

Background

People with disabilities experience multiple economic barriers including physical and logistical accessibility, external attitudes (stereotyping, misperceptions, stigma, prejudice, etc.), social barriers (support structures, education), and employment vulnerabilities^[1]. This work outlines why disability status should be seen as an economically vulnerable demographic indicator – much like racial and ethnic minorities – when considering economic outcomes. Occupational health investigation may typically view disablement as an outcome to be avoided, but it can also be seen as an individually endogenous state – which, therefore, rather being avoided (with potentially ableist inadvertent subtext), can be viewed as a valid and vulnerable group worthy of support and visibility within and beyond the occupational health context.

The US Current Population Survey - Basic Monthly Survey (CPS-BMS) 2019 data and Current Populations Survey - Annual Social and Economic Supplement (CPS-ASEC) 2019 data were analyzed to identify (1) how disability impacts various employment vulnerability measures, and (2) how the impacts compare to other typically vulnerable demographics (within gender, race, education level). The study indicates that disability should be included in the analysis of economic vulnerability and not exclusively as a health outcome metric. We think continuous inclusion of disability in important economic and occupational health metrics is a paramount first step driving the reduction of stereotypes and improvement of accommodations and infrastructures that meet the needs of the disability population for them to flourish and contribute to the economic landscape.

Methods

Statistical analyses were conducted using SAS (v. 9.4) and R version 4.1.2 (2021-11-01), with the following helper packages: butcher, R.utils, utils, dplyr, plyr, survey, mltools, data.table, svMisc, usethis, lubridate.

Employment measures: Labor force participation, employment/unemployment rate, unemployment time, full-time and part-time work, wages and salary

Inferential Comparisons: Employment measure of workers with disabilities (Y_D) vs. workers without disabilities in other vulnerable populations (Y_V): Statistical Methods: (1) Proportions measures: relative risk $H_0: Y_D/Y_V < 1$; (2) Mean: t-test (difference-in-mean) $H_0: Y_D - Y_V = 0$; (3) Median: Wilcoxon rank sum test (difference-in-media).

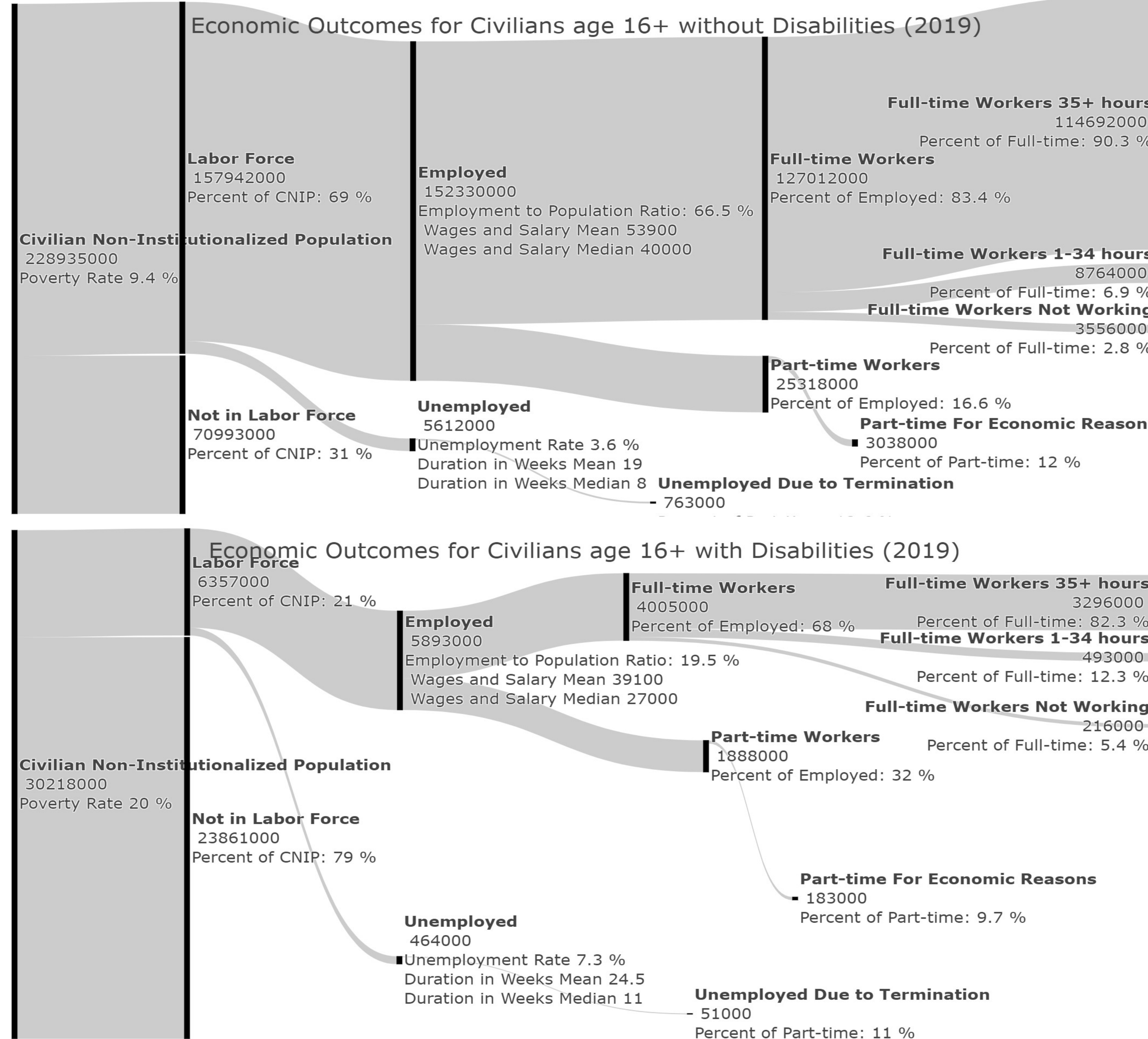
Inferential Modelling: Regression (logistic, log-linear for proportion and count measures, respectively):

