Equal Job, Unequal Pay
Fixed Term Contracts and Wage Differentials
in the Italian Labor Market

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DIPARTIMENTO DI SOCIOLOGIA E RICERCA SOCIALE

QUADERNI

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QUADERNO 45

Giugno 2009

CONTENTS

Since the crisis of the Fordist «golden age» with its corollaries of stable, full-time, full-life, (male) full-employment and of full-welfare entitlements, «flexibility» has become the miracle cure for almost every kind of labour market need for re-adjustment. 'Flexibility' is a polysemous term: following Atkinson [1984] we can identify four different types of labour market flexibility, quite often indicating opposite goals and purposes. Numerical flexibility and functional flexibility have usually been presented in the socio economic literature as reflecting the trade-off between external and internal flexibility; that is, the alternative between considering the workforce as a pure cost to be shrunk or a resource for a competitive firm [Streeck 1991]. Whilst the mainstream labour economic debate since the early 1980s has assumed numerical flexibility as a proxy for labour market efficiency, the European socio-economic literature has pointed out that diversified quality production in small and medium highly innovative firms requires their skilled workforces to have functional forms of flexibility [Piore and Sabel 1984; Bagnasco 1977; Trigilia 1986; Beccattini 1987], as well as the debate on the «Rhine model of capitalism» as opposed to mass, «neo-Fordist», low-quality production).

If temporal flexibility – that is, the possibility to adjust working time and working hours according to the needs of the employer (or in theory also those of the employees) has been mainly addressed in terms of part-time diffusion – *wage flexibility*, that is, the possibility of firms to adjust or to differentiate wage levels (not only according to labor productivity – which is in some way 'justifiable' – but more often according to institutional differentiations that stratify along 'particularistic' cleavages) has been long neglected by sociological research, which to date has been surprisingly little interested in this kind of fundamental social inequality.

The four alternative meanings of the term 'flexibility' illustrate quite well the possible trade-offs between various mechanisms of flexibility in different labour market arrangements. Yet, these

flexibility types are not seen as equally giving rise to insecurity; rather, some may introduce insecurity in individuals' labour market careers, while others may play a crucial role in upskilling the workforce.

In particular, wage flexibility is currently being analysed as part of a trade-off between wage inequality and job insecurity as two different and plausibly inter-changeable levers for firm and labour market institutional adjustments [Blau and Kahn 2002]. Maurin and Postel-Vinay [2005] find that higher wage gaps are associated with lower job security gaps.

They write:
«Continental European countries, such as Germany or France, do not tolerate wage inequalities to the same extent as the United Kingdom or Ireland; yet they do tolerate much more substantial inequalities in job security. Mediterranean countries, such as Italy or Greece, do not accept wage inequalities as large as Germany or France, but do accept still larger job security inequalities».

This is consistent with the assumption that job (in)security represents the main channel of adjustment to macroeconomic shocks in Europe; and this conclusion runs in largely the same direction as the findings of DiPrete *et al.* [2006], who compare France and the US. These authors show that the French labour market has absorbed macroeconomic shocks to a large extent through the creation of low-adjustment cost or low security jobs and through the allocation of an increasingly large share of low skilled workers to those jobs. French – *and we could say Italian as well* - adjustment strategies have thus produced rising inequality in the job security component, rather than in the wage component, of the employment relationship or the quantity of jobs produced in different skill categories. Empirical studies [Barbieri and Scherer 2008, 2009] have shown that the creation of «new forms of atypical employment» in Italy have followed exactly the path of segmenting the labor market between the insider core workforce and a secondary sector made up of unstable and under-protected jobs. But this still does not say anything about what has happened on the wage side in the Italian deregulated labor market.

2. A step back: eurosclerosis and the 'corporatists' way to labor market deregulation

Before focusing on labour market deregulation, we take a step back to recall the reasons why so many European states in the 1980s and 1990s so readily responded to the siren song of flexibility. This brings us to the demise of the Fordist period with its guarantees on the labour market. Such guarantees (EPL, welfare, industrial relations) were cited as the institutional bases for the «*eurosclerosis*» of the European labour markets and their incapacity to re-absorb the amount of unemployment created by adverse and largely common shocks, from oil price increases to the slowdown in productivity growth [Layard, Nickell and Jackman 1991; Grubb nad Wells 1993; Saint-Paul 1996; Nickell 1997]. As Blanchard [2005] recognizes, since the early 1980s, owing to financial pressure and intellectual arguments, most governments have opted for a supply-side perspective as regards labour policies. Notwithstanding a few authoritative, and isolated, voices denouncing a «sclerosis of objectivity» among economic experts [Korpi 1996], the EPL/unemployment nexus[2], and more generally the welfare/labour market nexus, was accepted by policy makers and public opinion makers as the main cause of persistently high unemployment in Europe. Nonetheless, in «continental-corporatist» Europe, labour market deregulation followed a «corporatist» pattern of labour market de-regulation, concentrating on the de-regulation of so-called «non-standard» employment relations for particular/marginal groups within the labour market while leaving «standard» employment and existing work contracts for the core (male, unionised) workforce largely unchanged. This process of flexibilisation «at the margins» of the labour market, has been termed «partial and targeted deregulation» [Esping-Andersen and Regini 2000] or a «partial reform strategy» [OECD 2006]. Whilst both approaches stress the nature of limited labour market deregulation as not applicable to existing labour contracts, the former focuses on its age-targeted characteristic

