



# WHY DO FIRMS (DIS)LIKE PART-TIME CONTRACTS?

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# Why Do Firms (Dis)Like Part-Time Contracts?

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## Abstract

This paper investigates the full-time/part-time wage gap by using matched employer-employee data on the entire population of workers and firms in Italy over a 32-year period. Relying on regression models that control for worker, firm, and match fixed effects, we find that part-time work attracts a wage premium compared to full-time work. This finding, coupled with the detrimental effect of part-time work on productivity documented by Devicienti et al. (2018), explains why firms are often unwilling to concede part-time positions to employees asking for them.

*Keywords:* Part-time/full-time wage gap, matched employer-employee panel data, multiple fixed effects regressions.

*JEL:* J31, J22, J53.

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## 1. Introduction

Many studies stress that part-time work is a valuable instrument allowing people to better conciliate work with private life. However, anecdotal and available statistical evidence suggests that workers who wish to switch to a part-time position often encounter the resistance, if not the outright opposition, from their firms.<sup>1</sup>

Devicienti et al. (2018) find that a higher share of part-time workers is detrimental to firm productivity. Understanding whether firms might compensate for this productivity gap with lower wages offered to part-timers or, conversely, whether they are forced to pay them higher wages (e.g., because of labor market rigidities) is the object of this paper.

Several studies analyze the part-time/full-time wage gap. Some focus on cross-sections of workers and generally find wage penalties associated with part-time work (e.g., Bardasi

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<sup>1</sup>According to Eurofound, less than one in three full-time employees feel that their employer would view their request to reduce working hours favorably (Gasparini et al., 2012).

and Gornick, 2008; Manning and Petrongolo, 2009; Matteazzi et al., 2014). Others use individual longitudinal data (e.g., Booth and Wood, 2008; Hirsh, 2005), finding that the part-time wage penalty either disappears or transforms into a premium once worker fixed effects are included. Two studies report results for Italy. After controlling for human capital and occupational segregation, Matteazzi et al. (2014) find a (small) premium for female part-timers. Relatedly, Bardasi and Gornick (2008) argue that occupational segregation explains almost all the part-time wage penalty for females.

To our knowledge, our paper is the first that explores the effect of switching to a part-time contract while at the same employer. Equivalently, it gives an estimation of the part-time/full-time wage gap that abstracts from the confounding effects of any unobserved fixed worker, firm, and match heterogeneity.

## 2. Theoretical framework

There are several explanations as to why workers that shift from full-time to part-time contracts may experience wage changes.

A first mechanism relates to productivity differentials between part-timers and full-timers, which should be reflected in wage differentials (absent wage rigidity). Productivity differentials may arise from daily start-up costs. Part-time work may also impose firm-wide communication and coordination costs that are detrimental to a firm's efficiency. Overall, the existing evidence for Italy points to the prevalence of these negative effects of part-time work on firm productivity (Devicienti et al., 2018).

A second mechanism emerges from compensating differentials. Individuals that request a shift from a full-time to a part-time arrangement have a preference to work part-time, for example, due to childcare duties. Hence, they may be willing to accept lower wages in exchange for the possibility of working reduced hours. If firms find it costly to arrange part-time schedules, a part-time wage penalty arises in equilibrium. For instance, firms may face fixed labor costs (e.g., hiring and training costs), which do not increase proportionally with the number of hours worked, but rather with the number of employees.

Third, part-timers may suffer from (statistical) discrimination, even though this is typically prohibited by law. In Italy, the labor code dictates that part-timers should enjoy the same monetary and non-monetary treatments of comparable full-time workers, according to a *pro rata temporis* principle.

A fourth mechanism relates to a country's institutional settings. Collective bargaining and unions may affect the ability of wages to reflect workers' underlying productivity differentials. In many countries (including Italy), the law leaves to sectoral collective agreements freedom to dictate more favorable monetary and non-monetary treatments for part-timers.

Individual- and firm-level bargaining are often too weak to undo (and may even strengthen) the dispositions set by strong union confederations at the industry level. On their part, unions might disproportionately attempt to defend the weaker segments of the labor force, typically including part-timers. If so, one might expect that wage decentralization and de-unionization - observed in recent years in many EU countries and often advocated as a desirable policy development - associate to a deterioration of any wage privilege previously associated with part-time work.

