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

Octavio M. Aguilar
Federal Reserve Board of Governors

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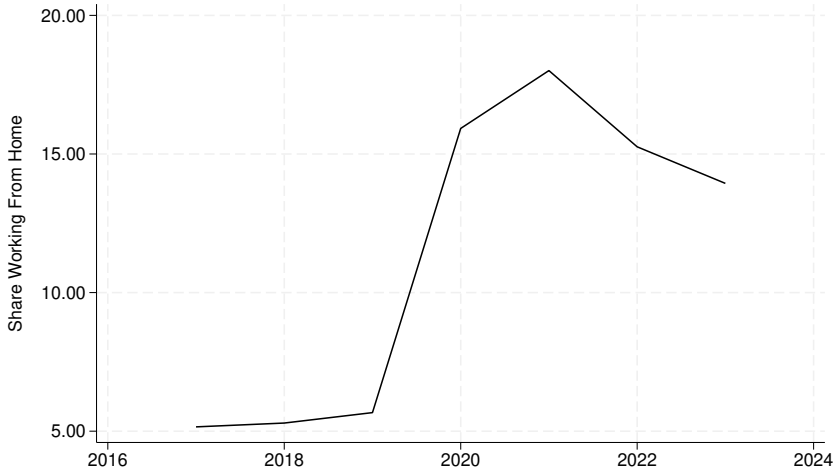
Surge in Disability Employment

- Entire increase in disability employment post-pandemic is driven by rising labor force participation.
  - Trend is also documented by Ne'eman and Maestas (2022); Bloom, Dahl, and Rooth (2024).

Concurrent Surge in WFH

- At the same time, remote work has increased by 3 fold.
  - From 6% pre-pandemic to a peak of 18% in 2021.



Americans With Disabilities Act (ADA)

- ADA of 1990 requires employers to provide reasonable accommodations, which allows individuals with a disability to have an equal opportunity to get a job and successfully perform their job to the same extent as people without disabilities.
  - Includes physical changes, accessible and assistive technologies, and policy enhancements.
- However, it is not necessary to provide a reasonable accommodation if doing so would cause an undue hardship.
  - For example, if the accommodation is costly, extensive, disruptive, or would fundamentally alter the nature or operation of the business.
  - Prior to the pandemic these accommodations were limited Acemoglu and Angrist (2001); Kaye et al. (2011); Dahl, Bloom, and Rooth (2024).

WFH Transformed Flexible Work Arrangements

- The pandemic introduced a technology shock where firms were forced to restructure and provide remote work options for **all** workers.
- Share working from home increased by three fold for both workers with and without a disability.

A natural question is: Does the ability to WFH increase employment of individuals with a disability?

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A natural question is: Does the ability to WFH increase employment of individuals with a disability?

- The answer is **YES!**
- Bloom, Dahl, and Rooth (2024) have an excellent paper showing a 1pp $\uparrow$ in WFH $\Rightarrow$ 1.1% $\uparrow$ in full-time employment for individuals with a disability.
- They show that most of the rise in disabled employment post-pandemic can be explained by WFH.

This Paper

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Research Question:

Does the ability to WFH decrease SSI for individuals with a disability?

- **Yes!** 1pp $\uparrow$ in WFH $\Rightarrow$ 0.36% $\downarrow$ in SSI.

Outline for Today

1. Data construction and definition of disability.
2. Trends in SSI overtime.
   - SSI recipients and real average labor income of SSI recipients.
3. The causal link between SSI and WFH.
   - Evidence from individual and occupation-level regressions using the CPS.
4. Mechanisms and concluding remarks.

Data

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4. Estimation sample is from 2017-2023, includes individuals between 18 and 64, and CPS sampling weights are used.

Definition of Disability

The CPS uses a set of six questions to identify persons with disabilities.

- **Hearing:** is anyone deaf or does anyone have serious difficulty hearing?
- **Vision:** is anyone blind or does anyone have serious difficulty seeing even when wearing glasses?
- **Ambulatory:** does anyone have serious difficulty walking or climbing stairs?
- **Self-care:** does anyone have difficulty dressing or bathing?
- **Independent living:** because of a physical, mental, or emotional condition, does anyone have difficulty doing errands alone such as visiting a doctor's office or shopping?
- **Cognitive:** because of a physical, mental, or emotional condition, does anyone have serious difficulty concentrating, remembering, or making decisions?