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[2] We cite Bertola [1990], who disputes that EPL strictness is the main cause of unemployment levels among the Oecd countries, and Reyneri *et al.* [2004] who take a socio-economic perspective on flexibility and social cohesion.

while the latter focuses more on the skill divide in the workforce. Notwithstanding their similarities, the first «way» of de-regulating labour market is exemplified by the Mediterranean countries, while the «skill-centred» strategy is best illustrated by Germany and other Central and North European countries. And they remain quite different as regards their social consequences.

The literature confirms that the worst situation is that of the Mediterranean countries. Spain and Italy stand out as countries where the rapid and intense shift from rigid employment protection systems to (partial and targeted) flexibilised labour markets has given rise to largely work-insecure positions [Jimeno and Toharia 1994; Golsch's 2003] and has exacerbated the insider/outsider divide [Bentolila and Dolado 1994; Polavieja 2005; Barbieri and Scherer 2008, 2009]. Women, young people, and in particular the more recent labour market entry cohorts, are confined to precarious employment, have increased unemployment risks, and may be caught in carousel traps at later stages. Another specific feature of the «Mediterranean» labour market adjustment seems to be the strong persistence of inequality in the advancement of labour market careers: the better educated and with higher occupational qualifications seem to be better protected against entrapment in the secondary, sub-protected labour market. Also considering the exit rates from precarious employment, professionals in fixed-term jobs appear be in a more advantageous situation than unskilled labourers or routine service workers on temporary contracts. For the former, non-standard work may serve as a 'bridge' to a permanent, standard position, but for the latter, a temporary job may turn into a 'trap' [Giesecke and Gross 2003; Fouarge and Layte 2005; Barbieri and Scherer 2008, 2009].

Many social scientists [Saint-Paul 1996; Streeck 2003; Blossfeld *et al.* 2005, 2008] have criticised the creation of a two tiered labour market with highly protected workers on the one hand, and highly flexible jobs (internships, short term contracts, temporary jobs, solo-self-employment) mostly for young people, women, new entrants, immigrants and/or unskilled workers, on the other. The resulting strongly segmented labour market is the worst outcome [Muffels and Luijkx 2008] for social equality because it increases

social differences without yielding the benefits of a substantial improvement in the performance of the labour market.

Some political scientists endorsing the «new-politics perspective» argue that these distinctive forms of labour market deregulation and the parallel welfare state retrenchments result from resistance by powerful groups of welfare-state clients (insider workers, retirees) who have managed to direct welfare and labour market reforms towards the (non-organised) new cohorts of labour market entrants [Pierson 1996, 2001; Soskice 1990]. Others, closer to the «power-resources perspective», tend to interpret it as resulting from distributive conflicts between major interest/political groups, given the budget deficits caused by post-industrial changes and government attempts to promote cuts [Korpi 2003]. This literature evidences that the «macro» institutional level (the industrial relation system, as well as labor policies and the welfare state) has played a significant role in shaping both the forms and the social consequences of these processes of labour market flexibilisation – and therefore should be considered when seeking the mechanisms that have produced a given outcome on the labor market.

Today, even the «mainstream» economic literature admits that a strategy of labour market reform «at the margins» may have adverse long-term effects at odds with good labour market performance [Blanchard and Landier 2001; Dolado *et al.* 2002; OECD 2004, 2006], or it may produce only temporary, «honeymoon» effects [Bertola 1990; Boeri and Garibaldi 2007]. When the regulation of standard work contracts is overly strict, employers tend to recruit mainly on temporary contracts and are reluctant to convert these contracts into permanent ones. Laying off permanent workers is so difficult and costly that companies have a strong preference for temporary labour, even if this is to the detriment of productivity: training new workers is a sunk cost. The result is an increased concentration of labour turnover among workforce groups over-represented in temporary/atypical jobs, potentially trapping some of them in a future of «precarious» jobs with high levels of employment insecurity [OECD 2006], as well as under-investment in human capital, which wastes part of their productivity potential.

We should stress, however, that the two strategies of deregulating labor markets «at the margins» – the skill/cohort divide – are quite different in how they generate social inequality: inequalities have arisen in the «continental way» to flexibility as a consequence of different LM rewards for skills and competencies; while in the «Mediterranean» way to flexibility, inequality is still firmly anchored to an ascriptive factor: age/cohort. It is not our intention here to draw up a typology of labor market adjustment strategies, combining the wage gap-work insecurity gap and the age-skill divide [see Barbieri 2009]. Rather, the focus of this paper is to verify whether, in the specific Italian situation, the wage inequality/job insecurity trade-off has worked as envisaged by the theory, or whether instead – as quite often happens in the Italian situation – the worst aspects of the two ways of adjusting labor market have combined to generate even stronger mechanisms of social inequality and labor market exclusion for (young) atypical workers.

