Flexibility of working time arrangements and female labor market outcome

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Abstract

We use data from the 2019 EU Labor Force Survey to study gender and parenthood gaps in two dimensions of flexibility in working time arrangements in 25 European countries. We find that overall in Europe, there is no statistically significant gender difference in access to flexible work arrangements. However, women are less likely than men to have flexible working hours in the Central-Eastern and Southern European countries, whereas this gender gap is reversed in Continental Europe. At the same time, women are less likely than men to face demands from their employers that they work flexible hours. We also find that both mothers and fathers are more likely than their childless colleagues to have access to flexible working hours, but that fathers' workplaces are more likely than mothers' workplaces to demand temporal flexibility from employees. In addition, we find that working in a female-dominated occupation decreases the probability of having access to flexible work arrangements, and that this effect is stronger for women than for men. At the same time, we observe that both men and women who work in female-dominated occupations are less exposed to flexibility demands from employers than their counterparts who work in male-dominated or gender-neutral occupations. Finally, we find that compared to employers in other Europeans countries, employers in the Central and Eastern European countries are less likely to offer flexible working hours, especially to women, and with no additional flexibility being offered to parents; whereas employers in Continental and Nordic countries are more likely to offer flexible work arrangements, and with no gender gap.

Keywords: working time flexibility, gender segregation, work life balance, parenthood

JEL: J13, J22, J32

1.   Introduction

The question of how European governments can support the reconciliation of work and family life in order to improve the welfare of families and increase female employment rates and wages has long been discussed in the EU policy discourse. The 2019 EU directive on work-life balance was another step towards meeting this goal, as it introduced, among other policies, minimum standards for working time arrangements. At the same time, there is a need to understand how the interface of work and family life is changing, given the pressure stemming from demographic and technological changes that have been accelerated by the COVID-19 pandemic. The aim of this paper is to shed more light on how employees in EU countries combine work and life, with a focus on the gender dimension and the position of parents.

Flexible working arrangements are important tools for supporting work-life balance, and it is generally assumed that such arrangements are demanded and used mainly by women (and among women, by mothers), who still perform the great majority of unpaid housework and care. Another expectation regarding the gender dimension of working time flexibility is related to workplaces dominated by women. It is often assumed that wages are lower in these workplaces because women trade lower wages for greater time flexibility (Stone and Hernandez, 2013). In addition, the higher share of women in these workplaces should, in theory, put more pressure on employers to provide working time flexibility.

In this study, we seek to answer three research questions. First, do women indeed have greater access than men to flexible working hours? Second, are mothers more likely to have flexible work arrangements than non-mothers and fathers? Third, do female-dominated workplaces offer greater temporal flexibility, as is often claimed? Answering these questions should help us better understand the gender dimensions of flexible work arrangements, and their impact on female labor market outcomes.

Our study makes two additional contributions. First, we draw on a cross-country perspective that enables us to compare the sizes of the gender and parental gaps in working time flexibility between groups of countries with different family policy regimes. Second, our study is one of the few that has investigated working time inflexibility, defined as the pressure placed on employees to respond to their employer's demands and expectations regarding their availability.

We use EU Labour Force Survey data, drawing in particular on the 2019 ad hoc module on work organization and working time arrangements. We distinguish between two dimensions (or types) of flexible work arrangements: (1) flexitime for workers, which means that workers have control over when they start and end their work; and (2) flexibility for employers, which means that employers can make unexpected changes to their workers' schedules. These dimensions correspond to those cited in the various approaches to studying working time flexibility (Lott, 2018; Chung and Van der Horst, 2018).

We find that contrary to our expectations, women do not benefit more than men from having flexible working hours. However, our results also show that women are less likely than men to be asked to change their schedules unexpectedly. In addition, we find that both mothers and fathers are more likely than their childless colleagues to have access to flexible working hours, but that fathers' workplaces are more likely than mothers' workplaces to demand temporal flexibility from employees. We also show that working in a female-dominated occupation increases the probability of having access to flexible work arrangements for men, but decreases it for women. However, our findings further indicate that women working in female-dominated occupations are less exposed than men to demands from employers that they accept unexpected changes to their work schedules. Finally, we find that compared to employers in other European countries, employers in Central and Eastern European countries are less likely to offer flexible working hours, especially to women, and with no

additional flexibility being offered to parents; whereas employers in Continental and Nordic countries are more likely to offer flexible work arrangements, and with no gender gap.

2.   Literature review

The concept of working time flexibility (or simply flexible working) refers to workers having control over when and where they work. This can mean that workers are able to adjust when they start and they end their work, or to change the numbers of hours they work per day or week. Some of the measures of flexible working used in the literature focus on workers' autonomy, which includes the ability to determine their work hours and work schedules. Overall, working time flexibility is usually considered within the framework of work and family reconciliation, and is therefore viewed as part of a broad array of family-friendly arrangements at either the workplace or the country level.

There are four major strands of literature on flexible working that are related to our study. First, we pay particular attention to employer demands that employees agree to forms of flexibility that benefit the employer. These types of flexibility are often mismatched with the employees' expectations, and vice versa (Berg et al., 2004). Some studies have suggested that employers may offer employees workplace flexibility in exchange for the employees agreeing to expand their working hours; or that employers may ask employees to work from home to meet the employers' needs (Kossek et al., 2016). Relatively little is known about the characteristics of workers and workplaces that require temporal flexibility from employees: on the one hand, the culture of long, family-unfriendly working hours is mainly associated with top managerial positions and a highly qualified workforce. On the other hand, there is evidence that the large increase in the number of jobs in which employees have no control over their schedules (while their employers do) has mainly affected disadvantaged, low skilled workers (McCrate, 2012).

