Working from Home: Heterogeneous Effects on Hours Worked and Wages*

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Abstract

The usage of working from home (WfH) had already been on a rise in the three decades prior to the Covid-19 pandemic. Yet, empirical evidence on related labor market outcomes is limited. We exploit the German Socio-Economic Panel between 1997 and 2014 to investigate how such a work arrangement relates to labor market outcomes, job and life satisfaction in the pre-Covid period. We find that childless employees work an extra hour of unpaid overtime per week and report higher job satisfaction after taking up WfH. Among parents, gender difference in working hours and monthly earnings are lower after WfH take-up. However, hourly wage increases with WfH take-up are limited to fathers, unless mothers change employer. Hence, the results indicate that higher WfH rates after the pandemic might affect workers quite differently.

JEL codes: J2, J31, O33

Keywords: working from home, working hours, wages, gender, flexible work arrangements.

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1 Introduction

Over the past two decades, progress in information and communication technologies (ICT) has made it easier to perform tasks outside of the workplace; in part due to better connectivity through broadband internet, as well as cheaper, more user-friendly computers. This made working from home (WfH) feasible for a wider range of tasks, and likely reduced the employer's costs of providing such arrangements (Vazquez and Winkler, 2017). Consequently, there has been a major expansion of WfH in many advanced economies such as the US, Nordic and Central European countries.[1] Among certain groups of workers, such as managers, WfH has already become a mainstream practice (Bloom et al., 2015). With the need for social distancing induced by the Covid-19 pandemic, WfH has become even more widespread.[2] After the pandemic, WfH a few days a week is likely to be a widely used practice (Barrero et al., 2021).

Yet, despite its growing relevance, little is known about how this work practice relates to workers' careers and well-being. The limited empirical evidence is mixed and has not fully taken into account that outcomes likely vary across workers with different private responsibilities. In general, more flexibility in where to work is expected to benefit primarily those who face private restrictions, such as mothers. This is why flexible working arrangements may help reduce gender gaps in the labor market, especially among parents. Yet, while this may be true for labor supply responses, the theoretical expectations are far from clear-cut when it comes to wages and other career prospects. On the one hand, WfH may improve wages and career prospects if it raises productivity due to a beneficial work environment at home, or due to workers' willingness to extend their availability beyond usual office hours. On the other hand, if WfH mainly serves to reconcile work and family responsibilities, it may give rise to a wage penalty if it is costly to employers.

This paper contributes to the limited and inconclusive evidence on labor market outcomes related to WfH by providing new empirical evidence for Germany from the end of the 90s until 2014, a period of massive expansion of WfH practices. While WfH practices in this pre-pandemic period were mostly used as a complement to on-site work, mixed working arrangements, combining remote and on-site work, are likely to be the prevalent way of using WfH after the pandemic (Barrero et al., 2021). The paper provides novel and comprehensive insights on how the adoption of WfH practices relates to a whole set

[1] Evidence on high and rising shares of employees working at home at least occasionally before 2020 can be found for the U.S. (Lister and Harnish, 2011), and for Nordic and Central European countries (see Welz and Wolf, 2010; Brenke, 2014; Vilhelmson and Thulin, 2016, among others).

[2] Brynjolfsson et al. (2020) find that a third of U.S. workers switched to remote work at the start of the pandemic, in addition to 15 percent of workers already WfH before. In Germany, at the start of the pandemic, a quarter of employees were mainly working from home, which is twice the share of employees using WfH at least occasionally before the pandemic (Moehring et al., 2021).

of labour market and well-being outcomes. In particular, we explore how WfH take-up is linked to changes in contractual hours, overtime hours, hourly wages, and monthly earnings. We also investigate the role of compensating wage differentials using information on job and life satisfaction, and take into account other schemes used to compensate overtime such as time off. In this way, we complement earlier studies that focus on responses in working hours and disregard compensations for increased working hours other than wages. Moreover, we study the case of employees working from home at least once a month or once a week, hence departing from the older literature that focuses on the less common case of home being the only workplace (Edwards and Field-Hendrey, 2002; Oettinger, 2011).

As a second contribution, we examine the heterogeneity of these effects across groups of workers with a particular focus on differences between men and women, as well as parents and non-parents. The existing literature often fails to dig deeper into this heterogeneity, despite the fact that effects are likely to vary with opportunity costs of working and labor force attachment. By carving out the differences by gender and parental status, we contribute to the debate on the role of schedule constraints as a source of gender differences in working hours and wages (Goldin and Katz, 2011; Goldin, 2014; Cubas et al., 2019) and the role of flexible work arrangements and "family friendly" workplaces as a means of reconciling work and family responsibilities (see Allen et al., 2015; Hotz et al., 2017; Angelici and Profeta, 2020, among others).

Thirdly, we reduce the potential endogeneity of WfH compared to previous studies that mostly use cross-sectional data only (Schroeder and Warren, 2004; Weeden, 2005; Gariety and Shaffer, 2007; Leslie et al., 2012). These studies likely suffer from a bias since WfH schemes are more frequently offered by high performing firms to workers who are positively selected among the firm's workforce (Osterman, 1995; Kelly and Kalev, 2006; Bloom and Van Reenen, 2006). We can partly address these concerns by accounting for time-invariant unobserved individual heterogeneity in abilities, preferences and working attitudes, and by controlling for an extensive set of time-varying demographic and job-related variables. We also control for gender-specific industry and occupation fixed-effects to account for unobserved heterogeneity in the composition of the workforce across jobs. Still, our estimates should be considered descriptive as we cannot control for all potential biases and no instrument proved strong enough to explain WfH take-up. Reassuringly though, our main results are robust to including further occupational and regional characteristics as well as the partner's employment status and earnings. In order to address unobserved shocks that affect labor supply decisions as well as the decision to work from home, we also examine whether selection into paid employment due to changes in unobserved preferences or characteristics affects our results using a control function approach in a panel data setting.

None of these robustness checks puts any doubts on the main findings. Finally, we provide novel insights into the channels underlying the effects of WfH by providing suggestive evidence on the role of commuting, flexible schedules and changes in childcare responsibilities. We also examine to what extent the take-up of WfH is accompanied by changing firm or job position within a firm to shed light on the role of such career events in explaining part of the WfH-related labor market outcomes. If WfH take-up comes with higher wages, it is informative to understand whether this applies only to workers with simultaneous career movements or whether it also applies to workers with otherwise unchanged jobs.

Our findings suggest that:

(i) the incidence of WfH in Germany increased, on average, by about 50 percent between 1997 and 2014, but it almost tripled among mothers, suggesting that WfH is likely to be driven by both firms' demands as well as supply-side motives of reconciling family and work responsibilities;

(ii) among childless workers, WfH take-up is related to an expansion of overtime hours and higher job satisfaction, despite no compensation in terms of wages or time-off, suggesting that childless employees value the increased flexibility that WfH allows;[3]

(iii) among parents, WfH take-up comes with reduced gender differences in contractual hours and monthly income;

(iv) saving time on daily commutes, as well as the ability to work in the evening and better share childcare responsibilities are two mechanisms that enable mothers to work longer hours with WfH;

(v) for fathers, hourly wages are higher after WfH take-up, while wages remain unchanged for mothers unless they change employer. This points to a gender difference in bargaining power within established employer-employee relationships;

(vi) there is no evidence of a better work-life balance for parents after WfH take-up despite positive labor market outcomes, indicating that related advantages may be counterbalanced by WfH-related conflicts between private and professional needs.

The rest of the paper is organized as follows. In section 2 we discuss the theoretical expectations regarding the effect of WfH on various outcomes and review existing findings. Section 3 describes the data and provides some facts and trends in WfH incidence and labor

[3]We use the term childless as a short way to designate individuals without dependent children under the age of 16. Parents, mothers and fathers refer in the text to individuals with children under the age of 16.

market outcomes across different groups of workers. We discuss the empirical strategy in section 4. We present the results, robustness checks and discuss the mechanisms in section 5. The last section concludes.

2 Labor Market Outcomes of WfH - a Review

2.1 Labor supply effects

From a theoretical perspective, there are two reasons why WfH may have positive effects on labor supply both at the extensive and intensive margin. Firstly, WfH can save on commuting time by avoiding daily commutes although the link between commuting time, WfH and labor supply appears to be weak.[4] What appears to be more important is that WfH reduces schedule constraints that stem from private commitments, such as childcare, during standard working hours. With WfH, it may be possible to meet private needs during usual office hours and to also better synchronize work and leisure time within a couple (Bryan and Sevilla Sanz, 2014). In a standard labor supply framework, these advantages attached to WfH reduce the time cost of working, raise the utility level for a given number of working hours, and may thus result in positive labor supply responses both at the extensive and intensive margin (Cogan, 1981; Black et al., 2014). In particular, this should apply to employees with family responsibilities. Therefore, WfH is expected to be one potential means of narrowing the gender gap in working hours, including overtime, that has recently been considered a main source of the gender wage gap (Goldin, 2014; Cortes and Pan, 2019).

To the best of our knowledge, there are no empirical studies explicitly focusing on the effect of WfH on the extensive margin. However, Dettling (2017) demonstrates that access to broadband internet significantly increases female labor supply by about 4 percentage points on average, and by 8 percent among high-skilled mothers. She considers telework and time saved in home production to be the channels which likely explain how internet access encourages women with strong schedule constraints to enter the labor market.

Empirical evidence on the effect of WfH on the intensive labor supply is also quite limited, but tends to suggest a moderate extension effect of WfH on overtime rather than contractual hours. Evidence by Noonan and Glass (2012) point to a positive association between WfH and longer overtime hours in the US, although the use of cross-sectional

[4] Black et al. (2014) show that U.S. metropolitan areas with larger increases in average commuting time between 1980 and 2000 experienced slower growth in married women's labor force participation suggesting some impact of commuting distance on the extensive labor supply. Conditional on labor force participation, though, commuting time or distance do not have much of an effect on weekly working hours (Gutiérrez-i Puigarnau and van Ommeren, 2010; de Graaff and Rietveld, 2007).

analysis may give rise to an estimation bias, as workers who telecommute tend to be positively selected with regard to hours worked and other performance measures. Controlling for individual fixed effects, Possenriede et al. (2016), however, confirms extended overtime hours in case of teleworking for both men and women in the Netherlands, and a marginally significant increase in contractual hours for women only.

2.2 Wage effects

In contrast to the expected labor supply effects, the theoretical effects of WfH on wages are ambiguous, potentially giving rise to either a wage premium or a wage penalty depending on the relative strength of a hedonic effect, a productivity effect, as well as a signaling effect.

The hedonic wage effect reflects a worker's willingness to pay for being able to work from home or the need to be compensated for doing so. Workers for whom WfH raises utility due to reconciling schedule constraints or saving on commuting time might trade WfH not only for leisure, but also for wages, hence giving rise to a compensating wage differential. By the same token, workers who prefer on-site work, but use WfH in response to employer needs may need to be compensated by higher wages. The hedonic effect can thus potentially go in both directions. Evidence from an experimental study that offered random job attributes to potential job applicants suggests that, on average, both men and women attach a positive value to working from home. Yet, women's willingness to pay for WfH exceeds that of men, especially among parents with young children, suggesting that WfH might actually increase the gender wage gap (Mas and Pallais, 2017). In line with this, a recent study by Lott and Chung (2016) finds that flexible work schedules result in increased overtime for both men and women that is compensated by higher annual earnings only for men; hence reinforcing gender earnings gaps.

Moreover, WfH may also transmit a signal regarding a workers' job attachment. An experimental study by Leslie et al. (2012), for instance, demonstrates that WfH may induce career premia or penalties depending on whether managers attribute the use of such arrangements to private or job-related needs. To the extent that managers consider that women use WfH for private needs but men do so for business needs, such perceptions may increase gender wage gaps.

