Work-from-Home, Disability Employment, and the Decline in Supplemental Security Income

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Abstract

Since the pandemic, the supply of workers with disabilities has risen substantially, a trend largely attributed to the growth of work-from-home opportunities. Individuals with disabilities may receive Supplemental Security Income, but benefits are reduced by $0.50 for every $1 of earned income. This paper examines whether WFH is causally related to SSI. Using an instrumental variables approach and controlling for SSI trends and labor market tightness, I estimate that a 1 percentage point increase in WFH reduces SSI by 0.36%. A back-of-the-envelope calculation suggests that the post-pandemic increase in WFH explains 55% of the observed decline in SSI. These findings highlight that individuals with disabilities may prioritize the flexibility and accessibility of WFH over retaining supplemental income benefits.
KEYWORDS: Work from home, disability, SSI
JEL CLASSIFICATION CODES: J14, J20, I38

Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the Board of Governors or its staff. Any errors are my own.

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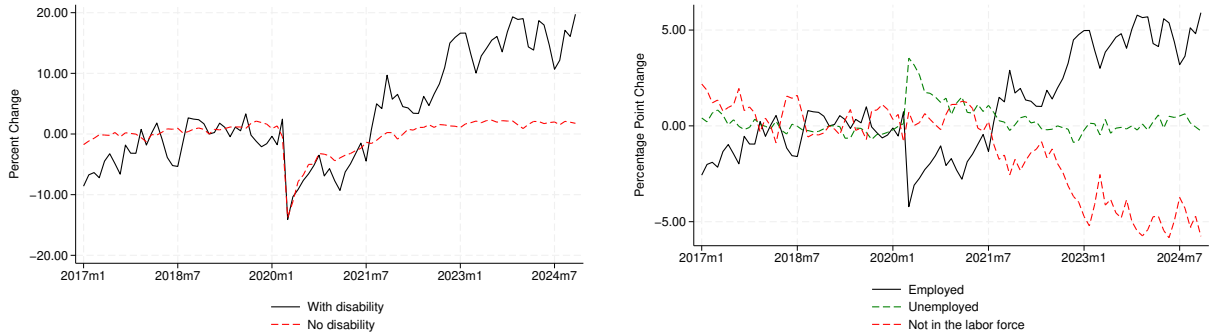
1 Results: Figures

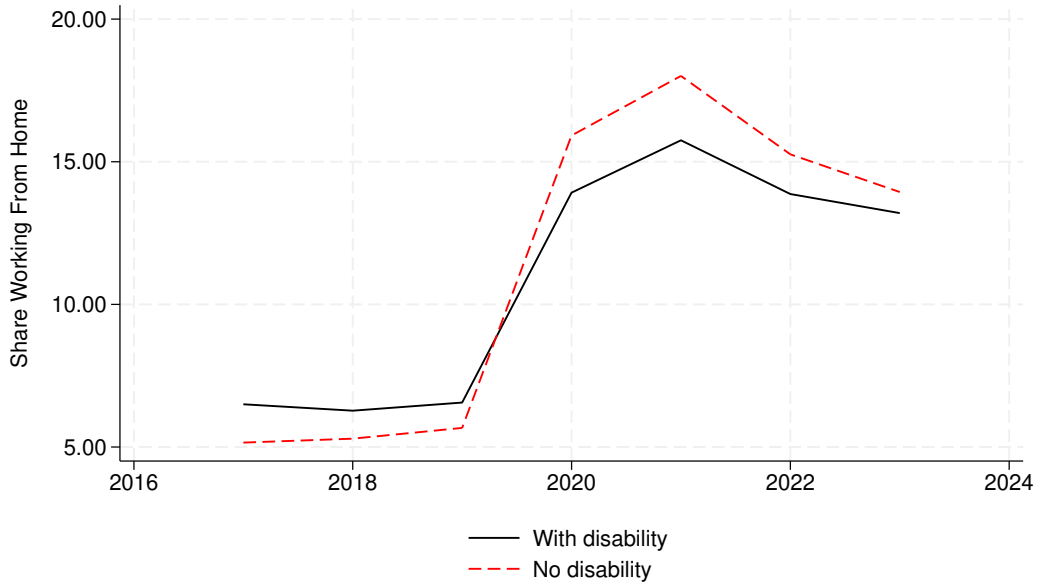
This project is dormant. In this document, I only include the main results from my initial analysis. If there are any questions please feel free to email me at: octaviomaguilar@outlook.com

FIGURE 1 – Surge in Disability Employment Post-Pandemic



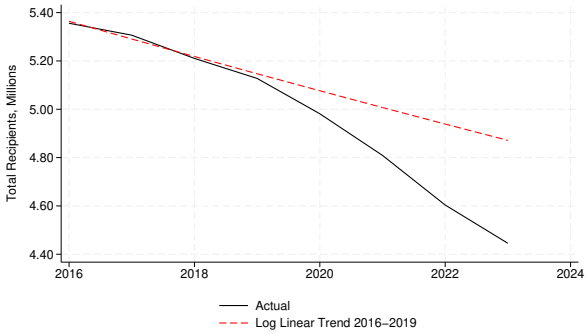
NOTE: Author's calculations from the CPS. The left panel graphs the percent change in the employment rate normalized to 2019 for individuals with and without a disability (18-64 years old). The right panel shows the percentage point change in employment, unemployment, and not in the labor force (normalized to 2019) for individuals with a disability.

