Do women pay for working from home? Exploring gender gaps in pay and wellbeing by work location in the UK Cohort Studies

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Abstract: Working from home (wfh) has seen a rise in prevalence, particularly in the wake of the covid-19 pandemic. Although it is widely believed that wfh enables employees to better combine paid work with domestic duties, potentially enhancing work-life balance, emerging evidence suggests that it may also hinder career advancement and adversely affect mental health, with notable impacts on women. We employ longitudinal data from three British Cohort Studies, collected one year into the covid-19 pandemic, to investigate the characteristics of those who report working from home and the relationship with gender disparities in hourly wages, mental health, and well-being. Using longitudinal data also allows us to control for cohort members' labour market situation prior to the pandemic, thereby helping to isolate the pandemic's effects. Our findings indicate that individuals who work from home typically receive higher wages compared to those who work from employers' premises, but the gender wage gap is most pronounced among those who work from home. Furthermore, consistent with the flexibility paradox, our analysis reveals that women who work from home - particularly those who work hybrid - experience the most detrimental mental health outcomes.

Key words:

Gender; Employment; Remote Working; Working from home; Hourly earnings; Mental health; Covid-19

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1. Introduction:

Remote working, defined as working from home (wfh) for all or some of the time (i.e. hybrid), has increasingly become a standard component of modern work arrangements. Prior to the covid-19 pandemic, working from home, for at least some of the time, was formally recognized in the UK as a type of flexible working and employees could request these arrangements, subject to employer approval (for more details, see https://www.gov.uk/flexible-working). The onset of the pandemic led to a government-mandated shift towards remote working, where feasible, leading to an increase in working from home rates—a trend that has persisted beyond the pandemic (Barrero, Bloom, & Davis, 2023).

Remote working, similarly to other forms of flexible working, is often perceived as advantageous for women, particularly mothers, allowing them to better combine paid work with domestic responsibilities and childcare, effectively enhancing work-life balance (Allen, Jenkins, & Howard, 2020). The shift towards increased working from home is also likely to have implication for the flexibility stigma (i.e. the belief that remote workers are less productive and less committed to the workplace) and, since this stigma is gendered (Chung, 2022), it may have implications for gender equality. Some argue that working from home could help women narrow the gender gap, since the growth in women's employment rates is strongly associated with access to remote work options (Albanesi, 2023).

Conversely, others speculate that working from home may not be beneficial for women' careers, due to the loss of informal networks and 'presentism' (Ibarra, Gillard, & Chamorro-Premuzic, 2020) and may result in blurring of the boundaries between work and home (Cristea & Leonardi, 2019; Glass & Noonan, 2016; Ibarra et al., 2020) leading to overwork, (self)exploitation and worse mental health (Chung, 2022). Historically, greater flexibility in terms of hours worked, such as part-time or summer work interruptions, have been associated with lower financial returns and pay penalties (Blundell, Dias, Goll, & Meghir, 2019; Neuburger, Joshi, & Dex, 2011; Price & Wasserman, 2024; Smithson, Lewis, Cooper, & Dyer, 2004). Although flexibility in terms of work location often facilitates longer working hours, which are typically associated with higher pay, research specific to the financial implications of remote working arrangements is limited. Furthermore, previous studies also show that the pandemic has negatively affected female employment rates (Adams-Prassl, Boneva, Golin, & Rauh, 2020; Alon, Coskun, Doepke, Koll, & Tertilt, 2022; Kristal & Yaish, 2020; Wielgoszewska et al., 2023), but there is insufficient understanding of how the pandemic has impacted gender equality among those who remained employed, especially while also transitioning to remote work.

In this study, we aim to better understand the characteristics of those who work from home and the relationship between working from home and gender gaps in hourly pay, mental health, and well-being. We contribute to existing literature in several ways. Firstly, our analysis uses data collected one year after the outbreak of the pandemic, offering some of the initial insights into the new context. Our findings reveal that the gender pay gap is more pronounced among remote workers than among those who are working on employer premises.

Secondly, using longitudinal data allows us to account for workers' employment situation prior to the outbreak of pandemic, thereby isolating the effect of the pandemic. We show that, despite remote work being relatively uncommon before the pandemic, the average pay of men and women working from different locations is largely explained by their pay prior to the pandemic, which implies that selection into wfh amplifies pre-existing inequalities. However, we find that the pay of men who work from home at least some of the time at the top of the earnings distribution, and the pay of women who work from employer's premises at the bottom of the earnings distribution, are not fully explained by their employment situation prior to the pandemic. This suggests that covid-19 was associated with widening of the gender pay gap.

In addition, we examine the post-pandemic mental health and well-being outcomes associated with different work arrangements. Our analysis indicates that working from home, particularly hybrid, is linked to poorer mental health outcomes for women, including lower life satisfaction, higher anxiety, and increased depression during this time. This aligns with the flexibility paradox theory (Chung, 2022), which posits that the demands of balancing working from home with on-site work imposes the greatest mental health burdens on women.

The rest of the paper is structured as follows. The background literature and motivation are set out in the next section. The following section provides details of the data and methods used in this study. We present the results in the penultimate section. The final section discusses these results and concludes.

2. Background and motivation:

2.1 The UK context:

Various forms of flexible working arrangements have become increasingly common in the UK and elsewhere over recent years. This trend can be attributed to employers' efforts to reduce costs and align labour supply with fluctuating demand for goods and services. Additionally, it reflects a growing worker preference for balancing professional responsibilities with family commitments (Goldin & Katz, 2011). The covid-19 pandemic accelerated the adoption of working from home, particularly in English-speaking countries (Aksoy et al., 2023; Dingel & Neiman, 2020). Although its rates initially declined post-pandemic, they have stabilized at levels above those observed prior to the pandemic (Fortune, 2023), with predictions suggesting that the prevalence of remote work will persist in the future (Barrero et al., 2023; Bick, Blandin, & Mertens, 2023; Gifford, 2022; Ozimek, 2020).

In the UK, government policies have supported the expansion of remote working arrangements since 2002, when these arrangements were officially classified as flexible working options, at the time available to be requested by parents and addressed on an individual basis. In 2007, the Flexible Working Act was extended to include carers of adults, and in 2014, the Act was further expanded to encompass all employees with at least 26 weeks of continuous employment, but still permitting only one application per year (Dex & Smith, 2002; Lewis, Knijn, Martin, & Ostner, 2008). The Flexible Working (Amendment) Regulations 2023, effective from April 2024, revise these provisions by allowing requests from the first day of employment and permitting up to two requests per year, with exceptions where such arrangements are not reasonably feasible, transferring the onus of justification to the employer. The 2024 government plan to "Make Work Pay" proposes further advancements, including "making flexible working a genuine default".

The pandemic has also reshaped the flexible working landscape. Traditionally, employees are expected to conform to the ideal-worker norm (i.e. working long hours and prioritizing work over personal responsibilities) and busy schedules were often perceived as a symbol of status (Bellezza,

Paharia, & Keinan, 2017). Consequently, remote workers may be perceived as less committed, potentially affecting their career advancement and pay, despite evidence suggesting they are less likely to take sick leave and more likely to work longer hours (Hall, Brooks, Mills, Greenberg, & Weston, 2024). Historically, this perception led many employees to forgo flexible working requests due to concerns about discrimination or disadvantage (TUC, 2021), and those who did request flexibility often had their requests denied (Skinner & Pocock, 2011; Unison, 2024).