In addition, WfH may increase worker productivity if it raises motivation or provides a more productive work environment, at least for certain tasks (Dutcher, 2012). On the other hand, workers may get interrupted by family members or other private responsibilities, hence giving rise to shirking which is costly to monitor at home. Empirical evidence more often suggests positive rather than negative productivity effects (Gajendran and Harrison,

2007). In an experimental setting, Bloom et al. (2015) report a 13 percent performance increase among call center employees that were allowed to work from home. Similarly, Harrington and Emanuel (2021) find that WfH raises productivity by 8 percent in a natural experiment with call-center workers at a large U.S. firm. Using a survey conducted in the U.S., Barrero et al. (2021) find that self-estimated productivity when WfH during the pandemic has been 7.1 percent higher than expected. Given expected usage of WfH arrangements over the week, they anticipate a 5 percent boost in productivity after the pandemic. Angelici and Profeta (2020) also find that flexibility in the time and place of work increases employees' productivity in a large Italian company of the multi-utility sector. In a competitive labor market, such productivity effects would be reflected in a worker's wage level. Moreover, the productivity effect may to some extent depend on available technologies useful for remote working, which have improved during the pandemic. de Graaff and Rietveld (2007) present evidence for the Netherlands that a wage penalty of 19 percent for working at home is almost reduced to zero once workers have access to the internet. Similarly, Oettinger (2011) shows that the expansion of home-based work was strongest in occupations with a greater growth in IT use and that this expansion was accompanied by a declining wage penalty for home-based work. More recently, the pandemic has been another occasion to reduce stereotypes around WfH practices and to invest in digital technologies that enhance productivity while working remotely.

However, the possibility of WfH and its potential boost in productivity are unevenly distributed among the workforce. Depending on the tasks that have to be performed, some jobs can be done from home while others require on-site presence. Using the O*Net description of tasks performed on the job, Dingel and Neiman (2020) estimate that 37 percent of jobs in the U.S. can be fully done from home. Using the same method, Boeri et al. (2020) estimate this share to be above 30 percent for the UK and Sweden, around 28 percent for Germany and France, and just below 24 percent in Italy. Using job tasks and tools used by the German workforce, Arntz et al. (2020) compute a similar index but distinguish full and partial WfH feasibility. They find that 31 percent of jobs in Germany could be almost entirely performed from home while in an additional 12 percent of jobs a share of tasks can be performed from home. They also find that women, parents and employees with a university degree are more likely to be employed in occupations with teleworkable tasks. The growing literature on WfH finds that teleworkable jobs are predominantly high-skill, high-wage service jobs such as management, professional and related occupations, and that younger and highly educated employees are more likely to work remotely (Adams-Prassl et al., 2020; Brynjolfsson et al., 2020; Hensvik et al., 2020, among others).

Overall, WfH arrangements may theoretically give rise to both a wage premium and a wage penalty, and its effect likely depends on job and individual characteristics. Reflecting this ambiguity, empirical studies have found mixed evidence. While some studies suggest a wage penalty for working from home (Glass, 2004), others suggest positive wage effects (Schroeder and Warren, 2004; Weeden, 2005; Gariety and Shaffer, 2007; Leslie et al., 2012). Yet, most of these studies use cross-sectional data only and may thus be upwardly biased if the positive selection of WfH practices at the level of firms and workers is not taken into account. As an exception, Glass and Noonan (2016) exploit US individual panel data to control for individual fixed effects, as well as information on firms' characteristics, and find a wage penalty for WfH during overtime but not during contractual hours. These average effects, however, may hide heterogeneous responses across groups with different private constraints.

2.3 Job and life satisfaction

Since WfH reduces schedule constraints and potentially lowers the fixed costs of working due to reduced commuting costs, WfH should raise the utility associated with a given level of hours and wages. This should be reflected in a higher job satisfaction among those working from home than among otherwise comparable workers without WfH arrangements. Indeed, studies from the sociological or management literature support the view that an increased autonomy over when and where to work raises job satisfaction (Kröll and Nüesch, 2017; De Menezes and Kelliher, 2017; Wheatley, 2017). However, the value attached to flexible work arrangements such as WfH may differ across workers. This may be particularly pronounced among women whose willingness to pay for such arrangements has been shown to exceed men's (Mas and Pallais, 2017), or among parents whose schedule constraints are tighter (Angelici and Profeta, 2020). Since the utility gain derived from flexible arrangements may also be traded against lower wages or increased hours, simultaneous wage and hours adjustments need to be taken into account in order to assess the uncompensated value that workers attach to such work practices. If wage and hours adjustments fully compensate for the utility gains, WfH need not raise job satisfaction.

Life satisfaction depends on both the satisfaction derived from the job and the private domain. Hence, life satisfaction may rise with improved job satisfaction. However, WfH may exert additional positive or negative effects on the private domain. This is because WfH may facilitate the reconciliation of family and job needs, but at the same time generate new sources of conflict and stress at home (Baines and Gelder, 2003; Sullivan, 2012; Song and Gao, 2018).

Hence, WfH could be more or less favorable to overall life satisfaction depending on

the interactions between private life and work. These interactions are likely to differ by gender and parental status, as illustrated by the paradox of the decline in female happiness (Stevenson and Wolfers, 2009). In spite of better access to the labor market and better control on family formation, women report lower well-being, both in absolute terms and relative to men, than four decades ago. Hence, it is unclear whether WfH will translate into greater life satisfaction or may even be detrimental due to new expectations and more pressure.

3 Data and Descriptive Statistics

3.1 The German Socio-Economic Panel

The German Socio-Economic Panel (SOEP) is a panel dataset consisting of around 20,000 individuals living in Germany interviewed annually since 1984.[5] It includes detailed individual and household-level characteristics and also provides information on working from home in five waves (1997, 1999, 2002, 2009 and 2014). In these waves, individuals were asked whether they sometimes work from home and, if so, whether they do it on a daily, weekly or monthly basis. Note that this information does not capture the actual intensity of WfH, as we do not have any information on the number of hours worked at home or whether WfH takes place during normal office hours or during overtime. We construct a dummy variable equal to one if the individual works from home at least once a month and test for the robustness of the results when using weekly WfH instead. Among those working from home at least once a month, 14% do it every day, 45% do it at least once a week, and 41% do it once every two to four weeks. Hence, we focus on occasional home-based work and exclude those whose main place of work is their home. We thus focus on WfH as a complement to on-site work.[6] Moreover, we include only individuals aged 20-65 years who are not self-employed, not in education or training, nor in marginal employment (i.e. those earning less than 400-450 euros per month) and whose main place of work is not at home. Concerning working hours, the data allows us to distinguish between contractually agreed weekly working hours and actual weekly working hours (i.e. the number of hours generally worked every week). Overtime hours are calculated as the difference between actual working hours and contractually agreed working hours. We trim overtime hours by excluding the 1st and the 99th percentile, which implies excluding observations with negative overtime hours and more than 23 overtime hours per week. The SOEP also contains information on self-reported monthly gross earnings that include earnings related

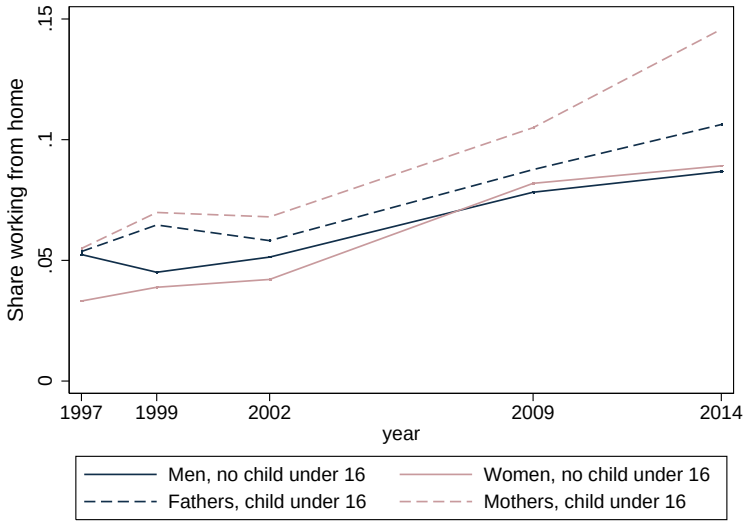
[5] See SOEP (2016) and Wagner et al. (2007) for details on the SOEP data set.

[6] Besides, we do not identify telecommuting or teleworking, nor a broader definition of remote work.

to overtime hours.[7] Besides monthly earnings, we also construct a measure of hourly wages by dividing self-reported monthly gross earnings by actual monthly working hours that consists of both contractual and overtime hours. Our hourly wage measure hence reflects the actual average wage for any hour worked irrespective of whether hours were contractually agreed or overtime. This implies that additional unpaid overtime reduces hourly wages.[8] We calculate real wages based on the CPI deflator using 2010 as the base year. In order to ensure that outliers are not driving the wage results, we also trim hourly wages excluding the 1st and the 99th percentile (individuals receiving an hourly wage lower than EUR 4.80 or higher than EUR 48 in 2010 value) and we employ the standard logarithmic form for the wage regressions. Job and life satisfaction are measured on an 11-point Likert scale.

Consistent with what has been reported from other advanced economies, Figure 1 shows that the share of individuals working from home has increased in Germany over the past 20 years. Moreover, the increase in WfH has been strongest among mothers. This suggests that the WfH decision is likely to be driven, at least in part, by supply-side motives of reconciling family and work responsibilities and not by employers' needs alone.

Figure 1: Trends in working-from-home by gender and parenthood in Germany



Source: SOEP. 1997, 1999, 2002, 2009 and 2014 waves. *Notes:* The figure is based on 8,143 employed workers (23,092 observations) for the five waves. In 2014, the share of female and male employees with a child under 16 years old are 14% and 17% respectively. The share of female and male employees without a child under 16 years old are 36% and 33%.

In addition, the ability to use WfH arrangements is also strongly related to job char-

[7] Bonus payments are not included.

[8] In Germany, overtime may either be paid, compensated by time off or be fully uncompensated if the employer did not ask for overtime hours. For higher tier workers, monthly earnings often contain a lump-sum payment for all overtime hours. Whether there is compensatory time off will be examined in section 5.1.

acteristics. Table A.1 in the Appendix shows that the share of employees who sometimes work from home in 2014 differs greatly across industries. While 15% of employees in the services sector use WfH, no one in the mining or energy sectors brings work home, and very few do so in the trade sector. Table A.2 shows that the share of employees who sometimes work from home varies also greatly across occupations, tasks or work tool intensities. Teachers are different from all other employees as 65% of them report working from home in 2014, a share well above the average. After teachers, managers, consultants, accountants and IT specialists are those who work from home most often, unlike manufacturing blue collar workers and cleaners who never work from home. This description for the period before 2020 confirms what has been documented in the group of papers on WfH during the pandemic. Moreover, we find that the likelihood of WfH increases with the level of autonomy at work. It also increases with an occupation's share of analytical tasks. Finally, in occupations in the top quarter of personal computer use, 11% of employees work sometimes from home while 3% of employees do it in occupations where PCs are less common. Hence, the pattern of WfH incidence seems to resemble what has been found in other countries.

3.2 Estimation Sample

For all subsequent analyses, we further restrict the sample to those for whom we have information on whether or not they work from home in at least two waves. We also exclude teaching and religious occupations from the sample, since the majority of individuals in these occupations have always been working from home.[9] Moreover, we focus on the take-up of WfH only, and leave out dropouts. The reason for this is that the take-up decision is more likely to be driven by factors exogenous to the firm and the individual, such as the extended availability of broadband internet, whereas the drop-out decision is more likely to be driven by firm and individual-specific unobservable factors that may be related to the quality of the work arrangement. WfH dropouts might also reflect transitions out of parenthood that are, however, difficult to control for as the timing of these transitions may be very individual. Moreover, due to rigidities, it is unlikely that wage gains during WfH practices are taken away after dropout at least in the short to medium run.

The final sample is thus composed of individuals never WfH, always WfH and individuals who switch from not using WfH to using WfH later on. Hence, we estimate labor market outcomes related to WfH take-up decisions only. We end up with an unbalanced panel of 7,602 individuals (21,392 observations), 46 percent of whom are women, who we observe for 2 to 5 waves over the period 1997-2014.

[9]The main results are similar in magnitude when including these occupations in the analysis, but the estimates are less precise.