FIGURE 2 – The Surge in WFH

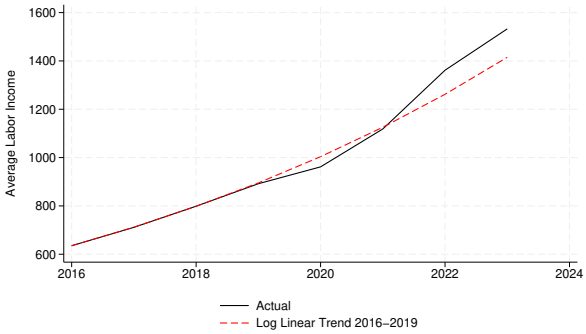


NOTE: Plots the share who work from home from the ACS by their disability status.

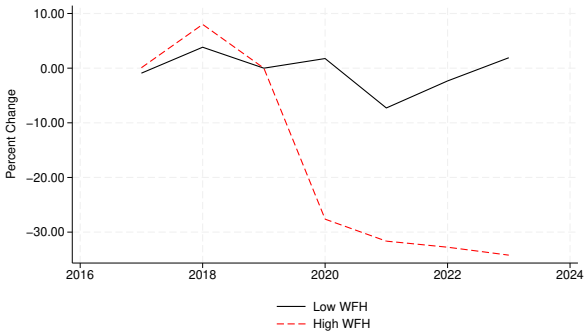
FIGURE 3 – SSI Trends Pre-Post Pandemic



A. SSI Recipients



B. Average Labor Income of SSI Recipients



C. Changes in SSI: Low vs High WFH

NOTE: Panel A graphs the total number of SSI recipients relative to the 2016 to 2019 log-linear trend. Panel B graphs the average labor income of working SSI recipients relative to the 2016 to 2019 log-linear trend. Panel C graphs the percent change in SSI income in 2017 dollars by low and high work from home groups.

2 Results: Tables

TABLE 1 – Work from Home Decreases SSI

Regressor	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Outcome regressions						
Dependent Variable: Percent change in SSI						
Δ WFH share	-0.376^{**}	-0.329^{**}	-0.270^{*}	-0.222	-0.339^{*}	-0.355^{*}
	(0.132)	(0.132)	(0.142)	(0.186)	(0.184)	(0.182)
Panel B: First stage regressions						
Dependent Variable: Change in occupation WFH share						
WFH probability				1.655^{***}	1.635^{***}	1.589^{**}
				(0.338)	(0.370)	(0.424)
SSI trend + controls	✓	✓			✓	✓
Labor market tightness		✓				✓
WFH instrumented				✓	✓	✓

NOTE: The table reports results from estimating:

$$\%\Delta\text{SSI}_j^d = \Delta\text{WFH}_j^{nd} + \%\Delta\text{SSI TREND}_j^d + \%\Delta\text{Wage}_j^d + f(\%\Delta\text{EMP}_j^{nd}) + \epsilon_j,$$

but does not include cognitive disabilities. The dependent variable is the percent change in SSI income in an occupation between 2018-2019 and 2021-2023 in the CPS. The independent variable is defined as the change in the fraction of people without a disability who report "worked from home" in 2018-2019 versus 2021-2023 using the transportation-to-work question from the ACS. The first stage regressor is the predetermined probability an occupation can be done remotely. Controls include percent change in wages in 2018-2019 versus 2021-2023. SSI trend is the percent change in SSI enrollment in 2018-2019 versus 2021-2023. Labor market tightness includes a polynomial of the percent change in non-disability employment in 2018-2019 vs 2021-2023. All specifications use CPS survey weights. Robust standard errors are reported in parenthesis, * $p < .10$; ** $p < .05$; and *** $p < .01$.