$$y_{i,s,t} = \alpha + x_{i,s,t}\beta + D_{i,s,t}\delta + D_{i,s,t}S\rho_s + u_sS + v_tT + \epsilon_{i,s,t}$$

Where: $y_{i,s,t}$ is employment measure for respondent i in state s at time t ; $x_{i,s,t}$ is the matrix of demographic characteristics; $D_{i,s,t}$ is disability status; u_s is the state-specific fixed effect; v_t is the time-specific fixed effect; δ is the overall effect of having a disability; and ρ_s is the state specific effect of having a disability.

Reference group (α): State: CA; Sex: Men; Race: White, only ; Hispanic Origin: Non-Hispanic nor Latino ethnicity; Marital status: Married; Education level: High school graduates, no college.

Economic Outcomes by Disability Status



Modelling Disparities in Outcomes

When controlling for state, sex, race, Hispanic origin, marital status, education level, and non-linear affect of age (using both a quadratic and cubic term) – disability status $D_{i,s,t}$ has a significant (adverse) impact on most economic measures investigated (δ): (1) labor force participation rate (Odds Ratio, $OR(\delta) = 0.17$); (2) employment to population ratio ($OR(\delta) = 0.18$); (3) proportion of workers working full-time ($OR(\delta) = 0.47$); (4) proportion of full-time workers working 35+ ($OR(\delta) = 0.53$); (5) proportion of full-time workers working 1 to 34 hours for any reason ($OR(\delta) = 1.74$); (6) proportion of full-time workers not at work ($OR = 1.66$); (7) proportion of workers working part-time ($OR(\delta) = 2.14$); (8) proportion of part-time workers working part-time due to economic reasons ($OR(\delta) = 0.734$); (9) unemployment rate ($OR(\delta) = 2.12$); (10) proportion of unemployed workers unemployed due to termination ($OR(\delta) = 0.64$); (11) poverty rate ($OR(\delta) = 2.06$); (12) duration of unemployment in weeks ($\delta = 0.18$); (13) total wages and salary ($\delta = -0.22$).

