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Union Power?

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Abstract

This study assesses the effect of hybrid working on union membership. The investigation focuses on whether the provision of hybrid work arrangements at the workplace, in and of itself, exerts an influence on workplace social norms, or if its significance stems from individual experiences of hybrid working, or a combination of the two. The analysis is based on data from the UK Household Longitudinal Study (UKHLS) for the period between 2010 and early 2020, before the COVID-19 pandemic. The findings suggest that the provision of working from home arrangements have an adverse effect on union membership, irrespective of individuals' decision to work from home regularly or not. The effect is driven by the trade unions' inability both to recruit new members and to retain existing ones. A plausible pathway for this may be that hybrid working arrangements erode trade-union social customs at the workplace and weaken social unity, thus undermining trade-union's ability to organise the workforce.

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1. Introduction

A recent survey has found that employees in the UK spend an average of 1.5 days per week working from home, surpassing the international average of 0.9 days (Grant, 2023). The explosion in working from home though has mainly been triggered by the COVID-19 pandemic, it has brought about a shift in work dynamics which commentators expect to be long lasting and which leads to the adoption of hybrid work arrangements that combine remote work with on-site work. According to ONS data (2023), remote working has become considerably more prevalent compared to pre pandemic era. Hence, before 2019, around 12% of working adults in the UK reported partly working from home but by April to June 2020 nearly half of the working population (49%) reported partly working from home. Furthermore, a pattern of "hybrid working" has emerged, where individuals divide their work commitments between a traditional office setting and their working from home. Indeed, by early 2022, after the guidance to work remotely has been revoked, around 38 percent of working adults reported having worked from home. and in May 2023, 39 percent of workers in Great Britain reported as having worked from home at some point in the previous seven days. This indicates that remote work is resilient to pressures such as the end of COVID-19 restrictions and the subsequent economic burdens. Although surveys indicate that nearly 80% of employees report they are satisfied with remote working almost a quarter feel disconnected from their team. It appears that this state of affairs has implications for interpersonal interactions within workplaces leading to some form of worker alienation as workers spend a reduced time in social interaction with the co-workers including casual discussions related to work and the workplace.

In view of this one would expect that ability of the workers to voice their concerns through collective action would be impaired. The fundamental strength of trade unions hinges on employees feeling a sense of unity and shared interests. Trade unions have traditionally focused their efforts for the recruitment of their members, their organisation, and promotion of their aims in the physical workplace. (Wolf, 2010). Remote work can hinder the day-to-day work of trade unions in terms of advocacy and representation. This hesitance is rooted in the historical emphasis on workplace-oriented strategies for organizing. Physical presence in the workplace has been pivotal for building a norm of union membership, especially in workplaces where union representation is institutionalized (Visser, 2002). Hence, trade unions have viewed with some scepticism remote work even before the pandemic (Wolf, 2010) since remote work poses challenges to this sense of belonging and shared purpose.

The decision to join or remain in a trade union is founded on the workplace context. Theories in social psychology, for instance, emphasise that the perception of union utility is primarily formed within the confines of the workplace, where social identification plays a major role in determining individuals' willingness to participate in collective action (Kelly and Kelly 1994).

Similarly, social mobilization theory proposes that grievances and feelings of social injustice are deeply rooted in the employment relationship which manifests itself tangibly at workplace level (Kelly, 1998). Furthermore, union activity is dependent upon social interaction. For instance, in a union mobilisation campaign relies in urging union members to participate in on-site conflicts, resulting in workers socially identifying with the union and enhancing collective attitudes and behaviours. Workers' involvement in a union struggle transforms the rank and file by developing a collective consciousness (Klandermans, 1984; Voss and Sherman, 2000) and efforts to counter free-riding, where non-union members benefit from union efforts without contributing, involves fostering peer pressure at the workplace (Olson, 1965). In addition, the "experience good" theory suggests that personal recommendations from colleagues, especially after individuals gain a working understanding of the labour market and of the tangible and intangible benefits that trade unions can offer, play a pivotal role in stimulating unionization (Gomez and Gunderson, 2004; Vandaele, 2018).

The above observations are incorporated and further developed into the social custom theory of union membership that suggest the establishment of a behavioural norm for the union membership. Adherence to the union norm is driven by reputation effects. Once the socially accepted norm is established and upheld by the trade union members, deviation from it could have reputational repercussions even for non-union members, similar to the shaming of free-riders (Akerlof, 1980; Booth, 1985; Naylor 1989, 1990; Visser, 2002). The strength of such norms is heavily reliant on place-specific relationships, such as face-to-face organisation and workplace representation at the company level.

