

DISABILITY EMPLOYMENT AND WORKING FROM HOME IN AUSTRALIA

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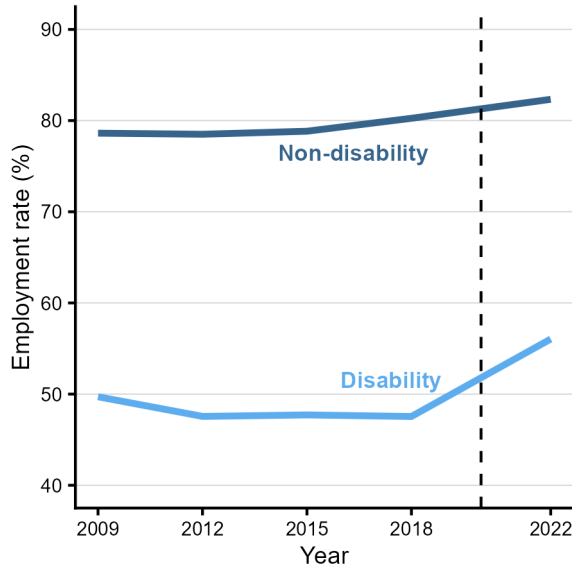
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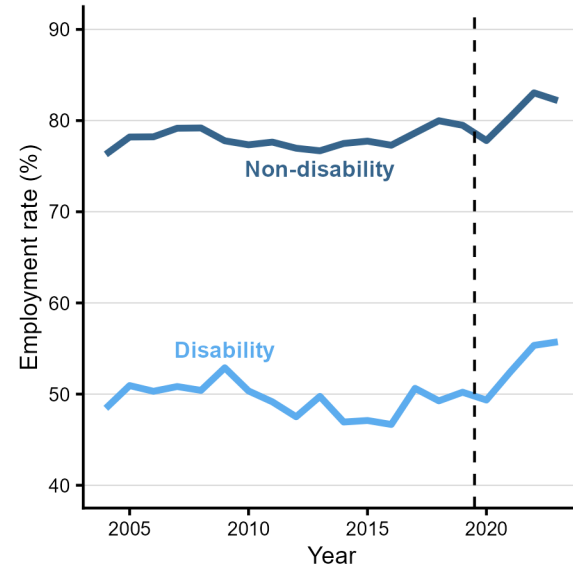
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Disability employment has a persistent gap, but rose sharply post-pandemic



Note: data sourced from Survey of Disability, Ageing and Carers (SDAC), 2009 to 2022 waves, accessed through ABS Tablebuilder



Note: data sourced from Household, Income & Labour Dynamics in Australia (HILDA), waves 4 to 23.



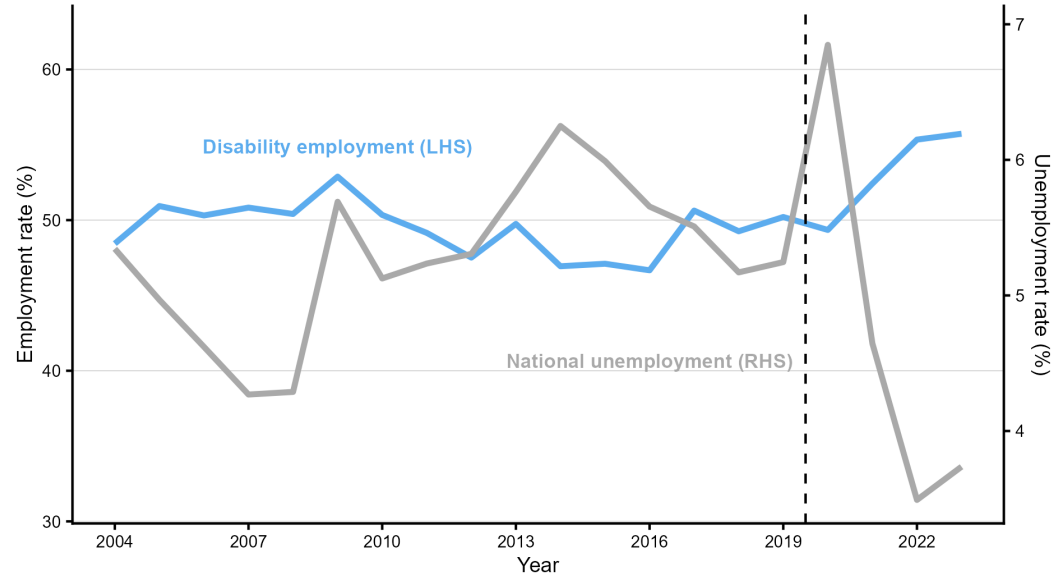
A similar increase in disability employment in the US has been attributed to WFH

- Bloom, Dahl & Rooth (2026) attribute US disability employment growth to improved WFH access
- Others find associations between disability employment growth and occupational teleworkability (Ameri et al. 2023; Ne'eman & Maestas 2023; Schur et al. 2020)
- WFH can disproportionately benefit people with disability:
 - » Reduces commuting burdens and allows more autonomy/control over working environment and schedules
(Ameri et al., 2023; Igeltjörn & Habib, 2020; Kanter, 2022; Schur et al., 2020)
 - » Greater employer familiarity with WFH means less stigma, lower costs of accommodation
(Barrero et al., 2021; Kanter, 2022; Ne'eman & Maestas, 2023)
 - » Widespread WFH leads to less resentment from colleagues
(Colella et al., 2004)



Disability employment typically rises in tight labour markets

Similar conditions in the US drove disability employment growth in non-teleworkable roles too (Ameri et al., 2023; Ne'eman & Maestas, 2023)