However, during the pandemic working from home was mandated by the government, which forced many apprehensive employers to adapt —sometimes by reducing office space, relocating, or embracing technological innovations previously resisted (Ramani & Bloom, 2021). This shift has intensified polarising debates regarding the advantages and disadvantages of working from home and challenged assumptions about the productivity, capabilities, and commitment of remote workers (Barrero et al., 2023).

2.2 Access and provision of working from home:

Even though more employees have the right to request flexible working arrangements, including working from home, not all jobs are equally suited to remote work. Originally, flexible working policies were designed to support mothers and carers, leading to the expectation that women would be more prevalent amongst those working from home. However, data from 2015 suggests that, across Europe, there has been no significant gender disparity in the uptake of working from home (Chung & Van der Lippe, 2020). More recent evidence indicates that mothers' and fathers' preferences for different job features are largely the same (Cook, Jones, & Connolly, 2021) and both men and women have adopted remote work at similar rates (Barrero et al., 2023).

One explanation for this parity is that jobs predominantly held by women often tend to offer less flexibility (Glass, 1990). Working in female-dominated jobs and/or sectors reduces access to schedule control for both men and women (Chung, 2019), particularly for those from lower socioeconomic backgrounds (Warren & Lyonette, 2020). Low-wage jobs are also more economically vulnerable, which further limits opportunities for remote work (del Rio-Chanona, Mealy, Pichler, Lafond, & Farmer, 2020; Mongey, Pilossoph, & Weinberg, 2021). Adler (1993) demonstrates that while authority positions explain a large proportion of gender gap in job autonomy, female-dominated occupations do not explain this gap to the same extent.

Consequently, remote work is more prevalent among higher-paid, professional roles that demand greater experience and education (Bamieh & Ziegler, 2022; Bartik, Cullen, Glaeser, Luca, & Stanton, 2020; Glauber, 2011; Golden, 2001; Hansen et al., 2023) where women are typically underrepresented (Bernard, 2018). As Chung (2022) argues, this suggests that factors enhancing job performance, rather than catering to family needs, are more influential in determining who works from home.

2.3. Working from home and pay

Several theories explain the relationship between flexible working arrangements and employment outcomes, such as career progression and compensation. One such theory is occupational gender segregation, which posits the existence of "primary jobs"—typically held by men—offer better pay, security, advancement opportunities, and working conditions, in contrast to "secondary jobs," which are predominantly occupied by women and offer less favourable terms (Anker, 1997). Recent studies affirm that gender differences in occupations and industries account for a large proportion of the gender pay gap (Adams-Prassl, Boneva, Golin, & Rauh, 2022; Blau & Kahn, 2017).

The theory of compensating differentials (Rosen, 1986) suggests that men and women occupy jobs with markedly different working conditions, with higher wages being necessary to attract employees to male-dominated roles. Supporting evidence includes Goldin and Katz (2011), who argue that women often prefer jobs that facilitate family life, accepting lower wages in return for family-friendly benefits. Wiswall and Zafar (2018) further demonstrate that women are generally willing to accept lower wages for greater job flexibility and stability, whereas men tend to prioritize roles offering higher earnings growth despite poorer conditions. Women, particularly those with young children, are believed to have a higher willingness to pay for remote work and to avoid employer-imposed scheduling discretion (Mas & Pallais, 2017), with differences in commute valuation accounting for a large part of the hourly wage deficit for women (Le Barbanchon, Rathelot, & Roulet, 2021). Goldin (2014) argues that if firms did not disproportionately reward long hours, the gender pay gap would likely decrease substantially or even disappear.

Other empirical evidence, however, contradicts the predictions of compensating differential theory. Glauber (2011) finds that women and men do not consistently accept lower pay for greater flexibility, and that female-dominated jobs are associated with a higher motherhood wage penalty, which is not sufficiently mitigated by compensating differentials, such as flexible scheduling or part-time work hours (Glauber, 2012). Adams-Prassl, Balgova, and Qian (2020) show that job flexibility at lower wages is more likely to be offered alongside a wage-contract that exposes workers to earnings risk, while flexibility at higher wages and in more skilled occupations is more likely to be offered alongside a fixed salary that shields workers from earnings variation. Additionally, women and workers with less stable job arrangements tend to perform fewer tasks from home (Adams-Prassl et al., 2022).

These findings suggest that the presence of compensating pay differentials is influenced by workers' bargaining power relative to their employers. Women's bargaining power is frequently constrained by caregiving responsibilities, which can lead to discriminatory practices by employers. Limited means to organise or pay for childcare disproportionately influence women’s ability to pursue educational or labour market activities (Blundell, Cribb, McNally, Warwick, & Xu, 2021). Furthermore, employees with limited negotiating power may avoid requesting flexible working arrangements due to concerns about job security and income stability (Chung, 2018). Seeleib-Kaiser and Fleckenstein (2009) highlight that organised labour within organizations can facilitate the adoption of flexible work policies, though this is influenced by labour market conditions and public policy, resulting in differential access to work-life flexibility (Berg, Kossek, Baird, & Block, 2013). Thus, supportive management is considered a critical factor in enabling access to flexible work arrangements (Cooper & Baird, 2015; Hammer, Kossek, Yragui, Bodner, & Hanson, 2009).

2.4. Working from home and mental health

Beyond economic factors, flexible working arrangements have implications for work-life balance, mental health, and well-being. These aspects, however, are multifaceted and challenging to quantify precisely. During the covid-19 pandemic, working from home was initially not associated with lower mental health. However, as the pandemic progressed, home workers experienced higher risk of psychological distress (Wels et al., 2023). Among key workers who transitioned to remote work, there was a notable decline in mental health outcomes compared to other groups (Wielgoszewska, Booth, Green, Hamilton, & Wels, 2022).

Recent literature presents mixed findings regarding whether working from home is beneficial or detrimental to mental health (Beckel & Fisher, 2022; Crawford, MacCalman, & Jackson, 2011; Hall et al., 2024; Johnson et al., 2020; Liu, Xu, & Ma, 2021; Lunde et al., 2022; Oakman, Kinsman, Stuckey, Graham, & Weale, 2020; Shiri et al., 2022). A recent review by Vacchiano, Fernandez, and Schmutz

(2024) emphasizes that the effects of teleworking on mental health are highly contingent on individual personalities, choices, and preferences, suggesting that a binary assessment of teleworking's impact is neither practical nor necessary.

Women generally have worse mental health compared to men (Blanchflower & Bryson, 2024a, 2024b) and the pandemic has exacerbated existing gender disparities in mental health (Moreno-Agostino et al., 2023; Patel et al., 2022). Foliano, Tonei, and Sevilla (2024) attribute the decline in well-being among women to reduced time spent on leisure activities with non–household members or outside the home, which is more crucial for women's well-being. Chung (2022) argues that gender differences in the relationship between remote work and mental health are influenced by varying household demands and intensified by trends in intensive parenting (Novoa, Cova, Nazar, Oliva, & Vergara-Barra, 2022). Furthermore, Chung (2022) posits that men, when afforded greater control over their work, are more likely to conform to the "ideal worker norm" (Berdahl, Cooper, Glick, Livingston, & Williams, 2018; Kelly, Ammons, Chermack, & Moen, 2010). In contrast, women may not adhere to this norm to the same extent, but flexible working arrangements enable them to sustain their roles of a main carer.