Definition of Work from Home

- Baseline definition of WFH is the ACS transportation to work question.
  - "Primary means of transportation to work on the most recent day worked?" (e.g., car, bus, bicycle, or **worked from home**).
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  - Calculate the WFH rates by occupation using **only non-disabled workers**.
- Alternative definitions of WFH:
  - CPS telework question (2022-onward only): "in the last week, did you telework or work at home for pay?"
  - Job ads: number of jobs ads that are WFH by occupation.
  - Instrument: pre-determined probability an occupation can be done from home.
    - 2019 measure from Dingel & Neiman.

Definition of SSI

"How much did you receive (monthly/quarterly) in Supplemental Security Income payments last year?"

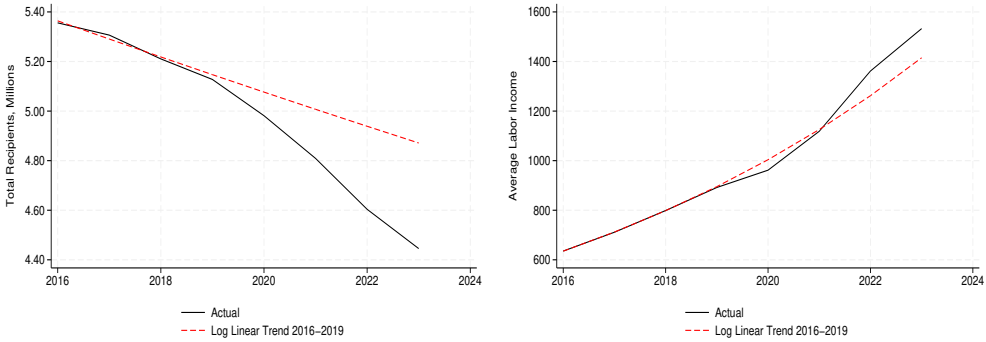
- SSI provides monthly payments to people with disabilities.
  - Maximum of $\approx$ \$1000 for singles and $\approx$ \$1500 for couples.
- SSI has income requirements.
- As of 2024, SSI recipients can't exceed $\approx$ \$2000 from work each month.
  - In addition, can't have other sources of income or assets exceeding \$2000.
- Under the \$2000 earnings threshold, if individuals decide to work, SSI benefits are reduced by 50 cents for every dollar earned over \$85.

Sample Characteristics (Shares in %)

Variable	CPS	CPS-ASEC
Disability	7	3
Labor Force Status		
Employed	31	90
Full-time	67	67
Part-time	33	33
Unemployed	2	7
Not in LF	67	3
Age (Mean)	49	46
SSI (Mean)		
Employed	-	313
Unemployed	-	721
Hourly Wages (Mean)		
Full-time	21	21
Part-time	16	16
Work from home (Mean)	-	11
		(10)
Observations	6,192,029	4,217,273

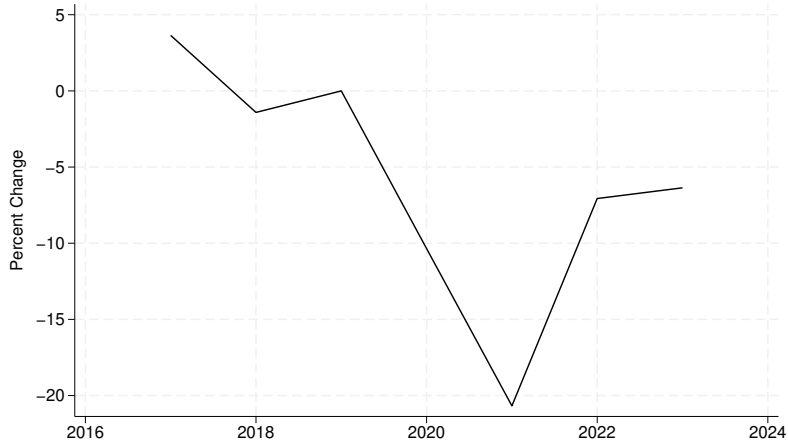
Trends in SSI

Steep Decline in SSI Recipients and Increases in Average Labor Income



- As of 2023, the number of SSI recipients (left panel) is 9% below trend.
- At the same time, the real average labor income of SSI recipients (right panel) is 8% above trend.

