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Measuring adaptation to non-permanent employment contracts using a conjoint analysis approach¹

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Abstract

This study attempts to uncover the 'real' impact of temporary contracts on workers' perceived job quality, prior to the psychological phenomena of adaptation, coping and cognitive dissonance coming into play. This is done by using a novel conjoint analysis approach that examines the *ex ante* preferences over different contract statuses of a newly generated sample of low-skilled employees from seven European countries. Other things equal, it is shown that the anticipated psychological 'costs' of moving from a riskless permanent contract to the insecurity of a temporary job or no work at all appear to be quite significant. In contrast, temporary employees, who have presumably already adapted to the circumstances surrounding a non-permanent contract, are found to be statistically indifferent between permanent and temporary employment, and request much smaller wage premiums in order to switch from one status to the other. The well-documented distress associated with joblessness is also confirmed in our data. The methodology developed here can provide policymakers with an alternative and relatively inexpensive method of quantifying the immediate impact of any shift in their employment policies.

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1. Introduction

Following the marked structural changes that most economies experienced during the last quarter of the twentieth century (such as globalisation, skill-biased technological change, growth of service industries, organizational shift to post-Fordist workplaces etc.), there was an increasing focus of public policy on so-called ‘flexible’ labour markets practices (Harrison, 1998). These involved the widespread use of ‘atypical’ forms of employment (part-time work, temporary contracts, low-paid jobs, non-standard working hours), all of which were intended to equip employers with adequate flexibility to respond to ever-changing circumstances and to retain a competitive advantage in the face of global pressures. While this increased flexibility in job market arrangements is believed to have improved the employment and labour force participation rates of modern economies, it came into conflict with existing social norms of the workplace, since in the past many firms had relied on long-term and stable employer-employee relationships as a means of human resource management.ⁱ For this reason, it has been argued that the shift to non-standard contracts, and the deregulation of the institutional framework that traditionally supported vulnerable groups of the working population, has had repercussions on job security and individual well-being.

Economists and policymakers have become increasingly interested in investigating the effects of non-standard forms of employment on individuals’ well-being and quality of life. In their strive to do so, it has become commonplace in the literature to use subjective measures of well-being as an empirical proxy for the theoretical economic concept of ‘utility’ (Locke, 1969; Hamermesh, 1977; Freeman, 1978).ⁱⁱ Hence, economists have typically estimated the utility cost of moving towards precarious

forms of employment by examining the differences in the stated job satisfaction of individuals who are employed in part-time/temporary jobs with those who enjoy more stable full-time/permanent careers (Booth et al., 2000; Kaiser, 2002).

However, drawing conclusions about the effect of economic and policy changes on the basis of differences in the *ex post* subjective evaluation of individual well-being is likely to be misleading. It has for a long time been acknowledged that satisfaction questions suffer from a number of weaknesses, most notably the *adaptation effect*. One of the most remarkable traits of human beings is their ability to adapt to new situations, such as an income increase or becoming handicapped, by changing their expectations with the passage of time. Therefore, job satisfaction scores, being a measure of individual feelings about every day activity at work, are not likely to be constant neither irreversible. Instead, “they depend on the current work environment, are affected by a process of adaptation and coping (Frederick and Loewenstein, 1999), and are contaminated by cognitive dissonance (Festinger, 1957)” (Ferrer-i-Carbonell et al. 2006).ⁱⁱⁱ

In light of the above psychological processes, the evaluation of the effect of any job characteristic on individual satisfaction is a particularly troublesome issue. Opinions about the current job are molded by present reality and are not immutable. Due to adaptation, coping and cognitive dissonance, the long-run impact on well-being of a change in the objective situation of an individual is therefore smaller than one would have anticipated a priori or at the instant moment of change (see Brickmen and Campbell, 1971; Frederick and Loewenstein, 1999; Helson, 1947; Kahneman et al., 1999).

Thus, in order to investigate the real effects of any economic or policy change on individual well-being one should attempt to purge the effects of adaptation and

cognitive dissonance. This is admittedly a difficult task, as it is not possible to uncover the level of satisfaction that the individual experiences at the instant moment of change in his/her circumstances from most available datasets. The present study, however, takes an alternative approach to overcoming the aforementioned psychological complications. Building on the original work of *EPICURUS* (2005) and Ferrer-i-Carbonell et al. (2006), it attempts to control for the inevitability of *ex post* adaptation and coping by resorting to a stated preference technique known as *conjoint analysis* (Green et al., 2001). The novelty of this methodology is that it ultimately allows the researcher to uncover the *ex ante* preferences of a sample of workers over a given number of attributes that are typical of most jobs. In other words, it captures how individuals evaluate various hypothetical jobs before they commence, that is, prior to the psychological phenomena of adaptation, coping and cognitive dissonance coming into play. In this manner, it becomes possible to detect the a priori anticipation of the effect of a change in the objective situation of an individual on his/her well-being.

The focus of this study is to unearth the ‘real’ impact that the greater incidence of temporary contractual arrangements in modern job markets has had on workers’ evaluation of their jobs. This is done by examining the *ex ante* preferences of a sample of permanent and temporary employees from seven European countries over different contract statuses, with and without taking the issue of endogenous selection into account. Other things equal, it is shown that European employees that enjoy the stability of permanency believe that the move towards temporary employment will have an adverse impact on the quality of their jobs. This finding becomes more striking when it is contrasted to the preferences of the respective sample of temporary employees, who have presumably already adapted to the circumstances surrounding a

non-permanent contract. For this latter group of workers, it is found that they are statistically indifferent between permanent and temporary employment, and would request much smaller wage premiums in order to be convinced to switch from one status to the other.

Interestingly, the well-documented distress associated with joblessness (Clark and Oswald, 1994; Winkelmann & Winkelmann, 1998; Theodossiou, 1998) also arises in this data, in the sense that the sample of permanent (temporary) employees would require a 37% (25%) wage premium in order to take up a temporary job that will eventually lead to unemployment. Finally, it is also argued that the comparison of the pecuniary trade-offs of permanent employees with those of workers who are already experiencing temporary employment, should provide an indication of the extent of adaptation, coping and cognitive dissonance in monetary terms.

It is believed that this study makes a contribution towards not only the growing and exciting literature on subjective well-being, but mainly towards providing policymakers with an alternative and relatively inexpensive method of quantifying the immediate impact of any shift in their employment policies. Importantly, the method proposed in this paper could assist governments in assessing the effect of policy initiatives *at the same time as they are contemplating a change*, which, of course, cannot be done using *ex post* satisfaction data i.e. the conjoint approach is forward-looking. Ultimately, the evaluation of the 'full effect' of an implemented policy should be made based on the knowledge of both the *ex ante* (conjoint) and the *ex post* (satisfaction) preferences of individuals, with the former providing an indication of the initial anticipation of the change, prior to the processes of adaptation and cognitive dissonance taking effect, and the latter capturing the eventual psychological impact of the new circumstance.

The present paper is structured as follows. Section 2 briefly reviews some of the existing studies examining the impact of temporary contracts on employee well-being using *ex post* job satisfaction scores. In Section 3 the conjoint analysis method is discussed. Section 4 describes the data that has been generated for the purposes of this study. In Section 5 the chosen econometric technique to be used in the empirical analysis is outlined. Finally, section 6 contains an extensive discussion of the empirical results, providing detailed insight into the intricate workings of the job search process of European employees. Section 7 concludes.

