

Does Work from Home Contribute to Increased BMI and Obesity?

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Motivation

- After the COVID-19 pandemic, work from home (WFH) became a viable and more common form of work arrangement
- Hybrid work is preferred by employees and leads to better life-work balance, reduced work-to-family conflict, and higher job satisfaction (Aksoy et al., 2022; Choudhury et al., 2024; Laß and Wooden, 2025)
- Reduced commute provides additional opportunities to invest in health (Grossman, 1972)
- Earlier studies of hybrid work and physical health use cross section data, while recent studies mainly focus on the impact of COVID-19 lockdowns
- This paper: Estimate the effect of WFH on BMI and obesity before and after COVID using HILDA Survey data

Previous Literature

- Economics of Obesity

- ▶ Much evidence on the cost of obesity (Black et al., 2018; Cawley and Meyerhoefer, 2012; Ling et al., 2023), while limited evidence on the determinants of obesity and BMI (Cawley, 2015)
- ▶ Positive estimated effects of internet access (DiNardi et al. 2019, Michelle et al. 2024) and COVID-19 lockdown (Scoditti et al. 2023, Sung et al. 2024) on body weight

- Studies of WFH

- ▶ Improved worker productivity under flexible work arrangements (Bloom et al., 2015; Choudhury et al., 2021; Angelici and Profeta, 2024)
- ▶ Better life-work balance, reduced work-to-family conflict, and higher job satisfaction (Aksoy et al., 2022; Choudhury et al., 2024; Laß and Wooden, 2025)
- ▶ Reduced commute time (Aksoy et al., 2023; Cowan, 2024)
- ▶ Effects on mental health (Botha et. al, 2026; Hao et al., 2022; Serrano-Alarcón et al. 2022) and body weight (Scoditti et al. 2023, Sung et al. 2024)

Data

- Use the Household, Income and Labour Dynamics in Australia (HILDA) Survey data, waves 6-19 (pre-COVID) and 22-24 (post-COVID)
- WFH indicators
 - low WFH: 50% or less of weekly hours worked at home
 - intermediate WFH: between 50% and 70% worked at home
 - high WFH: 70% or more worked at home)
- Explore possible mechanisms
 - Frequency of moderate or intensive physical activity
 - Time use
 - Diet

Sample

- Sample restrictions: Individuals aged 18-64 working between 35 and 70 hours per week. Exclude military servicemen and servicewomen, agricultural workers, self-employed, full-time students, individuals whose BMI exceeds 45 or is less than 17, respondents who have multiple jobs
- Conducting the main analysis for full-time employees is similar to existing studies (e.g. Aksoy et al., 2022; Aksoy et al., 2023; Angelici and Profeta, 2024; Bloom et al. 2015; Bloom et al. 2026; Choudhury, 2024)
- Considering part-time employees together with full-time workers would require a complex correction procedure due to differences in unobserved characteristics and self-selection (Been et al. (2026) and references therein).
- Estimation for the sample of part-time employees is performed separately.

Empirical Strategy

- For y_{it} being BMI or obesity, estimate a linear two-way fixed effects model:

$$\begin{aligned} y_{it} &= \theta_t + \beta_1 lowWFH_{it} + \beta_2 intermWFH_{it} + \beta_3 highWFH_{it} \\ &+ \gamma' X_{it} + c_i + u_{it} \end{aligned}$$

- θ_t includes wave fixed effects
- c_i is a unique individual-home-job fixed effect; accounts for unobserved time-constant factors, e.g. genetics, family background
- X_{it} includes age indicators, education, real per capita family income, marital status, long-term health condition and whether it limits work, serious personal injury or illness during the last 12 months, pregnancy indicators, quadratic function of work hours, occupation and state fixed effects
- Results are similar if use quadratic age function, $\log(\text{income})$, include agricultural workers, keep respondents with extreme BMI values, include number of children

Empirical Strategy, Robustness Checks

- Reverse causality: Include individual-home-job fixed effects and time-varying controls, do additional checks
- Measurement error in BMI
 - Height and weight are self-reported, not accurate (Agius et al., 2008)
 - Non-classical measurement error in the dependent variable can cause bias
 - Time-constant measurement error is absorbed by fixed effects
 - Need to assume that changes in measurement error over time are unrelated to WFH variables
- Sensitivity of results to definitions of WFH variables
- Effects of past WFH
- Sample selection: Test and correct for sample selection.

Results: Effects of WFH on BMI and Obesity

	Pre-COVID		Post-COVID	
	BMI	Obese	BMI	Obese
	(1)	(2)	(3)	(4)
Low WFH	0.029 (0.028)	0.005 (0.004)	0.047 (0.062)	-0.002 (0.009)
Intermediate WFH	0.268** (0.115)	0.041** (0.019)	0.007 (0.102)	0.002 (0.015)
High WFH	0.070 (0.093)	0.018 (0.014)	0.105 (0.113)	0.008 (0.018)
Observations	64,469	64,469	15,019	15,019

Standard errors are adjusted for clustering at the individual level.

WFH Effects for Men and Women

	Pre-COVID		Post-COVID	
	BMI	Obese	BMI	Obese
<i>Women</i>				
Low WFH	-0.033 (0.050)	0.001 (0.006)	0.037 (0.118)	0.008 (0.011)
Intermediate WFH	0.343* (0.208)	0.109*** (0.035)	-0.038 (0.179)	-0.006 (0.020)
High WFH	0.069 (0.167)	0.017 (0.018)	0.170 (0.190)	0.026 (0.025)
Observations	24,584	24,584	6,215	6,215
<i>Men</i>				
Low WFH	0.067** (0.033)	0.007 (0.005)	0.064 (0.068)	-0.007 (0.013)
Intermediate WFH	0.232* (0.139)	0.006 (0.021)	0.033 (0.116)	0.012 (0.021)
High WFH	0.078 (0.111)	0.019 (0.019)	0.032 (0.136)	-0.012 (0.026)
Observations	39,885	39,885	8,804	8,804

Heterogeneity and Robustness Checks

- WFH effects are somewhat larger for women in office jobs.
- No positive WFH effects for part-time employees.
- Results are roughly unchanged if
 - change WFH variable definitions slightly
 - include previous-year ($t - 1$) WFH variables
 - correct for sample selection
 - exclude pregnant women
 - exclude respondents with recent injury/illness
- Nonlinear effects and small effect sizes suggest that reverse causality is unlikely

Possible Mechanisms

- Largely no effects of WFH on physical activity and diet
- **Time use patterns before COVID:**
 - Workers who WFH 50% hours or less tend to spend more time on commute
 - Workers who WFH less than 70% hours tend to have longer working hours
 - Workers who WFH less than 70% hours tend to spend about the same amount of time on physically active home tasks as those with zero WFH
- **Time use patterns after COVID:**
 - Less time spent on commute for all WFH groups
 - No extended working hours for any WFH group
 - Workers in all WFH groups tend to spend more time on physically active home tasks than those with zero WFH

Conclusions

- Find limited evidence that WFH contributes to higher BMI or obesity.
- Only few significant positive effects, which are practically small and observed only before COVID for a very small proportion of workers:

	Pre-COVID	Post-COVID
No WFH	0.762	0.594
Low WFH	0.218	0.257
Intermediate WFH	0.005	0.056
High WFH	0.014	0.094

- Even after including many controls and using advanced estimation methodology biases may remain.
- There may be issues due to missing values in BMI and attrition.
- Need to conduct an RCT to induce exogenous variation.

Thank you!