Furthermore, Wilkinson et al., 2020 propose that employees use methods to voice their concerns and interests to employers aiming at influencing organisational matters related to work conditions and related issues. Kochan & Osterman, 1994 maintained that voice is predominantly a collective activity exercised through representative forms and negotiated rules, with unions serving as a key vehicle for employee participation in decision-making. In view of this it should be expected that workplace, onsite social interactions help to determine and shape the manifestation of collective voice on various employment issues. Indeed, examining the influence of onsite union representatives, Freeman and Medoff (1984) suggests that when unions communicate the concerns of their members on job quality issues, it does draw management attention a phenomenon heightened by the presence of onsite representatives (Wood, 2008; Bryson and Forth, 2010).

The surge in remote work weakens existing social bonds among the unionised workers and the strength of the relationship between the workers and the institutions of workplace representation. These state of affairs collectively erode the union norms and the expression of a collective voice. Importantly, the proliferation of remote work hinders the establishment of a union norm and the manifestation of collective voice among new recruits and especially young, workers, thereby contributing to an environment conducive to free riding. Remote work offers far fewer opportunities to workers to face to face interaction in shared physical spaces within the working environment, which are pivotal for cultivating trust and solidarity essential for union effectiveness and possible collective action when need arises. Consequently, remote work poses challenges to existing union norms and obstructs the creation of new norms.

In conclusion, the rise of remote work challenges the traditional practices of trade unions on physical workplaces. Hybrid working arrangements weaken existing relationships, hamper the development of new ones, and pose obstacles to building and sustaining norm of behaviour for the union rank and file. As the nature of work evolves towards more remote work, trade unions should be expected to progressively face challenges to remain effective in representing and advocating for workers' interests in the landscape shaped by remote work.

This study assesses the effect of working from home on union membership. The investigation focuses on whether the provision of hybrid work arrangements at the workplace affects individuals' decision to be a member of a trade union. The study differentiates between cases where workers use this option and work from home and cases where individuals continue to work on-site. The aim is to investigate whether remote work, in and of itself, exerts an influence on workplace social norms, or if its significance stems from individual experiences of remote work, or it is a combination of the two. The analysis is based on data from the UK Household Longitudinal Study (UKHLS) for the period between 2010 and early 2020, before the COVID-19 pandemic. The findings suggest that the provision of working from home arrangements have an adverse effect on union membership, irrespective of individuals' decision to regularly work from home or not. The effect is driven by the trade unions' inability both to recruit new members and to retain existing ones. A plausible pathway for this may be that hybrid working arrangements undermine trade-union social customs at the workplace and weaken social unity, thus reducing trade-union's ability to organise and recruit new workers.

2. Framework

The aim of this study is to explore whether hybrid or remote working arrangements affect individuals' decision to join a trade union. Specifically, the aim is to investigate whether the availability of working from home arrangements undermines the trade union social customs and thus leads to a decline in union membership, or whether it is the individuals' experience of working from home that discourages people from becoming members of a trade union, or a combination of both.

The first step is to investigate the impact of working in a workplace that offers the option of working from home (hybrid working) on union membership, notwithstanding the individuals' choice to do so or not. Hence the following regression is estimated:

$$union\ member_{it} = x'_{it}\gamma + \beta_1 WFH_{it} + \delta_t + \alpha_i + \varepsilon_{it} \quad (1)$$

The dependent variable, $union\ member_{it}$, represents whether individual i is a member of a trade union at period t ; the vector x includes controls for individual demographic characteristics, work-related characteristics, and regional fixed effects. WFH_{it} captures whether the option of working from home on a regular basis is available at the workplace. δ_t is the time fixed effect, α_i captures unobserved heterogeneity amongst the individuals, and ε_{it} represent the idiosyncratic disturbances.

Further, in order, to explore whether the role of the individual's experience of working from home matters, a distinction between cases where working from home is available but the individual does not use this option ($WFHno_{it}$), and cases where the individual uses this option

and works partly from home, ($WFHyes_{it}$) is made. Thus, equation (1) is extended to the following:

$$union\ member_{it} = x'_{it}\gamma + \theta_1 WFHno_{it} + \theta_2 WFHyes_{it} + \delta_t + \alpha_i + \varepsilon_{it} \quad (2)$$

The estimation of equations (1) and (2) presents a key methodological challenge¹. There is a potential issue of endogeneity bias in estimating the parameters of interest, β_1 in equation (1) and θ_1, θ_2 in equation (2). This arises from the presence of unobservable individual characteristics (α_i) that could impact not only the individual's decision to join a trade union but also their selection of a workplace offering hybrid working arrangements, as well as their choice to engage in hybrid work. To address this issue, the instrumental variables estimation is employed. A detailed discussion on the selection of instruments is provided in Section 4.