2. Literature Review

As was mentioned above, with the shift towards ‘atypical’ forms of employment in the last quarter of the century, the notion of a ‘job for life’ almost ceased to exist in most advanced Western economies. Individuals in the labour market now experience more unstable working lives, with those in part-time or temporary jobs facing far shorter job durations and greater job instability compared to those in full-time/permanent jobs (Gregg and Wadsworth, 1995, 1996). Economists have typically attempted to estimate the utility cost of moving towards such precarious modes of work, by examining the differences in the stated job satisfaction of individuals who are employed in non-standard jobs with those who enjoy more stable full-time/permanent positions. In this manner, Booth et al. (2000) have shown (using data from the first seven waves of the British Household Panel Survey) that temporary jobs in the UK are not desirable as a means of long-term careers. They typically pay less than corresponding permanent jobs, and are associated with lower levels of job satisfaction and poorer work-related training.^{iv}

Similarly, using data from the European Community Household Panel (1994-2001), Pouliakas and Theodossiou (2005a) found that temporary, part-time, and private sector workers in Greece are strongly dissatisfied compared to those on permanent, full-time, and public sector contracts. However, the extension of their analysis to eleven more representative European labour markets (Pouliakas and Theodossiou, 2005b) indicated that recent concerns about the negative effect of labour market flexibility on the quality and security of work cannot be generalized, but need to be considered on a country-by-country basis. They added that the ultimate effect on job satisfaction depends on the institutional and welfare state structure of the countries under investigation, which also determines the extent to which individuals who work on non-permanent contracts do so by choice rather than compulsion.^v

However, drawing conclusions about the effect of economic and policy changes on the basis of differences in the *ex post* subjective evaluation of individual well-being is likely to be misleading, due to the *adaptation effect*. It has for a long time been acknowledged that since opinions about the current job are molded by the present reality and are not immutable, job satisfaction scores are not likely to be constant neither irreversible. Hence, given the workings of the psychological processes of *adaptation*, *coping* and *cognitive dissonance*, the long-run impact on well-being of a change in the objective situation of an individual should be smaller than one would have anticipated *a priori*.

Of course, one way of avoiding this complication is to uncover the level of satisfaction that the individual experiences at the instant moment of change in his/her circumstances. This is the approach that was followed by Leontaridi and Theodossiou (2004), who used the BHPS to evaluate the effect of employment status on individual's well-being in the period straight after a labour market transition has occurred. The

above argued that in the first period of transition it may be expected that the process of adaptation and coping has not yet worked itself out to its full extent. With this assumption, they showed that transitions from full-time employment to joblessness and part-time work are associated with a significant reduction in individual utility.

The present study, however, takes an alternative approach to overcoming the aforementioned psychological difficulties. Building on the original work of *EPICURUS* (2005) and Ferrer-i-Carbonell et al. (2006), it attempts to control for the inevitability of *ex post* adaptation and coping by resorting to a stated preference technique known as *conjoint analysis*. The novelty of this methodology is that it ultimately allows the researcher to uncover the *ex ante* preferences of a sample of workers over a given number of attributes that are typical of most jobs. In this manner, it becomes possible to detect the a priori anticipation of the effect of a change in the objective situation of an individual on his/her well-being. The next section therefore turns to a description of this methodology.

3. What is Conjoint Analysis

The main objective of conjoint analysis is to identify how individuals value the various attributes of a product or service, such as a job, a house, health care or a nature area.^{vi} In the context of this paper, respondents are presented with and are then asked to make choices between alternative hypothetical job scenarios involving different levels of attributes that have been identified as important for influencing the quality of work. Assume that a job may be adequately described by i attributes. Hence, one may describe a job by a vector $q_1 = (q_{11}, \dots, q_{1i})$, the so called 'job vignette'. Individuals are then offered a list of vignettes, and they are asked to rank those in

order of preference and/or to evaluate them on a numerical scale or in terms of verbal labels, varying from 'very bad' to 'very good'. In this manner, the respondents are forced to trade off some characteristics for others and to incorporate opportunity cost into their decision-making process, akin to the way that they make decisions in the real world. The vignettes are eventually analysed in terms of how sensitive the answers are with respect to changes in the vignette descriptions. Conjoint analysis is therefore a data collection method that allows the researcher to disentangle the individuals' preferences based on information that they state in a questionnaire. It is a stated preference methodology that is rooted in random utility theory (McFadden, 1973; Hanemann, 1984; van Beek et al., 1997).

The creation of such vignettes is not trivial. There are four steps to this methodology:

Step 1: *Identifying the characteristics* - The characteristics or attributes characterizing a job are identified (e.g. salary, working hours, job security etc.).

Step 2: *Assigning levels to the characteristics* - The levels must be plausible and actionable, thus encouraging the respondents to take the exercise seriously.

Step 3: *Design of scenarios (vignettes)* - Scenarios are drawn up that describe all possible job configurations, given the selected job attributes and level possibilities. Since the number of scenarios increases with the number of characteristics and levels, not all of the scenarios generated can be included in the questionnaire as the respondents have a finite attention span. Thus, experimental designs are used to reduce the number to a convenient level.

Step 4: *Establishing preferences* - Once designed, the vignettes are offered to respondents, who are asked to state their preferences. Preferences for the scenarios

included in the questionnaire are elicited by using one of three methods: ranking, rating, or discrete choices.^{vii}

There are reasonable doubts as to what is the predictive value of preference estimation, based on reactions to vignettes. It may be that real world choice behaviour, where respondents are actually faced with the choice between jobs A or B, will differ from the choice they make when they are asked to evaluate the two hypothetical vignettes A and B. Economists have traditionally relied on *market*, or *revealed*, preference (RP) data for investigating the responsiveness of individuals in markets for particular goods and services. In contrast, much scepticism has been displayed against *stated* preferences (SP), due to the perception that choices elicited in hypothetical settings are likely to be artificial (i.e. affected by the degree of ‘contextual realism’ one establishes for respondents), and that ‘real’ behaviour can only be captured by observing what individuals *actually* do rather than relying on what they *say* they will do. Yet, a significant number of studies over the last thirty years have now stressed the point that “practically speaking, SP and RP preferences seem to match up surprising well in different choice contexts, cultures and time periods” (Louviere et al., 2000, p. 12). In this sense, “the issue is not if one can or should obtain SP data, but whether models estimated from SP data yield valid and reliable inferences about and predictions of real market behaviour” (ibid., p. 21). Thus, as long as respondents understand, are committed to and can respond to the hypothetical questionnaires that are put before them, coupled with the ability of SP data to yield multiple observations per respondent on hypothetical decision contexts that observational data cannot possibly capture, there is a strong case in favour of using SP methods. Particularly for the specific research topic of this study, the ability of the vignette approach to substantially widen the range of choice alternatives (over the ones that currently exist)

allows the researcher to infer the impact of the move towards to a temporary contract on employees' perceptions, prior to them actually taking up the said contract. In this manner, the psychological processes of adaptation, coping and cognitive dissonance can be, in theory, controlled for.

4. Data construction and collection

The data for this study are derived from a survey of workers in lower- and middle-skilled occupations that was undertaken in August and September 2004 in Denmark, Finland, France, Greece, the Netherlands, Spain and the UK. This survey was carried out in the aforementioned seven European countries as part of the EPICURUS project, a project financed by the European Commission. The central theme of the project was to obtain more insight in the effect of labour market changes on the quality of life of European citizens. During the design stages of the survey, the EPICURUS research team ensured that, for the purpose of comparability, all countries would respond to an identical questionnaire. Responsibility for the dissemination, statistical accuracy, and data collection process, however, lay with a specialized hired company. After extensive discussion between the research team and the firm, it was decided that due to time and budget considerations the focus should be on a homogenous group of individuals. The final sample therefore included salaried workers whose employment is the main activity (excluding students), employed in all industries except agriculture and fishery, between the age of 18 to 65, with a maximum educational level of 4 in the ISCED International Classification of 1997.^{viii}

The data was collected online from a panel of Internet users, except for Greece where face-to-face interviews were organized instead, since the degree of Internet

penetration at the time of the survey was relatively low in that country. Eventually, and given the limited scope of the survey, the size of the sample varied in each country as follows: 1,011 observations in Denmark, 1,008 in France, 1,007 in the Netherlands, 1,002 in the United Kingdom, 800 in Greece, 331 in Finland and 304 in Spain.

In addition to the usual question modules regarding personal and job characteristics, a considerable part of the questionnaire was used for offering vignettes to the respondents. A typical vignette is shown in Figure 1. In the context of this research, each individual was offered a set of five vignettes at random, each of them consisting of a set of ten attributes relating to a hypothetical job. Each vignette was a description of a job with multiple attributes, such as salary, number of working hours, type of contract etc. Respondents were then asked to ‘evaluate’ each of the five vignettes by grading each vignette on a numerical scale from 0 to 10. From the respondents’ evaluations, one is then able to identify which are the job characteristics that are valued the most. The vignettes were described by the following 10 attributes: Net wages (described as a percentage of current wages)^{ix}, type of contract, working hours, working times, access to training opportunities, whether team work is involved, possibilities of control over own work, working tempo in terms of high speed and tight deadlines, age of retirement and labour disability, and the loyalty between employer/employee (Akerlof, 1982). The details of the variables and the values they can take are presented in Table 1. A full description of the procedural issues surrounding the design of the conjoint questionnaire can be found in the Appendix.

