

# Temporary contracts and young workers' job satisfaction in Italy

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## Abstract

The Italian process of flexibilization of the labour market has created a dual market populated by protected permanent employees and unprotected temporary workers. The latter comprises not only temporary employment relationships, but also arrangements of autonomous collaborations used by the firms as *de facto* temporary employment relationships. Little is known about the quality of these temporary jobs, particularly widespread among young workers. We estimate a regression model of perceived overall job satisfaction of young workers, based on the ISFOL-PLUS 2006-2008-2010 panel. We control for the different temporary contracts and for perceived satisfactions in nine aspects of the job. We find that job stability is the most serious cause of lower satisfaction for both temporary employees and autonomous collaborators. But while temporary employees compensate concerns of job stability with other job aspects, attaining satisfaction levels comparable to permanent employees', autonomous collaborators do not and so are significantly the least satisfied.

*JEL classification:* J28, J81.

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## 1. Introduction

In the last decades increasing labour market flexibility has been the main response to the high structural unemployment problem in all the OECD countries. The implementation of this goal has followed different strategies in different countries, mainly according to the existing and desired level of Employment Protection Legislation (EPL): in some countries efforts have been made to reduce the degree of EPL of existing permanent contracts, whereas in others the existing high levels of EPL have been joined by new contractual forms of temporary jobs, namely fixed-term and temporary agency work contracts. Rules regulating temporary employment have been liberalized in Several Mediterranean, Continental and East European countries and, in particular, recently Germany and Italy loosened more than others their temporary employment legislation (Jahn et al., 2012).

As well known, this type of reforms “at the margin” has been considered the principal way by which unprotected people (youth, women, less skilled) may enter the labour market, especially in the presence of segmented labour markets, and at the very least contribute to increase firms’ profits (Boeri, 2011).

There are two related ways to view at the potential effects of flexibility. The first, more traditional, focuses on the labour market outcomes of flexible contracts. The second view is more recent and is concerned with the general quality of the new jobs.

From the first point of view the desirable outcome in the labour market both for firms and workers is employment stability. Therefore in the empirical literature it has been questioned if temporary contracts are stepping stone towards a stable occupation or a precariousness trap especially for the weak subjects of the labour market (cfr. Bruno et al., 2013 and the literature therein quoted). On the other hand it has been argued that the two tier reforms have deepened the insider-outsider divide making real reforms to deal with the great recession much harder (Bentolila et al., 2012). From the labour market perspective, most of the concerns raised from the widespread use of temporary contracts regard job-security, based on the fact that, generally, temporary contracts are much less protected from the loss of job than the permanent ones. If some countries (such as Denmark and Netherlands) have joined policies of EPL reduction with the extension of unemployment benefits and the introduction of active labour market policies, therefore being able of implementing the so-called model of flex-security (European Commission, 2007), in other countries (such as in Italy) temporary workers are still mainly an unprotected category, so that we might say, with the words of Berton et al. (2009), that a flex-insecurity model has been implemented.

In the last decades, several international institutions have considered also a different and multidimensional way to evaluate jobs. In fact, commitments have been introduced not only to increase employment but also to improve its quality (the United Nations Millennium Declaration, approved by the UN Assembly in September 2000; ILO, in its school to work transition survey, as explained in Elder, 2010; Lisbon Agenda, 2000; Eurofound, 2012).

In Italy the flexibilization of the labour market has been implemented through the continuous proliferation of new temporary contractual work arrangements of heterogeneous nature, ones that increasingly include arrangements peculiar to autonomous work, but that hide de facto temporary employment relationships. Temporary contracts are widespread among young people. They have been effective in helping young people's entrance in the labour market, but at the expenses of 1) delaying the step to permanent employment, since the rate of permanence in temporary contracts is about 43%; and 2) facilitating the exit to unemployment as an effect of the crisis, after 2007 (Mandrone and Marocco, 2012b).

The question therefore arises as to whether this flexibilization process in Italy, beyond the aforementioned effects, has improved the quality of jobs among disadvantaged workers. In this paper we attempt to give an answer to this question, focussing on the quality of jobs among young workers as reflected by their own perceived job satisfaction levels.

Ours is the first attempt in this sense on a rather unexplored territory for Italy, that of subjective evaluations of job quality among young workers. Building upon previous studies on other countries (van Praag et al, 2003, for Germany; de Graaf-Zijl, 2012 for the Netherlands; Booth et al. , 2002, Bardasi and Francesconi, 2004, and Green and Heywood, 2011, for the UK) we estimate a regression model of self declared job satisfaction to quantify the relationship between job satisfaction and temporary contract arrangements, and in particular to what extent, for each category of workers, lower satisfaction with one aspect of the job is compensated by more satisfaction with another aspect.

For our analysis we use the 2006-2008-2010 panel collected by the Institute for Workers' Professional Development (Istituto per lo Sviluppo Professionale dei Lavoratori, ISFOL) in the Participation, Labour, Unemployment Survey (PLUS). This data-set has a number of advantages for our purposes of research: 1) it is a panel, and as such it allows us to include individual effects into the specification, which is crucial when working with models of personal evaluations; 2) it covers a time-period that is subsequent to the introduction of labour market reforms and that includes the beginning of the financial crisis, whose effect on job satisfaction, therefore, can in principle be identified; 3) it follows individuals, although bi-yearly, for 5 years, and this is particularly useful given the persistence in temporary contracts of young people in Italy; 4) it allows to identify de

facto temporary employment relationships, disaggregated into the two broad categories of temporary employment and autonomous collaborations; 5) it presents a unique richness of information about self-declared satisfactions on an uncommonly high number of job aspects. More specifically, we observe nine dimensions of job satisfactions, whereas for other countries' data much less job-aspects are available (four in Green, Heywood, 2011; five in de Graaf-Zijl, 2012). This last feature of ISFOL-PLUS data allows us to estimate a complete model of job satisfaction, in which all the job-aspects are used as explanatory variable, both separately and in interactions with the contract dummies.

We find that job stability is the most serious cause of lower satisfaction for both temporary employees and autonomous collaborators. On the other hand, the various categories of temporary contracts respond quite differently to differences in aspect satisfactions. This implies that temporary employees get compensated for dissatisfaction with job stability with more satisfaction with other job aspects, and eventually attain satisfaction levels comparable to permanent employees'. To the opposite, autonomous collaborators are not compensated, and so, on average, are the least satisfied. The Chapter is organised as follows. In Section 2 we review the literature on the relationship between temporary works and job satisfaction. Section 3 analyzes the Italian way to the flexibilization of the labour market. In Section 4 we describe our data and define the variables used for the empirical analysis. Section 5 explains our econometric strategy. Results are discussed in Section 6. Section 7 concludes.

## **2. Temporary work and job satisfaction**

Job satisfaction is a subjective measure of how people feel about their job. Broadly speaking, it can be thought of as a multidimensional construct involving subjective aspirations and objective opportunities. In particular we focus on the so called cognitive job satisfaction which is the extent of individuals' satisfaction with particular aspects of their jobs, such as work environment, work organization, duties, protection against sickness, accident and industrial injury, career perspectives, pay, competence and skill development, job security.