Declines in SSI Post-pandemic



- On average, SSI fell by 10% post-pandemic.
- Similarly, in the CPS, SSI fell by 6.7% post-pandemic.

Estimation

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  - WFH occupations should show the largest declines in SSI if WFH meaningfully altered their employment opportunities. SSI by WFH

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  - Isolate the effect of WFH on SSI for disabled individuals without confounding from disability-specific labor market dynamics.
- **Analysis:** Individual and occupation-level analysis. I will estimate changes in SSI pre-post pandemic and the level of SSI pre-post pandemic.

Identification Challenges

1. Compositional changes in disability category.
   - During the pandemic, large inflow of individuals categorized as having a cognitive disability. Inflows
   - If these individuals have more marginal disabilities, they could be more likely to work.
   - This could lead to changes in SSI that are not directly caused by WFH but rather by changes in the population composition.
   - **Solution:** Focus only on the set of disabilities that do not change drastically pre-post pandemic.

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   - **Solution:** Focus only on the set of disabilities that do not change drastically pre-post pandemic.
2. Aggregate labor market tightness increased by 60% and may have influenced firms willingness to hire workers with disabilities (Dahl, Bloom, and Rooth, 2024).
   - Could confound my analysis if observed changes in SSI could be driven by shifts in labor market conditions rather than WFH adoption alone.
   - **Solution:** Control flexibly for non-disabled employment within an occupation and instrument using pre-determined probability that an occupation can be done from home.

Occupation-level Regressions

$$\%\Delta \text{SSI}_j^d = \Delta \text{WFH}_j^{nd} + f(\%\Delta \text{EMP}_j^{nd}) + \%\Delta \text{SSI TREND}_j^d + \%\Delta \text{Wage}_j^d + \epsilon_j. \quad (1)$$

- $\%\Delta \text{SSI}_j^d = (\text{SSI}_{j,21-23}^d - \text{SSI}_{j,18-19}^d)/\text{SSI}_{j,18-19}^d$.
- $\Delta \text{WFH}_j^{nd} = \text{WFH}_{j,21-23}^{nd} - \text{WFH}_{j,18-19}^{nd}$.
- $f(\cdot)$ is a second order polynomial.

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				✓	✓	✓

Interpretation: 1pp ↑ WFH ⇒ SSI Income ↓ 0.36%.
WFH explains roughly 55% of the decrease in SSI:
$(0.36 \times 10.2\text{ppt} = 3.7\%)$ and $(3.7\%/6.7\%) = 55\%$.

Individual-level Regressions

$$\text{SSI}^{d}_{i,j,t} = \delta_t + \delta_{s,t} + \delta_{k,t} + \text{WFH}^{nd}_{i,j,t} + \Gamma X_{i,t} + \epsilon_{i,t}. \quad (2)$$

- $X_{i,t}$ includes: sex, marital status, race, Hispanic, family size, age, have children, employment status, dividend income, rent income, assistance income, veteran income, survivor income, and changes in SSI trends and wages.
- δ_t, $\delta_{s,t}$, and $\delta_{k,t}$ are time, state-by-time and industry-by-time fixed effects, respectively.

	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				✓	✓	✓

Simple Exercise for the Average Effect

- Post-pandemic, a 1ppt increase in WFH reduces SSI income by $\approx$ \$10.
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  - Reduced SSI: \$335 - \$100 = \$235.