TABLE 2 – The Effect of WFH on SSI Using Different WFH Measures

	Dependent Variable: SSI in Dollars					
Regressor	(1)	(2)	(3)	(4)	(5)	(6)
A. ***Pre-pandemic (2018-2019)***						
ACS WFH	−10.97	−8.52	−12.46	−25.86	−22.34	−30.71**
	(11.13)	(11.92)	(10.31)	(16.76)	(14.27)	(14.76)
Job Postings	−31.86	−16.46	−23.10	−44.50	−45.34	−57.68**
	(28.41)	(30.29)	(25.77)	(28.89)	(28.46)	(29.36)
B. ***Post-pandemic (2021-2023)***						
ACS WFH	−7.51***	−6.27***	−6.64**	−9.07***	−11.05***	−9.72***
	(2.37)	(2.41)	(3.37)	(3.32)	(3.23)	(3.20)
CPS WFH	−7.12***	−6.23***	−8.40**	−13.33***	−12.22***	−12.30***
	(1.92)	(1.98)	(3.73)	(3.85)	(3.58)	(3.61)
Job Postings	−20.12***	−17.42***	−19.00***	−18.21***	−28.55***	−25.59***
	(4.25)	(4.32)	(6.82)	(6.67)	(6.87)	(6.75)
SSI trend + controls		✓	✓		✓	✓
Fixed effects			✓			✓
WFH instrumented				✓	✓	✓

NOTE: The table reports results from estimating:

$$\text{SSI}_{i,j,t} = \delta_t + \delta_{s,t} + \delta_{k,t} + \text{WFH}^{nd}_{i,j,t} + \%\Delta\text{SSI TREND}^{d}_{j} + \%\Delta\text{Wage}^{d}_{j} + \Gamma X_{i,t} + \epsilon_{i,t},$$

but does not include cognitive disabilities. Panel A reports estimates using the pre-pandemic period (2018-2019), while Panel B reports results for the post-pandemic period (2021-2023). Coefficients reflect the effect of a 1 percentage point increase in WFH share. Controls include: sex, marital status, race, Hispanic, family size, age, have children, employment status, dividend income, rent income, assistance income, veteran income, survivor income, and change in wages. Fixed effects include: month, 2-digit NAICS by month, and state by month. All specifications use CPS survey weights. Robust standard errors are reported in parenthesis, * $p < .10$; ** $p < .05$; and *** $p < .01$.

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Online Appendix

Octavio M. Aguilar

A Appendix: Tables

TABLE A1 – The Effect of Work from Home on SSI: Including Cognitive Disabilities

Regressor	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Outcome regressions						
Dependent Variable: Percent change in SSI						
Δ WFH share	-0.308	-0.235	-0.206	-0.136	-0.328	-0.391
	(0.222)	(0.164)	(0.225)	(0.223)	(0.328)	(0.367)
Panel B: First stage regressions						
Dependent Variable: Change in occupation WFH share						
WFH probability				1.655^{***}	1.609^{***}	1.573^{***}
				(0.338)	(0.401)	(0.494)
SSI trend + controls	✓	✓		✓	✓	
Labor market tightness		✓			✓	
WFH instrumented				✓	✓	✓

NOTE: The table reports results from estimating:

$$\%\Delta\text{SSI}_j^d = \Delta\text{WFH}_j^{nd} + \%\Delta\text{SSI TREND}_j^d + \%\Delta\text{Wage}_j^d + f(\%\Delta\text{EMP}_j^{nd}) + \epsilon_j,$$

but includes cognitive difficulty in the definition of disability. The dependent variable is the percent change in SSI income in an occupation between 2018-2019 and 2021-2023 in the CPS. The independent variable is defined as the change in the fraction of people without a disability who report "worked from home" in 2018-2019 versus 2021-2023 using the transportation-to-work question from the ACS. The first stage regressor is the predetermined probability an occupation can be done remotely. Controls include percent change in wages in 2018-2019 versus 2021-2023. SSI trend is the percent change in SSI enrollment in 2018-2019 versus 2021-2023. Labor market tightness includes a polynomial of the percent change in non-disability employment in 2018-2019 vs 2021-2023. All specifications use CPS survey weights. Robust standard errors are reported in parenthesis, * $p < .10$; ** $p < .05$; and *** $p < .01$.

TABLE A2 – The Effect of WFH on SSI Using Different WFH Measures: Including Cognitive Disabilities

	Dependent Variable: SSI in Dollars					
Regressor	(1)	(2)	(3)	(4)	(5)	(6)
A. ***Pre-pandemic (2018-2019)***						
ACS WFH	−10.76	−2.57	−2.52	−36.22**	−26.13*	−33.49**
	(10.65)	(10.97)	(10.12)	(15.60)	(14.36)	(14.75)
Job Postings	−45.35*	−20.16	−26.67	−61.41**	−64.62**	−77.77***
	(25.72)	(29.09)	(27.92)	(26.47)	(26.43)	(27.27)
B. ***Post-pandemic (2021-2023)***						
ACS WFH	−7.04***	−3.43	−3.46	−8.75***	−10.40***	−10.11***
	(1.86)	(2.27)	(3.12)	(2.71)	(2.74)	(2.73)
CPS WFH	−6.42***	−3.54**	−4.63	−11.37***	−11.83***	−11.91***
	(1.52)	(1.66)	(3.31)	(3.02)	(3.07)	(3.09)
Job Postings	−18.53***	−11.97**	−12.81**	−17.63***	−26.17***	−25.04***
	(3.42)	(4.41)	(6.44)	(5.45)	(5.76)	(5.70)
SSI trend + controls		✓	✓		✓	✓
Fixed effects			✓			✓
WFH instrumented				✓	✓	✓