### 3. Empirical model

To assess the existence of any part-time wage premium or penalty, we estimate the following wage regression:

$$\ln(w_{ijt}) = \alpha_i + \phi_j + \mu_{ij} + \beta PT_{ijt} + \gamma X_{ijt} + \epsilon_{ijt}. \quad (1)$$

$w_{ijt}$  is the daily wage of worker  $i$  holding a job in firm  $j$  in year  $t$ .  $\alpha_i$  is a worker fixed effect, capturing time-invariant worker heterogeneity (e.g., ability, commitment to work).  $\phi_j$  is a firm fixed effect, capturing firm-level unobserved heterogeneity (e.g., wage policies, amenities, working time and overtime, managerial culture, workplace unionism), which may correlate with both the level of wages and the diffusion of part-time work in the firm.  $\mu_{ij}$  is a firm-worker match fixed effect, capturing worker  $i$ 's idiosyncratic skills or characteristics that are particularly valuable at firm  $j$ .  $P_{ijt}$  is a dummy variable denoting that the worker has a part-time job.  $X_{ijt}$  is a vector of time-varying worker- and firm-level observable characteristics included as controls.  $\epsilon_{ijt}$  is a residual, uncorrelated by assumption with the other terms in the right-hand side of Equation (1). Our parameter of interest is  $\beta$ , which measures any wage differential between part-time and full-time work.

We estimate Equation (1) by OLS using within-spell<sup>2</sup> variation, thereby removing the confounding impact of any worker, firm, and match fixed effect. This means that we estimate the part-time wage premium/penalty by using the switch from a full-time to a part-time contract (or *vice versa*) of the *same* worker in the *same* firm.

### 4. Data

We use administrative data of the Italian Social Security System (INPS), collecting detailed labor market histories of all private sector employees during the period 1984-2015. The data provide information on the worker (e.g., gender, age, country of birth), on the

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<sup>2</sup>A spell is a worker\*firm combination.

job held (e.g., gross earnings, number of days worked over the calendar year, occupation, open-ended *versus* temporary contract), and on the firm’s identity and characteristics (e.g., location, industry). The longitudinal, matched employer-employee nature of the data makes it possible to perform the within-spell estimation of Equation (1).

We obtain the workers’ daily wages by dividing yearly earnings by the number of (full-time equivalent) paid days.<sup>3</sup> The data do not provide us with the employees’ number of hours worked. However, for part-timers, we can convert the number of paid days to full-time equivalents using available information on the “intensity” of part-time work stipulated by the employees’ work contracts.<sup>4</sup> We focus on individuals aged 15-64 and select jobs with at least 16 paid weeks in a year.<sup>5</sup>

## 5. Results

Table 1 shows our main results. We initially concentrate on the most recent years (2009-2015), and on female workers, which compose most of the part-time positions (over 80%).<sup>6</sup>

The raw part-time/full-time wage gap for females displays a significant pay penalty associated with part-time work, equal to 23.3% (Model 1). When we control for several worker- and firm-level observable characteristics, the penalty reduces to about 10% (Model 2 and Model 3). When we control for worker fixed effects, the penalty transforms into a statistically significant premium, equal to 1.9% (Model 4). Unobserved differences between workers typically holding part-time as opposed to full-time positions (e.g., regarding ability and motivation) play a crucial role in explaining the part-time/full-time wage gap. When - unlike past literature - we control for worker, firm, and match fixed effects (our preferred estimate), the premium increases significantly, almost doubling, at 3.6% (Model 6). This highlights that unobserved differences between firms that typically adopt part-time work and firms that do not (e.g., managerial policies and firm culture) matter considerably. Note, instead, that accounting only for firm fixed effects is not sufficient for the part-time wage premium to emerge (Model 5). In this case, the regression still predicts a part-time penalty of 4.1%.

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<sup>3</sup>We convert daily wages in real terms at 2010 prices.

<sup>4</sup>For example, a part-timer working only 50% of the normal time is recorded as having 4 paid weeks but only 2 equivalent weeks. Similarly, a worker with 52 paid weeks, but only 31 equivalent weeks, is in a 60% part-time position. We use the ratio of equivalent weeks to paid weeks to obtain the number of full-time equivalent paid days for part-time jobs.

<sup>5</sup>Moreover, we drop the top and bottom 1% in each yearly wage distribution, as well as any job with more than 312 paid days. Finally, for workers holding multiple jobs in the calendar year, we select the one with the highest wage (alternatively, and with unchanged results, we randomly selected one job).

<sup>6</sup>The share of female part-timers was, on average, about 29% in the 2009-2015 period. It steadily increased from 1984 to 2015.

Table 1: **Estimated part-time premium/penalty. Female workers. Period: 2009-2015.**

Model	Part-time premium/penalty	Observations
1. Raw wage gap	-0.233***	33,358,031
2. Pooled OLS	-0.103***	33,358,031
3. Pooled OLS (version 2)	-0.090***	33,358,031
4. Worker fixed effects	+0.019***	33,358,031 (7,117,374)
5. Firm fixed effects	-0.041***	33,384,610 [1,641,852]
6. Worker and firm fixed effects	+0.036***	33,384,610 "10,176,753"

