MINIMUM HOURS CONSTRAINTS:
THE ROLE OF ORGANIZATIONAL CULTURE

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Abstract

We develop a model in which minimum hours constraints (MHC) arise due to both the characteristics of the production function and managerial attitudes. The importance of the organizational culture can be deduced from the correlation between the MHC faced by core tasks personnel and by administrative workers. The tasks performed by administrative workers, such as secretaries, accountants, and HR specialists, are similar across firms. If organizational culture played no role in the origination of MHC, the MHC for administrative workers should be independent of the MHC for core tasks personnel. We test the prediction of our model using the Structure of Earnings Survey data from 19 European countries. We find that across all economic sectors and countries, non-administrative workers are significantly more likely to face MHC in firms with rigid MHC for administrative workers. The explanatory power of our proxy for organizational culture is comparable to that of sector fixed effects. We also find that a culture of rigid working hours is more common in small and medium-sized firms, and in firms with a low share of young managers.

Keywords: hours constraints, organizational culture, part-time employment

JEL Classification: J22, J29, L23

1 Introduction

Minimum hours constraints (MHC) are the restrictions imposed by employers that prevent employees from choosing a number of working hours lower than a job-specific minimum (Gustman and Steinmeier, 1983). When MHC are applied, employees may find themselves overemployed, that is, working more hours than they would desire. This is particularly likely to occur among older workers and workers with young children or other caring responsibilities.

MHC have substantial effects on labor market outcomes. In particular, MHC tend to decrease employment at an extensive margin. A shortage of part-time jobs can result in some overemployed workers exiting labor market (Albinowski, 2023; Bell and Rutherford, 2013; Blau and Shvydko, 2011; Charles and Decicca, 2007; Gielen, 2009), and may discourage inactive persons from searching for a job (Ameriks et al., 2020). MHC can also mediate the effects of tax policies on labor supply (Chetty et al., 2011), influence occupational choices (Wasserman, 2023) and the gender wage gap (Goldin, 2014).

Despite these effects, there has been little research on the causes and the character of MHC. Explanations for MHC can be categorized into two groups. The first group of explanations posit that MHC are efficient outcomes stemming from the nature of a production function. Employers do not allow a reduction of working hours at the given hourly wage, because shorter working hours may be associated with lower average productivity (Devicienti et al., 2018; Lang and Kahn, 2001). According to the second group of explanations, MHC arise due to market imperfections, and are sometimes inefficient solutions.

There are several mechanisms through which a firm's production function can explain MHC. If a labor input of an employee is complementary to the inputs of other employees or capital goods, then the firm's role is to coordinate these inputs by setting work hours (Battisti et al., 2022; Deardorff and Stafford, 1976; Labanca and Pozzoli, 2023). Fixed costs are another justification for the imposition of MHC (Hurd, 1996; Johnson, 2011). Examples of fixed costs include the costs of training or activities that need to be done at the start of an employee's shift. Hours constraints may also arise if an employee accumulates valuable knowledge that is costly to convey to others (Goldin, 2014).

Market imperfections that may give rise to MHC include asymmetry of information and limited commitment. A preference for short working hours may serve as a signal of unobserved low productivity, and the resulting work norms may be socially inefficient (Landers et al., 1996). Indeed, there is a large strand of literature in the sociology of work, confirming the existence of the "flexibility stigma" (Cech and Blair-Loy, 2014; Chung, 2020; Fernandez-Lozano et al., 2019; Williams et al., 2013). Employees utilizing flexible working arrangements, including part-time work, are more likely to be perceived by their managers and co-workers as being less committed to work. This stigma may prevent employees from requesting part-time work, even if such

an arrangement is officially supported by the employer. MHC may also arise due to long-term employment contracts, which decouple hourly wages from workers' productivity (Lazear, 1981). However, the empirical significance of this explanation is rather low (Kahn and Lang, 1992).

The present paper focuses on the analysis of MHC at the firm level. Primarily, we aim to answer the question of whether variation in MHC across firms can be attributed to differences in the production function or whether organizational culture plays an important role. In line with the functionalist perspective, we interpret organizational culture as a set of basic assumptions and values shared by employees, which translate into attitudes and practices (Schultz, 1995). In particular, attitudes toward part-time employment can be driven by assumptions about work norms and the importance of work-life balance.

We develop a theoretical model in which minimum hours constraints can arise due to both the complementarity of specific labor inputs and the firm-wide costs associated with accommodating part-time jobs. The model provides the insight that the correlation of MHC faced by different occupation groups within a firm can arise either due to a firm-wide attitude toward part-time jobs or because the occupation-specific elasticities of substitution between employees correlate within a firm. We argue that the tasks of administrative employees are similar across firms, and that there is little need for these employees to coordinate their working hours with those of other employees. That is, we can assume that the elasticities of substitution between administrative workers are similar across firms. Therefore, if organizational culture played no role in the origination of MHC, the MHC for administrative workers should be independent of the MHC for core tasks personnel.

We also contribute to the literature by constructing a new measure of MHC at the firm level. It takes into account the observable characteristics of employees and their expected probability of working part-time. We then apply this measure to the large linked employee-employer dataset from 19 European countries.

We find a significant positive relationship between the MHC for administrative employees and the MHC faced by all other workers. This relationship is observed within all economic sectors and countries. It does not rest on a specific definition of administrative employees, which we confirm by repeating the analysis for seven detailed occupation groups separately. The quantitative importance of our proxy for organizational culture in explaining the variance in MHC is comparable to the importance of sector fixed effects. Our results indicate that in most Central and Eastern European countries, organizational culture seems to explain more of the variation in MHC than the sectoral differences, whereas the opposite is the case for all the Western European countries in our sample.

We further investigate what firm-level characteristics are correlated with the culture of rigid working hours. We find that MHC are more common in small and medium-sized firms, and in firms with a low share of young

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managers. However, we also highlight that the links between hours constraints and firms' characteristics are heterogeneous across countries.

In the next section, we develop a theoretical model of hours constraints that may arise due to both the characteristics of a firm's production function and a firm's organizational culture. In section 3, we introduce a new regression-based method to measure MHC, and we outline the empirical strategy used to verify the role of organizational culture in the origination of MHC. In section 4, we present the dataset and report descriptive statistics on the variation in MHC between firms. In section 5, we report the empirical findings regarding the role of organizational culture and the firm-level factors associated with hours constraints. Section 6 concludes.

2 Theoretical framework

In this section, we describe the theoretical framework. To examine the general mechanisms behind a firm's (un)willingness to accept part-time employment contracts, we first explore a simple one-occupation model. After establishing the necessary background, we turn to the analysis of a two-occupations model that includes both administrative and production workers.

2.1 One-occupation model

We begin by characterizing the working time and earnings choices within a static one-occupation model with full employment. We assume that workers can be characterized by either high or low disutility from full-time work. As the worker types are only realized once the hiring takes place, there is no prior sorting. To simplify the analysis, we disregard job search considerations by assuming that firms offer market-wide wages for both part-time and full-time workers, denoted as w_{FT} and w_{PT}, respectively. However, firms vary in their willingness to accept part-time employment. As such, a key aspect of each firm's policy is to determine the ratio, denoted as x, of person-days filled by part-time workers. The sequence of events is as follows: firms announce their contracts, consisting of w_{FT}, w_{PT}, and x_j, and all (ex-ante identical) employees are hired. Then, a fixed fraction of λ workers apply for part-time work. Firms accept some of those requests, based on the previously decided x_j.

2.1.1 Worker's choice

We allow only two types of job arrangement: full-time with $h = 1$ and part-time with $h = \frac{1}{2}$. As our model is static, we only consider agents who strictly prefer any job over unemployment, and abstract from hiring

and firing decisions. There are two types of workers, $i \in \{1, 2\}$ with $P(i = 1) = \lambda$ and they differ in their willingness to work part-time. More specifically, the workers have a simple utility function of:

$$u(h) = w(h) - d_i(h),$$

where d_i denotes the relative disutility from work. The types differ in their preference for part-time work, with: $d_1(1) - d_1\left(\frac{1}{2}\right) > d_2(1) - d_2\left(\frac{1}{2}\right)$. Without loss of generality, we will normalize $d_2(1) - d_2\left(\frac{1}{2}\right) = 0$ and denote $d = d_1(1) - d_1(\frac{1}{2})$. Therefore, type 1, who has a higher disutility from full-time work, would have an incentive to work full-time only if the following incentive compatibility condition was satisfied:

$$w_{FT} \geq w_{PT} + d. \tag{1}$$

2.1.2   Firm's choice

The production process in our model follows a Cobb-Douglas form with technology Z, similar to the approach of Battisti et al. (2022).

$$Y_j = Z \sum_{i=1}^{n} (h(i)^{\rho_j})^{\beta} \text{ with } \sum_{i=1}^{n} h(i) = N_j.$$

We consider a scenario where the firm has a fixed demand for a certain number of person-days, N_j. The firm then makes the decision to meet this labor demand by hiring workers who can work either full-time or part-time,[1] forming a total workforce of n_j employees. Parameter $\rho_j \geq 1$ captures the firm-specific elasticity of substitution between employees.[2] Notice that for $\rho_j = 1$ employees are perfect substitutes. Thus, as long as the total number of person-days is maintained, the firm is indifferent between full-time and part-time employment. However, if $\rho_j \to \infty$, the jobs become perfect complements. As ρ_j grows, production depends more on coordination between employees, and the firm becomes less willing to accept requests for part-time employment from its staff. We shall assume $\rho_j \in [\underline{\rho}, \bar{\rho}] \subset (1, +\infty)$, in particular, no firm is fully indifferent about whether its employees work part-time or full-time.

In our setup, the parameter β, representing returns to scale, is independent of ρ_j. We assume $\beta < 1$, ensuring that firms never have incentives to grow infinitely. Assuming β is independent, rather than equal

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[1]As an illustrative example, a firm with a labor demand of five person-days might hire either five full-time workers with $h = 1$, 10 part-time workers with $h = \frac{1}{2}$, or a combination of, for example, three full-time and four part-time workers, as long as the total labor input equals five person-days.

[2]Formally, the elasticity of substitution between workers is equal to $\frac{1}{\rho-1}$, with a limit case of infinite elasticity, as ρ approaches 1. Notice that for our assumptions on the range of h, the assumption $\rho_j \geq 1$ is reasonable – in particular, $\rho_j < 1$ would indicate that it's more favorable for the firm to divide its labor input into more and more part-time workers.

to the inverse of ρ_j, implies that two identical-sized firms with *only* full-time employment would have the same production.[3]

The profit function is:

$$\Pi_j = Z \sum_{i=1}^{n_j} \left[\left(h(i)^{\rho_j} \right)^\beta - w(h(i)) \right] - F_j(n_j)$$

To consider additional factors influencing the company's hesitance to accept part-time employment, we also introduce F_j, which summarizes organizational costs. We assume F_j increases with the number of employees, which implies that accommodating part-time work arrangements is more demanding than filling the same number of person-days with full-time employees. Throughout the paper, we shall assume that F_j is a linear function of the total number of employees, that is, $F_j = c_j n_j$ with $c_j \in [\underline{c}, \bar{c}]$. As c increases, part-time work becomes less compatible with the firm's organizational practices.