3. Data and Methodology:

3.1 Sample:

Our data come from three nationally representative cohort studies for Britain: the National Child Development Study (NCDS) is a cohort born in 1958, who were age 63 at the time of the data collection; the 1970 British Cohort Study (BCS70) born in 1970, part of 'Generation X', and aged 51 when data were collected; and Next Steps, a cohort born in 1989–90, part of the generation known as 'Millennials', age 31 at the time of data collection.

Members of these longstanding cohorts took part in a covid-19 survey conducted in three waves. A first online survey (Wave 1) took place in May 2020, a second survey (Wave 2) in September–October 2020. Participants completed a third survey (Wave 3) in February–March 2021 via a combination of phone and web interviews (Brown et al., 2024). We utilise the data from the third wave of this survey. At the time of writing, this is the most recent data available from these cohort studies with indicators of work location.

Our analytical sample (N = 6984) is confined to survey participants who were employed in March 2020, and continued to be employed a year later, in the third wave of the data collection (for more details about proportion that remained employed see Appendix A[1]). We exclude people not living in England, Scotland or Wales, and those who had incomplete information on pay and wellbeing. We also restrict the sample to those who reported their work location as either own home (wfh), employer's premises or some days at home and some at employer's premises i.e. hybrid., excluding those who did not report their work location. We restore sample representativeness by using weights which account for both survey design and non-response provided in the data (Brown et al. (2024).

[1] All appendix tables are available to be downloaded from FigShare at https://figshare.com/articles/dataset/Appendix_tables_to_paper_titled_b_Do_women_pay_for_working_from_home_Exploring_gender_gaps_in_pay_and_wellbeing_by_work_location_in_the_UK_Cohort_Studies_b_/27291462?file=49962186

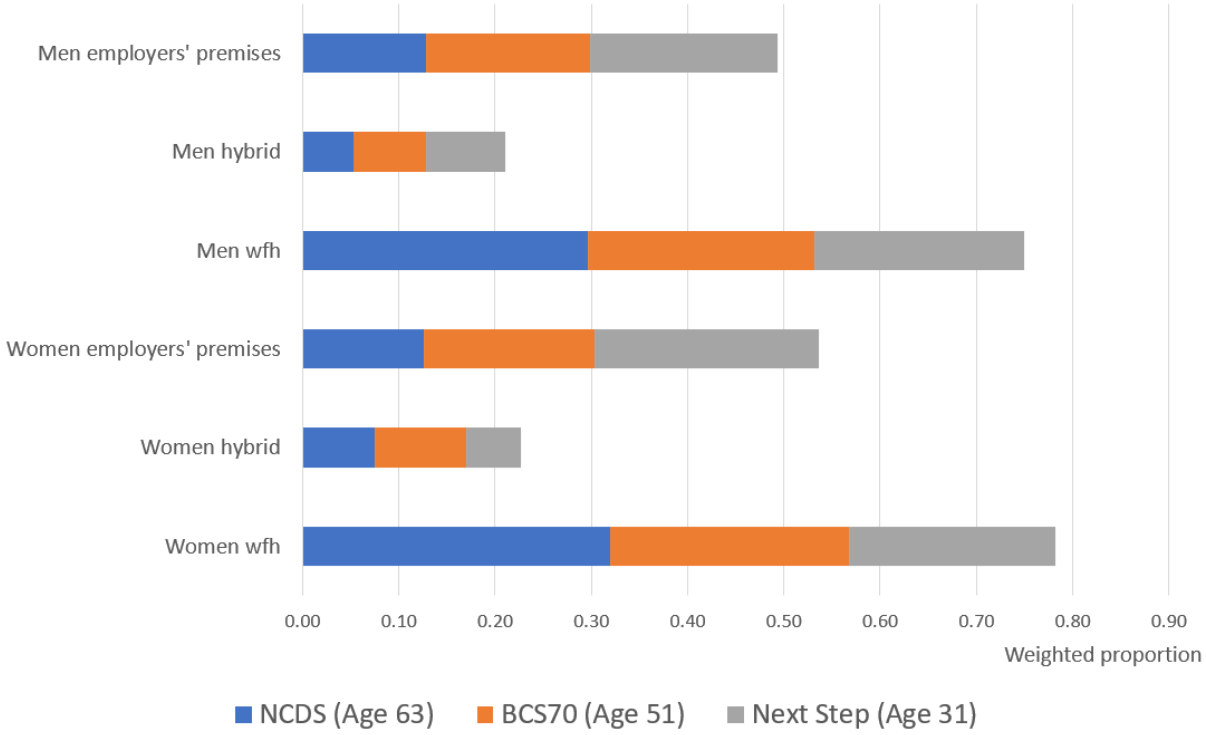


Figure 1: distribution of cohort members across work locations

The survey participants were asked: "which of the following best describes your work location?" and provided with the following options: a) work from your own home; b) work at employer's premises; c) work some days at home and some days at employer's premises. Figure 1 shows the distribution of cohort members in our analytical sample by their work location in March 2021 and cohort (for sample sizes and confidence intervals see Appendix B). It shows that overall, more men and women worked from home than from employers' premises, even though more women were more likely to be key workers and work in sectors less adaptable to working from home, such as healthcare and childcare. At the time hybrid work was the least prevalent, as such arrangements were not yet well established.

3.2 Outcomes:

To answer the first research question (who works from home?), our dependent variable is a binary outcome denoting work location. We derive two versions of wfh variable: a broad definition where those who work some days at home and some days at the employer's premises (i.e. hybrid) are classified as working from home, and a narrow definition that covers only those exclusively wfh. This allows us to test how sensitive the results are to inclusion of hybrid arrangements.

To answer the second research question (How is working from home related to gender differences in hourly pay?), we estimate equations using the worker's log hourly wage as the dependent variable where working arrangements are incorporated as an independent variable.

To answer the third research question (How is working from home related to gender differences in mental health and well-being?), we examine the following three dependent variables:

1. Life satisfaction (from 0 very dissatisfied to 10 very satisfied).
2. Anxiety, measured by summing scores from two items from the general anxiety disorder (GAD-2) inventory - "feeling nervous, anxious or on edge" and "not being able to stop or control worrying" over the previous week. The responses to each item range from 0 ('Not at

all') to 3 ('Nearly every day') and therefore the derived variable ranges from 0, which denotes not experiencing either of the symptoms and 6 denoting experiencing both symptoms nearly every day. This classification follows the approach used by Moreno-Agostino et al. (2023).

3. Depression is measured by summing two items from the Patient Health Questionnaire (PHQ-2) - "experiencing little interest or pleasure in doing things" and "feeling down, depressed, or hopeless" that were measured on the same scale as anxiety, with the derived variable ranging from 0, which denotes not experiencing either of the symptoms and 6 denoting experiencing both symptoms nearly every day.

Table 1 shows the descriptive statistics of all the dependent variables in our analytical sample by gender and location of work. Women earn less per hour than men across all work locations. However, both women and men working from home earn more than their counterparts working from employers' premises. Among men, the highest earners are hybrid workers but among women it is those who work exclusively from home.

In contrast, those who work on the employer's premises report the highest life satisfaction, both for men and women. Among women those who work hybrid have the lowest life satisfaction whereas among men it is those who are working from home. For men, anxiety and depression are greatest among those wfh whereas there is little difference in the anxiety and depression expressed by hybrid workers and those working on employer premises. For women, on the other hand, it is hybrid workers who express the greatest anxiety and depression. The comparison of the distribution of our analytical sample with all those interviewed at wave 3 is available in Appendix C.