Workers' job satisfaction has been widely analysed by sociologists and industrial psychologists but conveys also useful information about economic life and labour market decisions that should not be ignored (Freeman, 1978; Eurofound, 2007). From this point of view it is important at least for two reasons: 1) it increases job productivity (Hamermesh, 1997) and therefore firms' productivity (Oswald, 1997); and 2) it improves social welfare, as it is extremely correlated to overall individual happiness and well-being (social life, family, etc) (Addabbo and Solinas, 2012).

As we have seen, due to the diffusion of temporary contracts, many studies have deeply analysed the potential effects of flexibility on labour market outcomes, but recently a growing empirical literature has studied also the impact of flexibility on job satisfaction (de Graaf-Zijl, 2012; Booth et al., 2002; Blanchflower and Oswald, 1999; Bailey et al., 2001; Freeman et al., 2000; Bauer, 2004; Theodossiou and Vasileiou, 2005; Origo and Pagani, 2009; Beckmann et al, 2007; Salvatori, 2010; Ferrer-i-Carbonell and van Praag, 2006; Green and Heywood 2007, 2011 among others).

Specializing to the economic dimension of job satisfaction, it can be considered as a proxy of the utility function, and as such is expected to be increasing with wage or income (or at least with income of reference groups) and decreasing with hours of work (Clark and Oswald, 1996), all other conditions being equal. In this case, a lower wage of temporary workers, compared with that of permanent ones, does not mean in theory a lesser job satisfaction but simply that they are discounting the cost of filling the work experience or skill gap and the costs of the time needed to gather information in searching for the best match. According to the stepping stone hypothesis, therefore, the lower satisfaction of temporary workers, found in the majority of empirical researches, is nothing else but the motivation driving them toward a stable occupation, that is ranked as one of the most important factors of job satisfaction (European Commission, 2001) or even toward occupations and jobs which ensure the best match between a worker's ability and job requirements, as well as with personal requirements and occupation-specific reward structures (Eurofound, 2007).

We notice, however, that empirical studies show numerous different findings. According to Booth et al. (2002), for example, temporary workers have a lower satisfaction with several aspects of their jobs in the UK. For the same country, Bardasi and Francesconi (2004) report, on the other hand, no long-term negative effects of limited-duration contracts. confirmed by Ferrer i Carbonel and van Praag (2006) for the Netherlands, but not for Spain, where temporary contracts (fixed-term and casual contracts) are strongly negatively correlated with job satisfaction.

de Graaf-Zijl (2012) studies the case of the Netherlands analysing different work contracts (regular, fixed-term, on-call, temporary agency) on five job aspects. She finds that a lack of job security is responsible of temporary workers' lower job satisfaction, compared to permanent workers'. However, with the exception of temporary agency workers, the gap disappears if other job aspects are considered, and in particular job content. Green and Heywood (2007, 2011) using British data, and considering four job aspects state the opposite: low job satisfaction associated with less job security is not offset by higher compensation or other job characteristics. One possible explanation is lower coverage against the loss of job in the UK than in the Netherlands.

Ferrer-i-Carbonell and van Praag (2006) show that working conditions and job security can account also for regional differences in job satisfaction. Analysing data on Spain and the Netherlands, they find that the differences in job satisfaction between the two countries can be due to different levels of uncertainty associated with temporary contracts in each country. In other words, flexsecurity, as implemented in the Netherlands, seems to pay in terms of more job satisfaction (see also Green and Leves, 2003). Petrongolo (2004) also finds lower job satisfaction among temporary workers, across Europe and especially in Southern countries.

Several personal traits or occupation characteristics could also interfere with the relationship between job satisfaction and temporary jobs so that there could be a potential selectivity bias (Beckmann et al., 2007). Clark et al. (1996) provide strong evidence for a U-shaped relationship between age and job satisfaction. Generally, it has been found that women report higher levels of job satisfaction than do men (gender-job satisfaction paradox) despite their disadvantaged position on the labour market (Clark, 1997; Sousa-Poza and Sousa-Poza, 2003; Petrongolo, 2004; Kaiser, 2007). Holding income constant, satisfaction levels are shown to be strongly declining in the level of education. An important determinant of job satisfaction, concerning in particular youth temporary workers, are overeducation or overskilling (Sánchez-Sánchez and McGuinness, 2011; Allen and van der Welden, 2001). Finally, there are also some occupation characteristics that may influence the job satisfaction-work flexibility relation, such as the difference between managers, blue-collars and white-collars, and sectors. Self employed in general report greater overall job satisfaction than employees (Blanchflower, 2000; Frey and Benz, 2002, Bradley and Roberts, 2004).

### **3. The Italian case**

In Italy, the *flexibilization process* of the labour market has followed the way of the *reforms at the margin*, without, therefore, reducing the degree of EPL for employees working with a permanent job (considered as the “standard” type of contract). A number of new contractual forms for temporary jobs have been introduced in the form of “atypical” or “non-standard” jobs<sup>1</sup>. The first attempt goes back to the 80’s with the implementation of *work-and-training employment* contracts, but the main process of the labour market flexibilization started out in the second half of 90’s with the so called Treu reform (law n. 196/1007), that substantially introduced *temporary work agencies* as well as *temporary contracts*, regulated with the D. Lgs n. 368 /2001, and redefined the part-time contracts. The reform of the Italian labour market continued with the “Biagi Reform” (law 30/2003)

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<sup>1</sup> The concept of “standard” refers to the Fordist model of production in which the work contract of unlimited duration was the typical contractual form regulating work.

that introduced other particular contractual forms of non-standard employment such as: *job on call*, *job sharing*, *job placement agreements* and an update of *apprenticeship contracts*. Also other contractual arrangements of labour outsourcing, similar to temporary agency work contracts, were proposed such as: *staff leasing* and *transfer of undertakings*.

Labour reforms have also given a special attention to self-employment, considering that traditionally it accounts for a large share of the working population in Italy. In particular, some worker figures have been introduced, such as *collaborators*, *contracting/consulting worker* and *occasional workers*, who contract-out the execution of specific duties for the firm in a fixed time-limit as free-lancers, coordinated by the employer but not hired as employees. Although formally “autonomous” or self-employed, as far as their contracts are continuously renewed, these workers become a very cheap toll for firms to implement their goal of flexibility so hiding an employment relationship (*lavoro parasubordinato*). In other words, although self-employment could be considered another “typical” form of work, as it is neither characterized by limited duration nor it is a form of dependent employment, over the last years in Italy it has tended to comprise also these unprotected “false” autonomous temporary collaborators that de facto are “non-standard” or “atypical” employees.

These different trends of flexibilisation of the Italian labour market, mixed together with an unsuitable use of the employment opportunities, especially among young people, have created a deep disorder in the employment world. The multilevel segmentation of working relationships has made the traditional categories not adequate for understanding the actual composition of the Italian labour market. In particular, the distinction between “atypical employees” and “atypical autonomous” workers is crucial for the analysis of job quality linked to the flexibilization process of the Italian labour market. These two figures are not only different from the contractual point of view, as explained before, but they can also generate different development of workers’ skills, career patterns, relationships with colleagues, time schedules, and (least but not last) pays.