3. Data

The empirical investigation draws upon the UK Household Longitudinal Study (UKHLS). This survey collects data from around 40,000 households across England, Scotland, Wales, and Northern Ireland. This extensive panel survey tracks the trajectory of all household members over time, recording departures and newcomers from 2009. The study is repeated annually offering valuable information into various socio-economic facets and attitudes of the participants. The data are publicly available from the UK Data Service.

Information on flexible working arrangements is available in Wave 2 and subsequently in alternate waves. The study excludes Wave 12 since this covers a period of time during the Covid-19 pandemic, where working from home has been more prevalent due to lockdown restrictions and government guidance to work from home when feasible. This has led to a sample spanning 5 waves: 2, 4, 6, 8, and 10, covering January the period from 2010 to March 2020².

The sample used in this paper is restricted to working individuals aged 18-65, both full-time and part-time, excluding those who are self-employed. Additionally, individuals in the armed forces, agricultural, hunting, extraction, mining, or related fields have been omitted from the analysis for obvious reasons. These criteria yield a sample size of 33,905 observations.

UKHLS participants who are in paid employment are asked whether they have the option to work from home (WFH) on a regular basis at the workplace. If such option is available, then they are asked whether they work this way, i.e. whether they regularly work from home. The information on these two key variables of interest is provided in Table 1. Around 19% of the individuals reported that they have the option to work from home. Out of those individuals, 34% use this option and work from home on a regular basis.

¹ Since the analysis is confined to unionised workplaces only, endogenous sample selection may be another methodological issue. Nevertheless, the findings remain consistent even after addressing for potential sample selection bias. Therefore, for presentational reasons, we opt not to include these robustness estimates in the paper.

² The data cover the period up to 23 March 2020, when the Prime Minister announced the first national lockdown in the UK.

Table 1: Hybrid working, availability and use

	WFH option not available	WFH option available
Not working from home	27,434	4,268
Regularly working from home	0	2,203
Total	27,434	6,471

Notes: Authors' calculations based on UKHLS.

Hybrid working arrangements traditionally have been more common in the non-unionised sector. Over the period 2010-2019 a higher fraction of individuals report as been employed in a workplace that offers opportunities to regularly work from home when a trade-union is not present (Figure 1)³. However, this pattern is not consistent over time, as there are years where the difference between the two sectors is not statistically significant. Furthermore, the rate of adoption of hybrid work arrangements appears to increase over time, both in non-unionised and unionised workplaces, although the increase is more evident in the unionised sector. As a result, by 2019 before the pandemic, the gap between the two sectors is bridged.

Figure 1: Working from home option available

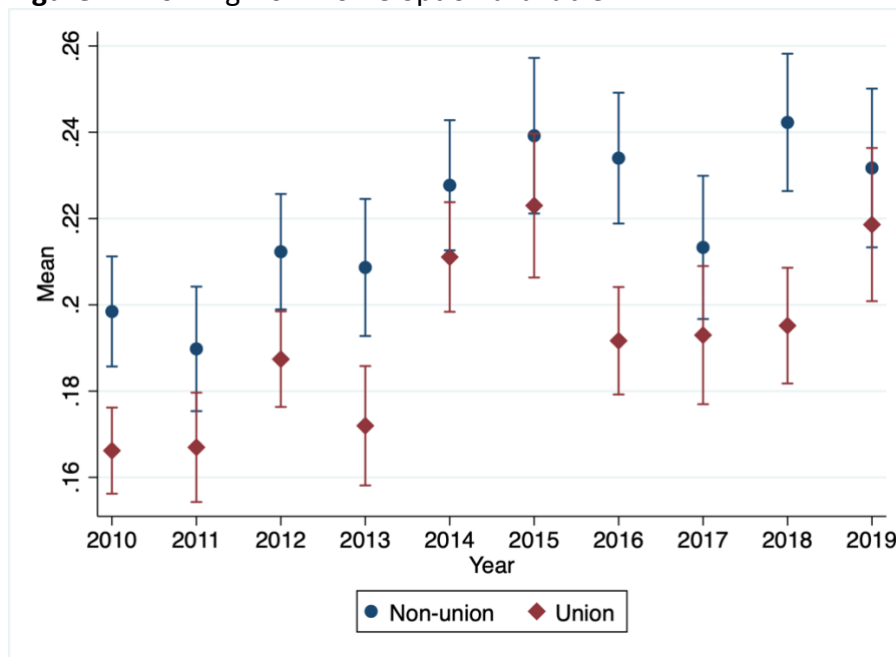
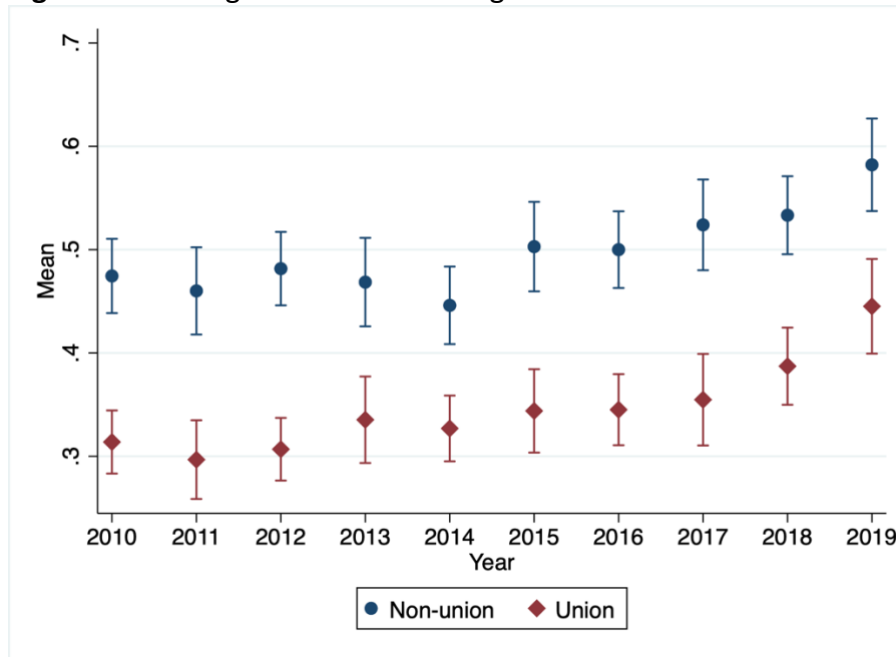