The paper will proceed as follows: after presenting the theoretical background and main research hypotheses, it describes the datasets and methods used to establish the magnitude of the wage gap between insider and outsider workers in present-day Italy, briefly dealing with the issue of unobserved heterogeneity and the need to control for the unobservables. The following empirical sections will analyse the micro determinants of FTC wage penalties. We shall see how micro dimensions in inter- and intra-individual variations cannot completely explain the wage penalty attached to the new forms of flexible employment, therefore leaving room for a macro, institutional, explanation grounded on the role of the insider/outsider scenario and the implicit exchange [Soskice 1990] produced by the macro-corporatist agreements of the nineties.

3. Theoretical background and research hypothesis

Whether the wage levels of standard and temporary workers differ systematically is not merely an empirical question, for it is a

source of considerable theoretical debate. From an empirical point of view, international research has shown that temporary workers are generally lower paid than ones in permanent employment, although the magnitude of the gap varies quite substantially according to the national labor market structure – and the estimation method used [Davia and Hernanz 2002; Booth *et al.* 2002; Hagen 2002; Rica 2004; de Graaf-Zijl 2005; Brown and Sessions 2005; Mertens and McGinnity 2005; Gash and McGinnity 2007; Hevenstone 2008; Gebel 2009]. Much less is known about Italy: the few empirical studies conducted report penalties for non standard contracts, in terms of either earning levels or earning stability [Picchio 2006; Cappellari and Leonardi 2006]. Nonetheless there is still scarce empirical evidence connecting the following three issues: first, the *level* of inequality in wages between contingent and secure work positions; second, the *determinants* of such wage inequality; and third the degree of *internal wage differentiation* among temporary workers.

From a theoretical point of view, should we expect to find a wage premium, a wage penalty, or no difference in the rewards for standard and non-standard jobs? According to various declinations of the theory of compensating differentials (Rosen 1986), in a market unaffected by information asymmetry and characterized by mobility between jobs, we may expect a wage premium for workers holding temporary positions which compensates for the risks associated with the limited duration of their contracts. Moreover, as noted in the previous section, Italy is largely a country of «job-insecurity» labor market adjustment, which may therefore support the expectation that some monetary «compensation» is forthcoming because of the lack of guarantees.

Nonetheless, a large body of literature reports that, in Italy, partial and targeted labor market deregulation has also been intended to reduce labour costs, while empirical research shows that, compared to permanent employment, flexible jobs are less appreciable in terms of working conditions, risks of subsequent unemployment, and career interruption [Gagliarducci 2005; Barbieri and Scherer 2007; Oecd 2006]. This is not entirely surprising, given that the aim of the labor market deregulations of the 1990s was to include the weakest and marginal segments of the workforce in the labor market. To be realistic, the wage

premium would require workers to be both perfectly informed about vacancies and (overall) free to choose among a set of job offers differing only by contractual arrangement – and the amount of remuneration. This is clearly not the case of the present Italian labor market, where the majority of job-seekers have only the options of accepting atypical employment or postponing their entry into the labor market. Based on these considerations, our first hypothesis is as follows:

Hypothesis 1: Although Italy should be viewed as a case of labor market adjustment based on job-insecurity more than wage-inequality, the compensation hypothesis will not be confirmed, owing to the violated assumption of free choice between different jobs in the primary and secondary labor markets. On the contrary, a wage gap between FTC and permanent employment is expected, and it is most likely due to the lower investment incentives in human capital that occur in FTC.

Two additional theoretical contributions from labor economics are relevant to our purposes here: both the signalling (Spence 1973) and the screening [Stiglitz 1975] theories consider temporary jobs as partial answers to the information asymmetry problem [Guell and Petrangolo 2000; Booth *et al.* 2002; McGinnity *et al.*, 2005]. In other words, employers hire new entrants on a FTC basis in order to test them for a trial period longer than the standard one scheduled for a permanent position so that they can evaluate their work productivity better. Some studies seem to support the signalling/screening hypothesis for Italy [Ichino *et al.* 2003; Berton *et al.* 2007; Picchio 2007]. This may produce a situation in which both low and high productive workers are hired on a FTC: in particular, workers characterized by high levels of work productivity (or ability or motivation) in a strongly insider/outsider labor market with strong barriers against access to stable positions may choose temporary work in order to signal their qualities, and to maximize their future chances of being hired permanently [Loh 1994], even if this strategy requires them to accept a lower initial wage. Based on these considerations, our second hypothesis is as follows:

Hypothesis 2: Given the heterogeneity among temporary contract holders in terms of skills, human capital, work experience, motivations and work productivity, we cannot expect a possible wage gap to be equal among all flexible workers. On the contrary, we may expect there to be a high level of wage gap variation within the same secondary labor market workforce.

Finally, if different kinds of workers, with different motivations and endowments, apply for different atypical jobs, the presumable consequence is that unobservables will be relevant in explaining wage differentials. And, in fact, one of the assumptions commonplace among labor market analysts is that temporary and standard workers differ not just in observable relevant features but also in typically unobservable ones (like ability or motivation, or even intelligence).