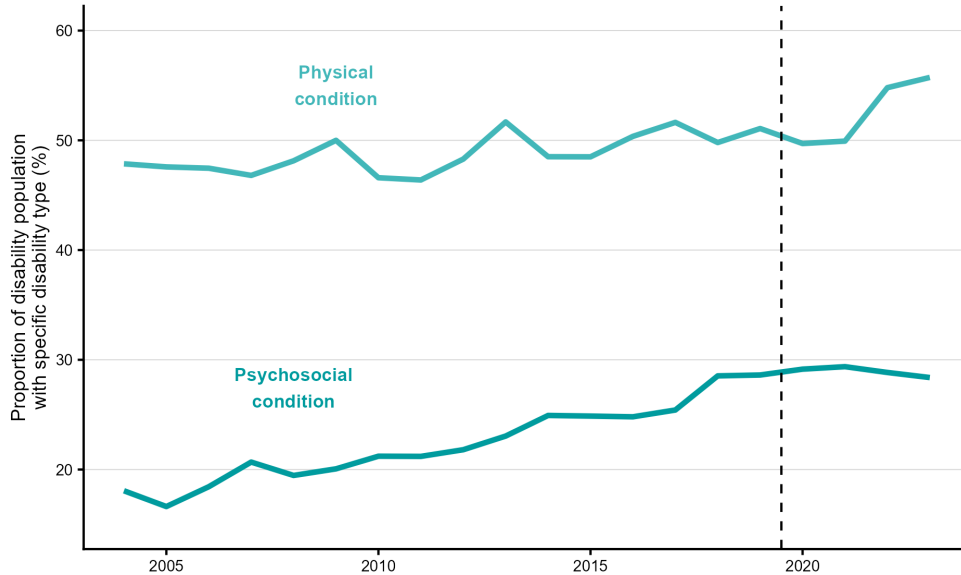


Note: data sourced from HILDA, waves 4 to 23, and ABS Labour Force Statistics, using the national trend unemployment rate in September each year.



Compositional changes may also explain employment growth

Some US research has suggested changes in who has disability can be linked to changing employment outcomes (Bartalotti, Dieterle & Kreider, 2024)

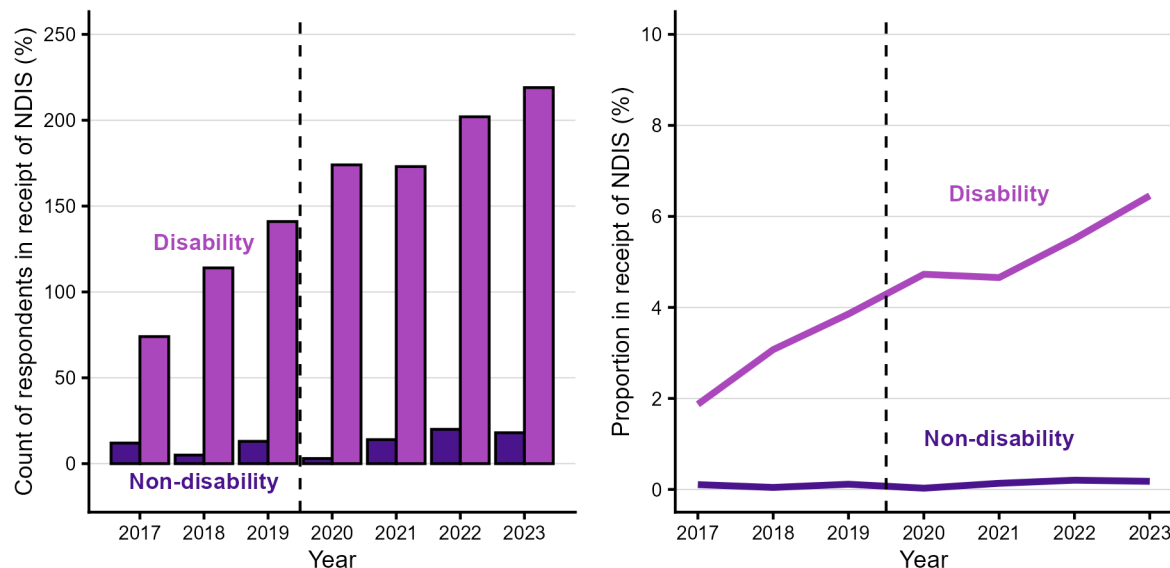


Note: data sourced from HILDA, waves 4 to 23. 'Psychosocial' disabilities include mental illness and nervous/emotional disorders, while 'physical' disabilities include blackouts, limitations of the arm, leg or grip, disfigurements, chronic pain, and shortness of breath. Disability types are not mutually exclusive.



The NDIS rollout occurred over the same period

Uniquely for Australia, the NDIS rollout occurred over the same period, providing support to improve social and economic engagement – though actual impacts vary (Ranjan, forthcoming)



Note: data sourced from HILDA, waves 17 to 23. Working-age respondents only.



