Job satisfaction and compensating wage differentials among young workers in Italy

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Abstract

This paper's goal is to test to what extent wage differentials among young Italian workers compensate for adverse working conditions. This is done by estimating the impact of the wage, the perceived job risk for health and an indicator of job benefits on the perceived job satisfaction levels of young workers in the ISFOL-PLUS 2006-2008-2010 panel. Our empirical strategy allows for time-invariant unobserved heterogeneity as well as heterogeneity across contractual arrangements, considering *permanent* and *temporary contracts*, *other forms of temporary contracts* and *autonomous collaborators*. We also exploit theoretical exclusion restrictions to deal with the potential endogeneity of the wage variable. None of our tests allows to reject compensating wage differentials for employees in *permanent* positions, either males or females. The same holds true also for male *autonomous collaborators*. Compensating wage differentials are instead always rejected for female workers in *other forms of temporary contracts*.

JEL codes: J28, J81

Key words: job satisfaction, compensating wage differentials, job disamenities, young workers

1. Introduction

This paper's goal is to test to what extent wage differentials among young Italian workers compensate for adverse working conditions. This is done by estimating the impact of the wage and of two indicators of job disamenities on the perceived job satisfaction levels of young workers in the ISFOL-PLUS 2006-2008-2010 panel.

Bruno et al. (2014) use the ISFOL-PLUS panel to explore the related question of what are the main determinants of job quality, measured in terms of perceived job satisfaction, among young Italian workers. Bartolucci et al. (2014) study the determinants of job satisfaction for a panel of young Russian workers, addressing this paper's empirical question. Due to the lack of information on the working conditions, though, compensating wage differentials are therein tested focusing exclusively on the significance of the wage impact. In this respect, a benefit of the ISFOL-PLUS panel is the availability of two job-disamenities indicators: the absence of job benefits whatsoever and the perceived risk for health peculiar to the job. These variables may be included into the job satisfaction equation to test whether their impact is compensated out by the wage. Not only does this greatly enrich the number and the accuracy of the tests that can be implemented, but also allows to dispense with the complication of constructing an ad-hoc job disamenity variable, as done for example in Bockerman et al. (2011), one of the first contribution to testing compensating wage differentials through job satisfaction data.

Our estimation strategy is based on a fixed effect extension of the linear approach to ordered response models described in Van Praag et al. (2004) and (2006), also known as probit OLS (POLS). Recent papers that use fixed-effects POLS (FE POLS) as the preferred estimator are Bruno et al. (2014) on the ISFOL-PLUS panel, Green and Leeves (2011) on Australian data and Pagán (2013) to the SHARE data for 11 European countries. Also, the availability of the job disamenity variables enables us to exploit a subset of exclusion restrictions implied by compensating wage differentials and construct a new instrumental-variables FE POLS estimator dealing with the potential endogeneity of the wage variable in the satisfaction equation.

In a stratified labour market such as the Italian one, with protected and unprotected workers, compensating wage differentials may hold for certain categories of workers but not for others. Therefore, besides allowing time-invariant unobserved heterogeneity through the inclusion of individual indicators, we carry out separate analysis for male and female workers, on the one hand, and across contractual arrangements on the other: employees in *permanent contracts* (EP), in *temporary contracts* (ET), in *other temporary contracts* (OET) and *autonomous collaborators* (AC).

There are the following findings. None of our tests allows to reject compensating wage differentials for EP, either males or females. The same holds true also for AC male workers. Compensating wage differentials are instead always rejected for OET female workers. Results for AC and OET must be taken with some caution due to the limited number of individuals in these categories.

The structure of the paper is as follows. The next section describes the data. The econometric strategy is presented in Section 3. Section 4 concludes with a summary of our main results.

2. Data

Our empirical analysis is based on the ISFOL-PLUS 2006-2008-2010 panel. For details on this survey we refer the reader to Bruno et al. (2014).

We focus on the population of young working people, selecting the sample of people aged between 15 and 35 years. The choice of this high upper bound for age is due to the evidence that in Italy exit from school/entrance into the labour market is often delayed, and hence the category of *young* workers is wider than in other countries. The sample does not include immigrants (identified as those without Italian citizenship) and those working for the armed forces.

Tables from 1-4 are taken from Bruno et al. (2014) and reported here for expositional ease. Table 1 reports the distributions of observations by year and sex, both for the whole population and for the sample of workers. The average number of observations per year is 6,700 and the distribution between men and women is constant across years, with young women more numerous than young men (52% versus 48%). This is due to the fact the whole population includes the inactive and the unemployed, where women are highly present. Restricting the sample to the population of the employed, men constitute 55% and women 45% on average every year.

2.1 Evidence on contracts and estimation sample

In the panel version of ISFOL data, the detailed information about contracts sought in the questionnaire is aggregated into the seven categories shown in Table 1. The two main categories of *typical jobs* in Italy are *Permanent Employment (EP)* and *Autonomous* activity *(A)*, including business owners–entrepreneurs, partnerships, and the self-employed (VATs). Aggregation of our data allows us to distinguish, among the broad variety of *atypical temporary* contracts, nowadays so pervasive in Italy, those involving an employment relationship from autonomous or freelance collaborations. In the first group of atypical contracts we find most of the temporary employment job relationships introduced by the first reforms of the labour market, namely *Employee: Temporary contracts (ET)*, including temporary, work/training, apprenticeship, and work-entry contracts; and *Employee: Other-Temporary contracts (EOT)*, which considers the forms of temporary employment (agency, job sharing, intermittent/on call works, and work practice, internship, traineeship experiences[1]) introduced at a later stage. By contrast, the second group of atypical temporary contracts, *Autonomous Collaborators (AC)*, includes the recently introduced forms of temporary autonomous contracts. There are then two residual categories, *Employee: Other contracts (EO)* and *Autonomous: Other contracts (AO)*, that include people who do not know the

[1] Only paid traineeships, internships and work experience are considered.

contractual form or do not answer the question, respectively in the two broad forms of employment and autonomous work[2].

