DISCUSSION PAPER SERIES

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Individual or Collective Payment Schemes?

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ABSTRACT

Working from Home and Performance Pay: Individual or Collective Payment Schemes?*

Working from home reduces real-time visibility of employees within the physical space of the workplace. This makes it difficult to monitor employees' work behavior. Employers may instead monitor employees' outputs and provide incentives through performance pay. The crucial question is what type of performance pay employers provide to incentivize employees who work from home. Using British panel data, we find that working from home decreases the likelihood of solely receiving individual performance pay. It increases the likelihood of receiving collective performance pay – with or without individual performance pay. This pattern also holds in instrumental variable estimations accounting for endogeneity. Our findings fit theoretical considerations. Working from home means that employees have less opportunities to socialize at work entailing the tendency that they focus on personal achievement and neglect collaboration. Solely rewarding individual performance may reinforce this tendency. By contrast, employers reward collective performance as it counteracts the adverse effects of working from home by providing incentives for collaboration, helping on the job and information sharing.

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1. Introduction

While the COVID-19 pandemic undoubtedly triggered a large and lasting shift to working from home (WFH), this type of flexible work arrangement has been rising for years even before the pandemic (Aksoy et al. 2022, Barrero et al. 2023, Felstead 2022, OECD 2020). WFH poses serious challenges to the human resource policy of firms. Since the advent of industrial capitalism, the process of managerial supervision has been rested upon the visibility and presence of employees within the workplace. WFH challenges visibility as employees are located in the private space. This makes it more difficult for managers to monitor employees' work behavior and gives rise to the question of how to provide incentives. Against this background, it has been suggested to place more emphasis on the output of WFH employees and provide incentives through performance pay (Felstead et al. 2003, Kawaguchi and Motegi 2021). While this suggestion has intuitive appeal, it is an open question as to what type of performance pay employers may use for WFH employees.

We address this question by examining whether WFH is associated with individual and/or collective performance pay. Our empirical analysis uses data from *Understanding Society*, a large and representative household panel survey for the United Kingdom. The analysis captures the years before the pandemic. Our results show that WFH employees are more likely to receive collective performance pay or a combination of collective and individual performance pay. However, WFH employees are less likely to receive individual performance pay in isolation. The results also hold in instrumental variable (IV) estimates accounting for the endogeneity of WFH.

The pattern of findings conforms to theoretical considerations. WFH tends to negatively affect collaboration and information sharing among employees. Solely

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rewarding individual performance appears to be counterproductive in this context. It reinforces the tendency to focus on personal achievement and neglect collaboration and corporate objectives. Thus, employers instead appear to use collective payment schemes such as team bonuses or profit sharing to remunerate WFH employees. Linking an employee's remuneration not only to their own performance, but also to the performance of other employees within the organization, provides incentives for mentoring, helping on the job and information sharing. It helps restore and sustain collaboration under WFH conditions. Of course, collective performance pay may suffer from a potential free-rider problem. To the extent this problem can be overcome, employers may solely use collective schemes to provide incentives. Alternatively, employers may combine collective and individual performance pay to mitigate the problem. A combination of collective and individual performance pay induces employees to work both smart and hard.

The contribution of this study to the literature is threefold. First, during the last decades, various types of variable payment schemes have spread among firms in the United States and many European countries (Bender and Skatun 2022, Lemieux et al. 2009, Ligthart et al. 2022, Zwysen 2021). Against this background, a series of studies have examined the determinants of performance pay (Heywood and Jirjahn 2006). Our study brings a new twist to this strand of literature by highlighting WFH as an important determinant of performance pay.

Second, since more than four decades or so, scholars have been strongly interested in shared capitalism (Blasi et al. 2016, Doucouliagos et al. 2020). Our findings suggest that a rise in WFH may foster a shift towards shared capitalism. To the extent employers tend to provide WFH opportunities to a larger share of employees, they will increasingly use

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collective schemes such as profit sharing to ensure employees' collaboration and commitment. While employers may use these schemes with or without individual performance pay, the spread of WFH may make them more reluctant to provide individual performance pay in isolation.

Third, our study contributes to the literature on WFH. Some studies have started examining the consequences of WFH for firm performance (Bloom et al. 2015, Gibbs et al. 2023). These studies have produced very heterogeneous results ranging from positive to negative estimates. Our findings indicate that the link between WFH and firm performance cannot be examined without taking the firms' incentive systems into account. The theoretical considerations guiding our empirical analysis suggest that it will make a difference of whether a firm uses individual or collective payment schemes.

The rest of this paper is organized as follows. Section 2 provides the theoretical background discussion. Section 3 describes the data and variables. Section 4 presents the empirical results. Section 5 concludes.

2. Background Discussion

2.1 Input-related vs. Output-related Pay

The way employers compensate employees plays a crucial role in providing incentives. One of the key decisions that employers must make about their remuneration systems is to compensate employees according to the time spent on the job or according to their performance (Belfield and Marsden 2003, Jirjahn 2006, Khalil and Lawarrée 1995, Marsden and Belfield 2010, Raith 2008). These two basic types of remuneration are fundamentally different. The employer needs to monitor employees' inputs in one case and their outputs in the other case.

Under input monitoring, the employer evaluates employees' work behaviors or efforts. Employees receive fixed wages and may be threatened to be dismissed if effort falls short of a certain threshold (Jirjahn 2016). This is the typical situation analyzed in efficiency wage models (Shapiro and Stiglitz 1984). Under output monitoring, the employer measures the results produced by the employees. Incentives are provided by linking some components of employees' pay to the results. This is the typical situation analyzed in principal-agent models (Milgrom and Roberts 1992).

A natural way of input-related control is that managers physically see employees working and monitor the work processes. However, WFH reduces face-to-face interaction and real-time visibility of employees within the physical space of the workplace (Felstead et al. 2003). Thus, WFH makes monitoring inputs more difficult and provides opportunities for employees to shirk at home. This increases the employer's propensity to use output monitoring and, hence, to provide incentives through performance pay. However, at issue is the type of performance pay employers use to provide incentives for WFH employees. In what follows, we argue that it is crucial to distinguish between individual and collective performance pay.

2.2 Individual Performance Pay

A series of studies have shown that individual performance pay has the potential to increase employees' productivity (Heywood et al. 1997, Heywood et al. 2011, Lavy 2009, Lazear 2000, Shearer 2004). Individual performance pay is usually thought to provide strong incentives for workers as it offers the tightest connection between individual variations in performance and variations in pay.[1] Thus, one may expect that employers use individual

performance pay to provide incentives for WFH employees. This brings us to our first hypothesis.