Table 1: Weighted descriptive statistics of outcomes across the exposure categories

	Log hourly pay Mean (st dev)	Life satisfaction Mean (st dev)	Anxiety Mean (st dev)	Depression Mean (st dev)
Men employers' premises (N=1282; 25%)	2.64 (0.46)	7.26 (1.95)	0.75 (1.32)	0.85 (1.39)
Men hybrid (N=487; 8%)	3.22 (0.55)	7.00 (1.81)	0.76 (1.36)	0.84 (1.18)
Men working from home (N=1249; 18%)	3.16 (0.51)	6.93 (1.90)	0.95 (1.47)	1.06 (1.47)
Women employers' premises (N=1804; 24%)	2.52 (0.39)	6.89 (2.15)	1.29 (1.57)	1.15 (1.49)
Women hybrid (N=659; 7%)	2.80 (0.40)	6.47 (2.09)	1.50 (1.74)	1.40 (1.72)
Women working from home (N=1503; 17%)	2.90 (0.46)	6.72 (1.91)	1.34 (1.64)	1.18 (1.46)

Note: unweighted Ns and weighted proportions are shown

3.3 Estimation:

We pool all three cohorts and use logistic regression to model the probability of working from home for both broad and narrow definitions of the outcome. To model log hourly pay and the three wellbeing measures, we use linear regression models. In addition, for log hourly pay, we use the recentred influence function regression at the 20th and 80th quantile with robust standard errors to inspect the associations at the top and bottom of the pay distribution - for details of the method see Rios Avila (2019).

To estimate raw differentials, we include a female dummy in the models for the probability of home working. In the analyses of pay and wellbeing we use a composite variable as the exposure, where gender is interacted with the location of work. We then consecutively add sets of covariates to the

regression models and compare the coefficients of the exposure variable to examine how these adjustments affect the gender as well as gender and working location differentials. These adjustments are:

- **Basic:** cohort (NCDS, BCS, Next Steps); country of residence in wave 3 of covid survey (England, Scotland, Wales); whether respondent lives in London (yes, no); education (none, NVQ1-5); parental social class (manual, non-manual); mode of survey (CAWI, CATI); number of rooms in the household.
- **Family:** family structure at wave 3 of covid survey (single, partnered no kids, partnered with kids 0 to 5, partnered with kids 6-11, partnered with kids 12 or older, lone parent, or other); number of children in the household.
- **Job:** pre-pandemic occupation (2-digit SOC classification[2]); part-time work (based on job in March 2020, with cut-off of 30 hours per week); binary key workers status based on 4-digit SOC classification as in Wielgoszewska et al. (2023); binary indicator of whether cohort member has changed job since March 2020; change in hours worked since March 2020 (decrease, the same, increase)
- **Pre-pandemic propensity to work from home, wages and wellbeing:** since the question about location of work was not routinely asked before the pandemic, in the models for working from home we control for pre-pandemic propensities to work from home derived from the 2019 Annual Population Survey using the 3-digit occupational classification. This approach is similar to that used by Wels et al. (2023) (for details of the approach see their supplementary file 4)[3]. For pay, we use log gross hourly pay in March 2020. For wellbeing, we use standardised[4] life satisfaction collected from pre-pandemic surveys (NCDS 2008[5], BCS 2016, NS 2015).

To retain the same sample across the adjustment levels, we impute values at sample means for continuous variables, identifying those with imputations with an imputation dummy and, for categorical variables, we incorporate a dummy identifying which cases were missing. These are mainly variables that have been collected in pre-pandemic sweeps, such as education and parental social class, as well as the occupation variables. Detailed missingness rates, together with the descriptive statistics, for the analytical sample across our analysis groups are shown in Appendix D.

All the above model specifications (excluding the gender dummy variable) are also run separately on a sample of men and women, allowing for variance of all covariates by gender, to inspect gender differences in the regression coefficients. The complete results from all regressions are shown in Appendix E-K.

4. Results:

4.1 Who works from home?

Figure 2 shows the results from modelling the probability of working from home displaying the exponentiated regression coefficient for the female dummy variable across both broadly (left-hand

[2] Due to low counts in several SOC categories resulting in these being dropped from regression models we some 2-digit groups into 1-digit. This is the case for SOC 9 (Elementary Occupations), SOC 8 (Process, Plant and Machine Operatives) and SOC 5 (Skilled Trades Occupations).

[3] Since we consider pre-pandemic home working propensity to be a feature of the job rather than cohort member, we do not use covariates in the derivation, which means our propensities are constant irrespective of whether cohort member's gender or age.

[4] Life satisfaction was measured in NCDS and BCS have 10 point scales but using 5 point scale in Next Steps

[5] Question has not been asked in NCDS 2013 survey

figure) and narrowly defined (right-hand figure) outcomes. The black dashed vertical line indicates the reference category of men, while the dots represent the odds ratios for women, and the whiskers illustrate the corresponding 95% confidence intervals. Each horizontal line is for a different model specification beginning with the raw (unadjusted) female differential in blue, followed by subsequent models which incorporate an increasingly large set of control variables.

The estimates reveal a consistent pattern. In the initial three estimates (the raw differential and the differentials adjusted for basic traits and family characteristics) there is no statistically significant difference between women and men in their likelihood of wfh. However, when job characteristics are accounted for women show a higher propensity of working from home. This suggests that women's tendency to work remotely is influenced more by the types of jobs they occupy rather than family structure. That said, it is possible that women may be drawn to roles that offer greater flexibility, anticipating that such arrangements will better support their future parenthood. Moreover, as represented by the purple line, when pre-pandemic outcomes are accounted for – which include the pre-pandemic propensity to work from home in the occupation they were engaged in – (the disparity in the likelihood of wfh increases in favour of women, indicating that some of these differences are likely to stem from inequalities existing prior to the pandemic rather than being driven entirely by it.

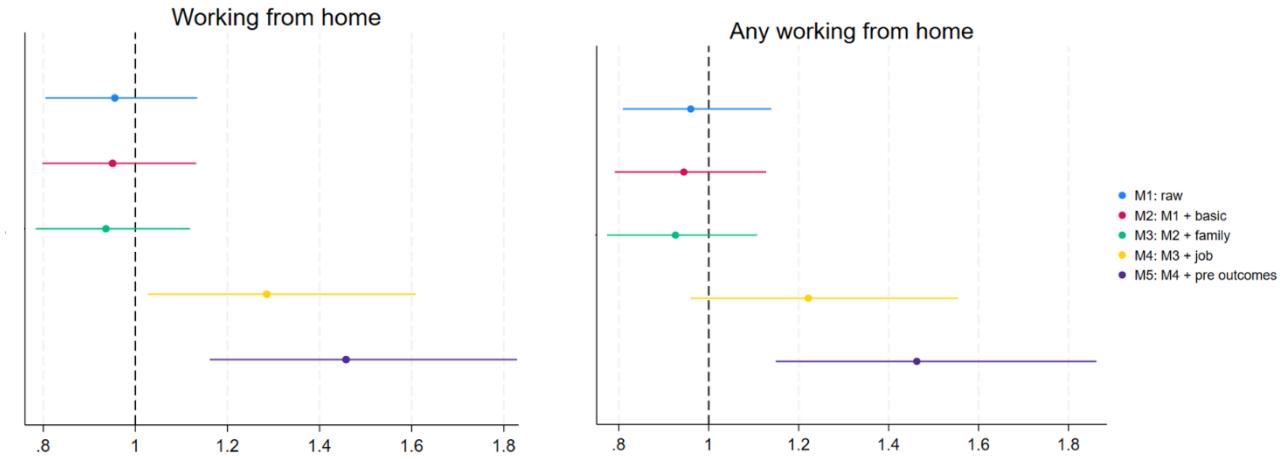


Figure 2: Female odds of working from home across adjustment levels

Note: The estimates and confidence intervals reflect exponentiated logit coefficients; ref: men

As shown in Appendix E, individuals who work from home tend to be younger (BCS70 and Next Steps cohorts), better educated, and higher earners. Additionally, they are more likely to reside in London. Conversely, having more children in the household, being a key worker, and working part-time are associated with a lower likelihood of working from home. These findings align with those reported in the United States (Hansen et al., 2023).