Second, we look at the gender dimension of working time arrangements. We expect to find that women demand more flexible work hours; and that women benefit more than men from such arrangements, as they remain the primary caregivers, and are more burdened with housework. As flexible working should make it easier for employees to combine work and family life, having access to such arrangements should improve female labor market outcomes. For instance, it has been shown that flexible work policies can help to decrease gender pay inequality (in the workplace in particular; Glass, 2004; Huffman et al., 2017). Goldin (2014) and Van der Lippe et al. (2018) argued that the gender wage gap is smaller in workplaces that offer flexible work arrangements, and that flexible working has a larger effect on the wage gap than parental leave and child care support. Are women more likely than men to benefit from flexible work schedules? The evidence on gender gaps in temporal flexibility is mixed (Golden, 2008; Kelly and Kalev, 2006; Swanberg et al., 2005, Golden, 2009; Cohen and Huffman, 2003). Recently, Chung (2019) found no clear gender differences in access to schedule control in European countries. The findings indicating that many women prefer to have access to flexible working, but also that women do not to have more control over their work schedules than men, might be related to expectations regarding how men and women use their flexibility, and the gendered financial premiums and penalties associated with flexible working. It has, for example, been shown that men use and are expected to use flexible working for performance-enhancing purposes, to increase their work intensity and/or working hours; and that men are rewarded for demonstrating such flexibility through income premiums (Lott and Chung, 2016). Women, by contrast, are expected to use working time flexibility to expand their family responsibilities (Hilbrecht et al., 2008), while receiving no financial rewards (or even a wage penalty) for participating in such arrangements. Furthermore, the existing evidence suggests that compared to men, women, and especially mothers, are less likely to have access to flexible working arrangements, even when they are not used for care purposes; and that women are more likely to be stigmatized for taking advantage of such arrangements

(Brescoll et al., 2013; Munsch, 2016). From the perspective of the employer, women may be considered less likely than men to meet the demands of the employer and the workplace, based on the assumption that women will find it difficult to perform time-consuming paid work if they have (mainly care) obligations outside of their paid employment (Goldin, 2014). Thus, demands by employers that employees are available to work long and irregular hours may contribute the gender pay gap (Magnusson & Nermo, 2017).

Third, we are particularly interested in the relationship between the presence of children and mothers' and fathers' working time flexibility. Flexible work policies should allow mothers (in particular) to maintain their working hours after childbirth (Chung and Van der Horst, 2018), and to remain in human-capital-intensive jobs during periods when they have more family responsibilities (Fuller and Hirsh, 2019). However, temporal flexibility at work is also likely to contribute to the motherhood wage penalty, and thus to the gender pay gap (Gimenez-Nadal et al., 2021).

Fourth, we contribute to the strand of literature on gender occupational and sectoral segregation (i.e., women and men working in different occupations and industries in the labor market, with women dominating in particular occupations or sectors). It is often assumed that wages are lower in sectors and jobs dominated by women, as women trade lower wages for greater time flexibility in these occupations and sectors, which enable women to engage in family life and child care while remaining in the labor market (as the compensating wage theory would suggest). Is it indeed the case that occupations or sectors dominated by women offer more temporal flexibility? The evidence is mixed (Bardoel et al., 1999; Davis & Kallenberg, 2006; Magnusson, 2019; Grönlund & Öun, 2018). Chung (2019) found that access to schedule control is much lower for both men and women in female-dominated jobs and sectors, although the sizes of the differences between gender-equal and gender-segregated jobs vary across countries.

Last but not least, our study contributes to the cross-country comparison of flexible work arrangements. While the country context matters in determining who gets access to flexible work arrangements (Chung, 2017; 2018) and in shaping the nature of flexible work (Lott, 2015), analyses of these associations are still scarce (Molina, 2020). Northern European and some Continental European countries are among the countries where family-friendly working time policies are more readily available, which is partly related to their broad collective bargaining coverage and strong social dialogue (Matysiak and Węziak-Białowolska, 2016).

3.   Data analysis and methods

In our analysis, we use data from the EU Labour Force Survey (EU-LFS), which provides detailed information on individual and household demographic and labor market characteristics in most European countries. The data collection is coordinated by Eurostat, which ensures a high degree of methodological cross-country comparability. Apart from the standard surveys, we draw on the 2019 LFS ad hoc module pertaining to work organization and working time arrangements. We use corresponding quarterly data from that ad hoc module.

We include employed individuals aged 25-54. We have excluded some countries from our analyses due to their small sample sizes: namely, Cyprus, Iceland, Luxembourg, and Malta. We have also dropped observations at the ISCO two-digit level or NACE codes at the section level with fewer than 50 observations. In total, we have 263,766 observations in our dataset for 25 EU countries[1].

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[1] Leaving us with Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Estonia, France, Finland, Germany, Greece, Hungary, Italy, Ireland, Lithuania, Latvia, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Slovakia, Spain, and the UK.

We use two measures that pertain to working time arrangements. First, the *Flexitime* variable reflects working time flexibility that benefits the employee. Second, the *Externaltime* variable measures working time flexibility that is beneficial to the employer. These variables concern each respondent's main job. As well as examining working time arrangements for paid employment, we draw on variables related to individual and household characteristics, such as sex, age, education, and the presence of children in the household. Furthermore, for each country, we computed occupations at the ISCO two-digit level in which the share of women exceeds the 75th percentile. We classify occupations in which the share of women is higher than this cut-off as female-dominated. These variables are summarized in Table 1.