The disaggregation among contracts needs therefore to be sufficiently detailed, as a general classification of working people in permanent employees, temporary employees, and self-employed including the “autonomous collaborators” would be highly distorsive in the Italian context. The pattern becomes even more complicated if we consider that the flexibilization of work relationships along the trend of free-lance collaborations has recently intensified to the point that in many cases individuals have decided, perhaps pushed by the contractor, to become formally self-employed with an own VAT code, although working only for one firm. This is an even cheaper tool than “atypical autonomous” contracts for firms to implement flexibility, that in some sense ‘perturbs’ even more the definition of self-employed as “typical” workers.

All of the foregoing reasons help to clarify the benefits of the ISFOL-PLUS Panel, which besides providing otherwise unavailable information on personal evaluations of job satisfaction, gives also the opportunity to distinguish the contractually different forms of “typical” and “atypical” jobs, as we will explain in the next Section.

#### **4. Data**

The empirical analysis is based on micro-data collected by ISFOL in the Participation, Labour, Unemployment Survey (PLUS). This survey, started in 2005, consists in a sample of about 38,000 working aged people interviewed by telephone. Detailed personal data, information about educational career, family background, occupational characteristics and job search condition are collected. On the methodological ground, the representativity of the sample follows exactly the same criteria of the national survey carried out by the Italian National Institute of Statistics (ISTAT): the Labour Force Survey (LFS). But the general purpose of the questionnaire asked in the PLUS is to register also people’s auto-perceptions about different aspects of their lives, and especially of their jobs, therefore completing in many features the canonical information available in the LFS. In particular the PLUS, allows us to analyze in more detail both the different contractual forms of workers and their satisfaction with particular dimensions of their job.

In our analysis we use the longest 2006-2008-2010 panel version available for taking advantage of the longest working history of individuals,. The contracts’ classification of the long-panel PLUS version allows us to break down de facto temporary employment into its three components of fixed term contracts, other temporary contracts and autonomous collaborations.

In our analysis we focus on the population of young working people, selecting the sample of people aged between 15 and 35 years. The choice of such high upper bound for age is due to the evidence that in Italy exit from school/entrance in the labour market is often delayed, and therefore the category of *young* workers is wider than in other countries. From the sample are also excluded immigrants (identified as people without the Italian citizenship) and those performing military jobs. 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%), but this is due to the fact the whole population includes the inactives and the unemployed, where women are highly present. Restricting the sample to the population of employed people, men are 55% and women are 45% on average every year.

#### 4.1 Evidence on contracts and estimation sample

In the panel version of ISFOL data, the detailed information about contracts asked in the questionnaire is aggregated into the seven categories showed in Table 2. As explained in Section 3, the two main categories of *typical jobs* in Italy are *Permanent Employment (EP)* and *Autonomus activity (A)*, including business owners–entrepreneurs, partnerships, and self-employed (VATs). As we can see, the 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 (ET)*, including temporary, work/training, apprenticeship, and work-entry contracts; and *Employee Other Temporary (EOT)*, that considers the further on introduced forms of temporary employment (agency, job sharing, intermittent/on call works, and work practice, internship, traineeship experiences<sup>4</sup>). The second group of atypical temporary contracts, *Autonomous Collaborators (AC)*, includes instead the recently introduced forms of temporary autonomus contracts. There are then two residual categories, *Employees Other (EO)* and *Autonomous Other (AO)*, that include people who do not know the contractual form or do not answer the question, respectively in the two broad forms of employment and autonomus work<sup>5</sup>.

Table 3 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 is an average of 2,874 individuals per year, that is 42% of the total population of young people. Below, the table reports also the status of people belonging to our balanced panel over time. From 2006 to 2010 the percentage of students in our sample quite expectedly decreases, while the percentage of employed increases. However, being the quota of inactive almost constant, if the percentage of unemployed decreases from 2006 to 2008 of 1% in our sample, it increases of about 3% between 2008 and 2010. One possible explanation for these stylised facts can be found in Mandrone (2012), according to whom temporary contracts in Italy have helped the entrance in the labour market of young people but at the cost of trapping them in temporary arrangements, and without being particularly helpful

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<sup>4</sup> Only paid traineeships, internships and work experience are considered.

<sup>5</sup> See Mandrone(2008a) for detailed definitions.

soon after the beginning of the crisis, since the use of temporary contracts has slightly decreased and the youth unemployment rate has increased.

As explained in Section 3, *AC* work arrangements, as well as cases of self-employment with V.A.T. 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 foregoing considerations, we have decided to drop the *A* workers from our estimation sample, as well as *EO* and *AO*, in order to keep 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*.

#### **4.2 Evidence on job-satisfaction by contract**

In the ISFOL-PLUS 2006-2008-2010 panel for all workers *job satisfaction* is evaluated both overall and in 9 dimensions, available as answers to the following questions: “Overall, which is your level of satisfaction with respect to: 1) work environment (relationships with colleagues and superiors); 2) work organisation (timetable, shifts, overtime, holidays); 3) duties; 4) content of job; 5) protection against sickness, accident and industrial injury; 6) career perspectives; 7) pay; 8) competence and skill development; 9) job-stability”. Answers have been reported in 4 possible levels, that we have re-ordered homogeneously for increasing intensity as follows: *low*, *medium-low*, *medium-high*, *high*. The ‘do not know’ and ‘not applicable’ options have been eliminated from the sample.

Table 4 shows how contracts differ across overall job satisfaction and its observed aspects. Columns correspond to a given contract type and show differences in satisfactions between that contract type and *EP* for each satisfaction category. The last column contains the average satisfactions of *EP*.

We observe significantly lower overall satisfaction levels for *EOT* and especially *AC*, while *ET* workers seem to be close to *EP*. All categories of atypical workers declare to be more satisfied than *EP* for the aspects regarding the development of relationships with colleagues and of skills.

Importantly, job security/stability is the only dimension of job for which all the atypical workers are significantly the least satisfied than EP.

Such initial analysis of the data shows that on average 1) young atypical workers are no more satisfied than EP; 2) the primary matter of concern among young atypical workers is job stability. To draw conclusion on differences in job satisfaction across categories of workers, controlling for differences in aspect satisfactions, personal and job characteristics and unobserved heterogeneity along various dimensions we need to implement an econometric model of perceived satisfaction with appropriate controls and an appropriate error structure.

### 4.3 Explanatory variables

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 isles).

The data-set is particularly rich as regards the latter group of variables: we observe occupations (3 groups: high-medium-low skilled) reclassified according to Goos et al. (2010), sectors (5 groups: agriculture-forestry-fishing, manufacturing, construction, trade and food service, services)<sup>6</sup>, experience, tenure, job place (firm, at home, moving, other people's house, other firm), firm size, annual earnings, commuting time (in minutes) and over-education (that reports the necessity/or not of the education degree required for the working activity performed).

Table 5 displays the averages for the explanatory variables by contract types in the estimation sample. Individual characteristics are almost equally distributed across contracts, except overeducation, that is more common among AC workers. 60% of young workers have a medium-level degree of education and only 20% are highly educated.