The origination of MHC is often linked to fixed employment costs, such as training costs and daily setup costs (Hurd, 1996). However, our construct of F_j is not suitable to represent the fixed costs related to the production function, as they are job-specific, and thus differ between employees within a single firm. In contrast, organizational practices and managerial attitudes affect all workers to a similar extent. For example, if managers view part-time employees as less engaged or more costly to oversee, this attitude will influence the hours flexibility of all their subordinates.

2.1.3 Characterization

We consider an equilibrium with all firms in the market and all workers being employed. In the equilibrium:

- the wages are the same throughout the economy, so part-time workers must be at least indifferent between part-time and full-time work, satisfying (1);
- all firms make non-negative profits.

Let us denote by x the fraction of total demand N_j filled with part-time workers, who supply $h = \frac{1}{2}$. The remaining $1 - x$ part of the demand is filled with full-time workers, who supply $h = 1$. Therefore, $n_j = N_j(1 - x + 2x) = N_j \cdot (1 + x)$. Denote also $w_{FT} = w(1)$ and $w_{PT} = w\left(\frac{1}{2}\right)$ as, respectively, the full-time and the part-time wages. This allows us to simplify the profit function:

$$\Pi_j = ZN_j^\beta \left(1 - x + 2x \left(\frac{1}{2} \right)^{\rho_j} \right)^\beta - N_j(1 - x)w_{FT} - 2N_j x \cdot w_{PT} - c_j \cdot N_j(1 + x).$$

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[3]As a trivial example, suppose firm x and firm y both demand two person-days of labor, but differ in their ρ_j, with $\rho_x = 1.5$ and $\rho_y = 3$. If both firms employ only full-time workers, their output is identical, equal to 2^β. However, if both of them hire four workers with $h = \frac{1}{2}$, output of firm y decreases more severely. With $\beta = 1/\rho_j$ firm y would have a smaller output even when employing only full-time workers.

The first-order condition becomes:

$$\frac{\partial \Pi_j}{\partial x} = ZN_j^{\beta} \cdot \beta(1 - x + 2^{1-\rho_j}x)^{\beta-1} \cdot (2^{1-\rho_j} - 1) + N_j w_{FT} - 2N_j w_{PT} - c_j N_j = 0$$

The FOC gives an internal solution of x:

$$x^* = \frac{1}{1 - 2^{1-\rho_j}} \left[1 - \frac{1}{N_j} \left(\frac{\beta Z \cdot (1 - 2^{1-\rho_j})}{w_{FT} - 2w_{PT} - c} \right)^{\frac{1}{1-\beta}} \right] \tag{2}$$

Since only λ workers apply for part-time jobs, the internal solution must satisfy $x^* \leq \lambda$.

Substituting $\theta_j = \frac{1}{1-2^{1-\rho_j}}$ (recall that $\rho_j < 1$, otherwise ill-defined) and having in mind that $\beta < 1$, it is more useful to write 2 as:

$$x_j^* = \theta_j - \theta_j^{\frac{-\beta}{1-\beta}} \cdot \frac{1}{N_j} \left(\frac{\beta Z}{(w_{FT} - 2w_{PT} - c_j)} \right)^{\frac{1}{1-\beta}}$$

Observe that x_j^* is a decreasing function of c_j, w_{PT} and Z (as $\frac{1}{1-\beta}$ is a positive factor). Also, it is increasing in w_{FT}.

Observe that any change in ρ_j influences x_j^* only through θ_j. Therefore:

$$\frac{\partial x_j}{\partial \rho_j} = \frac{\partial \theta_j}{\partial \rho_j} \left[1 + \frac{\beta}{1-\beta} \left(\frac{\beta Z}{\theta(w_{FT} - 2w_{PT} - c_j)} \right)^{\frac{1}{1-\beta}} \right] = \underbrace{\frac{\partial \theta_j}{\partial \rho_j}}_{<0} \underbrace{\left[\frac{\beta}{\rho_j} \frac{x_j^*}{\theta_j} + N_j \cdot \left(1 - \frac{\beta}{\rho_j} \right) \right]}_{>0} < 0.$$

Thus, higher values of ρ_j lead to a lower optimal choice of fraction of PT workers.

Finally, to determine wages in the equilibrium with all firms in the market, notice that the firm with the highest cost, $\bar{c}$ needs to make nonnegative profit. Since the fraction of part-time workers decreases with c_j, the highest-cost firm would employ only full-time workers and thus:

$$ZN_j^{\beta} - N_j w_{FT} - \bar{c}N_j \geq 0 \iff w_{FT} \leq ZN_j^{\beta-1} - \bar{c}$$

Proposition 1. *If only $d \in \left(\frac{Z}{2N_j^{1-\beta}}, \frac{Z}{N_j^{1-\beta}} \right)$ and $\bar{c} < \frac{Z}{N_j^{1-\beta}} - d$, there exists an equilibrium with all firms in the market, all workers employed, and the following contracts:*

- *full-time wage satisfies: $w_{FT} = ZN_j^{\beta-1} - \bar{c}$;*
- *part-time wage satisfies: $w_{PT} = w_{FT} - d$, as derived from (1);*

- *the firm j's choice of part-time workers satisfies $x_j = \min(x_j^*, \lambda)$, where x_j^* satisfies (2), in particular:*

$$x_j^* = \frac{1}{1 - 2^{1-\rho_j}} \left[1 - \frac{1}{N_j} \left(\frac{\beta Z \cdot (1 - 2^{1-\rho_j})}{2d - ZN_j^{\beta-1} + \bar{c} - c_j} \right)^{\frac{1}{1-\beta}} \right].$$

2.2   Two occupations model

We now extend our model to account for heterogeneity in substitution across occupations. Therefore, we separate workers into those performing core tasks (e.g., industrial production) and support/administrative staff. Given that the tasks performed by administrative workers are similar across firms, we assume that the substitution parameter for administrative workers is fixed at ρ_a. For instance, the need for coordination among accountants or HR specialists does not depend on the firm's production processes.

To make the notation explicit, we assume that the labor demand of any firm is $N_{p,j}$ for core tasks and $N_{a,j}$ for administrative tasks, and that the total workforce consists of $n_{p,j}$ production workers and $n_{a,j}$ administrative workers. Following Dupuy (2012), we utilize the additive production function for the two types of occupations:

$$Y_j = Z \sum_{i=1}^{n_{p,j}} (h_p(i)^{\rho_j})^\beta + Z \sum_{j=1}^{n_{a,j}} (h_a(j)^{\rho_a})^\beta - F_j(n_{p,j} + n_{a,j}),$$

with

$$\sum_{i=1}^{n_{p,j}} h_p(i) = N_{p,j} \text{ and } \sum_{i=1}^{n_{a,j}} h_a(i) = N_{a,j}.$$

2.2.1   Equilibrium characterization

Following a similar approach to that in the one-occupation model, let us denote by $x_{p,j}$ (respectively, $x_{a,j}$) the fraction of total demand $N_{p,j}$ ($N_{a,j}$) filled with part-time workers, who supply $h = \frac{1}{2}$. The remaining $1 - x_{p,j}$ ($1 - x_{a,j}$) part of the demand is filled with full-time workers, who supply $h = 1$. There are now four wages in the labor market, denoted by $w_{a,FT}, w_{a,PT}, w_{p,FT}, w_{p,PT}$.

Since the two occupations form distinct sectors, the optimal solutions to the firm's problem follow a similar path, as in (2). In particular for $\xi \in \{a, p\}$, we shall denote by $\Delta_\xi = (w_{\xi,FT} - 2w_{\xi,PT} - c)$, and one can derive

$$x_{\xi,j}^* = \Psi(N_{\xi,j}, \beta, Z, \Delta_\xi),$$

where $x_{\xi,j}^*$ depend on $N_{\xi,j}, \beta, Z$ and wages in the same manner as in the one-occupation model.

Proposition 2. *The optimal fraction of part-time workers in both production and administrative jobs is a decreasing function of firm-specific costs of employment c_j, technology Z and an increasing function of incremental disutility from full-time work d.*

The proposition is a simple generalization of the results derived for the one-occupation model. For the purposes of our empirical strategy, let us formulate a simple observation about the relationship between x_p and x_a.

Proposition 3. *In the class of firms with the same cost c, the fraction of part-time production workers x_p and the fraction of part-time administrative workers x_a are uncorrelated.*

This observation is a simple consequence of the fact that x_a does not depend on ρ_j. Moreover, ρ_j and c are independent random variables, so the conditional distribution of ρ_j given c is just its marginal distribution. Finally, x_a does not depend on ρ_j, so the correlation becomes trivially zero:

$$E\left((x_p x_a)(\rho, c)|c\right) = E\left((x_a x_p)(\rho, t)\right)|_{t=c} = x_a(c) \cdot E x_p(\rho, t)|_{t=c} = E(x_p|c)E(x_a|c).$$

Furthermore, the correlation between x_a and x_p increases with the variance of c. We demonstrate it with a numerical example in Figure 1.
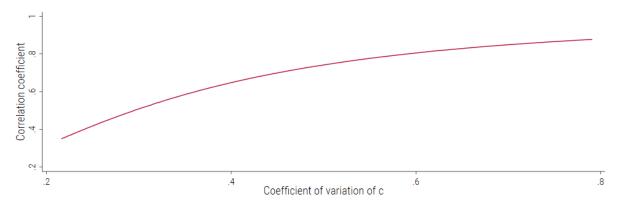
Figure 1. Relationship between the variance in c_j and the correlation of x_p and x_a.

Note: In this figure, we provide a numerical example of the change in the correlation between fractions of part-time workers within a firm and a between-firm variance in factors related to organizational culture. Each data point represents a different distribution of costs c_j.

3   Empirical strategy

In this section, we introduce a novel method of measuring MHC at the firm level. Next, we outline an application of this method to investigate the role of organizational culture in the origination of MHC.

3.1 Identification of minimum hours constraints

MHC are mostly studied at the level of individual employees. Many employee surveys include a question on the preferred number of working hours. An hours constraint is simply identified when the desired working hours differ from the actual working hours. This method cannot be easily extended to the firm level. First, the linked employer-employee datasets seldom contain information on preferred hours. Second, it can be expected that the workforce composition is endogenous to MHC. Overemployed or underemployed workers can leave a firm if they see no chance to adjust their working hours.

Hutchens and Grace-Martin (2006) use a firm survey with direct questions about whether the employer permits job sharing or flexible starting times. Although these seem to be valuable measures, they may have certain limitations. First, using these measures requires a dedicated survey. Second, a firm may apply different personnel policies to different groups of workers. In such cases, a single variable may not accurately represent MHC. Third, the truthfulness of the responses may be uncertain.

An easily applicable method is to simply look at the share of part-time workers. Hutchens and Grace-Martin (2006) approximate MHC using the percentage of white-collar employees who work part-time. However, it is unlikely that preferences for part-time jobs are identically distributed across firms and economic sectors. For example, preferences for part-time work may be uncommon in firms where the workforce is composed mainly of prime-aged men. In such cases, a low share of part-time workers may wrongly suggest the existence of rigid MHC.