Table 1: Sample descriptives by gender

	Male (%)	Female (%)	Total sample (%)
Flexihours	32.97	30.29	31.67
Externaltime	19.83	15.73	17.85
Female	-	-	48.38
Child in household	40.87	42.79	41.80
Age			
25-34	31.86	29.87	30.90
35-44	34.25	34.26	34.26
45-54	33.89	35.87	34.85
Education			
Vocational	14.34	11.82	13.12
Lower secondary	16.79	11.87	14.41
Upper secondary	33.13	31.61	32.39
Tertiary	35.54	44.52	39.88
Full-time worker	93.83	70.46	82.52
Supervisor	27.61	19.84	76.15
Temporary contract	10.73	12.17	11.43
Firm size			
< 10	18.13	22.85	20.42
11-19	10.32	11.34	10.82
20-49	21.85	21.71	21.78
>= 50	49.71	44.09	46.98
Female-dominated occupation	14.85	53.00	33.39
Region of Europe			
Continental	38.13	39.05	38.58
Southern	23.30	22.15	22.75
Nordic	3.43	3.52	3.48
Anglo-Saxon	14.22	14.98	14.59
Central-Eastern	20.91	20.29	20.61
Total N	136,156	127,610	263,766

Source: Own calculations using 2019 LFS data and ad hoc module data.

We analyzed the data using a weighted logistic regression with clustered errors (1):

$$\Pr(Y_j=1)=F(\beta_0+\beta_1 X_j+\kappa_i+\lambda_r+\gamma_s+\varepsilon_{ijc}) \qquad (1)$$

where $F(Z) = \frac{e^Z}{1+e^Z}$, j stands for individual, *i* for household, and *c* for country; *Xj* is a vector of personal and workplace characteristics (sex, age, education, working full time, being a supervisor, being a temporary worker, firm size, and working in a female-dominated occupation); κ_i reflects the presence of children under age 15 in the household; and λr are fixed effects pertaining to five European regions (Continental, Southern, Nordic, Anglo-Saxon, and Central-Eastern; the grouping is described below in more detail). Finally, γ_s stands for sector fixed effects (21 NACE sectors). We use the quarterly weights provided by Eurostat in the datasets. Errors are clustered at the level of the household identifier (separately for each country). The dependent variables include *Flexitime* and *Externaltime*. *Flexitime* is a binary variable, equal to one if the worker could decide his or her own working time (fully or with certain restrictions). Analogously, *Externaltime* is equal to one if the worker faced unforeseen demands for changes in his or her work schedule at least once a week. The predictors in our models include being female, age group (at 10-year intervals, with 35-44 being the reference age group), level of completed education (reference group: secondary education), the presence of children under age 15 in the home, working full time, supervising the work of others, having a temporary contract, firm size (reference group: larger than 50 employees), and working in a female-dominated occupation. The countries have been assigned to the following groups: Continental (Austria, Belgium, France, Germany, the Netherlands; N = 65,504); Southern (Greece, Italy, Portugal, Spain; N = 66,605); Nordic (Denmark, Finland, Norway; N =21,667); Anglo-Saxon (Ireland & UK; N = 31,063); and Central-Eastern (Bulgaria, Croatia, Czechia, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia, Slovakia; N = 78,927). We also control for the NACE section.

Furthermore, we run additional models to examine the role of occupational gender segregation: i.e., we add interactions of gender and a dummy for female-dominated occupations.

4.   Results

4.1.   Gender dimension of working time flexibility

We start with the question of whether women are indeed more likely than men to benefit from greater working time flexibility, and whether they are more or less burdened with demands by their employers that they work flexible hours. To this end, we estimate two models, one for each of these measures. The results are summarized in Table 2 below, and full estimates are available in Appendix Tables A1 and A2.

We find that overall in Europe, there is no statistically significant gender difference in access to flexible work arrangements. However, we also observe that women are less likely than men to have flexible working hours in Central-Eastern and Southern European countries, whereas this gender gap is reversed in Continental Europe. At the same time, we find that women are less likely than men to face demands from their employers that they work flexible hours. This pattern is shown to be particularly strong in Southern and Central-Eastern Europe. Specifically, we find that employers are less likely to demand that employees work flexible hours if they are women than if they are men in all European countries except the Nordic countries, where no significant gender differences are observed.

While the estimated marginal effects on female dummies are statistically significant, the link between gender and working time (in)flexibility appears to be less relevant than the association between working time characteristics and several other individual and workplace features (Table A1 in the Appendix). In particular, we find that younger workers tend to have less working time flexibility than older workers. Education turns out to

be the most important factor associated with flexible working, as workers with tertiary education are shown to be much more likely than less educated individuals to have flexible work hours. Workplace characteristics also appear to matter a lot, as full-time employees are found to have less working time flexibility than part-time workers, while employees on fixed-term contracts are shown to have less flexibility than permanent workers. In addition, we find that supervisors and workers at small firms have greater control over their working time than their counterparts at larger firms.

The factors associated with employers' demands that employees work flexible hours operate along similar lines. Employers are most likely to demand flexibility from educated, full-time workers, especially if they hold supervisory roles. We also find that the expectation that workers accept unforeseen changes to their work schedules is more common among temporary employees and employees at small firms. All in all, we can see that that many employees who are offered flexible working time arrangements must also be prepared to accept demands by their employers that they work flexible hours as needed.