Turning to firm characteristics: high-skill occupations are frequently governed by autonomous contracts, whereas in medium-low-skilled occupations employment relationships register the highest frequencies of observations. Also, the occupations where young work with the highest frequency are medium-high skilled (50% and 34%). Sectors that are more intensive of autonomous work are agriculture, construction, trade and food services 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

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<sup>6</sup> Sector (public or private) and Part-time/Full-time controls, although the information is available, have been eliminated because of the limited number of observations.

relationships. The place where the majority of our young workers carry out their activity is the firm. Surprisingly enough, this holds also for AC workers, which is a signal of the improper use that firms make of these contracts' forms for implementing low-cost de-facto employment relationships. Also, apparently the majority of firms using AC are small-size.

## 5. Econometric strategy

We observe ten categorical variables of job satisfaction. Let  $y_{it}$  stand for overall job satisfaction and  $y_{a,it}$ , for job satisfaction in aspect  $a = 1, \dots, 9$  of worker  $i = 1, \dots, N$  at time  $t = 1, \dots, T$ . All satisfaction variables take on values  $m = 1, 2, 3, 4$ , ordered from the lowest to the highest level.

We assume that underlying  $y_{it}$  there is a continuous variable,  $y_{it}^*$ , thought of as latent job satisfaction, ranging onto the real line,  $R$ , and that  $R$  is partitioned into four intervals common to all individuals  $(\mu_{m-1}, \mu_m)$ ,  $m = 1, 2, 3, 4$ , where  $\mu_0 = -\infty$  and  $\mu_4 = \infty$ . Thus, through his/her declared  $y_{it}$ , each respondent reveals the interval  $(\mu_{m(i,t)-1}, \mu_{m(i,t)})$  in which his/her  $y_{it}^*$  happens to lie, with  $m(i, t) = 1, 2, 3, 4$ . We then set-up a latent regression model for  $y_{it}^*$ , with five groups of explanatory variables, holding permanent employment,  $c = 1$ , as the reference contract type:

1. The job-aspect satisfactions,  $y_{a,it}$ ,  $a = 1, \dots, 9$
2. The dummies indicating the three contract types other than permanent,  $d_{c,it}$ ,  $c = 2, 3, 4$ .
3. The interactions of job-aspect satisfactions and contract type indicators,  $(y_a * d_c)_{it}$ ,  $a = 1, \dots, 9, c = 2, 3, 4$ .
4. Time and regional dummies.
5. The vector  $\mathbf{x}_{it}$  of personal and job characteristics indicated in Section 4.

So, the latent regression model, in its more general form, can be written as

$$y_{it}^* = \gamma_0 + \sum_a \gamma_a * y_{a,it} + \sum_c \delta_c * d_{c,it} + \sum_a \sum_c \delta_{ac} * (y_a * d_c)_{it} + \mathbf{x}'_{it} * \boldsymbol{\beta} + u_{it} \quad (1)$$

where  $u_{it} = \mu_{it} + \epsilon_{it}$  is a composite error comprising possibly correlated effects,  $\mu_{it}$ , and an independent idiosyncratic zero-mean component,  $\epsilon_{it}$ . More specifically,  $\mu_{it} \equiv \alpha_i + \eta_t + v_{r(it)}$ , where  $\alpha_i$  indicates a worker specific component, which may accommodate, among other individual-specific effects, subjective interpretation of the satisfaction questions;  $\eta_t$  stands for a time specific component accommodating aggregate transitory shocks and  $v_{r(it)}$  is a regional component

capturing latent heterogeneity at the region level, with  $r(i, t)$  indicating the region of work for individual  $i$  at time  $t$ .

A less compact but easier to interpret formulation of Equation (1) is one that explicitly represents the four possible job satisfaction statuses for a given worker  $i$  at year  $t$ , depending on his/her contractual arrangement  $c(i, t) = c, c = 1, \dots, 4$ . So,

$$y_{it}^* = \begin{cases} \gamma_0 + \sum_{a=1}^9 \gamma_a * y_{a,it} + \mathbf{x}'_{it} * \boldsymbol{\beta} + u_{it} & \text{if } c(i, t) = 1 \\ \gamma_0 + \delta_2 + \sum_{a=1}^9 (\gamma_a + \delta_{a2}) * y_{a,it} + \mathbf{x}'_{it} * \boldsymbol{\beta} + u_{it} & \text{if } c(i, t) = 2 \\ \gamma_0 + \delta_3 + \sum_{a=1}^9 (\gamma_a + \delta_{a3}) * y_{a,it} + \mathbf{x}'_{it} * \boldsymbol{\beta} + u_{it} & \text{if } c(i, t) = 3 \\ \gamma_0 + \delta_4 + \sum_{a=1}^9 (\gamma_a + \delta_{a4}) * y_{a,it} + \mathbf{x}'_{it} * \boldsymbol{\beta} + u_{it} & \text{if } c(i, t) = 4 \end{cases}$$

With the foregoing representation in mind, interpretation of the  $\gamma_0, \gamma_a, \delta_c$  and  $\delta_{ac}$  coefficients is clear-cut.

1. The constant term,  $\gamma_0$ , is the average contribution of all unobserved components, including job aspects, that are peculiar to permanent workers.
2. Coefficients on job-aspect satisfactions,  $\gamma_a, a = 1, \dots, 9$  are the effects of aspect satisfactions for permanent workers.
3. For a given contract type  $c = 2, 3, 4$ , coefficient  $\delta_c$  measures the difference in residual average job satisfaction of that contract-type with respect to permanent workers.
4. For a given contract type  $c = 2, 3, 4$ , coefficients  $\delta_{ac}, a = 1, \dots, 9$ , measure the differences in aspect satisfaction effects of that contract type with respect to permanent workers.

Our model lends itself to the implementation of a particular Oaxaca decomposition, where it is only the contribution of the aspect satisfactions to the expected satisfaction gap between two contract types that is decomposed into explained and residual parts. This can be shown as follows. The expected differences in average satisfactions between contract type  $c = 2, 3, 4$  and contract type 1, is decomposed as

$$E(\bar{y}_c^* - \bar{y}_1^* | \mathbf{x}, \mu) = \delta_c + \sum_{a=1}^9 \gamma_a * (\bar{y}_{c,a} - \bar{y}_{1,a}) + \sum_{a=1}^9 \delta_{ac} * \bar{y}_{c,a} + (\bar{\mathbf{x}}_c - \bar{\mathbf{x}}_1)' * \boldsymbol{\beta} + \bar{\mu}_c - \bar{\mu}_1 \quad (2)$$

$c = 2,3,4$ , where  $\bar{y}_{c'}^*$ ,  $\bar{y}_{c',a}$ ,  $\bar{\mathbf{x}}_{c'}$  and  $\bar{\mu}_{c'}$  indicate the averages of, respectively,  $y_{it}^*$ ,  $y_{a,it}$ ,  $\mathbf{x}_{it}$  and  $\mu_{it}$  over all observations  $(i, t)$  such that  $c(i, t) = c'$  and  $c' = 1, \dots, 4$ .