Table 2 shows the distribution of our sample of young people among all the possible job arrangements. On average 58% of our sample (49% EP and 9% A) work in typical jobs, while 42% are found in "atypical" temporary arrangements. Within the latter, 27% are atypical employees and about 14% are atypical autonomous collaborators. The total sample consists of an average 2,874 individuals per year, that is 42% of the total population of young people. *AC* work arrangements, as well as cases of self-employment with VAT in *A* might hide de facto employment relationships. Mandrone and Marocco (2012a) have made some attempts in this sense on the ISFOL-PLUS 2010 cross-section, exploiting information on job characteristics that might shed light on the true nature of the work relationships, finding that the incidence of 'false' autonomous is much higher among *AC* workers, especially if young, than among *A* workers (80% versus 17%).

Based on the above considerations, we decided to drop the *A* workers from our estimation sample, as well as EO and AO, in order to retain only contract types that with a sufficiently high degree of confidence share a de-facto employment relationship. Therefore, we end up using the sample we believe closer to de facto employment, that comprising EP, ET, EOT and AC.

2.2 The variables

Our dependent variable is *overall job satisfaction* evaluated in the ISFOL-PLUS 2006-2008-2010 panel, as an answer to the following question: *"Overall, what is your level of satisfaction with respect to your job?"* Responses were reported at four possible levels: *low, medium-low, medium-high, high.* The *'do not know'* and *'not applicable'* options were eliminated from the sample.

We use the available information on personal and firms' characteristics. The former group of variables is standard and comprises sex, age, education (3 levels: primary, secondary and tertiary), and region of residence (4 macro-areas: north-west, north-east, centre, south and islands). The data-set is particularly rich as regards the latter group of variables: we observe occupations (3 groups: high-medium-low skilled), sectors (5 groups: agriculture-forestry-fishing, manufacturing, construction, trade and food, services)[3], experience, tenure, work place (firm, at home, moving, other people's houses, other firms), firm size, annual earnings, monetary and non monetary benefits, job safety in terms of worker's health, commuting time (in minutes) and over-education (which reports the need/or otherwise of the educational level required for the activity performed).

Table 4 displays the averages for the explanatory variables by contract types in the estimation sample. Individual characteristics are almost equally distributed across contracts. In particular, 60% of young workers have a medium-level education and only 20% are highly educated.

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[2] See Mandrone (2008) for detailed definitions.

[3] Sector (public or private) and Part-time/Full-time controls, although the information is available, were eliminated due to the limited number of observations.

Turning to firm characteristics: high-skill occupations are frequently governed by autonomous contracts, whereas in medium-low-skilled occupations employment relationships record the highest frequencies of observations. Also, the occupations where the young work with the highest frequency are medium-high skilled (50% and 34%). Sectors that are more intensive in terms of autonomous work are agriculture, construction, trade and food, and services in general, where the majority of young people find occupation. Employment contracts are instead more common in manufacturing. As expected, in EP jobs experience and tenure are higher than in temporary work relationships. The place where the majority of our young workers carry out their activity is the firm. Surprisingly enough, this also holds for AC workers, which indicates the improper use that firms make of these contractual forms for implementing low-cost de-facto employment relationships. Also, the majority of firms using AC would appear to be small.

The measure of wage used in our econometric analysis is the annual wage, harmonised by ISFOL for workers with different contracts[4]. For benefits two variables are available: one for the 13th-14th monthly salary; and another one that signals the receipt of at least one extra monetary or non-monetary benefit by the worker (house, car, economic incentive, etc.). For our econometric analysis we use only the latter (referred to as *benefit*). The other disamenity variable that we use is a dummy variable indicating whether or not the job is perceived as safe in terms of the respondent's health (referred to as *riskh*).

3. The econometrics of compensating wage differentials with satisfaction data

We follow here the theoretical framework designed by Bockerman et al. (2011) for testing compensating wage-differentials using satisfaction data. Notation and exposition closely follows Bartolucci et al. (2014).

3.1 The theoretical framework

Let $u = U(w, D, Z, \mu_u)$ denote the utility function of an employee, where w, D and Z are, respectively, the wage, the $k_D \times 1$ vector of job disamenities and the $k_Z \times 1$ vector of employee's observed characteristics, $\mu_u = \alpha + \varepsilon$ is a latent variable comprising a zero-mean, uncorrelated, idiosyncratic component, ε, and a possibly correlated latent heterogeneity component, α. The utility function is increasing in the wage and decreasing in the job disamenities, that is $\partial_w U > 0$ and $\partial_D U < 0$.