Nonetheless, economic theory states that the definition of wage levels (and therefore also wage differentials) is strongly affected by the capacity of unions (i.e. insiders) to influence firms' production costs [Blanchard and Summers 1986], as well as to take advantage from hiring and firing costs [Lindbeck and Snower 1988] that obviously differ between the insider core workforce and marginal, sub-protected workers.

The cohort distribution of flexible employment provides us with some preliminary evidence: fixed term contract holders as a group share a series of characteristics typical of the «outsider» workforce. They are mainly young first labor market entrants, or women, with less market experience, and lower union coverage rates. They therefore have lower firing costs. This may account for the predicted wage premium for core standard workers. Given this institutional-based segmentation of the labor market and the subsequent disequilibrium in bargaining dynamics, it may be misleading to consider the wage gap as only fully explainable at the «micro» level, in terms of different characteristics of the workers and/or in terms of adverse selection of those hired on a FTC basis.

Hence the wage penalty that we should find, if it is robust to unobserved heterogeneity issues, would suggest other sources of inequality that lie mainly at a different – institutional, i.e. macro – level [Rosolia and Torrisi 2006].

Based on these considerations, our third hypothesis is as follows:

Hypothesis 3: Differentials between permanent and FTC wages will be reduced, but not cancelled out, once the observed and unobserved characteristics of the FTC workers have been controlled for. This is because such differentials originate at the macro level, most likely in the insider/outsider dynamics of Italy-specific labor market adjustment.

Unfortunately, our data do not allow for the direct testing of either the insider/outsider wage bargaining hypothesis [Bentolila and Dolado 1994] or firms' strategies of labor cost reduction. However, these two mechanisms remain as indirect explanations of the wage differential paid by atypical workers once the role played by their individual observable and unobservable characteristics has been controlled for.

4. Data, methods and sample selection

As outlined in the previous section, our specific research questions concern the magnitude and evolution of wage differentials, the unobserved heterogeneity issue as a source of earning inequality, and the shape of the wage gap distribution among different groups of «atypical» workers.

We address these questions by drawing on three different survey-based data sets for successive periods:

- The Italian component of the European Community Household Panel, for the years between 1995 and 2001. The ECHP 7-wave panel dataset provides us with wage information covering the pre-post period of the first real deregulation introduced in the Italian labor market, namely the 1997 «Legge Treu».

- The cross sectional dataset of the Survey on Household Income and Wealth, collected by Bank of Italy for the years 2004 and 2006 and a panel subsample referring to the same period.

- The Italian component of the Statistics on Income and Living Conditions survey (Eu-Silc) which comprises both the

three wave panel for the years 2004-2006 and the 2006 cross sectional dataset.

As regards methods, cross sectional datasets have been analyzed using ordinary least square (OLS) regressions, quantile regression (QR), and statistical matching procedures; while Between (BE) and Fixed effects (FE) models have been estimated when analysing panel data[3]. OLS estimations in fact, do not allow for any control on unobservables, so that fixed effects panel models are the best option for dealing with unobserved heterogeneity issues. Put differently, FE regression controls for omitted/unobserved(able) variables that differ between cases but are constant over time (e.g. individual-level unobserved differences in cognitive and noncognitive abilities, such as motivation, intelligence, sociability, the ability to focus on tasks, self-regulation, self esteem, health and mental health, etc.)[4].

If OLS were used, we would compare wage levels across different individuals with different contractual arrangements, whereas by using fixed effects models we compare wage levels within the *same* worker before and after he/she makes a transition from a fixed term job to a permanent one. Given that the parameter estimations are based on intra-individual variation over time, they depend on the relevant covariates being time-varying (which is why gender, usually time constant, is omitted)[5] [Wooldridge 2002].

The models are based on a standard wage mincerian equation (in which the salary is a function of age, age squared, years of tenure and experience of the worker: see Polacheck [2007], plus a set of additional dummy variables controlling for gender,

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[3] Random Effect models have been estimated for each panel analysis. Following the Hausman's test, we opted for FE models. The complete stata outputs of the analyses can be obtained from the authors.

[4] Regression with between effects (BE) controls for omitted/unobserved(able) variables that change over time but are constant between cases (unobserved or unobservable 'macro-level' effects, such as time/period/cohorts effects). Finally, regression with the random effects (RE) estimator controls for both types of fixed and between effects, that is, the co-occurrence of i) omitted/unobserved(able) variables that may be constant over time but vary between cases, and ii) other omitted/unobserved(able) variables that may be fixed between cases but vary over time.

[5] However, it should be borne in mind that fixed effect panel models, while being the best means to deal with unobserved heterogeneity issues, are quite "conservative" and potentially underestimate the negative wage gap for FTC.

education, occupation, industrial branch, firm size, plus on-the-job-training (ECHP analysis), family characteristics and work career (Shiw). The dependent variable is the *net hourly wage* in statistical matching estimations and the *log-transformation of the net hourly wage* in all regression-based analyses[6].

The log-transformation is required because wage distribution is usually left-skewed and the log-wage better fits normality assumptions, enabling us to interpret the resulting coefficients in terms of semi-elasticity. Hourly wage, not directly available in the datasets, has been computed as follows:

$$\frac{\textit{(total annual net wage / n. months of work)}}{\textit{(n. hours of work per week*4.3)}}$$

Finally, the individuals included in our analyses are dependent employees aged between 16 and 65, working between 13 and 70 hours a week, who did not change their employment in the previous year, with the consequent exclusion of self-employed workers, second-job holders, as well as agricultural workers and those paid off-the-books.