The probability of working from home is also strongly associated with occupation and tends to be higher in occupations associated with better jobs, as proxied by a higher SOC, except for those in health professions and protective services. Conversely, individuals in lower SOC classifications, which typically require less education or training, are generally less likely to work from home, apart from customer service roles.

4.2 How is working from home related to the gender pay gap?

Figure 3 displays the regression coefficients for different workers compared to men working on employers' premises, with log hourly pay as the outcome variable. Men working in either remote

arrangement earn more than those working exclusively on-site. However, the raw differences narrow when controlling for basic and family characteristics, and they are further attenuated once job characteristics are accounted for. Additionally, when pre-pandemic outcomes are included, the differences become only borderline significant for those exclusively wfh, suggesting that remote jobs are only marginally better paid after considering pre-existing inequalities. This indicates that the differences observed a year into the covid-19 pandemic largely reflect pre-existing gender inequalities.

Among women, those working on the employers' premises are the least well-paid, and are less well-paid than their male counterparts working on employers' premises, even when conditioning on pre-pandemic job characteristics. Although women working from home or hybrid earn slightly more than men working on employer premises, these differences are no longer significant when we condition on pre-pandemic earnings. As seen by the lack of overlap in confidence interval for the raw estimates, men who work from home or hybrid earn more than women working in equivalent locations. These differences remain statistically significance when accounting for the job characteristics but disappear when controlling for pre-pandemic pay.

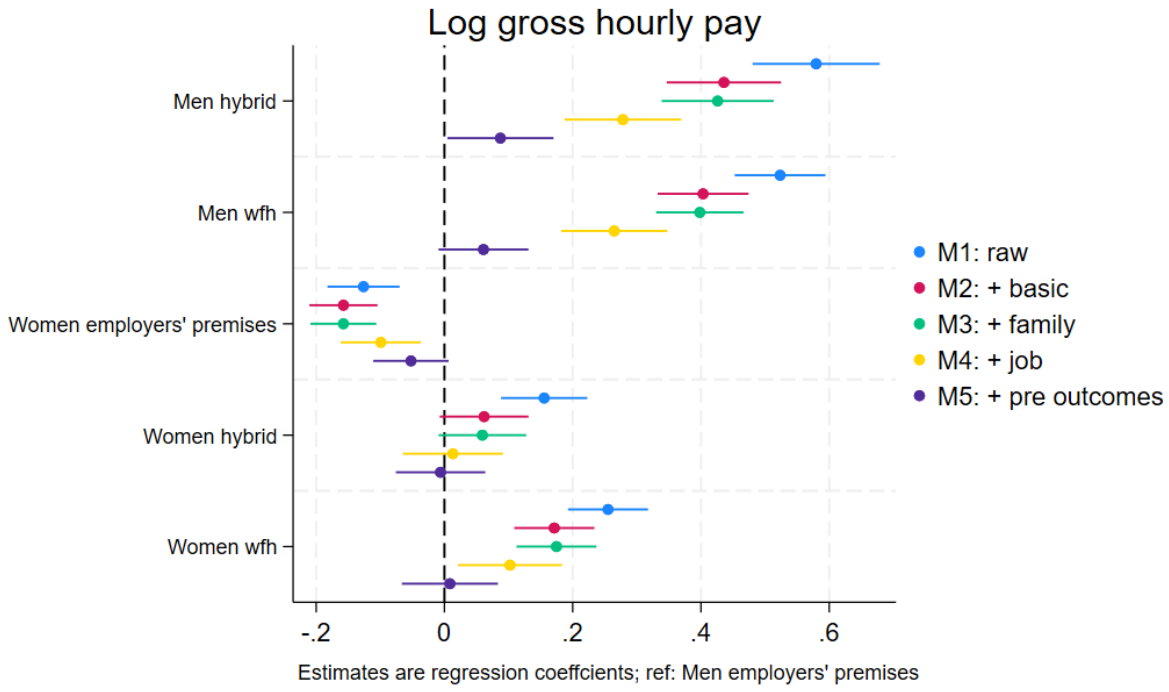


Figure 3: Log hourly pay coefficients and confidence intervals relative to men working on employer premises, March 2021

Figure 5 reruns the analyses for those at the bottom and top quintiles of the log hourly earnings distribution and reveals a different pattern. Among women, the pay penalty attached to working at the employer's premises is confined to those at the lower end of the wage distribution. Among men, there is a substantial pay premium for remote working, but this only remains statistically significant when conditioning on pre-pandemic earnings in the top quintile. This suggest that men who fully or partially work from home at the top of the earnings distribution were the most likely group to have benefited from the covid-19 pandemic, while women at the lower end of the distribution have been disproportionately disadvantaged by the consequences of the pandemic.

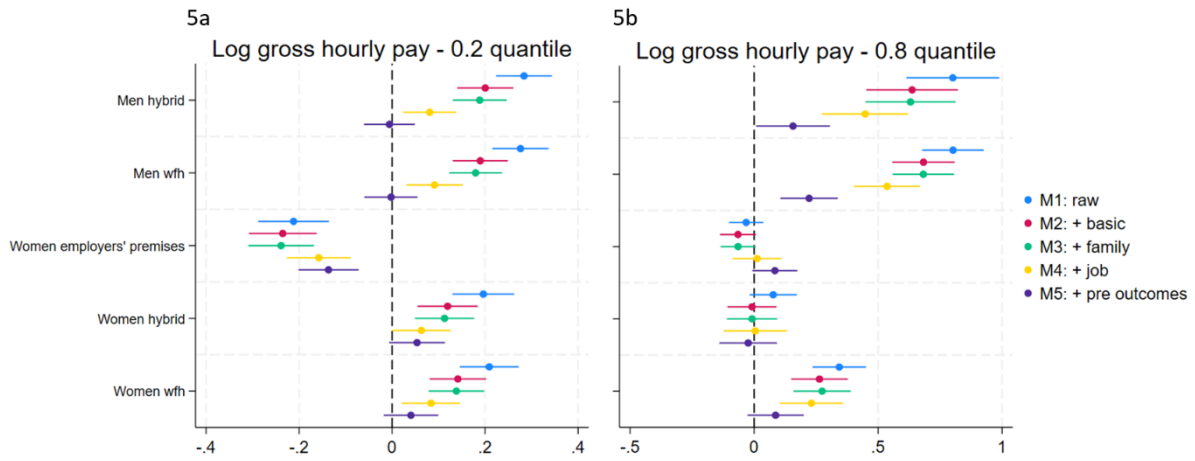


Figure 4: Log hourly pay coefficients and confidence intervals relative to men working on employer premises, March 2021

Note: estimates are regression coeffcients; ref: men employers' premises

4.3 How is working from home related to gender differences in mental health and well-being?

Figure 5 shows the coefficients for gender and work location for three wellbeing outcomes: life satisfaction, anxiety, and depression. Panel (a) reveals little difference in life satisfaction among men, regardless of where they work. In contrast, women generally reported lower life satisfaction compared to men, with this gap being particularly pronounced among those engaged in hybrid working.

