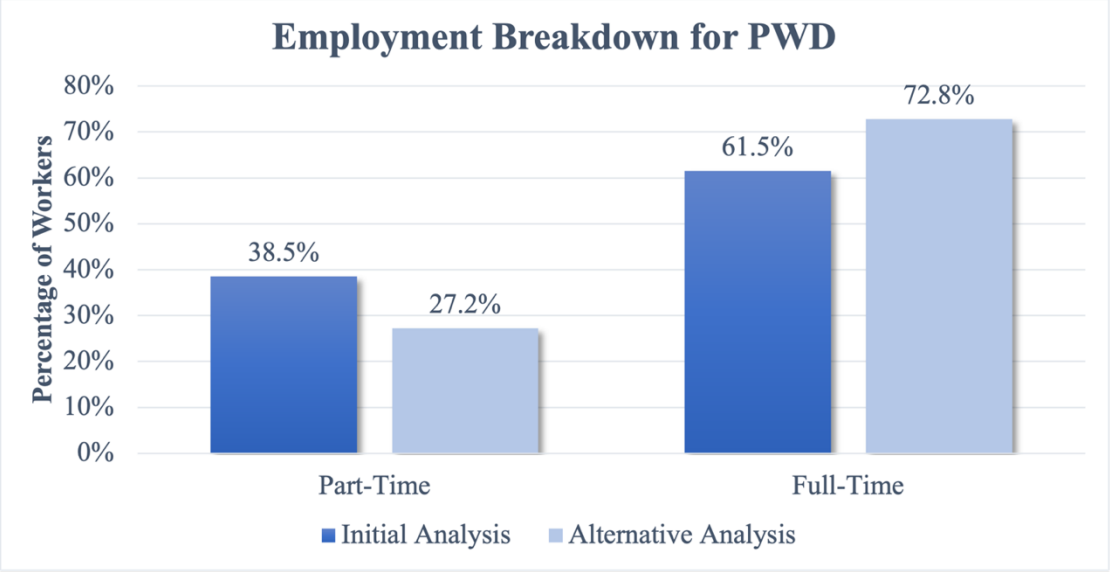
An Alternative Scenario: Higher Full-Time Employment for PWD

The above findings are reflective of the value to Florida's economy of meeting The Able Trust's goal to decrease the gap between the general population LFPR and LFPR for PWD by one percentage point per year for 10 years. However, beyond this goal, The Able Trust has an overall mission to be a key leader in providing opportunities for successful employment for Floridians with disabilities. With this mission of expanding opportunities in mind, we performed an additional, alternative analysis which is intended to illustrate the impact of helping PWD to obtain more full-time positions.

As discussed in the demographics portion of our paper, a higher percentage of PWD work part-time than in the general population - about 10 percentage points higher. We chose to consider a scenario where the 304,813 people with disabilities who are added to the labor force over 10 years are not obtaining employment at their current ratio of full-time to part-time work but rather at the same employment breakdown of the general population.

To find this new economic impact, we used the same methodology developed above for our initial results but altered the inputs to reflect a higher percentage of full-time employment, illustrated in Figure 21 below. The ratio used in the new analysis is 27.2 percent working part-time and 72.8 percent working full-time, which is the same as the current breakdown for the general population (see Figure 9 in demographics portion of the report).

Figure 21: Alternative Analysis Employment Breakdown



Source: U.S. Census Bureau ACS

If the same percentage of PWD are working full-time as in the general population, adding the same 304,813 PWD to the labor force increases employment by 617,872 new workers, and has an economic impact of $121.07 billion. This breaks down to a new per-person benefit of $397,000. See Figures 22 and 23 below for a full outline of the economic impact of this analysis and a comparison to the initial analysis.

