

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Economics from the Nova School of Business and Economics

Sectoral specificities of flexible working arrangements

Ana Catarina de Almeida Pintassilgo

Work project carried out under the supervision of:

Susana Peralta

Marta C. Lopes

4th January 2021

Sectoral specificities of flexible working arrangements*

Catarina Pintassilgo[†]

Abstract

We study gender heterogeneity in use and access to flexible working hours in the Portuguese labour market, using a fixed effects approach. We combine linked employee-employer data, the labour force survey, and our own collect and coded litigation database, covering the periods from 2013 to 2019. We show that female workers have considerably lower use and access to flexitime, even in establishments able to provide it and in female dominated sectors. Our preferred estimate suggests that being a woman reduces the probability of having a flexible schedule by 7.3%. For female dominated sectors - education, and health and social care - the magnitude is even larger: 15.2% and 16.5%. Additionally, we provide evidence on the role of collective bargaining power in fostering female access to flexitime.

Keywords: flexible working arrangements, work-life balance, gender heterogeneity, collective bargaining

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

*I would like to thank Professor Susana Peralta and Professor Marta Lopes for their guidance and constant support. I am thankful to GEP/MTSSS for providing the necessary data. I am forever grateful to my family and friends for their unconditional support thought out my academic journey.

[†]Nova School of Business and Economics. catarina.pintassilgo@novasbe.pt

1 Introduction

Flexible working arrangements concede employees with some degree of control over when and where they choose to work. Essentially, one can distinguish between three types of working flexibility: contractual, spatial and temporal. Following Yu and Postepska (2020), (i) contractual flexibility allows for a reduction in working hours, i.e., part-time work; (ii) spatial flexibility allows the employee to decide its main place of work; and (iii) temporal flexibility (also called *flexitime* or flexible working hours) gives the employee the possibility to choose the start and end times of her daily workday. This study focuses on temporal flexibility.

It has been argued in literature that flexible time arrangements allow for a better work-life balance (Russell et al., 2009; Skinner and Pocock, 2011) and decreased motherhood and gender wage gaps (Chung and Van der Horst, 2018; Fuller and Hirsh, 2019). Working flexibility is especially important to women as, besides the increasing female labour market participation rates, women still dedicate significantly more time than men to child-rearing and housework (Eurofound, 2016).

In Portugal, according to Eurofound (2016), 36% of Portuguese employees find it difficult to combine paid work with family needs. The first Labour Code (2003) gave employees with care responsibilities the right to request part-time or flexible working hours, aiming to provide them with a better work-life balance. However, this is still not a common practice in Portugal. According to Eurofound (2017), Portugal was among the four least flexible countries in the European Union in 2015, with less than 20% of all Portuguese employees (independently of caring responsibilities) having some degree of schedule control, compared to 30% for the EU. Furthermore, women have less flexible schedules than men. Only in 3 EU countries (out of the 28) women registered higher levels of working time flexibility (Plantenga and Remery, 2010).

In this study, we use employee level data, combined with our own litigation database, aiming to examine the existence of gender heterogeneity in the use and access to flexible working hours in the Portuguese labour market. The contributions of this study to the literature are twofold: (i) the use of a new data set covering all employees working with and without time flexibility in Portugal, provided by the Ministry of Labour, which allowed us to study gender heterogeneity and the importance of collective bargaining power in fostering female access to flexible working

hours; and (ii) the use of our own collected and coded data on the refusals to requests for flexitime, which proved that women request flexible arrangements and those are denied to them. Our results suggest a persistent gender heterogeneity in the use and access to flexible hours, where women have a lower probability of having a flexible schedule, even though female workers are the ones requesting flexibility the most. In female dominated sectors (health and social care and education), the magnitude of the estimates is even stronger. Our results are robust to a set of different specifications and models. Furthermore, we provide evidence of the positive impact of collective bargaining power in increasing working time flexibility for female workers.

The remainder of the paper is organized as follows. Section 2 provides a literature review. Section 3 sets the contextual background of flexible working arrangements and collective bargaining in Portugal. Section 4 describes the various data sets we use in this study. Section 5 explains our methodology. Section 6 presents and discusses the results. Finally, Section 7 concludes.

2 Literature review

Flexible working time arrangements are a growing topic in research. With the increasing rates of female labour market participation and the perpetuation of the female role in assuming caring responsibilities, the study of working flexibility has been focusing on its potential to narrow the gender gap and improve workers' work-life balance.

Exploiting household data from the United Kingdom, Chung and Van der Horst (2018) conclude that women who use flexitime have a lower probability of reducing their working hours. The reduction of hours is a common practise among working mothers, which penalizes them both through decreased paid working hours and increased penalty in career progression. Fuller and Hirsh (2019) show that this effect of flexitime in narrowing the motherhood wage gap is more intense to women with higher levels of education.

Research has further exploited the trade-off between higher pay and higher flexibility. Goldin (2014) argues that women self-select into lower pay jobs, foregoing a higher wage to access flexible schedules, as employers tend to reward longer and atypical hours. On the other hand, Chung (2019) finds that female dominated workplaces have simultaneously lower wages and lower ac-

cess to flexible working arrangements, possibly explained by the employer's difficulty to handle an overload of requests. Additionally, Hensvik et al. (2020) show that women tend to sort into non-unique jobs after the birth of the first child (i.e., jobs where there are close substitutes to the absent worker), where flexibility is easier to accommodate. Non-unique jobs perpetuate the gender gap, as they are associated with a lower wage, worst career progression and less stable employment.

Flexible working arrangements have further been associated with a better work-life balance (Russell et al., 2009; Hayman, 2009; Skinner and Pocock, 2011), improved mental health and well-being (Yu and Postepska, 2020), and reduced levels of distress and work pressure for employees (Kandolin et al., 2001).

Apart from its benefits, Golden (2001) shows that not all workers have the same access to flexible working hours. Workers with managerial, professional, technical and sales occupations; and with individual characteristics such as being white, male, married, self-employed and higher educated are more likely to use flexitime. According to Golden (2001) being a woman reduces the probability of having a flexible schedule by 10%.

Literature portrays a general consensus on the role of unions in narrowing the gender gap (Elvira and Saporta, 2001; Kahn, 2015), as they tend to follow an egalitarian policy (Cardoso and Portugal, 2005). Their impact in fostering working flexibility, however, is not standard across countries. While Budd and Mumford (2004) find a negative association between unions and the availability of flexible working arrangements, Gregory and Milner (2009) argue that collective bargaining fosters its implementation. In Portugal, the two major trade unions have divergent opinions on flexibility (Keune, 2006). On the employer side, Cardoso and Portugal (2005) argues that a higher coordination of employers decreases the bargaining power of unions, leading to lower bargained wages and working conditions; with Rigby and O'Brien-Smith (2010) further showing that increasing working flexibility is not a priority for employers.

3 Flexible working arrangements and collective bargaining

3.1 Flexible working arrangements

In Portugal, since 1984 that the law concedes employees with care responsibilities the right to request flexible working arrangements, “under conditions to be regulated”. Nonetheless, only with the first Labour Code (approved in 2003), which was later revised (Law no. 7/2009, from 12th February), the conditions on which this right could be exercised were established.

Aiming to provide all employees with care responsibilities a better work-life balance, the new Labour Code concedes workers with children who are under 12 or, regardless of age, disabled or chronically ill, the right to work under flexible working hours. The worker can choose the start and end times of the normal daily work period, as well as the compulsory weekly rest day. Furthermore, the employee has the right to work in part-time, which should correspond to half of the full-time working hours. The employer may only refuse such requests on business grounds or hard-to-fill vacancy. If the employer wishes to refuse the request, she must request the bidding prior legal opinion of the Portuguese Commission for Equality at Work and Employment (henceforward CEWE), who may then decide against or in favour of the employee’s request. Breaching this duty represents a serious offense. All refused requests for flexible hours or part-time are publicly available on CEWE’s website.

3.2 Collective bargaining

In Portugal, the law establishes three types of agreements that allow for collective bargaining of wage settings and other working conditions, mainly the working time. These collective agreements may be applicable to entire industries or occupations, and are bargained between employers and unions. Following Addison et al. (2017), the three types of collective agreements in Portugal are: (i) *Contratos Coletivos de Trabalho* (CCT), sectoral level agreements; (ii) *Acordos Coletivos de Trabalho* (ACT), multi-firm agreements; and (iii) *Acordos de Empresa* (AE), single-firm agreements. The CCTs predominate and consist in negotiations between, at least, one employer’s association and one union. The ACTs are signed between a group of employers and

the AEs are negotiated by one individual firm. It is not rare for employers to voluntarily extend these agreements to all workers at their firm, or for the Ministry of Labour to extend collective agreements to entire industries (especially CCTs), when requested by the employer and the union (in the latter case, called *Portarias de Extensão*, PE). According to Addison et al. (2017), around 70% to 80% of the workforce is covered by some type of collective agreement without belonging to the organisation who signed it. This explains the high percentage of workers covered by collective agreements, as only 10% of the private sector workers in Portugal are unionised (Portugal and Vilares, 2013). Finally, as a last resource and in the absence of a collective agreement or an extension, the Ministry of Labour may issue an Ordinance of Working Conditions (*Portarias de Condição de Trabalho*, PCT) to regulate the sector. Both PEs and PCTs are non-bargainable collective agreements.