5. The utility model and the COLS approach

Following the pioneering work of Lancaster (1966, 1971) and Rosen (1974), it is assumed that the utility that a worker derives from his/her job stems from the characteristics (attributes) that describe the job, rather than from the job *per se*. In our case each individual, n , is offered a set of five vignettes q_1, \dots, q_5 , each of which is described by ten attributes. It follows that the first vignette is the vector $q_1 = (q_{1,1}, \dots, q_{1,10})$.

It is assumed that an individual's latent evaluation, U_n , of a job, j , depends on the attribute values, i , of the job, as specified in the vignette experiment, as well as on the individual's personal and current job characteristics, denoted by X_n . Hence:

$$U_n(q_j) = U_n(q_{j,i}, X_n) \quad (1)$$

where X_n captures the influence that the heterogeneity in individual characteristics and working experiences is expected to have on the way in which different employees evaluate their vignette sequences. Moreover, if it is further assumed that the evaluation of job (vignette) j by individual n , $u_{j,n}$, is a *linear* function of the attributes, the characteristics of the respondent, and a random error term, ε_n , then we can consider the following latent regression model:

$$u_{j,n} = \beta' q_{j,i,n} + \gamma' X_n + \varepsilon_{j,n} \quad (2)$$

where the vectors β , γ capture the marginal effects of the explanatory variables on his/her stated preference.

The variable $u_{j,n}$ is a latent variable in the sense that its ‘precise’ value is not observed exactly. Instead, in the experiment the answers to the vignette questions were measured on a discrete scale 0, 1,...,10. Traditionally in the literature such discrete choice models are analyzed by means of Ordered Probit or Logit techniques. However, a unique feature of conjoint analysis is that multiple evaluation responses are collected for each individual. Thus, one needs to decide how to take into account the fact that if one individual ranks five vignettes, this ranking will be correlated with unobserved personal traits of the respondent, like optimism/pessimism. This implies that the five answers from each respondent cannot be regarded as independent, so it is necessary for the researcher to employ a model that controls for the unobserved heterogeneity. However, as the introduction of such random or fixed effect techniques involves considerable computational cost in a Logit/Probit setting, combined with the fact that the econometric analysis of this paper seeks to correct for sample selection, it has been necessary to adopt an appropriate linearization of the ordinal evaluation responses.

The linearization used in the context of this study is the Cardinal OLS (COLS) approach (van Praag and Ferrer-i-Carbonell, 2004, chapter 2). This econometric model presumes that respondents are supplying a cardinal evaluation, but it takes into account that they could not precisely give information about their evaluation, due to the categorical format of the response categories. Their answers were restricted to the set of integer numbers between 0 and 10 instead. The assumption is that if someone evaluates a vignette with a 6, the true valuation lies somewhere between 5.5 and 6.5. If the true evaluation is 5.3, the respondent would have answered 5. Hence, an answer 6 implies that for the *exact* evaluation $U_n(q_j)$ the following inequality holds:

$5.5 < U_n(q_j, X_n) \leq 6.5$. Now assume $\frac{1}{10} U_n(\cdot)$ to be a standard normal distribution function $N(\cdot; 0, 1)$, where the first factor accounts for the normalization to the $[0, 10]$ -interval.^x If $u_{0.55}$ is defined by $N(u_{0.55}; 0, 1) = 0.55$, that is the 55%-quantile, and similarly for $u_{0.65}$, the previous inequality is equivalent with $u_{0.55} < U_n(q_j, X_n) \leq u_{0.65}$ or $u_{0.55} < u_{j,n} = \beta' q_{j,i,n} + \gamma' X_n + \varepsilon_{j,n} \leq u_{0.65}$. Now the COLS approach replaces the inexactly known value $u_{j,n}$ by its conditional expectation $\bar{u}_{j,n}$ (Maddala, 1983, p.366):

$$\bar{u}_{j,n} = E(u_{0.55} < u_{j,n} \leq u_{0.65}) = \frac{n(u_{0.55}) - n(u_{0.65})}{N(u_{0.65}) - N(u_{0.55})} \quad (3)$$

where $n(\cdot)$ and $N(\cdot)$ stand for the standard normal density and distribution functions, respectively. The use of this formula does not require previous estimation of the underlying model parameters β, γ .

6. Econometric Methodology

After the original evaluation of the vignette has been transformed into its conditional mean, OLS can be applied to the linear model

$$\bar{u}_{j,n} = \beta' q_{j,i,n} + \gamma' X_n + \varepsilon_{j,n} \quad (4)$$

where $\varepsilon_{j,n}$ is a symmetric error term with mean zero. This COLS-method has been shown to yield consistent parameter estimates (Ferrer-i-Carbonell and Fritjers, 2004;

also see Stewart, 1983). It is a variant of the so-called ‘interval regression’ method. This approach yields parameter estimates that are nearly identical to those obtained by Ordered Probit (except for a factor of proportionality), are as efficient as Probit-estimation (as the t -values are approximately the same), but it is computationally much easier. It is also important to note that the so-called ‘trade-off’ ratios (β/γ), that is the extent to which one job characteristic can deteriorate if the worker is simultaneously compensated by an improvement in another, thus leaving the individual indifferent between the two situations, are not dependent on the specific method used. The reason is that the COLS procedure outlined above, which entails a specific monotonic labeling convention, describes the same indifference curves as the more traditional Ordered Probit/Logit maximum likelihood estimates.

Furthermore, in order to take into account the probable correlation structure between the five individual vignette evaluations, a random effects model has been employed in this study (Wooldridge, 2002).^{xi} Thus, the basic estimation procedure that is utilized is to estimate the following valuation equation:

$$\bar{u}_{j,n} = \beta' q_{j,i,n} + \gamma' X_n + \varepsilon_n + \eta_{j,n} \quad (5)$$

using the familiar random effects model of panel analysis, where ε_n is the random individual term that is invariant to the alternative vignettes, and $\eta_{j,n}$ is a pure random error term with $E(\eta_{j,n}) = 0$ and $E(\varepsilon_n, \eta_{j,n}) = 0$.

Moreover, as the aim of the study is to separately examine the *ex ante* preferences over different contract statuses of a sub-sample of permanent and temporary employees, it is necessary to employ a Heckman-type model in order to correct for the potential incidental truncation problem that arises. After all, it is unlikely that

individuals are randomly allocated into either permanent or temporary contracts, as people tend to self-select into the type of contractual arrangement that suits them best. It follows that if selectivity is not taken into account, an OLS regression using the selected non-random sub-samples will lead to inconsistent estimates (Heckman, 1979). Thus, in order to correct for this issue, a “switching regression model with endogenous switching” has also been employed in this paper (Lee, 1978). Though the description of the technical details of the estimation is left for the Appendix, the empirical results are presented in the Tables discussed below, alongside those that have not corrected for the issue of endogenous selection.

7. Empirical Results

The estimation of equations (5), (A4) and (A5) was based on a pooled sample of workers from seven European countries (Denmark, Finland, Netherlands, France, Greece, Spain and the UK), split according to their contractual status in their main job at the time of the EPICURUS survey.^{xiii} Among a total sample of 5463 individuals, 4507 (82.52%) declared that their job involved a permanent contract (with no fixed ending time), while 494 (9.05%) were on fixed-term employment. The remaining percentage of workers was engaged in casual, seasonal, or other work, so they were dropped from the analysis. Given that with the vignette experiment five responses were amassed on average per individual, the total sample of our dataset included 26755 observations, with 22075 of those referring to individuals on permanent employment, and 2430 to fixed-term employees. Some representative descriptive statistics for these two groups of workers are shown in Table 2, while Figure 2 plots

the distributions of their evaluation responses over various contract options that were offered in the vignettes.