Blau and Shvydko (2011) approximate MHC with the share of female workers under age 30 in the firm's workforce. They argue that young women are much more likely than other demographic groups to have part-time or flexible-hours jobs. Although firm-level MHC may explain a substantial part of the variation in the employment shares of young women, other independent factors might also play a role. The firm's occupation structure may greatly influence the share of women in the workforce, as women tend to be more heavily represented in occupations that require social skills (Albinowski and Lewandowski, 2024). In addition, the variation in local demographic structures may be an important confounding factor.

Labanca and Pozzoli (2022) have developed a measure of hours constraints based on the standard deviation of the mean annual hours worked across different skill groups within a firm. A low variation in hours worked indicates rigid hours constraints. This approach assumes that preferences for part-time work vary across skill groups, and that the degree of this variation is similar across firms. However, this measure is not specifically designed to identify MHC. Consider an example in which the average hours of two skill groups amount to 30 and 35 per week in firm A and to 35 and 40 per week in firm B. Although the standard deviation is the same in both firms, firm B is more likely to impose MHC.

We propose a two-step procedure for identifying MHC at the firm level. In the first step, we calculate the expected probability of working part-time for all employees, conditional on their demographic characteristics and educational attainment. Formally, we estimate the following logit model:

$$P(pte_i = 1) = \Theta(\beta^{g,a,e} \times D_i^{g,a,e}) \tag{3}$$

Where pte_i is a dummy variable denoting whether an employee works part-time; $\Theta(\cdot)$ is the logistic distribution function; and $D_i^{g,a,e}$ is a vector of exhaustive and mutually exclusive dummy variables denoting an interaction of gender, 10-year age groups, and three education levels. Depending on the data availability, equation (3) can benefit from the inclusion of other demographic variables, such as information on the household composition. The estimated coefficients should be country- and time-specific. Preferences for working part-time are more likely to arise in high-income countries (Bick et al., 2018). Furthermore, these preferences can be thought of as social norms that spread over time (Wielers et al., 2014), also influenced by changes in labor market regulations (Buddelmeyer et al., 2008). In the second step, we calculate the expected share of part-time employees at the j-th firm and compare it with the actual share. The difference is a measure of MHC at a firm level.

$$MHC_j = \frac{\sum_{i \in j}(P(pte_i = 1) - \mathbf{1}(pte_i = 1))}{n(j)} \tag{4}$$
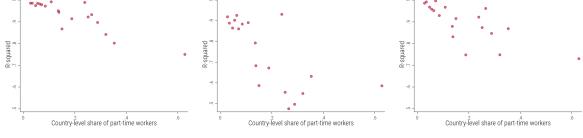
An average value of MHC_j equals zero (conditioned on the firm's weight being a sum of the employees' weights used in the first step). A positive value, $MHC_j = x > 0$, means that the share of part-time employees is x percentage points lower than expected based on the demographic characteristics of the firm's employees. Negative values, in turn, mean that the MHC in a given firm are less rigid than the MHC in an average firm. This method of identifying MHC can be modified to answer different research questions. Theory suggests that MHC can be more rigid in certain occupations, e.g., in those where teamwork is essential. The baseline measure of MHC also reflects these occupation-specific rigidities. However, it is easy to calculate a measure of MHC that cannot be attributed to the occupation structure. To do so, one needs to control for occupations when estimating individual probabilities of working part-time. Equation (3) then takes the form:

$$P(pte_i = 1) = \Theta(\beta^{g,a,e} \times D_i^{g,a,e} + \gamma^o \times D_i^o) \tag{5}$$

where D_i^o is a vector of dummy variables denoting occupation groups. Another way to utilize the regression-based method of identifying MHC is to focus on a subset of employees, e.g., specific occupation groups,

and to analyze their probability of working part-time. That is, equation (3) is estimated only for the selected type of workers, and the term n(j) in equation (4) stands for the number of the firm's employees included in the first step of the analysis. In the present paper, we will investigate MHC among workers in administrative occupations.

Compared to relying on a simple indicator of the part-time employment share, our method considerably improves the measurement of MHC, especially in countries with a substantial share of part-time workers. In Figure 2, we report the R-squared values from the firm-level regressions in 19 countries where our MHC measures are the dependent variables. The independent variables consist of the firm's share of part-time workers and a constant. In nine out of 19 countries, the share of part-time workers explains less than 95% of the variation in our baseline MHC measure. In the case of MHC adjusted for occupations, the simple part-time share indicator yields much lower values of an R-squared: for nine countries, it is below 70%.
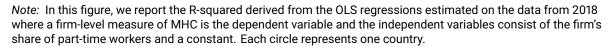
Figure 2. Variation in MHC measures explained by the share of part-time workers

| (a) Baseline measure | (b) Adjusted for occupations | (c) In admin. occupations |

Note: In this figure, we report the R-squared derived from the OLS regressions estimated on the data from 2018 where a firm-level measure of MHC is the dependent variable and the independent variables consist of the firm's share of part-time workers and a constant. Each circle represents one country.

3.2   Econometric specification for the firm-level analysis

To investigate the role of a firm's organizational culture, we test whether the measure of MHC in administrative occupations explains a significant part of the variation in the measure of MHC in all other occupations. In line with the arguments presented in section 2, MHC among administrative workers can be interpreted as a proxy for hours rigidities related to organizational culture. Assuming that the elasticity of substitution among administrative employees is similar across firms, higher MHC among administrative employees indicates a greater firm-wide aversion to accommodating part-time employment. We estimate the following model using the OLS estimator:

$$MHC_j^{excl\ adm} = \lambda \times MHC_j^{adm} + \beta \times F_j + \gamma \times D_s + \eta \times D_{c,t} + \epsilon_j \qquad (6)$$

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We report the results for two variants of the dependent variable: the baseline measure of MHC (calculated according to equations 3 and 4) and the measure adjusted for the occupation structure (derived with equation 5 instead of with equation 3). The explanatory variable, MHC^{adm}, is obtained with the use of equation (5). In the cross-country analysis, we standardize all measures of MHC at the country-year level, so that their standard deviation equals one and the mean equals zero. We control for essential firm-level variables, F, including the standardized wage premium, and dummy variables denoting the firm's size (small/medium/large). We also control for sector fixed effects, D_s, denoting sections of the NACE Rev. 2 classification, and country-year fixed effects, $D_{c,t}$, as the sector and size dummies have country-specific mean values.

Controlling for the wage premium is crucial because hours constraints are often imposed to increase productivity (Goldin, 2014; Labanca and Pozzoli, 2023; Shao et al., 2023). We derive the firm-level wage premium as an average of the employees' wage premia, $\tilde{w}_i$, estimated from the model:

$$w_i = \delta^a \times age_i + \delta^e \times edu_i + \delta^o \times occ_i + \psi_i \tag{7}$$

$$\tilde{w}_i = w_i - \hat{w}_i \tag{8}$$

where w_i is a log of an individual's hourly wage, age is a vector of dummy variables representing age groups, edu is a vector of three dummy variables denoting education levels, and occ is a vector of dummy variables denoting sub-major occupation groups; and $\hat{w}_i$ is the predicted log of an individual's wage, based on the coefficients estimated in equation (7), which is run separately for each country and year.

Positive and statistically significant values of λ in equation (6) would indicate that the working time practices applied to the employees performing supporting tasks also extend to the employees performing core functions. In contrast, an estimate of λ close to zero might indicate either a negligible role of a firm's organizational culture or a low within-country variance in this factor. To quantify the importance of organizational culture in the origination of hours constraints, we decompose the variance of a dependent variable into the contributions of individual explanatory variables, following the regression-based decomposition method of Fields (2003). We compare the contribution of the MHC among administrative employees to the joint contribution of the sector fixed effects, D_s.

We also estimate equation (6) within economic sectors (the term $\gamma^s \times D_j^s$ is then omitted) and separately for seven detailed administrative occupation groups. Both approaches limit the possible variation in the tasks performed by administrative employees across firms, and therefore improve the credibility of our proxy for hours rigidities related to organizational culture.

In an additional analysis, we investigate which firm-level characteristics are associated with the organizational culture of rigid hours constraints. We estimate an ordered logit regression in which the dependent variable is a measure of a rigid working hours organizational culture. In five regressions, we estimate a firm's probability of ranking above the median, the 60th, the 70th, the 80th, and the 90th percentiles in the country-year-specific distribution of MHC among administrative employees. Formally, we estimate the following logit model:

$$P(MHC_j^{adm,p} > k) = \Theta(\beta \times G_j + \gamma \times D_s + \eta \times D_{c,t}) \tag{9}$$

where $MHC_j^{adm,p}$ is the firm's percentile in the country-year distribution of the MHC measure among administrative employees, and k takes the values: 50, 60, 70, 80, and 90. The vector of firm-level variables, G_j contains a number of institutional and managerial factors. We include dummy variables for size, public ownership, and a collective pay agreement that covers at least 50% of employees. In addition to the previously defined wage premium, our analysis also considers the coefficient of variation in hourly wages. Furthermore, we examine the role of the proportion of female managers and the percentage of managers under age 40. For this analysis, firms' weights are derived from the cumulative weights of their administrative employees. Obviously, the findings from this exercise are descriptive in nature, as the explanatory variables may be endogenous with respect to hours constraints.

4 Data and descriptive evidence

4.1 Data

We use linked employer–employee data from the EU Structure of Earnings Survey (EU-SES), which contains information on employees' age, gender, education level, hours worked, hourly wages, and occupation. The EU-SES also contains information on firms, including on their economic sector (according to the NACE Rev 2. classification), size, ownership (public vs. private), and on whether they have a collective pay agreement covering at least 50% of their employees. The anonymized ID number does not allow firms to be tracked over time.

The EU-SES data are collected every four years, and we use the waves from 2010, 2014, and 2018. The earlier waves use older classifications of occupations and economic activity, which would hinder the comparability of the results. Our sample consists of 19 European countries, for which all the above variables are

available.[4] We drop observations on public administration units, as this sector is not available in all countries. In the first step of the analysis, in which we estimate individuals' probabilities of working part-time, our sample contains over 30 million observations. The sample size ranges from 189,000 in Croatia to over 5 million in Czechia and Norway.

For each employee, firms report working time as the percentage of a full-time worker's normal hours. Using equal weight for all countries, 80.1% of employees in the sample are reported to have working time equal to a full-time worker's normal hours. In the subsequent analysis, we define part-time employees as those whose working time is less than 95% of the normal hours of a full-time employee. As reported in Figure 3, a modification of this threshold would not have a significant impact on the number of employees classified as part-time workers.
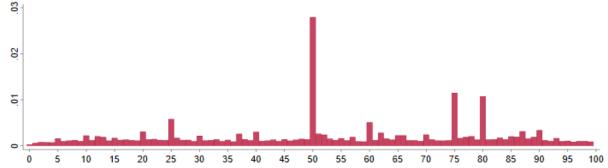
Figure 3. Distribution of working time as a percentage of a full-time worker's normal hours

Note: In this figure, we report the shares of employees with a given working-time, expressed as a percentage of the full-time working time. Employees with 100% of the full-time working time make up 80.1% of the sample. Each of 19 countries is given an equal weight.