4 Data

This study uses three different sources of data: (i) Quadros de Pessoal, (ii) the Labour Force Survey and (iii) the refusals of requests for flexible working arrangements sent to the Portuguese Commission for Equality at Work and Employment. Table 1 provides a short description of each database. A detailed description follows in the next subsections.

Table 1: Description of data sets used

Data set	Year	Obs	Type	Obtained from
Quadros de Pessoal	2013 - 2018	16M*	Linked employee-employer data	GEP/MTSSS
Labour Force Survey	2019	13.064	Household survey	Statistics Portugal
CEWE	2019	601	Individual litigation	Coded by author

*Note: M stands for 1 million

4.1 Labour Force Survey

We use data from the Labour Force Survey (LFS) and its Ad-Hoc Module on working time organization from 2019, provided by Statistics Portugal. The LFS is conducted on a quarterly basis to a representative sample of households. The ad-hoc survey was conducted in the second

trimester of 2019 to individuals who were part of the labour force and were older than or at least 15 years old at the time of the survey. We restricted our sample to employees, excluding the self-employed (which implied the exclusion of 3 115 observations). Our final sample includes 13 064 individuals observations.

Table 2 (panel A) portrays descriptive statistics of the Labour Force Survey. Our dependent variable is a flexible working hours indicator, defined as the type of working time organization where the worker has the power to define the start and end times of her daily workday, according to her interest, with or without restrictions.

4.2 Quadros de Pessoal

Quadros de Pessoal (QP) is a longitudinal linked employer-employee database. The information is collected through an annual compulsory survey made to all establishments operating in Portugal and with at least one wage earner. It contains information of the employer, both at the firm and establishment level, and of the employee.¹ The fact that QP is a compulsory survey reduces the probability of attrition bias. For this study, we use QP from 2013 until 2018 (latest available), provided physical at the safe center of the Ministry of Labour (GEP/MTSSS)². As we further study the role of collective bargaining, we follow Addison et al. (2017) and limit our analysis to full-time workers, and exclude the agriculture sector. Our final sample contains 16 million observations.

Table 2 (panel B) provides descriptive statistics of employee-level variables. Our dependent variable is a flexible working hours indicator. In Quadros de Pessoal, flexible hours is defined as the type of working time organization where the worker can choose the start and end times of her daily work period according to her interest, with restrictions. This definition is more restrictive than the one used in the LFS and thus captures a lower share of workers.

¹Quadros de Pessoal does not include information on civil servants nor on independent workers.

²The fact that we only had access to this data in December and the many constraints caused by the pandemic and holiday period, limited our ability to deepen some parts of the empirical analysis.

Table 2: Descriptive statistics of Labour Force Survey and Quadros de Pessoal

	Panel (A) <i>Labour Force Survey 2019</i>					Panel (B) <i>Quadros de Pessoal 2013-2018</i>				
	Mean	Std. Dev.	Min.	Max.	Obs	Mean	Std. Dev.	Min.	Max.	Obs*
Female	0.525	0.499	0	1	13,064	0.480	0.500	0	1	16M
Flexible hours	0.200	0.400	0	1	13,064	0.041	0.200	0	1	16M
Aged less than 35	0.220	0.414	0	1	13,064	0.334	0.472	0	1	16M
Children aged less than 12	0.262	0.44	0	1	13,064	-				
Monthly wage	891.796	518.581	12	15000	13,064	889.0	1054.8	6.35	654166	16M
Tenure	12.506	11.532	0	68	13,064	7.656	8.838	0	66	16M
Type of contract										
Permanent	0.795	0.403	0	1	13,064	0.674	0.469	0	1	16M
Fixed-term	0.173	0.378	0	1	13,064	0.251	0.434	0	1	16M
Uncertain-term		-				0.068	0.251	0	1	16M
Other situation	0.032	0.175	0	1	13,064	0.007	0.084	0	1	16M
Type of collective agreement										
Multi-firm: <i>Acordo Coletivo de Trabalho</i>			-			0.038	0.192	0	1	16M
Single-firm: <i>Acordo de empresa</i>			-			0.033	0.179	0	1	16M
Sectoral: <i>Contrato Coletivo de Trabalho</i>			-			0.727	0.445	0	1	16M
<i>Portaria de Condição de Trabalho</i>			-			0.047	0.212	0	1	16M
<i>Portaria de Extensão</i>			-			0.032	0.175	0	1	16M
Not covered by any of the above			-			0.122	0.328	0	1	16M

Note: Data from panel (A) was obtained from the Labour Force Survey of 2019, provided by Statistics Portugal. In the LFS, "flexible hours" is defined as the type of working time organization where the worker has the power to define the start and end times of her daily workday, with or without restrictions. Panel (B) uses data from Quadros de Pessoal, provided by GEP/MTSSS. The variable "flexible hours" is defined as the type of working time organization where the worker can choose the start and end times of her daily work period according to her interest, with restrictions.

*M stands for 1 million

According to this data, between 2013 and 2018, an average of 4.1% of employees used flexitime.³ These different definitions allow us to confirm the robustness of our results.

Table 3: Collective agreements by gender and sector (%)

Collective agreement	All sectors			Health and social care			Education		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Multi-firm: <i>ACT</i>	4.41	2.76	3.56	14.98	12.23	14.60	1.80	0.20	1.40
Single-firm: <i>AE</i>	2.41	3.88	3.17	3.02	5.75	3.40	0.48	0.65	0.52
Sectoral: <i>CCT</i>	64.59	67.87	66.30	39.99	32.20	38.91	53.22	45.31	51.20
<i>PCT</i>	0.89	0.61	0.74	0.53	0.50	0.53	0.64	0.68	0.65
<i>PE</i>	2.10	4.13	3.16	0.32	1.46	0.48	0.12	0.36	0.18
Not covered	25.60	20.75	23.08	41.17	47.87	42.09	43.74	52.81	46.06

Note: Data was collected from Quadros de Pessoal, covering the period from 2013 to 2018.

Table 4: Flexible schedules per type of collective agreements (%)

Collective agreement	All sectors			Health and social care			Education		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Multi-firm: <i>ACT</i>	6.22	10.88	7.92	4.40	8.30	4.85	1.41	0.59	1.38
Single-firm: <i>AE</i>	15.80	8.19	10.89	5.04	6.83	5.45	27.90	43.97	32.76
Sectoral: <i>CCT</i>	3.70	3.69	3.70	4.86	7.54	5.17	2.26	5.12	3.18
<i>PCT</i>	3.73	4.75	4.16	4.25	6.75	4.57	6.91	6.75	6.87
<i>PE</i>	5.97	4.52	4.95	5.89	9.53	7.40	6.27	7.69	6.98
Not covered	3.89	4.09	3.98	4.40	5.70	4.60	3.89	4.50	4.07

Note: Data was collected from Quadros de Pessoal, covering the period from 2013 to 2018.

Table 3 portrays the share of collective agreements by gender. We provide detailed statistics for the health and social care and education sectors as we will focus our analysis in these two industries in Section 6. Sectoral agreements predominate. Women appear to have a higher coverage of multi-firm and sectoral agreements, while men have a higher coverage of lower-scale agreements (single-firm). The health and social care sector stands out for its different distribution of agreements: multi-firm agreements have a higher weight than the average, while sectoral agreements are less present. Table 4 shows statistics of the percentage of workers with flexitime in each type of collective agreement. The smallest-scale, single-firm and multi-firm, are the types of

³Both the Portuguese LFS and European statistics on flexible working arrangements are collected by asking households to rate their degree of power in deciding their daily work schedule. With the LFS, we considered that an individual had a flexible schedule if she argues to be able to define the start and end times of her daily workday, with or without restrictions. Our obtained statistic for flexible working hours is similar to the one from Eurofound (2017). On the other hand, the information from QP is filled by the employers, who decide whether the contract with their employees involves a flexible schedule. This latter definition captures a lower share of workers.

agreement with more flexible working. Further statistics on the distribution of flexible schedules, female workers and collective agreements per sector can be found in Figure A.1..