Similarly, regarding anxiety, no significant differences are observed among men, while women tended to report higher levels of anxiety than men, particularly if in hybrid arrangements. Unlike life satisfaction, the differences in anxiety levels, although diminished when adjusting for job characteristics and pre-pandemic outcomes, remain statistically significant.

Women also appear to experience higher levels of depression than men, even after controlling for basic and family characteristics, though the confidence intervals are quite large. The significant differences between men working on-site and their female counterparts, as well as among women working exclusively from home disappear once job characteristics are considered. However, these differences remain significant in the full model for women engaged in hybrid work.

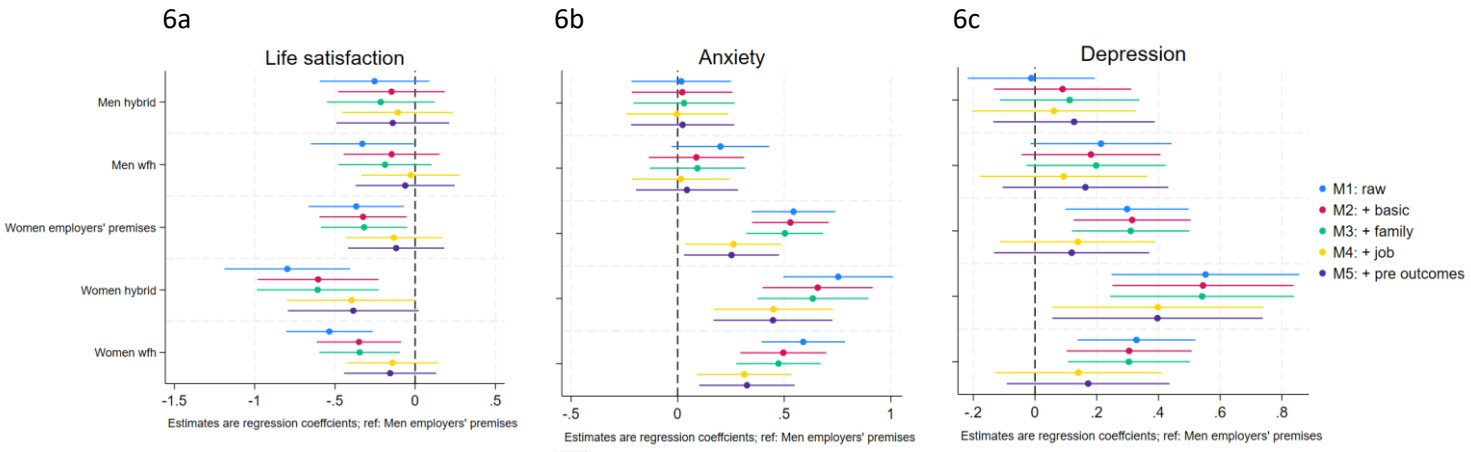


Figure 5: Wellbeing coefficients and confidence intervals relative to men working on employer premises, March 2021

5. Discussion and concluding remarks:

While there is a substantial body of literature on gender differences in working patterns, our study is the first in the UK to examine the implication of working from home following the pandemic. We have demonstrated that, after accounting for demographic and job-related characteristics, women who worked continuously during the first year of following the outbreak of covid-19 pandemic were more likely than men to work from home. This shift may have enabled women to work more hours per week, helping them maintain their labour market positions during periods of increased family demands and higher rates of furlough among women (Wielgoszewska et al., 2023). However, we also found that individuals with higher education and those in more prestigious jobs were more likely to wfh, while part-time workers and key workers were less likely to do so. This reflects not only occupational gender segregation but also challenges the common assumption that flexible working arrangements are more common amongst carers and inherently family-friendly. As discussed in Section 2.2, in line with Chung (2022), it suggests that performance-enhancing factors, rather than family-friendly ones, may better explain who works from home. To address these issues, initiatives aimed at challenging social norms around the ideal-worker model and flexibility stigma, as well as raising awareness of the efficiency gains associated with working from home, could help prevent further disadvantage for women. Additionally, shifting the debate on worker productivity away from hours worked could contribute to more equitable outcomes.

In terms of pay, our results show that women consistently earned less than men across all work locations, with the widest raw gaps observed among those who work remotely. While pre-pandemic pay and job characteristics largely account for this disparity, they do not fully explain it, suggesting that work location reflects pre-existing gender inequalities. Examining pay across the distribution reveals that accounting for pre-pandemic pay does not close the gaps for men working remotely at the top of the distribution, nor for women working on-site at the bottom. This aligns with findings from other studies (see for example Bonacini, Gallo, & Scicchitano, 2020) and indicates that higher-paid men were more likely to benefit from the shift toward remote work, while lower-paid women faced greater challenges. This trend raises concerns about increasing gender inequality. These findings provide further support for the theory of occupational segregation rather than compensating differentials. One way to address this issue would be to encourage less gender-stereotyping of employment by attracting more women to enter male-dominated fields and vice versa. However, doing so is only likely to be successful with enhanced government support for childcare provisions and changes in workplace culture, such as facilitate women's return to work after maternity leave.

Our findings regarding mental health and wellbeing lead to two important conclusions. Firstly, remote working may not effectively alleviate the conflicts arising from balancing work and home demands, a point also raised by Chung (2022). We observed some evidence consistent with the flexibility paradox, particularly among women engaged in hybrid work. Secondly, hybrid working does not necessarily occupy a middle ground between wfh and working on-site with respect to mental health outcomes. Although hybrid work is often considered advantageous, as it supposedly allows combining the benefits of both settings, such views tend to overlook the challenges faced by individuals with caregiving responsibilities.

While our analyses enhance understanding of the relationship between working from home and pay, as well as mental health and wellbeing, we cannot rule out the possibility that the patterns revealed by our results were influenced by other factors, such as social distancing measures still in place during our data collection. These measures disproportionately affected women compared to men

(Foliano et al., 2024) and, as discussed in Section 2.4, exacerbated existing gender disparities in mental health. Since these findings may not accurately reflect the post-pandemic reality, the relationships between flexible working, work-life balance, mental health, and wellbeing warrant further investigation in the post-pandemic context.

References

Adams-Prassl, A., Balgova, M., & Qian, M. (2020). Flexible work arrangements in low wage jobs: Evidence from job vacancy data.

Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2022). Work that can be done from home: Evidence on variation within and across occupations and industries. Labour Economics, 74, 102083.

Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Furloughing. Fiscal Studies, 41(3), 591-622.

Adler, M. A. (1993). Gender differences in job autonomy: The consequences of occupational segregation and authority position. Sociological Quarterly, 34(3), 449-465.

Aksoy, C. G., Barrero, J. M., Bloom, N., Davis, S. J., Dolls, M., & Zarate, P. (2023). Working from home around the globe: 2023 report. Retrieved from https://wfhresearch.com/wp-content/uploads/2023/06/GSWA-2023.pdf

Albanesi, S. (2023). The Outlook for Women's Employment and Labor Force Participation. Retrieved from https://www.nber.org/papers/w31916

Allen, J., Jenkins, D., & Howard, M. (2020). Crises collide: Capitalism, care, and COVID-19. Feminist Studies, 46(3), 583-595.

