TRADE UNIONS, RECIPROCAL LOYALTY AND GROUP COHESION[⊥]

Georgios A. Panos gpanos@abdn.ac.uk

Ioannis Theodossiou[±] theod@abdn.ac.uk

Department of Economics, University of Aberdeen Business School
and Centre for the European Labour Market Research

18th April 2008

[*PRELIMINARY AND INCOMPLETE*
Not to be Quoted. Comments most welcome]

Abstract:

Utilizing a novel dataset with unusually rich information on semi-skilled employees from four European countries, this study examines differences in the patterns of behaviour between union and non-union workers that have been suggested or implied in the union literature. The evidence suggests that (a) union workers are more likely to value loyalty as a job attribute, in a conjoint analysis setting where higher effort is reciprocated with job security provisions. This is more likely to be the outcome of exposure and adaptation to union-mediated cooperation rather than self-selection. (b) Consistent with the loyalty observation, they are more likely to exercise the voice rather than the exit option in their current job. (c) Union workers are more likely to exhibit conformist preferences when it comes to wage comparisons with their peers, while non-union workers are more likely to show status-seeking patterns. (d) Consistent with idea of the "*fair wage*" union workers are more likely to state that their effort levels are influenced by peer observation and the opinions of their colleagues, rather than by the provision of relative wage incentives such as higher payment than that of similarly qualified workers. The evidence endorses the idea of adaptation to cooperative outcomes that is entirely consistent with rationality on behalf of the workers. Although learned under one set of circumstances, rules and habits initially induced by exposure can become self-enforced norms and generalized reasons for behavior.

Keywords: Unions, Loyalty, Group Cohesion, Social Comparisons

JEL Classification: C25, J22, J28, J51

[⊥] The authors have benefited from *EPICURUS*, a project supported by the European Commission through the 5th Framework Programme "Improving Human Potential" (contract number: HPSE-CT-2002-00143). They have also benefited from the invaluable guidance by Bernard van Praag and Ada Ferrer-i-Carbonell in designing and analysing the conjoint questionnaire, and stimulating discussions with Kostas Pouliakas and Kohei Kawamura. They would also like to thank the EPICURUS partners for jointly designing the survey and collecting the data, Rainer Schultz, Ed Hopkins and Tim Barmby for helpful comments, as well as seminar participants in the University of Aberdeen, and the SGPE 2008 Conference. The usual disclaimer applies.

[±] Corresponding Author: Department of Economics, University of Aberdeen Business School & Centre for the European Labour Market Research, Edward Wright Building, Dunbar Street, AB24 3QY, United Kingdom. Telephone: +44 (0)1224 273534, Fax +44 (0)1224 272181, e-mail: gpanos@abdn.ac.uk.

1. Introduction

Hirschman's (1982) envisaged markets shaping preferences, because individuals are forced to interact repeatedly in particular markets. This can lead to a type of folk theorem, where in equilibrium people need to be nice to each other in order to maintain trade relationships (Carpenter, 2005). Individuals can be thought to learn norms of behavior that are general and fit a wide diversity of particular situations. However acquired, preferences are internalized, taking on the status of general motives or constraints on behavior. Values which become durable attributes of individuals may explain behavior on novel situations. Thus, economic institutions may induce specific behaviors, such as self-regarding, opportunistic, or cooperative, which then become part of the behavioral profile of the individual.

In the labour economics literature, a group of workers that has been shown to exhibit distinct patterns of behaviour from the rest of the employed population are the unionized workers. Among others, Dunlop suggested that "*... the institutionalized form of collective action may introduce new preferences in the same way the household modifies individual preferences"... Interaction patterns of a given form of collective action could alter preferences and in addition various forms of collective action (for example, voting rules) can obviously affect the choice of the group even if preferences remain stable*" (Dunlop, 1944, p.30; Duncan and Stafford, 1980). Unions are considered to provide their employees with more effective voice compared to workers in non-unionized workplaces, and voice is likely to arise as a function of loyalty. Empirical research has suggested this operation is likely to entail potential efficiency-increasing outcomes, such as higher productivity by unionized workers as well greater wage equality and lower turnover rates in unionized firms. The latter is likely to be the outcome of increased bargaining power, enterprise-specific rents and the formation of cohesive social norms and stable social groups (Reference here).

While the literature in the exit-voice framework is vast, the empirical evidence on the simultaneous emergence of loyalty is scarce. Freeman and Medoff's (1984) interpretation of Hirschman (1970) implies that unionized workers will be more loyal to their employers than non-unions workers. Hirschmanian loyalty (Hirschman, 1970, Ch. 7) operates in this setting through the worker perception that a mediating institution, such as the union between workers and firms, will intervene in settling disputes and achieving favourable labour market outcomes when bargaining with the firm. Thus, this concept differs from unswerving faith to

the firm on behalf of the workers and is more likely to be the case of paternalistic loyalty. Paternalism has been described in the context of internal labour markets as the practice of building loyalty and fostering individual worker dependence on the employer as an alternative to financial incentives (Doeringer, 1986).

