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The flexibility penalty in a long-term perspective

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Abstract

In this paper we study the effect of flexibility on both wages and the likelihood of work stabilisation, by focusing on flexibility when entering the labour market and on periods of career interruption. Our main goal is to evaluate how having entered the labour market with fixed-term contracts or having experienced periods of interruption of work can affect the likelihood of being given a permanent contract and the level of wages received in subsequent jobs. Unlike other works in the existing literature, this study deals with female and male workers separately.

The analysis is carried out using a dataset put together by the *Istituto per lo Sviluppo della Formazione Professionale dei Lavoratori* – ISFOL (Institute for the Development of the Professional Training of Workers) based on a sample of Italian workers. The dataset is representative of the Italian population and contains detailed information on work experience previous to workers’ present occupation with details on types of contracts and causes of career interruptions.

In the first part of the paper, we examine density functions of monthly and hourly wages relative to contractual characteristics of first jobs and the number of job changes and work interruptions. In the second part of the paper, we estimate separate earnings functions for the sample of men and women with full-time permanent contracts. We correct for selection in full-time work by estimating a first-stage equation of the probability to have a permanent job and including the Mill’s ratio in the second-stage wage function. Estimates show that flexibility affects men and women differently, both in terms of levels of wages, and the likelihood of accessing permanent jobs. Some differences also emerge with regard to the causes of career interruptions.

Introduction

In this article we present the results of a study on the relationship between work flexibility, the likelihood of gaining a permanent contract and earning power in Italy, focusing on the effect that flexibility on entering the labour market and during individuals' careers may have on their professional achievements, not only in terms of being granted a permanent working position – with particular regard to flexibility among those entering the labour market – but also in terms of earning power, especially in cases of ongoing career flexibility. The analysis sets out to address the theme by examining gender specificities; thus, both the descriptive and the econometric analyses are performed taking gender into consideration. Flexibility will be evaluated by considering both the nature of the contracts of first occupations, and the overall working career of the individual, i.e. including periods of career breaks.

The present work attempts to provide a long-term analysis of the incidence of flexibility in Italy, both in terms of the ability of workers to stabilise, and its effect on their earning capacity once they have been granted a permanent contract. Over the last decade, the Italian labour market has been rendered extremely flexible: a phenomenon which has been felt particularly by new workers and women, bringing about a profound segmentation of the labour market. The underlying question that we pose here is whether the Italian labour market attributes a different “value” to the work experience gained by men and women according to flexible models of labour organisation. Therefore, an analysis will be made of the possible relationships between the wage distribution of those workers who have been given permanent posts (lifelong employment contracts) and aspects of flexibility that the same workers have experienced throughout their careers: career interruptions, moving companies, and flexible working contracts on their first entering the labour market. Following the descriptive analysis, the results of an econometric study will be presented, estimating the incidence of flexibility when experienced over the course of a working career on the likelihood of being given a permanent post, and on the wages of those who are granted a lifelong contract.

The analysis is made using data from a study undertaken by the Italian Ministry of Labour and Welfare and carried out by the Italian Institute for Vocational Training (the “*Istituto per lo Sviluppo della Formazione professionale dei Lavoratori*”, or ISFOL) in

2006 as part of a research project on wage differences between genders. This study includes a special section examining aspects of work flexibility, containing information both on the type of work contract given at the start of the working career, as well as to career interruptions and their relative causes.

The work is articulated as follows: after a brief overview of the current literature on the theme, (Section 1), a number of descriptive reflections will be presented on the wage distribution patterns of men and women pursuing different careers (Sections 2 and 3) as well as an empirical analysis of a selection model for permanent posts and the earning capacity of men and women whose working positions have been stabilised. (Section 4). This is followed by conclusive considerations.

1. From flexibility to stabilisation: the literature on the effects of flexibility on the labour market

The literature that has dealt with the effects of the flexibilisation of the labour market has concentrated in particular on evaluating the relationship between the persistence of fixed-term work and the likelihood of stabilisation, showing how (in general) a series of fixed-term contracts tends to lead to greater difficulties in finding a permanent post. However, there are various ways in which temporary contracts may in the long run lead to difficulties in career stabilisation. In fact, as highlighted by Gagliarducci (2005), the problem of shifting from temporary to permanent employment may depend not so much on the persistence of fixed-term contracts as on the presence of career interruptions. On the other hand, the difficulty that fixed-term workers come across in finding a lasting (lifelong) position may be explained by the insufficient investment made in specific human capital during their time as fixed-term workers (Booth et al., 2002), or by the discouraging effect that temporary work seems to have on workers, channelling their energies into job hunting due to a “locking-in” effect (Van Ours, 2004).

However, more recent literature also tends to suggest that temporary work facilitates progress in the work market, reducing the periods spent job hunting and leading to longer-term job attachment. Temporary work thus appears to play a role of reducing periods of unemployment, even though it does not alter or facilitate the

transition to permanent employment. For example Zijl et al. (2004), when studying the transition rates from unemployment to temporary work, from temporary to permanent work, and from unemployment directly to permanent posts, note that the rate of transition to permanent work increases in the wake of temporary work contracts. The authors attribute this fact to the accumulation of human capital which potentially takes place while working under a fixed-term contract, and which thus makes it easier for such workers (compared to the unemployed) to find a permanent position in the labour market. Furthermore, the authors conclude that temporary work reduces the length of unemployment periods. In a counterfactual situation, those without temporary work have fewer chances of finding permanent work than those in temporary employment.

Addison & Surfield (2009), when evaluating the chances of being employed both for workers in non-standard employment relationships and for the jobless, find that those who started with a fixed-term work contract, in the very short term – one or two years from the end of the contract – have a greater likelihood of being offered work than those who were previously unemployed. However, this advantage tails off over a period of four years.

The great flexibilisation of a number of different European labour markets has provided the input for several works evaluating the effectiveness of temporary employment agencies and, hence, of the kinds of employment they offer. García-Pérez & Muñoz-Bullón (2005), in their study of the careers of Spanish workers making use of Temporary Help Agencies (THAs) and their upgrading (meant in terms of the likelihood of them moving towards permanent employment jobs that call for higher levels of skill), came up with different results according to the skills of the workers themselves: the temporary work offered by the Spanish THAs seems to be a good tool for fostering the stabilisation of high-skilled workers, as those that go through the THAs have better chances of then accessing permanent posts. Nevertheless, this is not the case for the low-skilled, for whom the opposite is true, or for the medium-skilled. In the case of the latter, however, the THAs play a different role, making it less likely for those workers who go through the agencies to then shift towards jobs with lower skill requirements, when compared to regular workers. A study similar to the Spanish one was carried out by Ichino et al. (2005) on Italian data from Temporary Work Agencies (TWAs). The Italian market, as mentioned above, has been characterised by a

flexibilisation trend ever since the '90s, which has also led to the liberalisation of the management of temporary work through authorised agencies (the TWAs). The analysis carried out in two Italian regions (Tuscany and Sicily) shows how passing through TWAs has a positive effect on the likelihood of finding a permanent job in the following 18 months, yet that such an effect is variable, and that it is greater for individuals over 30 who have a university degree.

Van Ours (2004), who studied the labour market in Slovakia (where in the mid '90s the length of short-term subsidised work contracts was lengthened), identifies different effects on the basis of the contract length. The results he obtained show that short-term subsidised jobs have a positive effect on the rate at which people find regular jobs; however, as the ex-ante duration of these subsidised jobs increases, the positive effects diminish and locking-in effects are found.

As far as the differences in the effects of temporary work between men and women are concerned, the analyses are few and far between. Of those that there are, the work of Booth et al. (2002) is the most significant in terms of general results. Booth et al. find that the transition from fixed-term to permanent work differs for men and women. In particular, fixed-term contracts are a stepping stone for men and not for women, while fixed-term contracts in the public and non-profit sectors negatively affect the likelihood of women entering permanent work. On the other hand, the wage penalty associated with the experience of one fixed-term contract is significant only for men, and is equal to a 4.6% reduction compared to workers who maintained permanent jobs over the same period.