The theory of compensating wage differentials predicts that higher job disamenities are compensated by higher wages and so postulates the existence of a relationship between the market

[4] In the original questionnaire different measures of wages are asked according to the workers' contract: annual wage for temporary and autonomus workers and monthly wage for employees.

wages and the job disamenities, the so called hedonic wage equation, $w = w(D, X, \mu_w)$, where $\partial_D w > 0$, *X*, is a vector of wage determinants that may partly overlap with z and μ_W is a latent heterogeneity component. The hedonic wage equation represents the combinations of job disamenities and wages offered by the firms to the workers. In competitive markets it is an envelope of zero profit conditions. Given the hedonic wage equation, workers maximize their utility functions sorting into the jobs with the desired amount of disamenities. More formally, plugging the wage equation into the utility function gives

$$u = U\left[w(D, X, \mu_w), D, Z, \mu_u\right]$$

and if job disamenities are optimally chosen by the workers, we have the system of k_D equations equations

$$\partial_w U \cdot \partial_D w + \partial_D U > 0 \tag{1}$$

Bockerman et al. (2011) show that, with a linear utility function and a linear wage equation, the constraints implied by the foregoing system make *D* disappear from the reduced form utility function incorporating $w(D, X, \mu_w)$:

$$U\left[w(D, X, \mu_w), D, Z, \mu_u\right] \equiv U^*(D, X, Z, \mu_w, \mu_u).$$

In fact, if $u = \beta_0 + \beta_w w + \beta_Z{}'Z + \beta_D{}'D + \mu_u$ and $w = \lambda_0 + \lambda_X{}'X + \lambda_D{}'D + \mu_W$, then

$$\begin{aligned} u &= \beta_0 + (\beta_w \lambda_D{}' + \beta_D{}')D + \beta_w \lambda_X{}'X + \beta_Z{}'Z + \beta_W \mu_W + \mu_u \\ &= \beta_0 + \beta_w \lambda_X{}'X + \beta_Z{}'Z + \beta_W \mu_W + \mu_u, \end{aligned} \tag{2}$$

where the second equality follows from System (1).

3.2 Bockerman et al (2011)

Based on Equation (2), Bockerman et al. (2011) argue that if compensating wage differentials are at work and job disamenities are observed, the *D* variables are redundant in a satisfaction regression excluding the wage and including X and Z. Their approach is into two steps. In the first step they construct the *D* variable, which is added to Equation (2) for the second step estimation and testing.
A clear advantage of the approach by Bockerman et al. (2011) is that it does not require the wage as an explanatory variable and as such dispenses with accommodating the wage endogeneity resulting from the potential correlation of w and μ_w.

3.3 Bartolucci et al. (2014)

Bartolucci et al. (2014) show that if disamenities are not included in Equation (2), a test dual to Bockerman et al.'s can be applied in a panel data framework. Equation (2) has the strong implication that u and (w, D) are mean independent conditional on X, Z and μ_W, which is operational in a panel framework if we further assume that μ_w is time-constant. Indeed, Equation (2) establishes that in the presence of compensating wage differentials the wage is redundant in a job satisfaction regression excluding the job disamenities and including X, Z along with fixed effects absorbing α and $\beta_W \mu_W$, which can be easily tested within a job satisfaction model including the wage as an explanatory variable. If wage differentials, instead, are not related to job disamenities, we expect to estimate a significantly positive wage effect, $\partial_w U$. If wage differentials only partially compensate for job disamenities, then the estimated wage effect can be affected by an attenuation bias due to the positive correlation between w and D and $\partial_D U < 0$ (for a similar approach see also Lalive 2002, Clark 2003).

3.3 Our contribution

There are evident limitations in both approaches. Next, after spelling out the difficulties peculiar to each method, we describe our solutions.

We see three main problems with the Bockerman et al. (2011) approach. First, the two-step procedure is computationally expensive. Second, using an estimated regressor requires correcting the standard error estimates to accommodate the additional source of variation in the coefficient estimates. Finally, disamenities may be of various types so that the estimated *D* variable may fail to account for this multi-dimension aspect. In this respect, by using the ISFOL panel makes for an easy solution to the foregoing limitations since the panel contain direct information on two distinct dimensions of job disamenities: the perceived health risk of the job and the presence of job benefits. This allows us to incorporate two *D* variables into Equation (2) and carry out the joint significance tests in one step. In addition, we can extend the approach in Bartolucci et al. (2014) augmenting Equation (2) also with the wage and then testing the joint significance of the three variables.

The approach by Bartolucci et al. (2014), focussing only on the wage variable, is not hit by the foregoing limitations. Nonetheless, if μ_w contains an idiosyncratic component, the wage becomes endogenous and so the actual sizes of the significance tests may be different from the nominal sizes. There is a simple solution to this problem, one that to the best of our knowledge has been neglected in the existing literature. If even only a subset of disamenities is observed in the data, under the null hypotheses of compensating wage differentials one can exploit exclusion restrictions involving the exogenous variables in the equation of interest. In fact, in the presence of compensating wage differentials, any disamenity variable would disappear from Equation (2) and so can be used as an instrument for the wage within an IV framework.

Based on the foregoing considerations we estimate 4 models separately for the female and male subsamples.

- Model 0 is Equation (2) augmented with the log of the wage variable (*lwage*). If compensating wage differentials hold, the satisfaction impact of *lwage* is zero. This wage effect is constrained to be constant across contractual arrangements.
- Model 1 is Equation (2) augmented with *lwage*, by itself and interacted with *I(i=c)*, the dummy for *c=ET, EOT and AC.* The effect of wage is so differentiated across contract types with the coefficient on *lwage* capturing the wage effect for EP. Adding to this coefficient the coefficient on $I(i=c)*lwage_i$, delivers the wage effect for the contract type *c =ET, EOT, AC*.
- Model 2 is Equation (2) augmented with the two disamenity indicators: *benefit* indicates the presence of at least a job benefit against none and *riskh* indicates whether or not the job is perceived as dangerous for one's own health. Both variables are interacted with the contractual dummies as *lwage* in Model 1, and so computation of the marginal effects follows suit. We do not reject compensating wage differentials for a given category of workers if for that category both effects are not significantly different from zero. To this purpose, F-test of joint signifcance are computed.
- Model 3 encompasses Models 1 and 2. We do not reject compensating wage differentials for a given category of workers if for that category the effects of *lwage* , *benefit* and *riskh* are not jointly significantly different from zero. Also in this case, F-test of joint signifcance are computed.