In the second step of the analysis, we drop firms with fewer than 20 observed employees. We do it because when the number of observations is smaller, a larger part of the variation in estimated MHC might be driven by the unobserved preferences of individual employees. However, our findings are robust to including all firms. The final sample of firms with observations on both administrative and non-administrative employees amounts to 193,505 firms, with Portugal having the smallest sample (1,499) and Germany, Norway and Poland having the largest samples.

To analyze MHC in administrative occupations, we focus on two sub-major occupation groups:

- Business and Administration Professionals (ISCO-08: 24), which include, for example, accountants, financial analysts, HR specialists, and advertising and marketing professionals;
- General and Keyboard Clerks (ISCO-08: 41), which include secretaries, general office clerks, and data entry clerks.

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[4]Belgium, Bulgaria, Czechia, Germany, Denmark, Estonia, Spain, France, Croatia, Hungary, Italy, Latvia, the Netherlands, Norway, Poland, Portugal, Romania, Sweden, and Slovakia. Due to low numbers of firm-level observations, we drop Greece, Lithuania, and the United Kingdom.

Almost 2.1 million individuals are employed in these occupations, which constitutes 7.0% of the overall sample. The share of administrative employees ranges from 2.2% in Hungary to 16.6% in Belgium. The share of administrative employees exceeds 10% in three out of 12 economic sectors: the financial sector (26.0%), professional activities (16.8%), and information and communication (13.2%). In these sectors, business and administration professionals may perform core rather than supportive functions. In other sectors, the share of administrative employees amounts to 5.3%.

In a further analysis, we also zoom in on seven minor occupation groups, which allows us to distinguish between employees performing heterogeneous administrative tasks. However, data on detailed occupation types are available for only 10 out of the 19 countries analyzed in our study[5].

Firms' weights are derived from the cumulative weights of their employees. We normalize firms' weights to ensure that each country carries an equal weight. We apply an equal weighting for firms entering regression samples. Additionally, each wave of the EU-SES survey holds the same weight within a country. Detailed information on the sample size for individual countries is reported in Appendix A.

4.2 Descriptive statistics

We start by looking at the variation in MHC between firms in individual countries. Table 1 reports standard deviations of four MHC measures: (i) the baseline measure of MHC estimated according to equations (3) and (4); (ii) the measure of MHC adjusted for occupations estimated with the use of equations (5) and (4); (iii) the measure of MHC in administrative occupations, which estimates equation (5) on a subsample of the administrative employees; and (iv) the measure of MHC in non-administrative occupations, not adjusted for occupation structure. The average variation in MHC between firms is sizeable: the firm's share of part-time employees is typically 14.3 percentage points lower or higher than the share expected based on the observable characteristics of the employees. The lowest variation is observed in countries where part-time employment is rare. Taking into account the occupations of the employees decreases the variation in MHC between firms, but the degree of this reduction is heterogeneous across countries.

However, we confirm that employees' probabilities of working part-time differ significantly across occupations (Table B.1 in Appendix). Controlling for socio-demographic characteristics, ICT professionals, and assemblers seem to face the most rigid hours constraints. The probability of working part-time is, on average, 21 percentage points lower for workers in these occupations than it is for sales workers, who are among the occupation groups with the least rigid hours constraints.

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[5]Bulgaria, Czechia, Denmark, Estonia, France, Italy, Latvia, Norway, Poland, Slovakia

We will now analyze standardized measures of MHC to enable a consistent cross-country investigation. There are significant differences in MHC between economic sectors (Table 2). MHC are, on average, the most rigid in the sectors of information and communication, and industry (column 1). The differences between sectors become much smaller when the measure of MHC accounts for the occupation structure (column 3). These observations confirm that MHC are related to the sector-specific production functions.

The variation of MHC within country-sector cells is also large (Table 2, columns 2 and 4), indicating the important role of firm-specific factors in the origination of MHC. The values of standard deviation larger than one imply that the variation in MHC within a sector is higher than the variation between firms within a whole economy. The sectors with relatively low variation of MHC include construction, information and communication, and industry. Conversely, the sectors with high variation of MHC are administrative support activities; hotels and restaurants; and arts, entertainment, and other services. Interestingly, the MHC faced by administrative employees also differ significantly between sectors (Table 2, column 5). In particular, the least rigid constraints are observed in those sectors in which the baseline measure of MHC is also low.

Table 1. Variation of the main MHC measures within countries

Country	Standard deviation of MHC			
	Baseline	Adjusted for occupations	In administrative occupations	In other occupations
Average	14.3	12.3	20.8	14.6
Denmark	23.0	20.1	26.6	23.6
Germany	20.1	16.2	30.1	20.7
Belgium	18.7	14.7	26.7	19.5
Latvia	18.1	17.6	29.4	18.4
Norway	18.0	13.1	28.7	18.3
Italy	15.9	13.2	20.4	16.3
Spain	15.6	13.9	21.4	16.4
The Netherlands	15.4	12.8	25.9	15.7
Portugal	14.7	11.5	8.0	15.3
Sweden	14.4	9.9	18.2	14.6
Estonia	13.6	11.4	23.4	13.8
France	12.7	11.8	26.4	13.2
Hungary	12.2	11.5	21.6	12.4
Poland	12.1	11.4	18.4	12.3
Slovakia	11.4	10.8	14.7	11.5
Bulgaria	10.1	9.9	18.3	10.5
Czechia	9.1	8.5	12.7	9.2
Croatia	8.6	7.7	10.8	8.8
Romania	7.5	7.2	13.8	7.7

Note: In this table, we report the standard deviations of three measures of minimum hours constraints (MHC). In column 1, MHC are calculated according to equations (3) and (4). In column 2, the MHC measure accounts for employees' occupations. In column 3, MHC are calculated only for administrative employees (ISCO-08 sub-major occupation groups 24 and 41), and in column 4 for non-administrative employees. The values reported for each country are the averages of the standard deviations from the available waves of the EU-SES data.

Table 2. Variation of the standardized MHC measures between and within sectors

Sector	Baseline		Adjusted for occupations		In admin. occupations	
	Mean	SD	Mean	SD	Mean	SD
Industry (B-E)	0.33***	0.60	0.11***	0.66	0.13***	0.84
Construction (F)	0.23***	0.55	0.09***	0.61	0.07***	1.03
Trade (G)	-0.07**	0.99	0.00	1.02	0.06**	0.91
Transportation (H)	0.08**	0.82	0.06*	0.88	0.13***	0.78
Hotels, restaurants (I)	-0.42***	1.13	-0.03	1.27	-0.15***	1.14
Information (J)	0.34***	0.56	0.17***	0.64	0.10***	0.67
Finance (K)	0.28***	0.80	0.05	0.88	0.03*	0.64
Professional (L-M)	0.22***	0.86	0.05**	0.95	0.07***	0.87
Admin. support (N)	-0.54***	1.34	-0.42***	1.32	-0.12***	1.18
Education (P)	-0.40***	1.02	-0.22***	1.13	-0.23***	1.19
Health (Q)	-0.19***	0.77	0.05***	0.85	-0.12***	0.98
Arts, other (R-S)	-0.23***	1.21	-0.12***	1.30	-0.06*	1.10

Note: In this table, we report the sectoral means and the average standard deviations of standardized (at the country-year level) measures of MHC. The mean values are obtained by regressing the standardized MHC measures solely on the set of sector dummy variables. SD is an average of the standard deviations of standardized MHC within a given sector, calculated for each country separately. * $p < .05$ ** $p < .01$ *** $p < .001$.

5 Econometric results

In this section, we report our empirical results. First, we assess the role of a firm's organizational culture in the origination of hours constraints. Second, we investigate what firm-level characteristics are linked with the culture of rigid hours.

5.1 Test of the role of organizational culture

We regress the MHC calculated for non-administrative employees on the MHC among administrative employees (see equation 6). We find a significant positive relationship between the MHC experienced by these two groups of workers. The MHC among administrative employees being larger by one standard deviation is associated with the MHC among other employees being larger by 0.25 of standard deviation (Table 3). In other words, if the firm's share of part-time administrative employees is 20.8 percentage points lower than expected based on the observable characteristics of the workers, then the share of non-administrative employees who work part-time is, on average, 3.7 percentage points lower.[6] This finding is robust to using both the baseline measure of MHC among other employees (column 2) and the measure adjusted for occupations (column 4). The coefficient of interest is only slightly affected by the inclusion of other observable firm-level characteristics.

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[6]See Table 1 summarizing the standard deviations of the main MHC measures.

Table 3. The links between MHC for administrative employees and MHC for all other employees

	(1)	(2)	(3)	(4)
MHC for administrative workers	0.29***	0.25***	0.27***	0.26***
	(0.01)	(0.01)	(0.01)	(0.01)
Wage premium		0.04***		0.06***
		(0.01)		(0.01)
Size: small		-0.13***		-0.14***
		(0.02)		(0.02)
Size: large		0.01		-0.02
		(0.02)		(0.02)
Sector effects?	NO	YES	NO	YES
Country-year effects?	NO	YES	NO	YES
Adjustment for occupation structure?	NO	NO	YES	YES
R-squared	0.084	0.162	0.073	0.096
Number of firms	193,505	193,505	193,505	193,505

Note: The dependent variable in all columns is the standardized measure of minimum hours constraints (MHC) in non-administrative occupations. In columns 1 and 2, it is calculated according to equations (3) and (4). In columns 3 and 4, it is adjusted for occupation structure, that is, equation (5) is used instead of equation (3). In all columns, MHC for administrative workers (ISCO-08 sub-major occupation groups 24 and 41) are adjusted for occupation structure. In columns 1 and 3, the explanatory variables include only the standardized measure of MHC in administrative occupations (ISCO-08 sub-major occupation groups 24 and 41) and a constant. In the regression for columns 2 and 4, we apply a specification given by equation (6). Robust standard errors are in parentheses. * $p <$ .05 ** $p <$ .01 *** $p <$ .001.

The baseline specification explains 16.2% of the variance in the measure of MHC among non-administrative employees. Half of that is explained by the differences in MHC between the 12 economic sectors (Table 4). Importantly, sector fixed effects capture systematic between-sector differences in hours rigidities related to organizational culture (as evidenced in Table 2). Our firm-level proxy for the role of organizational culture has nearly the same explanatory power, with 7.3% of the variance being attributable to it. In contrast, the firm-level wage premium explains only 0.6% of the variance in the MHC among non-administrative employees. For the specification using MHC adjusted for occupations as a dependent variable, the sector fixed effects lose most of their explanatory power. However, the importance of the MHC for administrative workers remains almost unaffected.
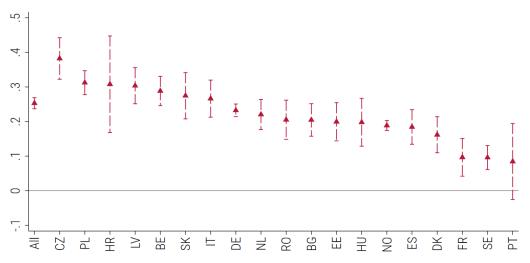
Table 4. Regression-based variance decomposition

	(1) Baseline	(2) Adjusted for occupations
MHC for administrative workers	7.33%	6.96%
Sector fixed effects	8.06%	1.85%
Size fixed effects	0.25%	0.25%
Wage premium	0.57%	0.53%

Note: In this table, we report the decomposition of the variance in the MHC for non-administrative workers into the contributions of explanatory variables. The decomposition reported in columns 1 and 2 use, respectively, the regressions from column 2 and 4 of Table 3. The decomposition is computed with the ineqrbd Stata module (Fiorio and Jenkins, 2008).