2. Flexible careers and wage distribution

In this section we present a descriptive analysis designed to verify whether more flexible working careers may in the long run entail penalisation in terms of pay, and if so, whether that happens differently for men and women. The analysis was carried out on workers who, at the time of the interview, declared that they were working as employees with permanent work contracts. By the expression “more flexible working careers”, we mean to identify the professional careers of workers who have changed

employer or activity many times and/or who have spent long periods of time without work and without receiving their normal pay. The dataset on which our analysis is based is highly detailed, especially in the section relative to workers' career histories.¹ The information gathered is particularly detailed with reference to contract types adopted for workers' first occupation; this is due to the wide-reaching reform of the labour market that was implemented in Italy in the early '90s and which introduced various forms of "non-standard" contracts to the labour market. Therefore the information available varies according to whether the individual has been working for more or less than 15 years. In fact in the latter case, there is a wide range of possible contracts for those entering the labour market; however, we shall examine this in the next Section.

As mentioned above, the dataset includes information on the number of working periods undertaken with different employers; the variable available is continuous and contains the declared number of changes of occupation. For the purposes of the descriptive analysis, however, we grouped the data together into three categories: fewer than three changes of job, from three to five, and six or more. Furthermore, we also know whether the worker has been without work for long spells as well as the causes of such interruptions. Interviewees were asked the following question: "With reference to your working life, have there been significant periods of time (at least three months) in which you did not work and did not receive your normal wages?" On answering affirmatively, the interviewee was asked to give details of the causes of such interruptions, which we grouped under the following headings: Wage Supplementation Fund, WSF (in Italian this is known as *Cassa Integrazione Guadagni*, or CIG)², *Mobility*,³ unemployment, illness, maternity leave, for childcare reasons, in order to look after elderly or other family members, for study/training, other reasons.

The data on earnings that we use for the analyses are those relating to the net wage paid the month prior to the interview. We turned this datum into an hourly figure,

¹ The data come from a survey undertaken by the Italian Ministry of Labour and Welfare and carried out by the ISFOL (Italian Institute for Vocational Training), www.isfol.it. The survey was based on telephone interviews held in 2007 on a sample of Italian workers aged between 15 and 64.

² The CIG is an institutional form of flexibility through which companies in difficulty may suspend their workers for medium/long periods of time, providing them with a replacement wage, albeit lower than that received normally. The CIG is divided into "ordinary" and "special" regime.

³ *Mobility* (in Italian, *Mobilità*) is another institutional form of flexibility thanks to which companies may dismiss workers because of reductions in staff requirements, the transformation of the company's activity or its closure, guaranteeing the worker a replacement wage, albeit lower than that received normally. Mobility allowance may be granted to workers enrolled at Employment Offices ("*Centri per l'Impiego*") who have served at least 12 months in the company in question.

dividing it by the average number of hours in a working week and considering the number of working weeks in a month to be 4.33.⁴

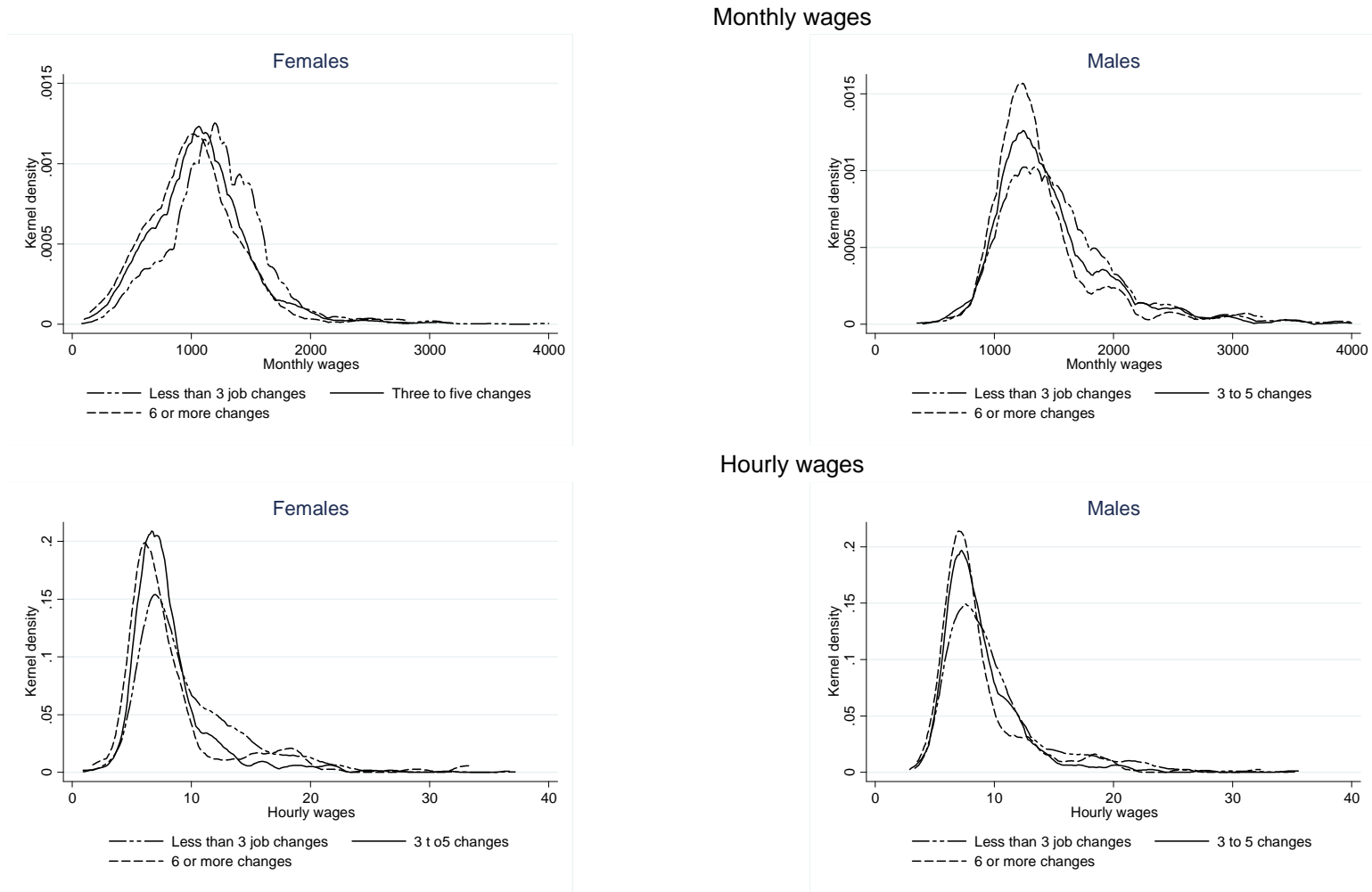
Let us now comment on the charts below, in which we represent the distribution patterns of monthly and hourly wages divided by gender and career mobility (Figure 1 and Figure A1 in the Appendix) and the career interruptions for significant periods of time (Figure 2).

Figure 1 shows the monthly and hourly wage patterns for men and women working with permanent and full-time contracts, on the basis of the degree of career mobility declared. Greater inter-company mobility appears to penalise women to a greater extent: the higher the number of job changes, the more the distribution of monthly wages shifts leftwards. Among men, on the other hand, a higher number of job changes leads to a greater concentration in the trend distribution, yet without there being a leftward shift of the salary distribution. The distribution patterns seem to show that the market attributes a different significance to career mobility – also in terms of pay levels – on the basis of gender. While in the case of female workers greater mobility implies a greater likelihood of lower pay, mobility does not seem to substantially affect the distribution of men's wages, which tend to gravitate around a modal value independent of the number of job changes observed.