Ex ante preferences of permanent workers

The empirical results for the sample of permanent workers only are displayed in Table 3. These are generated from the estimation of, firstly, the job evaluation equation (5), which only corrects for individual and current job characteristics, and, subsequently, equation (A4), which also accounts for selectivity. They are based on the specific quadratic empirical relationship:

$$\bar{u}_{j,n} = \sum_{l=1}^{l=k} \alpha_l D_{iln} + \beta_1 (dW_n / W_n) + \beta_2 \ln(hours)_n + \beta_3 \ln(hours)_n^2 + \gamma' X_n (+\lambda_{pn}) + \eta_n + \varepsilon_{j,n} \quad (6)$$

where D_{il} are dummy variables measuring the k sub-categories of the i characteristics of the job profiles, W_n is the wage of respondent n , and $\ln(hours)$ the logarithm of working hours. Accordingly, Table 4 reports the trade-offs between the various attributes and changes in percentage of the wage, also known as the *marginal willingness to pay*, indicating the extent of monetary compensation that an individual would require following a deterioration in another job dimension, in order to keep him/her on the same indifference curve. This is given by the following ratio:

$$\frac{\partial(dW / W)}{\partial D_i} = -\frac{\alpha_i}{\beta_1} \quad (7)$$

From Table 3 it can be seen that, other things equal, European employees that enjoy the stability of a permanent contract believe that the move towards temporary employment will have a detrimental impact on the quality of their jobs. In particular, it is found that in order to induce these permanent workers to accept a temporary contract with prospects of continuation to another permanent or temporary contract, they would require a 15,5% and a 14% wage premium over their current wages, respectively. Moreover, the well-documented distress associated with joblessness (Clark and Oswald, 1994; Winkelmann & Winkelmann, 1998; Theodossiou, 1998) also arises in the data, as it is found that permanent employees would require a 37% wage premium in order to take up a temporary job that will eventually lead to unemployment. So the anticipated psychological ‘costs’ of moving from a riskless permanent contract to the insecurity of a temporary job or no work at all appear to be quite significant, especially amongst the sample of low-skilled European employees that is analysed in this study.

Ex ante preferences of temporary workers

While it was argued above that the elicitation of the preferences of *permanent* employees should provide an indication of the impact of non-permanent jobs on job quality prior to any psychological adaptation processes taking effect, this should not be the case for those individuals who already hold such contracts. For this latter group of workers it is expected that their subjective evaluation of the quality of different hypothetical jobs is already affected by their current experience with non-standard employment. The effects of adaptation and coping, and the attempt to reduce the dissonance associated with insecure contractual agreements, should therefore be ingrained in their answers to the conjoint exercise. In other words, it should hold that

the trade-offs of individuals who are currently in temporary employment are smaller than those of their permanent equivalents, as temporary workers have already adjusted their perceptions to the conditions surrounding a fixed-term contract.

Indeed, Tables 3 and 4 confirm that this *a priori* expectation is borne out in the data. Regardless of whether selectivity is corrected for, the coefficients and monetary trade-offs arising out of the responses of the sample of temporary workers are smaller than the ones that were estimated for the permanent sub-sample. Specifically, based on the temporary workers' responses, a 5% wage premium should be paid to equalize the value of permanent employment with a temporary job leading to permanency, while 2-3% compensation over current wages should be offered to those on temporary contracts who are likely to continue on a similar arrangement. This is significantly different to the 14-15% trade-offs that were found previously for the sample of permanent workers.

Interestingly, it is also found that for those who are currently in temporary work, the option of being in temporary employment with prospects of continuation (either with another permanent or temporary contract) does not yield significant disutility compared to riskless permanency. This is in stark contrast to the significant negative effect that such contracts have on the perceived quality of jobs of permanent workers, and arises presumably because temporary employees have already adapted to their circumstances. Nevertheless, for both groups what can be characterized as a "dead-end contract" (i.e. temporary work with no prospects of continuation) is significantly less preferred to a permanent contract with no risk of being fired. Remarkably, a strong negative effect is also found for those individuals who are already in temporary jobs, thus implying that the psychological cost of joblessness is quite substantial and persists even in the face of adaptation and coping. In particular, it can be seen from

Table 4 that despite any acclimatization, temporary workers would still demand a 25% wage premium over their current wages in order to feel indifferent between a dead-end and a riskless permanent contract (compare this to the 38% trade-off of permanent workers).

Capturing the monetary value of adaptation

As a final endeavour it is argued in this paper that the comparison of the pecuniary trade-offs of permanent employees, which are supposedly stripped of psychological adaptation effects, with those of individuals who are currently in temporary employment, and have already adjusted to their insecure working conditions, should capture the extent of adaptation to non-permanent contracts in monetary terms. This has been done in Table 4, where it is asserted that the financial difference between the trade-offs of permanent and temporary employees can be interpreted as a measure of the impact of adaptation, coping and cognitive dissonance on peoples' perceptions regarding the quality of their jobs. As can be seen from the table, it would appear that due to the aforementioned psychological processes European employees who have already experienced a non-permanent contract request a 10-12% smaller wage premium over their current wages compared to those who have not.

8. Conclusions

It is clear from the conjoint analysis evidence that is presented above that the anticipated psychological 'costs' of moving from a riskless permanent contract to the insecurity of a temporary job or no work at all appear to be quite significant, especially amongst the low-skilled who have usually been the group that has borne the brunt of

the move towards flexible employment practices. Moreover, it was also shown that the workings of adaptation, coping and cognitive dissonance do, in fact, appear to make individuals more content with their current state of affairs. Of course, it may be argued that the empirical results of this paper suffer from the inability to control for the respondents' *previous* employment experiences. For instance, if some of the permanent workers in the sample had been employed in temporary jobs in the past, some adaptation would be expected to have taken place in those people's minds, which could result in them requesting smaller wage premiums in order to take up a temporary job (i.e. the trade-offs calculated in Table 4 would underestimate the 'true' cost of non-permanent contracts).

Though this argument is valid, it has not been possible for this study to take the respondents' previous employment status into consideration, as this information was not available in the dataset. In addition, in order to fully address this specific concern, the researcher would ideally require a panel vignette dataset, from which he/she would be able to trace the monetary trade-offs of individuals throughout time. This, of course, could not be done with the single cross-sectional EPICURUS data that were utilized here. It is worth pointing out, though, that although past experience with temporary contracts could affect the perceptions of permanent employees, it should also be true that the process of cognitive dissonance could work in the reverse direction. In other words, once reemployed in a permanent job, individuals readjust their 'dissonance' to their new secure circumstance, in which case their responses to the conjoint questionnaire would once again accurately reflect the 'true' cost of temporary contractual forms of employment on the perceived quality of jobs.

An important point to make in conclusion is that throughout this study the implicit assumption was made that the respondents of the EPICURUS survey were adequately

informed agents of the labour market, whose knowledge of the conditions surrounding a fixed-term or permanent contract was sufficient for the purposes of engaging in the hypothetical job evaluation exercise to which they were exposed.

Figure 1. Typical vignette

Imagine that, for some reason, you had to stop with your current job and had to look for a new one. Imagine that after a short time you get several offers. We will list them on the following screen. These listed job offers do not differ from your current job except for some points we specifically mention.

Can you please evaluate these offers on a scale from 0 to 10, where 0 means the worst possible and 10 the best possible offer? And indicate if they are acceptable?"

Wage: 20% more than now per hour

Type of contract: Permanent with risk of losing the job with no severance pay

Working hours: 20 hours a week

Working times: Rotating shift system

Training opportunities: The employer will offer you a 10 workdays training program in the course of the year

Work organization: The job involves working in a varying team

Work conditions: No one controls your work

Work speed: The job is fairly demanding, which means that sometimes you may have to work at high speed

Retirement: You can retire at age 55

Behavioral norms: Same working conditions as in other firms. No loyalty from both sides. Shirking and low performance is possible

How would you rate this offer?.....

Please, evaluate this offer on a scale from 0 to 10, where 0 means the worst possible and 10 the best possible job.