Focusing on the contribution of the aspect satisfactions in Equation (2) we let

$$\Delta S \equiv \delta_c + \sum_{a=1}^9 \gamma_a * (\bar{y}_{c,a} - \bar{y}_{1,a}) + \sum_{a=1}^9 \delta_{ac} * \bar{y}_{c,a}. \quad (3)$$

Since in our data the average difference in the satisfaction for job-stability,  $\bar{y}_{c,9} - \bar{y}_{1,9}$ , is by far the largest (see Table 4), we rewrite Equation (3) to single out its contribution

$$\Delta S \equiv \sum_{a=1}^8 \gamma_a * (\bar{y}_{c,a} - \bar{y}_{1,a}) + \gamma_9 * (\bar{y}_{c,9} - \bar{y}_{1,9}) + (\delta_c + \sum_{a=1}^9 \delta_{ac} * \bar{y}_{c,a}). \quad (4)$$

So,  $\Delta S$  comprises:

1. The *explained* component peculiar to satisfaction for job stability:  $\gamma_9 * (\bar{y}_{c,9} - \bar{y}_{1,9})$ ;
2. The *explained* component peculiar to the other job-aspect satisfactions:  $\sum_{a=1}^8 \gamma_a * (\bar{y}_{c,a} - \bar{y}_{1,a})$ ;
3. The *residual* contribution of the aspect satisfactions :  $\delta_c + \sum_{a=1}^9 \delta_{ac} * \bar{y}_{c,a}$ .

We will get back to Equation (4) and its three components in Subsection 6.3, when we compare the job satisfaction estimates across the contract categories<sup>7</sup>.

Turning to the estimation issues, the well-known incidental parameter problem forbids using individual dummies to accommodate the  $\alpha$  effects in latent regression models with small clusters of individuals. An alternative solution is to estimate the model parameters by a random effect ordered probit with the  $\alpha$  components modeled a la Mundlak, through a linear combination of regressors in group means (Wooldridge 2010). Two other popular methods are both based on the Chamberlain conditional logit estimator, where the  $\alpha$ 's are conditioned out in the log-likelihood function: the fixed effect ordered logit minimum distance estimator by Das and Van Soest (1999) and its popular variant by Ferrer-i-Carbonell and Frijter (2004) (adopted by de Graaf Zijl 2012 for a model of job satisfaction similar to ours). All such estimators, however, are computationally expensive, the first involving evaluation of multiple integrals and the last two requiring multiple steps of estimation.

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<sup>7</sup> Clearly, a bias of the type documented in Heitmuller (2005) can be found in the *total* explained and residual components of Equation (2) if  $\bar{\mu}_c - \bar{\mu}_1$  depends on observed variables whose impacts are not identified by the fixed effect estimators. But our interest here centers exclusively on the components of Equation (4), which does not depend on  $\bar{\mu}_c - \bar{\mu}_1$  and as such is consistently estimated, with all its components, by fixed-effect methods.

Moreover, Baetschmann et al (2011) proved that the various ways through which the Ferrer-i-Carbonell and Frijter (2004) method has been implemented led to inconsistent estimators.

For all of the foregoing reasons, we follow an alternative estimation strategy 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) (Green et al 2013 use POLS on Australian data). This method is based upon the consideration that ordered probit yields an OLS-like log-likelihood, with the same set of regressors as in the underlying latent regression model and a dependent variable given by the conditional mean  $E(y_{it}^* | \mu_{it} < y_{it}^* \leq \mu_{it})$ . Then, assuming a standard-normal distribution for  $y_{it}^*$ , one can estimate  $E(y_{it}^* | \mu_{it} < y_{it}^* \leq \mu_{it})$  through sample analogs and implement ordered probit as an OLS regression. In this way the inconsistent estimates of the  $\alpha$  elements are separable from the slope estimators, exactly as in ordinary linear panel data models, so that the latter are consistent for  $N \rightarrow \infty$  and T fixed.

We implement three different specifications, starting with the most parsimonious one, Model 1, which maintains homogeneous effects of aspect satisfactions across contract types and excludes personal and job controls, setting  $\delta_{ac} = 0$ ,  $a = 1, \dots, 9$ ,  $c = 2, 3, 4$  and  $\beta = \mathbf{0}$ . Model 2 provides an intermediate specification setting  $\beta = \mathbf{0}$ , while Model 3 carries out unconstrained estimation. We estimate the three models for the whole sample and, separately, for the male and female subsamples.

A random effect (RE) POLS can always be implemented as an alternative to fixed effect (FE) POLS. Indeed, Van Praag et al (2004) advocate the use of the former for two reasons: 1) if valid, it is more efficient and 2) it can identify effects of time constant variables. It must be considered, however, that RE POLS is less robust than FE POLS to correlated individual effects. In addition, gender is the only time-constant variable that is of interest in our analysis and we prefer to assess its impact at the most general level, by running separate regressions on male and female subsamples. With these pros and cons in mind, we have subjected the choice between the two estimators to a battery of heteroskedasticity-robust Hausman tests, which led to rejection of the random effect specification for all models and samples at any conventional level of significance.

Van Praag et al. (2006) show that ordered probit and POLS estimates are almost identical up to a proportionality coefficient, namely both methods provide virtually the same estimates of coefficient ratios, referred to as trade-off ratios in Van Praag et al (2006), in the satisfaction equation. It is not hard to see that the probit analogous of the FE POLS is the RE Ordered Probit a la Mundlak we mentioned above. Therefore, we have also applied this estimator to our three models to find that,

indeed, RE POLS estimates and the Mundlak RE Ordered Probit estimates are very close up to a proportionality coefficient with also close t-statistics, exactly as evidenced by Van Praag et al. (2006) in the case of the simple ordered probit and POLS estimates. For example, FE POLS and Mundlak RE Ordered Probit applied to Model 1 over the whole sample provide an estimate for the trade-off ratio between  $y_{1,it}$  and  $y_{2,it}$  of 3.22 and 3.17, respectively; in Model 2 they both yield a trade-off ratio of 3.03; in Model 3 they yield trade-off ratios of 3.10 and 3.14, respectively. Given this substantial equivalence of results, FE POLS lends itself as a computationally easier alternative to Mundlak RE Ordered Probit. Therefore, we report and comment exclusively results for the former.

## 6. Results

### 6.1 Job-aspect satisfactions

Table 6 shows results for all models and samples. Model 1 assumes homogeneous impacts of job-aspect satisfactions across contract types. As expected, all dimensions of job satisfaction are positively significant. Satisfaction with *relationships with colleagues and superiors* emerges as the most important determinant of overall job satisfaction, especially for males. *Job stability* emerges as a second important dimension of job-satisfaction, especially for females.

On comparing our results with previous studies on the subject one has to keep in mind that we concentrate on the subpopulation of young workers. Nonetheless, our job stability estimate is consistent with the evidence for the UK (Clark, 1997, Green et al., 2011) and Australia (Wooden et al., 2004; Green et al., 2013), where job stability has been found strongly linked to workers' well-being. The data examined by de Graaf-Zijl (2012), instead, tells a different story for the Netherlands, where it is *happiness with job content* that is the primary aspect and job stability counts for the least. In our data job content has a prominent position only for the male subsample, but in the whole sample, as well as the female sample, it seems to be less important than both relationship with colleagues and job stability. Such discrepancy with de Graaf-Zijl (2012) may simply reflect true differences between the populations of Italian young workers and Dutch workers, and indeed be explained by the effective flexicurity policies implemented in the Netherlands. However, since we observe happiness with work relationships, as well as other important dimensions of job satisfactions that instead are not observed in the Dutch data, it is also possible that the job content and the job stability coefficients in de Graaf-Zijl (2012) capture the impact of the neglected factors.