The differences in pay models between men and women with regard to career mobility appear to be confirmed when we examine hourly wages. Women's wage rates are clearly more exposed to the mobility factor: as the number of changes of employer rises, not only does the hourly pay distribution shift towards lower levels, but it also shows a substantial decrease in density in correspondence to pay levels above the modal value (the curve to the right of the distribution trend drops off considerably). Male hourly wage distribution, on the other hand, appears to be not particularly sensitive to the number of job changes; the only difference that may be perceived between the distribution levels is a thinning out on the right-hand end of the bell, seen with the rise of mobility, yet which is counterbalanced by a rise in density at the right-hand end.

⁴ This is the procedure generally adopted to calculate hourly wages when there is no specific information on the actual amount of time spent in service.

Figure 1. Kernel densities of monthly and hourly wages by sex and number of job changes. Permanent workers



The distribution patterns in fact appear very different if they are taken apart by age group, as shown in figure A1 in the Appendix, with regard exclusively to hourly wages. The comparison between men and women in the youngest age group – between 15 and 29 years of age – is particularly interesting: the models of pay taking career mobility into account may here be seen as notably different between the two sexes. We note that the pay of very young women does not undergo any particular variation with the rise of the number of working experiences, and when the number of these becomes particularly high (“six or more”), hourly pay is cut off under the ten Euro per hour mark. Yet there is a substantially different pattern for young men, who show a notable rightward shift in the distribution of hourly pay with the rise of their career mobility up to five company changes, and a massive dispersion of pay distribution with a mobility level of or over six company changes; in such cases, wage rates may vary up to 25/30 Euros per hour (in terms of net pay). Therefore, in the case of men under 30, a high degree of mobility is synonymous with a great accumulation of skills and human capital, which the market rewards generously.

The distribution patterns among the central age groups, those between 30 and 44 years old, show a consolidation of the general distribution model in the sample: among women there is a tendency towards the pay model that penalises the number of work experiences to date; among men, on the other hand, a pay model emerges in which the number of company changes does not substantially modify the wage distribution, with the exception of the narrowing of the distribution bell on the right-hand side, compensated by a higher density registered in correspondence with the modal value.

The pay pattern which emerges from the central age group is basically repeated in the case of men and women of between 45 and 65 years of age. In this case, however, we may note a greater level of penalisation for those men with highly mobile careers.

Let us now move on to the description of the pay distribution patterns by comparing continuous and interrupted careers. The analysis of the distribution patterns of monthly pay (Figure 2) shows a greater concentration of the wages of female workers with interrupted careers in the lower part of the distribution, compared to those of women with an uninterrupted working profile. On the other hand, male workers’

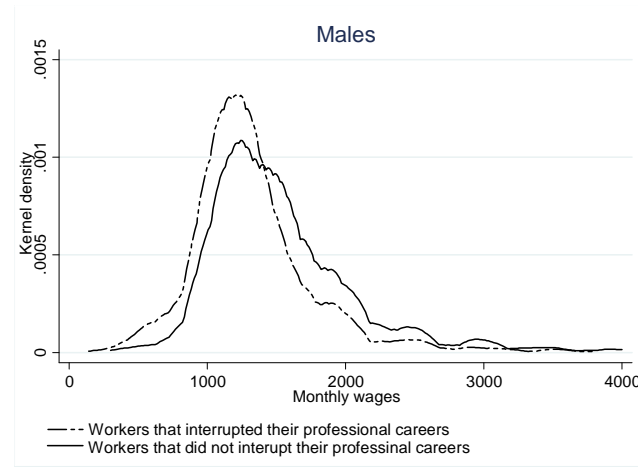
monthly pay (in the case of an interrupted career) appears to be more heavily concentrated on the modal value, going some way to compensating for the lesser density registered on the right-hand side of the distribution pattern. However, once the monthly data are broken down into working weeks and hours, there are no particular distributional differences between those women with interrupted careers and those with continuous ones; in fact, the two distribution patterns appear to be almost exactly the same. Thus in hourly terms, women's pay does not appear to be influenced by the interruption of their working activity. However, this is not true for the male sample; the pay of those men with interruptions to their working lives is to be found at levels lower than those of their colleagues who have enjoyed a continuous career.

This gender difference will be examined further in Section 4, where the results will be presented of the overall estimates for both men and women of their likelihood of accessing permanent and full-time⁵ work, and of their earning functions corrected for selection into permanent work.

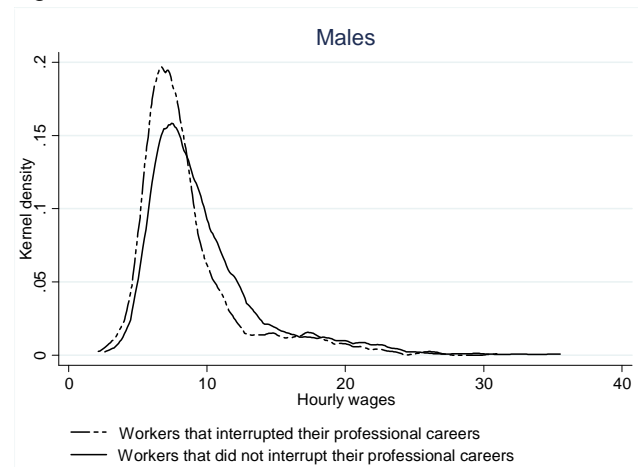
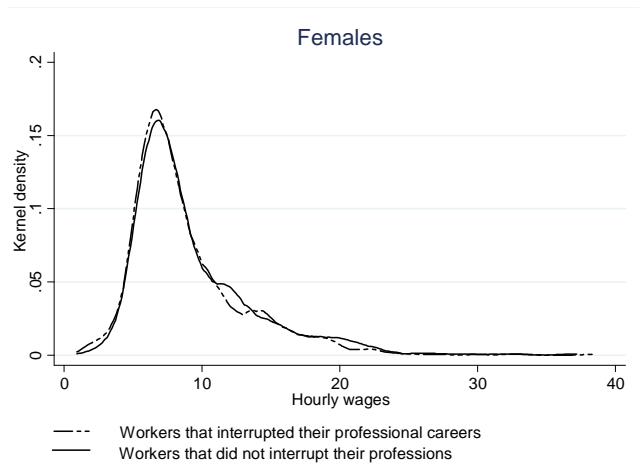
⁵ Part-time work is excluded here so as to avoid gender-based distortion in the distribution of the sample between full and part-time work.

Figure 2. Kernel densities of monthly and hourly wages by sex conditioned on *interrupted* and *not interrupted* careers

Monthly wages



Hourly wages



3. The impact of the type of contract of people's first job on their current pay

Our description continues with an examination of the relationship between the type of contract of people's first job and the distribution of workers' pay with permanent full-time jobs. The idea that led us to move in this direction is in keeping with that proposed in other studies: pay progressions may also be influenced by the contract positioning given on entering the labour market.⁶ As discussed in Section 1, the accumulation of human capital may be sacrificed during periods of fixed-term work and, as a consequence, the work experience acquired during such professional periods may prove less significant in terms of pay progression than non-temporary work.

The information available from the dataset on contract positioning in people's first experience of work is very detailed; the questionnaire given to the workers contains different questions depending on whether they began working more or less than 15 years ago. This distinction is due to the fact that the types of employment contract changed considerably at the beginning of the '90s, a time in which the Italian labour market was heavily flexibilised with the initial introduction of the fixed-term contract and, at a later date, of various forms of temporary contracts based on subordinate employment, and lastly project-based contracts. For the sample of workers with less than 15 years of experience, we know that the type of contract given for their first occupation was one of the following: a permanent employee contract, a fixed-term employee contract, a para-subordinate work contract⁷ or a self-employment position. For the sample of workers with more than 15 years of experience, on the other hand, a distinction is made merely between permanent contracts and self-employment. It is for this reason that we present separate descriptive analyses for the two categories.

In Table 6 we show the distribution percentages of the sample by gender and by type of contract at the start of the career, with reference only to workers with less than 15 years of experience. The data show a strong tendency among the female sample towards fixed-term types of contract: 56% of women started their working careers with

⁶ By first work experience, we mean the experience deemed by the interviewee to be the first significant occupation, not carried out during the period of study.