4.3 Commission for Equality at Work and Employment

As mentioned in Section 3, all workers with care responsibilities have the right to request flexible working hours and part-time work in Portugal, which can only be refused by the employer with CEWE's permission. All refused requests are publicly available on CEWE's website.⁴ Hence, although we do not have access to the universe of requests (both accepted and refused), we do have access to all requests refused by employers since 2005 until 2019.

We created our own litigation database by collecting and coding these refusals. We started by downloading 612 documents containing the request of the worker and refusal of the employer, in PDF format, with an average of 15 pages each. From these initial requests, we excluded 4 where CEWE had not issued an opinion, and 7 where the same worker requested the arrangement twice.⁵ Our final database is composed by 601 refusals.

We manually coded the following variables: type of request (flexible hours or part-time), whether CEWE accepted the request of the employee (i.e., denied the refusal of the employer); sector of activity (following the Portuguese CAE-Rev.3 division⁶); occupation (following the Portuguese Classification of Occupations); gender; and number of children younger than 12 years old. Table 5 portrays descriptive statistics. It is important to notice that when CEWE publishes the refusals of requests, personal information is erased for anonymity reasons, which, sometimes, prevented us from identifying all needed information.

The overwhelming majority of the requests (82.3%) were made by female workers. The refused requests came predominately from the health and social care sector (46.5%), and from the service and sales occupation. Most workers request flexible working hours (92.8%) instead of part-time work. The large majority of the requests are accepted by CEWE (75.5%), meaning

⁴These documents can be found here: cite.gov.pt/pt/acite/pareceres.html

⁵Being the first refused by CEWE due to the request being done incorrectly, and the second accepted; we have decided to exclude the second observation, i.e. the acceptance, for a matter of fairness, since there might be more workers who saw their request refused for being done incorrectly and who will make a new one, that might be accepted, but that will only be published by CEWE in 2020.

⁶Portuguese Classification of Economic Activities, third revision, elaborated by Statistics Portugal.

the employer is obligated by law to accept the worker's request. Moreover, from these non-acceptances, 92% saw that outcome due to an incorrect request (for instance, missing information), in which case the worker may reformulate a new request, that will be accepted by CEWE. This latter result further reinforces that CEWE considers that most employers have enough conditions to grant flexible arrangements, although they refuse their worker's request.

Table 5: Descriptive statistics of refusals to requests for flexible working arrangements

Variables	Obs	Proportion*	Proportion (female)**
Female	601	82.33%	
Type of request	601		
Flexible hours		92.68%	82.37%
Part-time		7.32%	81.82%
Accepted in favor of the employee	601	75.5%	
Sector of activity	601		
Agriculture		0.18%	100%
Manufacturing		6.74%	78.38%
Waste Management		0.36%	0.00%
Retail		20.22%	94.59%
Transportation		7.10%	28.21%
Accommodation and Food Services		5.83%	87.50%
Financial and Insurance		0.91%	80.00%
Professional Activities		1.64%	66.67%
Administrative Activities		7.65%	54.76%
Public Administration		1.09%	16.67%
Education		0.73%	50.00%
Health and Social Care		46.45%	94.07%
Arts, Entertainment		0.36%	0.00%
Other Services		0.73%	100%
Occupation	601		
Managers		20.00%	100%
Professionals		28.69%	91.67%
Technicians		4.58%	56.52%
Clerical support workers		13.35%	61.19 %
Service and sales		43.43%	88.48%
Craft workers		1.59%	37.50%
Machine operators		2.19%	54.55%
Elementary occupations		5.98	100%

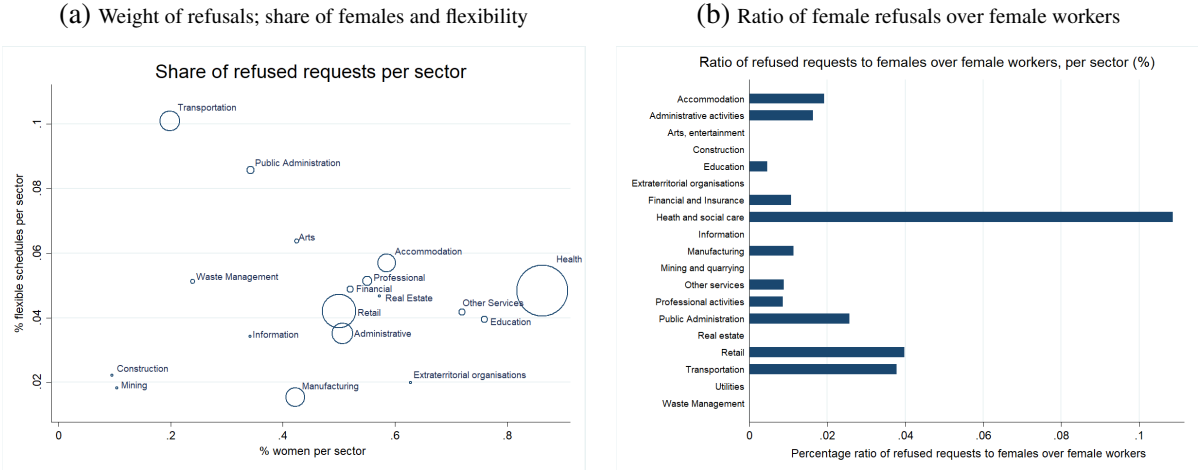
Note: Data was collected and coded by the author through the reading of all PDF documents of refusals to requests for flexible working arrangements, sent to the Commission for Equality at Work and Employment, and published in their website in 2019.

*Percentage of refused requests per sector.

**Percentage of women who's request was refused, per sector.

Figure 1 - panel a) - portrays the weight of refusals to requests for flexible working arrangements on each industry. These weights are framed into a sectoral characterization, with shares of flexible schedules and female workers. The health and social care has the highest percentage of females and a large proportion of workers with flexitime (above average). In panel b) we see that this industry registers the highest ratio of refused requests to females over female workers (0.1%). These facts suggest that the high share of refused requests to female workers in this sector is not a consequence of the female dominance, but could evidence an inaccessibility to flexible working arrangements for female workers. The inaccessibility to flexitime in female dominated industries is discussed in Chung (2019), however, it should apply to both genders. In Section 6 we focus our analysis on this industry to examine possible gender heterogeneity in the most female dominated industry, and where flexible working hours appear to be difficult to obtain for women. Moreover, we will focus the analysis on the education sector as this is the second most female dominated industry and shares a relatively high level of flexibility as well. Nonetheless, it has the lowest ratio in panel b), which provides us with two different perspectives on female access to flexitime in female dominated industries.

Figure 1: Statistics for refusals for flexitime; share of females and flexibility per sector



Note: Data for percentage of flexible schedules and female workers per sector was obtained from Quadros de Pessol, covering the period from 2013 to 2018. Data for the refusals to requests for flexible working arrangements was collected by the author. The size of the circles in panel a) represent the weight of refused requests per sector.

5 Methodology

The Labour Force Survey is a cross-section where our dependent variable, flexible working hours, is binary. Hence, we used a Linear Probability Model (LPM), following equation (1).

$$flexible\ hours_i = \gamma female_i + X'_i\beta + \epsilon_i \quad (1)$$

Our outcome variable takes value 1 if the employee has a flexible schedule. Our explanatory variable is a female indicator. X'_i includes the set of controls: being aged less than 35 years old, having children under 12 years old, occupation, educational level, logarithm of wage, type of contract, sector of activity, tenure at and dimension of the firm. Standard errors are robust to prevent heteroskedasticity.

Quadros de Pessoal is a longitudinal data set. For this study, we use information at the establishment and employee levels, covering the period from 2013 to 2018. We start by estimating equation (2) with a Pooled OLS model.

$$flexible\ hours_{ift} = \gamma female_i + X'_{ift}\beta + \delta_t year_t + a_f + \epsilon_{ift} \quad (2)$$

In equation (2), our binary outcome variable is a flexible hours indicator from employee i , working at establishment f in year t . Our explanatory variable is a female indicator. X'_{ift} is a set of time-variant controls: being aged less than 35 years old, occupation, educational level, logarithm of wage, type of contract, indicator for collective labour agreements, sector of activity, tenure at and dimension of the firm. $year_t$ is an year dummy, to account for time-specific fixed effects and ϵ_{ift} is the error term. Finally, a_f is the establishment fixed effect, capturing the time-invariant unobserved heterogeneity, i.e., time-invariant unobserved effects that vary across establishments, such as managerial practices or aspects of the production function that may foster or limit the use of flexible working arrangements.

With Pooled OLS, the term $(a_f + \epsilon_{ift})$ is part of the error. To be able to control for the unobserved heterogeneity (a_f), we re-estimate equation (2) with establishment-level Fixed Effects

(FE).⁷ Both with Pooled OLS and FE we use robust standard errors, clustered at the establishment level, to account for heteroskedasticity and correlation in establishment errors.