Table 2: Estimated marginal effects on the female dummy, by different types of working time flexibility

Female	All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Flexihours	-0.004	0.017***	-0.017***	0.001	0.009	-0.035***
	(0.003)	(0.006)	(0.004)	(0.007)	(0.007)	(0.004)
Externaltime	-0.025***	-0.010*	-0.029***	-0.002	-0.028***	-0.043***
	(0.002)	(0.005)	(0.004)	(0.007)	(0.006)	(0.004)
Observations	263,766	65,504	66,605	21,667	31,063	78,927

*** p<0.01, ** p<0.05, * p<0.1
Source: Own calculations using 2019 LFS data and ad hoc module data. Full estimates in Tables A1 and A2 in the Appendix.

Table 3: Estimated marginal effects on the female dummy, by different types of working time flexibility, with controls for the presence of children and female*child interactions

		All countries	Continental	Southern	Anglo-Saxon	Central-Eastern
Flexihours	Female	-0.005	0.016***	-0.017***	0.011*	-0.035***
		(0.003)	(0.006)	(0.004)	(0.007)	(0.004)
	Child	0.011***	0.003	0.010***	0.034***	0.007
		(0.003)	(0.006)	(0.004)	(0.007)	(0.004)
	Female* child	-0.009*	-0.016*	-0.000	0.021*	-0.003
		(0.005)	(0.010)	(0.007)	(0.012)	(0.007)
Externaltime	Female	-0.026***	-0.010**	-0.029***	-0.030***	-0.043***
		(0.003)	(0.005)	(0.004)	(0.006)	(0.004)
	Child	0.001	0.003	0.003	-0.006	0.002
		(0.003)	(0.005)	(0.004)	(0.006)	(0.004)
	Female* child	-0.029***	-0.019**	-0.041***	-0.031***	-0.010
		(0.004)	(0.009)	(0.007)	(0.011)	(0.006)

*** p<0.01, ** p<0.05, * p<0.1
Note: Estimates for the Nordic countries are not available due to missing information on the children in the household.
Source: Own calculations using 2019 LFS data and ad hoc module data. Full estimates in Tables A3 and A4 in the Appendix.

4.2. Parenthood and working time flexibility

In the next step, we want to find out whether and, if so, how the presence of children modifies access to working time flexibility for men and women. To investigate these questions, we add to the previous models interaction terms for gender and the presence of children. Table 3 summarizes the main results, and the detailed estimates are available in Appendix Tables A3 and A4.

We find that overall, having children is associated with a higher probability of having access to flexible work arrangements, but is not associated with employers' demands that employees accept unexpected changes to their work schedules. However, the effects of the presence of children are different for men and women. The gender gap in *Externaltime* is greater for parents than for childless employees. Mothers are less likely to work for employers who demand that they work flexible hours, whereas fathers are more likely to work for employers who demand temporal flexibility.

4.3. Gender segregation and working time flexibility

Our aim in the next part of our analysis is to shed more light on the link between occupational gender segregation and working time flexibility. Specifically, we investigate whether working in a female-dominated occupation (defined in the methodology section) increases the likelihood of having access to flexible work arrangements – and, if so, whether this effect differs between men and women.

The results are summarized below in Table 4 (the full set of estimates is presented in Tables A1 to A2 in the Appendix). We find a negative, statistically significant relationship between working in a female-dominated occupation and having access to working time flexibility. In other words, occupations that are dominated by female workers offer less, not more flexibility. This pattern is detected in all of the country groups. However, we also find that employers tend to demand less temporal flexibility from employees in female-dominated occupations. It thus appears that the trade-off that is often reported in the literature – i.e., that occupational gender segregation reflects women's preferences to have more flexible working hours – is only partially confirmed by our results. We can therefore assume that women care less about having more flexible work arrangements, but more about not having to change their work schedules unexpectedly in response to their employer's demands.

Table 4: Estimated marginal effects on the female-dominated occupation dummy, by different types of working time flexibility

Female-dominated occupation	All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Flexihours	-0.078***	-0.100***	-0.035***	-0.173***	-0.178***	-0.027***
	(0.003)	(0.007)	(0.005)	(0.010)	(0.008)	(0.006)
Externaltime	-0.023***	-0.009	-0.024***	-0.042***	-0.065***	-0.017***
	(0.003)	(0.006)	(0.005)	(0.009)	(0.007)	(0.005)
Observations	263,766	65,504	66,605	21,667	31,063	78,927

*** p<0.01, ** p<0.05, * p<0.1
Source: Own calculations using 2019 LFS data and ad hoc module data. Full estimates in Tables A1 and A2 in the Appendix.

Table 5: Estimated marginal effects on the female-dominated occupation dummy, by different types of working time flexibility, and the presence of female*female-dominated occupation interaction

		All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Flexihours	Female	-0.006**	0.014**	-0.017***	-0.000	0.008	-0.037***
		(0.003)	(0.006)	(0.004)	(0.007)	(0.007)	(0.004)
	F-dominated occupation	-0.070***	-0.088***	-0.034***	-0.164***	-0.173***	-0.021***
		(0.004)	(0.007)	(0.005)	(0.010)	(0.009)	(0.006)
	Female* f-dominated occupation	-0.042***	-0.074***	-0.020**	-0.057***	-0.032**	-0.026**
		(0.006)	(0.013)	(0.008)	(0.016)	(0.014)	(0.011)
Externaltime	Female	-0.025***	-0.010**	-0.029***	-0.002	-0.028***	-0.043***
		(0.002)	(0.005)	(0.004)	(0.007)	(0.006)	(0.004)
	F-dominated occupation	-0.022***	-0.006	-0.024***	-0.044***	-0.063***	-0.017***
		(0.003)	(0.006)	(0.005)	(0.009)	(0.007)	(0.006)
	Female* f-dominated occupation	-0.003	-0.012	0.002	0.010	-0.002	0.004
		(0.005)	(0.011)	(0.008)	(0.014)	(0.013)	(0.010)

*** p<0.01, ** p<0.05, * p<0.1
Source: Own calculations using 2019 LFS data and ad hoc module data. Full estimates in Tables A5 and A6 in the Appendix.