The role of a firm's organizational culture in explaining the within-country variation in MHC seems to be heterogeneous between countries. The largest coefficient is estimated for Czechia (point estimate: 0.38), and the smallest coefficient is estimated for Portugal (0.084, Figure 4). In Tables B.2 and B.3, we report the variance decompositions computed for individual countries. In 15 out of 19 countries, the MHC for administrative workers explains at least 4% of the variance in MHC for non-administrative workers. Furthermore, In six countries, the measure of MHC for administrative workers is more important than the sector fixed effects. Interestingly, all of these six countries are in Central and Eastern Europe, and are characterized by a low incidence of part-time employment. In contrast, in Western European countries, the differences between economic sectors explain a much larger part of the variation in MHC.

Figure 4. The links between MHC in administrative occupations and MHC in all other occupations, by countries

Note: In this figure, we report the results of the model given by equation (6), estimated for the whole sample, and for each country separately. The dependent variable is the standardized MHC for non-administrative employees, and we plot the coefficients for the standardized MHC for administrative employees. Error bars represent a 95% confidence interval.

The ubiquity of the relationship between the MHC for administrative employees and the MHC faced by all other employees is confirmed in Figure 5, where we report the coefficients estimated separately for each country-sector cell. In 193 out of 202 available cells, this relationship is positive.

We further verify whether the identified relationship is consistent across detailed occupation groups or is driven by specific types of occupations. Our baseline definition of administrative employees includes six minor occupation groups. In addition to these, we also examine numerical clerks (ISCO-08 code: 431), a category that encompasses accounting, statistical, and payroll clerks.[7] Due to data limitations, the sample for this exercise consists of only 10 countries.

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[7]This group is not included in the baseline definition of administrative employees because the broader occupation group also includes stock and production clerks.
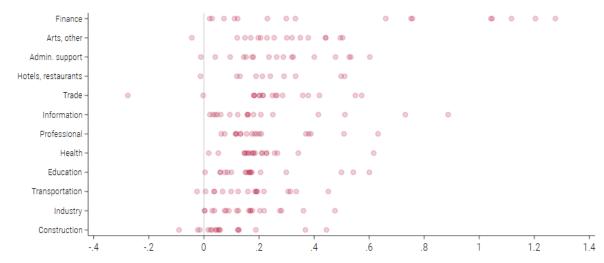
Figure 5. **The links between MHC in administrative occupations and MHC in all other occupations, by economic sectors and countries**

Note: In this figure, we report the results of the model given by equation (6), estimated separately for each country-sector cell. We drop cells in which the number of firms is lower than 100. The dependent variable is the standardized MHC for non-administrative employees, and we plot the coefficients pertaining to the standardized MHC for administrative employees.

The relationship between MHC for administrative employees and MHC for other employees is also positive and significant across all minor occupation groups (Table 5). It is most pronounced for General Office Clerks (ISCO-08 code: 411) and Keyboard Operators (ISCO-08 code: 413). The smallest coefficient is estimated for Sales, Marketing and Public Relations Professionals (ISCO-08 code: 243). For this group, the MHC being larger by one standard deviation translates into the MHC for non-administrative employees being larger by 0.17 of standard deviation.

It is difficult to rationalize these results with explanations related to technology. Why should the hours constraints faced by secretaries or HR specialists contain information on the hours constraints for core tasks personnel, such as technicians or sales workers? In line with our theoretical framework, this relationship can be explained by a set of factors broadly interpreted as an organizational culture. In some firms, part-time work may be perceived as a signal of low productivity or low engagement (as in Landers et al., 1996). In contrast, other firms may prioritize work-life balance and pay attention to workers' preferences.

5.2 Links between the culture of rigid hours constraints and firm-level characteristics

In the next step, we investigate what firm-level characteristics are associated with the organizational culture of rigid hours constraints. We define a firm as having such an organizational culture if the measure of MHC for administrative workers exceeds a specified percentile of a country-year distribution.

In Table 6, we report estimation results for the whole sample, while Tables B.4 - B.22 in Appendix contain country-specific estimates. We do not detect a clear relationship between wage premia and hours rigidities

Table 5. The links between MHC for detailed groups of administrative employees and MHC for all other employees, adjusted for occupations

ISCO-08 code:	241	242	243	411	412	413	431
MHC for administrative workers	0.19***	0.20***	0.17***	0.25***	0.20***	0.27***	0.20***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.02)
Wage premium	0.08***	0.04*	0.08***	0.02	0.10***	0.11***	0.09***
	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)
Size: small	-0.18***	-0.18***	-0.11**	-0.15***	-0.32***	-0.12	-0.20***
	(0.04)	(0.05)	(0.04)	(0.03)	(0.04)	(0.06)	(0.05)
Size: large	-0.01	0.04	-0.01	0.02	-0.02	-0.05	-0.04
	(0.02)	(0.05)	(0.03)	(0.02)	(0.03)	(0.05)	(0.02)
R-squared	0.101	0.094	0.094	0.103	0.104	0.156	0.096
Number of firms	32,398	34,424	23,635	46,239	21,857	5,096	22,288

Note: The dependent variable is the standardized measure of minimum hours constraints (MHC) in non-administrative occupations, adjusted for occupation structure. The main explanatory variable of interest is the standardized measure of MHC for one of the minor administrative occupation groups. The column header denotes the ISCO-08 code of the occupation group. 241: Finance Professionals; 242: Administration Professionals; 243: Sales, Marketing and Public Relations Professionals; 411: General Office Clerks; 412: Secretaries; 413: Keyboard Operators; 431: Numerical Clerks. Sector and country-year fixed effects are included. Robust standard errors are in parentheses. * $p < .05$ ** $p < .01$ *** $p < .001$.

related to a firm's organizational culture. Higher wages are associated with a higher probability of the MHC among administrative employees being above the median and with a lower probability of the MHC among these employees exceeding the 80th and the 90th percentile of the country-year-specific distribution. Furthermore, within-firm wage inequalities are negatively correlated with the probability that a firm is among those with the most rigid hours constraints. The latter pattern could be explained by the wage penalties associated with part-time work. Firms accepting flexible work arrangements may be characterized by higher wage inequalities if such arrangements are associated with a wage penalty.

For all definitions of a rigid hours culture, we find that such a culture is less likely to occur in large firms. Furthermore, publicly owned firms are more likely to have an organizational culture that does not facilitate part-time employment. However, this relationship disappears for the more restrictive definitions of the dependent variable. We also find a weak positive link between collective agreements and the MHC for administrative employees.

The organizational culture of rigid hours constraints is related to the demographic characteristics of managers. In particular, it is less common in firms with younger managers. In line with the intuition, the coefficient pertaining to the proportion of women is also negative in all specifications. However, it is not statistically significant. A possible explanation of these patterns is that demographic characteristics of managers influence their assumptions about the work norms and about the importance of work-life balance.

The country-level analysis reveals substantial heterogeneities. The negative relationship between the share of managers under age 40 and hours constraints is statistically significant for six out of 19 countries in the specification based on the median MHC, and in eight countries in the specification using the 80th percentile

Table 6. Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.015**	0.006	-0.006	-0.013***	-0.012***
	(0.005)	(0.005)	(0.004)	(0.003)	(0.002)
Variation in wages	-0.019	-0.038	-0.052**	-0.039*	-0.046***
	(0.022)	(0.022)	(0.018)	(0.016)	(0.010)
Size: small	-0.011	0.01	0.016	0.023**	0.022***
	(0.013)	(0.012)	(0.011)	(0.008)	(0.006)
Size: large	-0.063***	-0.078***	-0.071***	-0.060***	-0.040***
	(0.011)	(0.010)	(0.009)	(0.007)	(0.005)
Public ownership	0.057**	0.058**	0.026	0.004	0.004
	(0.019)	(0.018)	(0.016)	(0.011)	(0.006)
Collective agreement	0.012	0.021	0.017	0.019*	0.013*
	(0.013)	(0.012)	(0.011)	(0.009)	(0.006)
Women as %	-0.014	-0.021	-0.019	-0.022	-0.005
of managers	(0.016)	(0.015)	(0.014)	(0.012)	(0.008)
Persons under 40 as %	-0.041*	-0.040*	-0.055***	-0.048***	-0.022**
of managers	(0.017)	(0.016)	(0.015)	(0.013)	(0.008)
Number of firms	136,387	136,387	136,387	136,387	136,387

Note: In this table, we report the average marginal effects from a logistic regression (eq: 9) where the dependent variable is one if the MHC for administrative workers exceed the specified percentile of the country-year distribution, denoted in the column header. Firm-level wage premium is an average of the employees' wage premia, calculated according to equation (7). Variation in wages is measured by the within-firm coefficient of variation in hourly wages. Sector and country-year fixed effects are controlled for. Robust standard errors are in parentheses. * $p < .05$ ** $p < .01$ *** $p < .001$.

as the threshold. The negative relationship between large firm size and hours constraints is significant in seven or eight countries, depending on the specification. This analysis underscores the need for caution when generalizing findings from a single country on the factors conducive to the origination of hours constraints.

6   Conclusions

In this paper, we investigate the role of organizational culture in the determination of minimum hours constraints (MHC). In our theoretical model, firms decide on the fractions of workers permitted to hold part-time jobs. The decisions regarding the workers performing core tasks and administrative workers may be correlated if there is a firm-wide aversion to accommodating part-time employees. Given that the tasks of administrative workers are similar across firms, we use MHC among these employees as an empirical proxy for hours constraints related to a firm's organizational culture.

We also develop a novel approach for estimating MHC, which involves measuring the difference between the expected share of part-time employees (based on their socio-demographic characteristics) and the actual

part-time employment share at a given firm. We apply this approach to a large dataset covering firms in 19 European countries. In countries where part-time employment is common, our method provides significantly different approximations of MHC than a simple indicator of the part-time employment share would.

It is undoubtedly the case that MHC are related to the characteristics of the production function. We confirm this by showing that an employee's probability of working part-time depends on their occupation and economic sector. However, we also uncover a substantial degree of variation in MHC within economic sectors that cannot be attributed to the occupation structure.

Our main empirical result is that a firm's organizational culture plays a quantitatively important role in shaping hours constraints. This finding suggests that changes in work norms may, to some extent, increase the availability of part-time employment without hampering production processes.

We also investigate what observable characteristics of firms are associated with the culture of rigid hours constraints. The findings are heterogeneous across countries. Overall, a large firm size and a higher proportion of managers under age 40 are most systematically associated with greater hours flexibility. Furthermore, the culture of rigid hours constraints seems to be more common in firms with lower wage inequalities and in publicly owned entities.

Understanding the origins of MHC is vital for both policymakers and firm managements. The relaxation of hours constraints can increase labor market participation, especially among parents and older people, and can improve job satisfaction for some workers. However, labor market regulations or firm-specific policies should take into account the costs of accommodating part-time employment borne by employers. Further research, both quantitative and qualitative, is needed to identify the detailed reasons for the presence of hours constraints in workplaces.