6 Discussion of results

We divide our analysis in three parts: (i) use of flexitime in the Portuguese labour market; (ii) use versus access to flexible working hours; and (iii) flexitime in female dominated industries.

6.1 Gender heterogeneity in the use of flexible working hours

To examine the possible existence of gender heterogeneity in the use of flexible working hours in the Portuguese labour market, we start by estimating equation (1) using a LPM with the LFS cross-section data. Table 6 portrays the results of this specification.

In column (1) from Table 6, the estimate of the coefficient of the female indicator suggests that being a woman will reduce the probability of using flexitime by 5.1 percentage points (p.p.). Compared with the total percentage of employees with flexible working hours, this estimate represents a 26% decrease in the probability of using flexitime. One possible explanation for this substantial gender heterogeneity is that men may be self-selecting into sectors or occupations that are able to provide more flexible working arrangements than others, due to their production characteristics. This sorting could bias our conclusions, as the heterogeneity could be explained by self-selection and not by the gender itself. To control for this possible sorting, in the remaining columns of Table 6 we control for individual and sector level variables. In all specifications, the estimates of the coefficients of the female indicators are robust to the added covariates, indicating a significant and negative correlation between being a woman and having flexitime, between 3.4p.p. and 6.5p.p.. These results suggest that, even working in the same sector and sharing the same occupation or educational level, women are between 17% to 32.5% less likely to use flexible working hours than men. Moreover, having a higher wage seems to increase the use of flexible working hours. Being aged less than 35 years old (which is an age interval when it is common for mothers to have

⁷Fixed effects are at the establishment-level so that we do not lose individual time-constant variables, such as gender, since this is our explanatory variable.

Table 6: Regression results for the Labour Force Survey

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.051*** (0.010)	-0.065*** (0.010)	-0.049*** (0.010)	-0.038*** (0.011)	-0.036*** (0.011)	-0.034*** (0.011)
Aged less than 35 years old	-0.042*** (0.011)	-0.077*** (0.011)	-0.048*** (0.011)	-0.026** (0.012)	-0.040*** (0.013)	-0.037*** (0.013)
Children aged less than 12	0.032*** (0.010)	0.012 (0.010)	0.011 (0.010)	0.015 (0.010)	0.010 (0.010)	0.010 (0.010)
Dimension of workplace	-0.007 (0.004)	-0.018*** (0.004)	-0.022*** (0.004)	-0.023*** (0.004)	-0.023*** (0.004)	-0.021*** (0.004)
Education						
<i>Middle education</i>		0.070*** (0.011)	0.016 (0.011)	0.008 (0.011)	0.003 (0.011)	0.004 (0.011)
<i>Higher education</i>		0.265*** (0.013)	0.087*** (0.018)	0.074*** (0.020)	0.063*** (0.020)	0.062*** (0.020)
Log wage				0.079*** (0.015)	0.089*** (0.016)	0.098*** (0.016)
Tenure					-0.002*** (0.000)	-0.002*** (0.001)
Type of contract						
<i>Permanent</i>						-0.193*** (0.036)
<i>Fixed-term contract</i>						0.219*** (0.036)
Occupation dummy	No	No	Yes	Yes	Yes	Yes
Sector dummy	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,138	10,138	10,138	10,138	10,138	10,138
R^2	0.059	0.111	0.156	0.159	0.161	0.165

Standard errors in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Data from columns (1) to (6) was obtained from the Labour Force Survey of 2019, provided by Statistics Portugal. The indicator variable "flexible hours" is defined as the type of working time organization where the worker has the power to define the start and end times of her daily workday, with or without restrictions. All specifications were calculated with a linear probability model.

For *education* the base category is elementary education and for *type of contract* is independent contract.

the first child (Eurostat, 2018) and, consequently, have the right to work with time flexibility), decreases the probability of using flexible schedules. Lastly, having children under 12 seems to have no effect on this probability.

To check the robustness of our estimates and study collective bargaining power, we further estimate equation (2) using both a Pooled OLS and FE models with Quadros de Pessoal longitudinal data, where a different definition of flexible working hours is used (see Section 4). Table 7 provides the estimates. The first column of Table 7 uses a Pooled OLS estimation model, where, besides the negative sign, being a female worker does not seem to have a significant effect on the probability of having flexible working time arrangements. The remaining columns of the Table use establishment fixed effects, as establishments may embody unobserved characteristics that

Table 7: Regression results for Quadros de Pessoal

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.002 (0.002)	-0.003*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.008*** (0.003)	-0.009*** (0.003)
Aged less than 35 years old	-0.007*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.022*** (0.003)	-0.022*** (0.003)
Log dimension of establishment	0.003* (0.002)	0.002** (0.001)	0.003** (0.001)	0.003** (0.001)	0.008* (0.004)	0.008* (0.004)
Log wage	-0.005* (0.003)	-0.014*** (0.003)	-0.014*** (0.003)	-0.014*** (0.003)	-0.046*** (0.007)	-0.047*** (0.007)
Log tenure	-0.004*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.006*** (0.002)	-0.006*** (0.002)
Type of contract						
<i>Permanent</i>	-0.009 (0.007)	-0.008*** (0.003)	-0.008*** (0.003)	-0.008*** (0.003)	-0.032*** (0.009)	-0.032*** (0.009)
<i>Fixed-term</i>	-0.012 (0.007)	-0.009*** (0.003)	-0.008*** (0.003)	-0.008*** (0.003)	-0.034*** (0.009)	-0.034*** (0.009)
<i>Uncertain-term</i>	-0.009 (0.009)	-0.005 (0.004)	-0.005 (0.004)	-0.005 (0.004)	-0.025** (0.011)	-0.025** (0.011)
Collective agreements						
<i>Multi-firm: ACT</i>			0.073** (0.030)	0.068** (0.029)	0.185*** (0.061)	0.180*** (0.061)
<i>Single-firm: AE</i>			-0.000 (0.011)	-0.025 (0.017)	-0.013 (0.023)	-0.048* (0.028)
<i>Sectoral: CCT</i>			-0.000 (0.001)	0.001 (0.001)	-0.001 (0.003)	0.005 (0.004)
<i>PCT</i>			-0.001 (0.001)	0.001 (0.002)	-0.002 (0.006)	0.010 (0.008)
<i>PE</i>			0.003 (0.002)	0.005** (0.002)	0.012 (0.008)	0.019** (0.008)
Female × Collective agreements						
<i>Female × Multi-firm: ACT</i>				0.010*** (0.003)		0.009* (0.005)
<i>Female × Single-firm: AE</i>				0.059*** (0.019)		0.101*** (0.024)
<i>Female × Sectoral: CCT</i>				-0.002 (0.001)		-0.010*** (0.003)
<i>Female × PCT</i>				-0.003* (0.002)		-0.019*** (0.007)
<i>Female × PE</i>				-0.004** (0.002)		-0.020*** (0.007)
Establishment fixed effects	No	Yes	Yes	Yes	Yes	Yes
Education level dummy	Yes	Yes	Yes	Yes	Yes	Yes
Occupation dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Only % flexible schedules > 0	No	No	No	No	Yes	Yes
Observations*	10M	10M	10M	10M	2,978m	2,978m
R^2	0.026	0.593	0.594	0.594	0.553	0.554

Standard errors in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Data from columns (1) to (6) was obtained from Quadros de Pessoal, from 2013 to 2018, provided by GEP/MTSS. The indicator variable "flexible hours" is defined as the type of working time organization where the worker can choose the start and end times of her daily work period according to her interest, with restrictions. Column (1) was calculated using a Pooled OLS model and columns (2) to (6) using fixed effects at the establishment level. Columns (1) to (4) include all establishments and columns (5) and (6) are restricted to establishments with at least one employee with flexible working hours. For *type of contract* the base category is other type of contract, and for *collective agreement* is not covered by any collective agreement.

*M stands for million, m stands for thousand

determine the granting of flexible schedules. Controlling for these unobservables, column (2) suggests that being a woman will decrease the probability of having a flexible schedule by 0.3p.p..

Column (3) adds indicators for type of collective agreements (both bargainable and non-bargainable). The coefficient of the female indicator maintains the same magnitude: female workers are 7.3% less likely than males of using flexitime, out of the total probability of having a flexible schedule. Our results are in line with Golden (2001), who finds a 10% decreased probability of using flexible working hours for female workers. The estimates in column (3) further indicate that workers covered by a multi-firm contract are 7.3p.p. more likely to use flexible working hours than workers not covered by any collective agreement.