4.4. Cross-country differences in gender gaps in working time flexibility

The above analyses suggest that there are cross-country differences in workers' working time flexibility and inflexibility, and that these arrangements have a gender and a parenthood dimension. First, we find that access to working time flexibility is lower in the Southern, Anglo-Saxon, and Central-Eastern European countries than it is in the Continental and Nordic countries, with flexible work arrangements being the most common in the latter group (Tables A1-A2). We also observe that in the Nordic countries, the likelihood that employers will demand temporal flexibility from employees does not differ by gender. Our results show that women in the Continental countries have more flexibility than men, and are less likely to have to adjust their work schedules in response to employers' sudden demands. Somewhat different patterns are observed in the Central-Eastern and Southern European countries, where women are found to have less working time flexibility, but also to be less likely to have to change their work schedules unexpectedly in response to employers' demands.

Looking at the links between parenthood and temporal flexibility, we see two groups of country patterns. In both the Southern and the Anglo-Saxon countries, parents have greater access to working time flexibility (Tables A3-A4 in the Appendix), with no (Southern) or very small and weak (Anglo-Saxon) gender differences. At the same time, in these country groups, we find no statistically significant difference in the likelihood of employers demanding that employees work flexible schedules depending on whether the workers are parents or childless workers – although the likelihood is shown to be lower for women. In contrast, in the Continental and Central-Eastern European countries, we observe no differences in working time flexibility or in the likelihood of employers demanding that employees work flexible hours depending on whether the workers are parents or

childless, or whether they are mothers or fathers. Unfortunately, data limitations did not allow us to study the link between parenthood and working time flexibility in the Nordic countries.

All in all, we find substantial differences in the various dimensions of working time (in)flexibility, including differences by gender and parenthood status, across European countries. Employers in Central-Eastern European countries appear to offer the lowest levels of working time flexibility, particularly to women, and with no additional flexibility being offered to parents. By contrast, employers in Continental and Nordic countries are more likely to offer flexible working time arrangements. These results correspond to the findings of Kurowska (2018). In the great majority of European countries, women are less likely than men to have to respond to employers' unexpected demands that they change their work schedules.

5.   Conclusions

We used data from the 2019 EU Labour Force Survey and the LFS ad hoc module on work organization and working time flexibility to study the linkages between different dimensions of flexibility in working time arrangements, gender, and parenthood in 25 European countries.

We found that women are no more likely than men to have flexible work hours, but they are less likely than men to be asked by their employers to change their work schedules at short notice. Overall, gender was shown to be a less important factor associated with temporal flexibility, while education and workplace characteristics were found to be much more important factors. Our results indicated that working time flexibility is most likely to be offered to and demanded of tertiary educated workers with permanent contracts, especially if they are working as supervisors at smaller firms.

We also found that parenthood matters: i.e., both mothers and fathers were shown to be more likely than their childless colleagues to have access to flexible working time. However, the fathers' workplaces were found to be more likely than the mothers' workplaces to demand temporal flexibility from employees.

We also found that occupations that are dominated by female workers offer less, not more flexibility, despite the popular belief that women tend to choose certain occupations in order to have greater access to working time flexibility. Moreover, we observed that working in a female-dominated occupation increases the probability of having access to flexible work arrangements for men, but decreases it for women. At the same time, we found that women who work in female-dominated occupations are less exposed to demands from employers that they work flexible hours. These findings suggest that the selection of women into certain highly segregated occupations may be driven not by the need to have greater working time flexibility, but by a preference to avoid occupations in which employers make unexpected changes to their work schedules.

Finally, we have provided evidence of important differences in access to working time flexibility – and its gender dimensions – among different regimes of European countries. We found that employers in the Central-Eastern European countries are less likely to offer flexible working hours, especially to women, and with no additional flexibility being offered to parents. By contrast, we showed that employers in the Continental and Nordic countries are more likely to offer flexible work arrangements, and with no gender gap. We must emphasize that our study looked at employed women and men only. Thus, we did not capture those individuals who might have decided to withdraw from the labor force due to a lack of working time flexibility – or due to onerous employer demands.