Hypothesis 1: Employees are more likely to receive individual performance pay under WFH conditions.

However, individual performance pay only provides incentives to exert effort in activities that increase the individual employee's own output (Holmstrom and Milgrom 1991). It does not provide incentives for mentoring, helping on the job and collaboration among employees (Burks et al. 2009, Brown and Heywood 2009, Itoh 2001). This appears to be particularly problematic under WFH conditions.

WFH tends to negatively affect collaboration and information sharing among employees (Brucks and Levav 2022, Gibbs et al. 2023, Tasking and Bridoux 2010, Yang et al. 2022). This reflects that WFH employees spend less time in face-to-face interactions with their superiors and colleagues.[2] Face-to-face interactions play a crucial role in social relations within organizations. Physical proximity and face-to-face interactions not only enable flexible and speedy communication between employees (Battiston et al. 2021). They also have the potential to foster the formation of friendships and informal networks (Marmaros and Sacerdote 2006), the development of altruistic feelings toward fellow employees (Rotemberg 1994, Osterloh and Frey 2000), and the intrinsic willingness to cooperate (Cox and Deck 2005, Frey and Bohnet 1995).

Social ties and informal networks particularly lead to collaboration towards achieving the goals of the employer if employees identify with the organization and are committed to a common corporate culture (Akerlof and Kranton 2005, Krackhardt and

Stern 1988). However, WFH may even harm the corporate culture of an organization (Bartel et al. 2012, Felstead et al. 2003, Thatcher and Zhu 2006). Building and sustaining a corporate culture requires that the values and norms important to the organization are transmitted through social interactions with other members of the organization. WFH implies reduced social involvement with managers and colleagues so employees may lose their sense of belonging to the organization.

Individual performance pay does not counteract these tendencies as it provides no incentives for mutual help and collaboration. Quite the contrary, it may reinforce the tendency to focus on personal achievement and neglect collaboration and corporate objectives. To the extent that avoiding a further loss in cooperative work climate is equally or even more important than providing effort incentives, the employer will have no higher or even a lower propensity for providing individual performance pay to WFH employees. Thus, we can formulate our second hypothesis which is an alternative to our first one.

Hypothesis 2: WFH has no or even a negative influence on the likelihood of receiving individual performance pay.

2.3 Collective Performance Pay

Collective payment schemes stand as an alternative to individual performance pay. Collective performance pay links an employee's remuneration not only to their own performance, but also to the performance of other employees within the organization. Group performance pay links remuneration to the performance of a team or organizational department. Profit sharing links the employee's remuneration to the performance of the entire organization.

The basic point is that collective performance pay provides incentives for mentoring, helping on the job and collaboration (Drago and Turnbull 1988, Encinosa et al. 2007, FitzRoy and Kraft 1986, Heywood et al. 2005, Itoh 2001). As the individual employee's remuneration not only depends on their own performance, but also on the performance of other employees in the organization, the employee has an incentive to increase the performance of colleagues by providing help and cooperation. Moreover, collective pay schemes can foster employees' commitment to the employer. In particular, profit sharing signals that the employer is benevolent, considers the employees' needs and is willing to voluntarily return to them a portion of the fruits of their collective labor (Bayo-Moriones and Larraza-Kintana 2009, Coyle-Shapiro et al. 2002). This helps build employer-employee relationships which are based on trust and mutual loyalty (Akerlof 1982).

These effects of collective performance pay appear to be particularly important under WFH conditions. Since WFH tends to undermine a cooperative work climate, the employer may use collective performance pay to counteract the adverse effect of WFH. The employer is more likely to use collective performance pay for WFH employees to restore collaboration and orientation towards organizational goals. Against this background, we can formulate our third hypothesis.

Hypothesis 3: Employees are more likely to receive collective performance pay under WFH conditions.

So far we have discussed individual and collective performance pay in isolation. However, employers may use a combination of individual and collective performance pay to provide

incentives to employees. Such combination specifically makes sense if collective performance pay suffers from a free-rider problem. The individual employee's incentive to exert effort dissipates as the returns to that effort are distributed among all employees participating in the collective payment scheme. Thus, even though collective performance pay provides incentives to work smart, it may not provide incentives to work hard. Combining collective and individual performance pay induces employees to work both smart and hard. While collective performance pay contributes to a collaborative work climate, individual performance pay provides incentives to exert high effort.

Of course, there are several mechanisms that have the potential to solve or at least mitigate the free-rider problem entailed by collective performance pay. Repeated games, team production, mutual monitoring and peer effects are possible mechanism to overcome the problem (Babcock et al. 2015, Carpenter et al. 2009, Che and Yoo 2001, Freeman et al. 2010, Heywood and Jirjahn 2009, Kandel and Lazear 1992). To the extent these mechanisms are effective, collective performance pay also induces employees to work hard so there may be no need to combine it with individual incentives.

However, there is no guarantee that the mechanisms to overcome the free-rider problem always work. WFH makes mutual monitoring and peer pressure more difficult as employees spend less time together. This reduces the effectiveness of mutual monitoring and peer pressure. Thus, the employer has an increased propensity to combine collective performance pay with individual performance pay for WFH employees to tackle the free-rider problem. This brings us to our fourth hypothesis.

Hypothesis 4: Employees are more likely to receive a combination of collective and individual performance pay under WFH conditions.

3. Data and Variables

3.1 Dataset

Our empirical analysis uses data from *Understanding Society*, a large and representative household panel survey for the United Kingdom funded by the Economic and Social Research Council (Buck and McFall 2012). The survey provides information on each member of the household.

While each wave of *Understanding Society* covers two years, the waves overlap in such a way that households are surveyed annually. For example, the first wave of the data was collected between January 2009 and December 2011. The collection of the second wave of the data started in January 2010 with those households interviewed in the first month of the first wave and concluded in December 2012 with the households interviewed in the last month of the first wave.