Column (4) interacts each collective agreement with the female indicator. Results suggest that a woman covered by a multi-firm agreement has an increased probability of 7.4p.p. of using flexitime, compared to an increased 6.8p.p. for a man. The same positive relation is verified for single-firm agreements: women with single-firm agreements have an increased probability of 3p.p. of having a flexible schedule, while men with the same agreement face a reduced probability of 2.5p.p.. On the other hand, with the non-bargainable agreements, we see a reversed image: a woman covered by an Ordinance of Working Conditions (PCT) or by an extension (PE) faces a reduced probability (-0.6p.p. and -0.3p.p.), while a man faces an increased probability of using flexible working hours (0.1p.p. and 0.5p.p., respectively). This finding suggests that, while smaller-scale collective bargaining (multi-firm and single-firm levels) is able to reduce the gender heterogeneity by favouring women, non-bargainable agreements perpetuate the inaccessibility of women to flexible working time arrangements.

In the last two columns of Table 7, we restrict the analysis to establishments where there is at least one employee with a flexible schedule. The rationale behind this modification is that an establishment may not be able to provide flexible working arrangements to any worker. However, if we look inside establishments where at least one flexible schedule exists, then the establishment has the capacity to provide flexible time arrangements. Using this modification, the estimates for *female* persist negative and significant: a female worker at a establishment with at least one flexible schedule is 4%⁸ less likely to use flexitime than a male working at the same establishment.

⁸Out of the 20% workers with flexible schedules at establishments that provide for some flexitime possibilities.

Our results suggest that within establishments able to provide flexible schedules, women still have a lower probability of having one.

Furthermore, the conclusions for the interactions between *female* and *collective agreements* apply: smaller-scale collective bargainable agreements favour female access to flexitime, while non-bargainable agreements favour men. Column (6) further indicates that higher-scale bargainable agreements worsen female working flexibility: a woman covered by a sectoral agreement is 1.4p.p. less likely of using flexitime, while a man experiences an increased probability of 0.5p.p.. Since the majority of *PEs* are extensions of sectoral agreements, and that ordinances (*PCTs*) cover entire sectors, it was expected that sectoral agreements, extensions and ordinances had the same effect. Moreover, the evidence that single-firm and multi-firm agreements provide women with a higher access to flexible working arrangements is in line with Cardoso and Portugal (2005), as unions tend to follow an egalitarian policy and have a higher bargaining power the lower is the coordination between employers.

Finally, the estimates for type of contract suggest that both permanent and fixed-term contracts are associated with a lower use of flexitime, and of the same magnitude, when compared to other types of contracts such as independent ones. Furthermore, the estimate for *wage* shows the opposite sign as in Table 6. One of the explanations is that the wage coefficient in the LFS regression is capturing establishment characteristics. It could be that establishments with higher wages also have more flexitime. In fact, the wage coefficient with no establishment fixed effects in column (1) of Table 7 is only significant at a 10% level. However, when looking at within variation, the wage coefficient decreases by 3 times. These results suggest that females are getting the least paid jobs within establishments that provide for some flexitime possibilities. A further confirmation of this fact is the coefficient in the regressions with only flexible establishments being even lower.

6.2 Use and access to flexible working arrangements

Our results until now suggest that even controlling for employee and establishment level characteristics and looking inside establishments that are able to provide flexible arrangements, women are less likely to use flexitime than men. However, this finding does not directly imply a discrimi-

nation against women. It may be the case that women have access to flexible schedules but simply do not want to have them. According to Skinner et al. (2016), workers with caring responsibilities (and, in our specific case, women) may be as well unaware of their right to request flexible working arrangements, warranted by law.

The evidence provided in Section 4.3, with the litigation data we collected, allows to verify these hypotheses. In 2019, 601 employees requested flexible working arrangements and saw their request refused by their employer. Moreover, since 2005 (first year with published refusals in CEWE's website), the number of refused requests has been increasing at a fast rate (see Figure A.2.). This first finding goes against the hypothesis that employees are unaware of their right, as, since 2005, 3865 working parents wanted these time arrangements and were unable to have them, which represents 3% of the mean percentage of employees with a flexible schedule in 2018.

Our first hypothesis was that women might have access to flexible working arrangements and simply not wanting them. Once again, this hypothesis fails when we analyse the gender dominance of the refusals: 82.3% of the refusals were to requests made by women. The clear female dominance in refused requests suggests that women with care responsibilities do feel the need to adapt their working schedule to their family needs and, thus, request flexitime. However, those requests are being denied to them. The fact that CEWE accepted 76% of the requests (meaning the employer is obligated by law to accept the worker's request), further evidences that employers have the capacity to provide flexible working arrangements. Therefore, it seems that is not a question of use, but rather a question of female access to flexible working time arrangements.

6.3 Female dominated sectors

As discussed in Section 4.3, we now focus our analysis in the health and social care and education sectors, aiming to study gender heterogeneity in female dominated industries.

Table 8 provides results for the health and social care sector. All columns were estimated using fixed effects at the establishment level. In columns (1) and (2), results suggest that being a woman reduces the probability of having flexitime by 0.8p.p. to 0.9p.p.. In terms of total percentage of workers with flexible schedules in this industry, these estimates represent a 16.5% to 18.6%

Table 8: Regression results for the Health and Social Care sector, Quadros de Pessoal

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.009*** (0.002)	-0.008*** (0.002)	-0.002 (0.003)	-0.015*** (0.004)	-0.014*** (0.004)	-0.003 (0.005)
Aged less than 35 years old	-0.017***	-0.016***	-0.016***	-0.031***	-0.028***	-0.028***
Log dimension of establishment	0.005 (0.005)	0.005 (0.005)	0.005 (0.005)	0.006 (0.010)	0.008 (0.011)	0.008 (0.011)
Log wage	0.019 (0.019)	0.008 (0.014)	0.008 (0.014)	0.026 (0.030)	0.009 (0.023)	0.009 (0.023)
Log tenure	0.001 (0.001)	0.001 (0.002)	0.001 (0.002)	0.002 (0.003)	0.003 (0.003)	0.003 (0.003)
Type of contract						
<i>Permanent</i>	-0.008 (0.006)	-0.007 (0.006)	-0.007 (0.006)	-0.015 (0.012)	-0.014 (0.013)	-0.014 (0.013)
<i>Fixed-term</i>	-0.003 (0.006)	-0.002 (0.006)	-0.002 (0.006)	-0.005 (0.013)	-0.004 (0.013)	-0.004 (0.013)
<i>Uncertain-term</i>	-0.004 (0.006)	-0.003 (0.006)	-0.002 (0.006)	-0.007 (0.013)	-0.005 (0.013)	-0.005 (0.013)
Collective agreements						
<i>Multi-firm: ACT</i>		0.158** (0.069)	0.170** (0.073)		0.191** (0.080)	0.207** (0.085)
<i>Single-firm: AE</i>		0.004 (0.012)	0.016 (0.010)		-0.042 (0.045)	-0.011 (0.035)
<i>Sectoral: CCT</i>		-0.005 (0.005)	0.003 (0.007)		-0.010 (0.010)	0.009 (0.012)
<i>PCT</i>		-0.008 (0.006)	0.008 (0.009)		-0.028* (0.017)	0.057* (0.031)
<i>PE</i>		-0.056* (0.032)	-0.031 (0.028)		-0.123*** (0.034)	-0.049 (0.049)
Female × Collective agreements						
<i>Female × Multi-firm: ACT</i>			-0.015* (0.008)			-0.021* (0.011)
<i>Female × Single-firm: AE</i>			-0.017 (0.015)			-0.046** (0.020)
<i>Female × Sectoral: CCT</i>			-0.010*** (0.004)			-0.022*** (0.006)
<i>Female × PCT</i>			-0.019** (0.008)			-0.099*** (0.031)
<i>Female × PE</i>			-0.036** (0.014)			-0.096** (0.037)
Establishment fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Education level dummy	Yes	Yes	Yes	Yes	Yes	Yes
Occupation dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Only % flexible schedules > 0	No	No	No	Yes	Yes	Yes
Observations*	1,121m	1,121m	1,121m	572,247	572,247	572,247
R^2	0.435	0.440	0.440	0.409	0.416	0.417

Standard errors in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Data from columns (1) to (6) was obtained from Quadros de Pessoal, from 2013 to 2018, provided by GEP/MTSSS, and is restricted to the health and social care sector. The indicator variable "flexible hours" is defined as the type of working time organization where the worker can choose the start and end times of her daily work period according to her interest, with restrictions. Column (1) to (6) were calculated using fixed effects at the establishment level. Columns (1) to (3) include all establishments and columns (4) to (6) are restricted to establishments with at least one employee with flexible working hours. For *type of contract* the base category is other type of contract, and for *collective agreement* is not covered by any collective agreement.