⁷ Para-subordinate work lies halfway between that of the company employee and self-employment; the worker must answer to an employer in the fulfilment of his/her contract duties, but does not have the rights to all the contractual protection and guarantees typically enjoyed by a company employee (also with regard to paid holidays, sick leave and social protection).

fixed-term contracts, compared to 49% of men; the male sample, on the other hand, shows higher numbers of para-subordinate contracts and self-employment.

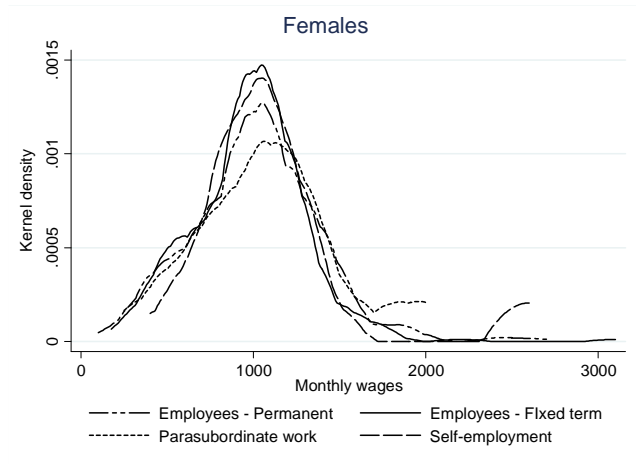
Table 1. Type of contract given for first significant occupation. Men and women with less than 15 years of work experience.

		Contract Types (% by gender)				
	No contract	Permanent job	Fixed-term job	Para-subordinate	Freelance	
Men	2.9	41.61	49.19	5.27	1.02	
Women	1.59	37.27	56.26	4.54	0.34	

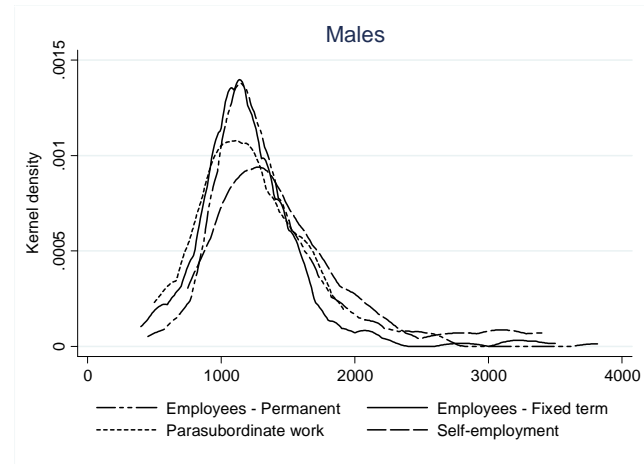
In Figures 3 and 4 we show the distribution patterns of workers' pay in relation to the type of contract granted on entering the labour market, among those with less than 15 years of work experience (Figure 3) and those with at least 15 years (figure 4). Both figures refer only to workers who at the time of the interview were working as company employees.

In the case of the sample with greater working experience (Figure 4), about whom we only know whether the first experience was as a self-employed or permanent worker, the type of contract of their first occupation does not appear to substantially affect their current levels of pay in hourly terms. Men and women, however, appear to follow different models of salary dispersion. Men's pay patterns appear almost to overlap: the modal value is the same (albeit with a different density), the tails coincide (with the exception of the far right-hand side) and the dispersion is substantially the same. Basically, over the long term, male workers seem to converge towards a pay distribution not influenced by the type of contract with which they start their career. The data give slightly different results for women, as after a considerable number of years of experience, their pay distribution appears to be divided between those who entered the labour market as self-employed workers and those who started as employees. The distribution pattern of the pay of the former is inferior to that of the latter and shows greater dispersion. This last result may be felt more strongly if we observe the samples of workers with less work experience (Figure 3), for whom there is an extra contract category: that of para-subordinate work, which constitutes an intermediate contract situation between self-employment and that of the company employee.

Figure3. Kernel densities of monthly and hourly wages by sex and *type of contract* when entering the labour market. Workers with less than 15 years of experience



Monthly wages



Hourly wages

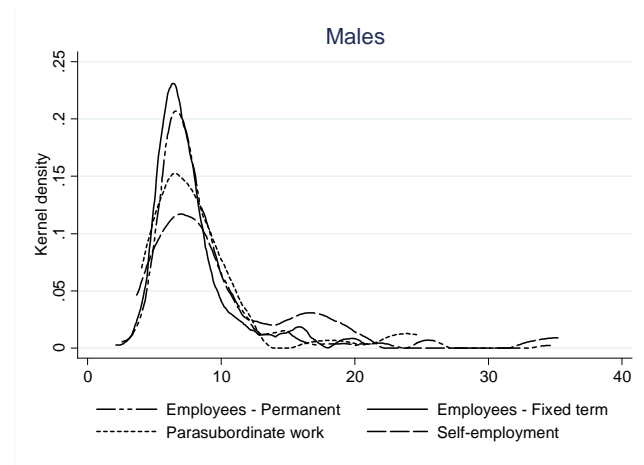
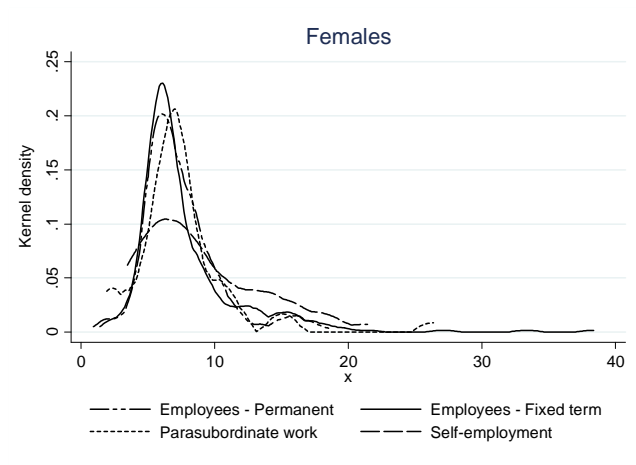
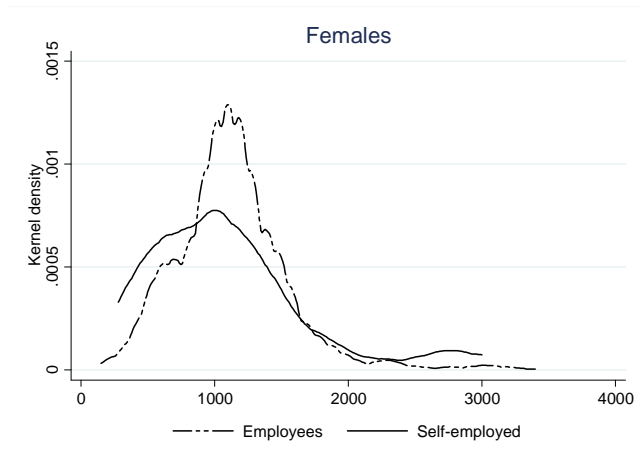
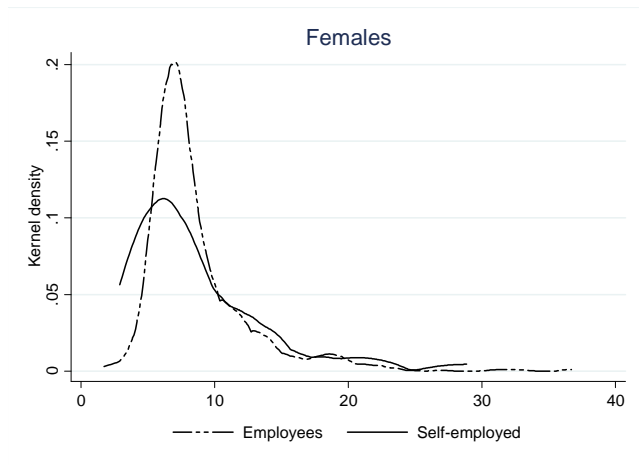
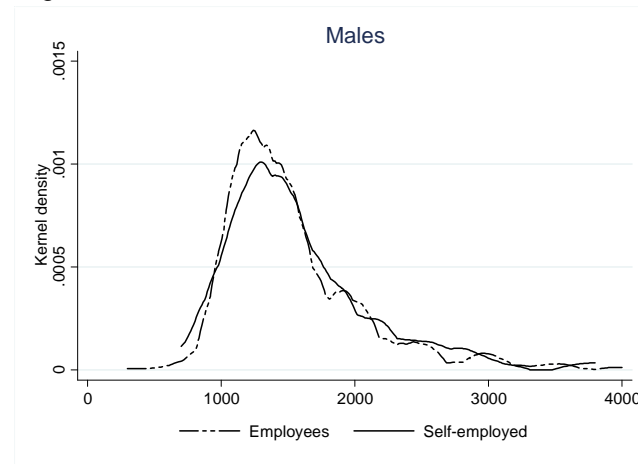