Understanding Society contains a core of questions asked in each wave. Different "special" topic questions only appear in specific waves. Information on both WFH and performance pay is available in the waves 2, 4, 6, 8, 10 and 12. While waves 2, 4, 6, 8 and 10 cover pre-pandemic years, wave 12 contains information on the years 2020 and 2021. We only consider information from interviews that were conducted before April 2020. End of March 2020 the British government announced the first lockdown, ordering people to stay at home. The COVID-19 pandemic and the associated lockdowns hit firms unexpectedly and led to an unprecedented rise in forced WFH (Felstaed and Reuschke 2020). The most urgent priorities of employers were to rearrange work processes so that WFH was possible and communication could still be sustained (Bieńkowska et al. 2022, Newman et al. 2023). Employers had to extend WFH to employees who were usually not

supposed to work at home and there was high uncertainty as to how long the pandemic will last. By restricting our analysis to the pre-pandemic period we focus on a non-crisis situation in which employers have more time and resources for a careful preparation of both WFH and performance pay.

We pool the waves for our analysis and focus on employees aged 16–65 years. This reflects the typical working age population in the United Kingdom. After retaining observations for which full information is available, the analysis uses a total of 63,766 observations from 28,099 employees.

3.2 Variables

Table 1 provides the definitions and descriptive statistics of the key variables. Our dependent variables build from two separate questions: "Does your pay include performance-related pay?"; and "In the last 12 months have you received any bonuses such as Christmas or quarterly bonus, profit-related pay or profit-sharing bonus, or an occasional commission? [excluding overtime payments]". We follow the literature and use information provided by the first question as an indicator of individual performance pay and information provided by the second one as an indicator of collective performance pay (Gielen 2011, Green and Heywood 2011, 2023). The second question not only captures profit sharing, but also other bonuses. As emphasized by Marsden and Belfield (2010), bonuses often reward group performance (team or unit performance). Individual payment schemes such as piece rates are more likely identified by the first question.

We are specifically interested in the various constellations of individual and collective performance pay. The data has 7.2 percent of observations from employees who only receive individual performance pay, 16.6 percent of observations from employees

who only receive collective performance pay, and 10 percent of observation from employees who receive both individual and collective performance pay. 66.2 percent do not receive performance pay at all.

Our key explanatory variable is equal to 1 if the employee uses WFH on a regular basis. We have 8.6 percent of observations from employees who use WFH on a regular basis. The data provides a rich set of control variables helping isolate the influence of WFH on performance pay. Appendix Table A1 provides the definitions and descriptive statics of the controls. Job-related characteristics are controlled for by variables for autonomy over job tasks, firm size, industry and occupation. We also include controls for part-time work, education and work experience. The employee's socio-demographic characteristics are captured by variables for gender, age and migration background. Finally, we include region dummies and wave dummies.

4. Results

4.1 Initial Estimates

Table 2 provides the key results of the basic regressions. The table shows the estimated influence of WFH on dummy dependent variables for each of the four possible outcomes: no performance pay, only individual performance pay, only collective performance pay, collective and individual performance pay. Control variables are included, but are suppressed to save space.[3] The determinants of each outcome category are estimated relative to the respectively three other categories. This allows determining the unique influences linked with an outcome category compared to all other categories.

In order to check the robustness of results, three alternative estimation methods are used: a simple probit, random effects probit, and random effects generalized least squares

(GLS), where the latter is a linear probability model. The random effects estimations account for the panel structure of the data by decomposing the error term of a regression into a time-varying and an employee-specific time-invariant random component. In all regressions, standard errors are clustered at the employee level.

The various estimation methods yield the same pattern of results. As shown by the estimates in column (1), WFH is significantly associated with a lower likelihood that an employee does not receive performance pay at all. WFH decreases the likelihood of not receiving performance by about 3 percentage points. Given that we have 66 percent of observations with no performance pay, this implies a decrease in the likelihood by roughly 5 percent. The result conforms to the notion that WFH makes input monitoring more difficult so the employer is more likely to provide incentives through output-related performance pay. However, the crucial question is as to which types of performance pay do employers use to incentivize WFH employees.

The estimates in column (2) show that a WFH employee is significantly less likely to receive individual performance pay in isolation. WFH is associated with a 1 percentage point lower likelihood of receiving only individual performance pay. Taking into account that we have 7 percent of observations from employees who only receive individual performance pay, this implies a decrease in the likelihood by about 14 percent. The finding does not support hypothesis 1, but instead conforms to hypothesis 2. Providing individual performance pay in isolation appears to be counterproductive as it reinforces the tendency to neglect collaboration and information sharing under WFH conditions.

As shown by the estimates in columns (3) and (4), WFH significantly increases the likelihood of receiving collective performance pay – with or without individual

performance pay. WFH increases the likelihood of receiving collective performance pay in isolation by about 1 percentage points and the likelihood of receiving a combination of collective and individual performance pay by 2 to 3 percentage points. Taking the respective means of 17 and 10 percent into account, this implies a 6 percentage increase in the likelihood of receiving collective performance pay in isolation and a 20 to 30 percentage increase in the likelihood of receiving a combination of collective and individual performance pay. These findings provide support for hypotheses 3 and 4. Employers use collective incentive schemes to restore and sustain collaboration, helping on the job, and information sharing under WFH conditions. Employers may use collective incentive schemes in isolation for WFH employees if these schemes do not entail serious free-rider problems. They may use a combination of collective and individual schemes to provide sufficient incentives if there is a risk that employees may free ride.

As a check of robustness, Appendix Table A5 provides marginal effects calculated from a multinomial probit regression. While the multinomial probit model estimates the coefficients for an outcome category relative to base category of employees with no performance pay, marginal effects on the probability of the outcome category are calculated relative to all other categories. Thus, the marginal effects of the multinomial probit model are most suited for a comparison with our initial regression results. The pattern shown by the multinomial probit model largely confirms our initial estimates. WFH is negatively associated with receiving no performance pay and positively associated with receiving collective performance pay – with or without individual performance pay. The multinomial probit also shows a negative association between WFH and receiving individual performance pay in isolation. While this latter finding is not statistically

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significant, we note that the *z*-statistic of 1.5 is relatively high indicating that WFH plays a role in individual performance even in the multinomial probit estimation.

As a further check of robustness, we return to our initial regressions and expand the specification by adding control variables for the employee's tenure and the Big Five personality traits (extraversion, openness to experience, conscientiousness, agreeableness, and neuroticism).[4] Appendix Tables A7–A9 show the results. While we lose almost 20,000 observations, this exercise confirms our key pattern of findings.