Figure 22: Comparison of Economic Impact in Employment

Economic Impact in Employment	Initial Analysis*	Alternative Analysis**	Difference
Direct Employment (FTE)	245,912	256,605	**+ 10,693**
Indirect, Induced and Dynamic Employment (FTE)	331,660	361,267	**+ 29,607**
Total Employment (FTE)	577,572	617,872	**+ 40,300**

Figure 23: Comparison of Economic Impact in Dollars

Economic Impact in Dollars	Initial Analysis*	Alternative Analysis**	Difference
Personal Income	$53.17 B	$73.91 B	**+ $20.74 B**
GDP	$67.20 B	$72.50 B	**+ $5.30 B**
State Tax Revenue	$1.08 B	$1.15 B	**+70 M**
Overall Economic Impact	$111.78	$121.07 B	**+ $9.29 B**

The column to the right highlights the *additional* benefits to the economy if the PWD who are added to the labor force have the same level of full-time employment as the general

population, compared to closing the gap at the current breakdown of full-time and part-time employment for PWD. The increase of 40,000 total new workers and over $26 billion in economic impact are a glimpse into what the impact could be if opportunities for employment for PWD are not just *increased* – but *expanded* into full-time positions they are not currently working.

Considerations and Further Research

The job of the AERG team was to calculate the economic impact of reducing the gap between the LFPR of the general population and the LFPR for PWD by 1 percentage point per year for 10 years. As we worked through the challenges to find an estimated impact, the team had several considerations that felt important to mention in this section.

To achieve the goal of meaningful employment for a higher portion of the people with disability population it is important to investigate the part-time/full-time gap and find ways to achieve meaningful employment while working under the limitations of different disabilities. Now after the pandemic and the advent of remote work, there is potential for understanding what kind of work structure/schedule might facilitate the entry of more members of the PWD population.

The 304,813 took into consideration the 16+ age range that is inherent to the Labor Force Participation Gap. While this age range was the best choice of data for the scope of our analysis, a further analysis which uses a narrower gap of 16-64 could be a valuable investigation as it would be a group that the data shows suffer from higher levels of disparity. Additionally, it makes this goal more attainable by reducing the number of people that The Able Trust and the State of Florida would need to help enter into the labor force.

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Conclusion

As a result of our analysis, AERG found there to be a substantial benefit to Florida's economy if The Able Trust's goal of closing the gap between the general population LFPR and the LFPR for PWD by one percentage point per year for the next 10 years were to be successful.

To complete this goal, 304,813 PWD would need to be added to the labor force total between 2023-2032. This addition to the labor force would result in 577,572 new full-time workers and $111.78 billion in economic impact. This breaks down to nearly a $367,000 total benefit to the economy per person added to the labor force over the course of10 years. Such substantial benefits to the economy are quantifiable evidence of the value of The Able Trust's mission to help provide opportunities for successful employment for people with disabilities. The results of this analysis provide quantifiable evidence for what The Able Trust has already built its mission around – there is significant potential for people with disabilities in the labor force.

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Appendix

Appendix 1: Questions Pertaining to Disability in ACS Survey

The questions which are used to identify a person as having a disability are presented on the ACS survey in the following format:

This month we want to learn about people who have physical, mental, or emotional conditions that cause serious difficulty with their daily activities. Please answer for household members who are 15 years old or over.

1. Is anyone deaf or does anyone have serious difficulty hearing?

2. Is anyone blind or does anyone have serious difficulty seeing even when wearing glasses?

3. Because of a physical, mental, or emotional condition, does anyone have serious difficulty concentrating, remembering, or making decisions?

4. Does anyone have serious difficulty walking or climbing stairs?

5. Does anyone have difficulty dressing or bathing?

6. Because of a physical, mental, or emotional condition, does anyone have difficulty doing errands alone such as visiting a doctor's office or shopping?