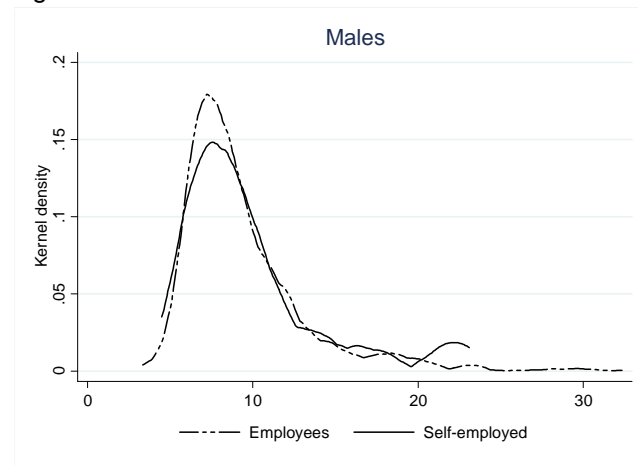
Figure 4. Kernel densities of monthly and hourly wages by sex and *type of contract* when entering the labour market. Workers with more than 15 years of experience



Monthly wages



Hourly wages



In terms of hourly wages, we may note both similarities and differences between the samples of men and women. There are clear similarities with regard to the effect of entering the labour market with fixed-term contracts: in such cases both women and men – although the latter to a greater extent – are subject to a negative effect on the positioning of the pay density curve, which appears slightly more to the left compared to that of workers who start out with a permanent contract. Another similarity concerns the pay distribution for those who start out as self-employed: these workers present a greater (substantially so in the case of women) concentration of pay around the higher values. For women, in particular, beginning a career as self-employed would appear to guarantee higher earnings in the medium term.

The major difference that emerges between the two sexes in the distribution of hourly pay concerns the contract positioning of para-subordinate work. As mentioned above, this type of employment renders the worker subordinate to an employer with regard to their duties and the way in which they are performed, albeit with a greater degree of autonomy compared to that of company employees. However, at an institutional level, with regard to welfare and social protection, these contracts are much more similar to self-employment than company employment posts. At least at a descriptive level, the distribution patterns of hourly pay show the financial advantage that such contract types may have for women in the medium term, as the distribution of hourly pay is clearly rightward of the distribution bells of those women with permanent or fixed-term contracts. This is not the case in the male sample.

These results may indicate a non-random selection of the most skilled – and perhaps also best educated – women at the beginning of their working careers towards self-employment or para-subordinate work, which translates into being placed in a higher salary bracket in the shift to permanent work. On the other hand, they might be indicators of the skills or commitment of women who accept freelance-type work.

4. Likelihood of job stabilisation and effects on earning of a flexible working career

The results of the descriptive analysis given in the previous Sections encouraged us to move forward with an econometric summary in an attempt to provide a quantitative

assessment of what the effect of flexibility on employment and earnings outcomes is, and what the graphical analysis fails to detect. The interesting point to be explored further is whether the temporary nature of work and different forms of flexibility may have different effects on females and males. As noted in Section 3, in some cases the descriptive analysis shows a positive effect on earnings caused by flexibility, which could result from a selection effect; for example, the distributions of wages of female workers entering the labour market with para-subordinate work contracts and self-employment positions are placed on higher values compared to the distribution of salaries of those entering the labour market as employees and this, as we said, could be due to a non-random selection of more skilled women in such contracts.

We therefore propose an empirical model to estimate selection for permanent jobs and, at the same time, the hourly wages of workers who obtain those posts. The econometric model we use (Heckman, 1979) allows us to isolate any non-random selection of female and male workers in permanent jobs and at the same time, to achieve the dual aim of separating the analyses of access to stability and earnings.

The Heckman model, applied to our context, consists of two equations: a selection equation to permanent and full-time employment – which is the first stage of the procedure – and an earnings equation for employees with this type of contract (second stage).

According to Heckman (1979), the selection model for permanent work of the i -th individual belonging to group g (females/males) is the following:

$$z_{i_g}^* = W_{i_g} \gamma_g + u_{i_g} \quad \text{with } u_{i_g} \sim N(0, \sigma_{u_g}^2) \quad g = \text{males, females} \quad (1)$$

W_{i_g} represents the vector of the i -th individual's characteristics belonging to group g , and γ_g represents the corresponding parameters. Since variable $z_{i_g}^*$ cannot be observed, the model is estimated on the dichotomous z_{i_g} variable, which assumes unitary value when the individual is working full-time with a permanent contract and null value on the contrary. The underline assumption is that $z_{i_g} = 1$ if $z_{i_g}^* > 0$ and $z_{i_g} = 0$ if $z_{i_g}^* \leq 0$.

The probability of the event “being employed with a permanent and full-time contract” is equal to $\text{Prob}(z_{i_g} = 1) = \phi(W_{i_g} \gamma_g)$. The probability of the null event is equal to $\text{Prob}(z_{i_g} = 0) = 1 - \phi(W_{i_g} \gamma_g)$.

As for the second stage of the econometric model, hourly wages of permanent employees⁸ are expressed as in Equation 2:

$$E[W_{i_g} | X_{i_g}, z_{i_g} = 1] = X_{i_g} \beta_g + E[\varepsilon_{i_g} | u_{i_g} > -W_{i_g} \gamma_g] = X_{i_g} \beta_g + \theta_g \lambda_{i_g} \quad (2)$$

Wherever, for any *i*-th individual belonging to group *g* and in permanent employment, W_{i_g} is his/her observed wage rate (in logarithm), X_{i_g} his/her productive characteristics, β_g the rewards for those characteristics and ε_{i_g} the error term, $\lambda_{i_g} = \phi(W_{i_g} \gamma_g / \sigma_{u_g}) / \Phi(W_{i_g} \gamma_g / \sigma_{u_g})$ is the inverse of the Mill's ratio (as defined by Heckman) and is included in the earnings regression as an explicative variable.

The model 1-2 is estimated for men and women separately through a two-stage procedure in which at the first stage Equation 1 is estimated, the Mill's ratio derived and included as a regressor in the equation of hourly wages (second stage).

Much of the role in explaining an individual's wage rate is attributed to human capital characteristics, in particular education and experience. Therefore, Equation 2 is estimated including educational dummies among the regressors and two variables capturing the effect of human capital other than education: one for general experience and a second for firm-specific experience. General experience is computed as the total number of years spent working since the individual's first significant employment, while firm-specific experience is proxied by the number of years spent with the same employer. The two are continuous variables and, as is generally assumed, enter the wage equation in quadratic form to capture their increasing effect, to a lesser extent, on wages. As for education, we categorise the variable in three different levels

⁸ From here onwards we refer to these workers only as “permanent workers”.

corresponding to primary school (the reference base in the estimates), upper stage of secondary education, and university.⁹

The variables of interest for the purpose of this study are those that summarise the different aspects of flexibility, already discussed in earlier Sections, which have been translated into several dummies: those on the flexible characteristics of employment contracts when first entering the labour market and those on the number of company changes experienced by individuals during their professional careers. As for the periods of work interruption, we use all information available, and instead of estimating the only effect as having experienced periods of unemployment, we check for the causes of such interruptions, grouped as explained in Section 2.