Figure 2 shows that in workplaces that offer the option of remote working, a significant number of individuals have adopted this work practice, with the trend exhibiting an upward trajectory. Employees within the non-unionised sector have demonstrated a higher propensity for remote work compared to their counterparts in the unionised sector. Although both groups have experienced a progressive rise in remote work adoption, the growth has been more pronounced among the latter. Nevertheless, as of 2019, the differences between the two sectors still persist.

³ Figure 1 does not include data from 2020 since there are very few observations in UKHLS for the period prior to beginning of the COVID19 pandemic.

Figure 2: Working from home on a regular basis



Focusing on the sample used in the analysis, Table 2 provides descriptive statistics on key variables. Given that the analysis focuses exclusively on workers employed in unionised firms, only one-third of the firms turn out to be private. In addition, the majority of workers are employed in permanent contracts, they are working full-time, and around 60 percent of the sample are members of the trade union that operates in their workplace. The Table highlights important differences in the composition of the workforce depending on whether there is provision of working from home arrangements or not. Specifically, in workplaces that do not offer the option to work from home there is a larger share of female employees, people working in the private sector, on permanent contracts, working part-time and being union members, compared to workplaces that offer such arrangements. Finally, although statistically significant, the age difference between the two groups is marginal.

Table 2: Descriptive Statistics

Variable	All	WFH available	WFH not available	$\mu_{WFH} - \mu_{NWFH}$
Female	0.643	0.542	0.667	***
Age	43.229	43.480	43.170	**
Private firm	0.329	0.301	0.336	***
Permanent job	0.950	0.943	0.952	***
Full-time job	0.766	0.893	0.736	***
Union member	0.589	0.477	0.615	***
Obs	33,905	6,471	27,434	

Notes: Level of statistical significance at 1%, 5% and 10% is denoted by ***, ** and *, respectively.

4. Working from home and union membership

The empirical strategy is based on the estimation of equations (1) and (2). The outcome variable, union membership, is a binary variable that takes the value 1 if the individual is a member of the workplace trade-union and zero otherwise, and the analysis is restricted to individuals employed in workplaces where there is a trade union recognised as eligible to negotiate pay and work conditions. The key variable of interest in equation (1) is a binary indicator for the availability at the place of work the facility for the worker to regularly work from home. In equation (2), two binary indicators are used and make a distinction between cases where this option is available, but the individual does not use this option hence the worker works on-site and cases where the individual uses the work-from-home option. All the estimated equations include controls for individual characteristics, such as gender, age, marital status, number of children under the age of 14 in the household, and education. In addition, there are controls for work-related characteristics such as hourly pay, firm size, private sector, permanent contract, full-time job, occupation and industry. Finally, regional fixed effects and time fixed effects are included.