Alon, T., Coskun, S., Doepke, M., Koll, D., & Tertilt, M. (2022). From mancession to shecession: Women's employment in regular and pandemic recessions. NBER Macroeconomics Annual, 36(1), 83-151.

Anker, R. (1997). Theories of occupational segregation by sex: An overview. Int'l Lab. Rev., 136, 315.

Bamieh, O., & Ziegler, L. (2022). Are remote work options the new standard? Evidence from vacancy postings during the COVID-19 crisis. Labour Economics, 76, 102179.

Barrero, J. M., Bloom, N., & Davis, S. J. (2023). The evolution of work from home. Journal of Economic Perspectives, 37(4), 23-49.

Bartik, A. W., Cullen, Z. B., Glaeser, E. L., Luca, M., & Stanton, C. T. (2020). What jobs are being done at home during the COVID-19 crisis? Evidence from firm-level surveys. Retrieved from https://www.nber.org/papers/w27422

Beckel, J. L., & Fisher, G. G. (2022). Telework and worker health and well-being: A review and recommendations for research and practice. International Journal of Environmental Research and Public Health, 19(7), 3879.

Bellezza, S., Paharia, N., & Keinan, A. (2017). Conspicuous consumption of time: When busyness and lack of leisure time become a status symbol. Journal of Consumer Research, 44(1), 118-138.

Berdahl, J. L., Cooper, M., Glick, P., Livingston, R. W., & Williams, J. C. (2018). Work as a masculinity contest. Journal of Social Issues, 74(3), 422-448.

Berg, P., Kossek, E. E., Baird, M., & Block, R. N. (2013). Collective bargaining and public policy: Pathways to work-family policy adoption in Australia and the United States. European Management Journal, 31(5), 495-504.

Bick, A., Blandin, A., & Mertens, K. (2023). Work from home before and after the COVID-19 outbreak. American Economic Journal: Macroeconomics, 15(4), 1-39.

Blanchflower, D., & Bryson, A. (2024a). The female happiness paradox. Journal of Population Economics, 37(1), 1-27.

Blanchflower, D., & Bryson, A. (2024b). The gender well-being gap. Social Indicators Research, 1-45.

Blau, F. D., & Kahn, L. M. (2017). The gender wage gap: Extent, trends, and explanations. Journal of economic literature, 55(3), 789-865.

Blundell, R., Cribb, J., McNally, S., Warwick, R., & Xu, X. (2021). Inequalities in education, skills, and incomes in the UK: The implications of the COVID-19 pandemic. Institute for Fiscal Studies, 1-42.

Blundell, R., Dias, M. C., Goll, D., & Meghir, C. (2019). Wages, experience and training of women.

Bonacini, L., Gallo, G., & Scicchitano, S. (2020). All that glitters is not gold. Effects of working from home on income inequality at the time of COVID-19. Effects of Working from Home on Income Inequality at the Time of COVID-19 (May 8, 2020).

Brown, M., Fitzsimons, E., Goodman, A., Peters, A., Ploubidis, G., Sanchez, A., . . . Smith, K. (2024). COVID-19 survey in five national longitudinal studies: Waves 1, 2 and 3: User guide (version 4).

Chung, H. (2018). Dualization and the access to occupational family-friendly working-time arrangements across Europe. Social Policy & Administration, 52(2), 491-507.

Chung, H. (2019). 'Women's work penalty'in access to flexible working arrangements across Europe. European Journal of Industrial Relations, 25(1), 23-40.

Chung, H. (2022). The flexibility paradox: Why flexible working leads to (self-) exploitation: Policy Press.

Chung, H., & Van der Lippe, T. (2020). Flexible working, work–life balance, and gender equality: Introduction. Social Indicators Research, 151(2), 365-381.

Cook, R., Jones, L., & Connolly, S. (2021). Who can 'have it all'? Job quality and parenthood in the UK. Retrieved from https://www.kcl.ac.uk/assets/research/project-upload-2021/who-can-have-it-all-job-quality-and-parenthood-in-the-uk.pdf

Cooper, R., & Baird, M. (2015). Bringing the "right to request" flexible working arrangements to life: From policies to practices. Employee Relations, 37(5), 568-581.

Crawford, J. O., MacCalman, L., & Jackson, C. A. (2011). The health and well-being of remote and mobile workers. Occupational medicine, 61(6), 385-394.

Cristea, I. C., & Leonardi, P. M. (2019). Get noticed and die trying: Signals, sacrifice, and the production of face time in distributed work. Organization Science, 30(3), 552-572.

del Rio-Chanona, R. M., Mealy, P., Pichler, A., Lafond, F., & Farmer, J. D. (2020). Supply and demand shocks in the COVID-19 pandemic: An industry and occupation perspective. Oxford Review of Economic Policy, 36(Supplement_1), S94-S137.

Dex, S., & Smith, C. (2002). The nature and pattern of family-friendly employment policies in Britain (Vol. 5112): Policy Press.

Dingel, J. I., & Neiman, B. (2020). How many jobs can be done at home? Journal of public economics, 189, 104235.

Foliano, F., Tonei, V., & Sevilla, A. (2024). Social restrictions, leisure and well-being. Labour Economics, 87, 102485.

Gifford, J. (2022). Remote working: unprecedented increase and a developing research agenda. In (Vol. 25, pp. 105-113): Taylor & Francis.

Glass, J. L., & Noonan, M. C. (2016). Telecommuting and earnings trajectories among American women and men 1989–2008. Social Forces, 95(1), 217-250.

Glauber, R. (2011). Limited access: Gender, occupational composition, and flexible work scheduling. The Sociological Quarterly, 52(3), 472-494.

Glauber, R. (2012). Women's work and working conditions: Are mothers compensated for lost wages? Work and occupations, 39(2), 115-138.

Golden, L. (2001). Flexible work schedules: Which workers get them? American Behavioral Scientist, 44(7), 1157-1178.

Goldin, C. (2014). A grand gender convergence: Its last chapter. American economic review, 104(4), 1091-1119.

Goldin, C., & Katz, L. F. (2011). The cost of workplace flexibility for high-powered professionals. The ANNALS of the American Academy of Political and Social Science, 638(1), 45-67.

Hall, C. E., Brooks, S. K., Mills, F., Greenberg, N., & Weston, D. (2024). Experiences of working from home: umbrella review. Journal of Occupational Health, 66(1), uiad013.

Hammer, L. B., Kossek, E. E., Yragui, N. L., Bodner, T. E., & Hanson, G. C. (2009). Development and validation of a multidimensional measure of family supportive supervisor behaviors (FSSB). Journal of management, 35(4), 837-856.

Hansen, S., Lambert, P. J., Bloom, N., Davis, S. J., Sadun, R., & Taska, B. (2023). Remote work across jobs, companies, and space. Retrieved from https://www.nber.org/papers/w31007

Ibarra, H., Gillard, J., & Chamorro-Premuzic, T. (2020). Why WFH isn't necessarily good for women. Harvard Business Review, 7.

Johnson, A., Dey, S., Nguyen, H., Groth, M., Joyce, S., Tan, L., . . . Harvey, S. B. (2020). A review and agenda for examining how technology-driven changes at work will impact workplace mental health and employee well-being. Australian Journal of Management, 45(3), 402-424.

Kelly, E. L., Ammons, S. K., Chermack, K., & Moen, P. (2010). Gendered challenge, gendered response: Confronting the ideal worker norm in a white-collar organization. Gender & society, 24(3), 281-303.