The empirical model is completed by the inclusion of dummies in occupational categories: firm size, sectors and macro-regions. In addition to that, two variables relating to domestic characteristics, such as whether the individual is married or cohabiting and the number of children, are included in the first-stage selection equation in order to identify second-stage coefficients.

Estimated results for the most relevant variables can be found in Table 2, in which marginal effects are given for the first-stage equation. The complete table of estimated coefficients, at both stages, is to be found in the Appendix (Table A1).

As for the marginal effects of the single variables on the likelihood of becoming a permanent worker, we note interesting differences between females and males. First of all, the probability of males becoming permanently employed increases significantly (by 24%) when individuals complete the upper-stage of secondary education; on the contrary, that level of education is not enough to guarantee women a higher probability of permanent employment. Female workers have to reach a university degree in order to have a higher chance (by 15.6% compared to females with an education merely of the compulsory level) to be in the labour market permanently. On the other hand, among

⁹ The Italian educational system is made up of three levels of education. Compulsory schooling makes up a total of up to eight years, subdivided in two cycles: the first, up to five years of primary school (the so-called “*scuola elementare*”) and the second, the three years of lower-secondary school (“*scuola secondaria inferiore*”). Individuals end the compulsory cycle, and decide whether to keep on studying when they are between 13 and 14 years old. If they decide to stay in school and enter the so-called upper stage of secondary education (“*scuola secondaria superiore*”), they can choose between different educational paths, some more technical-mathematical and other more humanistic. Whatever the case may be, if they complete the whole cycle of studies, they are allowed to enter university.

the other human capital variables, only “tenure” has a significant effect on permanency and, even in this case, the effect is much higher for men (almost 24% for men against 6% for women).

Turning to the marginal effects of the variables related to flexibility in employment, our results confirm some of the findings discussed in the literature; we may say that also in the case of Italian workers, be they men or women, flexibility on entering the labour market can negatively influence the likelihood of obtaining a permanent job. We see, in fact, that having experienced initial periods of work as a part-timer or fixed-term employee reduces the likelihood of gaining work permanency by 26% in the female case and around 37% in the male sample. This result is stunning, especially when compared to the (even greater) extent of the effect of first work experiences without any contract; in this case, penalisation in terms of the probability of obtaining a permanent job amounts to around 26% (for females) and 31% (for males).

A medium-high mobility (equal to three or more job changes) during the professional career does not significantly reduce the female likelihood of reaching a permanent position. On the other hand, having been a highly mobile worker (six or more job changes), if male, positively affects the probability of having now become a permanent worker; the marginal effect is significant at a probability level of around 10% and amounts to around 20 percentage points with respect to the case of a mobility experienced of less than three job changes.

As for the marginal effects incurred by significant periods of work interruption on the probability of having now been given a permanent position at present, we find significant evidence of a different pattern for men and women. In the case of work breaks due to *WSF/Mobility/Unemployment* and education, the penalisation is strongly higher for men: *WSF/Mobility/Unemployment* can account for a lower probability in accessing permanent work positions of around 35% for men and 15% for females; education marginally affects being given a permanent job by 57% and 43% in the male and female samples respectively. On the other hand, having interrupted work activity for care reasons or *Illness/Maternity* does not significantly affect the likelihood of men being permanently employed at the present, while has a significant negative effect for females, amounting to 11% and 27% respectively in the former and the latter case.

In general, we may say that flexibility penalises both men and women in accessing permanent job positions, although with different intensity and following distinct models.

Turning now to the estimated results for hourly wages, an initial important outcome needs to be emphasised: the inverse of the Mill's ratio plays a sharply different role in the two samples. More precisely, the female coefficient of the Mill's ratio is strongly significant and assumes a positive sign; on the contrary, the male Mill's ratio enters the equation with a weak significance and a negative coefficient. This outcome confirms some of the considerations we suggested in the previous Sections: the selection of females in permanent employment is positively biased, while selection of males is biased (at a lower significance level) towards slightly less skilled workers.

Once corrected for selection, the estimated wages of permanent workers, either female or male, do not show a strong and significant penalisation due to flexibility. The only statistically significant negative effect is detected in relation to periods of interruptions due to *WSF/Mobility/Unemployment* experienced by male workers. In this case the hourly wage rate may suffer a penalisation around 5%. As for females, out of work periods due to illness reduce the wage rate by almost 10%, but with very weak significance.

The econometric analysis reveals an interesting result as to the effect of mobility on the level of hourly wages: females, but not men, are rewarded more if they change jobs. In average terms (due to the regression procedure), hourly wages of females experiencing medium-high job mobility are higher compared to those having changed jobs a lower number of times: female hourly pays gain 3.5% if females have changed work between three and five times, and 9% if mobility is higher (six or more changes).

Table 2. Main estimation results

	Selection equation		Wage equation	
	Females	Males	Females	Males
	Marginal effects	Marginal effects	Coeff.	Coeff.
<i>Human capital characteristics</i>				
Upper-stage of secondary education	0.048	0.241	0.200	0.060
	(0.95)	(2.78)**	(9.04)**	(3.80)**
University education	0.156	0.191	0.341	0.222
	(2.37)*	(1.49)	(12.28)**	(9.08)**
Experience	0.004	0.006	0.007	0.009
	(0.57)	(0.51)	(2.44)*	(3.42)**
Experience squared	-0.000	-0.000	-0.000	-0.000
	(1.25)	(0.96)	(2.08)*	(3.46)**
Tenure	0.060	0.139	0.020	0.007
	(9.29)**	(10.62)**	(5.87)**	(2.49)*
Tenure squared	-0.001	-0.003	-0.000	-0.000
	(4.91)**	(7.86)**	(3.70)**	(0.63)
<i>Flexibility when entering the labour market</i>				
Fixed-term/part-time	-0.262	-0.367	-0.041	-0.022
	(4.07)**	(3.28)**	(1.37)	(0.79)
Self-employment	-0.089	0.112	0.021	-0.036
	(0.69)	(0.56)	(0.38)	(1.02)
Without contract	-0.259	-0.307	-0.069	0.021
	(2.64)**	(1.96)	(1.46)	(0.54)
<i>Number of job changes</i>				
3 to 5	0.025	0.068	0.036	0.011
	(0.55)	(0.82)	(1.82)	(0.73)
6 or more	-0.039	0.193	0.090	0.017
	(0.50)	(1.61)	(2.53)*	(0.66)
<i>Causes of career interruption</i>				
Care	-0.107	0.023	-0.017	-0.060
	(2.29)*	(0.04)	(0.84)	(0.43)
WSF/Mobility-Unemployment	-0.149	-0.353	-0.006	-0.052
	(3.23)**	(4.54)**	(0.32)	(2.91)**
Illness/Maternity	-0.270	0.002	-0.097	-0.035
	(1.97)*	(0.01)	(1.67)	(0.84)
Education	-0.427	-0.567	-0.052	0.043
	(2.37)*	(2.59)**	(0.59)	(0.65)
Other	-0.369	-0.276	-0.044	0.014
	(3.73)**	(1.64)	(0.96)	(0.37)
<i>Regional dummies</i>				
North	-0.070	-0.020	-0.017	0.006
	(1.54)	(0.21)	(0.93)	(0.34)
South	0.032	-0.153	-0.033	-0.000
	(0.62)	(1.52)	(1.63)	(0.01)
Married/cohabiting	-0.217	0.250		
	(-5.24)**	(2.91)**		
Number of children	-0.132	-0.003		
	(6.66)**	(0.08)		
Constant	-0.118	-0.001	1.450	1.879
	(0.60)	(0.00)	(19.34)**	(36.50)**
Inverse of Mill's ratio			0.142	-0.055
			(3.485)**	(1.86)*
Number of observations	3594	2469	3594	2469

LR test of independent equations: Females' model: $\chi^2(1) = 8.12$. Prob > $\chi^2 = 0.0044$. Males' model: $\chi^2(1) = 2.05$. Prob > $\chi^2 = 0.1518$

Absolute values of z statistics in parentheses. * significant at 5%; ** significant at 1%.

