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# What Are the Benefits of Having more Female Leaders? Evidence from the Use of Part-Time Work in Italy

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Using three waves of a rich survey representative of Italian private firms, we explore the impact of female managers on a firm's use of part-time work. Building on a literature suggesting that female leaders display relatively more altruistic and compassionate attitudes and values compared to their male counterparts, we assess whether these differences manifest themselves also in relation to working time arrangements offered by firms. Results, robust to controls for several time-varying firm-level characteristics and unobserved fixed firm heterogeneity, indicate that female managers are, indeed, more responsive to their employees' needs. We find that female managers significantly limit the employment of involuntary part-time workers, correspondingly increasing full-time employment. At the same time, our results suggest that female managers are more prone to grant part-time arrangements to employees asking for them. Overall, our results point to some hitherto unexplored benefits for workers from increasing the number of female business leaders. Such an increase would mitigate the serious phenomenon of underemployment entailed by involuntary part-time work. It may also contribute to enhance the work-life balance of workers engaged in childcare or elderly care activities.

*Keywords:* Part-time work female managers involuntary part-time work employment policies employees' needs.

*JEL:* J23; J41; M51.

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## 1 Introduction

Since the mid-1970s, part-time work has become increasingly popular, and now it represents a pervasive feature of work arrangements. According to the Italian statistical office (Istat), in Italy, the share of employees working on a part-time basis was around 15% in 2010. Due to its reduced working time, part-time work is commonly regarded as a work-life balance instrument, and for many part-timers this is indeed the case. However, much less is known about its dual nature: many part-time workers (Istat reports that they were as many as 49% in Italy in 2010) declare to be employed part-time against their will, that is, they would prefer to work full-time but they could not find any full-time job. For this reason, involuntary part-time employees enter the count of underemployed people. Hence, while voluntary part-time work should be encouraged by policy makers as it helps to better conciliate work with family, involuntary part-time work represents a social scourge that they should try to eradicate.

Several studies suggest that female leaders differ from their male counterparts in terms of attitudes and values. Female leaders, including corporate leaders, display a significantly higher personalized consideration for their subordinates and tend to be more attentive to their individual needs (Eagly et al., 2003). Female corporate leaders are also found to be more self-transcendent compared to their male counterparts, valuing more principles such as benevolence and universalism (Adams and Funk, 2012). While women remain heavily underrepresented in business leadership positions (according to Istat, only about 22% of top and middle managers were females in 2008 in Italy), the number of female business leaders is rapidly growing in recent years, also in response to active policies that aim at increasing female participation in key positions.

Thus, if women business leaders are indeed more other-oriented and compassionate than their male counterparts, they may play a crucial role in meeting employees' needs regarding, among the other things, working time arrangements. They may grant more part-time positions to employees asking for them (i.e., increase the work-life balance of workers) and provide more full-time jobs to employees aspiring to them (i.e., limit the phenomenon of involuntary part-time work). The aim of the paper is to assess whether this actually happens, and to what extent.

While the literature investigating the economic outcomes of female leadership has massively grown in the last years, to the best of our knowledge, no paper specifically analyzes the effect of female business leaders on a firm's use of part-time work.

It is important to stress the relevance of a single-country study focusing on Italy to other industrialized western countries. Italy, in fact, represents an interesting case study for two main reasons.

First, there, involuntary part-time work is extremely widespread, making it possible to better assess how female managers behave in relation to this phenomenon, which, though to a lesser extent, is present in the great majority of other western countries. Second, as discussed in the 2010 OECD Employment Outlook (OECD, 2010), Italy has a particularly mild legislation concerning the rights of workers to switch their work contracts from full-time to part-time compared to the majority of other western countries, where the regulation is by far more rigid. In fact, in Italy, the employer is allowed to refuse the worker's request for a part-time contract on any grounds (regardless of whether he/she is a parent of young children or has proven needs to care for elderly parents), except for the very particular case of workers suffering from an oncological pathology. Hence, due to the absence of legal constraints, Italy represents a valuable case study to assess whether female managers really make the difference in meeting employees' requests for part-time contracts.

To perform the empirical analysis, we use three waves of the Employer and Employee Survey (RIL), conducted in 2005, 2007, and 2010 by the Institute for the Development of Workers' Vocational Training (ISFOL). The RIL data set collects a representative sample of Italian non-agricultural private firms and contains uniquely rich information concerning the representation of females in managerial positions, the adoption of part-time work, and an extensive set of firm-level controls.

We begin our analysis with a preliminary investigation of the impact of female business leaders on part-time work by estimating OLS regressions with large sets of controls for potentially confounding observable factors. Unobserved fixed firm heterogeneity is then removed through fixed effects (FE) estimation. In all the specifications, the use of part-time work by the firm is measured as the share of part-time employees over the total number of employees. Correspondingly, the presence of female leaders in the firm is measured as the share of female managers over the total number of managers. Throughout the analysis, 'managers' refers to both top and middle managers. We also carry out robustness analyses that distinguish between the impact of top and middle female managers and the impact on female and male part-time workers.

Our primary finding, robust to controls for a large set of time-varying firm-level characteristics and unobserved fixed firm heterogeneity, is that female managers significantly limit the use of part-time work. However, only looking at this overall result can be misleading, since it may hide opposite behaviors of female managers towards involuntary part-timers, on the one hand, and employees asking for part-time contracts, on the other hand.

Since we do not have any direct information on the number of involuntary part-timers and employees asking for part-time contracts *at the firm level*, we have to resort to some indirect method to

pinpoint them. Our strategy relies on the assumption that firms that mainly need part-time work employ most of the involuntary part-time workers (together with the voluntary ones), while firms that mainly do not need part-time work can nonetheless use it to the extent that their workers ask for a switch from a full-time to a part-time contract. To identify these two categories of firms (and, consequently, involuntary part-timers and employees asking for part-time contracts), we exploit information on the firms' intensity of use of part-time work: firms using high amounts of part-time work tend to use it mainly because they need it, while firms employing a few part-time workers tend to use part-time work mainly to accommodate (sporadic) workers' requests for it.

Results, based on FE estimations, are coherent with the idea that female business leaders are more responsive to their employees' needs compared to their male counterparts.

Firstly, we find that in firms using high amounts of part-time work, the coefficient associated with female managers is negative, large in magnitude, and strongly significant. This result suggests that female managers may limit the employment of involuntary part-timers, correspondingly providing more full-time employment. To ascertain that they indeed limit the involuntary, and not the voluntary, part-time work (recall that in firms strategically using part-time work they coexist), we use data on the involuntary part-time and unemployment rates provided by Istat at a fine aggregation level. We show that only female managers operating in local contexts of high involuntary part-time work or high unemployment are associated with significant decreases in the use of part-time work. Conversely, female managers operating in local contexts characterized by low incidences of involuntary part-time work or unemployment, where the degree of involuntary part-time work in the firm is likely to be small, do not display any significant association with the use of part-time work, thus indicating that they indeed limit the involuntary component of part-time work.

Secondly, we find that in firms using low amounts of part-time work, the coefficient associated with female managers is positive and significant, in line with the idea that they are more prone to accommodate workers' requests for part-time arrangements compared to male managers. We resort to unique information concerning workers' requests for part-time work provided by the ISFOL PLUS, a large representative survey of about 40,000 Italian women and men, and we provide further evidence that corroborates this interpretation. We show that the positive coefficient associated with female managers is larger and significant only for firms that operate in contexts where switches from full-time to part-time contracts are more often denied to the workers and where workers' requests for part-time contracts are more frequent, suggesting that female managers may make the difference when there is more need to.

We also present additional evidence based on a different strategy to identify the separate effect of

female managers on involuntary part-timers and employees asking for part-time arrangements. This alternative strategy relies on available information on the main reason (declared by the firm) for the adoption of part-time work. Broadly speaking, we can distinguish between the set of firms who state that they mostly use part-time work to satisfy their own needs, and the set of firms claiming to offer part-time positions to satisfy their workers' requests. While we highlight a number of weaknesses of this strategy, the findings that we obtain are broadly in line with those discussed earlier, particularly for what concerns the result that female managers limit the employment of involuntary part-time workers.

In sum, consistently with the literature suggesting that female business leaders tend to be more prone to respond to the needs of their subordinates and more self-transcendent than their male counterparts, our findings suggest that female managers meet their employees' needs in terms of working time arrangements more than male managers. Beyond natural equity concerns, actively undertaking policies to increase the participation of women in business leadership positions can thus represent a welfare-enhancing tool from the workers' perspective.

## 2 Literature review

In response to a recent increase in the female participation in business leadership positions, a growing body of literature investigates if and how women business leaders affect firm outcomes.