*m stands for thousand

Table 9: Regression results for the Education sector, Quadros de Pessoal

	(1)	(2)	(3)	(4)	(5)	(6)
Female	-0.006*** (0.002)	-0.006*** (0.002)	-0.004* (0.002)	-0.013*** (0.004)	-0.013*** (0.004)	-0.009* (0.005)
Aged less than 35 years old	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.014*** (0.004)	-0.014*** (0.004)	-0.014*** (0.004)
Log dimension of establishment	-0.006 (0.006)	-0.006 (0.005)	-0.006 (0.005)	-0.020 (0.018)	-0.019 (0.018)	-0.018 (0.018)
Log wage	-0.010*** (0.003)	-0.010*** (0.003)	-0.010*** (0.003)	-0.024*** (0.007)	-0.024*** (0.007)	-0.024*** (0.007)
Log tenure	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)
Type of contract						
<i>Permanent</i>	0.011* (0.006)	0.011* (0.006)	0.010* (0.006)	0.027 (0.039)	0.027 (0.039)	0.026 (0.039)
<i>Fixed-term</i>	0.007 (0.007)	0.006 (0.007)	0.006 (0.007)	0.015 (0.038)	0.015 (0.039)	0.014 (0.039)
<i>Uncertain-term</i>	0.011 (0.008)	0.012 (0.008)	0.011 (0.008)	0.027 (0.040)	0.027 (0.040)	0.027 (0.040)
Collective agreements						
<i>Multi-firm: ACT</i>		-0.018 (0.035)	-0.030 (0.037)		-0.020 (0.045)	-0.042 (0.048)
<i>Single-firm: AE</i>		0.159 (0.132)	0.150 (0.130)		0.196 (0.171)	0.177 (0.166)
<i>Sectoral: CCT</i>		0.000 (0.002)	0.004 (0.003)		0.002 (0.006)	0.010 (0.008)
<i>PCT</i>		0.008 (0.010)	0.003 (0.011)		0.035 (0.036)	0.026 (0.046)
<i>PE</i>		0.014 (0.027)	0.024 (0.036)		0.062 (0.098)	0.128 (0.131)
Female × Collective agreements						
<i>Female × Multi-firm: ACT</i>			0.012** (0.006)			0.021** (0.010)
<i>Female × Single-firm: AE</i>			0.014 (0.014)			0.028 (0.029)
<i>Female × Sectoral: CCT</i>			-0.004 (0.003)			-0.010 (0.007)
<i>Female × PCT</i>			0.006 (0.011)			0.010 (0.046)
<i>Female × PE</i>			-0.026 (0.032)			-0.251* (0.143)
Establishment fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Education level dummy	Yes	Yes	Yes	Yes	Yes	Yes
Occupation dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Only % flexible schedules > 0	No	No	No	Yes	Yes	Yes
Observations	257,291	257,291	257,291	90,681	90,681	90,681
R^2	0.549	0.550	0.550	0.526	0.528	0.528

Standard errors in parentheses: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Data from columns (1) to (6) was obtained from Quadros de Pessoal, from 2013 to 2018, provided by GEP/MTSSS, and is restricted to the health and social care sector. The indicator variable "flexible hours" is defined as the type of working time organization where the worker can choose the start and end times of her daily work period according to her interest, with restrictions. Column (1) to (6) were calculated using fixed effects at the establishment level. Columns (1) to (3) include all establishments and columns (4) to (6) are restricted to establishments with at least one employee with flexible working hours. For *type of contract* the base category is other type of contract, and for *collective agreement* is not covered by any collective agreement.

decreased probability for female workers. The magnitude of these estimates is even stronger than the one in Table 7: within the industry with the largest share of women, relatively high share of flexible schedules, and with the highest number of refused requests, female workers have an even lower access to flexitime.

Similarly to Table 7, being covered by a multi-firm collective agreement seems to increase the probability of using flexitime, by 1.6p.p.. However, the interactions in column (3) show a different image than Table 7. All interaction estimates suggest that even the smaller-scale bargainable agreements reduce the probability of having a flexible schedule for a female worker, but increase that same probability for males (except for extensions, where there is a reduced use of flexitime to both genders, although still a more intense reduction to women). One possible explanation for this finding lays on the distribution of type of agreements. According to Table 3, the health and social care sector has a higher coverage of multi-firm and single-firm agreements than the average. Looking in detail into these agreements, we notice that 89% of the multi-firm and 42% of the single-firm agreements in this industry are made by the same employer: *Santa Casa da Misericórdia*. Therefore, the negative effect we obtained by interacting collective agreements and the female indicator could be capturing a substantial part of the negotiations with *Santa Casa da Misericórdia*. Thus, our results may be suggesting that this employer in particular is not allowing for female flexitime in the health and social care sector. This specificity from this industry may prevent us from straightforwardly conclude that collective bargaining power is being ineffective in protecting female claims for more working flexibility.

In columns (4) to (6) we perform the robustness check to flexible workplaces, by restricting the analysis to establishments with at least one employee using flexitime. In columns (4) and (5), the estimate for female persists negative and significant: even within establishments able to provide flexible working time arrangements, women are 9.9% to 10.6% less likely of having them.⁹ Column (6) estimates the interaction between the gender and collective agreement indicators. The results are consistent with those in column (3): female workers covered by any type of collective agreement are less likely to use flexitime when compared to male workers with the same agreement.

⁹Out of the 14.1% workers with flexible schedules at establishments that provide for some flexitime possibilities.

These results for the health and social care sector not only support the gender heterogeneity in use of flexitime found in Section 6.1, as they surpass it. This sector shows to be a particular case of study: almost half of the refused requests for flexible working arrangements came from workers of this sector, 94% of which female; it is an industry with a relatively high level of flexitime; it is a female dominated industry where men are still the ones having more access to flexible schedules; and even within establishments that are able to provide for some flexitime possibilities, women are less likely to access them.

We move the analysis to the second female dominated industry. Table 9 provides the estimates for the education sector and follows the same structure as Table 8. The estimates for the *female* coefficient in columns (1) and (2) suggest that female workers from the education sector have a reduced probability of 0.6p.p. of having a flexible schedule, when compared to men, already controlling for a set of covariates such as occupation and schooling. Comparing to the industry mean, women are 15.2% less likely than men to use flexitime. Restricting the analysis to establishments with at least one worker with flexitime - columns (4) and (5) - the probability of using flexible working hours decreases by 6.1%¹⁰ to females. In neither of these columns the coverage by collective agreements seems to have a significant effect on the use of flexible schedules. Columns (3) and (6) estimate the interaction term, for all establishments and to establishments with at least one flexible schedule, respectively. Both columns provide similar results: a female worker covered by a multi-firm agreement has a higher probability than a male of using flexitime, although this probability is still negative for both. Similarly to Table 7, smaller-scale collective agreements seem to be more effective in providing equal access to flexible working time arrangements.

Comparing the results for these two female dominated sectors, we draw different conclusions. In both industries, female workers have a lower access to flexitime than men, however, this gender heterogeneity has a stronger magnitude in the health and social care sector, even within establishments that are able to provide for some working time flexibility. Secondly, following the evidence provided in Figure 1 panel b), we further know that the health and social care sector had the highest ratio of refused requests to females over female workers, while this ratio was much smaller to the education industry. Hence, our results suggest that both female dominated industries suffer

¹⁰Out of the 21.2% workers with flexible schedules at establishments that provide for some flexitime possibilities.

from female inaccessibility to flexitime, but this effect is much stronger at the health and social care sector. Finally, female workers covered by a multi-firm agreement have a higher probability of using flexitime at the education sector (similarly to Table 7), while for the health and social care we did not find a positive impact.

7 Conclusions, limitations and further research

This paper uses linked employer-employee administrative data and the Labour Force Survey to study gender heterogeneity in the provision of flexible working hours in the Portuguese labour market.

Using two different data sets with two distinct definitions of working time flexibility, our results indicate a persistent gender heterogeneity in the granting of flexitime. More precisely, being a female reduces the probability of having a flexible schedule by 5.2%¹¹ to 7.3%, depending on the definition used. Our estimates are robust to a set of covariates and different specifications. Even within establishments able to provide flexible working time arrangements or within female dominated industries, women have significantly lower access to flexitime than men. We study the particular cases of the education and health and social care sectors, the two most female dominated industries, where females are 15.2% to 16.5% less likely than males to use flexitime, respectively.

Our study further exploits the law, which concedes all employees with caring responsibilities the right to request flexible working hours. We created our own litigation database by collecting and coding information, to show that female workers do need and do request flexible arrangements, but those requests are being denied to them. Our litigation data suggests that the reduced female use of flexitime represents a problem of female access to working flexibility.

Furthermore, this paper examines the influence of collective bargaining power in fostering female access to flexible working arrangements. Our results suggest that female workers covered by multi-firm or single-firm agreements have a higher probability of having a flexible schedule than male workers (7.4p.p. and 3p.p. for women against 6.8p.p. and -2.5p.p. for men, respectively).