Conclusion

In this paper we studied the effect of flexibility on both wages and the likelihood of work stabilisation, by focusing on flexibility when entering the labour market and on periods of career interruption. Our main goal was to evaluate how having entered the labour market with fixed-term contracts or having experienced periods of interruption of work or many company changes can affect the likelihood of being given a permanent contract and the level of wages received in subsequent jobs. Unlike other works in the existing literature, this study has dealt with female and male workers separately.

The descriptive analysis and the econometric results show the existence of gender differences in pay models with regard to both career mobility and flexibility in entering the labour market. In general, we may say that flexibility penalises both men and women in accessing permanent job positions, although with different intensity and following distinct models. In addition to that, selection of females in permanent employment is positively biased.

Estimates confirm some of the findings discussed in the literature and highlight new facts as to gender differences. Flexibility on entering the labour market can negatively influence the likelihood of obtaining a permanent job, for both men and women; on the other hand, having experienced a medium-high mobility during the professional career does not significantly reduce female likelihood of reaching a permanent position, while positively affects the probability of having become a permanent worker, if male. As to having experienced significant periods of work interruption, we find that in the case of work breaks due to unemployment – either subsidised or not – the penalisation in terms of probability to reach a permanent position is strongly higher for men than for women; the opposite is true when work interruptions occur for care reasons, illness or maternity.

Once corrected for selection, the estimated wages of permanent workers, either female or male, do not show a strong and significant penalisation due to flexibility. The only statistically significant negative effect is detected in relation to periods of interruptions due to *WSF/Mobility/Unemployment* experienced by male workers and out of work periods due to illness experienced by females. An interesting result has to be mentioned in relation to the effect of mobility on the level of hourly wages: females, but not men, are rewarded more if they change jobs. In average terms, hourly wages of

females experiencing medium-high job mobility are higher compared to those having changed jobs a lower number of times.

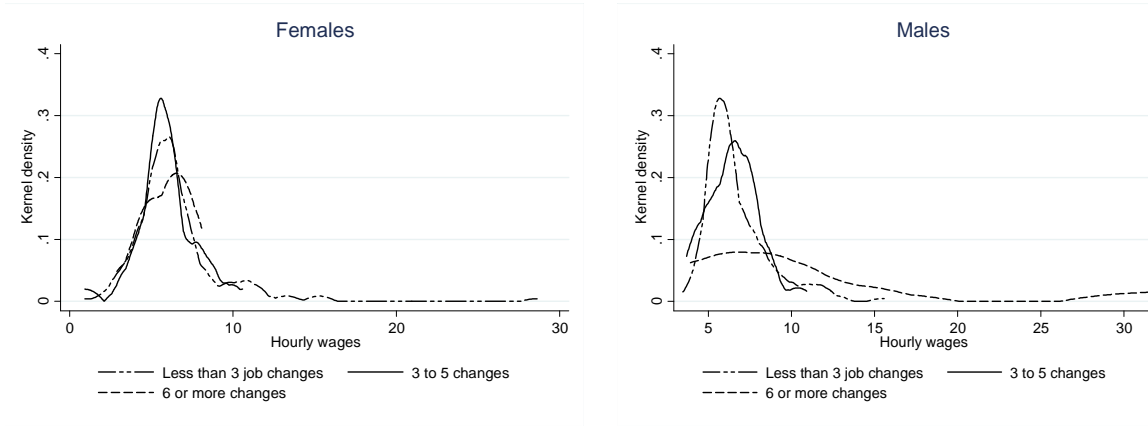
References

- Addison, J. T., & Surfield, C. J. (2009). Atypical work and employment continuity. *Industrial Relations*, 48, 655-683.
- Booth, A. L., Francesconi, M., & Jeff, F. (2002). Temporary jobs: stepping stones or dead ends?. *The Economic Journal*, 112, F189-F213.
- Gagliarducci, S. (2005). The dynamics of repeated temporary jobs. *Labour Economics*, 12, 429-448.
- García-Pérez, J. I., & Muñoz-Bullón, F. (2005). Temporary help agencies and occupational mobility. *Oxford Bulletin of Economics and Statistics*, 67, 163-180.
- Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica*, 47, 153-161.
- Ichino, A., Mealli, F., & Nannicini T. (2005). Temporary work agencies in Italy: a springboard toward permanent employment? *Giornale degli Economisti e Annali di Economia*, 64, 1-27.
- Van Ours, J. C. (2004). The locking-in effect of subsidized jobs. *Journal of Comparative Economics*, 32, 37-55.
- Zijl, M., van den Berg, G. J., & Heyma, A. (2004). Stepping stones for the unemployed: the effect of temporary jobs on the duration until regular work. IZA Discussion Paper N. 1241.

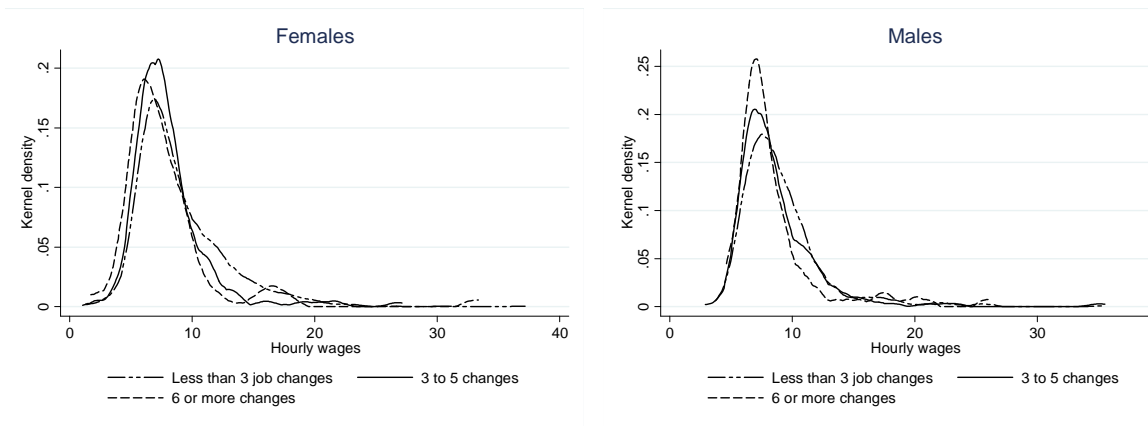
Appendix

Figure A1. Kernel densities of hourly wages by sex, age and number of job changes