While the bulk of the literature focuses on the impact of female business leaders on performance and wage policies<sup>2</sup>, only a few papers investigate how they affect employment policies: Gagliarducci and Paserman (2015), Matsa and Miller (2013), and Matsa and Miller (2014). Among them, Gagliarducci and Paserman (2015) are the only ones that address, partially, the impact of female business leaders on part-time employment, while Matsa and Miller (2013) and Matsa and Miller (2014) focus on their downsizing decisions.

Gagliarducci and Paserman (2015) use a matched employer-employee panel data set for Germany for the period 1993-2012 to explore the impact of female business leaders (defined as top managers and working proprietors) on several performance, wage, and employment outcomes, including the use of part-time work. For what concerns part-time work, they report a simple OLS regression showing that female business leaders are associated with a significantly higher number of female

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<sup>2</sup> For studies on firm performance: see, for instance, Deznö and Ross (2012) and Smith et al. (2006), for a positive impact; Adams and Ferreira (2009), Ahern and Dittmar (2012), and Parrotta and Smith (2013), for a negative impact; Rose (2007), for a null effect; and Amore et al. (2014) and Flabbi et al. (2016), for mixed effects. For studies on wage policies, examining the impact of female business leaders on gender wage gap, see Bertrand et al. (2014), reporting no effect, and Cardoso and Winter-Ebmer (2010) and Tate and Yang (2015), documenting positive effects (i.e., reduction of gender pay gap).

part-timers and a significantly lower number of male part-timers. However, once unobserved fixed firm heterogeneity is taken into account, both relations vanish, leading them to conclude that the effect is null. Importantly, as they do not distinguish between involuntary part-timers<sup>3</sup> and workers asking for a part-time contract, it is possible that their result is a hybrid capturing opposite behaviors of female business leaders towards these two types of workers.<sup>4</sup>

Hence, to the best of our knowledge, the present study represents a first ‘systematic’ attempt to examine the impact of female business leaders on a firm’s use of part-time work, distinguishing, as far as possible, between involuntary part-timers and employees asking for part-time contracts.

In their seminal paper, Bertrand and Shoar (2003) show that corporate leaders seem to have their own management ‘style’. They construct a manager-firm matched panel data set, and find that a significant proportion of heterogeneity in investment, financial, and organizational practices undertaken by the firm is explained by the manager fixed effects, that is, depends on the specific executive in charge. While Bertrand and Shoar (2003) warn against any causal interpretation of their estimates, their findings, robust to controls for an extensive set of time-varying firm-level characteristics and unobserved fixed firm heterogeneity, highlight the importance of a managerial dimension in the observed unexplained heterogeneity in many corporate practices. To the extent that female business leaders are different from their male counterparts, this opens up the question of how they might influence corporate strategies and outcomes, including decisions on the use of part-time work.

Indeed, there is a vast literature showing that female business leaders are different from their male colleagues in terms of attitudes and values. The human resource management and psychological literature highlights that female leaders, including corporate leaders, often adopt a distinctive transformational leadership style (Bass and Avolio, 2006; Eagly et al., 2003; Rosener, 1990). Transformational leaders motivate their subordinates to higher levels of performance in several ways. For example, they align subordinates around a common purpose and vision, they work in a strict relationship with them to stimulate proactive solutions to problems and optimistic behavior, and act as role models. Most importantly, transformational leaders take into great consideration the needs of their subordinates and the development of good interpersonal relationships with them (Bass and Avolio, 2006). Relatedly, the meta-analysis conducted by Eagly et al. (2003) on 45 studies on leadership styles finds that female leaders display a significantly higher personalized consideration for their subordinates

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<sup>3</sup> According to the OECD, the incidence of involuntary part-time work in Germany is not negligible. In the period considered by the study (1993-2012), it reached a peak of 19.2% in 2008 and always stayed above 11% after 2000.

<sup>4</sup> Moreover, the use of part-time work enters their empirical specification through (the natural logarithm of) the *absolute* number of female and male part-timers. Even if size dummies are included in their specifications, it is possible that the above findings capture, at least partly, a size effect.

compared to their male counterparts, for example, in terms of higher attention to their development, mentoring, and individual needs. In addition to such differences in attitudes, male and female business leaders also differ in terms of values. Using data on directors, CEOs, and vice CEOs of all publicly traded firms in Sweden in 2005, Adams and Funk (2012) find that female business leaders systematically differ from their male counterparts in core values, even when firm fixed effects are included. They find that women business leaders value more self-transcendence (benevolence and universalism) and correspondingly less self-enhancement (power and achievement) compared to their male counterparts, with substantial and strongly statistically significant differences. This finding strengthens the idea the female business leaders may, in fact, be more inclined than their male colleagues to meet their employees' needs.<sup>5</sup>

The two studies by David Matsa and Amalia Miller shed light on this point. In their first paper (Matsa and Miller, 2013), they use a quasi-natural experiment provided by a law which imposed gender quotas on Norwegian boardrooms of publicly limited liability companies, and find that firms affected by the law were less likely to undertake workforce downsizing compared to the other (non-affected) firms. In their second paper (Matsa and Miller, 2014), the authors use a panel data set covering privately-owned US firms during the Great Recession (2006-2009), and find that female-owned firms were less likely to downsize their workforce during periods of crisis compared to firms owned by males. They also find that workers employed in female-owned firms operated with greater labor intensity shortly after the Great Recession and that female-owned firms were less likely to hire workers on a temporary basis, suggesting that female business leaders were pursuing labor hoarding practices. Relatedly, several studies report positive associations between the presence of women in corporate boards and corporate social responsibility (CSR), which includes promoting positive impacts also on stakeholders different from shareholders, such as employees, consumers, and communities, and on the environment (see, for instance, Ben-Amar et al., 2017; Boulouta, 2013; Setó-Pamies, 2015; Harjoto et al., 2015). These findings suggest that the diversity in attitudes and values between female and male corporate leaders, with women being more sensitive to the needs of their subordinates and more self-transcendent, actually comes out in their employment policies and CSR practices.<sup>6</sup>

Our paper integrates this small but promising literature on the employment effects of female

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<sup>5</sup> The literature on gender differences in attitudes and values is not limited to (business) leaders. As discussed by Eagly (2016), many papers document that 'ordinary' females and males are different in a variety of contexts, ranging from everyday life to politics. For instance, women tend to have more compassionate, other-oriented, and egalitarian attitudes, and to display greater favor toward policies supporting the poor, families, minorities, education, health care, and environment and opposing military spending (we refer the reader to Eagly, 2016, for a detailed review of these works).

<sup>6</sup> Interestingly, as discussed in Eagly (2016), also studies on women in politics tend to suggest that women's attitudes and values guide their behavior. Female legislators, in fact, are found to be more likely to advocate for socially compassionate policies, including policies that promote gender equality, the interests of the poor, minorities, children, and families and policies concerned with public health care and education.

business leadership concentrating on part-time work, which is complex in its nature and now represents a pervasive feature of work arrangements.

### 3 Empirical model and identification

To assess the impact of female managers on the use of part-time work, we consider a simple regression model of the following form:

$$PTS_{it} = \alpha + \beta FMS_{it} + \gamma V_{it} + \delta D_{it} + \eta_i + u_{it} \quad (1)$$

where:  $PTS_{it}$  is the share of part-timers over the total number of employees in firm  $i$  at time  $t$ ;  $FMS_{it}$  is the share of female managers over the total number of managers;  $V_{it}$  is a vector of time-varying firm-level controls including, depending on the specifications, the shares of female, blue-collar, white-collar, non-EU, and temporary workers;  $D_{it}$  is a set of dummy variables controlling for different trends across year, industry, year interacted by industry, size, and macro-area;  $\eta_i$  is a firm-specific fixed effect; and  $u_{it}$  is the error term.

Identifying the effect of interest crucially depends on the ability to take into account potentially confounding factors, whether they are observable or unobservable.

In relation to the observable controls, we consider the sector of economic activity and the share of female workers in the firm as essential variables to add to Equation (1). On the one hand, as we shall see later in the discussion, it is a fact that some industries, such as the services and trade industries, employ part-timers more intensively and, at the same time, have a greater representation of females in the top layers of the firm. To properly control for these industry differentials, we insert dummies for industry as classified by the 2-digit Ateco 2007 code (78 different sectors). Moreover, we control for different paths over time of the industry differentials adding dummies for the interaction between industry and year. On the other hand, even after purging industry effects, firms that are characterized by a greater proportion of female workers may experience an overrepresentation of females among part-timers (part-time jobs are for the most part accounted for by women) and managers.