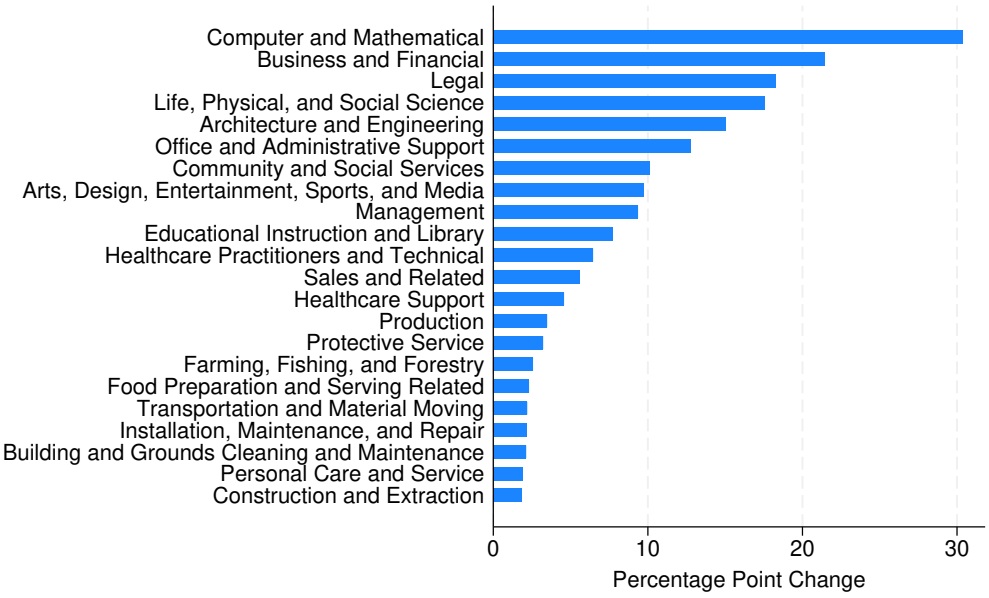
NOTE: The table reports results from estimating:

$$\text{SSI}_{i,j,t} = \delta_t + \delta_{s,t} + \delta_{k,t} + \text{WFH}^{nd}_{i,j,t} + \%\Delta\text{SSI TREND}^{d}_{j} + \%\Delta\text{Wage}^{d}_{j} + \Gamma X_{i,t} + \epsilon_{i,t},$$

but includes cognitive difficulty in the definition of disability. Panel A reports estimates using the pre-pandemic period (2018-2019), while Panel B reports results for the post-pandemic period (2021-2023). Coefficients reflect the effect of a 1 percentage point increase in WFH share. SSI trend is the percent change in SSI enrollment in 2018-2019 versus 2021-2023. Controls include: sex, marital status, race, Hispanic, family size, age, have children, employment status, dividend income, rent income, assistance income, veteran income, survivor income, and change in wages, and percent change in wages in 2018-2019 versus 2021-2023. Fixed effects include: month, 2-digit NAICS by month, and state by month. All specifications use CPS survey weights. Robust standard errors are reported in parenthesis, * $p < .10$; ** $p < .05$; and *** $p < .01$.