First approach: occupation-level IV method

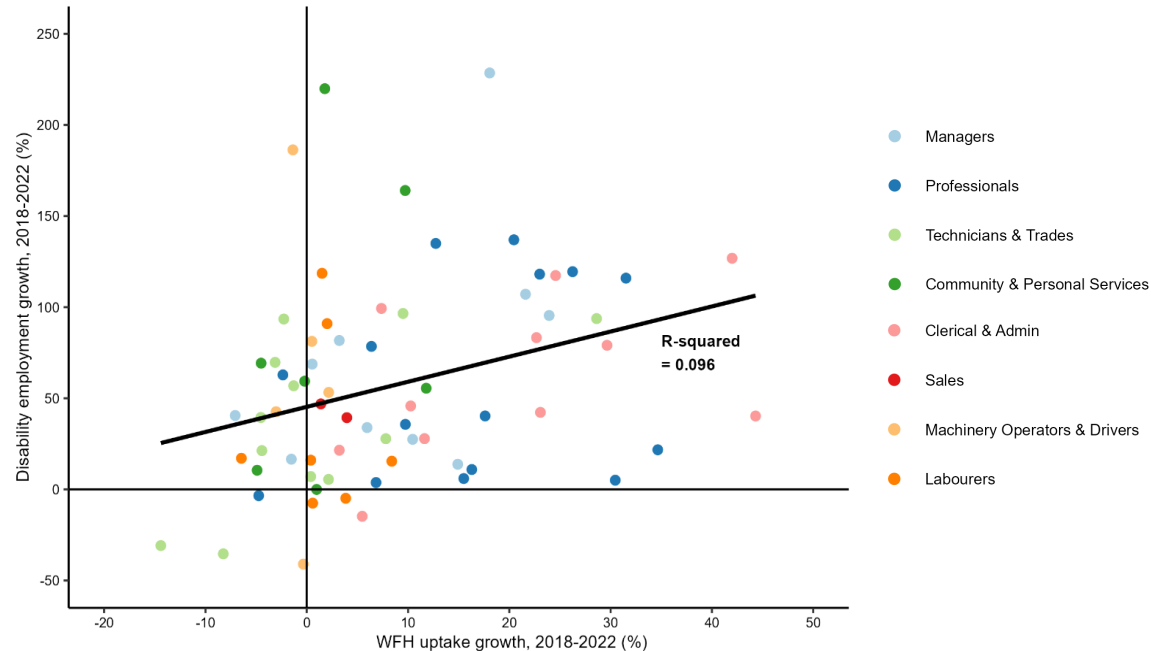
- Replicate Bloom, Dahl & Rooth (2026) through two-period estimation using 2018 and 2022 cross-sectional SDAC waves (~100,000 observations)

$$\% \Delta \text{employ}_j^d = \beta_1 \cdot \Delta \widehat{WFH}_j^n + \beta_2 \cdot f(\% \Delta \text{employ}_j^n) + \varepsilon_j$$

- 3-digit ANZSCO occupation WFH rate instrumented on WFH-capability scores from Dingel & Neiman (2020)
 - » Measures whether an occupation can be done from home, based on component tasks
- Includes controls for:
 - » tight labour markets (non-disability employment growth: $f(\% \Delta \text{employ}_j^n)$)
 - » observable compositional effects (inverse propensity score weighting of 2022 data)
 - » NDIS rollout (in propensity score weights)



Disability employment growth is correlated with WFH growth at an occupation-level



Note: data sourced from SDAC microdata, 2018 and 2022 waves, accessed through ABS Datalab.



But WFH is not the main cause of aggregate disability employment growth

Dependent variable: Change in disability employment ($\% \Delta \text{employ}_j^d$)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Change in WFH (ΔWFH_j^n)	1.422** (0.517)	1.147* (0.475)	1.337** (0.493)	1.331** (0.453)	0.817 (0.959)	0.132 (0.940)	0.668 (0.962)	0.583 (0.924)
Labour market controls:								
$\% \Delta \text{employ}_j^n$		205.603*** (47.749)		163.951** (52.373)		223.130*** (52.134)		166.146** (51.200)
$(\% \Delta \text{employ}_j^n)^2$		-63.68 (41.792)		-50.862 (44.346)		-62.48 (42.545)		-46.899 (40.852)
$(\% \Delta \text{employ}_j^n)^3$		-35.65 (58.361)		18.098 (66.791)		-42.678 (59.180)		12.644 (66.597)
First-stage instrument (DN_j)					22.430*** (3.076)	22.295*** (3.422)	22.074*** (3.050)	22.046*** (3.166)
Compositional controls			X	X			X	X
IV approach					X	X	X	X
Occupation cells	89	89	89	89	89	89	89	89
Outcome regression R^2	0.052	0.141	0.046	0.105	0.041	0.111	0.033	0.088
First-stage F-statistic					53.32	48.62	51.88	49.74

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Tight labour markets are more important



Second approach: DiD method

- Complemented with a dynamic disability difference-in-difference model, using HILDA panel data from 2017 to 2023:

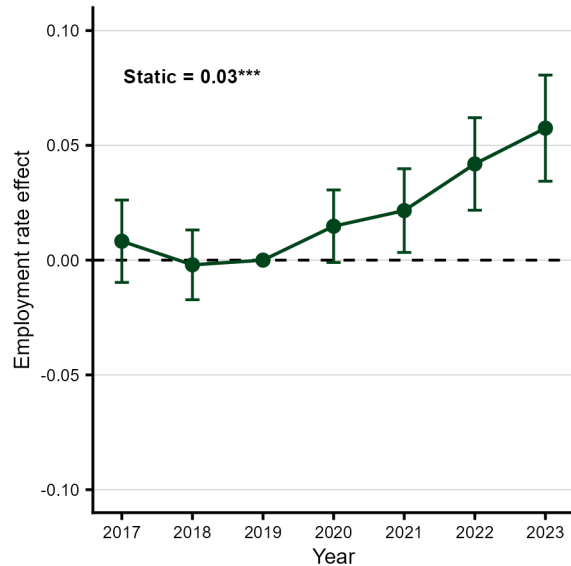
$$Y_{it} = \sum_{k \in \mathcal{K}} \lambda_k \text{Disability}_i \times 1\{\ell(t) = k\} + X'_{it}\beta + \gamma_i + \delta_t + \varepsilon_{it}$$

- » Y_{it} is the binary employment outcome
- » Disability_i is an indicator for functional disability status
 - ❖ identifies individuals with consistent functional disability across all observed pre-pandemic years (2017 to 2019)
- » Treatment starts with the pandemic in $t = 2020$, denoted as $k = 0$
- » λ_k are the estimators of interest for pre-trends ($k < -1$) and for post-treatment effects ($k \geq 0$)
- » X'_{it} is a vector of time-varying controls: age^2 and NDIS support status
- » γ_i and δ_t are individual and time fixed effects.