4.2 The Issue of Endogeneity

We recognize that our initial estimates may suffer from the endogeneity of WFH. Despite the control variables, there may be unobserved factors influencing both WFH and receiving performance pay. Such unobserved factors may imply that the influence of WFH on receiving performance pay is over- or underestimated.

A fixed effects model might stand as one approach to account for endogeneity. However, the fixed effects model only addresses the problem of unobserved time-invariant influences, but not the problem of unobserved time-varying influences. Plümper and Troeger (2019) show that fixed effects estimates may even aggravate the bias due to omitted time-varying variables as dropping the between variation increases the influence of time-varying misspecification on parameter estimates. Thus, we use instead an instrumental variable (IV) approach to address the issue of endogeneity. The IV approach has the advantage that it accounts for both time-invariant and time-varying unobserved variables.

A crucial requirement of IV estimates is the exclusion restriction that the IV influences the key explanatory variables, but not the outcome variable. Finding convincing

exclusion restrictions is always a matter of debate. Just-identifying exclusion restrictions are based on assumptions that cannot be formally tested (Heckman 2000, Keane 2010). They can only be justified by reasoning and an appeal to intuition. Thus, attempts to account for endogeneity should be largely viewed as exploratory. We follow an IV strategy based on aggregation (for examples see Bilanakos et al. 2018, Fisman and Svensson 2007, Lai and Ng 2014, Machin and Wadhwani 1991, Woessman and West 2006). We use the share of WFH employees calculated for detailed three-digit occupations as instrument. When calculating the share of WFH employees for an employee's occupation, we exclude that employee. The share of WFH employees reflects the spread of WFH within a narrowly defined occupation. The spread of WFH within an occupation should be positively associated with the individual employee's opportunity to use WFH.

The validity of the instrument requires that the share of WHF employees in the detailed occupation has no direct influence on the individual likelihood of receiving performance pay. Importantly, the validity of an instrument can depend on the control variables included (Angrist and Pischke 2009). An instrument may be not valid per se but may be only valid after conditioning on covariates. Our dataset enables us to include a set of basic controls. In particular, the instrument allows us to still include the broadly defined one-digit occupation dummies and, hence, to account for broad occupation fixed effects. Thus, to the extent that we control for critical determinants of receiving performance pay, we do not expect a direct influence of the instrument, but only an indirect one through the individual employee's likelihood of using WFH.

In columns (1)–(4) of Table 3, we show the key results of IV probit regressions. At the first stage, the determinants of WFH are estimated using a least squares linear

probability regression. Our IV, the share of other WFH employees within and occupation, emerges as a significantly positive determinant of the individual employee's likelihood of using WFH. As shown by the robust F test and the Anderson-Rubin test, the hypothesis of a weak instrument is rejected.[5] A Wald χ^2 test rejects the hypothesis of exogeneity so WFH has to be considered as endogenous. Thus, at the second stage, we account for the endogeneity of WFH in the cross-sectional probits estimating the determinants of the various constellations of performance pay. We replace the WFH variable by the predicted values obtained from the first-stage regression.[6] This exercise confirms our key pattern of results. While WFH reduces the likelihood that an employee does not receive performance pay, the type of performance plays a crucial role. A WFH employee is less likely to receive individual performance pay in isolation, but instead is more likely to receive collective performance pay – with or without individual performance pay. Importantly, taking the issue of endogeneity into account even increases the magnitudes of the estimated coefficients.[7]

Columns (5)–(8) show the results of random effects IV estimations. At the first stage, the determinants of WFH are estimated using a random effects linear probability regression. At the second stage, the predicted values obtained from the first stage are used in random effects linear probability regressions to estimate the determinants of receiving performance pay. These regressions confirm the pattern of results. The share of other WFH employees within an occupation positively influences the individual employee's likelihood of using WFH. Taking into account the endogeneity of WFH confirms our initial pattern of results and reveals even stronger magnitudes of the influences of WFH on the various constellations of performance pay.

As a check of robustness, Appendix Table A10 shows the key results of IV estimations with an expanded specification that additionally includes variables for tenure and the Big Five personality traits in the first-stage and second stage regressions. This robustness check confirms our key findings.

5. Conclusions

WFH has been on the rise already before the pandemic. The unprecedented lockdowns during the pandemic very likely have led to a long-lasting acceleration effect as they demonstrated the viability of remote working to employers and employees. This leads to the question as to how employers adjust their personnel policy to the increasing prevalence of WFH employees. Employers have to design suitable remuneration schemes for WFH employees to provide proper incentives. It has been suggested that WFH leads to an increased use of performance pay as it is easier to monitor employees' outputs than their inputs under remote working conditions.

Our study shows the link between WFH and performance pay in a more differentiated light. It is crucial to consider the type of performance pay. While WFH decreases the likelihood of receiving individual performance in isolation, it increases the likelihood of receiving collective performance pay or a combination of collective and individual performance pay. These findings conform to our theoretical considerations. WFH employees spend less time in face-to-face interactions with colleagues and superiors. This entails a tendency to mainly focus on personal achievement and neglect collaboration and corporate objectives. Solely rewarding individual performance may reinforce this tendency. By contrast, rewarding collective performance is likely to counteract the adverse effects of WFH as it provides incentives to collaborate and take organizational goals into

account. The employer may combine it with individual performance to mitigate possible free-rider problems.

Our study has important implications for future research. It would be interesting to examine if the influence of WFH on organizational performance depends on the payment schemes used by employers. A positive influence on organizational performance may be rather expected under collective incentive schemes whereas a negative influence is more likely to occur under individual incentive schemes.

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Table 1: Definitions and Descriptive Statistics of Key Variables

Variable	Definition	Mean (Std. dev.)
Only individual performance pay	Dummy equals 1 if the employee receives individual performance pay, but no collective performance pay.	0.072 (0.258)
Only collective performance pay	Dummy equals 1 if the employee receives collective performance pay, but no individual performance pay.	0.166 (0.372)
Collective & individual performance pay	Dummy equals 1 if the employee receives collective and individual performance pay.	0.100 (0.299)
No performance pay	Dummy equals 1 if the employee does not receive performance pay at all.	0.662 (0.473)
WFH	Dummy equals 1 if the employee uses working from home on a regular basis.	0.086 (0.280)
WFH share by occupation	The share of workers using working from home calculated for 81 detailed 3-digit occupations excluding employee's own contribution to the share for each wave.	0.086 (0.097)

Number of observations = 63,766.