As for the unobserved confounding factors, we regard the firm culture - broadly defined - to be a major threat in the identification of the effect. For instance, it may be that firms that are naturally open and sensitive to their employees' needs are also more prone to grant part-time work to employees asking for it, even when part-time work does not fit the firm's needs. At the same time, such open-minded firms may also have a substantial fraction of women among their top and middle management. Or, for instance, firms that are less sensitive to social issues, such as their workers' welfare, may increment the

employment of involuntary part-timers, when part-time work is part of an explicit corporate strategy. At the same time, female managers may be overrepresented into such type of firms, for instance, because they are generally involved in activities that ‘require’ female managers, such as retail and personal care services.<sup>7</sup> In both circumstances, higher fractions of female managers would be found in association with higher levels of part-time work. Hence, not taking into account the firm culture would result in a (upwardly) biased estimate of the effect.

Assuming that the firm culture is roughly stable over our 6-year panel window (i.e., that it is captured into  $\eta_i$ ), it is possible to remove this potential source of endogeneity through simple fixed effects estimation. In practice, it consists of running an OLS regression on the within-group transformation of Equation (1):

$$\widetilde{PTS}_{it} = \beta \widetilde{FMS}_{it} + \gamma \widetilde{V}_{it} + \delta \widetilde{D}_{it} + \widetilde{u}_{it} \quad (2)$$

where the tilde operator indicates the within-group transformation:  $\widetilde{x}_{it} = x_{it} - \frac{1}{T} \sum_{t=1}^T x_{it}$ .<sup>8</sup>

It is important to highlight that our empirical framework, though it controls for a wide set of time-varying firm-level characteristics and unobserved fixed firm heterogeneity, does not necessarily lend itself to a causal interpretation of the estimated effects. In fact, we cannot exclude that other sources of endogeneity occur, such as changes in the firm culture (e.g., changes in the CSR policies) that may contemporaneously affect the female representation in the management and the use of part-time work. However, considering the relatively short time dimension of our panel, we argue that the FE estimation represents a reliable, though not perfect, solution to the potential problems related to unobserved heterogeneity, able to deliver a more robust estimate of the impact compared to simple OLS estimation.

#### 4 The Italian case

According to Istat, about 15% of Italian employees worked part-time in 2010 and the general tendency is toward an increase in the use of part-time arrangements.

Many studies stress that part-time work can act as an instrument of work-life balance, allowing people to conciliate work better with their private life needs, such as childcare or elderly care, and for many part-timers this is indeed the case (let us call them ‘voluntary part-timers’). Coherently with the

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<sup>7</sup> Data confirm that female managers are overrepresented in firms declaring to use part-time work mainly as part of a corporate strategy. This finding remains valid after taking into account the sector of economic activity. Note that this argument represents a threat in the identification of the effect to the extent that industry dummies cannot capture such segregation of female managers or that other, possibly unobserved, factors determine it.

<sup>8</sup> To make the interpretation easier, we talk about ‘firm culture’. However, FE estimation deals with the totality of the unobserved fixed firm heterogeneity, including other potentially relevant characteristics, such as whether the firm is a family firm or is part of a large holding company. Note also that the FE estimation does not include the dummies for industry and macro-area, since they are time invariant and already accounted for by the within-group transformation.

fact that part-time work can be a work-life balance instrument *for the workers*, many firms (according to the 2010 RIL survey, they are about 60% of those using part-time arrangements) declare that they use part-time work mainly to accommodate workers' requests for reduced working time. At the same time, according to Istat, in 2010, as many as 49% of Italian part-timers declared themselves to be involuntarily employed on a part-time basis, since they would have preferred a full-time job but were unable to find any. These statistics shed light on the twofold and complex nature of part-time work.

While voluntary part-time work should be encouraged by the policy makers as it enhances work-life balance of workers, the involuntary part-time work represents a severe problem of underemployment that they should try to address. Assessing whether female business leaders can give their contribution in these directions is of crucial importance for helping policy makers to reach such goals, especially now that the representation of female business leaders, though still modest, is growing faster year by year.

According to Istat, female managers were only 21.9% of managers in the Italian private sector in 2008. In addition, such percentage hides a significant difference between the representation of females in the top *versus* middle management. In fact, the share of female middle managers was 24.9%, whereas, the same share among top managers was only 12.2%. However, also in response to the exhortations by the European Union to undertake concrete policies in favor of women<sup>9</sup>, the female representation among managers is rapidly growing: in 2012, the share of female top managers increased to 14.5%, while the share of female middle managers reached 28.1%. Istat also reports that the percentage of female managers varies significantly across sectors. The services industry (in particular, the industries of the private instruction and the private health care) features the highest incidence of female managers, that, in extreme cases, reaches 50%.

## 5 Data

To investigate the impact of female managers on the use of part-time work, we use the three available waves of the firm-level RIL survey, conducted in 2005, 2007, and 2010. Each wave of the survey interviews a representative sample of over 23,000 non-agricultural private-sector Italian firms. The RIL survey has a randomly selected sub-sample of firms (around 30% of the original sample in each wave) that is followed over time. Albeit smaller, this panel component allows us to conduct fixed effects

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<sup>9</sup> A notable example, though beyond the time-scope of this paper, is represented by a law, entered into force at the beginning of 2012, that introduced gender quotas in the boardrooms of listed Italian firms.

estimation, and hence it is the main sample used in our econometric analysis. The data are uniquely rich concerning the composition of the workforce, including the numbers of part-time workers and top and middle managers, both males and females. Moreover, the RIL data provide information on the main motivation declared by the firm for which it adopts part-time work. Finally, the data include an extensive set of firm-level controls (e.g., the industry classification and the place where the firm is located).

Since we are interested in the effect of female *managers* on the use of part-time work, it is reasonable to consider firms with a minimal organizational structure. For this reason, we restrict the attention to firm-year observations with at least 10 employees and employing at least one manager. Moreover, we carry out an essential cleaning, aimed at removing observations with missing values in the variables used in the estimation.

The final data set is composed of 12,298 firm-year observations for 9,117 firms.

Table 1 presents the distribution of firms by the number of times that we observe them. Due to the partially-panel nature of the RIL data set, 72.7% of the firms are observed only once. About 20% of the firms are observed over 2 periods, while 7.6% of them are observed over 3 periods.<sup>10</sup>

Table 2 reports relevant summary statistics of the RIL data set, including correlations between the main variables used in our regressions. The service and the manufacturing sectors are the largest, accounting for 41.5% and 39.6% of the firms, respectively. The trade and the construction industries represent 8.7% and 8.5% of the firms, respectively, while a tiny fraction of them (1.7%) belong to the mining industry. More than a half of companies (55.4%) are small- or medium-sized, employing between 10 and 49 workers, while 31.7% and 13% of them are large or very large in size, employing between 50 and 249 workers or more than 250 workers, respectively. In the average firm, 8.2% of employees work on a part-time basis; 6.5% of them are female part-timers, while only 1.7% are male part-timers, consistently with the fact that most of the part-time jobs are held by women.<sup>11</sup> On average, female middle managers are 2.6% of employees, while female top managers are 1.3% of employees. In particular, in accordance with the statistics provided by Istat, in the average firm, only 19.3% of top managers are females, while the share of females among middle managers is 31.4%.

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<sup>10</sup> From now on, when referring to 'firm', we actually mean 'firm-year observation'. If needed, we will make the distinction clear.

<sup>11</sup> In the RIL survey, part-time work is defined on the basis of whether the worker holds a part-time or a full-time employment contract. In Italy, any employment contract must be either full-time or part-time. According to the Italian labor legislation, a part-time employment contract is an employment contract which involves a reduction of the working time with respect to the 'usual' working time (i.e., full-time working time) set by the law or by sectoral collective agreements, which is generally 40 hours per week. Hence, the RIL survey does not define part-time workers according to the number of hours worked (e.g., less than 35 hours, less than 30 hours, and so on). The respondents understand that they should give the number of workers with a part-time employment contract in the firm, given that the employment contract must be either full-time or part-time. There is a certain degree of heterogeneity in the number of hours worked by employees holding a part-time contract, which we cannot test with our data. What is certain is that workers with a part-time contract must work by contract less time than a (comparable) full-time worker. In practice, according to Istat, most of the part-time employees work around 20 hours per week (they do what is called 'part-time 50', that is, they work half of the full-time working time). There is another, smaller peak at 30 hours per week (they do what is referred to as 'part-time 75', that is, they work 3/4 of the full-time working time).

The first panel of Table 3 shows that part-time work is used by the great majority of firms: 71.2% of the firms employ at least one of their workers on a part-time basis. Consistently with expectations, the use of part-time work varies significantly across industries (second panel of Table 3). For instance, in manufacturing firms, on average, 5.3% of the workers are part-timers, compared to 9.6% and 11.6% in the trade and services industries, respectively.