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Appendix A: Information on sample sizes

In this appendix, we report the sample sizes for subsequent steps of the econometric analysis, broken down by countries. We derive firm-level measures of MHC using data on 30.1 million employees (Table A.1). For the analysis of the role of organizational culture, we utilize data on 193,505 firms representing 18.8 million employees. The decrease in the sample size by 11.5 million workers results primarily from the dropping of firms with fewer than 20 observations or with no observed administrative employees. For the analysis of the factors related the culture of rigid hours constraints, a further 29.5% of firms are dropped, representing 16.4% of the employees. This reduction is due to either missing institutional variables or the lack of observed managers. In Table A.2, we report the numbers of firms with observed administrative employees belonging to one of the seven minor occupation groups.

Table A.1. Sample size by country

Analysis	eq(3) Employees	eq(6) Employees	Firms	eq(9) Employees	Firms
Belgium	463,147	230,322	6,299	65,551	1,867
Bulgaria	599,510	316,249	5,742	232,318	3,896
Czechia	5,771,174	4,912,293	12,471	4,835,131	11,809
Germany	3,458,994	2,154,252	39,532	849,224	14,430
Denmark	3,190,552	1,821,114	17,787	1,458,094	12,501
Estonia	373,066	210,724	3,041	196,704	2,747
Spain	615,574	93,290	3,945	40,243	1,701
France	648,678	88,784	2,939	67,068	2,231
Croatia	189,494	110,944	2,630	54,517	1,305
Hungary	1,644,526	848,133	7,315	825,194	6,732
Italy	661,831	207,987	5,472	89,686	1,968
Latvia	521,625	261,957	4,323	252,250	4,145
The Netherlands	461,764	163,861	5,224	147,541	2,083
Norway	5,254,340	2,765,814	32,107	2,596,944	28,771
Poland	2,094,230	1,601,185	24,046	1,548,383	26,220
Portugal	302,232	74,013	1,499	42,669	739
Romania	769,776	284,542	8,462	263,343	7,779
Sweden	782,090	604,395	4,716	201,102	1,236
Slovakia	2,347,167	1,927,353	8,655	1,852,074	7,727
Total	30,142,750	18,777,212	193,505	15,618,036	136,387

Note: In this table, we report the country-level sample sizes used in the econometric analyses.

Table A.2. Number of firms with administrative employees belonging to certain minor occupation groups, by country

ISCO-08 code	241	242	243	411	412	413	431
Bulgaria	3,240	2,360	617	2,263	905	692	1,633
Czechia	5,979	3,957	4,059	6,622	4,285	872	3,855
Denmark	3,243	2,490	3,318	14,108	2,624	806	3,575
Estonia	2,068	898	692	457	528	356	418
France	217	611	838	0	1,293	326	758
Italy	293	554	421	1,350	700	194	606
Latvia	1,638	2,284	1,142	0	1,258	716	1,189
Norway	4,287	4,972	2,433	9,818	0	136	3,067
Poland	6,644	13,559	8,246	7,842	7,635	591	4,081
Slovakia	4,813	2,742	1,871	3,794	2,630	407	3,134
Total	32,422	34,427	23,637	46,313	21,858	5,096	22,316

Note: In this table, we report the country-level sample sizes used in the analysis reported in Table 5. The column header denotes the ISCO-08 code of the occupation group. 241: Finance Professionals; 242: Administration Professionals; 243: Sales, Marketing and Public Relations Professionals; 411: General Office Clerks; 412: Secretaries; 413: Keyboard Operators; 431: Numerical Clerks.

Appendix B: Additional results

Table B.1. Average marginal effects of occupations on the probability to work part-time

Chief Executives, Senior Officials and Legislators (11)	-0.097***
Administrative and Commercial Managers (12)	-0.173***
Production and Specialized Services Managers (13)	-0.188***
Hospitality, Retail and Other Services Managers (14)	-0.169***
Science and Engineering Professionals (21)	-0.187***
Health Professionals (22)	-0.069***
Teaching Professionals (23)	-0.076***
Business and Administration Professionals (24)	-0.166***
ICT Professionals (25)	-0.206***
Legal, Social and Cultural Professionals (26)	-0.106***
Science and Engineering Associate Professionals (31)	-0.199***
Health Associate Professionals (32)	-0.066***
Business and Administration Associate Professionals (33)	-0.157***
Legal, Social, Cultural and Related Associate Professionals (34)	-0.029***
Information and Communications Technicians (35)	-0.175***
General and Keyboard Clerks (41)	-0.099***
Customer Services Clerks (42)	-0.075***
Numerical and Material Recording Clerks (43)	-0.137***
Other Clerical Support Workers (44)	-0.049***
Personal Services Workers (51)	-0.010***
Sales Workers (52)	0
Personal Care Workers (53)	0.018***
Protective Services Workers (54)	-0.055***
Market-oriented Skilled Agricultural Workers (61)	-0.125***
Market-oriented Skilled Forestry, Fishery and Hunting Workers (62)	-0.090***
Building and Related Trades Workers (71)	-0.172***
Metal, Machinery and Related Trades Workers (72)	-0.201***
Handicraft and Printing Workers (73)	-0.154***
Electrical and Electronics Trades Workers (74)	-0.198***
Food Processing and Other Craft Workers (75)	-0.110***
Stationary Plant and Machine Operators (81)	-0.192***
Assemblers (82)	-0.209***
Drivers and Mobile Plant Operators (83)	-0.136***
Cleaners and Helpers (91)	0.106***
Agricultural, Forestry and Fishery Labourers (92)	-0.034***
Labourers in Mining, Construction, Manufacturing and Transport (93)	-0.088***
Food Preparation Assistants (94)	0.055***
Street and Related Sales and Services Workers (95)	0.024**
Refuse Workers and Other Elementary Workers (96)	-0.037***

Note: In this table, we report the average marginal effects from a logit model with a part-time work dummy as the dependent variable (equation 5). This regression is estimated jointly for all countries and time periods. The explanatory variables include occupation dummies (with Sales Workers as the reference value) and, not reported in the table, country fixed effects and interactions of gender, age group, and education level. *** $p < .001$.

Table B.2. Regression-based variance decomposition, by countries

	Belgium	Bulgaria	Czechia	Germany	Denmark	Estonia	Spain	France	Croatia	Hungary
MHC for administrative workers	10.4%	5.1%	17.8%	7.6%	4.9%	5.3%	3.4%	1.2%	10.8%	4.0%
Sector fixed effects	14.0%	3.9%	13.2%	25.3%	23.6%	23.3%	11.9%	11.1%	14.8%	5.0%
Size fixed effects	1.0%	2.8%	-0.1%	0.0%	6.7%	0.3%	0.0%	1.3%	1.8%	1.2%
Wage premium	0.1%	1.0%	1.2%	1.1%	5.5%	0.3%	2.0%	-0.3%	0.0%	0.0%

Note: In this table, we report the decomposition of variance in the baseline measure of MHC for non-administrative workers into the contributions of explanatory variables. The decomposition is computed with the ineqrbd Stata module (Fiorio and Jenkins, 2008).

Table B.3. Regression-based variance decomposition, by countries, continued

	Italy	Latvia	Netherlands	Norway	Poland	Portugal	Romania	Sweden	Slovakia
MHC for administrative workers	8.9%	9.8%	8.5%	6.4%	11.5%	1.2%	4.8%	2.4%	8.0%
Sector fixed effects	20.6%	6.9%	32.5%	31.3%	7.5%	24.8%	4.2%	33.7%	4.4%
Size fixed effects	-0.1%	1.4%	0.0%	1.1%	1.0%	0.7%	0.1%	0.5%	0.2%
Wage premium	4.6%	1.4%	5.0%	1.1%	0.2%	0.1%	1.2%	3.1%	0.4%

Note: In this table, we report the decomposition of variance in the baseline measure of MHC for non-administrative workers into the contributions of explanatory variables. The decomposition is computed with the ineqrbd Stata module (Fiorio and Jenkins, 2008).

Table B.4. Belgium: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.060**	0.053**	0.036*	0.011	0.000
	(0.020)	(0.019)	(0.018)	(0.013)	(0.009)
Variation in wages	0.088	-0.078	-0.179	-0.293	-0.064
	(0.198)	(0.197)	(0.175)	(0.162)	(0.087)
Size: small	0.160	0.170	0.168*	0.112	0.084
	(0.100)	(0.091)	(0.083)	(0.067)	(0.054)
Size: large	-0.068	-0.100*	-0.088*	-0.088**	-0.044*
	(0.042)	(0.040)	(0.035)	(0.028)	(0.019)
Public ownership	0.193	0.267**	0.072	0.026	0.007
	(0.103)	(0.097)	(0.091)	(0.079)	(0.045)
Collective agreement	0.343	0.539**	0.297	0.272*	0.098
	(0.192)	(0.179)	(0.160)	(0.134)	(0.097)
Women as %	0.045	0.027	0.055	0.035	0.048
of managers	(0.055)	(0.054)	(0.049)	(0.042)	(0.028)
Persons under 40 as %	0.066	0.052	0.082	0.077	0.029
of managers	(0.064)	(0.061)	(0.056)	(0.045)	(0.028)
Number of firms	1,867	1,867	1,867	1,867	1,867

Note: In this table, we report the average marginal effects from a logistic regression (eq: 9) where the dependent variable is one if the MHC for administrative workers exceed the specified percentile of the country-year distribution, denoted in the column header. Firm-level wage premium is an average of the employees' wage premia, calculated according to equation (7). Variation in wages is measured by the within-firm coefficient of variation in hourly wages. Sector and year fixed effects are controlled for. Robust standard errors are in parentheses. * $p < .05$ ** $p < .01$ *** $p < .001$.

Table B.5. Bulgaria: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.067***	-0.057***	-0.062***	-0.057***	-0.039***
	(0.013)	(0.013)	(0.013)	(0.012)	(0.009)
Variation in wages	-0.147**	-0.137**	-0.122*	-0.085*	-0.026
	(0.049)	(0.050)	(0.049)	(0.041)	(0.026)
Size: small	-0.100***	-0.067*	-0.064*	-0.018	0.003
	(0.029)	(0.029)	(0.027)	(0.022)	(0.015)
Size: large	0.019	0.019	-0.014	0.022	0.007
	(0.031)	(0.031)	(0.030)	(0.027)	(0.021)
Public ownership	0.198***	0.153**	0.125**	0.081*	0.044*
	(0.051)	(0.049)	(0.044)	(0.036)	(0.022)
Collective agreement	0.017	0.016	0.031	0.014	0.001
	(0.037)	(0.033)	(0.031)	(0.024)	(0.017)
Women as %	-0.075*	-0.076*	-0.063*	-0.082**	-0.043*
of managers	(0.035)	(0.034)	(0.032)	(0.028)	(0.022)
Persons under 40 as %	-0.137***	-0.105**	-0.087*	-0.077*	-0.069***
of managers	(0.036)	(0.037)	(0.035)	(0.032)	(0.020)
Number of firms	3,896	3,896	3,896	3,896	3,896

Note: See notes for Table B.4.