Table 2: Initial Estimates

	(1) *No performance pay*	(2) *Only individual performance pay*	(3) *Only collective performance pay*	(4) *Collective & individual performance pay*
Panel A: Probit				
WFH	-0.120***	-0.075**	0.055**	0.187***
	[-0.037]	[-0.010]	[0.012]	[0.027]
	(0.023)	(0.030)	(0.026)	(0.027)
Pseudo R^2	0.1454	0.0650	0.1105	0.1923
Panel B: Random effects probit				
WFH	-0.145***	-0.070*	0.094***	0.186***
	[-0.030]	[-0.007]	[0.016]	[0.019]
	(0.031)	(0.038)	(0.031)	(0.034)
Rho	0.550	0.443	0.428	0.488
Pseudo R^2	0.1753	0.0335	0.0912	0.1174
Panel C: Random effects GLS				
WFH	-0.034***	-0.010**	0.012**	0.033***
	(0.007)	(0.004)	(0.006)	(0.006)
Rho	0.359	0.147	0.258	0.250
R^2	0.1765	0.0356	0.0938	0.1304

Number of observations = 63,766. Number of employees = 28,099. Standard errors in parentheses are clustered at the employee level. Marginal effects are in square brackets. Rho is the share of total variation of the error term coming from the time-invariant component. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level. Control variables are included, but are suppressed to save space.

Table 3: The Issue of Endogeneity

	IV probit				IV random effects			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Second stage							
	No performance pay	*Only individual performance pay*	*Only collective performance pay*	*Collective & individual performance pay*	*No performance pay*	*Only individual performance pay*	*Only collective performance pay*	*Collective & individual performance pay*
WFH	-0.706*** [-0.221] (0.165)	-1.436*** [-0.198] (0.181)	1.255*** [0.294] (0.165)	1.293*** [0.193] (0.186)	-0.259*** (0.057)	-0.267*** (0.035)	0.215*** (0.047)	0.331*** (0.045)
	First stage							
	WFH	*WFH*	*WFH*	*WFH*	*WFH*	*WFH*	*WFH*	*WFH*
WFH share by occupation	0.654*** (0.017)	0.654*** (0.017)	0.654*** (0.017)	0.654*** (0.017)	0.555*** (0.019)	0.631*** (0.016)	0.582*** (0.019)	0.571*** (0.019)
Wald chi2 test of exogeneity	18.82***	60.95***	62.35***	43.18***	---	---	---	---
Robust F test	182.23***	182.23***	182.23***	182.23***	---	---	---	---
Anderson-Rubin test of weak instrument	26.57***	65.89***	66.52***	57.05***	---	---	---	---
Wald chi2 test of weak instrument	---	---	---	---	8588***	8859***	6721***	6329***

Number of observations = 63,766. Number of employees = 28,099. Standard errors in parentheses are clustered at the employee level. Marginal effects are in square brackets.
*** Statistically significant at the 1% level. Control variables are included, but are suppressed to save space.

Appendix

Table A1: Definitions and Descriptive Statistics of Control Variables

Variable	Definition	Mean (Std. dev.)
Job autonomy	Dummy equals 1 if the employee has a lot of autonomy over job tasks.	0.396 (0.489)
Firm size 25–199	Dummy equals 1 if the employee works in a firm with 20–199 employees.	0.364 (0.481)
Firm size 200–999	Dummy equals 1 if the employee works in a firm with 200–999 employees.	0.191 (0.393)
Firm size ≥ 1000	Dummy equals 1 if the employee works in a firm with 1000 or more employees.	0.156 (0.364)
Part-time	Dummy equals 1 if the employee works part-time.	0.056 (0.280)
Work experience	The employee's work experience in years.	18.92 (3.221)
Intermediate education	Dummy equals 1 if the employee has an intermediate education level.	0.364 (0.481)
Higher education	Dummy equals 1 if the employee has a higher education level.	0.371 (0.483)
Age	The worker's age in years.	42.17 (11.84)
Male	Dummy equals 1 if the employee is a man.	0.388 (0.487)
Migrant	Dummy is equal to 1 if the employee was born outside the UK.	0.133 (0.340)
Wave dummies	Five wave dummies are included.	---
Region dummies	Twelve dummies for government region are included.	---
Industry dummies	Eighteen dummies one-digit industry are included.	---
Occupation dummies	Nine dummies for broad one-digit occupations are included.	---

Number of observations = 63,766. The reference group of the firm size dummies consists of firms with less than 25 employees. The reference group of education dummies consists of employee with a low education level.

Table A2: Probit; Full Results

	(1) No performance pay	*(2)* Only individual performance pay	*(3)* Only collective performance pay	*(4)* Collective & individual performance pay
WFH	-0.120***	-0.075**	0.055**	0.187***
	(0.023)	(0.030)	(0.026)	(0.027)
Job autonomy	-0.062***	-0.010	0.041***	0.094***
	(0.013)	(0.018)	(0.015)	(0.018)
Firm size 25-199	-0.181***	0.212***	0.036*	0.144***
	(0.018)	(0.024)	(0.019)	(0.025)
Firm size 200-999	-0.271***	0.149***	0.114***	0.279***
	(0.021)	(0.028)	(0.022)	(0.028)
Firm size $\geq$ 1000	-0.205***	0.091***	-0.040	0.390***
	(0.024)	(0.032)	(0.026)	(0.030)
Part-time	0.200***	-0.154***	-0.107***	-0.189***
	(0.017)	(0.022)	(0.018)	(0.025)
Work experience	-0.033	0.010	0.002	0.061
	(0.026)	(0.027)	(0.023)	(0.042)
Work experience squared	0.001	-0.000	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Intermediate education	-0.021	0.060**	-0.007	0.023
	(0.023)	(0.030)	(0.024)	(0.032)
Higher education	-0.017	0.086**	-0.038	0.012
	(0.032)	(0.040)	(0.034)	(0.044)
Age	-0.018***	0.000	0.007*	0.029***
	(0.004)	(0.005)	(0.004)	(0.005)
Age squared	0.000***	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.035**	-0.085***	0.023	0.120***
	(0.017)	(0.022)	(0.018)	(0.021)
Migrant	0.084***	0.058**	-0.122***	-0.012
	(0.022)	(0.029)	(0.025)	(0.029)
Constant	0.884***	-1.766***	-0.829***	-3.063***
	(0.310)	(0.361)	(0.289)	(0.488)
Occupation dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included
Pseudo R^2	0.1454	0.0650	0.1105	0.1923