The third panel of Table 3 shows average shares of part-time work in the samples of firms using low and high amounts of part-time arrangements, respectively (see Subsection 6.2). To identify the two groups of firms, we first compute benchmarks (i.e., median values of part-time work use) for firms sharing the same industry (5 categories), size (4 categories), region, and year. This allows us to better capture idiosyncrasies in the firms' use of part-time work (and, ultimately, in the main reason of its use), that are purged from mere sectoral, regional, or size-related trends. Then, we compare the firms' shares of part-time work with benchmarks of their reference groups, defining firms as using high (low) amounts of part-time work if their shares of part-time work are above (below) the median of the reference group. This procedure results in the identification of two clearly distinct groups of firms. Firms using low amounts of part-time work, on average, employ only a small fraction (4.3%) of their employees on a part-time basis, while firms using high amounts of part-time work, on average, employ part-time almost one fifth (17.9%) of their workforce.

The lowest panel of Table 3 summarizes the answers given by firms employing at least one part-timer regarding the reason for their use of part-time work. Note that the respondents are requested to select only one of the proposed alternatives and, since they are not mutually exclusive, the procedure amounts to indicating the 'main' motivation. The available options include: (i) it is suitable for the production process; (ii) for facing programmed seasonality; (iii) it increases labor productivity; (iv) for accommodating workers' requests for part-time work; (v) it is not affordable to employ workers full-time; (vi) other reasons. We then group the firms on the basis of whether they declare that part-time work is mainly part of a deliberate corporate strategy (firms indicating items (i), (ii), (iii), or (v)) or it is mainly used to accommodate workers' needs (firms selecting item (iv)). Firms selecting item (vi) (i.e., the 'other reasons' item) constitute a third group. The vast majority of the firms using part-time work (67.1%) declare that they use it mainly to accommodate workers' requests for part-time work (this happens in all the macro-industries, that is, mining, manufacturing, construction, trade, and services). The remaining proportion is split between firms declaring to mainly use it strategically (31.2%) and those choosing the 'other reasons' item (1.6%). In the group of firms declaring that they mainly use part-time work strategically, the most selected alternative is item (i) 'it is suitable for the production process'

(20.3%). Only a few firms select item (v) ‘it is not affordable to employ workers full-time’ (4.8%), item (iii) ‘it increases labor productivity’ (4.1%), and item (ii) ‘for facing programmed seasonality’ (2.1%).<sup>12</sup>

Table 4 shows that more than half (55.6%) of firms employ at least one female manager. For 40.8% of the firms, at least 25% of their management is composed of women, while, for 27% of the firms, women represent at least a half of the management. In accordance with the official statistics, we observe considerable industry differentials in the female representation among managers. The values range from 34.3% of female managers over the total number of managers in firms operating in the service sector, to 24% in those belonging to the manufacturing sector.

Assessing whether and how female managers affect the use of part-time work by firms constitutes the object of the following econometric analysis. A first section explores the overall impact of female managers on the use of part-time work, while a second section aims to investigate how female managers behave towards involuntary part-timers, on the one hand, and employees asking for part-time contracts, on the other hand.

## 6 Results and discussion

### 6.1 Overall impact of female managers on the use of part-time work

Table 5 reports the OLS and FE estimates of the overall impact of female managers on the use of part-time work, as modeled in Equation (1).

The first column of the table reports the OLS estimates of a parsimonious version of Equation (1) that only adds a control for the share of female workers in the firm and dummies for industry, year, size, and macro-area<sup>13</sup>. The coefficient associated with female managers is negative, equal to -0.019, and strongly significant.<sup>14</sup> According to this estimate, a 1 standard deviation increase in the share of female managers over the total number of managers (0.363) decreases, on average, the share of part-time workers by 0.7 percentage points (i.e.,  $(-0.019 * 0.363) * 100$ ). Equivalently, if the average firm switches from no females in its management positions to only women filling them (i.e., the share of female managers over the total number of managers jumps from 0% to 100%), the share of part-time

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<sup>12</sup> The correlation between the two classifications of firms using part-time work mainly to satisfy their needs *versus* mainly to accommodate workers’ requests (i.e., based on intensity of use of part-time work and reasons of use part-time work) is positive and equal to 0.105.

<sup>13</sup> Macro-area roughly follows the NUTS-1 classification of Italy. In particular, it classifies four geographical areas: North-West, North-East, Central area, and South (including Sicily and Sardinia).

<sup>14</sup> The raw correlation between the share of female managers over the total number of managers and the share of part-time work is, instead, positive (equal to 0.034) and strongly significant. This reflects the fact that firms operating in certain sectors, or anyway employing a greater proportion of female workers, generally employ a higher fraction of part-timers and, at the same time, a higher proportion of female managers.

workers is predicted to decrease by 1.9 percentage points, moving from an average share of 8.2% to a new share of 6.3%.<sup>15</sup>

The second column of the table reports OLS estimates of a richer specification, which includes as controls the shares of blue- and white-collar workers (the reference group is the share of managers) and non-EU and temporary workers, which may correlate with both the use of part-time work and the female representation in the management of the firm. The coefficient associated with female managers is virtually unchanged (-0.021) and remains strongly significant.

The third and fourth columns of Table 5 report FE estimates of the previous two specifications. As already discussed, unobserved firm heterogeneity, including, for instance, the firm's culture and values, can represent a threat in the identification of the impact of interest. In the absence of a natural experiment that imposes a truly exogenous variation in the representation of female managers at the firm level, we cannot make claims of causality in any definite manner. However, we are confident that removing unobserved fixed firm heterogeneity helps to find a more robust estimate of the impact, especially given the relatively short panel window of the RIL data. Since only a subset of the firms included in RIL can be followed longitudinally, the FE estimation is performed on a smaller panel sample including 5,666 firm-year observations. Both the FE estimations predict that the impact of female managers on the use of part-time work is negative, equal to -0.022, according to the specification with the minimal set of controls, or -0.021, according to the richer specification, and significantly different from zero at (least at) the 5% level. Comparing the FE estimates in Column 4 with the OLS estimates resulting from the restricted panel sample (Column 5), it emerges that the coefficient is substantially stable (-0.021 *versus* -0.024), suggesting that issues related to (fixed) firm heterogeneity are not dramatically important. However, to be safer, from now on we will only rely on and present the more robust FE estimates, using the specification with the richer set of controls.

Columns 6, 7, and 8 report two robustness analyses that distinguish between the impact of top and middle female managers and the impact on female and male part-time work. As reported in Column 6, both top and middle female managers have a negative impact on part-time work, which is similar in magnitude. However, the effect of middle female managers is less precise (significant only at the 10% level). This indicates that the decision on issues concerning part-time work mostly stems from the top management, but the role of middle managers is still not negligible. In fact, especially in the recent years, the distinction between top and middle managers in Italy has become somewhat blurred, since middle

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<sup>15</sup> Large jumps in the share of female managers over the total number of managers are rather frequent in the sample, as reflected by the relatively large standard deviation, because, in general, firms have a few managers. Sometimes, it also happens that the share jumps from 0% to 100%.

managers have experienced a considerable increase in their field of action and responsibilities.

Columns 7 and 8, instead, show that the observed overall impact stems from the impact on female part-timers rather than male part-timers, on which the effect is not significant. This is in line with the fact that part-time jobs are mostly accounted for by women and that female managers may be generally more impacting on outcomes of other females rather than males, as a growing body of the literature tends to show.<sup>16</sup>

Finally, note that it is possible that there is a certain lag in the impact, consistently with the fact that it takes time for the manager to adjust the workforce according to her preferences, for instance, because it takes time for the new manager to enter and understand the firms' dynamics and change established practices in the management of human resources. Our limited number of panel observations, unfortunately, does not allow us to fully explore underlying dynamics. However, the fact that the three waves of the survey are two or three years apart from each other allows us to capture a relatively more medium-run effect.

In sum, up to now, we have found that the overall impact of female managers on the use of part-time work is negative and significant, and it does not change after controlling for a large set of time-varying firm-level characteristics and unobserved fixed firm heterogeneity. However, in view of the dual nature of part-time work, this result might not be very informative and may, in fact, hide contrasting behaviors of female managers toward involuntary part-timers and employees that ask for part-time positions. This is what we seek to explore in the following subsection.

## **6.2 Impact of female managers on the use of involuntary part-time work and on the accommodation of workers' requests for part-time work**

Since we do not have any direct information on the number of involuntary part-timers and employees asking for a part-time contract within each firm, we have to resort to some indirect method to pinpoint these two groups of workers.