To accommodate a higher extent of heterogeneity across contracts, we separately estimate augmented versions of Equation (2) across four subsamples: males: EP/ET and females: EP/ET (EOT and AC are not separately considered due to their small sample sizes). Here the model specifications are simpler since there is no need for interaction variables. Model 1 augments Equation (2) with *lwage*, treated as exogenous (as in Bartolucci et al. 2014). Model 2 is identical to Model 1 but here the wage is treated as potentially endogenous and instrumented with the two disamenity variables. Model 3 include the two disamenity variables and Model 4 encompasses Model 1 and 3.

4. Results

Estimation results for the samples of females and males pooling all contracts are reported in Tables 5-6. Tables 7-10 report results for the four subsamples by sex and contracts. All models are estimated by FE POLS, or by its two stage least square extension in Model 2 of the four subsample estimates.

We find that for permanent workers the wage and the disamenity variables are never significant, separately or jointly, regardless of the sample considered and the wage exogenous or potentially endogenous. Therefore, for this category of workers no tests reject the compensating wage differentials hypothesis. We find the same for male autonomous collaborators, although the tests implemented in this case are only limited to the pooled samples.

For all the remaining categories of workers there is at least one test rejecting compensating wage differentials.

We conclude that the presence of compensating wage differentials seems to be an important characteristic that differentiates the market of permanent employment contracts from the less secure jobs.

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Tables

Table 1: Distribution of the sample (aged between 15 and 35) by sex

	2006	2008	2010
WHOLE POPULATION			
males	3,237	3,229	3,225
%	47.81	47.74	47.72
females	3,534	3,535	3,533
%	52.19	52.26	52.28
Total	6,771	6,764	6,758
EMPLOYED			
males	1,179	1,666	1,874
%	55.13	55.02	54.25
females	959	1,363	1,581
%	44.87	44.98	45.75
Total	2,138	3,029	3,455

Table 2: Definition of contract aggregates in the ISFOL-PLUS 2006-2008-2010 panel

CONTRACT CATEGORY:	TYPICAL	ATYPICAL
1. EMPLOYEE: PERMANENT (EP)	permanent job	
2. EMPLOYEE: TEMPORARY (ET)		temporary job work and training apprenticeship starter contract
3. EMPLOYEE: OTHER TEMPORARY (EOT)		agency temporary job sharing/on call stage professional training
4. AUTONOMOUS (A)	entrepreneur cooperative members self-employed (VAT) family co-worker	
5. AUTONOMOUS COLLABORATORS (AC)		contracting job occasional job consulting job
6. EMPLOYEE: OTHER (EO)		do not know/do not answer
7. AUTONOMOUS: OTHER (AO)		do not know/do not answer

Table 3: Distribution of young workers by contract and status

	2006	2008	2010	(2006-2010
Contract (%)				(averages)
EP	48.22	48.6	50.71	49.18
ET	19.64	20.47	19.39	19.83
EOT	5.8	5.28	4.6	5.23
A	8.84	9.21	10.16	9.40
AC	13.56	12.91	11.69	12.72
EO	3.37	1.98	2.46	2.60
AO	0.56	1.55	0.98	1.03
Total	2,138	3,029	3,455	2,874.00
Status (%)				
EMPLOYED	31.58	44.78	51.12	42.49
UNEMPLOYED	15.64	14.84	17.39	15.96
INACTIVE	6.91	6.14	5.09	6.05
STUDENT	45.87	34.24	26.4	35.50
Total	6,771	6,764	6,758	6,764.33

Table 4: Summary statistics of explanatory variables by contract

	EP	ET	EOT	AC
Age	26.483	25.431	25.265	25.433
Sex:				
Males	0.368	0.357	0.350	0.350
Females	0.632	0.643	0.650	0.650
Education:				
Low	0.211	0.224	0.236	0.227
Medium	0.593	0.580	0.584	0.577
High	0.195	0.196	0.180	0.196
Overeducated	0.528	0.566	0.580	0.575
Occupation:				
High skills	0.325	0.418	0.408	0.567
Medium skills	0.568	0.490	0.499	0.396
Low skills	0.107	0.092	0.093	0.038
Sector:				
Agriculture-Forestry-Fishing	0.013	0.026	0.014	0.020
Manufacturing	0.143	0.098	0.112	0.035
Construction	0.033	0.027	0.027	0.026
Trade and Food	0.192	0.204	0.182	0.119
Services	0.619	0.646	0.665	0.799
Experience	8.612	5.153	4.813	5.226
Tenure	5.653	2.407	2.266	2.311
Job Place:				
Firm	0.826	0.834	0.876	0.761
Home	0.004	0.004	0.005	0.026
Moving	0.103	0.091	0.059	0.138
Others' house	0.005	0.005	0.007	0.012
Other firm	0.063	0.066	0.054	0.063
Size	418.654	203.280	207.577	110.938
Annual earnings	18764.330	16563.340	15015.370	12167.320

Commuting time	19.897	21.571	21.901	23.149
Unsafe job (risk for health)	0.237	0.216	0.169	0.183