After job relationships and job stability, there are the following other job-aspects, in order of importance: pay, content of the job and skills' development, and lastly burden, times and safety of work. Focussing on contractual dummies, it seems that, *ceteris paribus*, ET and EOT are more satisfied than EP (especially ET males), whereas AC job satisfaction is not significantly different from EP. The *ceteris paribus* clause is crucial, since the actual differences in overall satisfaction can be mainly driven by differences in aspect satisfactions across contract categories. We will get back to this in Subsection 6.3.

Model 2 includes interaction terms, allowing for separate effects of aspect satisfaction across contract types. Interestingly, while interactions terms are jointly significant, contract dummies are no longer so, indicating that, once interactions are included, there are no residual unobserved job aspects to explain differences in overall satisfaction across contract types. Not only does this make interpretation of results more clear-cut, but also it is reassuring in terms of our model specification, which indeed considers a more complete list of aspect satisfactions than in previous studies. For example, de Graaf Zijl (2012) notices that significant coefficients on contract dummies may be explained turning to neglected job aspects, such as career opportunities and relationships with co-workers, which are instead observed in our analysis. Coefficient estimates on job-aspects satisfaction are still significantly positive and close to those of Model 1.

To fully evaluate the impact of the different domains of satisfaction in Model 2 we have also to consider interaction coefficients, which permit heterogeneous impacts across contract types. ET workers seem to be rather homogeneous to EP over almost all job aspects. Heterogeneity of behaviour with respect to EP seems to characterise more EOT and AC, but often with opposite patterns.

In more detail, if in the whole sample EOT put more weight than EP on hours, for AC (especially women) it is the opposite. Opposite patterns of behaviour between EOT and AC are observed also with respect to job content. Strikingly, from all samples it emerges that EOT evaluate this aspect significantly more than EP. This is not the case for AC, with male AC significantly putting less weight than EP on job content. Male AC are concerned with Safety significantly more than EP, while EOT (and ET) are not significantly different from EP in this regard. AC (especially females) put more weight than EP on career prospects, while again EOT (and ET) do not seem differently concerned than EP on this aspect. ET and EOT are also homogenous in terms of pay, which is evaluated by both (especially males) as less important than by EP.

Model 3 adds personal and job characteristics to Model 2. Before discussing results for this model we observe, as a result of an F test, that such additional regressors are not jointly significant, which validates the conclusions already drawn in the previous paragraph. In fact, coefficient estimates

here are very close in size to, and have almost always the same sign of, those of Model 2. The pattern of statistical significance is also confirmed, with one interesting additional result: the positive impact of career satisfaction for ET in the whole sample reaches 10% significance, where the same coefficient in Model 2 presents a larger standard error.

## **6.2 Time, regional and gender effects**

The year 2008 brings about a significantly lower job satisfaction level, compared to 2006 and 2010, for all samples and models. This can be explained with the worsening of expectations in all categories of workers in the wake of the first year of financial crisis in Europe. That in 2010 job satisfaction has reverted, on average, to the levels of 2006, while the Italian youth unemployment rate has increased by 6.5 percentage points from 2008 to 2010, seems to be puzzling. One possible explanation is that those remaining employed in 2010, in spite of a worsening macroeconomic background, are relieved by being able to keep their jobs in bad times, and so upgrade their current expectations compared to 2008.

In models with fixed effects, regional effects are identified by movers across regions, but transition frequencies are extremely low in our data, explaining the general insignificant coefficients on regional dummies. The barely significant effects for young male workers in all models must be taken with a grain of salt, being identified by a very small group of individuals (8 observations: 6 movers-out and 2 and movers-in) and so it is hard to tell whether it is a pure regional effect or it just reflects the presence of outliers.

A gender effect cannot be identified through fixed effect estimation. But we can compare male and female intercept estimates, which reflect the average of the estimated fixed effects for each subsample. Although differences of intercepts are not highly significant (based on coefficient and standard error estimates in Table 6, we find that Model 3 yields the highest t-test of -1.57), we observe that the intercept of males is always smaller than that of females, confirming the gender effect evidenced in the literature (this is the “gender paradox” discussed in Section 2). A more direct and explicit result consistent with the gender effect comes from (unreported) random effect estimation a la Mundlak, which always yields a significantly negative coefficient on the male dummy.

## **6.3 Predicted satisfaction levels**

As observed in Section 4 aspect satisfactions are significantly different across the different types of workers and indeed may explain a great deal of variation in overall job satisfaction among contract

types. We now apply our estimation results to bring comparisons at a more factual level, based on the observed patterns of aspect satisfaction. To this end, we rely on Equation (4) in Section 5, a special Oaxaca decomposition of the gap in average job satisfactions between flexible workers and permanent workers, which keeps personal and job characteristics, as well as individual, time and regional effects constant. Table 8 shows estimates of the satisfaction gap,  $\Delta S$ , and its three components: the *explained* contributions of 1) the difference in average satisfaction for job stability, which emerges from the analysis of Section 4 as the most prominent concern for all categories of flexible contracts; 2) the differences in the remaining average job-aspect satisfactions; and the *residual* contribution of 3) the contract-specific coefficients on contract dummies and interactions. We find the following.

1. There are no significant differences between ET and EP both in the whole sample and the female subsample. Restricting to males, instead, we see that ET gain significantly higher job satisfaction than EP. Significant satisfaction differences are never observed for EOT. At the other extreme, AC workers have always significantly lower job satisfaction than EP.
2. For all categories and all estimation samples lower satisfaction with job stability emerges as the strongest cause of lower overall job satisfaction.
3. In the case of ET, this negative effect is offset by the joint effect of differences in other aspect satisfactions, which is always positive and statistically significant. For male ET there is the additional effect of a significantly positive portion of higher job satisfaction brought about by differences in coefficients, which eventually bring male ET on a higher level of job satisfaction than male EP.
4. In the case of EOT the last two components are hardly individually significant. However they are always positive, with the last also sizeable, so that the two effects together offset the job-stability component both in size and in statistical significance.
5. For AC the last two components always go hand in hand with the job-stability component, contributing to make AC significantly worse off than EP. Using a similar decomposition, de Graaf Zijl (2012) finds similar results for on-call and agency workers, although in the latter case dissatisfaction with work content is more pronounced than dissatisfaction with job stability.

## 6.4 Sample selection and endogeneity

Since the satisfaction questions are restricted to employees, were the employee status related to the idiosyncratic part of the regressions, our estimates would be affected by an *incidental-truncation bias*.