¹¹Female estimate from Labour Force Survey. The value was normalized for the mean of workers with flexible schedules according to Quadros de Pessoa (4.1%) to be comparable.

This finding supports the important role of collective bargaining in protecting female rights, as it has been defended for the gender wage gap (Elvira and Saporta, 2001; Kahn, 2015). Nonetheless, in the health and social care sector - the female dominated industry where female workers are the less likely to use flextime - we did not find a positive influence of collective bargaining power in fostering female access to flexible working arrangements.

Although we do find convincing evidence of gender heterogeneity in the use and access to flexible working hours, we are not able to control for unobserved employee fixed effects, as our variable of interest (*female*) is time-invariant. Controlling for unobserved employee heterogeneity, such as individual bargaining power, would prevent us from potential bias. To address this caveat and move the discussion further, in future research, we suggest the use of Gelbach's decomposition (Gelbach, 2016), using the specification of Cardoso et al. (2016). This method would allow for a decomposition of the gender heterogeneity, measuring the contribution of employee, establishment and occupational fixed effects, as well as to measure the size of the "discrimination component", i.e., the unexplained part.

Our findings contribute to the discussion on flexible working arrangements, as besides its well documented benefits in narrowing the gender wage gap (Chung and Van der Horst, 2018; Fuller and Hirsh, 2019), we provide evidence of female inaccessibility to flexitime, using novelties in literature. Firstly, we use a new data set covering all employees with flexible and inflexible schedules in Portugal, which may open doors to new research. Secondly, we create a new database with all refusals to requests for flexible working arrangements in Portugal, in 2019. Finally, this paper contributes to the discussion on collective bargaining power and its role in reducing the gender gap, as we find evidence of a positive impact of smaller-scale collective agreements on increasing female access to flexitime, which could have consequences to enhance equality of opportunities to women.

References

- Addison, John T, Pedro Portugal, and Hugo Vilarés. 2017. “Unions and collective bargaining in the wake of the Great Recession: evidence from Portugal”. *British Journal of Industrial Relations* 55(3), 551–576.
- Budd, John W and Karen Mumford. 2004. “Trade unions and family-friendly policies in Britain”. *ILR Review* 57(2), 204–222.
- Cardoso, Ana Rute, Paulo Guimarães, and Pedro Portugal. 2016. “What drives the gender wage gap? A look at the role of firm and job-title heterogeneity”. *Oxford Economic Papers* 68(2), 506–524.
- Cardoso, Ana Rute and Pedro Portugal. 2005. “Contractual wages and the wage cushion under different bargaining settings”. *Journal of Labor economics* 23(4), 875–902.
- Chung, Heejung. 2019. “‘Women’s work penalty’ in access to flexible working arrangements across Europe”. *European Journal of Industrial Relations* 25(1), 23–40.
- Chung, Heejung and Mariska Van der Horst. 2018. “Women’s employment patterns after child-birth and the perceived access to and use of flexitime and teleworking”. *Human relations* 71(1), 47–72.
- Elvira, Marta M and Ishak Saporta. 2001. “How does collective bargaining affect the gender pay gap?”. *Work and Occupations* 28(4), 469–490.
- Eurofound. 2016. “European Quality of Life Survey”.
- Eurofound. 2017. “Work–life balance and flexible working arrangements in the European Union”.
- Eurostat. 2018. “Births and fertility in 2016”.
- Fuller, Sylvia and C Elizabeth Hirsh. 2019. “‘Family-friendly’ jobs and motherhood pay penalties: The impact of flexible work arrangements across the educational spectrum”. *Work and Occupations* 46(1), 3–44.

- Gelbach, Jonah B. 2016. “When do covariates matter? And which ones, and how much?”. *Journal of Labor Economics* 34(2), 509–543.
- Golden, Lonnie. 2001. “Flexible work schedules: Which workers get them?”. *American Behavioral Scientist* 44(7), 1157–1178.
- Goldin, Claudia. 2014. “A grand gender convergence: Its last chapter”. *American Economic Review* 104(4), 1091–1119.
- Gregory, Abigail and Susan Milner. 2009. “Trade Unions and Work-life Balance: Changing Times in France and the UK?”. *British Journal of Industrial Relations* 47(1), 122–146.
- Hayman, Jeremy R. 2009. “Flexible work arrangements: Exploring the linkages between perceived usability of flexible work schedules and work/life balance”. *Community, work & family* 12(3), 327–338.
- Hensvik, Lena, Ghazala Azmat, and Olof Rosenqvist. 2020. “Workplace Presenteeism, Job Substitutability and Gender Inequality”.
- Kahn, Lawrence M. 2015. “Wage compression and the gender pay gap”. *IZA World of Labor*.
- Kandolin, Irja, Mikko Härmä, and Minna Toivanen. 2001. “Flexible working hours and well-being in Finland”. *Journal of human ergology* 30(1-2), 35–40.
- Keune, Maarten. 2006. “Collective bargaining and working time in Europe: an overview”. 2006) *Collective bargaining on working time: recent European experiences, Brussels: ETUI-REHS*, 9–29.
- Plantenga, Janneke and Chantal Remery. 2010. “Flexible working time arrangements and gender equality”. *A comparative review of* 30, 21–27.
- Portugal, Pedro and Hugo Vilares. 2013. “Labor unions, union density and the union wage premium”. *Banco de Portugal Economic Bulletin*, 61–71.
- Rigby, Mike and Fiona O’Brien-Smith. 2010. “Trade union interventions in work-life balance”. *Work, Employment and Society* 24(2), 203–220.

Russell, Helen, Philip J O'Connell, and Frances McGinnity. 2009. "The impact of flexible working arrangements on work–life conflict and work pressure in Ireland". *Gender, Work & Organization* 16(1), 73–97.

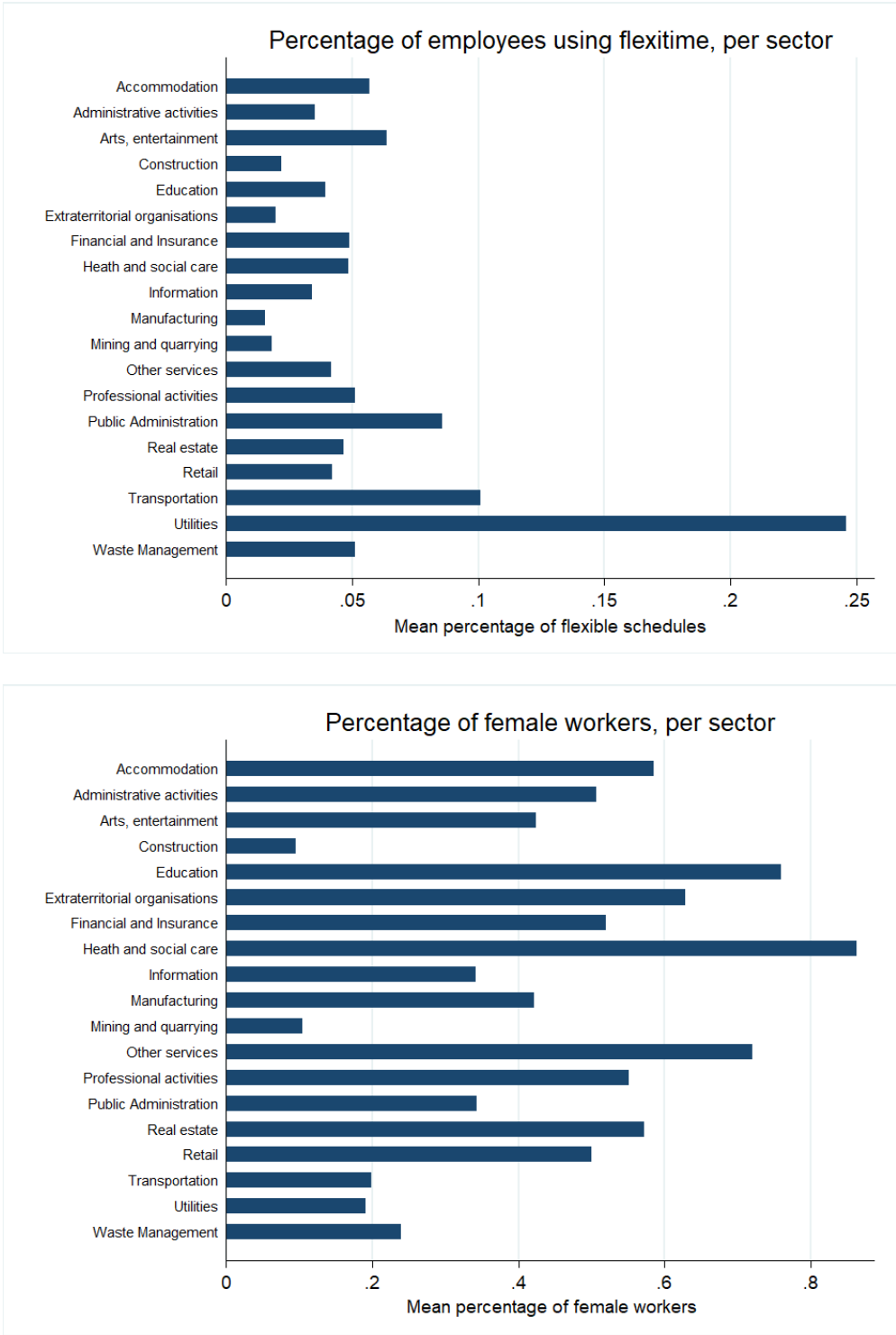
Skinner, Natalie, Abby Cathcart, and Barbara Pocock. 2016. "To ask or not to ask? Investigating workers' flexibility requests and the phenomenon of discontented non-requesters". *Labour & Industry: a journal of the social and economic relations of work* 26(2), 103–119.