4.1. More on methods: a formal presentation

We estimate earning regression models, starting with the standard (cross-sectional) OLS approach and then moving to panel and fixed effect estimation. The simplified cross-section earnings regression is:

$y_i = z_i\alpha + x_i\beta + \varepsilon_i$

where: y = log wage; z_i = observable time-invariant factors; x_i = observable time-varying factors; ε_i = random error.

Decomposing the error term in our panel wage model, we obtain:

$y_{it} = z_i\alpha + x_{it}\beta + u_i + \varepsilon_{it}$

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[6] Using net wage allows to control for the possible differences in fiscal/tax treatment between FTC and regular employment.

where $i = 1...n$, $t = 1 ... Ti$; y_{it} = log wage; z_i = observable time-invariant factors; x_{it} = observable time-varying factors; u_i = unobservable heterogeneity variables (time invariant); ε_{it} = residual random error.

A pooled OLS regression of y on z and x would assume that there is no correlation across individuals, nor across time periods for any individual. This would ignore the individual effect u, which generates correlation between the values of $(u_i + \varepsilon_{i1}) ... (u_i + \varepsilon_{it})$ for each individual i.

Under favourable conditions (u_i uncorrelated with z_i and x_{it}), pooled regression may produce unbiased but inefficient results.

If u_i is correlated with z_i and x_{it}, panel regression is also biased. Loosely speaking, a simple panel data regression of y on z and x does not account for possible omitted variables bias. In our case, if the ability of the workers *(u)* were negatively correlated with FTC dummy, we would obtain downward bias in estimates of fixed term contract wage penalties. In order to obtain unbiased estimations of our FTC dummy variable, our goal is to capture *ui* and to avoid its possible biasing effect.

This can be achieved by using a set of n «*D*» dummy variables, one for each person in our sample, which leads to a slightly different formulation of our wage model, where $u_1 ... u_n$ become coefficients of a set of *n* dummy variables:

$$y_{it} = z_i \alpha + x_{it} \beta + u_1 D1_i + \cdots + u_n Dn_i + \varepsilon_{it}$$

More efficient ways to eliminate u_i from the model are time differencing and within group transformation.

Time differencing: $$y_{it} - y_{it-1} = (\mathbf{x}_{it} - \mathbf{x}_{it-1})\boldsymbol{\beta} + \varepsilon_{it} - \varepsilon_{it-1}$$

Within-group transformation: $$y_{it} - \overline{y}_i = (\mathbf{x}_{it} - \overline{\mathbf{x}}_i)\boldsymbol{\beta} + \varepsilon_{it} - \overline{\varepsilon}_i$$

The within-group approach (or FE estimation), deriving by de-meaning dependent and independent variables, is equivalent to regressing y on *(z , x)* and *(D1 ... Dn).* The operation shown produces an unbiased and efficient estimation also in the case of a

spurious *Y-Z* correlation due to unobserved, time invariant, characteristics.

5. Empirical results

5.1. ECHP 1995-2001

Given the selection, the analysis covers 6090 individuals and 23806 observations, with a mean of 3.9 waves-observations per worker. OLS regressions (not shown) on the entire dataset, revealed a significant wage penalty for FTC of about 11%. As already mentioned, OLS can assure non-distorted estimations only in the case of no correlation between the regressors and the error term of the wage equation. In order to avoid the risk of a penalty due to unobserved heterogeneity, we conducted a fixed effect regression model estimation on the panel component of the same ECHP dataset. Table 1 presents the results of the FE model on the Ln(net hourly wage).

TAB. 1. Log-hourly wage differentials for temporary workers, fixed effects estimation

ln(hourly wage)	Coeff.	Std.Err.	P>t
Woman	-		
Age	0.070	0.007	0.000
age – squared	0.000	0.000	0.000
years of exp.	-0.003	0.004	0.365
years of exp. squared	0.000	0.000	0.098
Tenure	0.001	0.001	0.276
OJTraining	-0.019	0.004	0.000
medium educ,	-0.006	0.021	0.549
low educ,	-0.013	0.023	0.394
years of exp.* FTC	0.005	0.001	0.000
Partime	-0.010	0.002	0.000
FTC	**-0.093**	**0.013**	**0.000**
Public	-0.006	0.008	0.314
(N) (6090)			
Overall R^2=0.23			

Source: ECHP 1995-2001
Notes: The model controls for year of the panel survey; 27 dummy variables of occupational classification, isco88-based; 3 dummies for type of activity; 7 dummies for firm dimensions.

Since we computed the log transformation of the dependent variable, we can interpret the coefficients as the percentages of variation in the dependent variable (wage) due to a change over time in the parameter that interests us. Put differently, we observe a mean wage penalty for the FTC of about 9%, statistically significant, after controlling for the relevant socio-demographic covariates, individual work history and the characteristics of the job.