Table 1: Summary statistics by working from home status and gender

	Female				Male			
	WfH	No WfH	Difference (t-stat.)		WfH	No WfH	Difference (t-stat.)	
Panel A: Outcome variables								
Actual working hours per week	36.06	35.13	0.94*	(1.66)	46.97	42.43	4.54***	(17.06)
Contracted working hours per week	31.66	32.82	-1.15**	(-2.31)	38.99	38.76	0.23	(1.54)
Overtime hours per week	4.40	2.31	2.09***	(10.43)	7.98	3.67	4.31***	(20.15)
Gross hourly real wages	18.47	13.48	4.99***	(16.43)	21.94	16.31	5.63***	(19.47)
Panel B: Main explanatory variables								
Migration background	0.15	0.19	-0.04*	(-1.79)	0.11	0.22	-0.11***	(-5.77)
Married (or cohabitating)	0.86	0.76	0.10***	(4.04)	0.88	0.81	0.07***	(3.84)
Age	43.51	42.30	1.21**	(2.05)	44.32	42.29	2.02***	(4.41)
Children under age 16	0.44	0.30	0.14***	(5.36)	0.46	0.40	0.05**	(2.23)
Youngest child aged 0-2	0.05	0.02	0.03***	(3.44)	0.08	0.09	-0.01	(-0.80)
Youngest child aged 6-15	0.28	0.23	0.05*	(1.95)	0.28	0.24	0.04**	(2.13)
Tertiary education degree	0.48	0.19	0.29***	(12.66)	0.56	0.17	0.40***	(22.72)
Vocational qualification	0.47	0.68	-0.21***	(-7.75)	0.39	0.71	-0.32***	(-15.53)
Part-time work experience (in years)	5.19	4.88	0.31	(0.79)	0.92	0.39	0.53***	(7.45)
Full-time work experience (in years)	14.02	13.84	0.19	(0.32)	19.61	20.20	-0.59	(-1.23)
Urban region	0.70	0.66	0.05*	(1.72)	0.75	0.66	0.09***	(4.02)
Civil servant	0.31	0.35	-0.04	(-1.50)	0.27	0.22	0.04**	(2.33)
Large firm (>200 empl.)	0.58	0.47	0.10***	(3.58)	0.67	0.53	0.14***	(6.21)
Small firm (<20 empl.)	0.24	0.23	0.01	(0.51)	0.10	0.17	-0.07***	(-3.84)
Firm tenure (in years)	11.37	10.72	0.66	(1.23)	12.42	12.64	-0.22	(-0.45)
New employer	0.17	0.15	0.02	(1.02)	0.17	0.16	0.02	(1.14)
New position within firm	0.08	0.02	0.05***	(6.15)	0.07	0.02	0.05***	(7.89)
Panel C: Further explanatory variables								
Partner in paid employment	0.86	0.83	0.03	(1.10)	0.67	0.61	0.06**	(2.43)
Partner's earnings	4824.89	2915.43	1909.45***	(11.89)	2057.67	1598.92	458.75***	(7.01)
Partner WfH	0.27	0.10	0.17***	(8.49)	0.18	0.05	0.13***	(11.83)
Commuting distance (in km)	23.56	12.96	10.60***	(5.82)	42.63	21.98	20.65***	(7.70)
Observations	301	9,579			492	11,020		

Source: SOEP, sample of 7,602 employed workers (21,392 observations) from the 1997, 1999, 2002, 2009 and 2014 waves. Note: The table displays summary statistics on the main control variables by WfH status. The information on commuting distance is available only for a subset of 20,805 observations. The information on partner's employment, earnings and WfH status is available only for a subset of 15,946 observations.

Table 1 provides summary statistics by gender and WfH status. It shows that individuals working from home differ from individuals working on-site only. Employees working from home earn higher wages and work longer overtime hours than employees working in the office only. On average, employees working from home are older, are more likely to have a university degree and are less likely to have a migration background (i.e. have migrated to Germany or have parents who migrated). When it comes to the household context, they are more likely to live as a couple and to have an employed partner with relatively high earnings. Individuals working from home also tend to commute longer distances, which confirms that WfH may be used to save on commuting costs. Moreover, a higher fraction of individuals working from home have children under age 16 compared to pure on-site workers, particularly among women. This fact is consistent with the idea that WfH may be used to better combine work and family responsibilities. Turning to job characteristics, WfH is much more common in larger firms while firm tenure is not related to the WfH status. Finally, we find that WfH relates to some career events. Both men and women

are 5 percentage points more likely to report a change in position within their firm (in a given period) if they work from home (at the end of that period). However, the probability of changing employer is higher but not statistically different for employees using WfH compared to other employees.

3.3 Determinants of WfH take-up

Table 2 documents how individual and family characteristics, as well as these career events, are related to the probability of working from home using a multivariate analysis based on the described sample excluding WfH dropouts.[10] The results from a linear probability model with OLS in columns (1) and (4) for women and men, respectively, confirm the findings from Table 1. When investigating the determinants of WfH take-up by adding individual fixed effects in column (2) for women and column (5) for men, most of the characteristics turn out to be insignificant and are thus not reported. However, women with children under 16 are significantly more likely to start working from home than other women. Moreover, according to the FE estimates, this seems to hold irrespective of the age of the youngest child. On the contrary, fathers are not more likely to start working from home than childless men. Moreover, women are more likely to work from home when they get married or move in with their partner, and when they move to a more rural area. The fact that couples tend to make their location decisions based on the male breadwinner's job could explain the latter result. Females might thus need to start working from home because they are bound to their partner's choice of location.

When further adding characteristics about the partner's job, see columns (3) and (6), these results do not change much.[11] Changes in the employment status or wage of the partner are not significantly related to WfH take-up, while men appear to be more likely to take-up WfH when the partner starts working from home as well. Moreover, career events such as changing employer or changing position are not related to WfH take-up, suggesting that observable characteristics explain the correlation between WfH take-up and these events as shown in Table 1. Hence, individuals seem to change employer and job positions for other reasons than for taking up WfH. Still, we will shed light on the impact of these parallel career shifts on the estimated effects of WfH take-up on hours and wages. As parents are more likely to start WfH, and also differ in other aspects from childless employees as has been argued in section **??**, we will estimate labor market outcomes after WfH take-up separately for childless individuals and parents. More precisely,

[10] The main insights are unaltered when including these dropouts.

[11] Similarly, changes in commuting distances are not related to WfH take-up, even though the correlation between WfH and commuting distances is strong in the cross-section. Results available upon request.

Table 2: Determinants of working from home

	Female			Male		
	OLS	Fixed effects		OLS	Fixed effects	
	(1)	(2)	(3)	(4)	(5)	(6)
Married (or cohabitating)	0.013***	0.016**	0.026**	0.010*	0.000	-0.000
	(0.004)	(0.008)	(0.012)	(0.006)	(0.010)	(0.012)
... × partner in paid employment			-0.014			0.002
			(0.012)			(0.009)
... × partner's earnings			0.000			0.000
			(0.000)			(0.000)
... × partner WfH			0.019			0.038*
			(0.015)			(0.021)
Urban region	-0.008	-0.066**	-0.068**	0.005	0.027	0.031
	(0.005)	(0.031)	(0.033)	(0.006)	(0.026)	(0.029)
Children under age 16	0.044***	0.031*	0.025	0.008	0.012	0.011
	(0.012)	(0.016)	(0.016)	(0.009)	(0.011)	(0.012)
Youngest child aged 0-2	-0.004	-0.002	-0.002	-0.012	-0.007	-0.004
	(0.021)	(0.026)	(0.028)	(0.009)	(0.011)	(0.012)
Youngest child aged 6-15	-0.027**	-0.017	-0.015	0.003	0.003	0.004
	(0.012)	(0.014)	(0.014)	(0.008)	(0.010)	(0.010)
Civil servant	-0.016***	-0.013	-0.014	-0.021**	-0.005	-0.000
	(0.006)	(0.010)	(0.010)	(0.009)	(0.014)	(0.014)
New employer	-0.002	0.006	0.004	-0.002	-0.004	-0.003
	(0.006)	(0.009)	(0.009)	(0.006)	(0.009)	(0.009)
New position within firm	0.025	0.009	0.009	0.061**	0.033	0.038
	(0.018)	(0.022)	(0.023)	(0.024)	(0.025)	(0.028)
Occupation fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Occupational status FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9880	9880	9308	11512	11512	11091
R-squared	0.101	0.680	0.695	0.119	0.714	0.720

Note: Linear probability model estimates with WfH at least once a month as the dependent variable. All equations include year fixed effects, federal state fixed effects, migration background, the highest educational qualification, firm size dummies, full and part-time work experience, as well as age and tenure and their squared terms as further control variables. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

we will look at WfH take-up of parents and non-parents, i.e. we do not consider those who experienced a transition into parenthood. This is because decisions to switch to part-time after maternity leave and WfH take-up after first birth may be interrelated, hence complicating the interpretations of results.[12] The subsequent analysis thus focuses on labour market outcomes of individuals who start working from home during a period of continued parenthood or during a period of continued childlessness. Note that this also implies that

[12]We present results for individuals having a first child in Appendix Table A.5. As expected, we find a negative, though insignificant coefficient for working hours among first-time mothers which might reflect this simultaneity. For first-time fathers, we get significant hourly wage and earnings increases which might reflect that first-time fathers who start WfH are positively selected.

some individuals contribute to both the sample of childless individuals and the sample of parents if we observe at least two consecutive waves after individuals experienced a transition into or out of parenthood.[13] Table A.3 in the Appendix shows the sample sizes of all sub-groups, mentions the numbers of individuals experiencing transitions into and out of parenthood and includes the number of individuals taking-up WfH for each sub-group. All in all, we observe close to 400 take-up events for 7,602 individuals, with take-up rates being slightly higher among parents than among non-parents.

4 Empirical Strategy

Since the effect of WfH likely differs across groups of workers with different motives for taking up WfH, we split the sample into more homogeneous sub-groups regarding potential reasons for WfH take-up and conduct separate estimations for these groups. In particular, we differentiate between people with and without children under age 16, excluding from the latter group those who had their first child.[14] In this way, we take into account that men's and women's career paths are affected differently by childbirth (Kleven et al., 2018 and references therein) and that these differences may interact with WfH take-up.

In general, the decision to take-up working from home is determined by the employee's and the employer's willingness to use this arrangement and the state of the technology that makes it feasible. While advances in technologies are exogenous to individual outcomes, employees' and firms' characteristics that determine WfH take-up may generate endogeneity biases. In order to reduce such biases when measuring the link between WfH take-up, hours worked and wages, we estimate the following regression separately for men and women:

$$Y_{it} = \alpha + \beta_1 WfH_{it} + X'_{it}\lambda + \theta_t + \theta_o + \theta_i + \mu_{it} \tag{1}$$

where the individual labor market outcome Y_{it} is the number of actual hours worked, the number of contractual hours and the logarithm of the wage of individual i at time t. WfH_{it} is a dummy variable indicating whether individual i works from home at least once every month in year t. X_{it} is a vector that includes individual time-varying characteristics such as education, age and its square, actual experience, number of children in different age groups, and the marital status, as well as job characteristics such as firm tenure, firm size, whether it is a public sector job, the region of work, and the industry affiliation.

[13] Transitions out of parenthood occur if the youngest child becomes older than 16 years of age. Note that our main estimates for the sample of parents are very similar when choosing a different threshold for the age of the youngest child such as 12 years, as shown in Appendix Table A.4, or 18 years (available upon request).

[14] See also section 3.3 for a discussion and Appendix Table A.5 for results for this sub-group.

We include year fixed effects θ_t as well as μ_{it} which is an unobserved and time-invariant individual specific effect. In addition, occupation fixed-effects θ_o ensure that we exploit changes in individual WfH status within the same occupation only. Also note that due to running separate estimations by sub-samples, we allow year and occupation fixed effects to be both gender-specific and specific to the parenthood status.

Our estimation strategy addresses a number of potential threats to identification that are mostly unresolved in much of the related literature.[15] In particular, we control for a rich set of time-varying observables such as couple formation, childbirth or job-related characteristics that may confound the effect of WfH. Our baseline specification further eliminates any endogeneity problem operating through the individual fixed-effects θ_i like time-invariant preferences and ability. Hence, we estimate the link between WfH and labor market outcomes by exploiting WfH take-up, rather than WfH status. Our estimates can still be biased if individuals select into occupations with a high or low incidence of WfH for unobserved reasons that are also correlated with the outcomes. To tackle this issue, we condition on occupation fixed-effects (using 86 groups). Thus, related biases should be minimized as the identification stems from those taking up WfH while remaining in the same occupation. Moreover, occupational choice is likely to be driven by time-constant preferences and attitudes which we take into account by including individual fixed-effects.

Still, there may be time-variant unobservable changes that affect both labour market outcomes and the decision to take up WfH. As an example, unobserved firm-level changes in manager and human resources practices could be correlated with labour market outcomes and WfH practices. Hence, WfH may still be endogeneous in our main estimates in section 5.1 and results should be considered as multivariate correlations that only eliminate some major sources of biases.