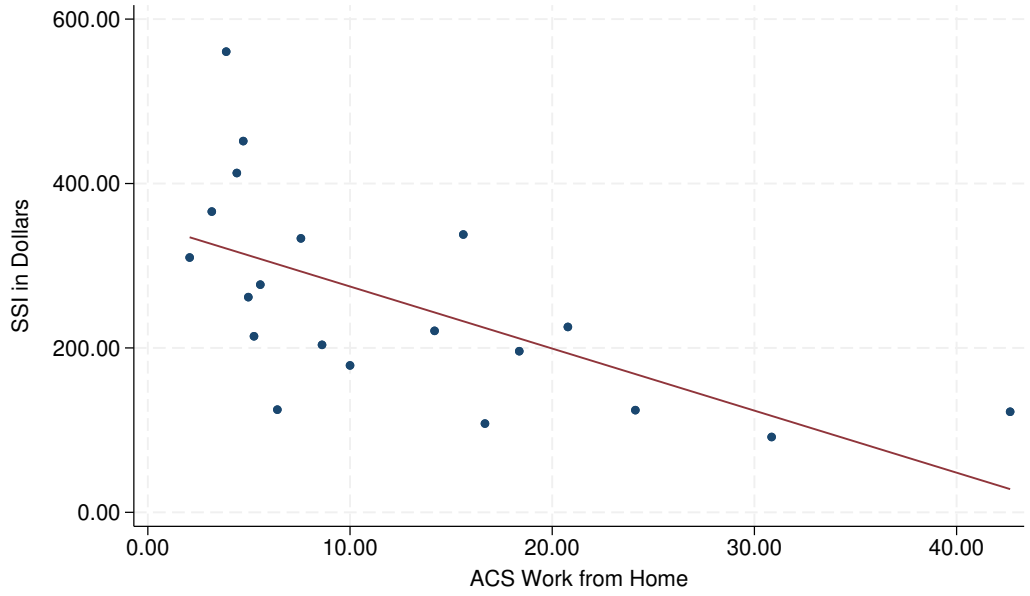
B Appendix: Figures

FIGURE B.1 – The Disability WFH Share Increased the Most in Computer and Office Focused Occupations



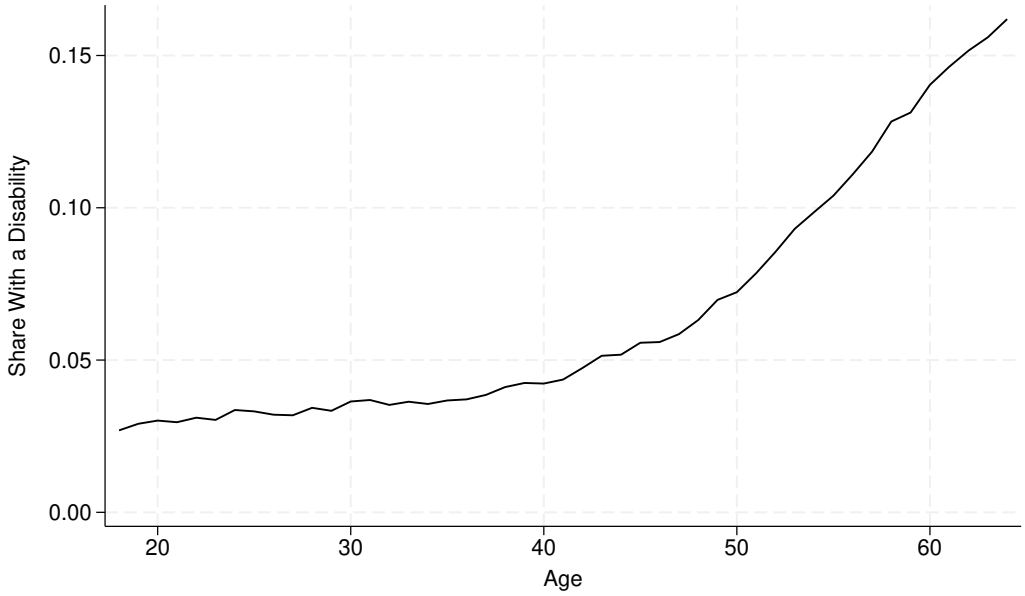
NOTE: Shows the percentage point change in the WFH share pre-post pandemic (2018-2019 vs 2021-2023) by 2-digit SOC occupation.

FIGURE B.2 – Negative Correlation Between SSI and WFH



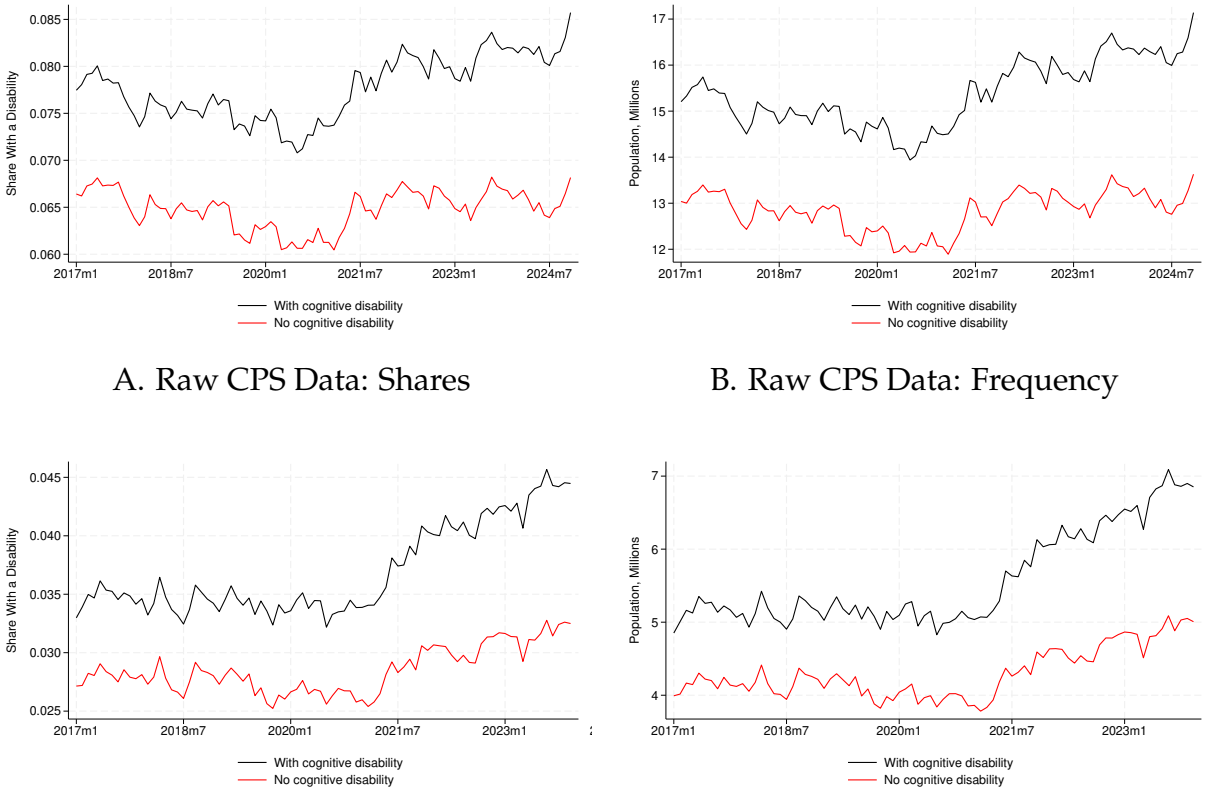
NOTE: The y-axis represents the average SSI in 2017 dollars from the CPS. The x-axis represents the work from home measure from the ACS. In the figure, each point represents the average value of SSI income for each bin of the ACS WFH measure, estimated from 2019 through 2023. Includes month, NAICS 2 by month, and state by month fixed effects.