Number of observations = 63,766. Number of employees = 28,099. Standard errors in parentheses are clustered at the employee level. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table A3: Random Effects Probit; Full Results

	(1) No performance pay	(2) Only individual performance pay	(3) Only collective performance pay	(4) Collective & individual performance pay
WFH	-0.145***	-0.070*	0.094***	0.186***
	(0.031)	(0.038)	(0.031)	(0.034)
Job autonomy	-0.103***	-0.002	0.060***	0.133***
	(0.018)	(0.023)	(0.018)	(0.023)
Firm size 25-199	-0.242***	0.271***	0.041*	0.195***
	(0.025)	(0.031)	(0.024)	(0.033)
Firm size 200-999	-0.381***	0.226***	0.128***	0.363***
	(0.029)	(0.037)	(0.028)	(0.037)
Firm size ≥ 1000	-0.297***	0.148***	-0.058*	0.501***
	(0.033)	(0.041)	(0.033)	(0.040)
Part-time	0.273***	-0.185***	-0.143***	-0.282***
	(0.022)	(0.028)	(0.022)	(0.032)
Work experience	-0.057*	0.006	0.006	0.094*
	(0.033)	(0.036)	(0.028)	(0.053)
Work experience squared	0.001	-0.000	-0.000	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Intermediate education	-0.043	0.087**	-0.009	0.048
	(0.032)	(0.039)	(0.030)	(0.042)
Higher education	-0.027	0.117**	-0.066	0.039
	(0.045)	(0.052)	(0.043)	(0.058)
Age	-0.029***	0.005	0.005	0.040***
	(0.006)	(0.007)	(0.005)	(0.007)
Age squared	0.000***	-0.000*	-0.000	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.078***	-0.084***	0.035	0.174***
	(0.023)	(0.028)	(0.022)	(0.028)
Migrant	0.127***	0.071*	-0.141***	-0.037
	(0.031)	(0.037)	(0.031)	(0.038)
Constant	1.453***	-2.329***	-1.043***	-4.353***
	(0.409)	(0.483)	(0.360)	(0.645)
Occupation dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included
Rho	0.550	0.443	0.428	0.488
Pseudo R^2	0.1753	0.0335	0.0912	0.1174

Number of observations = 63,766. Number of employees = 28,099. Standard errors in parentheses are clustered at the employee level. Rho is the share of total variation of the error term coming from the time-invariant component. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table A4: Random effects GLS; Full Results

	(1) No performance pay	(2) Only individual performance pay	(3) Only collective performance pay	(4) Collective & individual performance pay
WFH	-0.034***	-0.010**	0.012**	0.033***
	(0.007)	(0.004)	(0.006)	(0.006)
Job autonomy	-0.022***	-0.002	0.010***	0.013***
	(0.004)	(0.002)	(0.003)	(0.002)
Firm size 25-199	-0.053***	0.024***	0.011***	0.020***
	(0.005)	(0.003)	(0.004)	(0.003)
Firm size 200-999	-0.087***	0.017***	0.028***	0.042***
	(0.006)	(0.003)	(0.005)	(0.004)
Firm size $\geq$ 1000	-0.070***	0.007*	-0.002	0.063***
	(0.007)	(0.004)	(0.005)	(0.005)
Part-time	0.055***	-0.017***	-0.023***	-0.018***
	(0.004)	(0.002)	(0.003)	(0.002)
Work experience	-0.011*	0.001	0.002	0.008***
	(0.006)	(0.003)	(0.004)	(0.003)
Work experience squared	0.000*	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Intermediate education	-0.010	0.005	-0.001	0.005
	(0.006)	(0.003)	(0.005)	(0.004)
Higher education	-0.007	0.010**	-0.010	0.006
	(0.009)	(0.005)	(0.007)	(0.005)
Age	-0.007***	0.000	0.002*	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	0.000***	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.019***	-0.011***	0.005	0.023***
	(0.005)	(0.003)	(0.004)	(0.003)
Migrant	0.029***	0.004	-0.027***	-0.006
	(0.007)	(0.004)	(0.005)	(0.004)
Constant	0.833***	0.055	0.207***	-0.081**
	(0.079)	(0.039)	(0.062)	(0.036)
Occupation dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included
Rho	0.359	0.147	0.258	0.250
R^2	0.1765	0.0356	0.0938	0.1304

Number of observations = 63,766. Number of employees = 28,099. Standard errors in parentheses are clustered at the employee level. Rho is the share of total variation of the error term coming from the time-invariant component. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table A5: Multinomial Probit; Marginal Effects

	(1) *No performance pay*	*(2)* *Only individual performance pay*	*(3)* *Only collective performance pay*	*(4)* *Collective & individual performance pay*
WFH	-0.040***	-0.006	0.022***	0.024***
	(0.008)	(0.004)	(0.006)	(0.003)

Number of observations = 63,766. Number of employees = 28,099. Standard errors in parentheses are clustered at the employee level. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level. Control variables are included, but are suppressed to save space.

Table A6: Definitions and Descriptive Statistics of Additional Control Variables

Variable	Definition	Mean (Std. dev.)
Tenure	The number of years the worker is with their current firm.	10.25 (7.118)
Agreeableness	Score of agreeableness constructed from adding up three survey items measured on a seven-point Likert scale ranging from 1 "does not apply to me at all" to 7 "applies to me perfectly". The sum of items is divided by 3. The items are: I see myself as someone who… "is sometimes somewhat rude to others", "has a forgiving nature", "is considerate and kind to others". The first item was recoded in inverse order before adding up.	5.64 (0.994)
Conscientiousness	Score of conscientiousness constructed from adding up three survey items measured on a seven-point Likert scale ranging from 1 "does not apply to me at all" to 7 "applies to me perfectly". The sum of items is divided by 3. The items are: I see myself as someone who… "does a thorough job", "does things effectively and efficiently", "tends to be lazy". The last item was recoded in inverse order before adding up.	4.64 (1.278)
Extraversion	Score of extraversion constructed from adding up three survey items measured on a seven-point Likert scale ranging from 1 "does not apply to me at all" to 7 "applies to me perfectly". The sum of items is divided by 3. The items are: I see myself as someone who… "is communicative", "is sociable", "is reserved". The last item was recoded in inverse order before adding up.	4.64 (1.277)
Neuroticism	Score of neuroticism constructed from adding up three survey items measured on a seven-point Likert scale ranging from 1 "does not apply to me at all" to 7 "applies to me perfectly". The sum of items is divided by 3. The items are: I see myself as someone who… "worries a lot", "gets nervous easily", "deals well with stress". The last item was recoded in inverse order before adding up.	3.63 (1.363)
Openness	Score of openness constructed from adding up three survey items measured on a seven-point Likert scale ranging from 1 "does not apply to me at all" to 7 "applies to me perfectly". The sum of items is divided by 3. The items are: I see myself as someone who… "is original", "values artistic experiences", "has an active imagination".	4.61 (1.203)

Number of observations = 44,441.