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Appendix

Table A1. Estimated marginal effects for *Flexihours* models

	All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Female	-0.004	0.017***	-0.017***	0.001	0.009	-0.035***
	(0.003)	(0.006)	(0.004)	(0.007)	(0.007)	(0.004)
Age 25-34	-0.024***	-0.014*	-0.030***	-0.049***	-0.052***	-0.011**
	(0.003)	(0.007)	(0.005)	(0.008)	(0.008)	(0.006)
Age 45-54	0.009***	0.012*	0.003	0.007	0.030***	-0.014***
	(0.003)	(0.006)	(0.004)	(0.008)	(0.007)	(0.005)
Vocational education	-0.006	-0.004	-0.032***	0.043***	-0.048***	0.002
	(0.005)	(0.010)	(0.009)	(0.011)	(0.012)	(0.008)
Post-secondary education	0.151***	0.215***	0.099***	0.185***	0.112***	0.107***
	(0.003)	(0.007)	(0.005)	(0.008)	(0.008)	(0.006)
Lower secondary education	-0.068***	-0.112***	-0.033***	-0.055***	-0.081***	-0.047***
	(0.004)	(0.010)	(0.005)	(0.013)	(0.010)	(0.008)
Full time	-0.027***	-0.047***	-0.017***	0.088***	0.006	-0.157***
	(0.004)	(0.007)	(0.006)	(0.009)	(0.009)	(0.014)
Supervisor	0.146***	0.161***	0.152***	0.124***	0.131***	0.137***
	(0.003)	(0.007)	(0.005)	(0.007)	(0.007)	(0.006)
Temporary	-0.029***	-0.046***	-0.032***	0.025**	0.004	-0.012
	(0.005)	(0.009)	(0.005)	(0.012)	(0.018)	(0.007)
Firm size < 10	0.020***	-0.024***	0.013**	0.046***	0.058***	0.075***
	(0.004)	(0.008)	(0.005)	(0.009)	(0.009)	(0.007)
Firm size < 20	-0.024***	-0.058***	-0.008	-0.011	-0.016	0.023***
	(0.004)	(0.009)	(0.007)	(0.010)	(0.012)	(0.006)
Firm size < 50	-0.039***	-0.054***	-0.034***	-0.031***	-0.055***	0.004
	(0.003)	(0.007)	(0.005)	(0.008)	(0.008)	(0.005)
Female-dominated occupation	-0.078***	-0.100***	-0.035***	-0.173***	-0.178***	-0.027***
	(0.003)	(0.007)	(0.005)	(0.010)	(0.008)	(0.006)
Southern	-0.232***					
	(0.004)					
Nordic	0.127***					
	(0.004)					
Anglo-Saxon	-0.093***					
	(0.004)					
Central-Eastern	-0.237***					
	(0.004)					

| Observations | 263,766 | 65,504 | 66,605 | 21,667 | 31,063 | 78,927 |

Table A2. Estimated marginal effects for *Externaltime* models

	All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Female	-0.025***	-0.010*	-0.029***	-0.002	-0.028***	-0.043***
	(0.002)	(0.005)	(0.004)	(0.007)	(0.006)	(0.004)
Age 25-34	-0.004	-0.009	-0.005	-0.009	0.008	-0.007
	(0.003)	(0.007)	(0.005)	(0.008)	(0.007)	(0.005)
Age 45-54	0.000	-0.001	-0.007*	0.009	0.022***	-0.004
	(0.003)	(0.006)	(0.004)	(0.007)	(0.007)	(0.004)
Vocational education	0.007	0.011	0.014*	0.026**	-0.002	0.013*
	(0.004)	(0.009)	(0.008)	(0.012)	(0.010)	(0.007)
Post-secondary education	0.047***	0.090***	-0.008*	0.087***	0.046***	0.023***
	(0.003)	(0.006)	(0.005)	(0.008)	(0.007)	(0.005)
Lower secondary education	-0.028***	-0.043***	-0.031***	-0.021*	-0.014	-0.021***
	(0.004)	(0.008)	(0.005)	(0.013)	(0.009)	(0.007)
Full time	0.037***	0.059***	-0.001	0.081***	0.052***	-0.009
	(0.003)	(0.006)	(0.005)	(0.008)	(0.007)	(0.011)
Supervisor	0.109***	0.133***	0.094***	0.171***	0.101***	0.072***
	(0.003)	(0.006)	(0.005)	(0.008)	(0.006)	(0.006)
Temporary	0.010**	0.003	0.010*	-0.006	0.027	0.014*
	(0.004)	(0.009)	(0.005)	(0.012)	(0.018)	(0.007)
Firm size < 10	0.022***	0.020***	-0.018***	0.006	0.042***	0.050***
	(0.003)	(0.007)	(0.005)	(0.009)	(0.009)	(0.006)
Firm size < 20	0.010**	0.027***	-0.020***	-0.001	0.001	0.011**
	(0.004)	(0.009)	(0.006)	(0.010)	(0.010)	(0.005)
Firm size < 50	0.002	0.001	-0.009*	-0.008	0.003	0.009**
	(0.003)	(0.006)	(0.005)	(0.008)	(0.007)	(0.004)
Female-dominated occupation	-0.023***	-0.009	-0.024***	-0.042***	-0.065***	-0.017***
	(0.003)	(0.006)	(0.005)	(0.009)	(0.007)	(0.005)
Southern	-0.050***					
	(0.003)					
Nordic	0.042***					
	(0.004)					
Anglo-Saxon	-0.022***					
	(0.004)					
Central-Eastern	-0.086***					
	(0.003)					
Observations	263,766	65,504	66,605	21,667	31,063	78,927

*** p<0.01, ** p<0.05, * p<0.1

A3. Estimated marginal effects for *Flexihours* models, including interaction of female gender with the presence of children in the household