We confront our estimates with several robustness checks in section 5.2 though. In particular, we test the robustness of the results to additional controls including occupational characteristics, such as gender-specific average hourly wages and actual working hours at the occupational level, individuals' commuting distances, and more detailed information on the household structure using partner's characteristics as there may be interaction effects between partners. We do not include partner characteristics in our main analysis though as there may be additional concerns from reversed causality. Moreover, we explore whether a selection bias due to unobserved shocks to individuals' decision to (re)enter paid employment affects WfH estimates using a control function approach adapted to the panel data setting.

[15]Most studies use cross-sectional variation only. The few panel studies that include individual fixed effects still do not take account of selection into occupation or employment and often estimate average effects for very heterogeneous sub-groups only.

Aside from any endogenous selection into paid employment, the choice of the specific employer may also be endogenous if individuals select into certain firms to get access to WfH amenities that also differ with respect to other outcome-relevant aspects. Since we have only few employer-specific characteristics that we can control for, we later condition on remaining with the same employer before and after WfH take-up as a robustness check, thus tackling potentially endogenous selection into certain types of firms. By doing so, we exploit variation in WfH that is likely driven by an exogenous shock to a firm's costs of offering WfH due to, for instance, computer-related technological progress and better Internet connectivity.

Finally, climbing up the career ladder may simultaneously increase working hours, the demand for availability outside usual office hours, and wages. This would induce an upward bias for the effect of WfH on our outcome measures. We investigate the role of such simultaneous change in job position by comparing our baseline estimates with WfH estimates on a sample of individuals who stay with the same employer and experience no job change.

5 Results

5.1 Working from home, hours worked and wages

In this section, we present the results on how working from home is related to actual hours, contractual and overtime hours, and hourly and monthly earnings. We do so separately for childless individuals in Table 3 and for parents in Table 4 showing results for both men and women, respectively.

Childless employees. First, we present OLS results for childless individuals in column (1) of Table 3 that shows a large positive association of WfH with actual hours. However, when using individual fixed-effects (FE) in column (2), the hours-premium associated with WfH is strongly reduced and no longer significant when further controlling for occupational status in column (3). These different results indicate that OLS estimates are upward biased. Individuals with WfH arrangements work longer hours in jobs and occupations that systematically differ from those without WfH arrangements. Taking account of these potential biases, we still find a significant and positive association of WfH with overtime hours for childless individuals. Childless men and women starting WfH work additional 0.9 and 1.3 overtime hours, respectively, but do not work more on a contractual basis (columns (4) and (5) in Table 3). This is consistent with other findings for the U.S. and the Netherlands (Noonan and Glass, 2012; Possenriede et al., 2016).

Table 3: WfH, hours worked and wages: employees without children under 16

	Actual hours ($h_a = h_c + h_o$)			Contracted hours (h_c)	Overtime hours (h_o)	Hourly wage ($w_h = w_m/h_a$)		Monthly wage (w_m)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Males								
WfH	3.928***	1.071*	0.934	0.012	0.921*	-0.007	-0.009	0.010
	(0.512)	(0.613)	(0.617)	(0.298)	(0.528)	(0.021)	(0.033)	(0.032)
Individual FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Occupational status	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6828	6828	6828	6828	6828	6828	6828	6828
R-squared	0.181	0.778	0.781	0.770	0.742	0.591	0.893	0.906
Panel B: Females								
WfH	2.920***	1.081	0.931	-0.363	1.294**	0.056*	0.003	0.020
	(0.605)	(0.842)	(0.842)	(0.720)	(0.630)	(0.030)	(0.034)	(0.041)
Individual FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Occupational status	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6894	6894	6894	6894	6894	6894	6894	6894
R-squared	0.459	0.869	0.870	0.887	0.711	0.523	0.883	0.917

Note: The results refer to the sub-sample of employees without children under 16 years old. Columns (1) and (6) show estimates of OLS regressions, while the other columns show estimates of fixed effects regressions based on equation (1). Control variables included are year fixed effects, demographic controls (age, age squared, migration background, marital status, age of the youngest child for four age-groups), human capital controls (highest qualification and actual work experience), job characteristics (tenure, tenure squared, public sector dummy, firm size, employer and position change), federal state and urban area dummies, 1-digit industry dummies, occupation fixed effects (95 dummies), occupational status fixed effects (15 dummies). All control variables are gender-specific (interacted with a gender dummy). Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

We may expect that longer overtime hours with WfH are also associated with higher hourly wages if overtime hours signal job commitment or reflect employer's needs for availability. However, in a compensating differential setting, an extra hour worked does not need to be compensated in monetary terms if employees value WfH. Table 3 provides the effect of WfH on monthly earnings and hourly wages, calculated as the monthly pay including overtime payments divided by actual hours. We find that childless individuals do not experience any significant wage increases despite additional overtime hours (columns (6) to (8)). Hence, the extra overtime done while WfH is uncompensated in monetary terms for childless employees, suggesting that neither positive nor negative productivity or signaling effects of WfH dominate for this group. Hence, both men and women seem to "pay" for the possibility to work from home occasionally by providing around one hour of additional overtime per week. This is in line with evidence that workers are willing to pay for the flexibility to choose their place of work (Mas and Pallais, 2017; He et al., 2019).

Table 4: WfH, hours worked and wages: employees with children under 16

	Actual hours ($h_a = h_c + h_o$)			Contracted hours (h_c)	Overtime hours (h_o)	Hourly wage ($w_h = w_m/h_a$)		Monthly wage (w_m)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Males								
WfH	3.466***	1.232**	1.035*	0.385**	0.650	0.030	0.068***	0.091***
	(0.527)	(0.581)	(0.568)	(0.177)	(0.544)	(0.023)	(0.021)	(0.021)
Individual FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Occupational status	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4684	4684	4684	4684	4684	4684	4684	4684
R-squared	0.209	0.792	0.795	0.797	0.758	0.624	0.908	0.915
Panel B: Females								
WfH	-0.358	4.418**	3.950**	3.414**	0.536	0.012	0.118***	0.283***
	(0.966)	(1.737)	(1.824)	(1.576)	(0.610)	(0.034)	(0.040)	(0.077)
Individual FE	No	Yes	Yes	Yes	Yes	No	Yes	Yes
Occupational status	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2986	2986	2986	2986	2986	2986	2986	2986
R-squared	0.426	0.888	0.891	0.897	0.766	0.503	0.891	0.911

Note: The results refer to the sub-sample of employees having children under 16 years old. Columns (1) and (6) show estimates of OLS regressions, while the other columns show estimates of fixed effects regressions based on equation (1). Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Parents. The pattern is, however, different for parents with children under 16 (see Table 4).[16] After WfH take-up, both fathers and mothers work longer. Fathers extend their working week by 1 hour and mothers by 4 actual hours. This hours increase is largely driven by the increase in contractual hours. The larger response of mothers' compared to fathers' contractual hours may be due to lower average contractual hours among mothers, and thus a greater margin of adjustment. In fact, given that average working hours among mothers in Germany are around 22 hours, WfH take-up comes along with an increase of contractual hours by $\sim$ 16 percent, on average. If that finding is not driven by remaining endogeneity issues, it supports the idea that WfH arrangements may help parents, and mothers in particular, to remain attached to the labor market by extending working hours. The hours response might be upward biased though if simultaneous, unobservable changes at the firm level such as the adoption of complementary flexible work schemes also increase working hours. In any case, the extended hours that we observe after WfH take-up pay off in terms of higher monthly earnings of 9 percent for fathers and 32 percent for mothers.

[16]We use a relatively wide age group category for children, in order to increase the sample size and the precision of the estimates. However, Appendix Table A.4 shows that the results are qualitatively similar when restricting the sample to parents with children under 12.

This increase in monthly income is explained by both the extension of contractual working hours and a significant increase in average hourly wages. In fact, the growth in hourly wages appears to be quite large and we will later examine to what extent simultaneous job changes drive these results.

Comparing the results in Table 3 and 4 suggests that WfH take-up is related to higher earnings and/or hourly wages only if there is a simultaneous increase in contractual hours, and not if it only coincides with an increase in overtime.[17] Glass and Noonan (2016) make a similar observation for the US.

The frequency of working from home. So far, we have looked at WfH at least once a month. Yet, with an increasing frequency of WfH, we expect hours and wage changes to actually be stronger if WfH usage drives our findings. In fact, among employees who work from home at least once a month, 60 percent of them actually do so on a weekly basis. Hence, Table 5 allows hours and wages changes to differ depending on whether someone starts working from home at least once a week or every 2-4 weeks. For childless individuals, we find longer overtime hours only for those taking up weekly WfH, although overtime is insignificantly higher also among individuals taking-up a less intense form of WfH. For mothers, starting to work from home at least once a week is associated with 4.2 additional contractual working hours, a higher increase compared to the benchmark results. Conversely, the estimate of 2.5 hours for mothers who work from home every 2-4 weeks is smaller than the benchmark coefficient and insignificant. Irrespective of WfH intensity, however, mother's monthly earnings are significantly higher, albeit the increase is larger for weekly WfH. This is partially driven by a significantly higher hourly wage that is smaller and not significant for less intensive WfH. Hence, for most groups, a higher WfH intensity also comes with stronger hours and wage changes. Fathers, however, are an exception in this respect. For them, WfH take-up is accompanied by higher income irrespective of WfH intensity. For fathers working from home on a weekly basis, the higher monthly income comes with an extension of overtime and an insignificant increase of contractual hours. Hence, in contrast to men without children, the additional overtime is compensated for fathers, potentially suggesting that weekly WfH is considered as a positive signal among employers only for fathers. For fathers with a lower WfH intensity, the higher monthly income results from a significant increase in hourly wages and a small extension of contractual hours.

[17] While both childless men and women experience longer overtime hours after WfH take-up, they do not receive any additional earnings. By contrast, parents who have longer contractual hours after WfH take-up also receive higher earnings and/or higher hourly wages.

Table 5: WfH, hours worked and wages by different WfH intensity

	Without children under 16				With children under 16			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
Panel A: Males								
Weekly WfH	-0.271	1.275*	-0.025	-0.007	0.343	1.611**	0.040	0.082***
	(0.423)	(0.680)	(0.041)	(0.041)	(0.244)	(0.724)	(0.027)	(0.026)
WfH 2-4 weeks	0.255	0.618	0.004	0.024	0.426**	-0.270	0.094***	0.100***
	(0.304)	(0.663)	(0.039)	(0.038)	(0.198)	(0.669)	(0.025)	(0.026)
Observations	6828	6828	6828	6828	4684	4684	4684	4684
R-squared	0.770	0.742	0.893	0.906	0.797	0.759	0.908	0.915
Panel B: Females								
Weekly WfH	-0.315	1.815**	-0.047	-0.021	4.177**	0.488	0.145**	0.318***
	(1.103)	(0.834)	(0.049)	(0.063)	(2.127)	(0.765)	(0.060)	(0.110)
WfH 2-4 weeks	-0.413	0.745	0.056*	0.063*	2.491	0.594	0.086	0.240***
	(0.568)	(0.756)	(0.032)	(0.035)	(1.838)	(0.769)	(0.071)	(0.077)
Observations	6894	6894	6894	6894	2986	2986	2986	2986
R-squared	0.887	0.711	0.883	0.917	0.897	0.766	0.891	0.911

Note: Columns (1) - (4) show estimates of fixed effects regressions based on equation (1) on the sub-sample of employees without children under 16 years old, while columns (5) - (8) refer to the subsample of individuals having children under 16. Weekly WfH is a dummy variable denoting WfH done at least once a week. WfH 2-4 weeks is a dummy variable that is equal to one for individuals reporting to work from home at least once a month but not once a week. Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Compensatory time off. Finally, looking at wage responses may not suffice to get the full picture. In particular, compensation for additional working hours in response to WfH take-up might take place in terms of additional leave days rather than higher wages. Such a compensation scheme might explain why additional overtime among childless individuals is not compensated by higher wages. Columns (1) and (2) in Table A.6 in the Appendix show the results of a conditional logit regression with the dependent variable equal to 1 if at least some overtime hours are converted into vacation, which is referred to as compensatory time. Columns (1) and (2) show that starting WfH is not linked to an increased likelihood to use compensatory time, irrespective of gender or presence of children. In columns (3) to (6), we replicate the hourly wage and monthly earnings regressions controlling for the use of time-off to compensate overtime. The main results remain unchanged. Compensation of overtime with days off does not explain the absence of wage increases among childless individuals while the wage increase for parents after WfH take-up remain in the same magnitude.

5.2 Robustness of hours and wage results

In this section, we examine the robustness of these findings with regard to the inclusion of further covariates and the selection into paid employment.