Table A7: Probit; Expanded Specification

VARIABLES	(1) No performance pay	(2) Only individual performance pay	(3) Only collective performance pay	(4) Collective & individual performance pay
WFH	-0.100***	-0.088**	0.051*	0.178***
	(0.027)	(0.036)	(0.030)	(0.031)
Job autonomy	-0.034**	-0.033	0.035*	0.067***
	(0.016)	(0.022)	(0.018)	(0.022)
Firm size 25-199	-0.162***	0.214***	0.011	0.119***
	(0.023)	(0.030)	(0.025)	(0.031)
Firm size 200-999	-0.248***	0.121***	0.103***	0.259***
	(0.027)	(0.035)	(0.028)	(0.034)
Firm size ≥ 1000	-0.178***	0.053	-0.048	0.378***
	(0.030)	(0.039)	(0.032)	(0.037)
Part-time	0.175***	-0.154***	-0.077***	-0.172***
	(0.021)	(0.027)	(0.023)	(0.030)
Work experience	-0.021	0.003	-0.011	0.060
	(0.029)	(0.030)	(0.026)	(0.050)
Work experience squared	0.000	0.000	0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Intermediate education	-0.017	0.063*	-0.016	0.019
	(0.028)	(0.037)	(0.029)	(0.039)
Higher education	-0.014	0.114**	-0.063	0.006
	(0.038)	(0.047)	(0.041)	(0.053)
Age	-0.014**	0.011	0.006	0.014*
	(0.006)	(0.008)	(0.006)	(0.008)
Age squared	0.000***	-0.000**	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.044**	-0.085***	0.031	0.124***
	(0.022)	(0.028)	(0.023)	(0.027)
Migrant	0.050*	0.053	-0.097***	0.043
	(0.030)	(0.039)	(0.034)	(0.038)
Tenure	-0.016***	0.009*	0.011**	0.010*
	(0.004)	(0.006)	(0.005)	(0.005)
Tenure square	0.000***	-0.000	-0.000**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Agreeableness	0.011	-0.003	-0.019*	0.010
	(0.010)	(0.012)	(0.010)	(0.012)
Conscientiousness	-0.018*	0.004	0.008	0.019
	(0.010)	(0.013)	(0.011)	(0.013)
Extraversion	-0.012	0.007	-0.001	0.018*
	(0.008)	(0.010)	(0.008)	(0.010)
Neuroticism	0.005	0.003	0.003	-0.016*
	(0.007)	(0.009)	(0.008)	(0.009)
Openness	-0.004	0.018*	-0.003	0.003

	(0.008)	(0.010)	(0.009)	(0.011)
Constant	0.727*	-1.923***	-0.607*	-2.954***
	(0.377)	(0.427)	(0.357)	(0.588)
Occupation dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included
Pseudo R^2	0.1924	0.0451	0.1095	0.1509

Number of observations = 44,441. Number of employees = 16,441. Standard errors in parentheses are clustered at the employee level. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table A8: Random Effects Probit; Expanded Specification

	(1) No performance pay	(2) Only individual performance pay	(3) Only collective performance pay	(4) Collective & individual performance pay
WFH	-0.109***	-0.097**	0.098***	0.165***
	(0.036)	(0.045)	(0.037)	(0.040)
Job autonomy	-0.072***	-0.033	0.051**	0.106***
	(0.022)	(0.028)	(0.022)	(0.028)
Firm size 25-199	-0.218***	0.268***	0.015	0.165***
	(0.032)	(0.039)	(0.031)	(0.040)
Firm size 200-999	-0.353***	0.188***	0.117***	0.333***
	(0.037)	(0.046)	(0.035)	(0.045)
Firm size ≥ 1000	-0.235***	0.084*	-0.077*	0.476***
	(0.041)	(0.050)	(0.040)	(0.049)
Part-time	0.237***	-0.182***	-0.114***	-0.249***
	(0.028)	(0.035)	(0.028)	(0.039)
Work experience	-0.043	0.004	-0.005	0.089
	(0.038)	(0.041)	(0.033)	(0.064)
Work experience squared	0.001	0.000	0.000	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Intermediate education	-0.041	0.095*	-0.020	0.040
	(0.040)	(0.049)	(0.037)	(0.051)
Higher education	0.003	0.148**	-0.111**	0.027
	(0.055)	(0.064)	(0.053)	(0.070)
Age	-0.024***	0.020*	0.003	0.020*
	(0.008)	(0.011)	(0.008)	(0.011)
Age squared	0.000***	-0.000***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.091***	-0.082**	0.046	0.183***
	(0.032)	(0.037)	(0.030)	(0.037)
Migrant	0.073*	0.061	-0.104**	0.056
	(0.044)	(0.050)	(0.043)	(0.051)
Tenure	-0.025***	0.012*	0.014**	0.014*
	(0.006)	(0.007)	(0.006)	(0.007)
Tenure square	0.001***	-0.000	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Agreeableness	0.024*	-0.005	-0.025*	0.005
	(0.014)	(0.016)	(0.013)	(0.017)
Conscientiousness	-0.032**	0.000	0.014	0.030*
	(0.014)	(0.017)	(0.013)	(0.018)
Extraversion	-0.016	0.014	-0.004	0.029**
	(0.011)	(0.013)	(0.010)	(0.014)
Neuroticism	0.008	0.001	0.004	-0.019
	(0.010)	(0.012)	(0.010)	(0.012)
Openness	-0.008	0.028**	-0.007	0.008

	(0.012)	(0.014)	(0.011)	(0.014)
Constant	1.204**	-2.611***	-0.765*	-4.253***
	(0.523)	(0.585)	(0.460)	(0.784)
Occupation dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included
Rho	0.5661	0.4606	0.4396	0.4965
Pseudo R^2	0.1868	0.0354	0.1054	0.12115