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Appendix 2:Employment by Industry for People with Disabilities

Industry Name	Part-Time PWD	Full-Time PWD	All Employed PWD
Agriculture, Forestry, Fishing and Hunting	0.74 %	1.30 %	1.08 %
Mining	0.01 %	0.14 %	0.09 %
Utilities	0.19 %	1.00 %	0.64 %
Construction	5.36 %	9.38 %	7.74 %
Manufacturing	2.09 %	5.73 %	4.46 %
WholeSale Trade	1.72 %	3.01 %	2.43 %
Retail Trade	20.09 %	9.91 %	13.60 %
Transportation and Warehousing	4.73 %	5.63 %	4.68 %
Information	1.21 %	1.66 %	1.38 %
Finance and Insurance	1.98 %	4.56 %	3.46 %
Real Estate Rental and Leasing	3.40 %	2.99 %	3.01 %
Professional, Scientific, and Technical Services	5.65 %	6.97 %	6.33 %
Management of Companies and Enterprises	0.07 %	0.11 %	0.09 %
Administrative and Support and Waste and Remediation	7.57 %	6.37 %	6.86 %
Educational Services	7.05 %	7.30 %	6.78 %
Health Care and Social Assistance	11.87 %	12.38 %	11.73 %
Arts, Entertainment, and Recreation	4.17 %	2.29 %	2.89 %
Accommodation and Food Services	13.18 %	6.17 %	9.07 %
Other Services (Expect Public Administration)	7.45 %	5.13 %	5.88 %
Public Administration	1.48 %	7.05 %	4.69 %

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Appendix 3: Employment by Industry for General Population

Industry Name	Part-Time GP	Full-Time GP	All Employed GP
Agriculture, Forestry, Fishing and Hunting	0.64 %	0.89 %	0.80 %
Mining	0.02 %	0.10 %	0.08 %
Utilities	0.18 %	0.96 %	0.75 %
Construction	4.42 %	9.20 %	7.91 %
Manufacturing	1.77 %	5.98 %	4.83 %
WholeSale Trade	1.26 %	3.00 %	2.55 %
Retail Trade	18.16 %	9.78 %	12.00 %
Transportation and Warehousing	3.75 %	5.53 %	5.06 %
Information	1.06 %	1.90 %	1.67 %
Finance and Insurance	1.93 %	5.72 %	4.74 %
Real Estate Rental and Leasing	2.80 %	2.85 %	2.84 %
Professional, Scientific, and Technical Services	5.32 %	7.84 %	7.18 %
Management of Companies and Enterprises	0.08 %	0.14 %	0.12 %
Administrative and Support and Waste and Remediation	5.91 %	5.91 %	5.85 %
Educational Services	8.46 %	7.07 %	7.48 %
Health Care and Social Assistance	14.11 %	12.96 %	13.37 %
Arts, Entertainment, and Recreation	4.62 %	2.47 %	3.02 %
Accommodation and Food Services	16.26 %	6.37 %	8.92 %
Other Services (Expect Public Administration)	7.24 %	4.55 %	5.27 %
Public Administration	1.32 %	6.19 %	4.94 %

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Appendix 4: EDR Population Forecast

		Change from the Prior Period		Change from the
April 1	Population	Percent	Numeric	Prior Forecast
2010	18,801,332			
2011	18,949,860	0.79%	148,528	44,790
2012	19,134,956	0.98%	185,096	60,522
2013	19,337,590	1.06%	202,634	78,047
2014	19,585,096	1.28%	247,506	77,727
2015	19,879,230	1.50%	294,134	64,047
2016	20,201,450	1.62%	322,220	52,796
2017	20,524,865	1.60%	323,415	40,723
2018	20,854,945	1.61%	330,080	14,377
2019	21,189,849	1.61%	334,904	-18,740
2020	21,538,187	1.64%	348,338	-57,881
2021	21,898,945	1.67%	360,758	-26,840
2022	22,247,451	1.59%	348,506	2,022
2023	22,564,419	1.42%	316,968	9,415
2024	22,870,046	1.35%	305,627	17,927
2025	23,164,008	1.29%	293,962	25,455
2026	23,448,282	1.23%	284,274	31,830
2027	23,720,981	1.16%	272,699	37,515
2028	23,982,341	1.10%	261,360	43,765
2029	24,232,373	1.04%	250,032	48,354
2030	24,471,129	0.99%	238,756	52,002
2031	24,699,012	0.93%	227,883	54,952