Testing the correlation of the idiosyncratic error with past and future selection is not hard. In all models a battery of simple *variable addition tests* (see Semykina and Wooldridge 2010) never reject the null of zero correlation between  $\epsilon_{it}$  and past or future realizations of the selection. More specifically, the selection rule  $s_{it}$  is such that  $s_{it} = 1$  if individual  $i$  is in the sample at time  $t$  (has the employee status) and  $s_{it} = 0$  otherwise. We have estimated equation (1) adding each time a different pattern of selection among the right-hand-side variables:  $s_{it-1}$ ,  $s_{it+1}$ ,  $\sum_{r=1}^{t-1} s_{ir}$  and  $\sum_{r=t+1}^T s_{ir}$ . These variables never turned out either individually or jointly significant. For example, in Model 1, whole sample, the t-test of  $s_{it+1}$  is 1.33 (with a p-value of 0.185), the t-test of  $s_{it-1} = -1.09$  (p-value=0.277), the t-test of  $\sum_{r=t+1}^T s_{ir} = -0.37$  (pvalue=0.712) and the t-test of  $\sum_{r=1}^{t-1} s_{ir} = 0.37$  (p-value= 0.712). Similar results are obtained for the other models and samples.

Testing for contemporaneous selection is more intricate. For example, implementing the two-step procedure suggested in Semykina and Wooldridge (2010) requires that we take care of the incidental truncation on a subset of right-hand-side variables, specifically the aspect satisfaction variables, the contract indicators and, in models 2 and 3, the interactions between the two groups of variables. In any event, this boils down to an unusually high number of potentially endogenous regressors, which should be matched by an equal number of non-truncated excluded instruments, a hard task in our sample.

As conscious of the foregoing difficulty, we nonetheless attempted to implement the Semykina and Wooldridge test on our most parsimonious specification, Model 1, using the following instruments: the number of family members, its square, the number of children, the foregoing variables interacted with each of the 24 cohort indicators and with the individual height variable. The t-test for the inverse Mills ratio *2SLS fixed effect* estimate is 0.54 (p-value=0.586), which supports the absence of a selection bias at any conventional level of significance.

Based on the above findings, we did not attempt to correct our estimate for selections bias. We believe, though, that testing and correcting contemporaneous sample selection in satisfaction models with potentially many endogenous variables deserves further effort in the search for relevant instruments. This will be matter of further research on our part.

## 7. Conclusions

In this chapter we have investigated job quality from the point of view of young Italian workers, using self-declared levels of job satisfaction for a sample of young workers extracted from the ISFOL-panel. We have estimated three fixed effect models of job satisfaction, all including nine aspects of job satisfaction and three contractual dummies for de facto temporary employees, ET, EOT and AC, as explanatory variables. We found that, compared to EP, lower satisfaction with job stability is the aspect with the highest negative, and significant, incidence on the job satisfaction of all three categories of de facto temporary employment. We also found that ET present patterns of job satisfaction that are rather homogenous to EP. Heterogeneity of behaviour with respect to EP seems to characterise more EOT and AC, but often with opposite patterns. Finally, we found that, while ET and EOT tend to compensate concerns of job stability with other job aspects, attaining job satisfaction levels not significantly different from EP, AC do not, and so, on average, stand as the least satisfied.

Our fixed effect estimates are robust to endogeneity of the aspect satisfactions due to correlation with, and sorting of workers into contracts based on, all observables and time-constant unobservables. We have also started to tackle sample selection endogeneity caused by exits to unemployment and non-activity that may be related to idiosyncratic shocks, an issue that to our knowledge has received little attention in the empirical literature on job-satisfaction so far. At this stage, based on a battery of selection tests, we have not found strong evidence of sample selection bias in our fixed-effect estimates. Further work is needed, though, especially in the search of relevant instruments for testing contemporaneous selection in satisfaction models that, like ours, have potentially many endogenous right-hand-side variables.

A conclusion that can be drawn at this stage is that the picture representing youth temporary employment in Italy as a homogenous group of precarious workers with low expectations needs to be adjusted. ET and, to a smaller extent, EOT contracts seem to ensure satisfaction patterns comparable to those of permanent workers. This is in accordance also with the evidence based on the INPS archives in Berton et al. (2011), showing that ET and EOT are more likely to upgrade to EP positions than AC.

Our analysis shows that the most disadvantaged category of young workers in Italy is definitively the one of AC workers, who are contractually free-lancers, but are mostly used by firms for implementing flexibility at a lower cost than temporary employees, justifying the recent policy concerns raised by these contractual arrangements. However the recent policies have aimed at

regulating AC more than trying to improve the use of ET and EOT that instead turn out to be the better stepping stones to permanent employment and, according to our study, the most satisfactory typology of temporary job for young people in Italy.

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

	2006	2008	2010
<b>WHOLE POPULATION</b>			
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
<b>EMPLOYED</b>			
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 (V.A.T) 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 (averages))
<i>Contract (%)</i>				
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
<i>Status (%)</i>				
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: Dimensions of job satisfaction by contract.

	ET	EOT	AC	EP
<i>JS aspects:</i>				
Relationships	0.11***	0.12**	0.12***	3.11***
Times	-0.01	-0.07	0.01	3.10***
Burden	0.11***	-0.01	0.04	2.90***
Content	0.09***	-0.02	0.01	3.03***
Safety	0.02	-0.05	-0.15***	3.11***
Career	0.05	-0.06	-0.21***	2.44***
Pay	0.03	-0.13*	-0.22***	2.51***
Skills	0.14***	0.14***	0.09**	2.80***
Stability	-0.62***	-1.00***	-1.11***	3.26***
Overall	-0.03	-0.13***	-0.25***	2.97***

- p<0.05; \*\* p<0.01; \*\*\* p<0.001

Table 5: Summary statistics of explanatory variables by contract.

	EP	ET	EOT	AC
Age	26.483	25.431	25.265	25.433
<i>Sex:</i>				
Males	0.368	0.357	0.350	0.350
Females	0.632	0.643	0.650	0.650
<i>Education:</i>				
Education low	0.211	0.224	0.236	0.227
Education medium	0.593	0.580	0.584	0.577
Education high	0.195	0.196	0.180	0.196
Overeducated	0.528	0.566	0.580	0.575
<i>Occupation:</i>				
Occupation - high skills	0.325	0.418	0.408	0.567
Occupation - medium skills	0.568	0.490	0.499	0.396
Occupation - low skills	0.107	0.092	0.093	0.038
<i>Sector:</i>				
Sector Agriculture-Forsertry-Fishing	0.013	0.026	0.014	0.020
Sector Manufacturing	0.143	0.098	0.112	0.035
Sector Construction	0.033	0.027	0.027	0.026
Sector Trade and Food service	0.192	0.204	0.182	0.119
Sector 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
<i>Job Place:</i>				
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	0.237	0.216	0.169	0.183