The lack of wage premium and – on the contrary – the negative wage gap for FTC supports our hypothesis # 1. To be emphasised is the «premium» deriving from «on the job training» intended as a proxy for human capital investment. According to Becker [1993], one may expect reduced incentives from both employers and employees to invest in training activities for fixed term job workers. This expectation finds some support from the (quite low but nonetheless statistically significant) effect of the on the job training activity.

A similar interpretation might also be made of the positive (yearly) effect of the interaction between the years of experience in the labor market and holding a temporary contract.

The persistence of this wage penalty after controlling for observables and unobservables micro-individual covariates supports our hypothesis # 3.

5.2. SHIW 2004- 2006

The Shiw survey is the second dataset that we analyze. Two simple cross sectional OLS estimations for years 2004 and 2006, same case selection and covariates as the ECHP analysis, yield a mean wage penalty for FTC which fluctuates around -9% and -12%, statistically significant, in line with the fixed effect estimation based on ECHP dataset (results not reported). Using the same approach as adopted in the previous section on the ECHP data, we obtained the following results from two separate multivariate regressions based on BE (pooled OLS) and FE estimation (Table 2).

TAB. 2. Log-hourly wage differentials for temporary workers

ln(hourly wage)	Model 1 BE estimation			Model 2 FE estimation		
	Coeff.	Std.Err.	P>t	Coeff.	Std.Err.	P>t
Woman	-0.115	0.011	0.000			
head of family	0.036	0.011	0.001	0.019	0.024	0.435
n. earners in HH	0.031	0.005	0.000	0.013	0.011	0.229
Age	0.006	0.006	0.383	0.087	0.016	0.000
age squared	0.000	0.000	0.712	-0.001	0.000	0.002
Tenure	0.005	0.003	0.038	0.000	0.003	0.973
tenure squared	0.000	0.000	0.228	0.000	0.000	0.651
years of exp.	0.012	0.004	0.001	-0.010	0.005	0.031
years of exp. squared	0.000	0.000	0.000	0.000	0.000	0.068
FTC	**-0.117**	**0.036**	**0.001**	**-0.086**	**0.030**	**0.004**
low educ	-0.213	0.022	0.000	-0.181	0.073	0.014
middle educ	-0.161	0.018	0.000	-0.137	0.063	0.031
(N)				(N)		
(3754)				(3754)		
R^2=0.50				R^2=0.23		

Source: SHIW 2004-2006 panel subsample
Notes: Both models also control for 5 dummy variables of occupational classification, 10 dummies for type of activity, 7 dummies for firm dimensions.

The Shiw data seems to work much better than do the ECHP ones: we observe – for both models – the expected positive and significant effects of age, tenure, labor market experience, human capital and the negative sign for being female (BE estimation).

The negative and significant effect of being hired on a FTC basis is confirmed also by (both) the models based on Shiw data, therefore again confirming our hypothesis # 1.

Controlling for unobserved heterogeneity only produces – as hypothesized in # 3 – a slight reduction in the strength of the wage penalty. This we would interpret as a minor level of hidden differences between the groups with temporary and non temporary jobs.

The statistical significance of FTC effect warrants further brief discussion. If we had no intra-individual variation over time (i.e. no changes in FTC status), FE models would be unable to estimate the respective coefficient. In effect, we know from previous studies that the transition from FTC to permanent employment cannot be regarded as the standard path for the

majority of workers? (ECHP-based transition rates are about 40% in Italy). Therefore fixed term contracts represent stepping stones to guaranteed and stable jobs only for a select group (the reverse transition, from a secure to contingent a job, is absolutely less frequent). Comparison between FE and OLS wage gap estimates should therefore bear in mind that the subsample of workers who succeed in transforming fixed term contracts into stable ones most likely cannot be considered a random sample of FTC workers, but should instead be regarded as positively selected. If this is the case, assuming a penalty of only about -9% (FE model) is likely to underestimate the «real» mean negative effect of holding a fixed term contract[7].

To check whether the wage penalty is confirmed also after a radical change of model specification, we ran a non parametrical analysis on the same 2006 cross sectional Shiw dataset, shifting to a counterfactual approach which enabled us to interpret the wage differential in terms of the *causal effect of the atypical work arrangement* (ATE, average treatment effect).

The use of statistical matching tends to reproduce the experimental framework by selecting ex-post from the dataset pairs of individuals statistically equivalent to each other: «twins» based on a relevant set of covariates, which differ only for the «treatment variable» – namely, holding a temporary job (Table 3).

We ran the match on the subsample of workers with no more than five years of experience in the labor market, given that this is the group most affected by fixed term contracts. With these selection criteria we obtained a sample of 457 standard workers and 104 «treated» ones. The matching procedure was performed on the following covariates: geographic area (North, Centre, South and Islands); gender; number of household members; number of earners in the household; being head of household; age and age squared; number of different jobs; tenure and its squared term; years of labor market experience and its squared term;

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[7] A different issue would be assessing whether the wage penalty is long-lasting: using the Shiw 2006 wave, we tested via a simple OLS regression if a previous FTC [in 2004] had a negative effect on the 2006 wage. The results (not shown) indicate a persistent, significant, wage negative effect of about 5-6%. Owing to small Ns, the interaction term FTC2004*FTC2006 (to test for a possible, additional, trap effect) remained non significant – even though it was of the expected negative sign.

education measured in five categories; occupation measured in five categories; 10 dummies for type of activity; 7 dummies for firm size; the number of hours worked.