Table 5: Job Satisfaction FE POLS estimates - Females

VARIABLES	(1) Model 0	(2) Model 1	(3) Model 2	(4) Model 3
benefit			0.172	0.146
			(0.110)	(0.114)
riskh			-0.0219	-0.0444
			(0.203)	(0.204)
bdcontr2			0.0763	0.0411
			(0.177)	(0.171)
bdcontr3			0.297	0.256
			(0.200)	(0.256)
bdcontr5			-0.158	-0.148
			(0.349)	(0.356)
rdcontr2			-0.145	-0.184
			(0.318)	(0.311)
rdcontr3			-0.843*	-0.885*
			(0.474)	(0.461)
rdcontr5			0.553	0.709**
			(0.336)	(0.358)
dcontr2	0.0186	-4.689**	0.0580	-6.112***
	(0.0957)	(2.037)	(0.102)	(2.078)
dcontr3	-0.411***	-5.654**	-0.326*	-1.245
	(0.153)	(2.264)	(0.180)	(2.266)
dcontr5	-0.172	-1.678	-0.238	-3.696**
	(0.121)	(1.553)	(0.245)	(1.836)
age	-0.00431	0.00258	0.0454	0.0235
	(0.0916)	(0.0907)	(0.0940)	(0.0964)
age2	-0.000353	-0.000489	-0.000756	-0.000565
	(0.00156)	(0.00154)	(0.00163)	(0.00166)
dedu2	0.144	0.148	0.199	0.188
	(0.225)	(0.229)	(0.258)	(0.255)
dedu3	0.175	0.148	0.157	0.114
	(0.270)	(0.278)	(0.316)	(0.313)
docc2	0.0816	0.0773	0.0621	0.0688
	(0.0837)	(0.0835)	(0.0854)	(0.0840)
docc3	0.132	0.138	0.147	0.150
	(0.169)	(0.169)	(0.168)	(0.169)
dsect52	0.491	0.468	0.542	0.454
	(0.436)	(0.410)	(0.454)	(0.377)
dsect53	0.422	0.410	0.549	0.454
	(0.465)	(0.451)	(0.488)	(0.439)
dsect54	0.445	0.426	0.508	0.407
	(0.445)	(0.419)	(0.461)	(0.388)
dsect55	0.376	0.365	0.404	0.326
	(0.426)	(0.400)	(0.449)	(0.372)
exp	0.0106	0.0116	0.0147	0.0151
	(0.0164)	(0.0166)	(0.0184)	(0.0183)
tenure	-0.00594	-0.00505	-0.00234	-0.00243
	(0.0107)	(0.0107)	(0.0107)	(0.0107)
luogo2	-0.197	-0.217	-0.225	-0.228
	(0.226)	(0.232)	(0.252)	(0.247)
luogo3	0.309**	0.286*	0.181	0.178
	(0.149)	(0.146)	(0.158)	(0.152)
luogo4	-0.398	-0.473	-0.559*	-0.648*
	(0.416)	(0.428)	(0.323)	(0.356)
luogo5	0.0190	0.00731	0.0413	0.0298
	(0.109)	(0.108)	(0.125)	(0.124)

lsize	0.0259	0.0187	0.0217	0.0165
	(0.0240)	(0.0232)	(0.0226)	(0.0220)
overedu	0.0536	0.0511	0.0345	0.0393
	(0.0602)	(0.0592)	(0.0597)	(0.0598)
dmreg2	-1.295***	-1.329***	-1.449***	-1.418***
	(0.0807)	(0.0816)	(0.111)	(0.114)
dmreg4	-0.118*	-0.108	-0.0846	-0.101
	(0.0659)	(0.0657)	(0.0702)	(0.0697)
dt2	0.0722	0.0693	0.115*	0.106
	(0.0551)	(0.0549)	(0.0656)	(0.0657)
lwage	0.191**	0.0575		0.103
	(0.0891)	(0.107)		(0.107)
wdcontr2		0.493**		0.648***
		(0.212)		(0.215)
wdcontr3		0.556**		0.0984
		(0.240)		(0.244)
wdcontr5		0.159		0.385*
		(0.171)		(0.203)
dmreg3	-0.233	-0.618**		
	(0.224)	(0.279)		
Constant	-1.756	-0.423	-1.217	-1.592
	(1.507)	(1.585)	(1.515)	(1.679)
Observations	3,304	3,304	2,817	2,817
R-squared	0.041	0.051	0.054	0.072
Number of pid	1,746	1,746	1,470	1,470
F-test all		0.00500	0.0349	0.000562
F-test EP			0.295	0.525
F-test ET		0.0108	0.282	0.00509
F-test EOT		0.00676	0.00300	0.00289
F-test AC		0.152	0.111	0.0137
F-test I(ET)=I(EOT)=I(AC)=0	0.0359	0.0161	0.162	0.0103

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
F-test p-values are reported

Table 6: Job Satisfaction FE POLS estimates - Males

VARIABLES	(1) Model 0	(2) Model 1	(3) Model 2	(4) Model 3
benefit			0.0937	0.0969
			(0.0899)	(0.0907)
riskh			-0.127	-0.138
			(0.111)	(0.111)
bdcontr2			-0.0246	-0.0870
			(0.162)	(0.170)
bdcontr3			0.554	0.609
			(0.614)	(0.538)
bdcontr5			0.0187	-0.0548
			(0.440)	(0.403)
rdcontr2			-0.262	-0.283
			(0.182)	(0.184)
rdcontr3			-1.187***	-1.398***
			(0.411)	(0.388)
rdcontr5			-0.565	-0.347
			(0.670)	(0.620)
dcontr2	0.0346	-0.973	0.196*	-2.560
	(0.0853)	(2.422)	(0.116)	(2.475)
dcontr3	-0.0174	1.483	0.329	-8.084
	(0.301)	(4.305)	(0.321)	(8.005)
dcontr5	-0.0806	-1.558	-0.299	-0.962
	(0.157)	(2.286)	(0.389)	(2.090)
age	-0.0517	-0.0467	-0.0403	-0.0615