Table B.6. Czechia: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.054***	0.034**	0.025**	0.029***	0.014**
	(0.012)	(0.011)	(0.009)	(0.007)	(0.005)
Variation in wages	-0.137**	-0.161**	-0.144**	-0.144***	-0.121***
	(0.053)	(0.053)	(0.052)	(0.041)	(0.035)
Size: small	0.009	0.039	0.051	0.044	0.052**
	(0.036)	(0.035)	(0.030)	(0.024)	(0.016)
Size: large	-0.125***	-0.134***	-0.129***	-0.122***	-0.067***
	(0.025)	(0.024)	(0.022)	(0.020)	(0.018)
Public ownership	0.001	-0.037	-0.016	-0.014	0.034
	(0.044)	(0.041)	(0.037)	(0.031)	(0.024)
Collective agreement	-0.067*	-0.067**	-0.045*	-0.023	-0.017
	(0.029)	(0.024)	(0.022)	(0.019)	(0.015)
Women as %	0.008	0.079	0.091	0.105**	0.055*
of managers	(0.059)	(0.053)	(0.047)	(0.038)	(0.027)
Persons under 40 as %	-0.124**	-0.079	-0.073	-0.057	-0.019
of managers	(0.048)	(0.047)	(0.043)	(0.037)	(0.029)
Number of firms	11,809	11,809	11,809	11,809	11,809

Note: See notes for Table B.4.

Table B.7. Germany: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.015	-0.006	-0.022*	-0.027***	-0.021***
	(0.011)	(0.010)	(0.009)	(0.007)	(0.005)
Variation in wages	0.052	0.059	0.013	-0.010	-0.066**
	(0.042)	(0.041)	(0.039)	(0.032)	(0.022)
Size: small	-0.036	-0.058**	-0.040*	-0.011	0.022*
	(0.023)	(0.022)	(0.020)	(0.016)	(0.010)
Size: large	0.017	-0.019	-0.008	-0.032	-0.019
	(0.023)	(0.023)	(0.021)	(0.018)	(0.011)
Public ownership	0.066*	0.063*	0.057*	0.042*	0.021
	(0.026)	(0.026)	(0.022)	(0.018)	(0.012)
Collective agreement	-0.028	0.003	0.000	0.019	0.013
	(0.021)	(0.020)	(0.018)	(0.015)	(0.009)
Women as %	-0.05	-0.04	-0.048*	-0.029	-0.011
of managers	(0.026)	(0.025)	(0.023)	(0.019)	(0.012)
Persons under 40 as %	-0.01	-0.003	-0.035	-0.043*	-0.021
of managers	(0.028)	(0.028)	(0.025)	(0.020)	(0.013)
Number of firms	14,430	14,430	14,430	14,430	14,430

Note: See notes for Table B.4.

Table B.8. Denmark: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.049***	-0.047***	-0.057***	-0.067***	-0.033**
	(0.013)	(0.014)	(0.013)	(0.013)	(0.012)
Variation in wages	-0.211*	-0.317***	-0.395***	-0.410***	-0.059
	(0.087)	(0.090)	(0.093)	(0.082)	(0.060)
Size: small	-0.029	-0.004	0.0130	0.031	-0.009
	(0.043)	(0.043)	(0.038)	(0.030)	(0.018)
Size: large	0.054	0.043	0.019	-0.009	-0.021
	(0.035)	(0.035)	(0.033)	(0.029)	(0.017)
Public ownership	0.012	0.028	0.003	-0.007	0.012
	(0.046)	(0.044)	(0.044)	(0.040)	(0.024)
Collective agreement	-0.017	-0.035	-0.032	-0.049	-0.003
	(0.033)	(0.033)	(0.032)	(0.030)	(0.023)
Women as %	-0.096*	-0.095*	-0.085**	-0.060*	-0.037
of managers	(0.038)	(0.037)	(0.033)	(0.028)	(0.026)
Persons under 40 as %	-0.139**	-0.112*	-0.073	-0.058	0.012
of managers	(0.046)	(0.046)	(0.044)	(0.039)	(0.031)
Number of firms	12,501	12,501	12,501	12,501	12,501

Note: See notes for Table B.4.

Table B.9. Estonia: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.006	-0.003	-0.019	-0.029**	-0.009
	(0.017)	(0.016)	(0.013)	(0.011)	(0.006)
Variation in wages	-0.152	-0.168	-0.180*	-0.137	-0.101
	(0.114)	(0.097)	(0.077)	(0.072)	(0.060)
Size: small	-0.055	-0.015	-0.009	0.008	-0.007
	(0.034)	(0.031)	(0.027)	(0.021)	(0.013)
Size: large	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Public ownership	0.088	0.152*	0.114	0.064	0.034
	(0.073)	(0.070)	(0.063)	(0.051)	(0.031)
Collective agreement	0.064	0.071	0.077	0.056	0.024
	(0.066)	(0.059)	(0.050)	(0.039)	(0.028)
Women as %	-0.046	-0.077	-0.078	-0.057	-0.058*
of managers	(0.059)	(0.053)	(0.047)	(0.034)	(0.024)
Persons under 40 as %	-0.209***	-0.224***	-0.197***	-0.106**	-0.102***
of managers	(0.054)	(0.049)	(0.045)	(0.036)	(0.028)
Number of firms	2,747	2,747	2,747	2,747	2,747

Note: See notes for Table B.4. For Estonia, there are only two categories of the firm size: (i) small, and (ii) medium to large.

Table B.10. Spain: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.004	-0.019	-0.029	-0.046**	-0.017
	(0.021)	(0.021)	(0.021)	(0.016)	(0.009)
Variation in wages	0.144	0.129	0.053	-0.02	-0.028
	(0.078)	(0.069)	(0.061)	(0.048)	(0.037)
Size: small	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Size: large	-0.254**	-0.234**	-0.045	-0.045	-0.014
	(0.086)	(0.083)	(0.063)	(0.047)	(0.035)
Public ownership	-0.005	0.071	0.076	0.02	-0.002
	(0.078)	(0.076)	(0.077)	(0.047)	(0.038)
Collective agreement	-0.308*	-0.198	-0.189*	-0.137*	-0.082
	(0.123)	(0.111)	(0.091)	(0.067)	(0.050)
Women as % of managers	0.128*	0.111	0.049	-0.068	0.017
	(0.059)	(0.057)	(0.056)	(0.038)	(0.026)
Persons under 40 as % of managers	-0.072	-0.114*	-0.094	-0.011	-0.014
	(0.059)	(0.056)	(0.051)	(0.038)	(0.024)
Number of firms	1,701	1,701	1,701	1,701	1,701

Note: See notes for Table B.4.

Table B.11. France: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.026	-0.042*	-0.044**	-0.032*	-0.01
	(0.020)	(0.017)	(0.015)	(0.013)	(0.007)
Variation in wages	0.123	0.126	0.013	0.062	-0.064
	(0.069)	(0.076)	(0.063)	(0.052)	(0.034)
Size: small	0.024	0.094	0.072	-0.013	0.016
	(0.132)	(0.134)	(0.110)	(0.080)	(0.051)
Size: large	-0.062	-0.052	-0.063	-0.03	-0.007
	(0.052)	(0.048)	(0.041)	(0.034)	(0.027)
Public ownership	-0.073	-0.055	-0.028	-0.07	0.004
	(0.078)	(0.082)	(0.081)	(0.057)	(0.034)
Collective agreement	-0.407*	-0.447**	-0.522***	-0.312**	-0.068
	(0.160)	(0.147)	(0.141)	(0.114)	(0.063)
Women as % of managers	0.047	-0.036	0.041	-0.001	-0.025
	(0.088)	(0.075)	(0.054)	(0.045)	(0.029)
Persons under 40 as % of managers	-0.077	-0.012	-0.044	-0.072	0.011
	(0.079)	(0.074)	(0.059)	(0.050)	(0.030)
Number of firms	2,231	2,231	2,231	2,231	2,231

Note: See notes for Table B.4.

Table B.12. Croatia: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.004	-0.005	-0.004	-0.004	-0.003
	(0.021)	(0.019)	(0.017)	(0.015)	(0.008)
Variation in wages	0.124	0.049	0.123	0.120	0.021
	(0.082)	(0.090)	(0.074)	(0.064)	(0.029)
Size: small	0.019	-0.001	-0.018	0.047	0.039
	(0.058)	(0.057)	(0.050)	(0.036)	(0.022)
Size: large	-0.058	-0.147*	-0.171**	-0.042	-0.031
	(0.064)	(0.060)	(0.054)	(0.044)	(0.027)
Public ownership	0.184**	0.174**	0.131*	0.054	0.010
	(0.068)	(0.065)	(0.055)	(0.045)	(0.028)
Collective agreement	-0.011	0.028	0.042	0.016	-0.013
	(0.059)	(0.051)	(0.042)	(0.037)	(0.021)
Women as %	0.013	-0.021	-0.038	0.007	0.028
of managers	(0.069)	(0.066)	(0.050)	(0.041)	(0.025)
Persons under 40 as %	0.145*	0.145*	0.091	0.065	0.028
of managers	(0.068)	(0.063)	(0.056)	(0.049)	(0.025)
Number of firms	1,305	1,305	1,305	1,305	1,305

Note: See notes for Table B.4.

Table B.13. Hungary: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.019	-0.042**	-0.055***	-0.043***	-0.027***
	(0.016)	(0.016)	(0.011)	(0.009)	(0.006)
Variation in wages	-0.022	-0.018	-0.122	-0.163**	-0.107**
	(0.090)	(0.090)	(0.064)	(0.051)	(0.036)
Size: small	-0.062	-0.039	-0.052	-0.061*	-0.026
	(0.046)	(0.041)	(0.033)	(0.027)	(0.018)
Size: large	-0.105*	-0.082	-0.074*	-0.082**	-0.040
	(0.048)	(0.042)	(0.034)	(0.027)	(0.021)
Public ownership	0.079	0.044	-0.019	-0.034	0.016
	(0.059)	(0.054)	(0.043)	(0.035)	(0.022)
Collective agreement	0.008	0.013	0.05	0.014	0.023
	(0.059)	(0.056)	(0.043)	(0.028)	(0.020)
Women as %	0.045	0.046	0.041	-0.004	-0.005
of managers	(0.058)	(0.055)	(0.041)	(0.031)	(0.019)
Persons under 40 as %	0.031	-0.010	-0.105*	-0.125***	-0.058*
of managers	(0.077)	(0.071)	(0.044)	(0.036)	(0.024)
Number of firms	6,732	6,732	6,732	6,732	6,732

Note: See notes for Table B.4.

Table B.14. Italy: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.008	0.007	-0.007	-0.022	-0.016
	(0.030)	(0.032)	(0.033)	(0.016)	(0.010)
Variation in wages	0.07	0.141	0.139	0.119*	0.05
	(0.081)	(0.093)	(0.086)	(0.059)	(0.031)
Size: small	-0.034	0.025	0.034	0.02	0.012
	(0.080)	(0.078)	(0.070)	(0.055)	(0.036)
Size: large	0.003	-0.044	-0.071	-0.109**	-0.070**
	(0.055)	(0.057)	(0.053)	(0.040)	(0.025)
Public ownership	0.073	0.019	-0.030	-0.043	-0.041
	(0.066)	(0.063)	(0.062)	(0.052)	(0.040)
Collective agreement	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Women as % of managers	0.034	0.094	0.089	0.023	0.045
	(0.061)	(0.060)	(0.055)	(0.047)	(0.029)
Persons under 40 as % of managers	-0.069	-0.061	-0.029	-0.019	-0.039
	(0.100)	(0.116)	(0.107)	(0.077)	(0.044)
Number of firms	1,968	1,968	1,968	1,968	1,968

Note: See notes for Table B.4.