Tab. 3. Net hourly wage differentials for temporary workers, statistical matching estimation and Rosenbaum Sensitivity Test for Hodges-Lehmann Point Estimate

Average treatment effect	Std Error	t-stat
-1.260	0.220	-5.520
Gamma	l.bound	u.bound
1.000	-1.325	-1.325
1.100	-1.425	-1.125
1.200	-1.525	-1.025
1.300	-1.625	-0.925
1.400	-1.725	-0.825
1.500	-1.825	-0.725

Source: SHIW 2006 cross sectional subsample
Notes: unit of measurement: Euro; Covariates used: geographic area 3 dummy variables, gender, number of family members, number of earners in household, head of family dummy, age, age^2, number of different jobs in working life, tenure, tenure^2, years of labor market experience, years of labor market experience^2, education 5 dummy variables, occupational classification 5 dummy variables, 10 dummies for type of activity, 7 dummies for firm size, number of hours worked; Gamma is Log Odds of Differential Assignment To Treatment Due To Unobserved Factors.

The estimation procedure that we used is known as «*genetic matching*» [Sekhon forthcoming; Keele 2009]. This is based on an iterative algorithm designed to detect the best covariates balance between the control and treated groups, the one that minimizes and renders non-statistically significant the distances in means and distributions of control and treated covariates.

The results are in line with those of the previous regression analyses.

The net mean wage differential (or ATE, average treatment effect) on hourly wage is still statistically significant; in this case we may say that a wage penalty of 1.32 euro (because the mean is 6.92, this equals a wage gap of about -19%) is the wage penalty caused by having being hired on a FTC.

Not needing parametric formulation or distributional assumptions is no guarantee against the risk of distortion in the estimates. A satisfactory balance of the observable covariates is necessary but not sufficient.

If there were unobserved variables actually relevant in predicting the worker's contract type, but not included in matching process, our ATE would suffer from the same reliability problem as the OLS coefficient.

The Rosenbaum sensitivity test, in this case, provides us with a measure of the robustness of our estimation in the case of possible unobserved heterogeneity.

The sensitivity test assumes increasing variation in the Log Odds of differential assignment to the treatment (the log odds being 1 in the case of no unobserved heterogeneity) and shows a confidence interval for each level of misspecification. The 1.32 euro ATE that we obtained appears robust over a 1.5 gamma value.

5.3. IT-SILC 2004-2006

The last dataset we use is the Italian component of the Eu-Silc panel survey. As before, a (non reported) OLS estimation (It-Silc2006) of the wage gap showed a penalty of about 9%. As will be seen from table 4, this gap is substantially reconfirmed also when analyzing the It-Silc panel 2004-2006 using FE models.

TAB. 4. Log-hourly wage differentials for temporary workers, fixed effects estimation

ln(hourly wage)	Coeff.	Std.Err.	P>t
Woman			
Age	0.109	0.008	0.000
age squared	-0.001	0.000	0.000
years of experience	0.000	0.001	0.920
years of experience squared	0.000	0.000	0.158
FTC	**-0.069**	**0.015**	**0.000**
years of exp.* FTC	0.001	0.001	0.090
(N) (13100)			
R^2=0.18			

Source: It-Silc 2004-2006
Notes: The model controls for year of the survey, 27 isco88-based occupational categories and 5 dummies for education.

Thus, all our analyses, regardless of the dataset or the statistical method employed, have confirmed a significant wage penalty,

quite stable over time, affecting FTC. This result, therefore, while confirming our first hypothesis, allows us to reject the opposite compensation hypothesis (table 1, table 2, table 3 and table 4). Also testing for «causality» (table 3) yields solid evidence of the existence of a negative impact of FTC on wages, thereby again confirming our hypothesis # 1. Moreover, our results also exclude that the wage gap is due to unobserved heterogeneity, confirming hypothesis # 3. As regards human capital accumulation, our results (table 1) confirm that once the amount of 'on the job training' has been controlled for, the wage gap for FTC significantly decreases (but does not disappear!).

The next section will deal with the second hypothesis, which asserted the existence of an intra-outsiders differentiation affecting the magnitude of the wage differentiation between FTC and permanent employment.

5.4. *Inside the gap: a quantile estimation*

Our analyses thus far have provided us with a single estimate of the FTC wage penalty: a mean wage gap of about 9-12%, which is quite robust and reliable but nonetheless conservative, and therefore may have underestimated the FTC penalty and – moreover – referring to an «average individual» hired on a FTC. We know, however, that the secondary labor market is internally quite differentiated, which means that our «average wage gap» may be too approximate. Hence also our models have been in some way misleading: indeed, we may not (yet) exclude the theoretical possibility that some sort of «compensating effect» is at work for a very limited and selected segment of our «flexible» workers.