FIGURE B.3 – Share With a Disability by Age



NOTE: Plots the share of individuals in the US with a disability by age from January 2017 to November 2024 using the CPS.

FIGURE B.4 – Population With a Disability by Month



A. Raw CPS Data: Shares

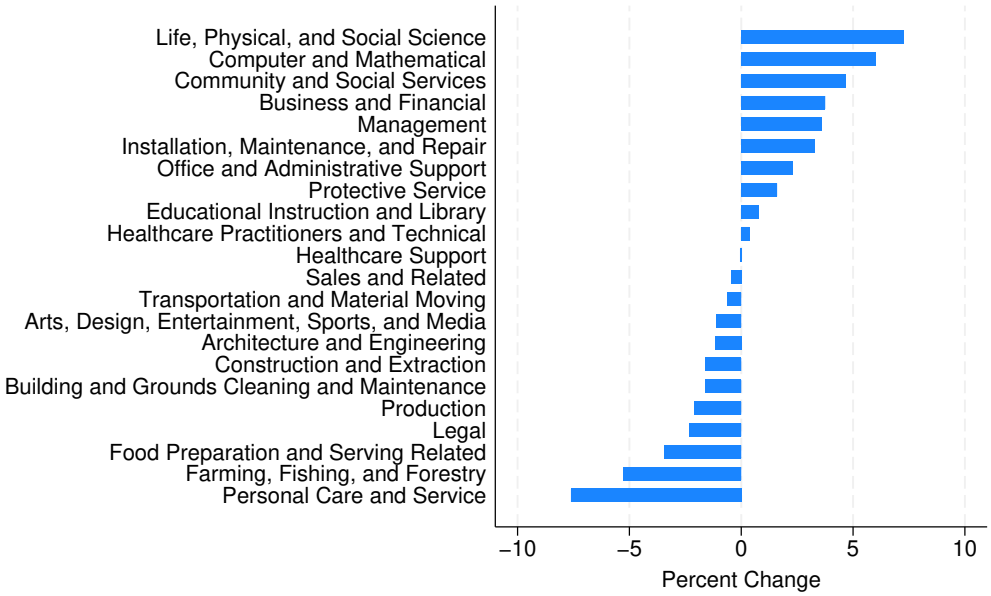
B. Raw CPS Data: Frequency

C. Matched CPS-ASEC Data: Shares

D. Matched CPS-ASEC Data: Frequency

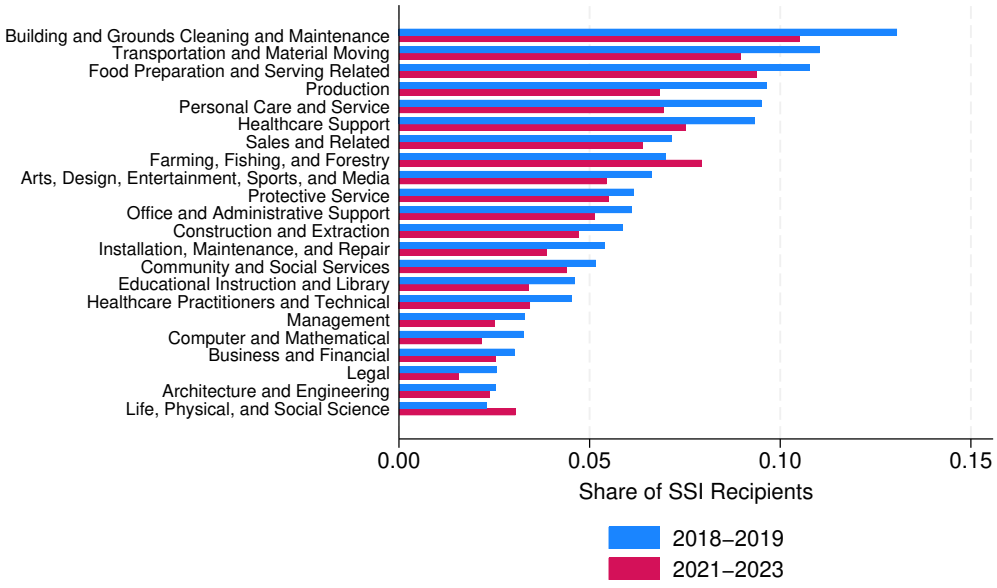
NOTE: Plots the fraction of disabled individuals in the US including a cognitive disability vs exuding a cognitive disability. Panels A and B