People with disability showed cumulative gains in employment over time

Relative employment rate, people with disability

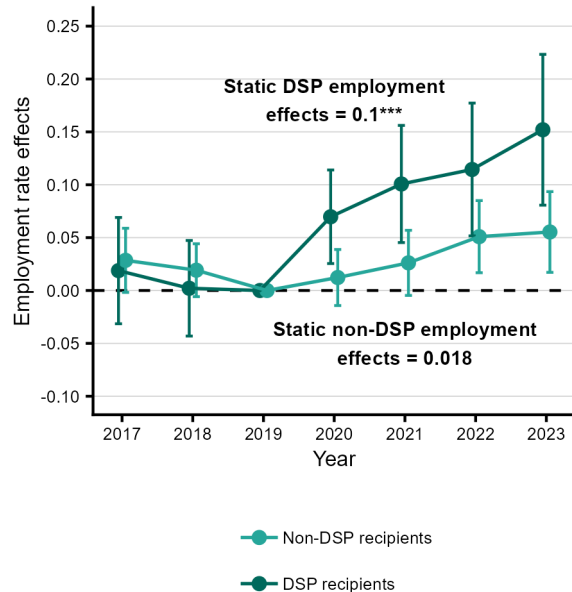


- The DiD approach confirms people with disability had greater employment growth compared to those with no disability, with effect size growing over time.
 - » Impact reached a 5.7ppt increase in employment rates by 2023
 - » Average of 3ppt increase in employment rates between 2020 and 2023
- Effects were larger for those with more consistent disability over time



Employment gains are concentrated among DSP recipients

Relative employment rates, people with disability receiving DSP and not receiving DSP



- Heterogeneity testing finds greater employment gains among people with disability receiving the Disability Support Pension (DSP) pre-pandemic
 - » By 2023, employment rates for DSP recipients were 15ppts higher – equivalent to halving the average disability employment gap
- Similarly, other heterogeneity tests find gains were concentrated among people with more severe work-limiting disability



DDD extension

- Then ran a dynamic triple differences model, interacting disability status with pre-pandemic occupation teleworkability:

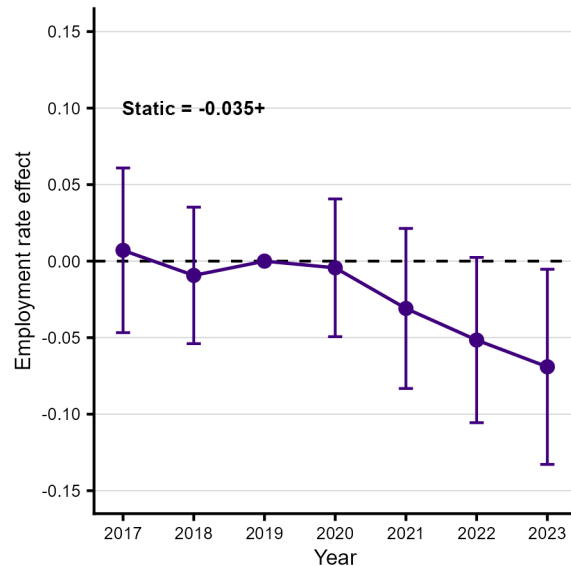
$$Y_{it} = \sum_{k \in \mathcal{K}} [\tau_k \text{Disability}_i \times DN_i^{pre} \times 1\{\ell(t) = k\}] + \sum_{k \in \mathcal{K}} [\lambda_k \text{Disability}_i \times 1\{\ell(t) = k\}] \\ + \sum_{k \in \mathcal{K}} [\theta_k DN_i^{pre} \times 1\{\ell(t) = k\}] + X'_{it}\beta + \gamma_i + \delta_t + \varepsilon_{it}$$

- » DN_i^{pre} is the modal score of the teleworkability of an individual's 4-digit occupation prior to the pandemic
 - ❖ rounded to a discrete scale between zero and one in quarter increments: i.e. $DN_{it} \in \{0, 0.25, 0.5, 0.75, 1\}$
 - ❖ based on teleworkability index developed by Dingel & Neiman (2020) and cross-walked to ANZSCO
 - ❖ 'last job held' approach to allocate occupations to unemployed, back to 2001 HILDA data (Carrillo-Tudela & Visschers, 2023; Şahin et al., 2014)
- » The triple difference estimators of interest are τ_k , controlling for lower-order effects (λ_k and θ_k)



People with disability already in teleworkable roles had declining relative employment

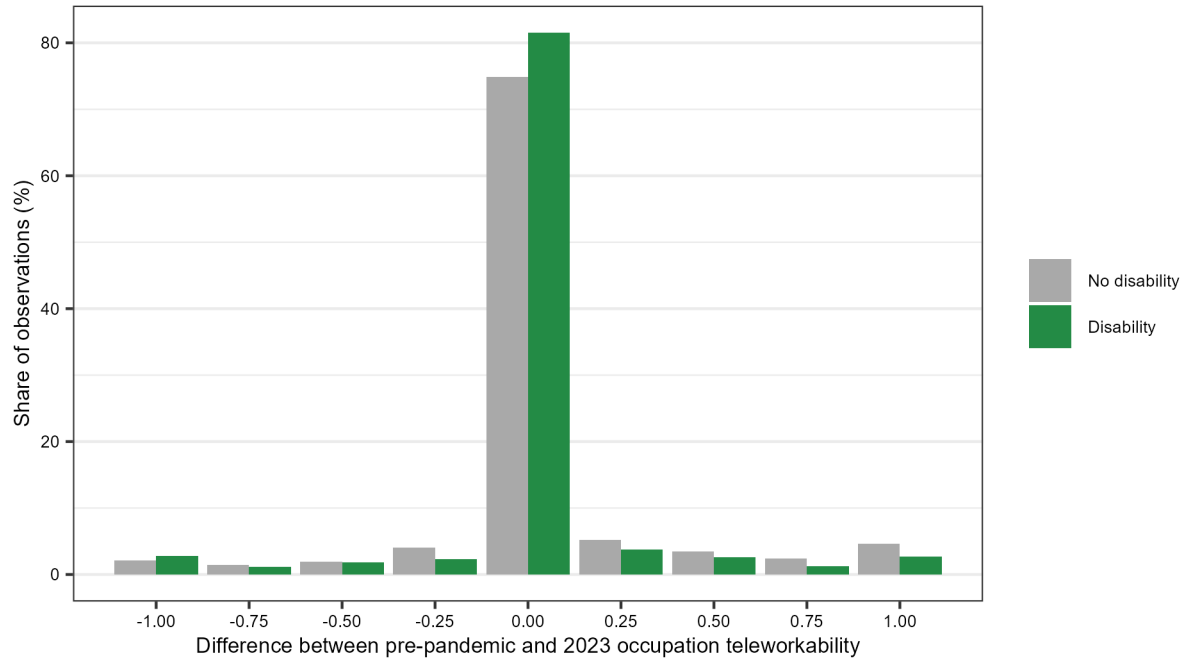
Relative employment rate, people with disability in WFH-capable occupations pre-pandemic