The study uses linear⁴ regression models and linear probability models, where the probability of an employee being a member of a trade union is estimated. To address the potential endogeneity bias due to unobserved individual heterogeneity, we employ a 2SLS instrumental variables estimator. The instrumental variables selected are the *average prevalence of working from home arrangements* and the *average incidence of individuals working from home*. They are both calculated at an aggregate level, by occupation, industry and year (survey wave), separately for the private and public sector. In all estimated models, the instruments satisfy the test of weak instruments and of overidentification. In addition, the endogeneity test always rejects the null hypothesis of exogeneity.

The estimated coefficients of interest from equations (1) and (2) are presented in Table 3. The estimates from equation (1) (Column (1)), reveal that individuals employed in workplaces that offer the option to regularly work from home are less likely to be members of the workplace trade union. Specifically, the probability of becoming a member of the workplace trade union is reduced by almost 35 percentage points. In equation (2), a distinction is made between using the option of working from home or not (Column (2)). The estimated coefficients are very similar in magnitude and there is no statistically significant difference between them⁵.

The above findings suggest that the introduction of remote work arrangements has negative impact on union membership, irrespective of individuals' choice to work remotely or not. This suggests that hybrid working practices reduce the willingness of workers to join the union and/or of existing members to remain in the trade union, a crucial factor that influences the trade unions' capacity to effectively mobilise and attract new members. This should be

⁴ An initial comparison between OLS (linear) and Probit (non-linear) estimates, before addressing the issues of endogeneity and sample selection, showed that our results are almost identical both in terms of magnitude and statistical significance. However, the estimation of marginal effects in non-linear models is computationally more demanding. This is particularly true for the extended regression models we estimate here, where we address both the endogeneity and sample selection bias issues. For this reason, our analysis is based on linear regression models.

⁵ T-test does not reject the null hypothesis of equality between the two coefficients even at the 1% level.

expected to not only negatively affect the established trade union norms within the workplace but also to diminish the solidarity among workers.

Table 3: Union membership and working from home

	(1)	(2)
WFH available	-0.347*** (0.017)	
WFH available, but not working from home		-0.337*** (0.021)
WFH available, and working from home		-0.369*** (0.032)
N	33905	33905
Weak IV test (Kleibergen-Paap, F statistic)	3734.795	1549.050
Overidentification test (Hansen J statistic, p-value)	0.416	-
Endogeneity test (p-value)	0.000	0.000

Notes: All models include controls for demographic individual characteristic, work-related characteristics, regional and time fixed effects. Heteroskedasticity robust standard errors are reported in parentheses. Level of statistical significance at 1%, 5% and 10% is denoted by ***, ** and *, respectively.

To test the robustness of the estimates and assess the persistence of this effect, estimation is repeated focusing on the prevalence of hybrid work arrangements and the extent of their adoption by individuals from two years prior, and how these factors impact union membership. The estimates are presented in Table 4. In the estimates presented in Columns (1) and (2) the focus is on working from home at period $t-2$ regardless to whether people have been in the same job or not. In Columns (3) and (4) the analysis is repeated, by restricting the sample to those who have remained in the same job between the two periods of time. The estimates both in magnitude and statistical significance are consistent with the earlier results. Individuals who, two years earlier, are employed in workplaces that offer the option to regularly work from home, are 35 percentage points⁶ less likely to be members of a trade union after two years. This suggests that hybrid work practices have persistent deleterious effects on union membership. Consistent with earlier results, there are no statistically significant differences between those who use the option to work from home and those who work on-site although they also have the option for hybrid work. The results are also confirmed when focusing only on those who have been in the same job on both periods (Columns (3) and (4)).

⁶ The analysis is repeated this time restricting the sample to individuals who are employed in the same job two year earlier. The sample size is further reduced, but the estimated effects remain fairly comparable (around 30 percentage points reduction in the probability of joining a trade union) to those presented in Table 6.

Table 4: Union membership and working from home (lagged effect at t-2)

	(1)	(2)	(3)	(4)
WFH available $_{(t-2)}$	-0.360*** (0.024)		-0.317*** (0.030)	
WFH available, but not working from home $_{(t-2)}$		-0.349*** (0.030)		-0.312*** (0.037)
WFH available, and working from home $_{(t-2)}$		-0.381*** (0.046)		-0.325*** (0.054)
N	17570	17570	12485	12485
Weak IV test (F statistic)	1770.773	770.443	1193.665	640.485
Overidentification test (p-value)	0.572	-	0.844	-
Endogeneity test (p-value)	0.000	0.000	0.000	0.000

Notes: All models include controls for demographic individual characteristic, work-related characteristics, regional and time fixed effects. The sample in columns (3) (4) is restricted to individuals who remained in the same job at periods $t-2$ and t . Heteroskedasticity robust standard errors are reported in parentheses. Level of statistical significance at 1%, 5% and 10% is denoted by ***, ** and *, respectively.