*The part-time premium/penalty is the OLS estimate of  $\beta$  in Equation (1). Controls include: a cubic polynomial in age, a dummy for birth country other than Italy, a dummy for fixed-term contract, dummies for occupational categories (blue-collar, white-collar, and managerial occupations), 5 dummies for firm size (measured in terms of number of employees), and year dummies. They also include over 60 industry dummies and 20 regional dummies. Model 2 additionally controls for the ratio of equivalent weeks to paid weeks (see Footnote 4). The models in the last three rows additionally control, respectively, for worker fixed effects (Model 4), firm fixed effects (Model 5), and worker, firm, and match fixed effects (Model 6). In the third column, the number in parenthesis, (), denotes the number of workers; the number in brackets, [], denotes the number of firms; the number in quotes, "", denotes the number of spells. \*\*\* denotes significance at the 1% level.*

Table 2 shows how the (regression-adjusted) wage differential evolved over time, separately for females and males.<sup>7</sup> It reports results from the within-spell estimates for 8 partially overlapping periods. Female part-timers experienced a wage premium throughout our observation window. This premium was highest in the early periods and constantly decreased over time. As shown earlier, in the last period (2009-2015), female part-timers still benefited from an economically relevant, and statistically significant, wage premium over their full-time counterparts.

The picture for males is somewhat different. They experienced a significant, yet decreasing, part-time premium up to the early 2000s. In more recent years, the trend reversed and the results point to either very small penalties (period 2004-2009) or the absence of any significant wage gap (period 2009-2015).

<sup>7</sup>The share of male part-timers was, on average, about 7% in the 2009-2015 period. It steadily increased throughout our observation window, but remained far lower than the share of female part-timers. As part-time work is mostly a female phenomenon, the literature tends to focus on females when studying the part-time/full-time pay gap. A notable exception is O’Dorchai et al. (2007), which examine the part-time wage gap for males using cross-sectional data for six European countries.

Table 2: **Estimated part-time premium/penalty. Within-spell estimates. Female workers and male workers.**

Part-time premium/penalty	Female workers	Male workers
1984-1987	+0.322*** (11,9 million)	+0.167*** (25,3 million)
1985-1989	+0.247*** (12,5 million)	+0.138*** (26,0 million)
1988-1993	+0.164*** (16,8 million)	+0.102*** (33,2 million)
1992-1997	+0.100*** (17,6 million)	+0.052*** (32,4 million)
1996-2001	+0.077*** (19,6 million)	+0.039*** (34,7 million)
2000-2005	+0.054*** (22,9 million)	+0.025*** (38,6 million)
2004-2009	+0.036*** (25,6 million)	-0.002*** (40,5 million)
2009-2015	+0.036*** (33,4 million)	-0.000 n.s. (46,2 million)

*All regressions include the same set of controls of Model 6, Table 1. For details, see the footnote of Table 1. \*\*\* denotes significance at the 1% level; n.s. denotes non-significance at the 10% level.*

## 6. Discussion and Conclusion

We find a substantial part-time premium for females that, while declining, persists until the most recent years. A similar dynamics is observed for male part-timers, though their premium has eventually faded away. These trends may be related to both structural changes in the demand and supply of part-time work, as well as developments in labor market and wage bargaining institutions.

When - as in the early 1980s - only a few workers held part-time positions, firms needing them were willing to pay a relatively high wage premium. As more workers started to ask for part-time positions (e.g., to better conciliate their work with private life), this wage premium gradually declined.

Part-time premia are also related to the institutional rigidities in the labor market characterizing many EU countries, including Italy. While EU legislation generally dictates that part-timers should receive the same monetary and non-monetary treatments as comparable full-timers, sectoral collective agreements (and, possibly, individual- or firm-level bargaining) can introduce more favorable conditions for part-timers (Matteazzi et al., 2014).

Starting from the mid-1990s, the Italian labor market and system of industrial relations underwent a constant (if slow) trend towards a general liberalization and modernization,

aimed at removing labor market rigidities, thereby improving the connection of wages to underlying worker productivity and the overall allocative role of wages. Gradually over time, sectoral collective bargaining incorporated these tendencies also in the case of part-time work, which may explain the observed decreasing trend in the part-time premium. Yet, even nowadays, collective bargaining and unions try to protect what are seen as weak segments of the labor force. That these groups typically include women on part-time is in line with our findings that a wage premium is still observed for females on part-time jobs.

The existence of higher costs associated with part-time work, coupled with the detrimental effect of part-time work on firm productivity that we document elsewhere (Devicienti et al., 2018), largely explains the firms' reluctance to offer more part-time jobs.

There are important policy implications from these results. Tax reliefs may be useful to overcome the firm's double disincentive (productivity losses and higher labor costs) to offer more part-time positions. These rebates could be particularly generous for people in real need, including people involved in childcare, elderly care, or education.<sup>8</sup> Also, institutional reforms making wages more aligned to underlying workers' productivities may contribute to raising the number of people successfully obtaining part-time positions when asking for them - a hitherto unnoticed benefit from such reforms.

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<sup>8</sup>Throughout our observation period, the Italian law did not impose any obligation for firms to transform full-time contracts into part-time arrangements following the workers' requests, no matters what was the reason behind (e.g., for providing childcare, elderly care, or pursuing education), except for the very particular case in which the worker suffered from an oncological pathology.



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