	(0.108)	(0.108)	(0.110)	(0.108)
age2	0.000414	0.000363	0.000300	0.000597
	(0.00207)	(0.00209)	(0.00205)	(0.00205)
dedu2	-0.330***	-0.331***	-0.318**	-0.319***
	(0.124)	(0.124)	(0.124)	(0.123)
dedu3	-0.308	-0.310	-0.0991	-0.0865
	(0.245)	(0.246)	(0.278)	(0.281)
docc2	-0.0809	-0.0770	-0.0397	-0.0327
	(0.0991)	(0.102)	(0.0943)	(0.0942)
docc3	-0.0517	-0.0418	0.0601	0.0652
	(0.160)	(0.163)	(0.144)	(0.145)
dsect52	-0.848**	-0.845**	-0.754**	-0.737**
	(0.378)	(0.378)	(0.336)	(0.342)
dsect53	-1.160***	-1.159***	-1.073***	-1.048***
	(0.417)	(0.418)	(0.380)	(0.385)
dsect54	-0.747*	-0.735*	-0.618*	-0.584
	(0.400)	(0.401)	(0.360)	(0.366)
dsect55	-0.866**	-0.861**	-0.800**	-0.788**
	(0.384)	(0.384)	(0.343)	(0.349)
exp	0.0164	0.0156	0.0238	0.0236
	(0.0158)	(0.0155)	(0.0172)	(0.0173)
tenure	0.0151	0.0157	0.0181	0.0185
	(0.0228)	(0.0225)	(0.0232)	(0.0229)
luogo2	-0.418	-0.402	-0.925***	-0.919***
	(0.266)	(0.268)	(0.333)	(0.334)
luogo3	-0.144	-0.142	-0.175	-0.177
	(0.142)	(0.141)	(0.142)	(0.143)
luogo4	0.338	0.331	0.317	0.346
	(0.263)	(0.272)	(0.315)	(0.307)
luogo5	-0.128	-0.123	-0.128	-0.116
	(0.126)	(0.126)	(0.126)	(0.126)
lsize	-0.00271	-0.00119	0.00870	0.00670
	(0.0292)	(0.0285)	(0.0295)	(0.0286)
overedu	0.0701	0.0690	0.0405	0.0456
	(0.0918)	(0.0919)	(0.0957)	(0.0965)
dmreg2	0.222	0.240	0.485*	0.521*
	(0.294)	(0.297)	(0.283)	(0.283)
dmreg4	0.00675	-0.0256	-0.142	-0.166
	(0.109)	(0.120)	(0.139)	(0.140)
dt2	0.0435	0.0452	0.0363	0.0339
	(0.0540)	(0.0541)	(0.0560)	(0.0559)
lwage	0.0752	0.0288		0.0669
	(0.112)	(0.160)		(0.161)
wdcontr2		0.103		0.283
		(0.248)		(0.254)
wdcontr3		-0.156		0.862
		(0.467)		(0.813)
wdcontr5		0.157		0.0740
		(0.237)		(0.220)
dmreg3	-0.279	-0.470		
	(0.411)	(0.569)		
Constant	1.349	1.730	1.475	1.161
	(1.961)	(2.404)	(1.585)	(2.383)
Observations	2,539	2,539	2,266	2,266
R-squared	0.047	0.048	0.082	0.086
Number of pid	1,260	1,260	1,115	1,115
F-test all		0.886	0.0271	0.00425
F-test EP			0.351	0.400
F-test ET		0.559	0.0803	0.0437
F-test EOT		0.754	0.00369	0.000757
F-test AC		0.364	0.375	0.512
F-test I(ET)=I(EOT)=I(AC)=0	0.915	0.848	0.255	0.546