Would this job offer be acceptable to you? *Yes/No*

Table 1: The vignette's attributes

Variable

Type of contract (dummy variables)
Permanent contract with no risk of being fired
Permanent contract with risk of being fired & with economic compensation
Permanent contract with risk of being fired & with no economic compensation
One-year contract with high probability of continuation with a permanent contract
One-year contract with high probability of continuation with a temporary contract
(reference: One-year contract with no probability of continuation)

Ln(Working hours) (Working hours ranged from 20 to 50)

Net wages per hour: expressed as a percentage of wages at the current job

Working schedules (dummy variables)
Flexible working hours
Office working hours (you can choose which days your work)
Rotating shifts (system)

Training (dummy variables)
3 months training
1 month training
10 days training
5 days training
1 day training
no training

Work organization (dummy variables)
Job not in teamwork
Job in varying teamwork
(reference: Job in fixed team)

Control over own work (dummy variables)
Job has a fixed routine
Can choose order tasks: job tasks are fixed, but you may decide when & how things are done
(reference: No one controls your work)

Intensity due to high speed (dummy variables)
Often high speed
Sometimes high speed
(reference: never working at high speed)

Intensity due to tight deadlines (dummy variables)
Often tight deadlines
Sometimes tight deadlines
(reference: never working with tight deadlines)

Retirement & Labour disability (dummy variables)
Have to stop before 65 (have to stop before 65 because the job is physically very demanding)
Early retirement 55 (firm has early retirement plans)
Early retirement 60 (firm has early retirement plans)
(reference: the firm has no early retirement plans)

Loyalty-no shirking(dummy variables)
Loyalty from both sides; shirking & low performance impossible

Figure 2: Job evaluation responses of temporary (upper graph) vs. permanent (lower graph) workers over different contract statuses

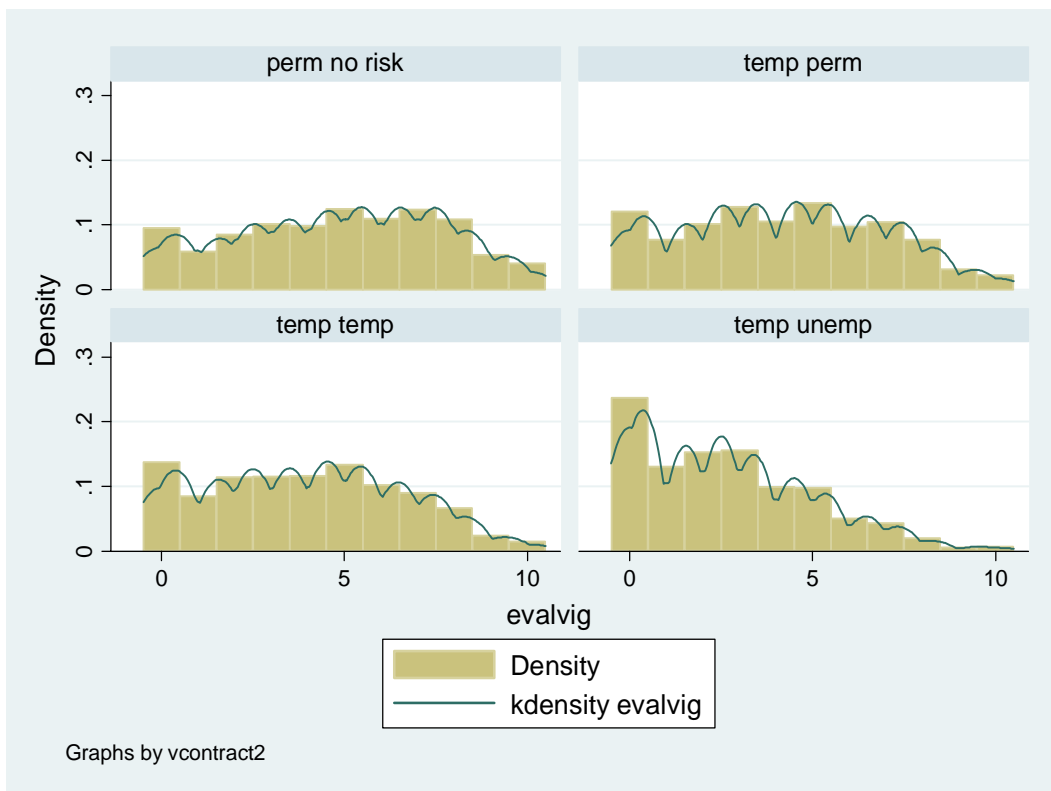
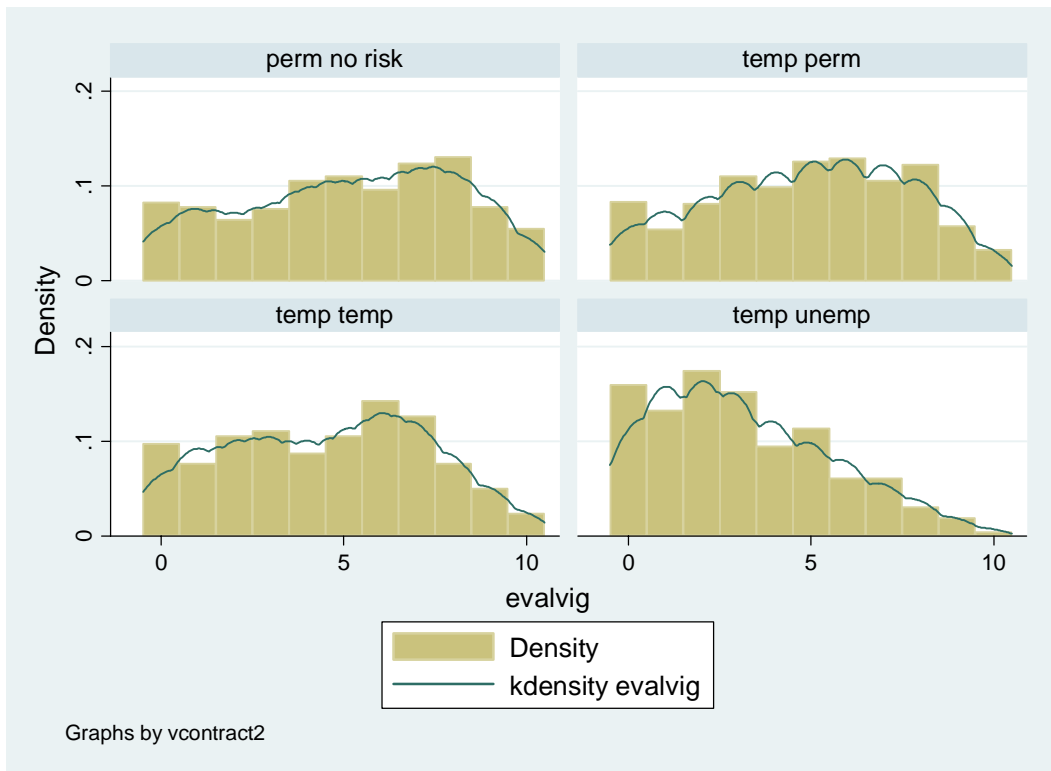


Table 2: Descriptive statistics by contract status

<i>Variable</i>	Mean perm	Mean temp	Min	Max
Evaluation Vignette	4.067	4.620	0	10
Type of contract (dummy variables)				
Permanent contract with no risk of being fired	0.124	0.136	0	1
Permanent contract with risk of being fired & with economic compensation	0.179	0.175	0	1
Permanent contract with risk of being fired & with no economic compensation	0.243	0.242	0	1
One-year contract with high probability of continuation with a permanent contract	0.160	0.158	0	1
One-year contract with high probability of continuation with a temporary contract (reference: One-year contract with no probability of continuation)	0.117	0.109	0	1
Ln(Working hours) (Working hours ranged from 20 to 50)	3.5415	3.5417	2.996	3.912
Net wages per hour: expressed as a percentage of wages at the current job	-0.0193	-0.0187	-0,5	0,5
Working schedules (dummy variables)				
Flexible working hours	0.172	0.164	0	1
Office working hours (you can choose which days your work)	0.282	0.281	0	1
Rotating shifts (system) (reference: working times decided by employer)	0.313	0.322	0	1
Training (dummy variables)				
1-3 months training	0.313	0.332	0	1
5-10 days training (reference: 1 day training or no training)	0.426	0.409	0	1
Work organization (dummy variables)				
Job not in teamwork	0.305	0.298	0	1
Job in varying teamwork (reference: Job in fixed team)	0.318	0.317	0	1
Control over own work (dummy variables)				
Job has a fixed routine	0.404	0.386	0	1
Can choose order tasks: job tasks are fixed, but you may decide when & how things are done (reference: No one controls your work)	0.334	0.356	0	1