Number of observations = 44,441. Number of employees = 16,441. Standard errors in parentheses are clustered at the employee level. Rho is the share of total variation of the error term coming from the time-invariant component. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table A9: Random Effects GLS; Expanded Specification

	(1) *No performance pay*	(2) *Only individual performance pay*	(3) *Only collective performance pay*	(4) *Collective & individual performance pay*
WFH	-0.025***	-0.013***	0.013*	0.027***
	(0.008)	(0.005)	(0.007)	(0.006)
Job autonomy	-0.015***	-0.005*	0.007**	0.011***
	(0.004)	(0.003)	(0.004)	(0.003)
Firm size 25-199	-0.049***	0.025***	0.008	0.018***
	(0.007)	(0.003)	(0.005)	(0.004)
Firm size 200-999	-0.081***	0.013***	0.027***	0.040***
	(0.008)	(0.004)	(0.007)	(0.005)
Firm size ≥ 1000	-0.057***	0.001	-0.005	0.062***
	(0.008)	(0.005)	(0.006)	(0.006)
Part-time	0.048***	-0.016***	-0.018***	-0.017***
	(0.005)	(0.003)	(0.004)	(0.003)
Work experience	-0.009	0.001	-0.000	0.008**
	(0.007)	(0.004)	(0.005)	(0.003)
Work experience squared	0.000	-0.000	0.000	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Intermediate education	-0.009	0.006	-0.002	0.005
	(0.008)	(0.004)	(0.007)	(0.005)
Higher education	-0.001	0.013**	-0.015*	0.005
	(0.011)	(0.006)	(0.008)	(0.006)
Age	-0.005***	0.001	0.001	0.002*
	(0.002)	(0.001)	(0.001)	(0.001)
Age squared	0.000***	-0.000**	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.021***	-0.012***	0.006	0.025***
	(0.007)	(0.004)	(0.005)	(0.004)
Migrant	0.019**	0.002	-0.020***	0.001
	(0.009)	(0.005)	(0.007)	(0.006)
Tenure	-0.005***	0.001*	0.003***	0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
Tenure squared	0.000***	-0.000	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Agreeableness	0.005*	-0.001	-0.005**	0.001
	(0.003)	(0.002)	(0.002)	(0.002)
Conscientiousness	-0.007**	0.000	0.003	0.003*
	(0.003)	(0.002)	(0.002)	(0.002)
Extraversion	-0.003	0.001	-0.001	0.003**
	(0.002)	(0.001)	(0.002)	(0.001)
Neuroticism	0.002	0.000	0.000	-0.002*
	(0.002)	(0.001)	(0.002)	(0.001)
Openness	-0.002	0.002*	-0.002	0.000

	(0.002)	(0.001)	(0.002)	(0.002)
Constant	0.765***	0.025	0.276***	-0.056
	(0.108)	(0.054)	(0.084)	(0.047)
Occupation dummies	Included	Included	Included	Included
Industry dummies	Included	Included	Included	Included
Region dummies	Included	Included	Included	Included
Wave dummies	Included	Included	Included	Included
Rho	0.3738	0.1738	0.2735	0.2744
R^2	0.1882	0.0379	0.1085	0.1345

Number of observations = 44,441. Number of employees = 16,441. Standard errors in parentheses are clustered at the employee level. Rho is the share of total variation of the error term coming from the time-invariant component. * Statistically significant at the 10% level; ** at the 5% level; *** at the 1% level.

Table A10: The Issue of Endogeneity; Expanded Specification

	IV probit				IV random effects			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Second stage							
	No performance pay	*Only individual performance pay*	*Only collective performance pay*	*Collective & individual performance pay*	*No performance pay*	*Only individual performance pay*	*Only collective performance pay*	*Collective & individual performance pay*
WFH	-0.627*** [-0.196] (0.197)	-1.427*** [-0.200] (0.213)	1.203*** [0.281] (0.193)	1.287*** [0.199] (0.216)	-0.211*** (0.074)	-0.275*** (0.041)	0.203*** (0.055)	0.303*** (0.054)
	First stage							
	WFH	*WFH*	*WFH*	*WFH*	*WFH*	*WFH*	*WFH*	*WFH*
WFH share by occupation	0.674*** (0.022)	0 .674*** (0.021)	0.674*** (0.022)	0.6742*** (0.022)	0.566*** (0.024)	0.636*** (0.022	0.600*** (0.023)	0.581*** (0.024)
Wald chi2 test of exogeneity	11.42 **	44.37 ***	43.33***	33.64 ***	---	---	---	---
Robust F test	118.65***	118.65***	118.65***	118.65***	---	---	---	---
Anderson-Rubin test of weak instrument	15.76 ***	48.81 ***	46.13 ***	43.75 ***	---	---	---	---
Wald chi2 test of weak instrument	---	---	---	---	3945***	5897***	4782***	4309***

Number of observations = 44,441. Number of employees = 16,441. Standard errors in parentheses are clustered at the employee level. Marginal effects are in square brackets.
*** Statistically significant at the 1% level. The expanded set of control variables is included, but is suppressed to save space.

Endnotes

[1] As suggested by recent research, the incentives provided by individual performance pay can be so strong that workers may even overwork themselves (Allan et al. 2021, Andelic et al. 2024, Baktash et al. 2022a, 2022b).

[2] Bloom et al. (2022) show that WFH changes employees' communication behavior even during the days they are in the office. WFH employees make increased use of individual messaging and group video calls even when all employees are in the office. This reflects a move towards more electronic communication and less face-to-face communication.

[3] See Appendix Tables A2–A4 for the full results.

[4] Appendix Table A6 shows the definitions and descriptive statistics of the additional controls.

[5] The problem of a weak instrument arises when the correlation of the instrument with the endogenous regressor is small so that conventional approximations to the distribution of IV estimators are generally unreliable. If the instrument is weak, even a small correlation between the instrument and the dependent variable can result in a large inconsistency of the IV estimator (Bound et al. 1995).

[6] All estimates were performed in Stata MP 17.0. Stata automatically calculates the correct standard errors for IV estimations.

[7] Substantial increases in the estimated coefficients are not unusual in studies accounting for the issue of endogeneity. For example, this phenomenon has been observed in studies on the returns to schooling (Card 1995, Ichino and Winter-Ebmer 1999).