Occupational characteristics. In our main specifications we include occupation fixed effects. However, occupations that allow to work from home may have different wage and working hours developments over the period considered. To account for this, we estimate a specification including average hourly wages and actual working hours at the occupational level. We calculate these variables from the SOEP data excluding the given individual from the occupational mean. Table A.7 shows that the main estimates are barely affected when controlling for the changes in occupation average hours and average wages over time.

Regional characteristics. Our estimates could be driven by unobserved regional trends that might reflect regional policies or labor market conditions. Yet, controlling for state-by-year fixed-effects in Table A.9 does not change the results notably. Moreover, WfH effects might be related to the regional childcare availability. Table A.10 in the Appendix focuses on the sample of parents with children under 16 and adds the number of childcare places at the federal state level for children aged 0-3 and 3-6, as well as places in after school programs for children in primary school, interacted with dummies for having children in the corresponding age group. We do so because the WfH effect on the extension of working hours might be stronger for parents who lack alternative institutional childcare. Yet, the estimated effects of WfH remain robust.

Partner characteristics. Moreover, WfH effects might be related to characteristics of the partner in terms of employment, earnings and WfH status. Hence, we include related controls in Table A.8 in the Appendix. Although partner characteristics are partly significant for labour market outcomes, the relationship between WfH take-up and these outcomes remain largely unchanged.

Addressing selection into paid employment. We also investigate whether our wage estimates suffer from selection bias due to individuals' decision to (re)enter paid employment. Note that we already address an important part of this problem by controlling for any unobserved individual characteristics and preferences that remain constant over time. However, preferences and other determinants of working status may respond to shocks that we do not observe. To address remaining concerns, we control for selection bias due to time-varying unobservable characteristics by using a control function approach adapted to

the panel data setting, as in Wooldridge (1995), see Appendix B for details.

Overall, the effects of WfH on wages remain similar to the benchmark results (see Table B.2 in the Appendix). They are marginally smaller for fathers and larger for mothers when we correct for this type of selection bias, but the difference is not significant (columns (2) vs. (3) in Panels A and B of Table B.2). These results make us more confident that individual fixed-effects and the vector of time-varying individual characteristics included in equation (1) already control for characteristics that may simultaneously determine labor supply decisions, wages and WfH, such that the WfH estimates are unlikely to be affected by endogenous selection into paid employment.

The role of career changes. Changing firm or changing job position within the firm may lead to simultaneous changes in wages, hours and working from home status. For example, an individual may move to a more innovative and productive firm, and negotiate both a higher wage and the possibility of WfH. Similarly, a new position within the firm might be associated with a change in tasks or responsibilities, including a higher probability of working from home and an increase in working hours and wages. Note that we already control for job change and job status in all regressions. However, this may not be sufficient to ensure that the results are not driven by such career changes. We thus explore this issue in Table 6 by replicating the analysis for employees who remain in the same firm and on those employees who remain in the same firm and the same position for men (Panel A) and women (Panel B).

For childless individuals, we see that the benchmark results in section 5.1 remain unchanged when we exclude those who have changed employer. The increase in overtime hours remains significant both for childless men and women staying with the same firm when taking-up WfH. However, looking at the estimates for those who remain in the same position within the firm, the positive association with overtime hours decreases and becomes insignificant for men. This suggests that a simultaneous change in job position and WfH take-up explains part of the additional overtime hours worked among childless men. For childless women, however, we also find more overtime hours with WfH while remaining in the same job position.

Turning to parents in columns (5) to (8), we see that the large increase in contractual hours, and thus monthly earnings, is not driven by people who change employer or job position. However, the positive association between WfH and hourly wages for mothers is entirely driven by mothers who start WfH when changing employer as in column (7) the WfH coefficient turns insignificant for women in Panel B. Fathers still have higher hourly wages with WfH when remaining in the same firm, and even in the same position

Table 6: WfH, hours worked and wages: excluding job changes

	Without children under 16				With children under 16			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
Panel A1: Males, excluding employer changes								
WfH	0.208	1.074*	-0.014	0.017	0.383*	0.931	0.091***	0.121***
	(0.270)	(0.564)	(0.037)	(0.035)	(0.212)	(0.680)	(0.029)	(0.027)
Observations	5804	5804	5804	5804	3906	3906	3906	3906
R-squared	0.827	0.789	0.911	0.922	0.856	0.801	0.925	0.934
Panel A2: Males, excluding changes of employer and position within firm								
WfH	0.195	0.794	-0.016	0.008	0.441**	0.786	0.100***	0.128***
	(0.283)	(0.595)	(0.039)	(0.037)	(0.224)	(0.749)	(0.033)	(0.030)
Observations	5695	5695	5695	5695	3826	3826	3826	3826
R-squared	0.843	0.790	0.913	0.925	0.857	0.801	0.926	0.934
Panel B1: Females, excluding employer changes								
WfH	0.317	1.053*	0.020	0.052	4.796***	0.854	0.047	0.258***
	(0.604)	(0.631)	(0.026)	(0.033)	(1.638)	(0.834)	(0.044)	(0.086)
Observations	5866	5866	5866	5866	2513	2513	2513	2513
R-squared	0.914	0.754	0.902	0.935	0.931	0.802	0.916	0.936
Panel B2: Females, excluding changes of employer and position within firm								
WfH	0.291	1.104*	0.024	0.057*	4.464***	0.209	0.047	0.233***
	(0.609)	(0.628)	(0.026)	(0.032)	(1.680)	(0.768)	(0.047)	(0.090)
Observations	5742	5742	5742	5742	2451	2451	2451	2451
R-squared	0.916	0.762	0.903	0.936	0.934	0.808	0.916	0.937

Note: The table shows the estimates of fixed effects regressions based on equation (1). Panels A1 and B1 refer to the sub-sample of individuals not changing the employer compared to the previous observed wave. Panels A2 and B2 refer to the sub-sample of individuals not changing employer nor position within the firm. Control variables included are as in Table 3 and include occupational status and occupation fixed effects. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

(column (7)). This may indicate that it is more difficult for mothers than for fathers to re-negotiate wages when remaining in the same firm. This might reflect that employers have gendered perceptions regarding the underlying motives for working from home and the implied productivity as suggested by experimental evidence in Leslie et al. (2012). In addition to gendered perceptions on WfH-related productivity, employers might perceive mothers' fallback options outside the firm to be poorer than fathers', hence reducing their bargaining power. Finally, fathers might be more likely to initiate wage negotiations with their employer. Leibbrandt and List (2015) find that when there is no explicit statement that wages are negotiable, men are more likely to negotiate for a higher wage, whereas

women are more likely to signal their willingness to work for a lower wage.

All in all, the results for employees taking up WfH without changing job are very similar to the baseline results. Only the effects on hourly wages of mothers are smaller and statistically insignificant. Hence, the hourly wage effect of WfH for mothers may be partially driven by positively selected mothers who change employer and bargain both higher hourly wages and the possibility to work from home.

5.3 Plausibility of hours extension related to WfH take-up

The findings so far suggest rather large increases of contractual working hours, especially among mothers. In this section, we briefly explore suggestive evidence where these additional hours actually come from and whether the estimated hours extension is backed by time saved on other activities. A first relevant channel might be time saved on commuting. Under the assumption that weekly WfH involves a full day at home per week and monthly WfH involves a full day at home per month, the average commuting time saved accounts for about 15% of the increase in mothers' working time.[18] For mothers with long commutes of more than 20km, the time saved by working from home may explain about 30% of the increase in working hours.[19] We would thus expect the positive link between WfH take-up and working hours to be stronger with a higher WfH intensity and in case of longer commutes. In line with this argument, Table 5 suggests stronger hours extensions for individuals who are more likely to save on commuting time due to taking up a higher intensity of weekly rather than monthly WfH. As another supportive evidence, Table A.11 in the Appendix distinguishes between employees with short commutes (less than 20km) vs. long commutes (more than 20km) and finds a much larger increase in contractual working hours of 4.7 hours per week for mothers with long commutes, compared to mothers with short commutes for whom the increase of 2.7 contractual hours is not significant.

As a second potential channel for saving time, the additional flexibility to combine private and professional needs and to work outside usual office hours may yield time gains that can be spent on working longer hours. Using information from the 2009 SOEP wave on whether individuals work in the evening or over the weekend, we find that mothers are more likely to work during the evening when using WfH than if they don't while no such

[18] We calculate the average time saved per week as the weighted average of the time of a daily commute weighted by the weekly WfH share and the time of a daily commute divide by four weighted by the monthly WfH share. For mothers, the average time saved per week by avoiding commuting is: 45 minutes x 0.68 + 45 minutes /4 weeks x 0.32=34 minutes, which represents 15% of the 4 additional hours worked when starting WfH.

[19] For these long commuters, the median commuting distance is 29km and the median daily commuting time is 2 hours.

effects can be found for fathers, see Table A.12 in the Appendix.[20] Childless individuals, instead, are more likely to work on Sundays. Overall, women tend to be more likely to work outside usual office hours when using WfH arrangements compared to their female colleagues who do not use WfH. This pattern is confirmed by time use data on the hours spent per day on work including commuting time, see Table A.13 in the Appendix. While childless individuals tend to work additional weekend hours, there are no significant changes for fathers[21] and additional 0.8 working hours per weekday for mothers. For mothers this corresponds to the 4 hours increase in the main results. Moreover, this increase in hours worked is compensated by a reduction of time spent on child care (see column 5 in Table A.13). This again implies that they either work during the evening hours and/or that the partner takes care of the kids in the meantime. Indeed, we find that fathers spend 0.7 hours more on childcare when the mother starts WfH on a weekly basis.[22] Finally, we also find that mothers who start WfH take fewer days off work because of child sickness (Table A.14). In certain circumstances, it might be possible to work from home while the child stays at home.

Hence, the strong extension of working hours among mothers is well in line with time saved on commuting as well as additional time gains from the flexibility that comes with WfH.

5.4 WfH and job and life satisfaction

If workers attach a positive value to WfH, we should find a higher job satisfaction once wage and hours adjustments are taken into account. The latter is important, as such adjustments might be compensating for the additional utility associated with WfH. Hence, we follow the literature and control for earnings, the number of hours worked and again run separate estimations by gender (see e.g. Clark and Oswald, 1996). Moreover, as before, we account for individual fixed-effects which have been shown to be particularly important when estimating the determinants of satisfaction because of unobservable personality traits (Ferrer-i Carbonell and Frijters, 2004).

Table 7 provides the corresponding estimates for job and life satisfaction, as measured on an 11-point Likert scale. Moreover, we allow estimates to differ by WfH intensity and distinguish between weekly WfH and WfH on a monthly, but not weekly basis (WfH 2-

[20] For this, we compare individuals who work from home in 2009 with those who do not in 2009 but will do so in 2014.

[21] This is not at odds with the main results as the small increase in working hours can come from the time saved on commutes, which is included in the time use data.

[22] The estimate is from a regression based on equation (1) with daily hours spent by partner on childcare as dependent variable on the sample of parents living with their partner, and for whom there is information on time use. Results available upon request.

4 weeks). Given the typical noise in measures of job satisfaction, stronger links can be expected if WfH is done on a more regular basis. Indeed, we find significantly higher job satisfaction only for childless women and men working from home on a weekly basis (column (1)), while no significant estimates can be found for less intense WfH. Moreover, shifts related to weekly WfH of 0.4-0.7 on the 11-point Likert scale are quite substantial, but seem plausible when compared to findings in the literature. Using the same SOEP data and job satisfaction measure, Fahr (2011) finds that a richer job design in terms of having more varied tasks and more autonomy in how to conduct them increases job satisfaction in the range of 0.4-0.8 on the same satisfaction scale. The chance for further training and qualification has similarly positive effects on job satisfaction while conflicts with the principle reduce job satisfaction by more than 2 points on the Likert scale. As WfH also increases autonomy regarding where and when to conduct job tasks, our estimates for childless individuals thus appear in a plausible range. Childless individuals thus seem to attach a positive value to WfH. By contrast, point estimates for weekly WfH among parents are also positive, but insignificant (columns (3)). Maybe, the advantages attached to the increased flexibility also have a downside in terms of, for instance, tiring evening hours for mothers (see section 5.3) that also likely reduce women's leisure time and cause new conflicts between the job and the private sphere.