use the raw CPS data, N = 6,192,029, and Panel C and D use the matched CPS-ASEC data, N = 4,217,273.

FIGURE B.5 – Changes in Disability Employment Pre-Post Pandemic Across Occupations



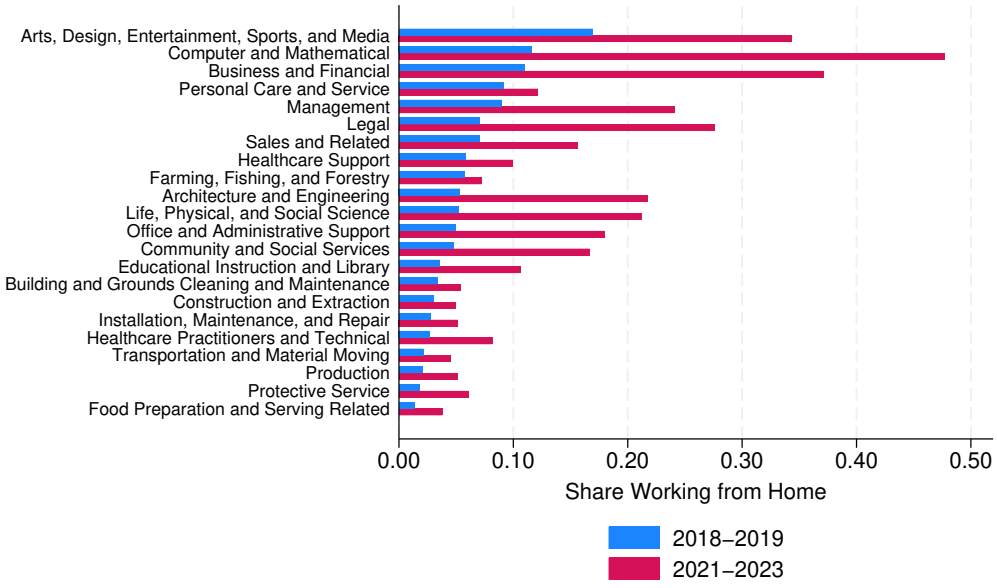
NOTE: Plots the change in disability employment pre-post pandemic (2018-2018 vs 2021-2023) from the ACS.

FIGURE B.6 – SSI Recipients Pre-Post Pandemic Across Occupations



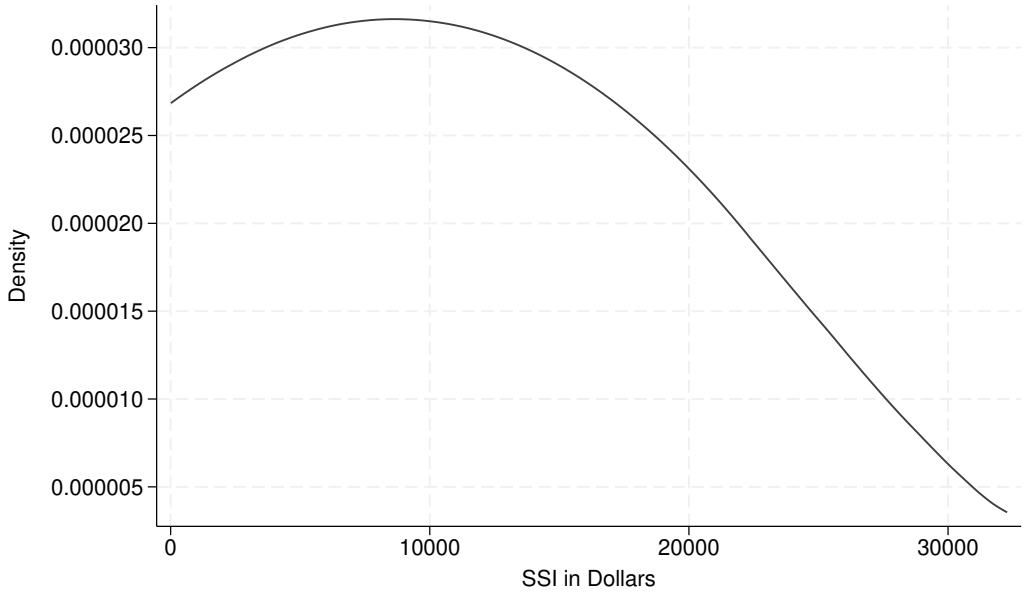
NOTE: Plots the share of SSI recipients for individuals with a disability pre-post pandemic (2018-2018 vs 2021-2023) from the ACS.