Using a quantile regression on the same wage equation across different datasets, we can decompose the mean effect and estimate the impact of a FTC on Ln(hourly net wage) for individuals situated at different deciles along the earning distribution (Graph 1).

As expected, the amount of variation around the average is quite high: this reminds us of the limitations of the descriptive statistics, which in itself is not particularly informative about the

shape of the distribution – in this case of the economic risk of being a flexible worker in the present-day Italian labor market.

The FTC wage gap, in fact, ranges from -16% to -2% (quite consistently using both Shiw and It-Silc data, and statistically significant) with respect to the wage of a permanent employee. While definitely rejecting any possibility of a wage-premium (even if limited to the «upper» segment of the outsider workers) this result reconfirms our expectation (hypothesis 2) concerning the internal differentiation of the secondary labor market and therefore reminds us that the usual «mean» wage gap methods (OLS-FE-ATE) systematically underestimate wage losses for at least half of the workers concerned. This may lead to a misconception of the economic conditions of atypical employment as a secondary social and sociological problem.

GRAPH 1. *Quantile regression graphic, It-Silc and Shiw datasets, 2006*

Source: It-Silc and Shiw datasets, 2006
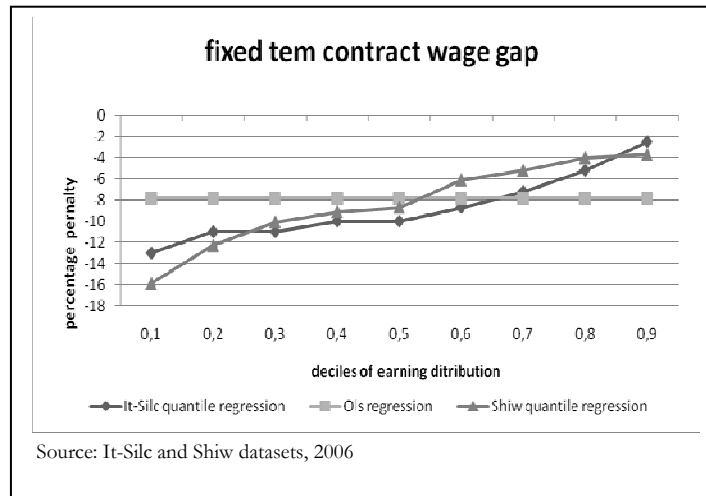
6. *(Not) Concluding remarks*

The foregoing analyses prove far beyond any reasonable doubt that temporary jobs are underpaid with respect to equivalent permanent positions, given the same characteristics of workers.

Wage differentials since the 1990s are quite stable and significant regardless of the statistical method used to estimate them, from the simplest OLS on cross sectional data to BE and FE regression on panel data, to non parametric statistical matching methods.

Moreover, and notwithstanding the caution required when comparing different datasets with heterogeneous information, the wage gap is far from narrowing with the diffusion of temporary and flexible forms of employment. Nor does there emerge an «upper» segment of the secondary labor market closer to the (economic if not normative) conditions of the insider core workforce. Our results therefore suggest a segmentation of the Italian labor market which is increasing as a consequence of the labor policies introduced by various governments in past decades.

A rising tide of inequality, both normative and economic, is gradually overwhelming Italian society. With profound roots in the labor market, it has generated a perverse combination of wage inequality *and* job insecurity adjustment.

Our last hypothesis hints to the crucial point: once we can reasonably exclude that the explanation of the wage penalty for the secondary labor market is due to individual micro characteristics - either observable or unobservable - the need to search elsewhere for an explanation becomes self-evident. Our results indicate that it must be at the macro, institutional, level that such an explanation lies, be it either the strategies of labor cost reduction adopted by poorly innovative firms or the bargaining power of insiders or the resistance of major interest groups and the influence of powerful welfare-state clients (once again insiders and unions), or a combination of all these, which have managed to direct welfare and labor market reforms towards the non-organised secondary labor market and the weakest part of society.

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Equal Job, Unequal Pay
Fixed Term Contracts and Wage Differentials in the Italian Labor Market

Paolo Barbieri and Giorgio Cutuli

Partial and targeted labor market deregulation as undergone in Italy during the last two decades has created a strong cohort cleavage on the labor market as regards the risks of a precarious work career. In explaining the logics underlying the different kinds of labor market deregulation, the literature stresses the alternative between labor market adjustment based on wage inequality and job insecurity. Flexible and unequal labor markets in the English-speaking countries are opposed to the continental-European ones, where wage differentiation is limited but deregulation has been «at the margins».

Notwithstanding the theoretical debate, there is still relatively little empirical evidence regarding the level of inequality in wages between «contingent» and «secure» work positions, especially in Italy, although, given the ongoing debate, one would expect a trade-off between job security and wage level to be operating. We use the Italian component of the 1995-2001 ECHP panel waves, the SHIW panel 2004-2006, and the new 2004-2006 IT-SILC database, to provide an exhaustive, strongly empirical based analysis of the persistence of a clear and significant wage differential between contingent and secure work in Italy that parallels and adds to the job insecurity dimension. As regard methods, we apply FE panel models, statistical matching and multivariate analyses. All our results confirm this specific outcome of the «deregulation at the margins» of the Italian labor market.

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