Our method hinges on a practical and simple reasoning. Let us first consider the perspective of workers. A part-time worker can either be voluntary or involuntary. Voluntary part-timers are those who want to work part-time (e.g., because they want to better combine work with private life); involuntary part-timers are those who would like to work full-time, but are unable to find any full-time job. Let us now consider the perspective of the employers. A firm can either need part-time work (e.g., because it

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<sup>16</sup> See, for example, Bell (2005), Cardoso and Winter-Ebmer (2010), Flabbi et al. (2016), Kunze and Miller (2014), Kurtulus and Tomaskovic-Devey (2012), Matsa and Miller (2011), and Tate and Yang (2015), for effects of female business leaders on the gender-wage gap and glass-ceiling among lower-level managerial employees and other non-managerial employees.

best suits its production process) or not need it. Now, firms that need part-time work post part-time jobs. Workers that apply for these part-time jobs are either people that want to work part-time (i.e., voluntary part-timers) or people that would like to work full-time, but, in absence of available full-time positions, apply for these jobs (i.e., involuntary part-time workers). Hence, firms that need part-time work should employ both voluntary part-timers (i.e., there is a perfect match between demand and supply) and involuntary part-timers. Conversely, firms that do not need part-time work do not post any part-time job. However, they can decide to accommodate some of their full-time employees' requests to switch to part-time (e.g., because of arising needs of childcare or elderly care). Hence, firms that do not need part-time work should only employ voluntary part-time workers. Now, this reasoning is valid if firms *either* need *or* not need part-time work. However, in practice, the situation is more blurred than this simple dichotomous distinction. In fact, firms may need part-time work to perform certain types of jobs and, at the same time, not need part-time work, but nonetheless decide to accommodate (sporadic) workers' requests for it, to perform other types of jobs. Hence, a more realistic picture is that firms that *mainly* need part-time work employ *most of* the involuntary part-time workers (together with the voluntary ones), while firms that *mainly* do not need part-time work can nonetheless use it to the extent that their workers ask for a switch from a full-time to a part-time contract.

There are at least two strategies to identify these two categories of firms (i.e., firms that need part-time work and firms that do not need part-time work) and, hence, to pinpoint the effects of female managers on the involuntary part-timers and on workers that request part-time arrangements. A first possibility, that we exploit, is to look at the intensity of a firm's use of part-time work. In fact, it is sensible to believe that a firm that uses a high amount of part-time work tends to use it mainly because it needs part-time work, let us say, as a corporate strategy. Conversely, it is sensible to believe that a firm that uses a low amount of part-time work tends to use it mainly to accommodate (sporadic) workers' requests for part-time arrangements.

Table 6 presents the results for the group of firms using high amounts of part-time work (defined by using the procedure described in Section 5). According to our preferred FE estimates, the impact of female managers in these firms is negative, rather large in magnitude (-0.062), and strongly significant. If the share of female managers over the total number of managers changes from 0% to 100%, the share of part-time work is predicted to decrease by 6.2 percentage points on average, thus moving from an average share of 17.9% to a new one of 11.7%. This is a first indication that female managers may limit the employment of involuntary part-timers, correspondingly increasing the fraction of full-time employment.

Though studies suggesting that female business leaders are generally more other-oriented and compassionate than their male counterparts give solid grounds to believe that female managers reduce the *involuntary* fraction of part-time employment, we are aware that it is not impossible, though less likely, that they *only* reduce the voluntary fraction, or both the involuntary *and* the voluntary fractions (recall that both fractions coexist in firms which use part-time work strategically, as these firms post part-time jobs and people who want to work part-time can apply for them). Unfortunately, we have no possibility to give direct evidence on this. However, resorting to the information provided by Istat on the involuntary part-time rate and the unemployment rate at a fine aggregation level, we provide evidence that the interpretation that female managers limit the employment of involuntary part-time work may indeed be correct. In practice, we split the group of firms using high amounts of part-time work into two sub-groups defined, respectively, by those firms that operate in contexts of high and low involuntary part-time rate or unemployment rate. Contexts of high (low) involuntary part-time rate or unemployment rate are defined as those above (below) the median values in each year. We then perform separate regressions on the two subgroups.

If female managers really reduce the employment of involuntary part-timers, we expect that their effect is stronger in firms operating in contexts of high involuntary part-time work compared to firms in which the degree of involuntary part-time employment is likely to be smaller. Istat provides involuntary part-time rates yearly at the macro-area and macro-industry level (identifying 16 different cells in each year). The second and third columns of Table 6 report results on this. Female managers operating in contexts of high involuntary part-time work are associated with a negative, very large in magnitude (-0.093), and strongly significant impact. Conversely, female managers operating in contexts of low involuntary part-time work display a small and largely not significant impact on part-time work, thus supporting the interpretation that female managers limit the employment of involuntary, and not voluntary, part-timers, correspondingly increasing the fraction of full-time employment.

The fourth and fifth columns of Table 6 give further evidence of this, exploiting the information on the unemployment rate yearly provided by Istat at the province level (identifying 100 different cells in each year). The unemployment rate is strictly related to the degree of involuntary part-time work. When there is high unemployment, the bargaining power of firms increases to the detriment of workers and part-time work may represent the only alternative to unemployment. Hence, in cases of high unemployment, involuntary part-time work is most likely to be high. The results again support the interpretation that female managers limit the employment of involuntary part-time work. Female managers working in conditions of high unemployment are estimated to have a negative, very large in

magnitude (-0.138), and strongly significant impact on part-time work. Conversely, female managers working in contexts of low unemployment are estimated to have a small and largely not significant impact on it.

We now move to assess whether female managers also grant more part-time work to employees' asking for it. To do so, we focus on the group of firms using low amounts of part-time work. The results are reported in Table 7.

According to our estimates, the impact of female managers in these firms is positive, equal to 0.008, and significant. If the share of female managers over the total number of managers changes from 0% to 100%, the share of part-time work is predicted to increase by 0.8 percentage points on average, thus varying from an average share of 4.3% to a new share of 5.1%. This result gives a first indication that female managers may also be more prone to grant switches from full-time to part-time arrangements to employees asking for them.

To give further evidence of this, we resort to unique information concerning workers' requests for part-time work provided by the ISFOL PLUS, a large survey conducted by ISFOL on a representative sample of about 40,000 Italian women and men. In particular, we use available information on whether the worker has ever been denied (in the current job) to switch his/her full-time contract into a part-time one and on whether the worker intends (in the current job) to ask for a transformation of his/her full-time contract into a part-time one. We then aggregate this (individual-level) information, which is provided in each year, at the macro-industry and macro-area level (identifying 16 different cells in each year), to get two proxies measuring important aspects relative to the workers' requests for part-time work. The first measure, let us call it 'denied part-time work', gives an indication of how much workers' requests for part-time work are typically met by the employers. The second measure, instead, gives an indication of how much workers actually ask for part-time contracts. If female managers really grant more part-time work to employees asking for it, we expect to see a stronger impact where workers' requests have generally been denied or, anyhow, have been relatively more frequent. We explore this by splitting the group of firms using low amounts of part-time work into two groups composed, respectively, by those firms that operate in contexts with high and low incidence of denied part-time work. We carry out a similar splitting for those firms operating in contexts with high and low workers' requests for part-time work. We then perform separate regressions on these various groups of firms. As usual, high and low incidences are defined to be above and below the median values in each year.

The second and third columns of Table 7 show that female managers that work in contexts where workers' requests for part-time work are more often refused by employers, have a positive, larger in

magnitude (0.011), and significant impact on part-time work. Conversely, female managers working in contexts where workers' requests for part-time work are more often accommodated by employers, display a lower positive, and not significant impact on part-time work. This result suggests that female managers are likely to make the difference, granting more part-time work to employees asking for it, where there is the need to. A similar picture emerges if we look at contexts where workers' requests for part-time work are generally more frequent. In this case, female managers have a positive, larger in magnitude (0.010), and significant impact on part-time work. Conversely, female managers working in contexts where workers' requests for part-time work are less frequent, display a smaller positive, and not significant impact on part-time work, again indicating that they are likely to make the difference when there is more need to.

### **6.3 Further evidence**

Though we have to acknowledge that the magnitude of these estimated coefficients (i.e., those related to the accommodation of employees' requests for part-time work) is, in general, small, it is important to consider two aspects when interpreting these results. First, the sample of firms using low amounts of part-time work displays, indeed, a small incidence of part-time work (recall that the share of part-time work for such firms is, on average, 4.3%), so that small coefficients can, in fact, represent not negligible impacts. Moreover, as mentioned before, large jumps in the share of female managers are rather frequent in the sample. Second, and most importantly, as suggested by the statistics recovered from the ISFOL PLUS survey, the workers' requests for transformations of their full-time contracts into part-time ones are, in general, not a massive number. For example, the share of workers that report having been denied a transformation of their contract from a full-time to a part-time position in the current job is in the range of 2%. Equivalently, the share of workers that report that they intend to ask for a transformation of their full-time contract into a part-time contract in their current job stands at around 3%. These numbers are small compared to the dramatic diffusion of involuntary part-time work, which, as we mentioned before, reached a peak of 49% in 2010. Consistently, the impact of female managers on employees requesting a part-time contract is also small compared to the impact on involuntary part-time work, but this does not mean that they do care less to their workers' requests for working part-time.