Table B.15. Latvia: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.028	0.011	0.014	0.003	-0.011
	(0.017)	(0.016)	(0.014)	(0.009)	(0.006)
Variation in wages	-0.143*	-0.094	-0.135*	-0.096*	-0.027
	(0.069)	(0.061)	(0.056)	(0.045)	(0.027)
Size: small	0.025	0.05	0.03	0.007	0.009
	(0.040)	(0.039)	(0.036)	(0.027)	(0.017)
Size: large	0.057	0.010	0.019	0.013	-0.018
	(0.043)	(0.036)	(0.033)	(0.027)	(0.016)
Public ownership	0.027	0.083	0.067	0.068*	0.037
	(0.055)	(0.047)	(0.041)	(0.030)	(0.021)
Collective agreement	0.045	0.094**	0.051	0.052*	0.046**
	(0.044)	(0.036)	(0.032)	(0.026)	(0.017)
Women as % of managers	0.13	0.042	0.064	0.003	-0.015
	(0.071)	(0.056)	(0.047)	(0.033)	(0.021)
Persons under 40 as % of managers	-0.016	-0.055	-0.039	-0.069*	-0.064**
	(0.060)	(0.053)	(0.048)	(0.034)	(0.023)
Number of firms	4,145	4,145	4,145	4,145	4,145

Note: See notes for Table B.4.

Table B.16. The Netherlands: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.100***	0.098***	0.088***	0.061**	0.020*
	(0.026)	(0.025)	(0.023)	(0.020)	(0.008)
Variation in wages	-0.088	-0.262*	-0.239*	-0.213*	-0.121*
	(0.102)	(0.120)	(0.114)	(0.105)	(0.061)
Size: small	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Size: large	0.17	0.077	0.028	-0.048	-0.015
	(0.219)	(0.226)	(0.211)	(0.159)	(0.093)
Public ownership	0.057	-0.059	-0.036	-0.007	-0.002
	(0.068)	(0.071)	(0.070)	(0.060)	(0.044)
Collective agreement	-0.125	-0.158*	-0.129*	-0.088	-0.001
	(0.078)	(0.072)	(0.062)	(0.059)	(0.034)
Women as %	-0.002	0.003	0.027	0.046	0.015
of managers	(0.050)	(0.054)	(0.051)	(0.044)	(0.029)
Persons under 40 as %	-0.024	0.004	-0.036	-0.013	-0.002
of managers	(0.058)	(0.060)	(0.061)	(0.056)	(0.035)
Number of firms	2,081	2,081	2,081	2,081	2,081

Note: See notes for Table B.4.

Table B.17. Norway: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.065***	0.039***	0.009	-0.003	-0.017***
	(0.007)	(0.006)	(0.005)	(0.004)	(0.003)
Variation in wages	0.012	-0.036	-0.063*	-0.047*	-0.024
	(0.019)	(0.031)	(0.025)	(0.020)	(0.018)
Size: small	-0.029	-0.026	-0.006	0.020	0.026***
	(0.015)	(0.016)	(0.014)	(0.011)	(0.007)
Size: large	-0.046**	-0.091***	-0.082***	-0.080***	-0.061***
	(0.015)	(0.015)	(0.014)	(0.011)	(0.007)
Public ownership	-0.088***	-0.106***	-0.148***	-0.127***	-0.077***
	(0.023)	(0.022)	(0.019)	(0.015)	(0.008)
Collective agreement	0.128***	0.071*	0.007	-0.017	-0.019
	(0.031)	(0.030)	(0.028)	(0.025)	(0.011)
Women as %	-0.047	-0.073**	-0.077***	-0.067***	-0.024
of managers	(0.025)	(0.025)	(0.022)	(0.019)	(0.014)
Persons under 40 as %	0.022	0.041	-0.011	-0.019	-0.016
of managers	(0.028)	(0.028)	(0.025)	(0.021)	(0.015)
Number of firms	28,871	28,871	28,871	28,871	28,871

Note: See notes for Table B.4.

Table B.18. Poland: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.028***	0.013	0.005	-0.003	-0.004
	(0.008)	(0.007)	(0.006)	(0.005)	(0.003)
Variation in wages	-0.095*	-0.084*	-0.106***	-0.100***	-0.059**
	(0.042)	(0.041)	(0.029)	(0.027)	(0.021)
Size: small	-0.030*	-0.026	-0.014	-0.003	0.006
	(0.015)	(0.014)	(0.012)	(0.010)	(0.007)
Size: large	-0.095***	-0.099***	-0.085***	-0.069***	-0.046***
	(0.017)	(0.015)	(0.013)	(0.011)	(0.007)
Public ownership	0.019	0.036	0.066**	0.041*	0.012
	(0.032)	(0.024)	(0.022)	(0.016)	(0.010)
Collective agreement	0.027	0.023	-0.005	-0.013	-0.008
	(0.019)	(0.016)	(0.014)	(0.012)	(0.007)
Women as %	0.039	0.006	-0.017	-0.016	-0.013
of managers	(0.030)	(0.024)	(0.021)	(0.017)	(0.010)
Persons under 40 as %	-0.064*	-0.045	-0.045*	-0.046**	-0.019
of managers	(0.029)	(0.024)	(0.021)	(0.017)	(0.011)
Number of firms	22,620	22,620	22,620	22,620	22,620

Note: See notes for Table B.4.

Table B.19. Portugal: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	-0.048	-0.029	-0.043	-0.037	-0.022
	(0.033)	(0.034)	(0.034)	(0.027)	(0.017)
Variation in wages	0.079	0.031	0.031	0.030	-0.005
	(0.115)	(0.111)	(0.111)	(0.079)	(0.050)
Size: small	-0.202	0.014	0.156	0.137	0.124
	(0.276)	(0.351)	(0.331)	(0.229)	(0.115)
Size: large	-0.019	-0.034	0.083	0.033	-0.002
	(0.080)	(0.074)	(0.071)	(0.056)	(0.041)
Public ownership	0.070	0.096	0.029	-0.116	-0.018
	(0.133)	(0.129)	(0.120)	(0.071)	(0.044)
Collective agreement	0.271**	0.140	0.149	0.088	0.033
	(0.089)	(0.089)	(0.082)	(0.058)	(0.034)
Women as %	-0.057	-0.052	-0.089	-0.001	-0.022
of managers	(0.087)	(0.086)	(0.082)	(0.065)	(0.050)
Persons under 40 as %	0.332***	0.392***	0.232**	0.121	0.107*
of managers	(0.090)	(0.083)	(0.083)	(0.063)	(0.049)
Number of firms	739	739	739	739	739

Note: See notes for Table B.4.

Table B.20. Romania: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.035*	0.022	0.012	-0.008	-0.018**
	(0.017)	(0.017)	(0.017)	(0.017)	(0.007)
Variation in wages	-0.166*	-0.173**	-0.103	-0.078	-0.023
	(0.069)	(0.061)	(0.054)	(0.041)	(0.027)
Size: small	0.055	0.075*	0.074*	0.034	0.023
	(0.035)	(0.033)	(0.032)	(0.027)	(0.019)
Size: large	-0.001	0.026	-0.003	-0.013	-0.013
	(0.031)	(0.029)	(0.026)	(0.020)	(0.013)
Public ownership	0.122**	0.098*	0.060	0.043	0.042
	(0.039)	(0.040)	(0.039)	(0.035)	(0.022)
Collective agreement	-0.099	-0.131*	-0.064	0.006	-0.037
	(0.059)	(0.057)	(0.049)	(0.035)	(0.022)
Women as %	-0.004	-0.021	-0.017	-0.054	-0.018
of managers	(0.052)	(0.046)	(0.043)	(0.036)	(0.019)
Persons under 40 as %	-0.038	-0.107*	-0.106*	-0.110*	-0.044
of managers	(0.049)	(0.050)	(0.050)	(0.052)	(0.023)
Number of firms	7,779	7,779	7,779	7,779	7,779

Note: See notes for Table B.4.

Table B.21. Sweden: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.020	0.036*	0.011	-0.007	-0.013
	(0.018)	(0.018)	(0.019)	(0.014)	(0.011)
Variation in wages	-0.065	-0.226	-0.142	-0.176	-0.316**
	(0.156)	(0.148)	(0.133)	(0.120)	(0.113)
Size: small	-0.278**	-0.187	-0.131	-0.016	-0.027
	(0.106)	(0.102)	(0.075)	(0.071)	(0.048)
Size: large	-0.241*	-0.220*	-0.187**	-0.103	-0.092*
	(0.099)	(0.096)	(0.069)	(0.065)	(0.042)
Public ownership	-0.145**	-0.117*	-0.185***	-0.098	-0.090*
	(0.054)	(0.056)	(0.049)	(0.052)	(0.042)
Collective agreement	-0.03	-0.070	0.015	0.100*	0.083*
	(0.057)	(0.058)	(0.059)	(0.048)	(0.039)
Women as %	0.000	0.033	0.076	0.060	-0.006
of managers	(0.067)	(0.064)	(0.060)	(0.055)	(0.043)
Persons under 40 as %	0.117	0.054	0.059	-0.006	-0.007
of managers	(0.080)	(0.078)	(0.070)	(0.061)	(0.045)
Number of firms	1,236	1,236	1,236	1,236	1,226

Note: See notes for Table B.4.

Table B.22. Slovakia: Firm-level characteristics associated with the culture of rigid working hours

	p50	p60	p70	p80	p90
Wage premium	0.018	-0.006	-0.02	-0.019	-0.012
	(0.015)	(0.014)	(0.013)	(0.011)	(0.007)
Variation in wages	-0.082	-0.073	-0.088	-0.119*	-0.050
	(0.052)	(0.055)	(0.058)	(0.058)	(0.047)
Size: small	-0.038	-0.04	-0.034	-0.023	0.000
	(0.027)	(0.025)	(0.021)	(0.017)	(0.010)
Size: large	-0.110***	-0.121***	-0.116***	-0.106***	-0.062***
	(0.033)	(0.031)	(0.026)	(0.018)	(0.012)
Public ownership	0.141**	0.087	0.004	0.007	0.041*
	(0.052)	(0.050)	(0.037)	(0.029)	(0.017)
Collective agreement	0.009	0.044	0.057	0.054*	0.004
	(0.038)	(0.036)	(0.032)	(0.023)	(0.016)
Women as %	-0.001	-0.047	-0.015	-0.045	-0.017
of managers	(0.053)	(0.050)	(0.049)	(0.035)	(0.019)
Persons under 40 as %	-0.241***	-0.229***	-0.147***	-0.092**	-0.050*
of managers	(0.044)	(0.043)	(0.037)	(0.031)	(0.023)
Number of firms	7,727	7,727	7,727	7,727	7,727

Note: See notes for Table B.4.