	All countries	Continental	Southern	Anglo-Saxon	Central-Eastern
Female* Child	-0.009*	-0.016*	-0.000	0.021*	-0.003
	(0.005)	(0.010)	(0.007)	(0.012)	(0.007)
Female	-0.005	0.016***	-0.017***	0.011*	-0.035***
	(0.003)	(0.006)	(0.004)	(0.007)	(0.004)
Child	0.011***	0.003	0.010***	0.034***	0.007
	(0.003)	(0.006)	(0.004)	(0.007)	(0.004)
Age 25-34	-0.019***	-0.013*	-0.026***	-0.042***	-0.009*
	(0.004)	(0.008)	(0.006)	(0.008)	(0.006)
Age 45-54	0.013***	0.013*	0.005	0.042***	-0.011**
	(0.003)	(0.007)	(0.004)	(0.008)	(0.005)
Vocational education	-0.010*	-0.004	-0.032***	-0.050***	0.001
	(0.005)	(0.010)	(0.008)	(0.012)	(0.008)
Post-secondary education	0.150***	0.214***	0.098***	0.112***	0.107***
	(0.004)	(0.007)	(0.005)	(0.008)	(0.006)
Lower secondary education	-0.069***	-0.112***	-0.033***	-0.080***	-0.048***
	(0.004)	(0.010)	(0.005)	(0.010)	(0.008)
Full time	-0.030***	-0.048***	-0.016***	0.018**	-0.157***
	(0.004)	(0.007)	(0.006)	(0.009)	(0.014)
Supervisor	0.146***	0.161***	0.152***	0.129***	0.137***
	(0.003)	(0.007)	(0.005)	(0.007)	(0.006)
Temporary	-0.030***	-0.046***	-0.031***	0.009	-0.012
	(0.005)	(0.009)	(0.005)	(0.018)	(0.007)
Firm size < 10	0.019***	-0.024***	0.013**	0.058***	0.075***
	(0.004)	(0.008)	(0.005)	(0.009)	(0.007)
Firm size < 20	-0.024***	-0.058***	-0.008	-0.016	0.023***
	(0.005)	(0.009)	(0.007)	(0.012)	(0.006)
Firm size < 50	-0.038***	-0.054***	-0.034***	-0.054***	0.004
	(0.003)	(0.007)	(0.005)	(0.008)	(0.005)
F-dominated occupation	-0.075***	-0.100***	-0.035***	-0.178***	-0.027***
	(0.003)	(0.007)	(0.005)	(0.008)	(0.006)
Southern	-0.232***				
	(0.004)				
Anglo-Saxon	-0.094***				
	(0.004)				
Central-Eastern	-0.236***				
	(0.004)				

| Observations | 242,099 | 65,504 | 66,605 | 31,063 | 78,927 |

Table A4. Estimated marginal effects for *Externaltime* models, including interaction of female gender with the presence of children in the household

	All countries	Continental	Southern	Anglo-Saxon	Central-Eastern
Female* Child	0.029***	-0.019**	-0.041***	-0.031***	-0.010
	(0.004)	(0.009)	(0.007)	(0.011)	(0.006)
Female	-0.026***	-0.010**	-0.029***	-0.030***	-0.043***
	(0.003)	(0.005)	(0.004)	(0.006)	(0.004)
Child	0.001	0.003	0.003	-0.006	0.002
	(0.003)	(0.005)	(0.004)	(0.006)	(0.004)
Age 25-34	-0.003	-0.008	-0.005	0.007	-0.007
	(0.003)	(0.007)	(0.005)	(0.007)	(0.005)
Age 45-54	-0.000	-0.000	-0.008*	0.019***	-0.004
	(0.003)	(0.006)	(0.004)	(0.007)	(0.004)
Vocational education	0.006	0.011	0.016*	-0.001	0.013*
	(0.005)	(0.009)	(0.008)	(0.010)	(0.007)
Post-secondary education	0.046***	0.090***	-0.008*	0.046***	0.023***
	(0.003)	(0.006)	(0.005)	(0.007)	(0.005)
Lower secondary education	-0.028***	-0.043***	-0.030***	-0.014	-0.021***
	(0.004)	(0.008)	(0.005)	(0.009)	(0.007)
Full time	0.033***	0.058***	-0.003	0.047***	-0.010
	(0.003)	(0.006)	(0.005)	(0.008)	(0.011)
Supervisor	0.106***	0.132***	0.094***	0.101***	0.071***
	(0.003)	(0.007)	(0.005)	(0.006)	(0.006)
Temporary	0.010**	0.004	0.010*	0.026	0.014*
	(0.004)	(0.009)	(0.005)	(0.018)	(0.007)
Firm size < 10	0.023***	0.020***	-0.018***	0.042***	0.050***
	(0.003)	(0.007)	(0.005)	(0.009)	(0.006)
Firm size < 20	0.010**	0.027***	-0.020***	0.001	0.011**
	(0.004)	(0.009)	(0.006)	(0.010)	(0.005)
Firm size < 50	0.003	0.001	-0.009*	0.003	0.009**
	(0.003)	(0.006)	(0.005)	(0.007)	(0.004)
F-dominated occupation	-0.023***	-0.009	-0.024***	-0.064***	-0.017***
	(0.003)	(0.006)	(0.005)	(0.007)	(0.005)
Southern	-0.050***				
	(0.003)				
Anglo-Saxon	-0.021***				
	(0.004)				
Central-Eastern	-0.086***				
	(0.003)				

20

Observations	242,099	65,504	66,605	31,063	78,927

*** p<0.01, ** p<0.05, * p<0.1
Source: Own calculations using 2019 LFS data and ad hoc module data.

Table A5. Estimated marginal effects for *Flexihours* models, including interaction of female gender with female-dominated occupation