- People with disability in WFH-capable occupations before the pandemic had slightly decreased relative employment, despite being most able to gain from WFH
 - » 3.5ppt decrease in relative employment rate
- So employment growth for people with disability almost entirely came from those who were in non-teleworkable roles pre-pandemic
 - » Some of that growth may have come from moves **into** teleworkable roles, but not all



Overwhelming majority of people remain in similarly WFH-capable occupations over time



Note: data sourced from HILDA, waves 17 to 23.



Conclusions

- Given its advantages for people with disability, WFH is still an important accommodation, but no evidence it caused the post-pandemic increase in disability employment
- Instead, tight labour markets were a stronger explanatory factor, reinforcing the importance of maintaining a strong labour market and full employment for disability outcomes
- Institutional settings and norms matter and may have meant Australia was ahead of the curve, so WFH was more of a novelty for non-disability cohorts
- Employment gains for people with disability appear to have been concentrated among non-teleworkers and people with more severe self-reported disability.



THANK YOU

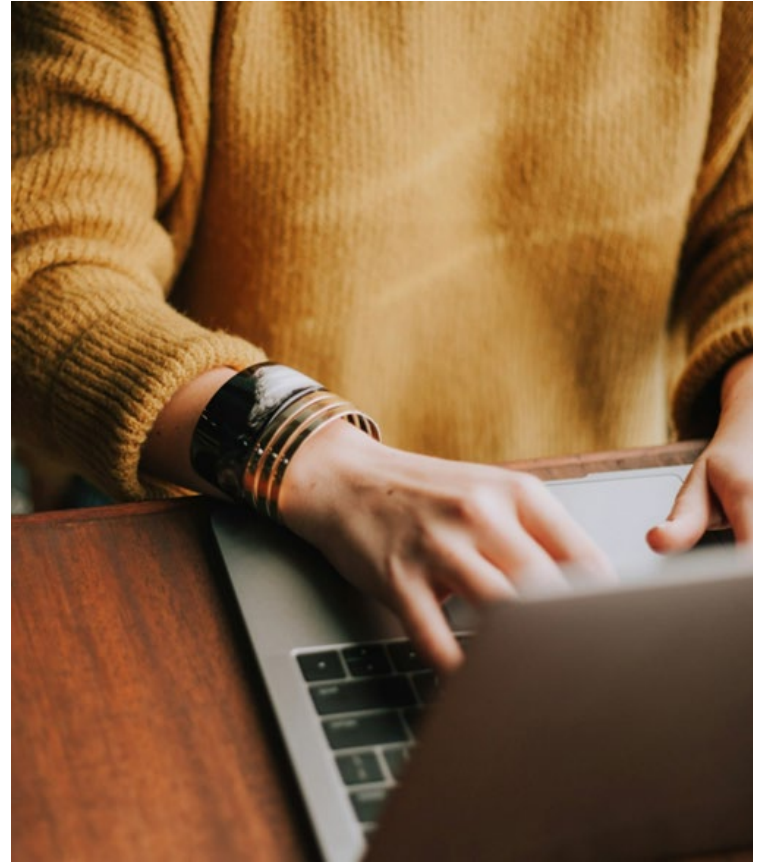


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Definitions of disability matter

SDAC:

“a limitation, restriction or impairment, which has lasted, or is likely to last, for at least six months and restricts everyday activities”

HILDA:

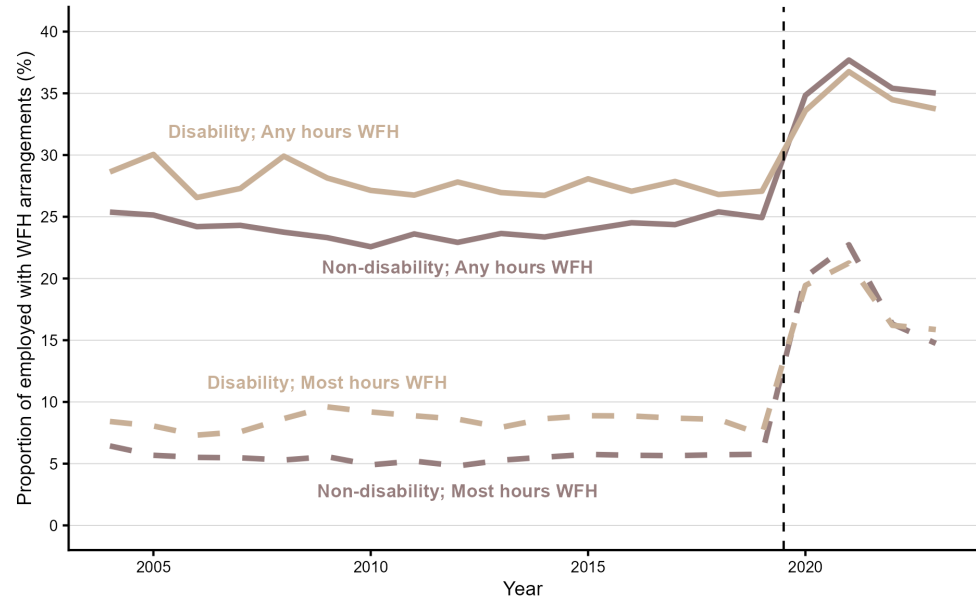
“any long-term health condition, impairment or disability that restricts you in your everyday activities, and has lasted or is likely to last, for 6 months or more”

+ additional questions about whether a respondent's disability or health condition limits the type or amount of work that they can do, and the severity of that limitation on a 0-10 scale



Why is Australia different?