So far we have focused on the different intensity of part-time work use by firms as a practical, yet sensible, strategy to pinpoint the presence of involuntary part-timers and employees asking for part-time contracts, in the absence of direct firm-level information on these two groups of workers. Yet, a second strategy is available to elicit the differential impact of female managers on the groups of involuntary

part-time workers and employees asking for part-time arrangements. This second strategy, pursued in this section, is based on the reasons' variable described earlier.

In Table 8 we present results on this. We divide the sample of firms using part-time work on the basis of the declared main reason for its use, that is, mainly to satisfy the firm's needs or mainly to accommodate the workers' requests.

In firms declaring to mainly use part-time work strategically, female managers are associated with a strong and significant decrease in the use of part-time work (Column 1). This impact is very large in magnitude and strongly significant only when female managers operate in local contexts of high involuntary part-time work (Column 2), whereas, when they work in local contexts of low involuntary part-time work, the impact is small and largely not significant (Column 3).<sup>17</sup> Coherently with our baseline results, these findings provide additional evidence suggesting that female managers limit the employment of involuntary part-time work.

Regarding the accommodation of employees' requests for part-time work, results from the reasons' variable are more mixed. In firms declaring to use part-time work mainly to accommodate workers' requests, female managers are associated with a negative, yet largely not significant impact on part-time work (Column 4). In contrast with our baseline findings, this result would point to female managers accommodating employees' requests approximately as much as male managers.

A motivation for this might be found into two problematic aspects of the reasons' variable, that may hinder the analysis of the impacts of interest.<sup>18</sup> Firstly, as mentioned earlier, the respondents have to individuate the *main* motivation and what they consider 'main' is subjective. Secondly, the respondent can lie about the true motivation. In particular, some firms that use part-time work mainly to satisfy their needs can instead declare that they use part-time work mainly to accommodate the employees' requests in order to answer in a socially desirable way. As we know, in Italy, the phenomenon of involuntary part-time work is pervasive and represents a serious problem of underemployment, thus making this a very sensitive subject. Though the firm's responses are not disclosed to the public (except that in an aggregate form), they are seen by the survey administrators, the researchers (not in an anonymous form), and possibly also by the different stakeholders of the company, including owners, board of directors, and employees, thus creating an incentive to misreport their real motivation. In addition, some firms using part-time work mainly to accommodate workers' requests, might instead select answers like (i) it is suitable for the production process or (iii) it increases labor productivity, to show that the firm's

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<sup>17</sup> Note that the same picture emerges when considering local contexts characterized by high and low unemployment. Coefficients are -0.239, significant at the 1% level, in the high-unemployment contexts, and -0.042, largely not significant, in the low-unemployment contexts.

<sup>18</sup> We thank three anonymous referees and the Editor for having raised these issues.

management does everything it can to maximize performance. If, on the one hand, these issues do not prevent the impact on involuntary part-time work to show up, on the other hand, they can hinder the positive impact on employees requesting part-time contracts, which is present but small, as our baseline results suggest. In fact, if we look at firms declaring to use part-time work mainly to accommodate workers' requests *and* using low amounts of part-time work (coherent with firms that truly use part-time work mainly to satisfy sporadic workers' requests)<sup>19</sup>, the impact gets positive, relatively large in magnitude (0.015), and significant, thus indicating that problematic aspects associated with the reasons' variable can, indeed, hinder the analysis of the impact on employees asking for part-time work.

Overall, we read the results of this section as providing further support to the conclusions reached through our former strategy based on intensity of use of part-time work by firms. By and large, our two alternative empirical strategies deliver a consistent picture suggesting that, in line with expectations, female managers limit the employment of involuntary part-timers, contemporaneously increasing the fraction of full-time employment, and are also more prone to grant part-time work to employees asking for it.

## 7 Conclusions

Exploring the impact of female managers on the use of part-time work, this paper integrates a small but growing line of research studying the employment outcomes of women business leaders and how they manage their firms' workforce differently than men.

Building on a literature showing that female business leaders tend to display relatively more other-oriented and compassionate attitudes and values compared to their male counterparts, we aim to assess whether such attitudes and values have a bearing also on managerial decisions related to working time arrangements. In particular, we explore whether the impact of female managers is differentiated across two distinct groups of part-time workers. The first group refers to those part-timers who would rather work full-time (involuntary part-timers). The second group includes instead those who ask for part-time arrangements, possibly to better conciliate their work and family life.

Our estimates, based on three waves of a rich survey representative of Italian non-agricultural private firms and regressions accounting for several time-varying firm-level characteristics and unobserved fixed firm heterogeneity, cast light on two main effects of female managers.

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<sup>19</sup> Note that the average share of part-timers is 18.1% in firms declaring to mainly use part-time work strategically and 8.5% in firms declaring to use part-time work mainly to accommodate workers' needs, a rather high proportion for firms truly accommodating workers' requests.

Firstly, they suggest that female managers significantly limit the employment of involuntary part-timers, correspondingly providing more full-time employment. Considering the dramatic diffusion of the involuntary part-time work in Italy, which constitutes a relevant component of underemployment, female managers seem to play a crucial role in granting workers a better employment condition.

Secondly, our results indicate that female managers are also more prone to grant part-time positions to employees asking for them, thus contributing to enhance their balance between work and private life undertakings. This is especially relevant if we consider that, in Italy, employers can easily refuse to meet the workers' requests to transform their full-time contract into a part-time one, also when there are proven needs related to childcare or elderly care.

Overall, our findings lend support to the idea that female business leaders meet their employees' needs more than their male counterparts do. Our results are in line with the conclusions of Matsa and Miller (2013) and Matsa and Miller (2014) that the relatively more other-oriented and compassionate inclination of female business leaders can actually translate into real actions to protect their workers' needs. While they find such attitudes and values in action when looking at downsizing decisions of female *versus* male business leaders, we discover them in relation to decisions regarding working time arrangements. As Alice Eagly points out in her Presidential Address to the 2015 conference of the Society for the Psychological Study of Social Issues, 'a tentative generalization is that women directors influence corporate decisions to be less single-mindedly concerned with shareholder value and more attentive to a wider range of stakeholders - in particular, to employees and the larger community, which are priorities generally consistent with women's relatively other-oriented and compassionate attitudes and values' (Eagly, 2016).

It is important, however, to highlight two potential limits of our analysis. First, it does not necessarily lend itself to a causal interpretation of the estimated effects, as we lack a credible source of exogenous variation in the share of female managers at the firm level. However, our fixed effects regressions offer a way, albeit imperfect, to minimize the bias in the estimated effects arising from unobserved firm heterogeneity. Second, as we cannot directly observe the shares of involuntary part-time workers and employees asking for part-time contracts at the firm level, we have to rely on some indirect ways to recover the impact of female managers on these two groups of workers. We rely on both a firm's intensity in the use of part-time work and on the self-declared reasons for employing part-time workers, obtaining a broadly consistent picture. To corroborate our result interpretations, we also resort to external information at fine aggregation levels on the diffusion of involuntary part-time work and the workers' demand for part-time work arrangements.

As a final remark, we point out that, while these results and the related literature suggest that increasing the representation of females in business leadership positions, beyond obvious equity concerns, can be beneficial also to workers, caution should be exercised before drawing definite welfare implications. For one thing, if female managers keep part-time employment at a sub-optimal (from the firm's perspective) level, it is not obvious that overall welfare is improved once the producers' welfare is included in the analysis. Moreover, even when the attention is confined to the workers' welfare, the case for welfare gains is not clear-cut. On the one hand, sub-optimal part-time employment levels might, in the longer-run, translate into lower firms' performances, possibly leading to reductions of the companies' labor demand and wages. On the other hand, human resource practices that are more attentive to the needs of a firm's workforce can enhance the workers' motivation, increase their effort and reduce worker turnover, with beneficial impacts on a firm's productivity and, ultimately, on the workers themselves (e.g., through rent-sharing). Future research should continue to investigate these and related issues to provide a comprehensive picture of the implications of having more women (business) leaders on innovative and inclusive societies.