Skinner, Natalie and Barbara Pocock. 2011. "Flexibility and work-life interference in Australia". *Journal of Industrial Relations* 53(1), 65–82.

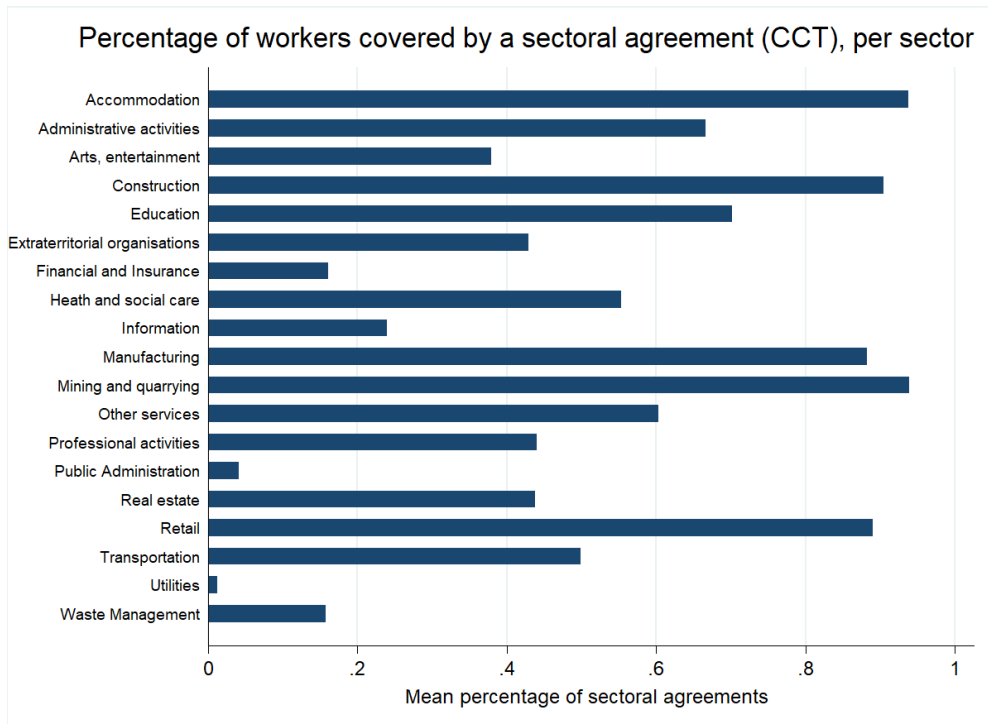
Yu, Shuye and Agnieszka Postepska. 2020. "Flexible Jobs Make Parents Happier: Evidence from Australia".

Appendix

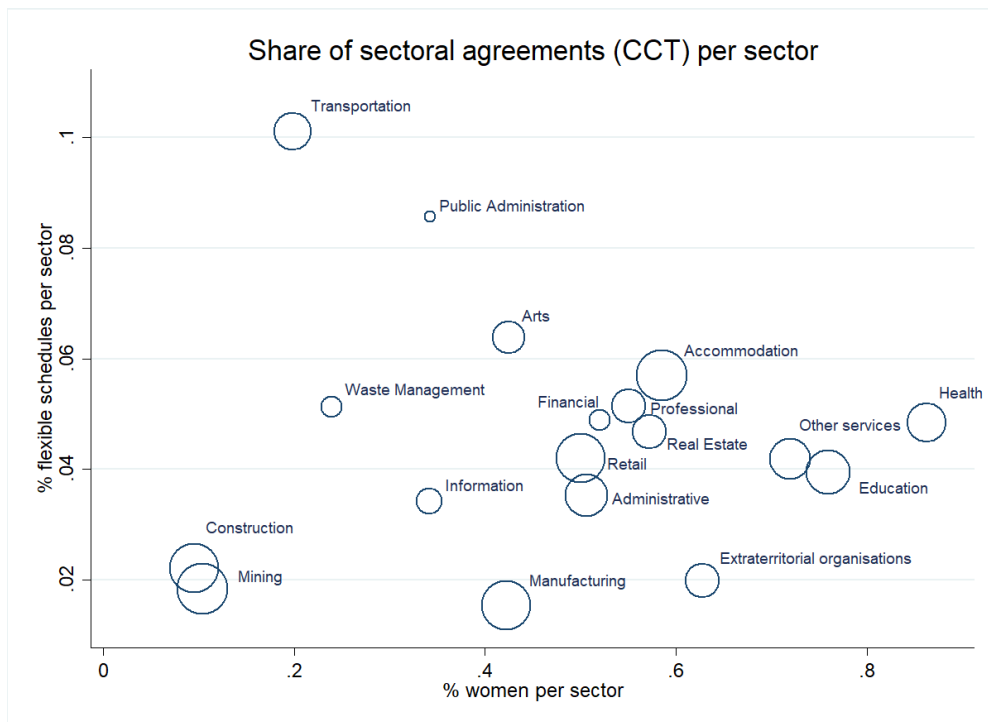
Figure A.1. Distribution of flexible schedules, female workers and sectoral agreements per sector



Note: Data was collected from Quadros de Pessôal, covering the period from 2013 to 2018.

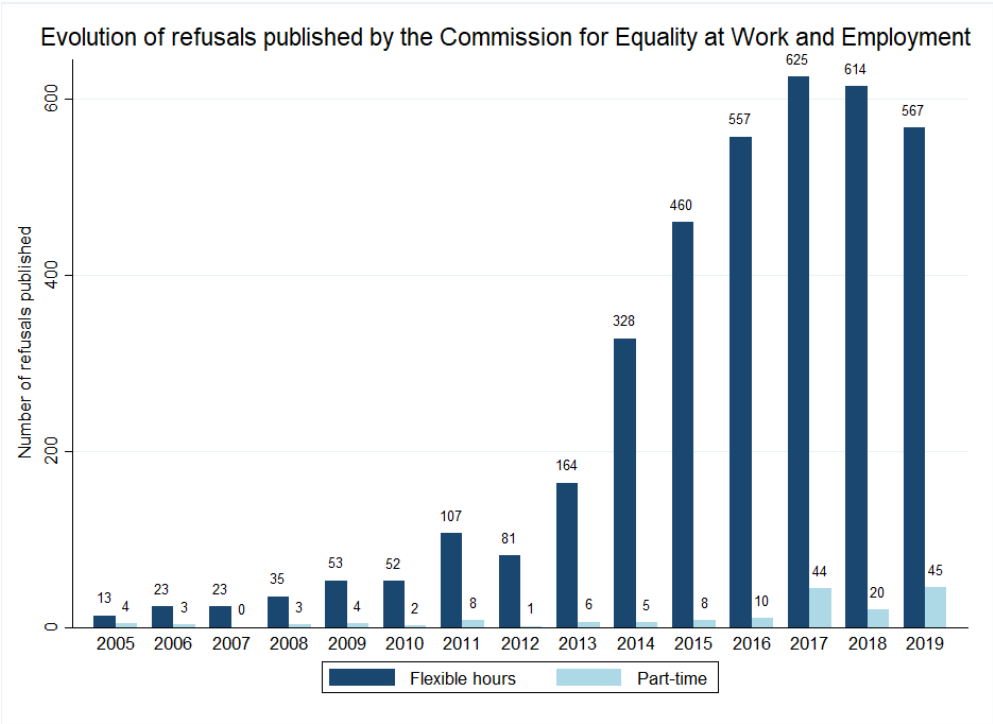


Note: Data was collected from Quadros de Pessoal, covering the period from 2013 to 2018.



Note: Data was collected from Quadros de Pessoal, covering the period from 2013 to 2018. The size of the circles represents the weight of sectoral agreements per sector.

Figure A.2. Evolution of refusals to requests for flexible working arrangements published by the Commission for Equality at Work and Employment



Note: Data collected by the author.