Age 15-29



Age 30-44



Age 45-65

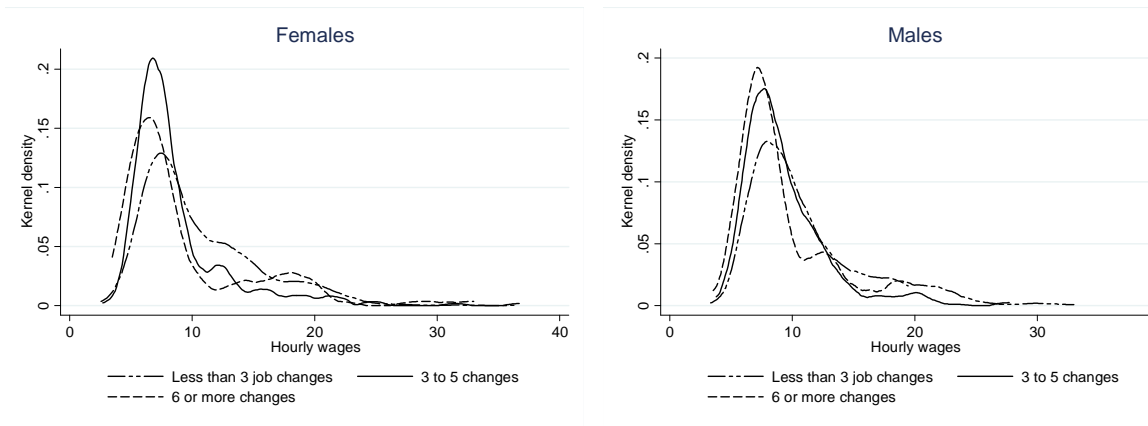


Table A1. Estimation results

	Females		Males	
	Selection equation	Wage equation	Selection equation	Wage equation
<i>Human capital</i>				
Upper-stage of secondary education	0.067	0.200	0.299	0.060
	(0.95)	(9.04)**	(2.78)**	(3.80)**
University education	0.218	0.341	0.237	0.222
	(2.37)*	(12.28)**	(1.49)	(9.08)**
Experience	0.005	0.007	0.007	0.009
	(0.57)	(2.44)*	(0.51)	(3.42)**
Experience squared	-0.000	-0.000	-0.000	-0.000
	(1.25)	(2.08)*	(0.96)	(3.46)**
Tenure	0.084	0.020	0.173	0.007
	(9.29)**	(5.87)**	(10.62)**	(2.49)*
Tenure squared	-0.001	-0.000	-0.004	-0.000
	(4.91)**	(3.70)**	(7.86)**	(0.63)
<i>Flexibility when entering the labour market</i>				
Fixed-term/part-time	-0.366	-0.041	-0.455	-0.022
	(4.07)**	(1.37)	(3.28)**	(0.79)
Self-employment	-0.124	0.021	0.138	-0.036
	(0.69)	(0.38)	(0.56)	(1.02)
Without contract	-0.362	-0.069	-0.381	0.021
	(2.64)**	(1.46)	(1.96)	(0.54)
<i>Number of job changes</i>				
3 to 5	0.035	0.036	0.085	0.011
	(0.55)	(1.82)	(0.82)	(0.73)
6 or more	-0.054	0.090	0.239	0.017
	(0.50)	(2.53)*	(1.61)	(0.66)
<i>Causes of career interruption</i>				
Care	-0.149	-0.017	0.028	-0.060
	(2.29)*	(0.84)	(0.04)	(0.43)
WSF/Mobility/ Unemployment	-0.208	-0.006	-0.438	-0.052
	(3.23)**	(0.32)	(4.54)**	(2.91)**
Illness(Maternity)	-0.377	-0.097	0.002	-0.035
	(1.97)*	(1.67)	(0.01)	(0.84)
Education	-0.596	-0.052	-0.706	0.043
	(2.37)*	(0.59)	(2.59)**	(0.65)
Other	-0.515	-0.044	-0.342	0.014
	(3.73)**	(0.96)	(1.64)	(0.37)
<i>Occupational types</i>				
Manager	0.619	0.230	1.053	0.296
	(2.59)**	(4.39)**	(2.26)*	(7.39)**
Intellectual professions	0.247	0.295	0.774	0.337
	(1.53)	(6.37)**	(2.51)*	(8.26)**
Teacher	0.136	0.277	0.053	0.501
	(1.30)	(10.03)**	(0.20)	(10.15)**
White-collar	0.072	-0.073	0.123	-0.015
	(0.95)	(2.93)**	(0.86)	(0.66)
Qualified blue-collar	0.283	-0.113	0.197	-0.113
	(1.85)	(2.44)*	(1.25)	(4.45)**
Blue-collar	0.264	-0.131	0.106	-0.115
	(2.40)*	(3.59)**	(0.70)	(4.44)**
Technical professions	0.341	0.007	0.087	0.009
	(2.96)**	(0.19)	(0.53)	(0.33)
<i>Sectors</i>				
Energy	0.381	0.214	-0.090	0.039
	(0.75)	(1.90)	(0.20)	(0.86)
Mining	-0.338	-0.103	-0.222	0.053

	(0.46)	(0.48)	(0.46)	(0.74)
Food	-0.312	-0.101	-0.454	-0.064
	(1.61)	(1.71)	(1.76)	(1.47)
Textiles	0.076	0.005	0.081	-0.110
	(0.47)	(0.11)	(0.25)	(2.73)**
Wood	0.162	-0.037	-0.289	-0.012
	(0.42)	(0.37)	(0.81)	(0.21)
Paper	-0.222	-0.211	0.053	-0.054
	(0.68)	(2.20)*	(0.11)	(1.06)
Refinery	4.681	0.404	6.836	0.077
	(0.00)	(1.31)	(0.00)	(0.72)
Chemicals	0.416	0.092	-0.324	0.004
	(1.52)	(1.44)	(1.33)	(0.09)
Plastic	-0.294	-0.090	-0.261	-0.063
	(1.04)	(1.08)	(0.76)	(1.14)
Mineral sector	-0.685	0.089	0.274	0.032
	(1.42)	(0.58)	(0.43)	(0.49)
Electrics	-0.273	-0.071	-0.212	0.009
	(1.17)	(1.02)	(0.85)	(0.26)
Automotive	0.083	0.021	0.176	0.011
	(0.21)	(0.19)	(0.37)	(0.20)
Other manufacturing	0.048	-0.017	-0.123	-0.075
	(0.19)	(0.24)	(0.32)	(1.29)
Construction	-0.258	0.005	0.152	0.021
	(1.01)	(0.06)	(0.75)	(0.65)
Transport	0.111	-0.057	-0.407	0.057
	(0.56)	(1.09)	(2.12)*	(1.96)*
Retailing	-0.470	-0.112	-0.064	-0.057
	(3.39)**	(2.64)**	(0.34)	(2.02)*
Hotel	-0.870	-0.333	-1.527	-0.237
	(4.69)**	(4.54)**	(4.89)**	(2.91)**
Financial	-0.203	0.101	-0.277	0.175
	(1.29)	(2.24)*	(1.09)	(5.49)**
Real estate	-0.399	-0.104	0.017	-0.047
	(2.67)**	(2.24)*	(0.07)	(1.45)
Public dministration	0.056	-0.028	-0.291	-0.002
	(0.39)	(0.74)	(1.57)	(0.09)
Education	0.182	0.132	-0.908	-0.081
	(1.30)	(3.27)**	(3.80)**	(1.99)*
Health	-0.228	-0.010	-0.506	-0.020
	(1.62)	(0.26)	(2.33)*	(0.62)
International organisations	4.563	0.433	-0.240	0.313
	(0.00)	(1.96)	(0.23)	(1.13)
Other services	-0.426	-0.111	-0.677	-0.055
	(2.98)**	(2.50)*	(3.68)**	(1.70)
<i>Firm size</i>				
10 to 19 employees	0.214	0.079	0.281	-0.005
	(2.68)**	(3.10)**	(1.83)	(0.22)
20 to 49	0.213	0.130	0.034	0.048
	(2.76)**	(5.32)**	(0.25)	(2.09)*
50 to 249	0.240	0.138	0.131	0.070
	(3.40)**	(6.06)**	(1.06)	(3.39)**
250 to 499	0.210	0.139	-0.017	0.071
	(1.81)	(4.12)**	(0.10)	(2.65)**
500 or more	0.358	0.159	0.321	0.071
	(4.32)**	(6.23)**	(2.15)*	(3.29)**
<i>Regional dummies</i>				
North	-0.098	-0.017	-0.025	0.006
	(1.54)	(0.93)	(0.21)	(0.34)
South	0.045	-0.033	-0.189	-0.000
	(0.62)	(1.63)	(1.52)	(0.01)

<i>Family's characteristics</i>				
Married/cohabiting	-0.303		0.310	
	(-5.24)**		(2.91)**	
Number of children	-0.184		-0.004	
	(6.66)**		(0.08)	
Constant	-0.118	1.450	-0.001	1.879
	(0.60)	(19.34)**	(0.00)	(36.50)**
Inverse of Mill's ratio		0.142		-0.055
		(3.485)**		(1.86)*
Number of observations	3594	3594	2469	2469

*Absolute values of z statistics in parentheses. * ignificant at 5%; ** significant at 1%*