State Specific Disability Diff. in Outcomes

The largest differences between states (determined using Chi-Square ANOVA) are seen within (1) labor force participation rate (e.g. North Dakota $OR(\rho_s) = 1.71$, Connecticut $OR(\rho_s) = 0.68$), (2) employment to population ratio (e.g. North Dakota $OR(\rho_s) = 1.74$, Connecticut $OR(\rho_s) = 0.72$), (3) proportion of workers working full-time (e.g. Colorado $OR(\rho_s) = 1.44$, Minnesota $OR(\rho_s) = 0.44$), and (4) unemployment rate (e.g. Washington $OR(\rho_s) = 1.51$, Colorado $OR(\rho_s) = 0.43$).

Therefore, in relative terms, when controlling for state, sex, race, Hispanic origin, marital status, education level, and non-linear affect of age one can see, for example, that North Dakota is doing an exceptional job in facilitating entry of disabled workers into the labor force; conversely – Connecticut appears to lag other states in this same measure.

Comparisons to Select Vulnerable Populations

Demographic Group (Y_V)	LFP Y_V [%]	LFP, RR* Y_D/Y_V	ETP Y_V [%]	ETP, RR* Y_D/Y_V	FTE % Y_V	FTE %, RR* Y_D/Y_V	UE Y_V [%]	UE, RR* Y_D/Y_V	Mean DU Y_V [Weeks]	Mean DU, Difference* $Y_D - Y_V$	Median DU Y_V [Weeks]	P-value Median Difference $Y_D - Y_V$	PR Y_V [%]	PR, RR Y_D/Y_V	Mean WS Y_V [\$]	Mean WS, Difference* $Y_D - Y_V$	Median WS Y_V [\$]	P-value Median Difference $Y_D - Y_V$
Without Disabilities	69.0	0.30	66.5	0.30	83.4	0.82	3.6	1.97	19.3	4.0	8	~0.0	9.4	2.05	53.9k	-13.0k	40.0k	~0.0
Women	63.2	0.34	61.0	0.32	77.1	0.89	3.5	1.99	18.3	5.0	8	~0.0	10.6	1.80	44.0k	-3.1k	33.0k	~0.0
Black or African American	69.5	0.31	65.4	0.30	85.3	0.80	6.0	1.17	22.3	0.8	11	~0.0	15.8	1.12	41.7k	-0.7k	33.0k	~0.0
Black or African American, Women	67.7	0.31	64.0	0.31	82.8	0.83	5.5	1.25	20.7	2.2	10	~0.0	17.8	1.05	38.6k	2.4k	30.0k	~0.0
Hispanic or Latino ethnicity	71.0	0.30	68.0	0.29	83.9	0.82	4.2	1.66	18.1	5.3	8	~0.0	14.1	1.34	38.1k	2.9k	30.0k	~0.0
Hispanic or Latino ethnicity, Women	61.8	0.34	58.9	0.33	76.4	0.90	4.6	1.50	18.3	4.8	8	~0.0	16.5	1.14	33.0k	8.0k	25.0k	~0.0
Women who maintain families	74.1	0.29	70.5	0.28	81.5	0.84	4.8	1.44	20.8	2.1	9	~0.0	24.0	0.79	41.4k	-0.1k	30.0k	~0.0
Women who maintain families, with less than a high school diploma, age 25+	57.6	0.37	53.0	0.38	74.9	0.92	7.9	0.82	18.8	3.0	8	~0.0	48.6	0.38	18.9k	22.0k	17.5k	~0.0

LFP: Labor force Participation; ETP: Employment to Population Ratio; FTE %: Percent of workers employed full-time; UE: Un-Employment Rate; DU: Duration of Un-employment; PR: Poverty Rate; WS: Wages & Salaries; RR: Relative Risk; * Upper 95% CI was calculated; ^ Lower 95% CI was calculated

Conclusions

This analysis shows that there are significant barriers disabled workers experience in participating in the labor force - they are paid less, less likely to be full-time, more likely to be unemployed – even when compared to traditionally vulnerable groups.

However, they are also less likely to be terminated - showing potential positive impact of the ADA.

See our draft interactive dashboard at:

<https://unhiod.shinyapps.io/DemographicProfiles/>



References

[1] Centers for Disease Control and Prevention. Common barriers to participation experienced by people with disabilities. Centers for Disease Control and Prevention. Published 2020. Accessed April 3, 2022. <https://www.cdc.gov/ncbddd/disabilityandhealth/disability-barriers.html>

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