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

F-test pvalues are reported

Table 7: Job Satisfaction FE POLS and FE TSLS estimates – Female EP

VARIABLES	(1) with wage	(2) with wage endogenous	(3) with benefits & health risk	(4) with all
benefit			0.148	0.157
			(0.123)	(0.125)
riskh			-0.0427	-0.0377
			(0.240)	(0.239)
age	-0.0836	0.0843	-0.0710	-0.0839
	(0.128)	(0.254)	(0.127)	(0.129)
age2	0.000525	-0.00152	0.000628	0.000801
	(0.00208)	(0.00355)	(0.00209)	(0.00213)
dedu2	0.208	0.293	0.196	0.187
	(0.359)	(0.423)	(0.373)	(0.368)
dedu3	0.156	0.564	0.214	0.181
	(0.392)	(0.641)	(0.440)	(0.431)
docc2	-0.0446	-0.140	-0.0585	-0.0514
	(0.118)	(0.167)	(0.111)	(0.112)
docc3	-0.0948	-0.148	-0.112	-0.107
	(0.215)	(0.224)	(0.198)	(0.198)
dsect52	-0.101	-0.0300	-0.0602	-0.0626
	(0.189)	(0.205)	(0.175)	(0.174)
dsect53	0.194	0.382	0.272	0.263
	(0.308)	(0.311)	(0.267)	(0.270)
dsect54	-0.211	0.0209	-0.121	-0.134
	(0.280)	(0.304)	(0.238)	(0.240)
dsect55	-0.163	-0.100	-0.134	-0.136
	(0.178)	(0.184)	(0.171)	(0.171)
exp	0.0225	0.0259	0.0227	0.0224
	(0.0229)	(0.0310)	(0.0237)	(0.0234)
tenure	-0.00430	-0.00182	-0.00155	-0.00159
	(0.0140)	(0.0169)	(0.0132)	(0.0132)
luogo2	-0.169	-0.325	-0.206	-0.195
	(0.286)	(0.530)	(0.277)	(0.269)
luogo3	0.182	-0.0324	0.147	0.163
	(0.177)	(0.299)	(0.166)	(0.168)
luogo4	-0.250	-0.353	-0.266	-0.256
	(0.394)	(0.422)	(0.398)	(0.407)
luogo5	-0.0229	-0.0287	-0.0405	-0.0394
	(0.124)	(0.146)	(0.139)	(0.140)
lsize	0.0332	0.0237	0.0259	0.0262
	(0.0300)	(0.0405)	(0.0288)	(0.0287)
overedu	0.0343	0.124	0.0514	0.0454
	(0.0774)	(0.126)	(0.0754)	(0.0758)
dmreg2	-1.402***	-1.787***	-1.525***	-1.501***
	(0.105)	(0.476)	(0.130)	(0.133)
dmreg4	-0.151*	-0.00793	-0.129	-0.139
	(0.0870)	(0.148)	(0.0871)	(0.0874)
dt2	0.0750	0.117	0.0995	0.0973
	(0.0754)	(0.114)	(0.0822)	(0.0819)
lwage	0.125	-1.727		0.142
	(0.136)	(2.057)		(0.136)
Constant	0.889		1.536	0.409
	(2.156)		(2.047)	(2.270)
Observations	1,919	1,496	1,910	1,910
R-squared	0.029	-0.228	0.033	0.035
Number of pid	1,013	597	1,011	1,011
F-test Risk & Benefit=0			0.483	
F-test W & R & B=0				0.525

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
F-test p-values are reported

Table 8: Job Satisfaction FE POLS and FE TSLS estimates - Females - ET

VARIABLES	(1) with wage	(2) with wage endogenous	(3) with benefits & health risk	(4) with all
benefit			0.0679	0.0216
			(0.200)	(0.187)
riskh			0.0162	0.158
			(0.211)	(0.272)
age	-0.300	-0.554	-0.579**	-0.290
	(0.316)	(0.532)	(0.266)	(0.306)
age2	0.00532	0.0115	0.0122**	0.00511
	(0.00614)	(0.0119)	(0.00478)	(0.00599)
dedu2	0.350	0.510	0.506	0.336
	(0.446)	(0.465)	(0.390)	(0.432)
dedu3	-0.0537	-0.0798	-0.0720	-0.0602
	(0.579)	(0.563)	(0.561)	(0.579)
docc2	0.00147	-0.101	-0.120	0.0255
	(0.258)	(0.284)	(0.193)	(0.233)
docc3	1.362***	1.164***	1.157***	1.390***
	(0.345)	(0.443)	(0.260)	(0.298)
dsect52	0.167	-0.176	-0.230	0.190
	(0.745)	(0.898)	(0.665)	(0.747)
dsect53	0.707	0.0391	-0.00615	0.831*
	(0.452)	(1.130)	(0.391)	(0.488)
dsect54	0.246	-0.00580	-0.0182	0.285
	(0.461)	(0.588)	(0.354)	(0.410)
dsect55	0.0915	-0.126	-0.155	0.124
	(0.262)	(0.422)	(0.215)	(0.256)
exp	-0.0637	-0.0815**	-0.0824***	-0.0612
	(0.0407)	(0.0402)	(0.0285)	(0.0401)
tenure	0.0885	0.0877*	0.0866	0.0889
	(0.0581)	(0.0525)	(0.0536)	(0.0589)
luogo3	0.756	1.453	1.453**	0.735
	(0.519)	(1.332)	(0.646)	(0.488)
luogo5	0.869	1.014	1.023	0.863
	(0.578)	(0.651)	(0.622)	(0.575)
lsize	-0.105	-0.0582	-0.0603	-0.115
	(0.0684)	(0.102)	(0.0697)	(0.0710)
overedu	-0.208	-0.322	-0.330*	-0.203
	(0.189)	(0.223)	(0.175)	(0.192)
dt2	0.182	0.193	0.198	0.185
	(0.131)	(0.145)	(0.148)	(0.133)
lwage	1.228**	0.0715		1.257**
	(0.566)	(1.919)		(0.543)
Constant	-7.516		6.752*	-7.985
	(7.516)		(3.739)	(6.985)
Observations	674	250	673	673
R-squared	0.331	0.262	0.254	0.333
Number of pid	543	119	542	542
F-test Risk & Benefit=0	0	0	0.931	0
F-test W & R & B=0	0	0	0	0.0865