FIGURE B.7 – Share Working from Home Pre-Post Pandemic Across Occupations



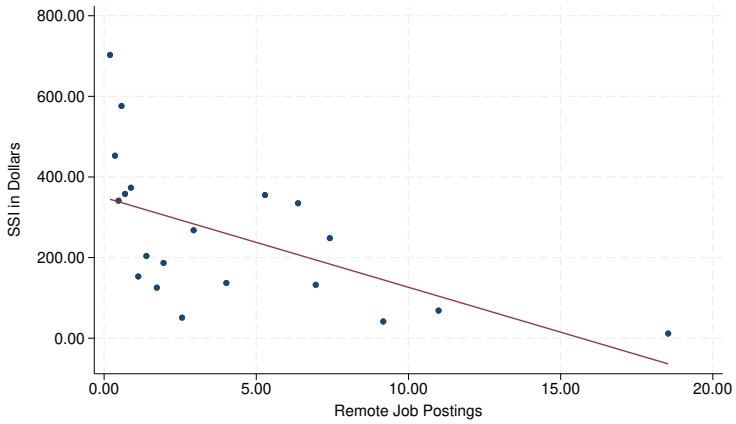
NOTE: Plots the share of working from home for individuals without a disability by occupation pre-post pandemic (2018-2018 vs 2021-2023) from the ACS.

FIGURE B.8 – Distribution of SSI

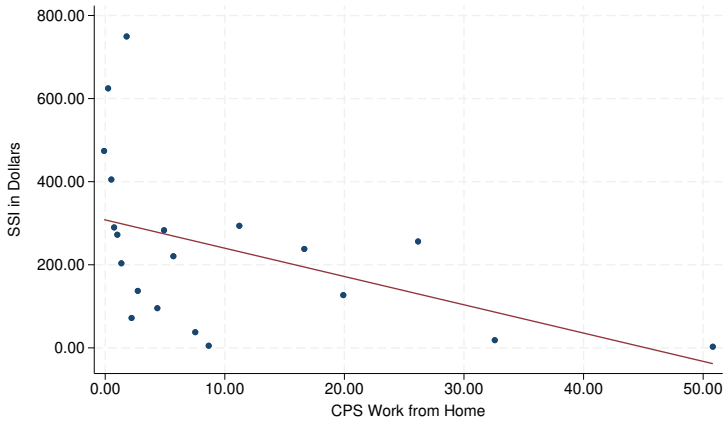


NOTE: Plots the kernel density of SSI income from the CPS.

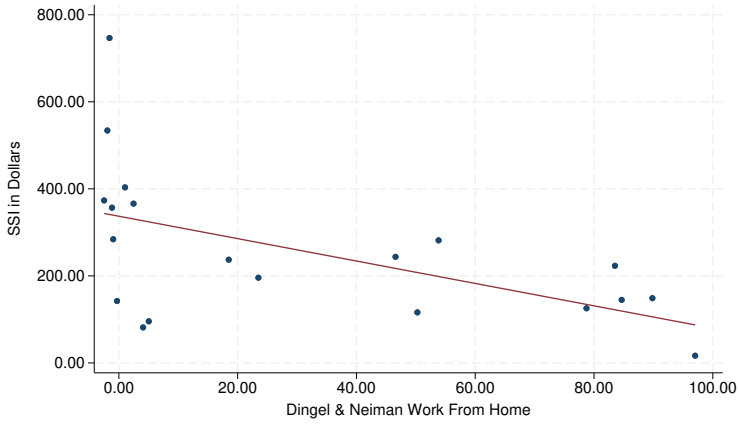
FIGURE B.9 – Binscatter of SSI Across Different WFH Measures



A. Lightcast Job Postings



B. CPS Telework



C. Dingel & Neiman

NOTE: Each point represents the average value of SSI from the CPS for each bin of the WFH measure from the ACS, estimated from 2019 through 2023. Includes month, 2-digit NAICS by month, and state by month fixed effects. All WFH measures are at the 2-digit SOC occupation level.