Source: The Office of Economic and Demographic Research

Appendix 5: BEBR Population Forecast

State	1-Apr-21	2025	2030	2035	2040	2045	2050
FLORIDA	21,898,945						
Low		22,695,200	23,508,000	24,027,100	24,346,400	24,524,000	24,604,000
Medium		23,164,000	24,471,100	25,520,800	26,405,500	27,176,700	27,877,700
High		23,630,800	25,432,600	27,015,200	28,471,000	29,846,700	31,185,700

Source: Bureau of Economic and Business Research

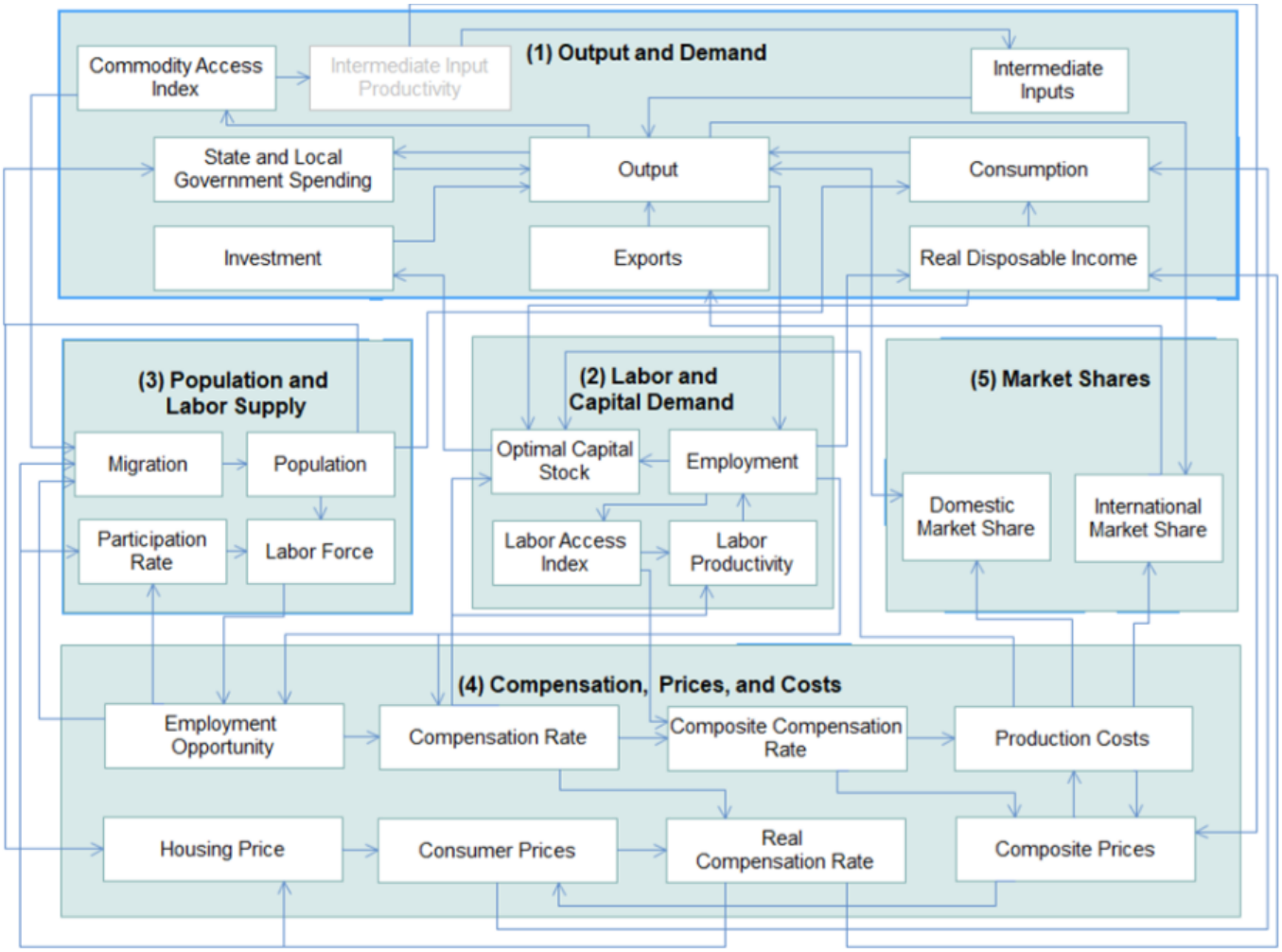
Appendix 6: Calculation of PWD Added to the Labor Force