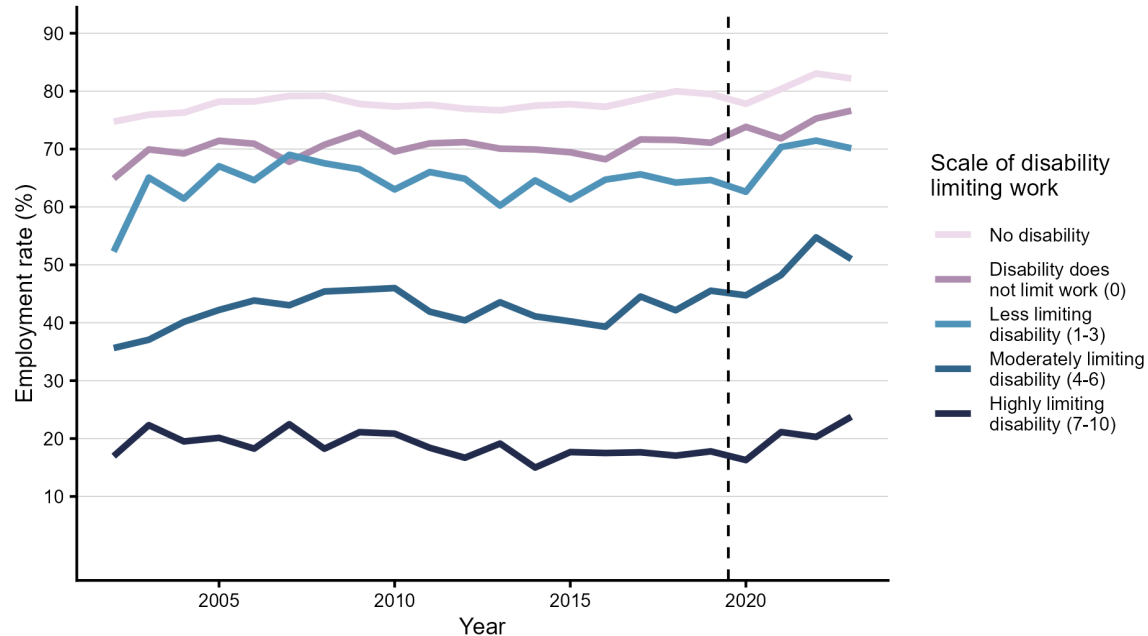
- **Legal rights** – since 2013, the *Fair Work Act* provides Australians with disability the right to request flexible work, including WFH
- **Pre-pandemic norms** – people with disability already favoured WFH before 2020
 - » Despite being less likely to be in a teleworkable role
 - » So WFH was more of a novelty for people **without** disability – new example of ‘kerb-cut effect’?



Note: data sourced from HILDA, waves 4 to 23.



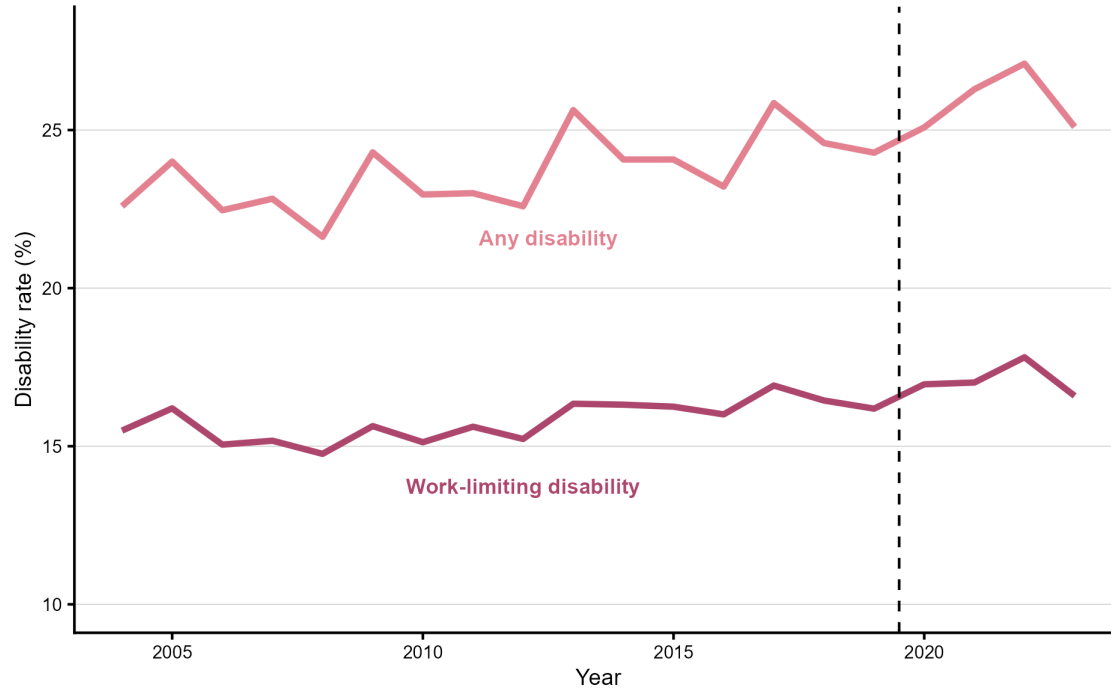
Employment gains were greatest among people with moderate work-limiting disabilities



Note: data sourced from HILDA, waves 4 to 23.