Such conflicts might also explain, why effects for life satisfaction tend to be largely insignificant. The only exception is men with a moderate WfH intensity. For them, working from home every two to four weeks seems to increase life satisfaction. Moreover, the magnitude of the effects are only somewhat smaller than what has been estimated for life events such as unemployment and divorce for which Luhmann and Eid (2009) find a reduction in life satisfaction by 0.5-1 points on an 11-point Likert scale in the post-event period.

6 Concluding remarks and discussion

Given the growing importance of working from home in the last two decades and it's exceptional rise as an established work practice since the pandemic, there is remarkably little research on how WfH affects careers and on how it varies with workers' characteristics. Moreover, apart from very few experiments on specific samples, much of the literature has not sufficiently explored differences between groups that are likely to respond differently to the opportunity to work from home. In order to address this research gap, this paper investigates how WfH relates to men's and women's working hours and labor earnings and looks at the related heterogeneity by parental status. For this, we control for

Table 7: WfH, job and life satisfaction

	Without children < 16		With children < 16	
	Job satisfaction	Life satisfaction	Job satisfaction	Life satisfaction
Panel A: Males				
WfH 2-4 weeks	-0.047	0.314*	0.270	0.437**
	(0.188)	(0.166)	(0.221)	(0.177)
Weekly WfH	0.391*	0.228	0.048	-0.160
	(0.225)	(0.150)	(0.338)	(0.206)
Log monthly earnings	0.302*	0.390***	0.484**	0.274*
	(0.172)	(0.121)	(0.220)	(0.151)
Contracted hours	-0.009	-0.009	-0.020	-0.014
	(0.013)	(0.009)	(0.015)	(0.014)
Overtime hours	-0.009	-0.014**	-0.006	-0.007
	(0.009)	(0.006)	(0.010)	(0.008)
Observations	6797	6817	4667	4677
R-squared	0.711	0.752	0.680	0.739
Panel B: Females				
WfH 2-4 weeks	-0.068	-0.228	0.043	-0.319
	(0.340)	(0.233)	(0.433)	(0.378)
Weekly WfH	0.706*	-0.143	0.616	0.027
	(0.396)	(0.266)	(0.430)	(0.314)
Log monthly earnings	0.255	0.205*	0.301	0.185
	(0.165)	(0.124)	(0.238)	(0.165)
Contracted hours	-0.011	-0.003	-0.026*	-0.014
	(0.009)	(0.006)	(0.014)	(0.009)
Overtime hours	-0.023*	-0.017**	-0.009	0.004
	(0.012)	(0.008)	(0.020)	(0.016)
Observations	6854	6887	2973	2985
R-squared	0.672	0.730	0.737	0.773

Note: The table shows the estimates of fixed effects regressions based on equation (1). Columns (1) and (2) refer to the sub-sample without children under 16. Columns (3) and (4) refer to the sub-sample having children under 16. The dependent variables are job and life satisfaction measured on an 11-point Likert scale. Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

workers' time-invariant unobserved heterogeneity, control for a set of time-varying worker and job characteristics and run several robustness checks. While this raises confidence in our findings, estimates do not have to be causal as we cannot rule out remaining biases from, for example, parallel changes in human resource practices within the firm. Still, our results shed a novel and more comprehensive light on labor market outcomes related to WfH compared to previous, non-experimental studies.

We find that men and women without children below age 16 have increased overtime hours after WfH take-up, while wages remain unaffected in the short to medium run. Childless individuals who take-up weekly WfH also experience a somewhat higher job satisfaction. These results are consistent with much of the existing literature, but also provide important new insights. Similar to previous papers such as Noonan and Glass (2012) and Possenriede et al. (2016), we find WfH to come with increased overtime hours. However, we find longer overtime hours only among employees without children and it is not accompanied by any wage gains. At the same time, workers seem to attach a positive value to the additional flexibility provided by WfH which is in line with Mas and Pallais (2017) and Angelici and Profeta (2020), albeit this evidence is conclusive only for childless workers and we cannot confirm any significant gender differences. This may indicate that WfH-related conflicts between the job and the private domain may be more severe for parents, and especially mothers.

Our findings for parents with children below age 16 also offer some additional insights. Among parents, WfH take-up is related to increased contractual hours, higher monthly earnings, and higher hourly wages. Moreover, the increase in contractual hours related to WfH is much stronger among mothers than among fathers, and explains in part the larger increase in monthly earnings for mothers than for fathers. We provide some suggestive evidence that saving time on commuting, the ability to work outside office hours as well as a more equal sharing of childcare responsibilities enable mothers to work longer hours with WfH.

If these gendered impacts of WfH were causal, this would imply that WfH is a means of raising mothers' labor force attachment and closing gender gaps in hours and earnings. Yet, our results also indicate that mothers, in contrast to their male counterparts, do not benefit from higher hourly wages when remaining in the same firm, but do so only if they simultaneously change employer. This might indicate that their bargaining power is weaker than men's for re-negotiating wages when adopting WfH within established employer-employee relationships. On the one hand, this might reflect that employers act on gendered preconceptions regarding the motives for WfH or that expected or actual productivity effects of WfH differ by gender. On the other hand, it might indicate that mothers are

more reluctant to ask for an hourly wage increase than their male counterparts when changing working arrangements, while staying with the same employer. Hence, while to some extent WfH can be a means to close gender differences in terms of working hours and monthly earnings, it does not necessarily help to close the gender difference in hourly wages. However, the higher labor force attachment that comes with WfH might still pay off for mothers in terms of career progression and wages in the long run, a possibility that needs further research.

All in all, our paper thus highlights the notable heterogeneity of labour market outcomes related to WfH by gender and parenthood. For a post-pandemic era with higher WfH rates, our findings tentatively suggest that we may see rising working hours and earnings among mothers relative to fathers, potentially reducing what has been called the child penalty. Yet, the findings also indicate that the promotion of WfH practices may not ensure similar wage gains for mothers and fathers, hinting at the need for accompanying equal pay measures by raising, for instance, intra-firm transparency on wages. In Germany, a corresponding law was introduced in 2017 that entitles women to ask employers for wages of male colleagues with similar work-related characteristics, but the impact of this reform remains to be evaluated. Finally, the effects of WfH on labor outcomes after the pandemic might change compared to the pre-pandemic situation. This is because the pandemic did not only raise WfH rates, but likely led to higher productivity of WfH due to complementary investments in technology. It thus also raised the acceptance of WfH as a substitute for onsite work and business trips. This, in turn, might weaken gendered perceptions regarding WfH, thereby also potentially contributing to closing the gender gap in the wage returns to WfH. Hence, re-evaluating the effects of WfH after the Covid-19 crisis would be an interesting route for future research.

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A Additional tables

Table A.1: Share of employees working from home by industries

Industry 1-digit	Employment share	Share WfH	Male WfH	Female WfH
Services	.47	.15	.18	.13
Agriculture, Forestry	.01	.11	.12	.11
Bank, Insurance	.04	.07	.07	.07
Construction	.12	.07	.06	.10
Manufacturing	.19	.05	.04	.06
Transport	.05	.05	.04	.08
Trade	.11	.03	.05	.01
Energy, Water	.01	0	0	0
Mining	.003	0	0	0

Notes: Data for 2014 only. Share of employees working from home (WfH) at least once a month. Industries are ranked by their share of employees working from home.

Table A.2: Share of employees working from home by occupations

Occupation 2-digit KldB	Employment share	Share WfH	Male WfH	Female WfH
Teachers	.047	.65	.66	.65
Managers, consultants	.048	.23	.20	.27
Accountants, data processing specialists	.066	.18	.27	.09
Senior officials	.037	.15	.18	.11
Engineers	.035	.12	.13	.05
Social work associate professionals	.068	.09	.10	.09
...				
Surface transport occupations	.021	.01	.01	0
Warehouse workers	.024	.01	.01	0
Protective services workers	.023	.01	.02	0
Goods examiner, despatchers	.01	0	0	0
Metal workers	.01	0	0	0
Cleaning occupations	.017	0	0	0
Autonomy level				
Highest	.04	.48	.39	.60
High	.25	.21	.18	.24
Middle	.38	.06	.07	.06
Low	.25	.02	.01	.03
Lowest	.08	.01	0	.02
Tasks & Tools				
Analytical task above 75th perc	.26	.13	.18	.09
Analytical task below 25th perc	.25	.02	.01	.02
PC use above 75th perc	.28	.11	.16	.07
PC use below 25th perc	.26	.03	.02	.04

Notes: Data for 2014 only. Share of employees working from home at least once a month. Occupations are ranked by their share of employees working from home. The top panel displays the five occupations with the highest and the lowest share of employees working from home. Only occupations representing at least 1% of the employee population are presented here. The third panel displays occupations by their task/tools intensity. In the occupation with the use of personal computer (PC) at the 75th percentile, 83% of employees report that a PC is their main working tool. In the occupation at the 25th percentile of PC use, 9% of employees report that their main working tool is a PC.

Table A.3: WfH and WfH take-up by gender and parenthood

	W/o children under 16		With children under 16		Total
	Male	Female	Male	Female	
WfH	268	168	224	133	793
... of which WfH take-up	121	98	113	66	398
No WfH	6560	6726	4460	2853	20599
Observations	6828	6894	4684	2986	21392
Individuals	3119	3067	2171	1655	7602[a]

[a] Note that the total number of individuals is smaller than the sum of the 4 sub-samples, given that 2410 individuals (1272 men and 1138 women) are part of both samples with and without children under 16. Specifically, we observe 792 individuals before and after having children, 1599 individuals before and after the youngest child turns 16, and 19 individuals before having children until the youngest child is older than 16.

Table A.4: WfH, hours worked and wages: employees with children under 12

	Actual hours			Contracted hours	Overtime hours	Hourly wage		Monthly wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Males								
WfH	3.198***	0.860	0.708	0.389*	0.320	0.034	0.078***	0.094***
	(0.578)	(0.704)	(0.682)	(0.207)	(0.669)	(0.024)	(0.024)	(0.024)
Observations	3592	3592	3592	3592	3592	3592	3592	3592
R-squared	0.208	0.807	0.813	0.837	0.778	0.628	0.912	0.921
Panel B: Females								
WfH	0.115	3.808*	3.215	3.093*	0.121	-0.032	0.103*	0.229**
	(1.066)	(2.027)	(2.066)	(1.802)	(0.731)	(0.034)	(0.054)	(0.095)
Observations	1934	1934	1934	1934	1934	1934	1934	1934
R-squared	0.425	0.916	0.918	0.922	0.819	0.525	0.916	0.927

Note: The results refer to the sub-sample of employees having children under 16 years old. Columns (1) and (6) show estimates of OLS regressions, while the other columns show estimates of fixed effects regressions based on equation (1). Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.5: WfH, hours worked and wages: employees transitioning into parenthood

	Actual hours			Contracted hours	Overtime hours	Hourly wage		Monthly wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Males								
WfH	3.233**	1.450	0.998	0.086	0.912	0.038	0.131**	0.155***
	(1.311)	(1.066)	(1.023)	(0.610)	(0.829)	(0.044)	(0.060)	(0.058)
Observations	939	939	939	939	939	939	939	939
Panel B: Females								
WfH	0.961	-0.745	-1.798	-2.120	0.322	-0.013	0.050	-0.044
	(1.504)	(2.250)	(2.145)	(1.789)	(0.927)	(0.057)	(0.094)	(0.136)
Observations	690	690	690	690	690	690	690	690

Note: The results refer to the sub-sample of employees observed just before and after becoming parents for the first time. Columns (1) and (6) show estimates of OLS regressions, while the other columns show estimates of fixed effects regressions. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.6: WfH and overtime compensation

	All employees		W/o children under 16		With children under 16	
	Compensatory time		Hourly wage	Monthly wage	Hourly wage	Monthly wage
	Conditional Logit		FE	FE	FE	FE
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Males						
WfH	-0.165	-0.134	-0.007	0.014	0.066***	0.090***
	(0.269)	(0.282)	(0.034)	(0.033)	(0.022)	(0.021)
WfH × child under 16	0.009	-0.017				
	(0.384)	(0.395)				
Time-off			-0.030***	0.002	-0.010	0.016**
			(0.007)	(0.007)	(0.008)	(0.008)
Occupation FE	No	Yes	Yes	Yes	Yes	Yes
Occupational status	No	Yes	Yes	Yes	Yes	Yes
Observations	5584	5584	6728	6728	4625	4625
R-squared			0.894	0.907	0.907	0.915
Panel A: Females						
WfH	0.007	0.008	0.002	0.019	0.122***	0.282***
	(0.299)	(0.308)	(0.034)	(0.042)	(0.040)	(0.077)
WfH × child under 16	0.138	0.069				
	(0.420)	(0.437)				
Time-off			-0.034***	0.008	-0.068***	0.002
			(0.007)	(0.008)	(0.013)	(0.016)
Occupation FE	No	Yes	Yes	Yes	Yes	Yes
Occupational status	No	Yes	Yes	Yes	Yes	Yes
Observations	4640	4640	6813	6813	2954	2954
R-squared			0.886	0.920	0.895	0.915