Year	Population Estimate	Estimate of Population Growth from Previous Year	Percentage PWD	Estimated pwd population	Estimated 1 Percentage Point per year
2020	17,241,701	1.0167	15.50 %	2672463.655	26724.63655
2021	17529637.41	1.0164	15.55 %	2725858.617	27258.58617
2022	17817123.46	1.0159	15.60 %	2779471.26	27794.7126
2023	18100415.72	1.0142	15.65 %	2832715.061	28327.15061
2024	18357441.63	1.0135	15.70 %	2882118.335	28821.18335
2025	18605267.09	1.0129	15.75 %	2930329.566	29303.29566
2026	18845275.03	1.0123	15.80 %	2977553.455	29775.53455
2027	19077071.92	1.016	15.85 %	3023715.899	30237.15899
2028	19382305.07	1.0111	15.90 %	3081786.506	30817.86506
2029	19597448.65	1.0104	15.95 %	3125793.06	31257.9306
2030	19801262.12	1.0099	16.00 %	3168201.939	31682.01939
2031	19997294.61	1.0093	16.05 %	3209565.786	32095.65786
2032	20183269.45	1.0087	16.10 %	3249506.382	32495.06382

Appendix 7: Calculations of Full-Time and Part-Time Breakdown Per Year

Year	Projected 1 Percentage Point per year	Projected Full Time Employment	Projected Part Time Employment
2023	28327.15061	2.832715061	39.65801085
2024	28821.18335	2.882118335	11096.15559
2025	29303.29566	2.930329566	11281.76883
2026	29775.53455	2.977553455	11463.5808
2027	30237.15899	3.023715899	11641.30621
2028	30817.86506	3.081786506	11864.87805
2029	31257.9306	3.12579306	12034.30328
2030	31682.01939	3.168201939	12197.57747
2031	32095.65786	3.209565786	12356.82828
2032	32495.06382	3.249506382	12510.59957

Appendix 8: REMI Model



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Appendix 9: REMI Input by Industry

	2023	2024	2025	2026	2027
Average of Agriculture, Forestry, Fishing and Hunting (11)	276.9156017	281.7450805	286.4580296	291.0744599	295.5871274
Sum of Mining (21)	25.07129874	25.50854859	25.93524812	26.35320905	26.76177553
Sum of Utilities (22)	187.1627954	190.4269624	193.6123688	196.7325397	199.7825789
Sum of Construction (23)	1999.457762	2034.328816	2068.358473	2101.691218	2134.274749
Sum of Manufacturing (31-33)	1140.693635	1160.587623	1180.001593	1199.017974	1217.606927
Sum of WholeSale Trade (42)	641.6170431	652.8070082	663.7269725	674.4233014	684.8792104
Sum of Retail Trade (44-45)	3095.819406	3149.811287	3202.500408	3254.110481	3304.560522
Sum of Transportation and Warehousing (48-49)	1303.220661	1325.949163	1348.129252	1369.855103	1391.092626
Sum of Information (51)	371.66815	378.1501375	384.4757222	390.671762	396.7285344
Sum of Finance and Insurance (52)	929.3677799	945.5761913	961.3935127	976.8869033	992.0320511
Sum of Real Estate Rental and Leasing (53)	752.6453099	765.7716363	778.5812399	791.1285091	803.3937551
Sum of Professional, Scientific, and Technical Services (54)	1599.373939	1627.267429	1654.487882	1681.150873	1707.214564
Sum of Management of Companies and Enterprises (55)	23.93467182	24.35209861	24.75945338	25.15846572	25.54850952
Sum of Administrative and Support and Waste and Remediation (56)	1730.245375	1760.421296	1789.869108	1818.713843	1846.910239
Sum of Educational Services (61)	1752.29098	1782.851382	1812.674398	1841.886653	1870.442308
Sum of Health Care and Social Assistance (62)	2965.829653	3017.55448	3068.031247	3117.474275	3165.805979
Sum of Arts, Entertainment, and Recreation (71)	683.1818253	695.0966908	706.7240645	718.1133155	729.2465718
Sum of Other Services (Expect Public Administration) (81)	1401.515874	1425.958669	1449.811688	1473.176208	1496.015568
Sum of Accomodation and Food Services (72)	1973.265771	2007.68003	2041.263913	2074.160015	2106.316716