Hybrid work is not applicable for all types of jobs. Indeed, remote working that combines on-site and work from home is more prevalent in white-collar jobs, compared to blue-collar jobs which offer are very limited opportunities for remote work. This is revealed from the summary statistics in Table 5. It is shown that 26% of white-collar workers have the option to work from home, whereas only around 4% of the blue-collar workers have such an option. Furthermore, the adoption of this work pattern is significantly higher for white collar workers. Over one third of them chose to work regularly from home compared to less than a quarter of blue collar workers.

Table 5: Working from Home (White Collar vs Blue Collar)

	All	White-collar	Blue-collar	$\mu_{White} - \mu_{Blue}$
WFH available	0.191 (0.002)	0.261 (.003)	0.043 (0.002)	0.218***
WFH available, and working from home	0.340 (0.006)	0.349 (0.006)	0.228 (0.019)	0.121***

Notes: Authors' calculations based on UKHLS sample used in the empirical analysis (unionised workplaces only).

In view of the above disparity, it is important to distinguish between white-collar and blue-collar jobs. This distinction is essential for evaluating whether the established relationships primarily stem mainly from white collar workers or whether both white and blue collar workforce exhibit the same behaviour. To investigate this the sample is disaggregated into white and blue-collar jobs and the earlier statistical procedure is repeated for each of the segments and, further separately for men and women. The results are presented in Table 6.

In the top panel of Table 6 (Columns 1 and 2) the results on white-collar workers are presented which are essentially a replication of the main estimates from Table 3. The availability of working from home reduces the probability of joining a trade union by 35 percentage points. In line with the earlier findings if remote work arrangements are offered within the workplace,

this has a significant impact in the probability of white-collar workers joining the trade union irrespective to whether the worker utilise this facility of the remote work. Similar patterns are observed for both male and female workers, although the magnitude of the estimated effects is larger in the case of female employees.

Table 6: Union membership and working from home - White Collar vs Blue Collar workers

All	White Collar		Blue Collar	
	(1)	(2)	(3)	(4)
WFH available	-0.353*** (0.019)		-0.072 (0.053)	
WFH available, but not working from home		-0.356*** (0.023)		-0.051 (0.060)
WFH available, and working from home		-0.347*** (0.034)		-0.139 (0.107)
N	22976	22976	10929	10929
Weak IV test (F statistic)	3043.929	1345.832	596.257	366.980
Overidentification test (p-value)	0.830	-	0.475	-
Endogeneity test (p-value)	0.000	0.000	0.364	0.613
Male	(1)	(2)	(3)	(4)
WFH available	-0.292*** (0.030)		-0.152*** (0.062)	
WFH available, but not working from home		-0.302*** (0.036)		-0.117* (0.070)
WFH available, and working from home		-0.276*** (0.045)		-0.262** (0.128)
N	7660	7660	4436	4436
Weak IV test (F statistic)	1211.658	771.464	390.145	289.591
Overidentification test (p-value)	0.632	-	0.328	-
Endogeneity test (p-value)	0.000	0.000	0.045	0.118
Female	(1)	(2)	(3)	(4)
WFH available	-0.376*** (0.024)		0.134 (0.091)	
WFH available, but not working from home		-0.367*** (0.031)		0.141 (0.100)
WFH available, and working from home		-0.398*** (0.053)		0.110 (0.177)
N	15316	15316	6493	6493
Weak IV test (F statistic)	1727.563	576.029	224.493	52.484
Overidentification test (p-value)	0.645	-	0.871	-
Endogeneity test (p-value)	0.000	0.000	0.111	0.275

Notes: All models include controls for demographic individual characteristic, work-related characteristics, regional and time fixed effects. Heteroskedasticity robust standard errors are reported in parentheses. Level of statistical significance at 1%, 5% and 10% is denoted by ***, ** and *, respectively.

The analysis on blue-collar workers sample (Table 6, Columns (3) and (4)) reveals similar patterns but only for male workers. The estimated effect of remote work arrangement on union membership is notably lower in magnitude compared to white-collar workers. Working from home arrangements reduce the probability of male blue-collar workers becoming members of a trade union by around 16 percentage points compared to workers in workplaces without remote working arrangements. In addition, when such hybrid work option is available, the difference in joining the union between individuals working from home and on-site, is not statistically significant. Union membership of female blue-collar workers is not found to be affected by working from home arrangements or the individuals' adoption of such work patterns.