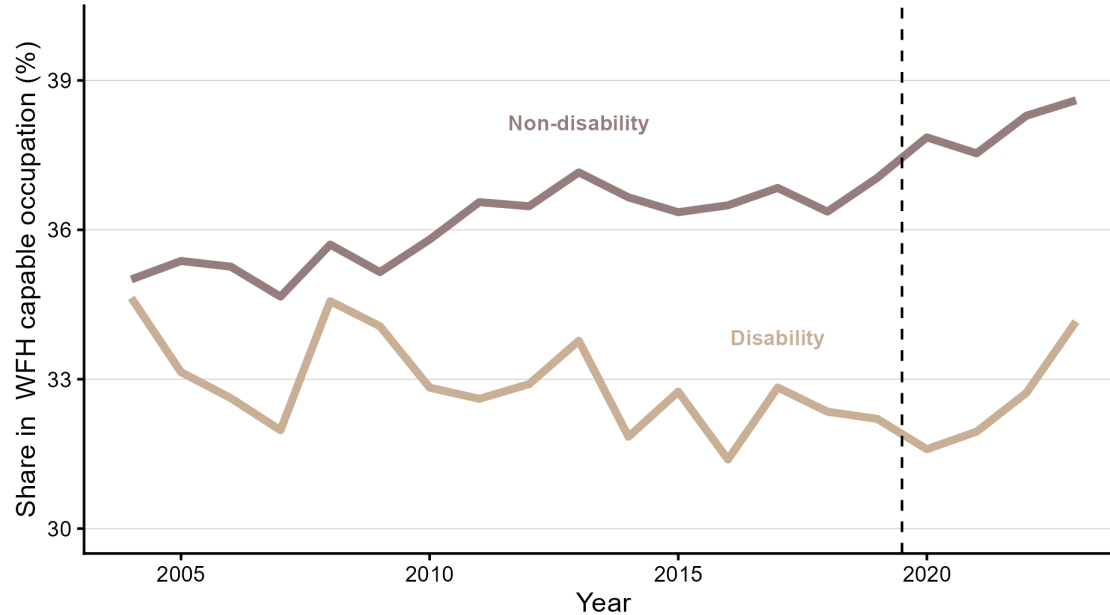
Share of people with disability in Australia has been gently rising



Note: data sourced from HILDA, waves 4 to 23. Working-age respondents only.



People with disability have less access to teleworkable roles



Note: data sourced from HILDA, waves 4 to 23.



First approach: IV method (extra details)

- Tight labour markets: cubic function of change in non-disability employment:

$$f(\% \Delta \text{employ}_j^n) \text{ where } \% \Delta \text{employ}_j^n = \frac{[\text{emp}_{j,2022}^n - \text{emp}_{j,2018}^n]}{\text{emp}_{j,2018}^n}$$

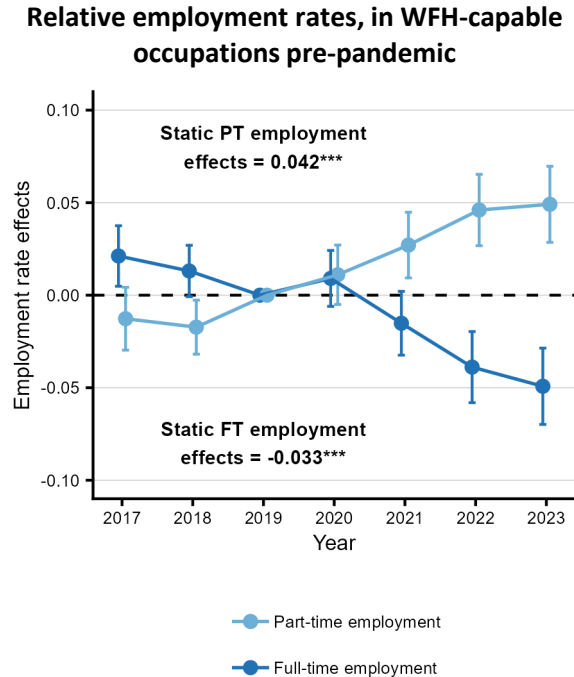
- Compositional effects: inverse propensity score weights for 2022 based on a fully-interacted logit model of age (5 categories), gender (2 categories) and education (3 categories), resulting in 2022 weights of:

$$\omega_{i,2022}^* = \frac{P_i}{1 - P_i} \omega_{i,2022}$$

- NDIS: NDIS participation added to propensity score weights



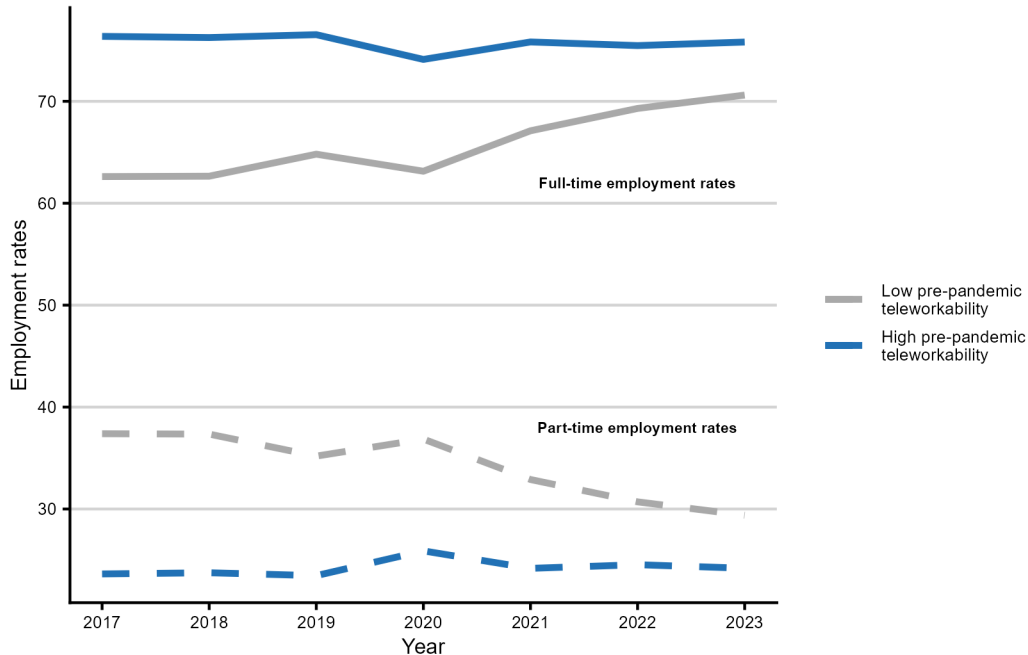
Bonus finding 1: People already in teleworkable roles had declining relative hours worked