Table 6: Job Satisfaction – Fixed effects POLS

VARIABLES	Model 1			Model 2			Model 3		
	Whole sample	Males	Females	Whole sample	Males	Females	Whole sample	Males	Females
sat relationships	0.194***	0.208***	0.182***	0.202***	0.205***	0.196***	0.204***	0.208***	0.198***
sat times	0.0603***	0.0500*	0.0678***	0.0665***	0.0611*	0.0710**	0.0650***	0.0608*	0.0723**
sat burden	0.0694***	0.0614**	0.0779***	0.0709***	0.0499	0.0874***	0.0727***	0.0542	0.0881***
sat content	0.137***	0.203***	0.0918***	0.124***	0.197***	0.0688**	0.123***	0.192***	0.0675*
sat safety	0.0386***	0.0412**	0.0374**	0.0282*	0.0238	0.0348*	0.0298*	0.0248	0.0342
sat career	0.110***	0.143***	0.0867***	0.0844***	0.116***	0.0637***	0.0803***	0.111***	0.0612***
sat pay	0.140***	0.121***	0.156***	0.150***	0.154***	0.148***	0.149***	0.159***	0.144***
sat skills	0.114***	0.105***	0.119***	0.130***	0.138***	0.119***	0.129***	0.130***	0.124***
sat stability	0.166***	0.132***	0.186***	0.150***	0.114***	0.174***	0.147***	0.109***	0.174***
<i>Ref. PE</i>									
ET	0.0753**	0.113**	0.0315	0.123	0.0566	0.0911	0.137	0.0785	0.113
EOT	0.131*	0.121	0.107	-0.354	-0.111	-0.576	-0.447	-0.302	-0.537
AC	-0.00978	-0.0211	-0.00560	-0.244	0.0598	-0.478	-0.205	0.0752	-0.385
<i>Controls</i>	no	no	no	no	no	no	yes	yes	yes
ET*relationships				0.0114	0.0643	-0.0288	0.0130	0.0590	-0.0265
EOT*relationships				-0.0800	-0.131	-0.0718	-0.0494	-0.0884	-0.0503
AC*relationships				-0.0504	-0.0910	-0.0258	-0.0613	-0.101	-0.0463
ET*times				-0.00235	-0.0405	0.0219	-0.000692	-0.0340	0.0178
EOT*times				0.174**	0.232	0.152	0.179**	0.224	0.135
AC*times				-0.105**	-0.0814	-0.118*	-0.101*	-0.0979	-0.111*
ET* burden				-0.00128	0.0506	-0.0310	-0.00447	0.0475	-0.0123
EOT* burden				-0.0767	-0.268*	0.00539	-0.0616	-0.206	-0.00791
AC* burden				0.0446	0.0947	0.0109	0.0406	0.109	0.00491
ET*content				0.00551	0.0344	-0.0133	0.00759	0.0252	-0.00626
EOT* content				0.288**	0.343**	0.258*	0.269**	0.267	0.268*
AC* content				-0.0263	-0.252**	0.109	-0.0252	-0.246**	0.105
ET*safety				-0.0100	0.0167	-0.0307	-0.0125	0.0186	-0.0370
EOT* safety				-0.000244	0.0152	0.0521	0.0242	0.0378	0.0707
AC* safety				0.0651	0.153**	0.0199	0.0621	0.149**	0.0212
ET*career				0.0554	0.0401	0.0467	0.0607*	0.0419	0.0518
EOT* career				0.123	0.143	0.0544	0.118	0.128	0.0765
AC* career				0.0839*	0.0696	0.105*	0.0871*	0.0719	0.0994
ET*pay				-0.0541	-0.105*	0.00895	-0.0592	-0.119*	0.00886
EOT* pay				-0.113	-0.190*	-0.0616	-0.132*	-0.175	-0.0922
AC* pay				0.0743	0.0461	0.101	0.0716	0.0654	0.0917
ET*skills				-0.0656	-0.0932	-0.0283	-0.0729	-0.0873	-0.0479
EOT* skills				-0.151	-0.154	-0.118	-0.162	-0.165	-0.119

AC* skills				0.0250	0.0345	0.0188	0.0279	0.0131	0.0318
ET*stability				0.0455	0.0302	0.0514	0.0470	0.0434	0.0371
EOT* stability				-0.0185	0.0548	-0.0558	-0.0137	0.0963	-0.0807
AC* stability				0.00272	0.0314	-0.0265	-0.00156	0.0395	-0.0344
<b>Ref. North West</b>									
North – East	-0.210	0.301	-0.779	-0.130	0.390*	-0.693	-0.131	0.420*	-0.618
Center	0.397	-0.240	0.855	0.330	-0.245	0.660	0.309	-0.211	0.633
South-Isles	-0.293	-0.603*	0.0178	-0.305	-0.461*	-0.0709	-0.301	-0.513*	-0.131
<b>Ref. 2006</b>									
2008	-0.0842***	-0.0689**	-0.0922***	-0.0878***	-0.0743**	-0.0894***	-0.103***	-0.103***	-0.0928***
2010	0.0220	0.0327	0.00977	0.0199	0.0345	0.00943	-	-	-
Constant	-2.916***	-2.995***	-2.817***	-2.845***	-3.012***	-2.667***	-3.349***	-4.802***	-2.640***
Observations	6,860	2,827	4,033	6,860	2,827	4,033	6,794	2,804	3,990
R-squared	0.316	0.346	0.302	0.326	0.365	0.315	0.330	0.372	0.320
Number of pid	3,469	1,395	2,074	3,469	1,395	2,074	3,435	1,383	2,052
F-test ASatisf <sup>§</sup>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
F-test Contracts <sup>§</sup>	0.048	0.086	0.628	0.400	0.991	0.181	0.336	0.943	0.296
F-test interactions <sup>§</sup>	-	-	-	0.016	0.046	0.062	0.012	0.073	0.096
F-test X p-value <sup>§</sup>	-	-	-	-	-	-	0.495	0.255	0.741

Cluster \*\*\* p<0.01, \*\* p<0.05, \* p<0.1  
<sup>§</sup> p-values

Table 7. Average differences in satisfaction with respect to PE

(Equation (4) decomposition - based on Model 3 estimates for constant personal and job characteristics)

	ET	EOT	AC
Whole sample			
Difference in job satisfaction <sup>1</sup>	0.036	-0.033	-0.230***
due to differences in satisfaction for security <sup>2</sup>	-0.091***	-0.147***	-0.163***
due to differences in other aspects satisfaction y <sup>3</sup>	0.068***	0.011*	-0.013*
due to differences in coefficients <sup>4</sup>	0.059	0.104	-0.053
Males			
Difference in job satisfaction	0.116**	-0.070	-0.226***
due to differences in satisfaction for security	-0.054***	-0.103***	-0.113***
due to differences in other aspects satisfaction	0.047***	0.001	-0.025*
due to differences in coefficients	0.123**	0.032	-0.088
Females			
Difference in job satisfaction	0.033	-0.023	-0.243***
due to differences in satisfaction for security	-0.123***	-0.181***	-0.202***
due to differences in other aspects satisfaction	0.079***	0.010	-0.009
due to differences in coefficients	0.012	0.148	-0.032

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

$${}^1\Delta S. {}^2\gamma_9 * (\bar{y}_{c,9} - \bar{y}_{l,9}). {}^3\sum_{a=1}^8 \gamma_a * (\bar{y}_{c,a} - \bar{y}_{l,a}). {}^4\delta_c + \sum_{a=1}^9 \delta_{ac} * \bar{y}_{c,a}.$$