5. Transitions in and out of a trade union

The analysis above highlights that in workplaces, where the option to work from home is available, union membership declines. To gain an insight into this phenomenon, this section investigates whether union membership decline is primarily caused by trade unions struggling to attract new members, to retain existing ones, or it is an outcome of a combination of both these factors. Thus, this section explores the change in workers' union membership status between two consecutive periods ($t-2$ and t). Table 7 provides an overview of these transition patterns. The analysis is based on a sample of 15839 individuals who are employed in two consecutive periods of time. As the data suggest, there is movement of workers in and out of a trade union. Notably, while 31 percent of individuals maintain their non-membership status in a trade union, 5 percent of workers opt to join one. Furthermore, approximately 59 percent of individuals who have been already members of a trade union continue to retain their membership, although slightly over 4 percent decide to leave the trade union.

Table 7: Union membership transitions (from period $t-2$ to t)

	Observations	Percentage
Remaining a non-member	4967	31.36
Becoming a union member (<i>recruitment</i>)	830	5.24
Stop being a union member (<i>attrition</i>)	680	4.29
Remaining a union member	9,362	59.11

Notes: Authors' calculations of transitions in and out of union membership.

To evaluate the impact of remote work arrangements on changes in union membership, the transitions in and out of trade unions is the focus of the analysis. Two statistical approaches are employed. First, the likelihood of recruiting new union members at period t , is assessed by focusing only on a sub-sample of individuals who at period $t-2$ are not members of a trade union. Similarly, to estimate attrition, the probability of leaving a trade union at period t , is assessed for individuals who are members of a trade union in period $t-2$. In both cases, the outcome variable, recruitment or attrition, is binary. The specifications used in estimating the above is the same as the one used in the analysis of the previous section, namely to explore the effects of workers having the option to work from home and using this option to regularly work from home. As with the empirical analysis above, linear probability models are employed controlling for potential endogeneity using the same set of instruments utilised as in the earlier regressions. The results are summarised in Table 8, with the first two columns focusing on the probability of joining a trade union, and the remaining two columns addressing the probability of leaving a trade union. The top panel of the Table assesses the

impact of current working from home arrangements (in period t), and the bottom panel explores the lagged effects, of working from home arrangements at $t-2$.

Table 8: Working from home and union membership (recruitment and attrition)

	Recruitment		Attrition	
	Not member _(t-2) to member _(t)	Member _(t-2) to not-member _(t)	Member _(t-2) to not-member _(t)	Member _(t-2) to not-member _(t)
	(1)	(2)	(3)	(4)
WFH available	-0.183*** (0.026)		0.075*** (0.018)	
WFH available, but not working from home		-0.172*** (0.029)		0.063*** (0.024)
WFH available, and working from home		-0.212*** (0.038)		0.096*** (0.038)
N	5797	5797	10042	10042
Weak IV test (F statistic)	751.928	301.855	982.583	432.322
Overidentification test (p-value)	0.313	-	0.512	-
Endogeneity test (p-value)	0.000	0.000	0.004	0.015
<i>Lagged effect (t-2)</i>				
WFH available _(t-2)	-0.166*** (0.029)		0.095*** (0.019)	
WFH available, but not working from home _(t-2)		-0.157*** (0.032)		0.106*** (0.026)
WFH available, and working from home _(t-2)		-0.190*** (0.050)		0.075*** (0.038)
N	5797	5797	10042	10042
Weak IV test (F statistic)	633.133	234.466	811.137	419.397
Overidentification test (p-value)	0.557	-	0.517	-
Endogeneity test (p-value)	0.000	0.000	0.000	0.000

Notes: All models include controls for demographic individual characteristic, work-related characteristics, regional and time fixed effects. Heteroskedasticity robust standard errors are reported in parentheses. Level of statistical significance at 1%, 5% and 10% is denoted by ***, ** and *, respectively.

The availability of working from home arrangements is found to have a significant 18.3 percentage point reduction in the probability of individuals joining a trade union (Column (1)). This pattern remains consistent when considering working from home arrangements at $t-2$. To further investigate this issue, whether the effect is driven by individuals who use this option and work from home on a regular basis is explored. The observed differences in the magnitude of the coefficients presented in Column 2 are not statistically significant, indicating that the effect is primarily workplace-driven and it is not dependent on individual experiences. This is also consistent with the findings when working from home patterns at $t-2$ is estimated.