- People in WFH-capable occupations before the pandemic experienced a relative shift from full-time to part-time employment
 - » Very strong offsetting effects
- On face of it, may suggest white-collar workers shifted to part-time work
 - » But relative rates mean the effect is due to non-WFH-capable workers increasing intensity of work, possibly in response to cost-of-living pressures



People in occupations with low WFH-capability switched to full-time work post-pandemic

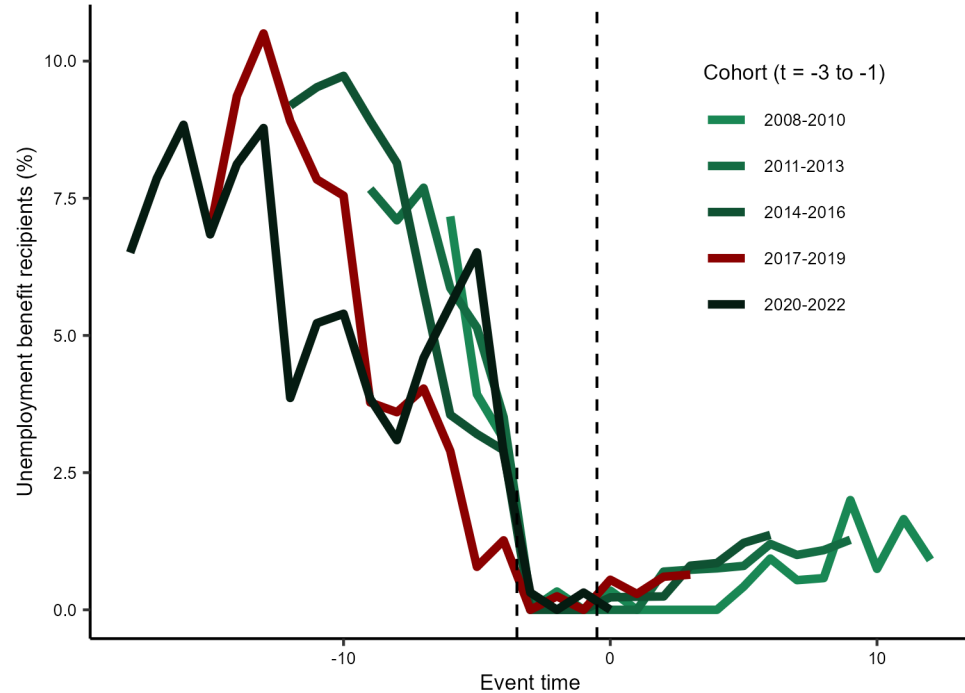


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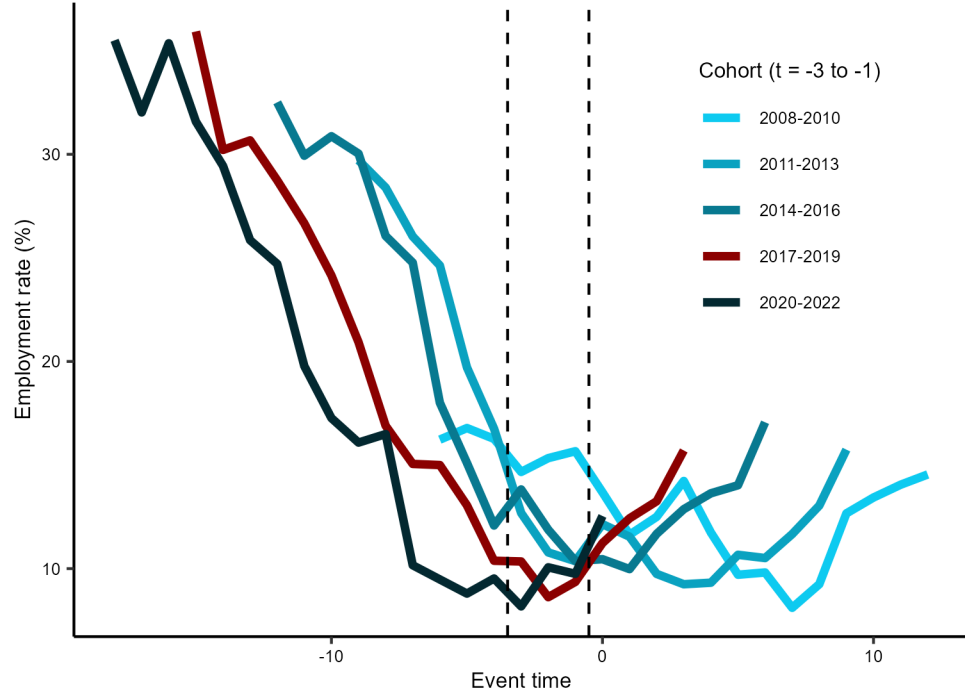
The DSP results were not driven by a shift to Jobseeker

- Although the combined Jobseeker and Coronavirus Supplement payment rates were higher than DSP payments during part of the pandemic, there is no evidence of a mass shift to Jobseeker



Instead, DSP timing now appears to coincide with employment troughs

- More recent cohorts appear to hit employment lows around the same time as being on DSP, rather than several years later
 - » An earlier employment trough is associated with a more rapid employment recovery, potentially driving the results



Despite higher employment, pre-pandemic DSP recipients are not more likely to leave the DSP