Intensity due to high speed (dummy variables)				
Often high speed	0.243	0.231	0	1
Sometimes high speed	0.158	0.167	0	1
(reference: never working at high speed)				
Intensity due to tight deadlines (dummy variables)				
Often tight deadlines	0.157	0.159	0	1
Sometimes tight deadlines	0.168	0.181	0	1
(reference: never working with tight deadlines)				
Retirement & Labour disability (dummy variables)				
Have to stop before 65 (have to stop before 65 because the job is physically very demanding)	0.116	0.111	0	1
Early retirement 55 (firm has early retirement plans)	0.199	0.196	0	1
Early retirement 60 (firm has early retirement plans)	0.242	0.245	0	1
(reference: the firm has no early retirement plans)				
Loyalty-no shirking (dummy variables)				
Loyalty from both sides; shirking & low performance impossible	0.429	0.450	0	1
Job/Individual characteristics				
Age	37.877	31.856	16	65
Female	0.515	0.457	0	1
Married	0.706	0.554	0	1
Jobtenure	8.935	2.560	0.6	44
Twojobs	0.093	0.172	0	1
Unemp last year	0.062	0.386	0	1
Sector				
Non-profit instit	0.068	0.078	0	1
Civil serv.	0.185	0.193	0	1
Public company	0.113	0.098	0	1
(ref. private company)				
Ln(monthly net wage)	7.504	7.207	0	12.899
Ln(Contract work hours/week)	3.532	3.494	0	4.522

Occupation				
Managers/Professionals	0.064	0.070	0	1
Technical/Clerical (ref. other)	0.407	0.345	0	1
Working times				
Always same workg.times	0.534	0.521	0	1
Rotating shifts	0.141	0.143	0	1
Employee decides	0.064	0.140	0	1
Employee+employer decide (ref. decided by employer)	0.135	0.072	0	1
Work organization				
Job in fixed team	0.672	0.660	0	1
Job in varying teamwork (ref. Job not in teamwork)	0.147	0.180	0	1
Training				
5-10 days	0.356	0.238	0	1
1-3 months (ref. no training or in the past)	0.060	0.077	0	1
Control over own work				
Job has a fixed routine	0.272	0.400	0	1
Can choose order tasks (ref. No one controls your work)	0.658	0.536	0	1

Table 3: Random effects COLS job evaluation regressions by contract status

	Controls				Selection			
	Permanent		Temporary		Permanent		Temporary	
	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.	Coef.	s.e.
Vignette description								
Type of contract								
Perm.cont. risk w comp.	-0.15	(0.023)***	-0.105	(0.072)	-0.144	(0.024)***	-0.097	(0.075)
Perm.cont. risk w no comp.	-0.348	(0.022)***	-0.289	(0.069)***	-0.342	(0.022)***	-0.291	(0.072)***
Temp.cont. to perm.cont	-0.171	(0.022)***	-0.067	(0.069)	-0.171	(0.022)***	-0.057	(0.072)
Temp.cont. to temp.cont	-0.158	(0.025)***	-0.042	(0.077)	-0.163	(0.026)***	-0.028	(0.081)
Temp.cont. to unempl. (ref. Perm.cont. no risk.)	-0.417	(0.028)***	-0.327	(0.09)***	-0.407	(0.029)***	-0.317	(0.093)***
Ln(Working hours)	7.932	(0.619)***	10.269	(1.973)***	7.954	(0.643)***	10.458	(2.05)***
Ln(Working hours)^2	-1.201	(0.089)***	-1.531	(0.284)***	-1.207	(0.092)***	-1.554	(0.295)***
Wages (in % of current income)	1.106	(0.02)***	1.297	(0.066)***	1.089	(0.021)***	1.275	(0.069)***
Working times								
Flexible working hours	0.12	(0.023)***	0.062	(0.075)	0.128	(0.024)***	0.083	(0.078)
Office working hours	0.097	(0.02)***	0.105	(0.062)*	0.103	(0.02)***	0.109	(0.065)*
Rotating shifts (ref. work. times decided by employer)	-0.07	(0.019)***	-0.081	(0.061)	-0.064	(0.019)***	-0.07	(0.063)
Training								
5-10 days	0.112	(0.018)***	0.084	(0.058)	0.107	(0.019)***	0.069	(0.06)
1-3 months (ref. No training or in the past)	0.065	(0.017)***	0.134	(0.055)**	0.061	(0.017)***	0.119	(0.058)**
Work organization								

Job not in teamwork	0.014	(0.016)	0.061	(0.052)	0.01	(0.017)	0.048	(0.054)
Job in varying teamwork (reference: Job in fixed team)	-0.023	(0.016)	-0.029	(0.052)	-0.026	(0.017)	-0.032	(0.054)
Control over own work								
Job has a fixed routine	-0.133	(0.017)***	-0.136	(0.056)**	-0.133	(0.018)***	-0.135	(0.058)**
Can choose order tasks (ref. noone controls your work)	0.016	(0.018)	0.034	(0.058)	0.008	(0.019)	0.039	(0.06)
Intensity due to high speed								
Often high speed	-0.176	(0.018)***	-0.299	(0.059)***	-0.18	(0.019)***	-0.325	(0.061)***
Sometimes high speed (ref. never work at high speed)	-0.031	(0.021)	0.026	(0.066)	-0.024	(0.021)	-0.013	(0.069)
Intensity due to tight deadlines								
Often tight deadlines	-0.127	(0.02)***	-0.027	(0.063)	-0.128	(0.02)***	-0.011	(0.067)
Sometimes tight deadlines (ref. never work tight deadlines)	-0.034	(0.02)*	-0.102	(0.062)*	-0.041	(0.02)**	-0.126	(0.065)*
Retirement								
Have to stop before 65	0.069	(0.027)**	0.052	(0.088)	0.051	(0.028)*	0.048	(0.092)
Early retirement 55	0.204	(0.022)***	0.275	(0.071)***	0.201	(0.022)***	0.272	(0.074)***
Early retirement 60 (ref. firm has no early retirement plans)	0.23	(0.022)***	0.108	(0.069)	0.222	(0.023)***	0.107	(0.071)
No loyalty-shirking	-0.101	(0.014)***	-0.151	(0.045)***	-0.101	(0.014)***	-0.157	(0.047)***
Job/indiv. characteristics								
Male	0.009	(0.019)	0.026	(0.061)	0.006	(0.02)	0.034	(0.064)
Age	-0.031	(0.007)***	-0.034	(0.02)*	-0.033	(0.007)***	-0.038	(0.026)
Agesq	0.00034	(0.00008)*	0.00044	(0.00026)*	0.00037	(0.00009)**	0.00050	(0.00033)
Married	0.004	(0.02)	0.067	(0.06)	0.005	(0.022)	0.071	(0.067)
Jobtenure	-0.006	(0.004)*	-0.005	(0.016)	-0.005	(0.004)	0.007	(0.048)
Jobtenuresq	0.00019	(0.00011)*	0.00015	(0.00056)	0.00016	(0.00011)	-0.00013	(0.00117)

Twojobs	-0.001	(0.031)	0.099	(0.078)	0.005	(0.032)	0.054	(0.105)
Unemp last year	-0.038	(0.037)	-0.039	(0.061)	-0.046	(0.047)	-0.054	(0.197)
Ln(monthly net wage)	-0.002	(0.02)	-0.044	(0.063)	0.001	(0.021)	-0.044	(0.075)
Ln(Contract work hours/week)	0.175	(0.039)***	0.086	(0.084)	0.171	(0.04)***	0.129	(0.093)
Sector								
Non-profit instit.	-0.058	(0.042)	-0.322	(0.124)***	-0.043	(0.045)	-0.349	(0.162)**
Civil serv.	-0.033	(0.032)	-0.084	(0.094)	-0.028	(0.033)	-0.093	(0.137)
Public company (ref. private company)	0.001	(0.029)	-0.07	(0.094)	-0.002	(0.031)	-0.084	(0.125)
Industry								
Manufacturing	0.045	(0.032)	0.021	(0.105)	0.043	(0.034)	0.059	(0.118)
Wholesale/retail trade	0.001	(0.033)	-0.109	(0.104)	0.004	(0.035)	-0.09	(0.112)
Services	0.003	(0.028)	0.016	(0.082)	0.01	(0.03)	0.033	(0.103)
Public admin/education/health (ref. other)	0.01	(0.034)	-0.021	(0.091)	0.008	(0.035)	-0.011	(0.094)
Occupation								
Managers/Professionals	0.046	(0.04)	0.01	(0.126)	0.037	(0.041)	0.007	(0.151)
Technical/Clerical (ref. other)	-0.045	(0.02)**	0.048	(0.063)	-0.05	(0.021)**	0.046	(0.066)
Working times								
Always same workg.times	-0.036	(0.029)	-0.027	(0.092)	-0.039	(0.03)	-0.097	(0.101)
Rotating shifts	0.008	(0.036)	0.111	(0.114)	0.009	(0.038)	0.057	(0.122)
Employee decides	-0.028	(0.046)	0.02	(0.111)	-0.046	(0.048)	-0.04	(0.125)
Employee+employer decide (ref. decided by employer)	-0.028	(0.036)	0.156	(0.135)	-0.026	(0.037)	0.11	(0.147)
Work organization								
Job in fixed team	0.001	(0.024)	-0.085	(0.079)	0.01	(0.025)	-0.09	(0.084)
Job in varying teamwork (ref. Job not in teamwork)	-0.01	(0.032)	-0.274	(0.099)***	0.008	(0.034)	-0.319	(0.114)***