Turning to the investigation of the transitions out of trade unions, the probability of leaving a trade union is estimated. The results indicate that individuals who have been union members

at $t-2$ are more likely to quit the trade union in period t when their workplace offers working from home arrangements. Specifically, the probability of leaving the trade union increases by 7.5 percentage points. Similar effects are observed when considering remote work in period $t-2$. As above, the study distinguishes between cases where the option to work from home is available but not used by individuals and cases where individuals do work from home (Column (4)). Although the corresponding coefficients vary in magnitude, these differences are not statistically significant. This holds true when exploring the effect of working from home both at period t and period $t-2$. In summary, the estimates suggest that the decline in union membership is influenced by reduced recruitment of new members and an increased attrition rate of existing members when workplaces offer working from home arrangements. This effect is consistent regardless of individuals' personal experiences.

As a robustness check, a multinomial Logit model⁷ is employed to re-evaluate the impact of working from home. This time, all four possible transition outcomes are examined, as detailed in Table 7. To mitigate potential endogeneity concerns, fitted values of the relevant working from home variables are used, which are estimated using the same set of instrumental variables as in the analysis above. Table 9 reports the estimated relative risk ratios (RRR) and associated standard errors, based on 1000 repetitions. The reference outcome category is whether the worker becomes a new union member. Similarly to the earlier approach used, the effects of both the availability of working from home and its utilisation by the individual worker, both in the current period and the preceding period ($t-2$) are investigated.

The results confirm the earlier findings. Specifically, the availability of working arrangements, whether in period t or $t-2$ (Columns (1) and (3) respectively) increases the likelihood of individuals either remaining non-members or quitting a trade union compared to becoming a union-member (around 4 times more likely). These patterns remain consistent when there is a distinction between the worker having the option and actually using the option to work from home (Columns (2) and (4)). In both cases, no statistically significant differences are exhibited, indicating that the effect is not contingent on individuals' personal experiences with working from home. Furthermore, working from home has no discernible impact on the likelihood of individuals remaining as union members compared to becoming new union members.

⁷ The Independence of Irrelevant Alternatives (IIA) is confirmed by the Hausman test in all estimated models.

Table 9: Working from home and union membership transitions

	Working from home arrangements at period t		Working from home arrangements at period t-2	
	(1)	(2)	(3)	(4)
Remaining a non-member				
WFH available	4.030*** (1.133)		3.746*** (1.103)	
WFH available, but not working from home		3.588*** (1.255)		3.387*** (1.327)
WFH available, and working from home		5.256*** (2.806)		4.792** (3.318)
Becoming a member (reference)				
Stop being a union member				
WFH available	2.439** (0.857)		2.866*** (1.025)	
WFH available, but not working from home		1.870 (0.820)		2.509** (1.160)
WFH available, and working from home		4.272** (2.883)		3.946* (3.269)
Remaining a union member				
WFH available	0.763 (0.209)		0.691 (0.202)	
WFH available, but not working from home		0.659 (0.231)		0.576 (0.223)
WFH available, and working from home		1.063 (0.582)		1.055 (0.736)
N	15839	15839	15839	15839

Notes: Multinomial logit estimates of relative risk ratios (RRR) with bootstrapped standard errors reported in parentheses, based on 1000 repetitions. All models include controls for demographic individual characteristic, work-related characteristics, regional and time fixed effects. Level of statistical significance at 1%, 5% and 10% is denoted by ***, ** and *, respectively.

6. Conclusion

This study examines the impact of working from home on union membership and sheds light on the impact of the surge in hybrid work arrangements on the social bonds among unionised workers and the relationship between workers and their workplace representation institutions. Specifically, it investigates whether the availability of hybrid work options in the workplace and individuals' own experience of hybrid working influences their decision to be a member of a trade union. The objective is to determine if remote work, on its own, affects workplace social norms or if its significance is influenced by individual remote work experiences or a combination of both factors. The analysis is based on data from the UK Household Longitudinal Study (UKHLS) spanning from 2010 to early 2020, predating the COVID-19 pandemic. The findings indicate that the provision of working from home options negatively affects union membership, regardless of whether individuals choose to work

remotely regularly or not. This adverse effect is attributed to the trade unions' struggle both to attract new members and retain existing ones. These findings imply that hybrid working arrangements erode trade-union social customs at the workplace and weaken social unity, thus undermining trade-union's ability to organise the workforce.

This research contributes to an understanding of the evolving dynamics between hybrid work and trade unions power. It highlights the challenges, posed by the changing nature of work arrangements. Trade unions would need to navigate through the changing environment in order to maintain their relevance and influence in the lives of their rank and file. As hybrid work progressively becomes a common form of employment arrangement, trade unions need to adapt and reconfigure their strategies to remain effective in representing the interests of workers. Trade unions must explore innovative ways to engage and mobilise workers, especially as hybrid work arrangements continue to shape the nature of employment environment and working conditions.

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