	All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Female* f-dominated occupation	-0.042***	-0.074***	-0.020**	-0.057***	-0.032**	-0.026**
	(0.006)	(0.013)	(0.008)	(0.016)	(0.014)	(0.011)
Female	-0.006**	0.014**	-0.017***	-0.000	0.008	-0.037***
	(0.003)	(0.006)	(0.004)	(0.007)	(0.007)	(0.004)
Female-dominated occupation	-0.070***	-0.088***	-0.034***	-0.164***	-0.173***	-0.021***
	(0.004)	(0.007)	(0.005)	(0.010)	(0.009)	(0.006)
Age 25-34	-0.024***	-0.014*	-0.030***	-0.050***	-0.052***	-0.011**
	(0.003)	(0.007)	(0.005)	(0.008)	(0.008)	(0.006)
Age 45-54	0.009***	0.013**	0.003	0.007	0.030***	-0.014***
	(0.003)	(0.006)	(0.004)	(0.008)	(0.007)	(0.005)
Vocational education	-0.006	-0.004	-0.032***	0.044***	-0.047***	0.002
	(0.005)	(0.010)	(0.009)	(0.011)	(0.012)	(0.008)
Post-secondary education	0.150***	0.212***	0.098***	0.184***	0.111***	0.106***
	(0.003)	(0.007)	(0.005)	(0.008)	(0.008)	(0.006)
Lower secondary education	-0.068***	-0.112***	-0.033***	-0.055***	-0.081***	-0.047***
	(0.004)	(0.010)	(0.005)	(0.013)	(0.010)	(0.008)
Full time	-0.028***	-0.048***	-0.017***	0.088***	0.006	-0.158***
	(0.004)	(0.007)	(0.006)	(0.009)	(0.009)	(0.014)
Supervisor	0.146***	0.161***	0.152***	0.124***	0.131***	0.137***
	(0.003)	(0.007)	(0.005)	(0.007)	(0.007)	(0.006)
Temporary	-0.029***	-0.047***	-0.032***	0.024**	0.003	-0.012
	(0.005)	(0.010)	(0.005)	(0.012)	(0.018)	(0.007)
Firm size < 10	0.020***	-0.023***	0.013**	0.047***	0.059***	0.075***
	(0.004)	(0.008)	(0.005)	(0.009)	(0.009)	(0.007)
Firm size < 20	-0.024***	-0.057***	-0.008	-0.010	-0.016	0.023***
	(0.004)	(0.009)	(0.007)	(0.010)	(0.012)	(0.006)
Firm size < 50	-0.039***	-0.054***	-0.033***	-0.030***	-0.054***	0.004
	(0.003)	(0.007)	(0.005)	(0.008)	(0.008)	(0.005)
Southern	-0.232***					
	(0.004)					
Nordic	0.127***					
	(0.004)					
Anglo-Saxon	-0.093***					
	(0.004)					
Central-Eastern	-0.237***					

(0.004)						
Observations	263,766	65,504	66,605	21,667	31,063	78,927

*** p<0.01, ** p<0.05, * p<0.1
Source: Own calculations using 2019 LFS data and ad hoc module data.

Table A6. Estimated marginal effects for *Externaltime* models, including interaction of female gender with female-dominated occupation

	All countries	Continental	Southern	Nordic	Anglo-Saxon	Central-Eastern
Female* f-dominated occupation	-0.003	-0.012	0.002	0.010	-0.002	0.004
	(0.005)	(0.011)	(0.008)	(0.014)	(0.013)	(0.010)
Female	-0.025***	-0.010**	-0.029***	-0.002	-0.028***	-0.043***
	(0.002)	(0.005)	(0.004)	(0.007)	(0.006)	(0.004)
Female-dominated occupation	-0.022***	-0.006	-0.024***	-0.044***	-0.063***	-0.017***
	(0.003)	(0.006)	(0.005)	(0.009)	(0.007)	(0.006)
Age 25-34	-0.004	-0.009	-0.005	-0.009	0.008	-0.007
	(0.003)	(0.007)	(0.005)	(0.008)	(0.007)	(0.005)
Age 45-54	0.000	-0.001	-0.007*	0.009	0.021***	-0.004
	(0.003)	(0.006)	(0.004)	(0.007)	(0.007)	(0.004)
Vocational education	0.007	0.011	0.014*	0.026**	-0.001	0.013*
	(0.004)	(0.009)	(0.008)	(0.012)	(0.010)	(0.007)
Post-secondary education	0.047***	0.089***	-0.008*	0.087***	0.046***	0.023***
	(0.003)	(0.006)	(0.005)	(0.008)	(0.007)	(0.005)
Lower secondary education	-0.028***	-0.043***	-0.031***	-0.021*	-0.014	-0.021***
	(0.004)	(0.008)	(0.005)	(0.013)	(0.009)	(0.007)
Full time	0.037***	0.059***	-0.001	0.082***	0.052***	-0.009
	(0.003)	(0.006)	(0.005)	(0.008)	(0.008)	(0.011)
Supervisor	0.109***	0.133***	0.094***	0.171***	0.101***	0.072***
	(0.003)	(0.006)	(0.005)	(0.008)	(0.006)	(0.006)
Temporary	0.010**	0.003	0.010*	-0.006	0.026	0.014*
	(0.004)	(0.009)	(0.005)	(0.012)	(0.018)	(0.007)
Firm size < 10	0.022***	0.021***	-0.018***	0.005	0.043***	0.050***
	(0.003)	(0.007)	(0.005)	(0.009)	(0.009)	(0.006)
Firm size < 20	0.010**	0.027***	-0.020***	-0.001	0.001	0.011**
	(0.004)	(0.009)	(0.006)	(0.010)	(0.010)	(0.005)
Firm size < 50	0.002	0.001	-0.009*	-0.008	0.003	0.009**
	(0.003)	(0.006)	(0.005)	(0.008)	(0.007)	(0.004)
Southern	-0.050***					
	(0.003)					
Nordic	0.043***					
	(0.004)					
Anglo-Saxon	-0.022***					
	(0.004)					
Central-Eastern	-0.086***					

	(0.003)					

Observations	263,766	65,504	66,605	21,667	31,063	78,927

*** p<0.01, ** p<0.05, * p<0.1
Source: Own calculations using 2019 LFS data and ad hoc module data.

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