Appendix 9: REMI Input by Industry (cont.)

Values	2028	2029	2030
Average of Agriculture, Forestry, Fishing and Hunting (11)	301.2638921	305.5658078	309.7115408
Sum of Mining (21)	27.27573669	27.6652222	28.04056729
Sum of Utilities (22)	203.6194128	206.5270083	209.3290425
Sum of Construction (23)	2175.263596	2206.325402	2236.259498
Sum of Manufacturing (31-33)	1240.991125	1258.711932	1275.789378
Sum of WholeSale Trade (42)	698.0323481	707.9999426	717.6056597
Sum of Retail Trade (44-45)	3368.024763	3416.118673	3462.466515
Sum of Transportation and Warehousing (48-49)	1417.808626	1438.054309	1457.564964
Sum of Information (51)	404.3477246	410.1216321	415.6859155
Sum of Finance and Insurance (52)	1011.084074	1025.521909	1039.435573
Sum of Real Estate Rental and Leasing (53)	818.8229702	830.5154016	841.7833347
Sum of Professional, Scientific, and Technical Services (54)	1740.001701	1764.848159	1788.792556
Sum of Management of Companies and Enterprises (55)	26.03916986	26.41099774	26.76932626
Sum of Administrative and Support and Waste and Remediation (56)	1882.380237	1909.259798	1935.163486
Sum of Educational Services (61)	1906.364241	1933.586283	1959.820018
Sum of Health Care and Social Assistance (62)	3226.605432	3272.679937	3317.081688
Sum of Arts, Entertainment, and Recreation (71)	743.2517867	753.8650949	764.0930828
Sum of Other Services (Expect Public Administration) (81)	1524.746618	1546.519328	1567.501571
Sum of Accomodation and Food Services (72)	2146.768628	2177.423538	2206.96551

Appendix 9: REMI Input by Industry (cont.)

Values	2031	2032	Grand Total
Average of Agriculture, Forestry, Fishing and Hunting (11)	313.7551154	317.6595583	297.9736213
Sum of Mining (21)	28.40666318	28.76016242	269.7784318
Sum of Utilities (22)	212.0620294	214.7009795	2013.955718
Sum of Construction (23)	2265.455962	2293.647832	21515.06331
Sum of Manufacturing (31-33)	1292.446005	1308.529508	12274.3757
Sum of WholeSale Trade (42)	726.9746744	736.0213193	6904.08748
Sum of Retail Trade (44-45)	3507.672262	3551.322566	33312.40688
Sum of Transportation and Warehousing (48-49)	1476.594841	1494.969937	14023.23948
Sum of Information (51)	421.1130849	426.3535158	3999.316179
Sum of Finance and Insurance (52)	1053.006379	1066.110239	10000.41461
Sum of Real Estate Rental and Leasing (53)	852.7736054	863.3857219	8098.801484
Sum of Professional, Scientific, and Technical Services (54)	1812.14692	1834.697706	17209.98173
Sum of Management of Companies and Enterprises (55)	27.11882491	27.45629799	257.5478158
Sum of Administrative and Support and Waste and Remediation (56)	1960.42886	1984.8249	18618.21714
Sum of Educational Services (61)	1985.407306	2010.114184	18855.43775
Sum of Health Care and Social Assistance (62)	3360.3893	3402.20678	31913.65877
Sum of Arts, Entertainment, and Recreation (71)	774.0690344	783.7017326	7351.343199
Sum of Other Services (Expect Public Administration) (81)	1587.966774	1607.727808	15080.94011
Sum of Accomodation and Food Services (72)	2235.779515	2263.602084	21233.22572