Training								
5-10 days	-0.03	(0.02)	-0.051	(0.066)	-0.032	(0.02)	-0.069	(0.089)
1-3 months	-0.037	(0.039)	-0.051	(0.106)	-0.037	(0.041)	-0.065	(0.112)
(ref. no training or in the past)								
Control over own work								
Job has a fixed routine	-0.053	(0.039)	0.005	(0.118)	-0.056	(0.041)	-0.007	(0.131)
Can choose order tasks	-0.031	(0.036)	0.028	(0.11)	-0.035	(0.037)	0.036	(0.13)
(ref. No one controls your work)								
Country dummies								
Denmark	-0.012	(0.061)	0.096	(0.19)	-0.022	(0.064)	0.046	(0.269)
France	-0.119	(0.03)***	0.033	(0.105)	-0.118	(0.032)***	-0.016	(0.144)
Greece	-0.007	(0.035)	-0.02	(0.112)	-0.007	(0.037)	-0.084	(0.202)
Netherlands	0.07	(0.031)**	0.089	(0.11)	0.057	(0.033)*	0.073	(0.177)
Spain	0.212	(0.046)***	0.287	(0.116)**	0.227	(0.05)***	0.192	(0.247)
Finland	0.339	(0.045)***	0.231	(0.145)	0.337	(0.046)***	0.18	(0.212)
(ref. UK)								
mills					0.038	(0.141)	0.035	(0.135)
cons	-12.937	(1.089)***	-16.44	(3.443)***	-12.915	(1.132)***	-16.71	(3.592)***
N	17738		1809		16565		1679	
Number of groups	3582		365		3344		339	
Wald chi2(61/62)	6860.36***		852.06***		6284.84***		776.75***	
R-sq: within	0.307		0.35		0.302		0.344	
between	0.153		0.216		0.154		0.226	
overall	0.253		0.31		0.25		0.309	

Notes:* significant at 10%; ** significant at 5%; *** significant at 1%; columns (1)-(4) contain estimates of eq. (5), while columns (5)-(8) of eqs. (A4)-(A5).

Table 4: Trade-off ratios and measure of adaptation by contract status

		Trade-off			Measure of adaptation		
		<i>Temp-perm</i>	<i>Temp-temp</i>	<i>Temp-unem</i>	<i>Temp-perm</i>	<i>Temp-temp</i>	<i>Temp-unem</i>
<i>Controls</i>	Temporary	-0.051	-0.033	-0.252	-0.104	-0.110	-0.125
	Permanent	-0.155	-0.143	-0.377			
<i>Selection</i>	Temporary	-0.045	-0.022	-0.249	-0.112	-0.128	-0.125
	Permanent	-0.157	-0.150	-0.374			

Notes: The trade-off ratios are calculated from application of eq. (7); the measure of adaptation is given by the difference of the respective figures for permanent and temporary employees e.g. *Temp-perm* (controls): $measure = -0.155 - (-0.051) = -0.104$.

Appendix

Appendix 1: Procedural issues with respect to the design of the conjoint questionnaire

During the design stages of the survey, the EPICURUS research team ensured that, for the purpose of comparability, all countries would respond to an identical questionnaire. This entailed having the text of the survey translated into each country's language by native speakers, so as to avoid any inconsistencies in terminology.

The data was collected online from a panel of Internet users, except for Greece where face-to-face interviews were organized instead, since the degree of Internet penetration at the time of the survey was relatively low in that country. The members were invited by e-mail to answer the questionnaire, and within this large population respondents were screened through their answers to the first five questions. Each member of the panel that did not fulfill the criteria of stratification was then forced to stop answering the questionnaire and was thanked for their cooperation. All necessary efforts were made so that the face-to-face interviews in Greece were comparable and of a similar format to the internet version faced by the respondents of the other six countries of the survey.

Each individual was offered a set of five vignettes at random, each of them consisting of a set of ten attributes relating to a hypothetical job. Although the five vignettes were supplied in a specific order, respondents could review each of the five vignettes as often as they liked by going backwards and forwards in order to compare the vignettes (Greeks could specifically request from their interviewer to review the vignettes, while in the other countries the respondents could simultaneously compare all of their vignettes on their PC screens). With this method the problem of ordering effects was eliminated.

Each vignette was a description of a job with multiple attributes, such as salary, number of working hours, type of contract etc. It is evident that this specific choice of attributes is by no means an exhaustive characterisation of a typical job situation. Nevertheless, it is believed that it is sufficient for the purpose of the present analysis, bearing in mind that a full characterisation of a real job situation is impossible.

In order to keep the structure of each vignette simple, readable, and easy to understand, the included text in the vignettes was fairly short (see Figure 1). This facilitated the task of comparing vignettes. However, this could pose a problem, as some attributes cannot be adequately explained by means of a few words. In order to overcome this difficulty, some attributes were further explained by including an additional information facility. In the Internet version of the questionnaire the respondent was able to click and to obtain extra information, while in the face-to-face interviews the respondent could prompt for further information from the interviewer.

The vignette description was completed by indicating to the respondent that all the other aspects of the hypothetical job, except for the dimensions explicitly mentioned in the vignette, are similar to the respondent's own present working conditions.

Respondents were finally asked to 'evaluate' each of the five vignettes by grading them on a numerical scale from 0 to 10. The choice of the rating method using a scale from 0 to 10 was made so that the respondents' answers to the vignette experiment were comparable to the conventional question regarding their satisfaction with their current job, which was also rated on a 0-10 scale in the EPICURUS survey.

Appendix 2: The selection model between alternative contract statuses

As is standard with this model, a “selection equation” which describes the latent propensity, P^* , of each individual taking up either a temporary or a permanent contract is firstly estimated:

$$P^* = \delta'Z_n + v_n \quad (A1)$$

where Z_n is a vector of all exogenous variables in the model (with at least one determining the employee’s selection, but excluded from the structural evaluation equation (5)), and v is the disturbance term with $E(Z_n, v) = 0$ and $v \sim N(0,1)$. While P^* is unobserved, the probability of the individual belonging in either contractual status can be calculated using a random effects probit model. The estimated coefficients from this equation, $\hat{\delta}$, are then used for the calculation of the inverse Mills ratios (one for each group), as is illustrated below:

$$\lambda_{P_n} = Cov(\varepsilon_{P_n}, v_n) \times \frac{n(Z_n \hat{\delta})}{N(Z_n \hat{\delta})} \quad (A2)$$

$$\lambda_{T_n} = Cov(\varepsilon_{T_n}, v_n) \times \frac{n(Z_n \hat{\delta})}{1 - N(Z_n \hat{\delta})} \quad (A3)$$

Finally, in the second step two valuation equations (one for the permanent, P , and one for the temporary, T , sample of employees) are estimated, including the respective Mills ratios as additional controls, as follows:

$$\bar{u}_{j,n} = \beta' q_j + \gamma' X_n + \lambda_{pn} + \varepsilon_n + \eta_{j,n} \quad (\text{A4})$$

$$\bar{u}_{j,n} = \beta' q_j + \gamma' X_n + \lambda_{tn} + \varepsilon_n + \eta_{j,n} \quad (\text{A5})$$

The estimated coefficients of β and γ should now provide consistent estimates of the marginal effect of the attributes and of the current individual and job characteristics on the individuals' evaluation of the quality of their jobs.