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
F-test p-values reported

Table 9: Job Satisfaction FE POLS and FE TSLS estimates - Males - EP

VARIABLES	(1) with wage	(2) with wage endogenous	(3) with benefits & health risk	(4) with all
benefit			0.0464	0.0447
			(0.0989)	(0.0996)
riskh			-0.162	-0.165
			(0.127)	(0.126)
age	-0.0465	-0.448	-0.0377	-0.0490
	(0.139)	(1.140)	(0.143)	(0.136)
age2	-2.12e-07	0.00339	-8.07e-06	8.46e-05
	(0.00262)	(0.0109)	(0.00262)	(0.00256)
dedu2	-0.225	-0.0553	-0.215	-0.210
	(0.153)	(0.488)	(0.157)	(0.156)
dedu3	-0.0552	0.0910	-0.0304	-0.0269
	(0.371)	(0.530)	(0.382)	(0.378)
docc2	0.0808	0.183	0.0712	0.0739
	(0.113)	(0.340)	(0.112)	(0.111)
docc3	0.225	0.419	0.232	0.237
	(0.177)	(0.587)	(0.178)	(0.177)
dsect52	-0.787**	-0.666	-0.678*	-0.673*
	(0.384)	(0.468)	(0.360)	(0.359)
dsect53	-1.209***	-1.215***	-1.078***	-1.076***
	(0.433)	(0.434)	(0.410)	(0.409)
dsect54	-0.507	-0.581	-0.383	-0.383
	(0.426)	(0.527)	(0.404)	(0.403)
dsect55	-0.842**	-0.965*	-0.715*	-0.717*
	(0.395)	(0.552)	(0.373)	(0.372)
exp	0.0407*	0.121	0.0370	0.0392*
	(0.0243)	(0.216)	(0.0240)	(0.0234)
tenure	0.00543	-0.0392	0.00936	0.00814
	(0.0276)	(0.126)	(0.0278)	(0.0271)
luogo2	-1.046***	-1.102**	-1.014***	-1.016***
	(0.370)	(0.503)	(0.345)	(0.348)
luogo3	-0.161	-0.288	-0.143	-0.146
	(0.205)	(0.538)	(0.198)	(0.198)
luogo4	0.643	0.700*	0.651	0.652
	(0.472)	(0.377)	(0.515)	(0.504)
luogo5	0.0359	0.522	0.0457	0.0595
	(0.151)	(1.269)	(0.143)	(0.144)
lsize	-0.00740	-0.105	-0.00440	-0.00707
	(0.0330)	(0.277)	(0.0331)	(0.0315)
overedu	-0.00808	0.0120	-0.0133	-0.0128
	(0.124)	(0.191)	(0.123)	(0.123)
dmreg2	0.690*	0.754	0.719*	0.720*
	(0.356)	(0.571)	(0.378)	(0.379)
dt2	0.0282	-0.0352	0.0332	0.0310
	(0.0664)	(0.169)	(0.0644)	(0.0647)
lwage	0.108	4.278		0.117
	(0.186)	(10.64)		(0.181)
Constant	0.593		1.301	0.395
	(3.087)		(2.090)	(2.943)
Observations	1,545	1,261	1,545	1,545
R-squared	0.065	-1.069	0.070	0.070
Number of pid	791	507	791	791
F-test Risk & Benefit=0			0.439	
F-test W & R & B=0				0.500

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
F-test p-values reported

Table 10: Job Satisfaction FE POLS and FE TSLS estimates Males – ET

VARIABLES	(1) with wage	(2) with wage endogenous	(3) with benefits & health risk	(4) with all
benefit			0.374	0.335
			(0.231)	(0.230)
riskh			-0.0400	-0.137
			(0.193)	(0.196)
age	-0.543***	-0.339	-0.360	-0.538***
	(0.209)	(0.391)	(0.239)	(0.205)
age2	0.0109***	0.00738	0.00847**	0.0114***
	(0.00345)	(0.00633)	(0.00366)	(0.00331)
dedu2	-0.397	-0.415	-0.336	-0.336
	(0.401)	(0.428)	(0.471)	(0.450)
dedu3	-0.539	-0.532	-0.355	-0.333
	(0.573)	(0.635)	(0.651)	(0.587)
docc2	0.0556	-0.120	-0.158	-0.0291
	(0.300)	(0.420)	(0.298)	(0.290)
docc3	-0.726*	-0.798*	-0.887**	-0.834**
	(0.389)	(0.416)	(0.392)	(0.389)
dsect52	-0.234	-0.625	-0.374	-0.166
	(1.219)	(1.187)	(1.158)	(1.158)
dsect53	-0.729	-1.134	-0.903	-0.633
	(1.385)	(1.321)	(1.318)	(1.356)
dsect54	0.228	-0.0260	0.00417	0.115
	(1.271)	(1.238)	(1.196)	(1.180)
dsect55	0.415	0.165	0.229	0.363
	(1.258)	(1.217)	(1.189)	(1.179)
exp	-0.107*	-0.127**	-0.120**	-0.101*
	(0.0558)	(0.0601)	(0.0541)	(0.0548)
tenure	0.0737	0.0676	0.0663	0.0694
	(0.0725)	(0.0801)	(0.0768)	(0.0710)
luogo3	-0.567***	-0.771**	-0.629***	-0.472**
	(0.194)	(0.365)	(0.209)	(0.187)
luogo4	-0.379	-0.532	-0.0951	-0.117
	(0.393)	(0.482)	(0.523)	(0.513)
luogo5	-0.459*	-0.555*	-0.460*	-0.387
	(0.240)	(0.302)	(0.257)	(0.256)
lsize	0.0610	0.0672	0.0714	0.0640
	(0.0726)	(0.0763)	(0.0683)	(0.0690)
overedu	0.256	0.185	0.266	0.298
	(0.196)	(0.235)	(0.232)	(0.223)
dt2	-0.218*	-0.209	-0.0749	-0.104
	(0.120)	(0.128)	(0.157)	(0.154)
lwage	0.594*	-0.169		0.554*
	(0.332)	(1.097)		(0.328)
Constant	1.412		4.300	1.190
	(4.766)		(3.921)	(4.825)
Observations	563	218	560	560
R-squared	0.347	0.304	0.343	0.364
Number of pid	450	105	449	449
F-test Risk & Benefit=0			0.269	
F-test W & R & B=0				0.180

Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1
F-test p-values reported