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Appendix 10: REMI Output: Employment Impact by Year

Category	Units	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Total Employment	Thousands (Jobs)	53.502	55.014	57.274	58.077	58.398	58.594	58.876	58.860	59.342	59.634
Direct Employment	Thousands (Jobs)	22.853	23.252	23.641	24.022	24.394	24.863	25.218	25.560	25.894	26.216
Indirect Employment	Thousands (Jobs)	5.515	5.613	5.701	5.785	5.861	5.953	6.010	6.057	6.107	6.165
Induced Employment	Thousands (Jobs)	12.195	11.125	11.797	12.102	12.406	12.672	13.095	13.286	13.746	13.992
Dynamic Employment	Thousands (Jobs)	12.938	15.024	16.135	16.169	15.737	15.106	14.553	13.957	13.595	13.262
Type I Employment Multiplier	Proportion	1.241	1.241	1.241	1.241	1.240	1.239	1.238	1.237	1.236	1.235
Type II Employment Multiplier	Proportion	1.775	1.720	1.740	1.745	1.749	1.749	1.758	1.757	1.767	1.769

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Appendix 11: REMI Output: Impact by Industry

Industry	Units	2023	2024	2025
Construction	Millions of Fixed (2012) Dollars	888	1056	1129
Real estate	Millions of Fixed (2012) Dollars	836	810	871
Retail trade	Millions of Fixed (2012) Dollars	698	721	768
Wholesale trade	Millions of Fixed (2012) Dollars	503	523	551
State and Local Government	Millions of Fixed (2012) Dollars	201	309	378
Offices of health practitioners	Millions of Fixed (2012) Dollars	295	277	281
Electric power generation, transmission and distribution	Millions of Fixed (2012) Dollars	238	243	252
Food services and drinking places	Millions of Fixed (2012) Dollars	229	239	260
Telecommunications	Millions of Fixed (2012) Dollars	208	208	216
Hospitals; private	Millions of Fixed (2012) Dollars	186	193	206

Appendix 11: REMI Output: Impact by Industry (cont.)

Industry	Units	2026	2027	2028
Construction	Millions of Fixed (2012) Dollars	1131	1096	1044
Real estate	Millions of Fixed (2012) Dollars	904	929	948
Retail trade	Millions of Fixed (2012) Dollars	804	837	870
Wholesale trade	Millions of Fixed (2012) Dollars	570	587	603
State and Local Government	Millions of Fixed (2012) Dollars	423	452	473
Offices of health practitioners	Millions of Fixed (2012) Dollars	283	286	291
Electric power generation, transmission and distribution	Millions of Fixed (2012) Dollars	261	268	276
Food services and drinking places	Millions of Fixed (2012) Dollars	277	292	305
Telecommunications	Millions of Fixed (2012) Dollars	222	227	232
Hospitals; private	Millions of Fixed (2012) Dollars	216	226	235

Appendix 11: REMI Output: Impact by Industry (cont.)

Industry	Units	2029	2030	2031	2032
Construction	Millions of Fixed (2012) Dollars	993	941	904	871
Real estate	Millions of Fixed (2012) Dollars	968	980	1003	1021
Retail trade	Millions of Fixed (2012) Dollars	905	936	973	1007
Wholesale trade	Millions of Fixed (2012) Dollars	622	638	659	677
State and Local Government	Millions of Fixed (2012) Dollars	489	501	514	526
Offices of health practitioners	Millions of Fixed (2012) Dollars	300	306	317	325
Electric power generation, transmission and distribution	Millions of Fixed (2012) Dollars	283	289	296	303
Food services and drinking places	Millions of Fixed (2012) Dollars	317	327	338	348
Telecommunications	Millions of Fixed (2012) Dollars	237	240	245	250
Hospitals; private	Millions of Fixed (2012) Dollars	245	252	263	272

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