Note: Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.7: WfH, hours worked and wages: occupation-specific controls

	Without children under 16				With children under 16			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
Panel A: Males								
WfH	0.037	0.912*	-0.020	-0.000	0.402**	0.623	0.065***	0.088***
	(0.301)	(0.528)	(0.033)	(0.032)	(0.180)	(0.545)	(0.021)	(0.021)
Average wages in occupation by gender	-0.028	0.017	0.012***	0.012***	0.006	0.035	0.003	0.003
	(0.033)	(0.051)	(0.003)	(0.002)	(0.039)	(0.064)	(0.003)	(0.003)
Average hours in occupation by gender	0.020	0.033	-0.004	-0.002	0.059	-0.007	-0.003	-0.001
	(0.043)	(0.055)	(0.003)	(0.003)	(0.047)	(0.080)	(0.004)	(0.004)
Observations	6818	6818	6818	6818	4681	4681	4681	4681
R-squared	0.770	0.742	0.894	0.907	0.797	0.758	0.908	0.915
Panel B: Females								
WfH	-0.366	1.263**	0.000	0.016	3.377**	0.513	0.118***	0.280***
	(0.718)	(0.631)	(0.034)	(0.041)	(1.598)	(0.609)	(0.040)	(0.078)
Average wages in occupation by gender	0.012	0.042	0.009**	0.010**	-0.178	-0.052	-0.005	-0.012
	(0.062)	(0.060)	(0.004)	(0.004)	(0.180)	(0.097)	(0.008)	(0.010)
Average hours in occupation by gender	0.079*	0.022	-0.001	0.002	0.086	-0.097*	0.008	0.006
	(0.044)	(0.037)	(0.002)	(0.002)	(0.139)	(0.059)	(0.005)	(0.009)
Observations	6874	6874	6874	6874	2980	2980	2980	2980
R-squared	0.887	0.712	0.884	0.917	0.897	0.765	0.891	0.912

Note: Further control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.8: WfH, hours worked and wages: adding partner's characteristics

	Without children under 16				With children under 16			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
Panel A: Males								
WfH	-0.082	1.110**	-0.019	0.001	0.372**	0.703	0.067***	0.092***
	(0.327)	(0.563)	(0.036)	(0.035)	(0.179)	(0.546)	(0.021)	(0.021)
Married × partner in paid employment	-0.137	0.278	-0.037**	-0.036**	-0.325**	-0.088	-0.014	-0.020
	(0.182)	(0.292)	(0.015)	(0.015)	(0.161)	(0.247)	(0.013)	(0.013)
Married × partner's earnings	0.000	0.000	0.000***	0.000***	-0.000	-0.000	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married × partner WfH	0.462	-0.173	0.007	0.020	-0.122	0.094	0.025	0.021
	(0.318)	(0.389)	(0.023)	(0.024)	(0.204)	(0.403)	(0.018)	(0.018)
Observations	6557	6557	6557	6557	4534	4534	4534	4534
R-squared	0.776	0.753	0.896	0.908	0.797	0.760	0.907	0.915
Panel B: Females								
WfH	-0.486	1.429**	-0.005	0.014	3.455**	0.601	0.115***	0.291***
	(0.727)	(0.651)	(0.036)	(0.045)	(1.383)	(0.665)	(0.043)	(0.076)
Married × partner in paid employment	0.346	-0.337*	0.001	0.005	-0.753	0.156	-0.005	-0.049
	(0.274)	(0.190)	(0.013)	(0.016)	(0.854)	(0.407)	(0.029)	(0.046)
Married × partner's earnings	-0.000	0.000	-0.000	-0.000	-0.000	-0.000**	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Married × partner WfH	-0.623*	0.090	0.001	-0.018	-0.887	0.418	0.025	0.006
	(0.371)	(0.255)	(0.019)	(0.021)	(0.714)	(0.364)	(0.035)	(0.036)
Observations	6492	6492	6492	6492	2816	2816	2816	2816
R-squared	0.891	0.721	0.885	0.919	0.903	0.774	0.892	0.914

Note: Further control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.9: WfH, hours worked and wages: adding state-by-year fixed-effects

	Without children under 16				With children under 16			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
Panel A: Males								
WfH	0.057	0.872*	-0.012	0.007	0.378**	0.471	0.073***	0.092***
	(0.299)	(0.523)	(0.034)	(0.032)	(0.189)	(0.531)	(0.021)	(0.021)
Observations	6828	6828	6828	6828	4684	4684	4684	4684
R-squared	0.773	0.748	0.895	0.908	0.800	0.765	0.910	0.917
Panel B: Females								
WfH	-0.375	1.291**	0.005	0.021	3.835**	0.447	0.128***	0.315***
	(0.702)	(0.619)	(0.034)	(0.042)	(1.551)	(0.594)	(0.042)	(0.075)
Observations	6894	6894	6894	6894	2986	2986	2986	2986
R-squared	0.889	0.716	0.886	0.919	0.901	0.779	0.896	0.915

Note: All specifications include federal state-by-year fixed-effects. Further control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.10: WfH, hours worked and wages: adding regional childcare availability

	Males				Females			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
WfH	0.381**	0.464	0.073***	0.093***	3.808**	0.454	0.128***	0.315***
	(0.189)	(0.527)	(0.021)	(0.021)	(1.560)	(0.590)	(0.042)	(0.076)
Child care places × children below 3 yrs'	0.012	-0.029	0.001	0.001	-0.022	0.029*	-0.000	-0.001
	(0.011)	(0.018)	(0.001)	(0.001)	(0.039)	(0.016)	(0.002)	(0.002)
Child care places × children 3 to 6 yrs'	0.002	0.015**	-0.000	0.000	-0.020	-0.013*	0.000	-0.001
	(0.004)	(0.007)	(0.000)	(0.000)	(0.021)	(0.008)	(0.001)	(0.001)
Child care places × children 6 to 10 yrs'	0.004	0.000	-0.000	-0.000	0.002	0.010**	-0.000	-0.000
	(0.003)	(0.006)	(0.000)	(0.000)	(0.008)	(0.004)	(0.000)	(0.000)
Observations	4684	4684	4684	4684	2986	2986	2986	2986
R-squared	0.800	0.766	0.910	0.917	0.901	0.780	0.896	0.915

Note: The results refer to the sub-sample of individuals with children under age 16. All specifications include federal state-by-year fixed-effects. Further control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.11: WfH results by commuting distance

	Without children under 16				With children under 16			
	Contracted hours (1)	Overtime hours (2)	Hourly wage (3)	Monthly wage (4)	Contracted hours (5)	Overtime hours (6)	Hourly wage (7)	Monthly wage (8)
Panel A: Males								
WfH × long commute	-0.094	0.893	-0.037	-0.022	0.391	0.395	0.105***	0.124***
	(0.577)	(0.869)	(0.050)	(0.052)	(0.254)	(0.722)	(0.032)	(0.029)
WfH × short commute	-0.004	1.184*	-0.020	0.004	0.294	1.066	0.057*	0.086***
	(0.412)	(0.636)	(0.042)	(0.041)	(0.228)	(0.813)	(0.033)	(0.033)
Long commute	0.082	0.343	-0.006	0.004	0.200	0.337	0.011	0.022
	(0.183)	(0.250)	(0.013)	(0.012)	(0.258)	(0.282)	(0.015)	(0.015)
Observations	6627	6627	6627	6627	4519	4519	4519	4519
R-squared	0.781	0.751	0.897	0.911	0.803	0.764	0.911	0.920
Panel B: Females								
WfH × long commute	0.635	1.063	0.013	0.052	4.790**	-0.288	0.150	0.380**
	(0.773)	(0.855)	(0.039)	(0.040)	(2.384)	(1.173)	(0.142)	(0.174)
WfH × short commute	-0.522	1.031	0.025	0.032	2.780	0.699	0.066	0.176*
	(0.930)	(0.838)	(0.044)	(0.057)	(1.920)	(0.641)	(0.054)	(0.102)
Long commute	0.471*	0.159	0.017	0.035**	-0.525	0.267	0.001	-0.023
	(0.242)	(0.197)	(0.012)	(0.014)	(0.792)	(0.352)	(0.029)	(0.042)
Observations	6757	6757	6757	6757	2902	2902	2902	2902
R-squared	0.892	0.719	0.887	0.919	0.900	0.770	0.892	0.915

Note: Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.12: Flexible work schedules

	WfH (1)	No WfH yet (2)	Difference (t-stat.) (3)		WfH (4)	No WfH yet (5)	Difference (t-stat.) (6)	
	Childess women				**Childless men**			
Works sometimes in the evening	0.72	0.58	0.15	(1.30)	0.84	0.87	-0.03	(-0.42)
Works sometimes on Saturdays	0.81	0.65	0.16	(1.54)	0.89	0.81	0.08	(1.09)
Works sometimes on Sundays	0.71	0.42	0.29**	(2.54)	0.70	0.52	0.18*	(1.78)
	Mothers				**Fathers**			
Works sometimes in the evening	0.76	0.52	0.23*	(1.84)	0.79	0.75	0.04	(0.41)
Works sometimes on Saturdays	0.68	0.52	0.15	(1.14)	0.77	0.82	-0.05	(-0.52)
Works sometimes on Sundays	0.38	0.35	0.03	(0.21)	0.58	0.44	0.14	(1.17)

Note: Data for 2009. The table displays the mean of the variables for the population of women using WfH in 2009 in column (1), women who do not use WfH in 2009 but will do so in 2014 in column (2), men using WfH in column (4), and men not yet using WfH in column (5).

Table A.13: Time use: WfH and hours spent on work and childcare

	Without children under 16			With children under 16			
	Weekday	Weekend		Weekday		Weekend	
	Work hrs. (1)	Work hrs. (2)	Work prob. (3)	Work hrs. (4)	Childcare (5)	Work hrs. (6)	Work prob. (7)
Panel A: Males							
WfH	-0.127	0.685**	0.044	-0.036	0.204	0.007	0.026
	(0.177)	(0.337)	(0.053)	(0.149)	(0.134)	(0.383)	(0.049)
Observations	6686	6560	6560	4597	4505	4522	4522
R-squared	0.713	0.790	0.745	0.752	0.707	0.797	0.733
Panel B: Females							
WfH	-0.323	0.108	0.130*	0.861**	-0.868*	-0.671	-0.001
	(0.257)	(0.518)	(0.068)	(0.412)	(0.456)	(0.432)	(0.058)
Observations	6759	6648	6648	2912	2901	2859	2859
R-squared	0.818	0.797	0.784	0.861	0.828	0.858	0.831

Note: The table shows estimates of fixed effects regressions based on equation (1) with different time use variables as dependent variables. Work hours refer to the number of hours per day (during a weekday or weekend) spent on work or commute. Work probability is a dummy denoting positive hours of work on weekends. Childcare refers to the number of hours spent on childcare during a weekday. Columns (1)-(3) refer to the sub-sample without children under 16, while columns (4)-(7) refer to the sub-sample having children under 16. Individuals spending more than 18 hours per day on different activities are excluded from the sample. Control variables included are as in Table 3. Standard errors are clustered at the individual level, $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table A.14: Days off to care for children

	WfH (1)	No WfH (2)	Difference (t-stat.) (3)		WfH (4)	No WfH (5)	Difference (t-stat.) (6)	
	Mothers				**Fathers**			
Cumulated number of days off	8.20	19.33	-11.14***	(-2.88)	2.27	3.00	-0.73	(-0.43)

Note: Information on days off due to child sickness exists from 2010. As we observe WfH in 2009 and 2014, we calculate the cumulated number of days off taken by parents between 2010 and 2014. Using the sample of parents who did not work from home in 2009, we compare those who reported doing so in 2014 to those who still did not use WfH arrangements in 2014. Mothers who do not use WfH arrangements accumulated 19 days off to take care of a sick child between 2010 and 2014 compared to 8 days among mothers who started using WfH in that period. There is no difference across fathers.