**Table 1: Distribution of firms by number of panel observations**

<b>Number of panel observations</b>	<b>Firms</b>	<b>Observations</b>
1	6,632	6,632
2	1,789	3,578
3	696	2,088
Total	9,117	12,298

*Source:* RIL data set (years: 2005, 2007, and 2010)

**Table 2: Sample summary statistics**

	Mean	S. d.	Emp	pt	ptf	ptm	bc	wc	mm	tm	m	mmf	tmf
Employees (emp)	152.588	541.949	1										
Part-time workers' share of the workforce (pt)	0.082	0.141	0.056	1									
Female part-time workers' share of the workforce (ptf)	0.065	0.115	0.060	0.929	1								
Male part-time workers' share of the workforce (ptm)	0.017	0.054	0.019	0.629	0.297	1							
Blue-collar workers' share of the workforce (bc)	0.471	0.317	-0.009	-0.050	-0.082	0.045	1						
White-collar workers' share of the workforce (wc)	0.415	0.289	0.017	0.067	0.097	-0.030	-0.924	1					
Middle managers' share of the workforce (mm)	0.069	0.103	0.038	-0.008	0.012	-0.045	-0.402	0.085	1				
Top managers' share of the workforce (tm)	0.045	0.064	-0.015	-0.030	-0.015	-0.048	-0.420	0.041	0.849	1			
Managers' share of the workforce (m)	0.113	0.121	-0.090	-0.045	-0.047	-0.018	-0.151	-0.058	0.003	0.531	1		
Female middle managers' share of the workforce (mmf)	0.026	0.057	-0.019	0.056	0.076	-0.017	-0.286	0.057	0.724	0.612	-0.003	1	
Female top managers' share of the workforce (tmf)	0.013	0.038	-0.052	0.049	0.071	-0.023	-0.295	0.045	0.569	0.664	0.345	0.825	1
Female managers' share of the workforce (mf)	0.038	0.068	-0.065	0.004	0.012	-0.015	-0.094	-0.007	-0.074	0.262	0.615	-0.031	0.539
Female middle managers as a proportion of all middle managers (mmfp)	0.314	0.370	-0.074	0.092	0.106	0.014	-0.145	0.103	0.145	0.128	0.022	0.581	0.552
Female top managers as a proportion of all top managers (tmfp)	0.193	0.343	-0.078	0.081	0.094	0.012	-0.071	0.049	-0.072	0.066	0.238	0.011	0.478
Female managers as a proportion of all managers (mfp)	0.288	0.363	-0.071	0.087	0.105	0.004	-0.159	0.120	0.115	0.130	0.0611	0.439	0.615
Females' share of the workforce (f)	0.354	0.254	-0.005	0.415	0.486	0.049	-0.270	0.235	0.156	0.148	0.031	0.293	0.349
Temporary workers' share of the workforce (t)	0.100	0.149	-0.026	0.093	0.071	0.093	0.065	-0.026	-0.094	-0.108	-0.054	-0.031	-0.010
Non-EU workers' share of the workforce (neu)	0.051	0.117	-0.057	-0.010	-0.020	0.0160	0.114	-0.105	-0.078	-0.049	0.034	0.001	0.066
Mining (ind1)	0.017	0.129	-0.027	-0.038	-0.045	-0.004	0.051	-0.053	-0.028	-0.008	0.031	-0.028	-0.011
Manufacturing (ind2)	0.396	0.489	0.011	-0.167	-0.157	-0.102	0.261	-0.212	-0.188	-0.178	-0.036	-0.152	-0.144
Construction (ind3)	0.085	0.279	-0.050	-0.079	-0.093	-0.009	0.088	-0.077	-0.078	-0.047	0.035	-0.053	-0.034
Trade (ind4)	0.087	0.282	0.034	0.030	0.035	0.003	-0.109	0.124	0.010	-0.008	-0.032	-0.005	-0.027
Services (ind5)	0.415	0.493	0.005	0.203	0.200	0.105	-0.260	0.197	0.233	0.210	0.025	0.191	0.181
10-19 employees (s1)	0.279	0.449	-0.160	0.049	0.054	0.015	-0.112	0.013	0.089	0.263	0.355	0.181	0.313
20-49 employees (s2)	0.274	0.446	-0.136	-0.005	-0.012	0.013	0.035	-0.015	-0.038	-0.056	-0.046	-0.028	-0.052
50-249 employees (s3)	0.317	0.465	-0.049	-0.077	-0.075	-0.041	0.083	-0.018	-0.076	-0.174	-0.208	-0.121	-0.190
250+ employees (s4)	0.130	0.336	0.462	0.047	0.048	0.021	-0.011	0.027	0.035	-0.036	-0.125	-0.037	-0.086
North-West (ma1)	0.387	0.487	0.051	-0.033	-0.013	-0.057	-0.084	0.046	0.091	0.111	0.064	0.033	0.045
North-East (ma2)	0.263	0.440	-0.016	0.005	0.028	-0.045	0.051	-0.026	-0.061	-0.072	-0.038	-0.069	-0.058
Central area (ma3)	0.185	0.388	-0.001	0.012	0.001	0.032	0.003	-0.005	0.002	0.003	0.004	0.022	0.021
South (including Sicily and Sardinia) (ma4)	0.165	0.371	-0.047	0.025	-0.015	0.096	0.047	-0.025	-0.048	-0.063	-0.042	0.016	-0.012

**Table 2: Sample summary statistics – continued**

	mf	mmfp	tmfp	mfp	f	t	neu	ind1	ind2	ind3	ind4	ind5	s1	s2	s3	s4	ma1	ma2	ma3	ma4
mf	1																			
mmfp	0.055	1																		
tmfp	0.708	0.137	1																	
mfp	0.433	0.930	0.851	1																
f	0.180	0.366	0.293	0.370	1															
t	0.028	0.051	0.104	0.082	0.122	1														
neu	0.116	0.112	0.157	0.139	-0.016	0.099	1													
ind1	0.021	0.002	0.003	-0.006	-0.116	-0.025	0.001	1												
ind2	-0.029	-0.128	-0.064	-0.107	-0.150	-0.113	0.033	-0.106	1											
ind3	0.020	-0.007	0.007	-0.016	-0.234	0.054	0.099	-0.040	-0.247	1										
ind4	-0.040	-0.020	-0.029	-0.020	0.042	-0.004	-0.051	-0.040	-0.250	-0.094	1									
ind5	0.034	0.140	0.075	0.128	0.287	0.090	-0.060	-0.110	-0.682	-0.257	-0.260	1								
s1	0.285	0.253	0.242	0.239	0.117	0.028	0.122	0.050	0.066	0.034	-0.008	0.037	1							
s2	-0.051	0.051	0.020	0.013	-0.038	-0.003	0.032	0.017	-0.056	0.085	-0.012	0.010	-0.383	1						
s3	-0.156	-0.165	-0.136	-0.158	-0.072	0.006	-0.077	-0.031	0.083	-0.050	-0.001	-0.046	-0.424	-0.419	1					
s4	-0.096	-0.123	-0.128	-0.117	-0.006	-0.041	-0.098	-0.047	0.047	0.089	0.028	0.000	-0.240	-0.237	-0.263	1				
ma1	0.030	-0.033	-0.011	-0.020	0.057	0.117	-0.027	-0.017	0.003	-0.054	0.031	0.014	0.030	-0.034	0.004	0.079	1			
ma2	0.000	-0.075	-0.002	-0.039	0.028	0.022	0.099	0.009	0.100	-0.021	0.010	-0.084	-0.024	-0.001	0.039	-0.021	-0.475	1		
ma3	0.004	0.041	0.023	0.030	-0.000	0.048	0.005	-0.002	0.052	0.037	-0.004	0.034	0.000	0.018	0.010	-0.011	0.378	-0.285	1	
ma4	-0.044	0.095	-0.007	0.040	-0.109	0.077	-0.088	0.013	-0.069	0.057	-0.025	0.047	0.068	0.026	-0.041	-0.068	-0.353	-0.266	-0.212	1

Source: RIL data set (years: 2005, 2007, and 2010)

**Table 3: Part-time work: use, industry differentials, intensity of use, and main reason of use (declared)**

<b>Use</b>	<b>Observations</b>	<b>Percentage</b>
Some use of part-time work (at least one part-time worker)	8,761	71.2
<b>Industry differentials</b>	<b>Mean</b>	<b>Std. dev.</b>
Part-time workers' share of the workforce in mining firms	0.041	0.059
Part-time workers' share of the workforce in manufacturing firms	0.053	0.078
Part-time workers' share of the workforce in construction firms	0.045	0.085
Part-time workers' share of the workforce in trade firms	0.096	0.126
Part-time workers' share of the workforce in services firms	0.116	0.187
<b>Intensity of use*</b>	<b>Observations</b>	<b>Mean (Std. dev.)</b>
High amounts of part-time work	4,658	0.179 (0.190)
Low amounts of part-time work	4,103	0.043 (0.036)
<b>Main reason of use (declared)</b>	<b>Observations</b>	<b>Percentage</b>
For accommodating workers' requests for part-time work	5,882	67.1
Strategic use of part-time work	2,737	31.2
it is suitable for the production process	1,781	20.3
it is not affordable to employ workers full-time	418	4.8
it increases labor productivity	357	4.1
for facing programmed seasonality	181	2.1
Other reasons	142	1.6

Source: RIL data set (years: 2005, 2007, and 2010)

\* Whether a firm uses high or low amounts of part-time work is defined by comparing benchmarks at the industry, size, region, and year level. A firm is classified as using high (low) amounts of part-time work if its share of part-time work is above (below) the median of the reference group.