Kristal, T., & Yaish, M. (2020). Does the coronavirus pandemic level the gender inequality curve?(It doesn't). Research in Social Stratification and Mobility, 68, 100520.

Le Barbanchon, T., Rathelot, R., & Roulet, A. (2021). Gender differences in job search: Trading off commute against wage. The Quarterly Journal of Economics, 136(1), 381-426.

Lewis, J., Knijn, T., Martin, C., & Ostner, I. (2008). Patterns of development in work/family reconciliation policies for parents in France, Germany, the Netherlands, and the UK in the 2000s. Social Politics, 15(3), 261-286.

Liu, W., Xu, Y., & Ma, D. (2021). Work-related mental health under COVID-19 restrictions: a mini literature review. Frontiers in public health, 9, 788370.

Lunde, L.-K., Fløvik, L., Christensen, J. O., Johannessen, H. A., Finne, L. B., Jørgensen, I. L., . . . Vleeshouwers, J. (2022). The relationship between telework from home and employee health: a systematic review. BMC public health, 22(1), 47.

Mas, A., & Pallais, A. (2017). Valuing alternative work arrangements. American economic review, 107(12), 3722-3759.

Mongey, S., Pilossoph, L., & Weinberg, A. (2021). Which workers bear the burden of social distancing? The Journal of Economic Inequality, 19(3), 509-526.

Moreno-Agostino, D., Fisher, H. L., Hatch, S. L., Morgan, C., Ploubidis, G. B., & Das-Munshi, J. (2023). Generational, sex, and socioeconomic inequalities in mental and social wellbeing during the COVID-19 pandemic: prospective longitudinal observational study of five UK cohorts. Psychological Medicine, 53(13), 6403-6414.

Neuburger, J., Joshi, H., & Dex, S. (2011). Part-time working and pay amongst Millennium Cohort Study mothers. Retrieved from https://www.researchgate.net/profile/Shirley-Dex/publication/265881129_Part-time_working_and_pay_amongst_Millennium_Cohort_Study_mothers/links/55e5dccf08aecb1a7ccd5e36/Part-time-working-and-pay-amongst-Millennium-Cohort-Study-mothers.pdf

Novoa, C., Cova, F., Nazar, G., Oliva, K., & Vergara-Barra, P. (2022). Intensive parenting: the risks of overdemanding. Trends in Psychology, 1-14.

Oakman, J., Kinsman, N., Stuckey, R., Graham, M., & Weale, V. (2020). A rapid review of mental and physical health effects of working at home: how do we optimise health? BMC public health, 20, 1-13.

Ozimek, A. (2020). The future of remote work. Available at SSRN 3638597.

Patel, K., Robertson, E., Kwong, A. S., Griffith, G. J., Willan, K., Green, M. J., . . . Thompson, E. J. (2022). Psychological distress before and during the COVID-19 pandemic among adults in the United Kingdom based on coordinated analyses of 11 longitudinal studies. JAMA Network open, 5(4), e227629-e227629.

Price, B. M., & Wasserman, M. (2024). The summer drop in female employment. Review of Economics and Statistics, 1-46.

Ramani, A., & Bloom, N. (2021). The Donut effect of COVID-19 on cities. Retrieved from https://www.nber.org/system/files/working_papers/w28876/w28876.pdf

Rios Avila, F. (2019). Recentered influence functions in Stata: Methods for analyzing the determinants of poverty and inequality. Levy Economics Institute, Working Paper, 927.

Rosen, S. (1986). The theory of equalizing differences. Handbook of Labor Economics, 1.

Seeleib-Kaiser, M., & Fleckenstein, T. (2009). The political economy of occupational family policies: Comparing workplaces in Britain and Germany. British Journal of Industrial Relations, 47(4), 741-764.

Shiri, R., Turunen, J., Kausto, J., Leino-Arjas, P., Varje, P., Väänänen, A., & Ervasti, J. (2022). The effect of employee-oriented flexible work on mental health: a systematic review. Paper presented at the Healthcare.

Skinner, N., & Pocock, B. (2011). Flexibility and work-life interference in Australia. Journal of Industrial Relations, 53(1), 65-82.

Smithson, J., Lewis, S., Cooper, C., & Dyer, J. (2004). Flexible working and the gender pay gap in the accountancy profession. Work, employment and society, 18(1), 115-135.

TUC. (2021). Denied and Discriminated against Retrieved from https://www.tuc.org.uk/research-analysis/reports/denied-and-discriminated-against

Unison. (2024). Women in the UK's public services repeatedly denied flexible-work requests. Retrieved from https://www.unison.org.uk/news/2024/02/women-in-the-uks-public-services-repeatedly-denied-flexible-work-requests/

University College London, UCL Institute of Education, Centre for Longitudinal Studies. (2024). *COVID-19 Survey in Five National Longitudinal Cohort Studies: Millennium Cohort Study, Next Steps, 1970 British Cohort Study and 1958 National Child Development Study, 2020-2021*. [data collection]. *4th Edition.* UK Data Service. SN: 8658, DOI: http://doi.org/10.5255/UKDA-SN-8658-4

University of London, Institute of Education, Centre for Longitudinal Studies. (2024). National Child Development Study: Age 50, Sweep 8, "Imagine You are 60", 2008-2009:. [data collection]. UK Data Service. SN: 6978, DOI: http://doi.org/10.5255/UKDA-SN-6978-1

University of London, Institute of Education, Centre for Longitudinal Studies. (2024). 1970 British Cohort Study: Age 46, Sweep 10, 2016-2018. [data collection]. 2nd Edition. UK Data Service. SN: 8547, DOI: http://doi.org/10.5255/UKDA-SN-8547-2

University College London, UCL Institute of Education, Centre for Longitudinal Studies. (2024). Next Steps: Sweeps 1-9, 2004-2023. [data collection]. 17th Edition. UK Data Service. SN: 5545, DOI: http://doi.org/10.5255/UKDA-SN-5545-9

Vacchiano, M., Fernandez, G., & Schmutz, R. (2024). What's going on with teleworking? a scoping review of its effects on well-being. Plos one, 19(8), e0305567.

Warren, T., & Lyonette, C. (2020). Carrying the work burden of the COVID 19 pandemic: working class women in the UK. Retrieved from https://www.wbg.org.uk/wp-content/uploads/2021/05/final-report-working-class-women-and-covid.pdf

Wels, J., Wielgoszewska, B., Moltrecht, B., Booth, C., Green, M. J., Hamilton, O. K., . . . Zhu, J. (2023). Home working and social and mental wellbeing at different stages of the COVID-19 pandemic in the UK: Evidence from 7 longitudinal population surveys. PLoS Medicine, 20(4), e1004214.

Wielgoszewska, B., Booth, C., Green, M. J., Hamilton, O. K., & Wels, J. (2022). Association between home working and mental health by key worker status during the Covid-19 pandemic. Evidence from four British longitudinal studies. Industrial health, 60(4), 345-359.

Wielgoszewska, B., Bryson, A., Costa Dias, M., Foliano, F., Joshi, H., & Wilkinson, D. (2023). Exploring the reasons for labour market gender inequality a year into the COVID-19 pandemic: evidence from the UK cohort studies. Longitudinal and Life Course Studies, 14(2), 180-202.

Wiswall, M., & Zafar, B. (2018). Preference for the workplace, investment in human capital, and gender. The Quarterly Journal of Economics, 133(1), 457-507.