B Model with correlated individual effects and correction for selection into work

Here we follow Wooldridge (1995) and present a model that accounts for correlated individual effects, as well as dealing with potential selection bias due to shocks to individuals' decision to work. We use this method to estimate the effect of WfH on wages accounting for the fact that men and women in paid employment may have different potential wages

than men and women out of the labour force.

The model is composed of an outcome equation, in this case the wage equation, and a selection equation, in this case selection into paid employment.

$$y_{it} = \boldsymbol{x}_{1it}\boldsymbol{\beta}_1 + \boldsymbol{x}_{2it}\boldsymbol{\beta}_2 + \theta_t + \alpha_i + u_{it} \qquad t = 1, ...T \tag{2}$$

$$h^*_{it} = \boldsymbol{x}_{1it}\boldsymbol{\gamma}_1 + \boldsymbol{z}_{it}\boldsymbol{\gamma}_2 + \eta_i + v_{it} \text{and } s_{it} = \mathbb{1}[h^*_{it} > 0] \tag{3}$$

where y_{it} is the outcome of individual i at time t, h^*_{it} is the hours worked by individual i in year t. Because h^*_{it} is unobserved for people who are not working in year t, we use an indicator variable s_{it} which is equal to one if individual i is working (i.e. has a strictly positive number of worked hours at time t) and zero if individual i is not working. The vector $\boldsymbol{x}_1$ includes variables that appear in both the outcome and the selection equation, while the vector $\boldsymbol{x}_2$ appears only in the outcome equation. $\boldsymbol{z}$ is the vector of excluded variables that appear only in the selection equation. θ_t is a set of time fixed effects. In both equations we account for time invariant individual unobserved characteristics, α_i in equation (2) and η_i in equation (3).

We use Chamberlain's approach to panel data models to control for individual unobservable characteristics and at the same time deal with self-selection into the work force. In this setting we make the following assumptions. First, following Chamberlain (1984), Wooldridge (1995) and Wooldridge (2010), the conditional expectation of the individual effects in the outcome equation and in the selection equation are linear functions of the mean of the observable variables :

$$\eta_i = \overline{\boldsymbol{x}}_{1i}\boldsymbol{\delta}_1 + \overline{\boldsymbol{z}}_i\boldsymbol{\delta}_2 + e_i,$$

$$E(\alpha_i|\boldsymbol{x}_i, \boldsymbol{z}_i, \varepsilon_{it}) = \overline{\boldsymbol{x}}_{1i}\tilde{\boldsymbol{\phi}}_1 + \overline{\boldsymbol{x}}_{2i}\tilde{\boldsymbol{\phi}}_2 + e_i.$$

Second, the errors in the selection equation (3) $\varepsilon_{it} = e_i + v_{it}$ are independent of $\boldsymbol{z}_i$.

Third, the errors in the outcome equation (2) u_{it} are mean independent of $(\boldsymbol{x}_i, \boldsymbol{z}_i)$ conditional on the errors in the selection equation (3) ε_{it} ; and the conditional expectations of u_{it} is linear in ε_{it} :

$$E(u_{it}|\boldsymbol{x}_i, \boldsymbol{z}_i, \varepsilon_{it}) = E(u_{it}|\varepsilon_{it}) = \rho_t\varepsilon_{it}.$$

As we do not observe h^*_{it} but only s_{it}, we use the selection indicator and transform the last expression into : $E(u_{it}|\boldsymbol{x}_i, \boldsymbol{z}_i, s_{it=1}) = \rho_t E(\varepsilon_{it}|\boldsymbol{x}_i, \boldsymbol{z}_i, s_{it=1})$.

Under the previous assumptions, we obtain:

$$E(\alpha_i + u_{it}) = E(c_i|\boldsymbol{x}_i, \boldsymbol{z}_i, s_{it=1}) + E(u_{it}|\boldsymbol{x}_i, \boldsymbol{z}_i, s_{it=1})$$

$$= \overline{\boldsymbol{x}}_i\psi + \rho_t E(\varepsilon_{it}|\boldsymbol{x}_i, \boldsymbol{z}_i, s_{it=1}).$$

We thus estimate the following model:

$$y_{it} = \boldsymbol{x}_{1it}\boldsymbol{\beta}_1 + \boldsymbol{x}_{2it}\boldsymbol{\beta}_2 + \overline{\boldsymbol{x}}_i\psi + \rho_t\lambda(s_{it}) + \theta_t + \mu_{it} \tag{4}$$

where $\lambda(s_{it}) = E(\varepsilon_{it}|\boldsymbol{x}_i, \boldsymbol{z}_i, s_{it=1})$. The vector $\boldsymbol{x}_1$ includes the educational degree, demographic characteristics, namely age and its square, marital status, migration background, and number of children in three age groups. Theses characteristics are interacted with a female dummy to allow for heterogenous effects across men and women. The vector $\boldsymbol{x}_2$ appears only in the outcome equation and includes the following job characteristics interacted with a female dummy: public sector, size of the firm, tenure in the firm and its square, full-time and part-time experience in years. We also control for gender-specific industry, occupation and occupational status fixed-effects.

To get estimates of $\lambda(s_{it})$ we first run the following probit model on a paid employment dummy s_{it} for each time period t and separately for men and for women :

$$P(s_{it} = 1|\boldsymbol{x}_{1i}, \boldsymbol{z}_i, \eta_i) = \Phi(\boldsymbol{x}_{1it}\boldsymbol{\gamma}_1 + \boldsymbol{z}_{it}\boldsymbol{\gamma}_2 + \overline{\boldsymbol{x}}_{1i}\boldsymbol{\delta}_1 + \overline{\boldsymbol{z}}_i\boldsymbol{\delta}_2) \tag{5}$$

where $\boldsymbol{x}_1$ is defined as above and the vector of excluded variables $\boldsymbol{z}$ includes parnter's employment status and educational level, a determinant of partner's earning, both interacted with dummies for children in four age groups. In another specification, we consider the case in which children may directly affect wages and use instead, the education level of the mother's of the surveyed individual when she/he was 15 years old. We interact the mother's education with partner's employment and education level. We then compute $\lambda(s_{it}) = \frac{\phi(s_{it})}{\Phi(s_{it})}$ where ϕ is the standard density function and Φ is the standard cumulative distribution function.

The results of this first step on the pooled sample of years are reported in Table B.1.[23] We show results with the two sets of excluded variable: 1) partner's characteristics and their interaction with children 2) partner's characteristics and their interaction with the education of the mother of the surveyed individual. Note that children are in all regressions

[23]Results by year are available upon request.

but not in the set of excluded variables because we also control for children in the wage regressions. Column (1) and (2) in Table B.1 report the results on the female probability of being in paid employment while column (3) and (4) report the results for men. The female probability of being in paid employment decreases significantly with the number of children, especially if the children are young. The impact of children on men's probability of working is much smaller, and insignificant in most cases. For women and men, the negative effect of young children on the probability of working is stronger if the partner is in paid employment. Column (2) and (4) show that having a mother with a higher level of education increases the probability of being in paid employment. For women, the effect is especially strong if they have a partner with a high level of education. For men, the effect of their mother's education does not depend on the characteristics of their partner.

In a second step, we estimate equation 4 adding the control function $\lambda(s_{it})$ previously estimated. The results on the different samples are reported in Table B.2. The sample size is smaller here because we drop individuals with missing information on the excluded variables used in the first step. Results on the sample of parents with children under the age of 16 are reported in Panel A and B, while results for childless employees are reported in Panels C and D. Similarly to our main specification, the regressors include demographic characteristics, job characteristics, as well as gender-specific industry, occupation and occupational status fixed-effects. It is now augmented with a control function to correct for the selection bias. We allow the effect of the control function to vary by gender and time.

Table B.1: Probability to work, by gender

Excluded variables: characteristics of	Women		Men	
	Partner & children (1)	Partner & mother (2)	Partner & children (3)	Partner & mother (4)
Children under age 3	-1.498***	-1.903***	0.088	-0.033
	(0.076)	(0.045)	(0.064)	(0.060)
Children aged between 3 and 6	-1.151***	-1.406***	-0.246*	-0.319**
	(0.114)	(0.101)	(0.140)	(0.141)
Children between 6 and 15	-0.760***	-0.894***	0.010	-0.102
	(0.075)	(0.057)	(0.082)	(0.076)
Has children aged 16 or older	-0.572***	-0.650***	-0.012	-0.057
	(0.078)	(0.067)	(0.094)	(0.089)
Living with a partner/married	-0.055	-0.105*	-0.096*	-0.107*
	(0.052)	(0.056)	(0.056)	(0.061)
Partner has vocational degree	-0.067	-0.176***	0.075	0.040
	(0.047)	(0.068)	(0.047)	(0.078)
Partner has tertiary education degree	-0.037	-0.314**	0.141	0.179
	(0.076)	(0.134)	(0.100)	(0.198)
Partner in paid employment	0.185***	0.082	0.187***	0.124**
	(0.058)	(0.054)	(0.052)	(0.055)
... × teriary education	0.096	0.113*	0.044	0.047
	(0.064)	(0.068)	(0.076)	(0.081)
... × vocational education	-0.024	-0.027	-0.052	-0.068
	(0.049)	(0.053)	(0.051)	(0.054)
... × children under 3	-0.460***		-0.416***	
	(0.074)		(0.078)	
... × children aged 3-5	-0.257***		-0.159**	
	(0.073)		(0.072)	
... × children aged 6-15	-0.146**		-0.155***	
	(0.060)		(0.057)	
... × children above 16	-0.088*		-0.019	
	(0.052)		(0.057)	
Mother's years of education		0.079***		0.201***
		(0.028)		(0.027)
... × Partner in employment		-0.012		-0.031
		(0.031)		(0.036)
... × Partner has tertiary degree		0.229***		0.006
		(0.081)		(0.116)
...× Partner has vocational degree		0.107**		0.068
		(0.047)		(0.061)
Observations	67247	61954	55329	51427

Note: Standard errors in parentheses, $*p < 0.10, **p < 0.05, ***p < 0.01$. Additional control variables included are age and its square, migration background, cohort fixed effects, regions and year fixed-effects and urban area. We also control for individual effects using Chamberlain approach and add the time average of all explanatory variables.

Table B.2: WfH and wages: controlling for selection into the labour force

	Hourly wage			Monthly wage	
	FE	CRE	CRE	CRE	CRE
	(1)	(2)	(3)	(4)	(5)
Panel A: With children, excluded variable partner's characteristics & interactions with children					
WfH × Male	0.071***	0.071***	0.065***	0.097***	0.091***
	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)
WfH × Female	0.089**	0.089*	0.091**	0.223***	0.229***
	(0.044)	(0.045)	(0.045)	(0.074)	(0.077)
Selection correction	No	No	Yes	No	Yes
Observations	6770	6770	6770	6770	6770
Panel B: With children, excluded variable partner's & mother's characteristics					
WfH × Male	0.069***	0.069***	0.061***	0.095***	0.086***
	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)
WfH × Female	0.082*	0.082*	0.085*	0.229***	0.233***
	(0.043)	(0.044)	(0.044)	(0.073)	(0.076)
Selection correction	No	No	Yes	No	Yes
Observations	6461	6461	6461	6461	6461
Panel C: Without children under 16, excluded variable partner's characteristics					
WfH × Male	-0.030	-0.030	-0.030	-0.012	-0.011
	(0.044)	(0.045)	(0.044)	(0.044)	(0.044)
WfH × Female	0.005	0.005	0.009	0.027	0.030
	(0.043)	(0.043)	(0.043)	(0.053)	(0.053)
Selection correction	No	No	Yes	No	Yes
Observations	9234	9234	9234	9234	9234
Panel D: Without children under 16, excluded variable mother's characteristics					
WfH × Male	-0.031	-0.031	-0.031	-0.015	-0.014
	(0.048)	(0.048)	(0.048)	(0.047)	(0.047)
WfH × Female	-0.016	-0.016	-0.014	0.013	0.015
	(0.042)	(0.042)	(0.042)	(0.055)	(0.055)
Selection correction	No	No	Yes	No	Yes
Observations	8632	8632	8632	8632	8632

Note: Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01. Control variables included are gender-specific year fixed effects, gender-specific demographic controls (age, age squared, migration background, marital status, children), gender-specific human capital controls (highest degree and actual work experience), job characteristics (tenure, tenure squared, public sector dummy, firm size), macro-regions, urban area, gender-specific occupation fixed effects (95 occupation dummies) and gender-specific occupational status fixed effects (15 occupation dummies).