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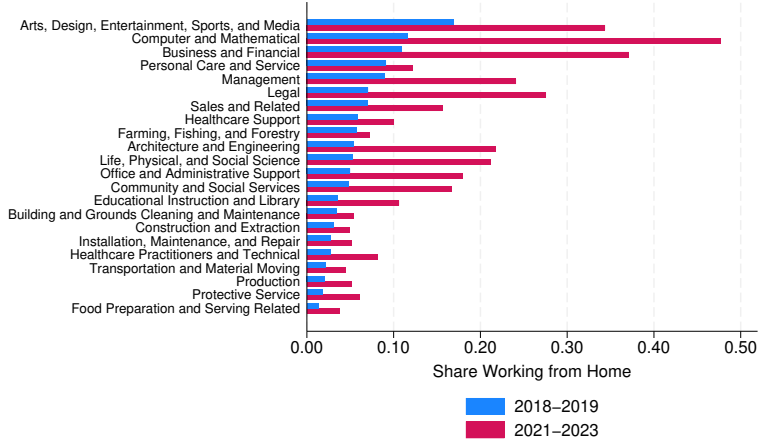
- Translation into hours worked:
  - For an individual earning **the mean hourly wage:** \$21.
  - Additional hours worked to earn \$285: $\frac{\$285}{21} \approx 14$ hours.

Mechanisms and Concluding Remarks

- The pandemic introduced a universal expansion of new technologies, specifically remote work.
  - Expansion applied to all workers and not just targeted for workers with a disability.
- I find that post-pandemic increase in WFH decreased SSI by roughly 4%.
- **Labor supply channel:** Individuals with disabilities may prioritize the flexibility and accessibility of WFH over retaining supplemental income benefits.
  - In addition, WFH also reduces commuting costs, enables better working conditions, and provides non-pecuniary benefits.

Thank you :)

Variation in WFH



- Business and Financial: ↑ 21pp
- Educational Instruction: ↑ 8pp

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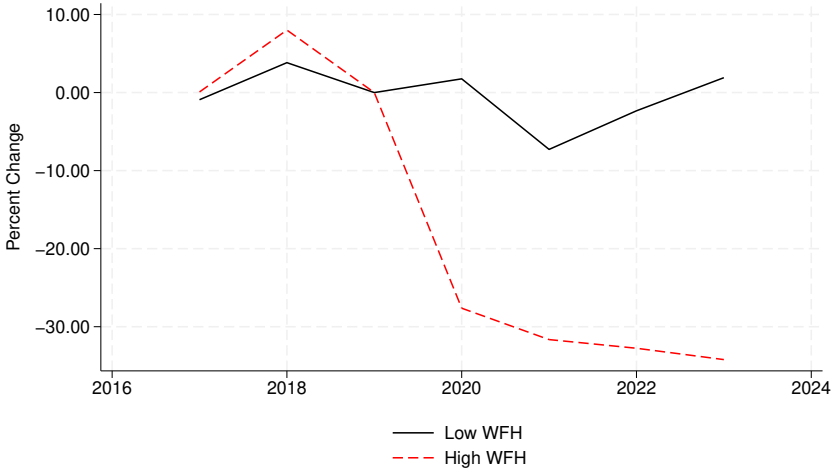
Large Decline in SSI for High WFH Occupations



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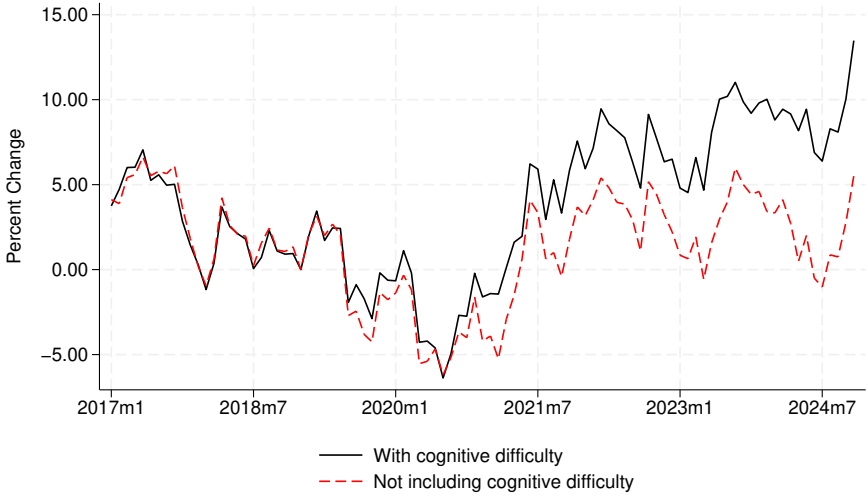
Changes in Population Size With a Disability



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