**Table 4: Female managers: representation and industry differentials**

<b>Representation</b>	<b>Observations</b>	<b>Percentage</b>
Some representation (at least one female manager)	6,838	55.6
Modest representation (at least 25% of female managers as a proportion of managers)	5,014	40.8
Heavy representation (at least 50% of female managers as a proportion of managers)	3,323	27.0
<b>Industry differentials</b>	<b>Mean</b>	<b>Std. dev.</b>
Female managers as a proportion of all managers in mining firms	0.270	0.386
Female managers as a proportion of all managers in manufacturing firms	0.240	0.349
Female managers as a proportion of all managers in construction firms	0.267	0.398
Female managers as a proportion of all managers in trade firms	0.264	0.341
Female managers as a proportion of all managers in services firms	0.343	0.364

Source: RIL data set (years: 2005, 2007, and 2010)

**Table 5: Impact of female managers on the use of part-time work; estimation methods: OLS, FE**

<i>Dependent variable: part-time workers' share of the workforce (or female/male part-time workers' share of the workforce in Columns 7/8)</i>									
	1	2	3	4	5	6	7	8	
	OLS1	OLS2	FE1	FE2	OLS-compF E2	Impact of top/middle female managers (FE estimates)	Impact on female part-time workers (FE estimates)	Impact on male part-time workers (FE estimates)	
Female managers as a proportion of all managers	-0.019*** (0.004)	-0.021*** (0.004)	-0.022*** (0.009)	-0.021** (0.009)	-0.024*** (0.007)		-0.014** (0.007)	-0.007 (0.005)	
Female top managers as a proportion of all top managers						-0.016** (0.008)			
Female middle managers as a proportion of all middle managers						-0.018* (0.011)			
Females' share of the workforce	0.192*** (0.008)	0.196*** (0.008)	0.161*** (0.023)	0.159*** (0.024)	0.189*** (0.014)	0.158*** (0.024)	0.167*** (0.020)	-0.008 (0.012)	
Blue-collar workers' share of the workforce		0.085*** (0.013)		0.080** (0.035)	0.091*** (0.020)	0.070* (0.037)	0.070** (0.029)	0.010 (0.012)	
White-collar workers' share of the workforce		0.080*** (0.014)		0.084** (0.036)	0.088*** (0.021)	0.074* (0.039)	0.075** (0.029)	0.010 (0.012)	
Temporary workers' share of the workforce		0.002 (0.012)		0.006 (0.021)	0.027 (0.020)	0.005 (0.021)	-0.009 (0.015)	0.015 (0.011)	
Non-EU workers' share of the workforce		-0.012 (0.009)		0.001 (0.026)	-0.011 (0.019)	-0.000 (0.026)	-0.001 (0.021)	0.002 (0.013)	
Industry dummies	yes	yes	-	-	yes	-	-	-	
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes	
Year/industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	
Size dummies	yes	yes	yes	yes	yes	yes	yes	yes	
Macro-area dummies	yes	yes	-	-	yes	-	-	-	
Number of observations	12,298	12,298	5,666	5,666	5,666	5,666	5,666	5,666	
Number of firms	9,117	9,117	2,485	2,485	2,485	2,485	2,485	2,485	

Source: RIL data set (years: 2005, 2007, and 2010)

Robust standard errors, in parentheses, are adjusted for within-firm correlation; \*\*\*, \*\*, and \* denote, respectively, the 1%, 5%, and 10% significance level. The reference group for blue- and white-collar workers' share of the workforce is managers' share of the workforce. The size dummies collect 4 dummies: 10-19 employees, 20-49 employees, 50-249 employees, and more than 250 employees; the macro-area dummies consist of 4 dummies: North-West, North-East, Central area, and South of Italy; the industry dummies account for 78 dummies, 1 for each 2-digit Ateco 2007 industry; and the year/industry dummies are the interactions between year and industry dummies, as previously defined. Columns 6, 7, and 8 report estimates based on Column 4 (our reference model), allowing for differentiated impacts of top and middle female managers (Columns 6) and differentiated impacts on female and male part-time workers (Columns 7 and 8, respectively).

**Table 6: Impact of female managers on the use of involuntary part-time work; estimation method: FE**

<i>Dependent variable: part-time workers' share of the workforce</i>					
	1	2	3	4	5
	Firms using high amounts of part-time work	Firms using high amounts of part-time work and settled in a context of high involuntary part-time work	Firms using high amounts of part-time work and settled in a context of low involuntary part-time work	Firms using high amounts of part-time work and settled in a context of high unemployment	Firms using high amounts of part-time work and settled in a context of low unemployment
Female managers as a proportion of all managers	-0.062*** (0.022)	-0.093*** (0.036)	-0.010 (0.021)	-0.138*** (0.044)	-0.026 (0.026)
Number of observations	1,648	668	788	591	673

Source: RIL data set (years: 2005, 2007, and 2010)

Robust standard errors, in parentheses, are adjusted for within-firm correlation; \*\*\*, \*\*, and \* denote, respectively, the 1%, 5%, and 10% significance level. Note that only firms that are in the same state for at least two periods can be used in the estimation. The estimates include the same set of controls of Column 4, Table 5. For all the rest, see footnotes of Table 5.

**Table 7: Impact of female managers on the accommodation of workers' requests for part-time work; estimation method: FE**

<i>Dependent variable: part-time workers' share of the workforce</i>					
	1	2	3	4	5
	Firms using low amounts of part-time work	Firms using low amounts of part-time work and settled in a context of high part-time work denied to the workers who ask for it	Firms using low amounts of part-time work and settled in a context of low part-time work denied to the workers who ask for it	Firms using low amounts of part-time work and settled in a context of high workers' requests for part-time work	Firms using low amounts of part-time work and settled in a context of low workers' requests for part-time work
Female managers as a proportion of all managers	0.008** (0.004)	0.011** (0.005)	0.005 (0.006)	0.010** (0.005)	0.003 (0.004)
Number of observations	1,299	643	629	811	469

Source: RIL data set (years: 2005, 2007, and 2010)

Robust standard errors, in parentheses, are adjusted for within-firm correlation; \*\*\*, \*\*, and \* denote, respectively, the 1%, 5%, and 10% significance level. Note that only firms that are in the same state for at least two periods can be used in the estimation. The estimates include the same set of controls of Column 4, Table 5. For all the rest, see footnotes of Table 5.

**Table 8: Impact of female managers on the use of involuntary part-time work and on the accommodation of workers' requests for part-time work (alternative strategy based on the reasons' variable); estimation method: FE**

<i>Dependent variable: part-time workers' share of the workforce</i>					
	1	2	3	4	5
	<b>Firms declaring to use part-time work mainly to satisfy the firm's needs</b>	<b>Firms declaring to use part-time work mainly to satisfy the firm's needs and settled in a context of high involuntary part-time work</b>	<b>Firms declaring to use part-time work mainly to satisfy the firm's needs and settled in a context of low involuntary part-time work</b>	<b>Firms declaring to use part-time work mainly to accommodate workers' requests for part-time work</b>	<b>Firms declaring to use part-time work mainly to accommodate workers' requests for part-time work and using low amounts of part-time work</b>
Female managers as a proportion of all managers	-0.162*** (0.049)	-0.222*** (0.059)	-0.044 (0.040)	-0.019 (0.017)	0.015** (0.008)
Number of observations	1,119	671	327	3,156	1,136

Source: RIL data set (years: 2005, 2007, and 2010)

Robust standard errors, in parentheses, are adjusted for within-firm correlation; \*\*\*, \*\*, and \* denote, respectively, the 1%, 5%, and 10% significance level. Note that only firms that are in the same state for at least two periods can be used in the estimation. The estimates include the same set of controls of Column 4, Table 5. For the rest, see footnotes of Table 5.

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