For the estimation of the selection equation (A1) a random effects probit model was employed, which regressed the probability of the individual being in either permanent or temporary employment on the full set of exogenous variables (q, X). A dummy variable indicating whether there were children over the age of 16 in the household was also used for identification purposes.^{xiii} Indeed, Table A1 confirms that the presence of children of working age in the family house is positively associated with the probability of the respondent being in a non-permanent job, and that this relationship is sufficiently strong (the z-value of 3.65 satisfies the rank condition). This may reflect the fact that for families with children of working age, there is a higher probability of parents (especially, mothers) returning to the labour force (and most likely taking up a temporary job), as the responsibilities of rearing/childcare are now lessened. Moreover, it is plausible that the spreading of the household costs across a wider base should now allow for some of its members to take up part-time/temporary jobs (assuming that the children can now contribute to the financial obligations of the household). In addition, it is believed that there is no compelling reason for this variable to influence the respondents' valuations of the different hypothetical job scenarios. After all, as shown by Ferrer-i-Carbonell et al. (2006), the introduction of individual personal characteristics into the valuation equation (5) does

not change the effect that the vignette attributes have on the vignette evaluation. This is an implication of the fact that the vignettes were randomly allotted to the respondents without any reference to their individual characteristics, which implies block-orthogonality.

With regards to the remaining regressors, it is found that public sector workers, individuals who embark on multiple-job holding and those who were unemployed during the previous year, have a significantly higher probability of being in temporary employment. U-shaped age and tenure effects are also unearthed, thus implying that younger workers are more likely to be using such non-permanent forms of employment as stepping stones for their future career progression, whilst the elderly presumably enjoy their relative flexibility. Temporary jobs are also more likely to be taken up by low-paid individuals, and are negatively correlated with the provision of short-term on-the-job training (duration 5-10 days).

Table A1: Random effects probit regression of temporary vs. permanent contract status

	Coef	s.e.
Male	-0.101	(0.135)
Age	-0.123	(0.046)***
Agesq	0.001	(0.001)**
Married	-0.026	(0.151)
Jobtenure	-0.374	(0.028)***
Jobtenuresq	0.009	(0.001)***
Twojobs	0.699	(0.199)***
Unemp last year	2.081	(0.176)***
Ln(monthly net wage)	-0.385	(0.139)***
Ln(Contract work hours/week)	-0.075	(0.231)
Sector		
Non-profit instit.	0.773	(0.297)***
Civil serv.	0.922	(0.225)***
Public company (ref. private company)	0.765	(0.221)***
Industry		
Manufacturing	-0.485	(0.242)**
Wholesale/retail trade	-0.397	(0.225)*
Services	-0.491	(0.194)**
Public admin/education/health (ref. other)	-0.112	(0.227)
Occupation		
Managers/Professionals	0.549	(0.267)**
Technical/Clerical (ref. other)	-0.184	(0.141)
Working times		
Always same workg.times	-0.134	(0.215)
Rotating shifts	-0.326	(0.262)
Employee decides	0.511	(0.286)*
Employee+employer decide (ref. work.times decided by employer)	-0.256	(0.276)
Work organization		
Job in fixed team	-0.036	(0.175)
Job in varying teamwork (ref. Job not in teamwork)	0.355	(0.227)
Training		
5-10 days	-0.576	(0.151)***
1-3 months (ref. no training or in the past)	0.247	(0.242)
Control over own work		
Job has a fixed routine	-0.491	(0.260)*
Can choose order tasks (ref. No one controls your work)	-0.599	(0.236)**

Country dummies		
Denmark	1.898	(0.418)***
France	0.866	(0.229)***
Greece	1.471	(0.238)***
Netherlands	1.118	(0.240)***
Spain	2.109	(0.287)***
Finland	0.993	(0.351)***
(ref. UK)		
ID var: Children over age 16	0.564	(0.154)***
cons	3.671	(7.018)
N		18276
Number of groups		3686
Wald chi2(61)		952.39***
Log likelihood		-1427.37

Notes:* significant at 10%; ** significant at 5%; *** significant at 1%; the regression has also controlled for the vignette characteristics, though they are omitted here as they are all insignificant variables. The full regression output is available from the authors upon request.

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Endnotes

ⁱ This resulted in labour hoarding during periods of weak demand, while it also enabled firms to attract and retain a high quality pool of workers, eliminate information asymmetries about their ability and productivity and foster specific training skills. At the same time employees were likely to reciprocate to their employer's loyalty by exerting greater effort.

ⁱⁱ By subjective measures of well-being we mean survey data where individuals have been asked to rate, on some numerical scale, their satisfaction with life in general or with some sub-set of life satisfaction, such as job satisfaction. In other words, such subjective measures are based on self-reported individual satisfaction. This initiative has followed the lead of many years of psychological research, which has illustrated that comparisons of different measures of SWB are often mutually consistent. In addition, Freeman's (1978) pioneering work on the inverse relationship between job satisfaction and quit behaviour spurred a vast literature investigating the relationship between job satisfaction and various socio-economic characteristics such as gender, age, education, income, trade union status etc (See, among others, Borjas, 1979; Lillydahl and Singell, 1993; Clark and Oswald, 1996; Clark, 1997; Drakopoulos and Theodossiou, 1997; Sloane and Williams 2000; Kaiser, 2002; van Praag and Ferrer-i-Carbonell, 2004; McCausland, Pouliakas and Theodossiou (2005) and Pouliakas and Theodossiou, 2005a).

ⁱⁱⁱ The theory of cognitive dissonance suggests that contradicting elements of knowledge (cognitions) serve as a driving force that compel the human mind to modify existing beliefs. The existence of dissonance, being psychologically uncomfortable, motivates the person to reduce the dissonance and leads to avoidance of information likely to increase the dissonance. The greater the magnitude of the dissonance, the greater is the pressure to reduce dissonance.

^{iv} However, their study did find evidence that fixed-term contracts function as effective stepping-stones towards permanent jobs, especially for women.

^v Indeed, empirical evidence from the ECHP does confirm that the motive for holding a part-time job is crucial, in the sense that involuntary part time workers generally have the lowest job satisfaction amongst all employees, while voluntary part-timers are, on average, the happiest, even compared to full-time workers (EPICURUS, 2004).

^{vi} The first studies on conjoint-analysis came from the field of marketing research (Luce and Tukey, 1964 and Green and Srinivasan, 1978). In these studies, respondents were often faced with the evaluation of a new consumer product before it was introduced in the market. Recently this approach has also been widely applied to environmental and health economics. Van Beek, Koopmans and Van Praag (1997) and Van Leeuwen and Van Praag (2002) were the first to have applied this approach to labour economics.

^{vii} With ranking, respondents are asked to list the vignettes in order of preference. It provides us with an ordering, but it does not inform us about differences in strength of preference. It yields an ordinal utility ordering. Moreover, there are difficulties, when respondents feel indifferent with respect to two or more alternatives. In the discrete choice method, respondents are asked to consider a set of vignettes and are invited to choose their preferred one. Obviously the method yields less information than the ranking method, as we know only that one of the alternatives ranks highest, while we do not know anything about the ordering of the less than optimal alternatives. The rating method requires the respondents to assign a score, of say 1 to 10, to each of the vignettes. The rating method yields a cardinal preference ordering. Needless to say, that for all types of response behavior a random error term has to be included.

^{viii} The decision to focus on the low-skilled part of the workforce was made due to the fact that this particular group of workers has born the brunt of the shift towards atypical and flexible forms of employment in most modern job markets (Employment in Europe, 2004).

^{ix} Defining the hourly wage in the vignette in terms of a relative deviation from the current wage of the respondent circumvents the usual problem of wage definition and the problems that arise if respondents with different wages evaluate the same vignettes.

^x The choice of the normal distribution function is irrelevant and could be replaced by any other distribution function that is a monotonically increasing function on a bounded interval.

^{xi} The justification for choosing to use random rather than fixed effects is twofold. Firstly, a simple Hausman test reveals no systematic difference in the estimated coefficients between the random and fixed effects models. Secondly, the random effects model allows for the assessment of the influence of individual variables like age, gender and educational level on the evaluation of the vignettes.

^{xii} It was deemed necessary to pool all of the countries of the survey together as the sample of permanent and temporary workers in one country alone would be very small and would not allow for a robust econometric analysis.

^{xiii} In order to fulfil the identification requirements the chosen identifying restrictions \mathbf{Z}_i need to be orthogonal to the structural model - $E(\mathbf{Z}_n' \varepsilon_{j,n}) = 0$ (the *exogeneity condition*), but *sufficiently* partially correlated with P_n (the *rank condition*). Of course, it is not a straightforward task to come up with valid instruments that satisfy these conditions, which is why the choice of variables sometimes appears as *ad hoc*.