Another prominent and relevant concept of loyalty is that by Akerlof (1982). This concept is more based on norms of reciprocity. Akerlof (1982) explicitly points out that Hirschman's (1970) concepts of Exit, Voice, and Loyalty can be expressed in terms of norms and gift exchange. In their interaction, workers acquire sentiment for each other and also for the firm, *i.e.* "*to a great extent anthropomorphize these institutions*". Gift exchange operates through the excess of the minimum work standard by the worker, and the provision of efficiency wages by the firm. Thus, the workers acquire utility for this gift exchange with the firm. As a result of worker sentiment for each other, the firm can not deal with each worker individually, but rather must at least to some extent treat the group of workers with the same norms, collectively. The gift-exchange nature of employment arrangements is based partially on norms of behaviour that are endogenously determined[1]. The author also notes that the analysis of labor contracts as partial gift exchange can relate to the view on trade unions as collective voice (Freeman-Medoff, 1979). In his view, reciprocal gift-giving induces union formation, because discontented workers find it more difficult to quit and find another job with gift-giving than without. Thus, according to this view pre-existing preferences lead to union formation, and not the other way around, and the distinct behavioural patterns of trade union members are the result of self-selection into union membership.

However, consistent with a more pluralist perspective, one can also think of experience into union membership giving rise to cooperative attitudes, in the form of shaping worker preferences in favour of reciprocal arrangements with the employer. Socioeconomic theories of the labour market emphasize the importance of the proliferation of non-competing groups as a mechanism of "costless asset formation" for the firm. Organizational loyalty can be viewed as a "social asset", a costless device for enhancing productivity and yielding economic value in factor and product markets (Doeringer, 1986). Value-changing processes that can bring about the endogenous emergence of loyalty are labeled "loyalty filters" in

[1] Akerlof (1982) also points out that reciprocal gift-giving, i.e. mutual benevolence and dependence can coexist with mutual hostility and militancy. This dependence of implicit contracts on norms of behaviour, rather than risk-sharing, is also an idea consistent with Okun (1975; 1981).

another work by Akerlof (1983). The authors stresses that agents experiencing such filters may consciously or unconsciously choose the experience, may not be aware of the effect of the experience on their loyalties, or might even have the experience chosen by another agent acting in his own selfish interest, such as an employer interested in extracting unselfish preferences from employees. In the same work, the author suggests social institutions may change the loyalty incentive structure. However, contrary to the pluralist perspective, he suggests, as a rather unitarist example, that unions may reduce the positive incentives to be cooperative, by interposing themselves between workers and the firm.

On the contrary, Cahuc and Kramarz (1997) model and empirically justify a mechanism, where power is exchanged for loyalty, and the delegation of authority from a firm to a collective of workers is considered profitable. Freeman and Medoff's (1984) application of the hirschmanian concepts in a setting of conflict and dispute resolution in the employment relationship, suggests that: union workers will be less likely than non-union workers to quit in response to workplace conflict; they will also be more likely to exercise voice in the employment relationship, through formal and efficient dispute resolution arrangements such as grievance filings. Finally, union workers will be more loyal to their employers than non-union workers. However, most of the empirical evidence examined only the trade-off between exit and voice to justify how firms might benefit from the existence of unions. Cahuc and Kramarz (1997) point out that the endogenous and simultaneous emergence of loyalty as a result of union operation has received little attention. This operation can stabilize employment and decrease turnover, as an alternative to efficiency wages.

Considering these issues, this study provides empirical evidence on the role of labour unions as institutions involving loyalty mediated by reciprocal arrangements and promoting group cohesion. The empirical analysis utilizes a novel dataset with unusually rich information on semi-skilled employees from four European countries. Using conjoint analysis techniques, it is shown that unionized workers have a greater preference for reciprocal loyalty, when it comes to evaluating and choosing alternative job scenarios. Loyalty is defined as a no-shirking condition in exchange to job security. This observed pattern is persistent when accounting for self-selection into union membership. Further tests indicate that it is likely to arise as an outcome of adaptation to cooperation. Furthermore, it is shown that unionized workers are less likely to be satisfied with their jobs overall and with most of the facets of their jobs, and this dissatisfaction is less likely to be genuine, as it does not lead to increased

quitting intentions. Non-unionized workers are much more likely to plan to quit their jobs, especially those less satisfied.

While the notion of loyalty refers to the interaction of employees with the organization, mediated by the union, the relevant concept of group cohesion refers to the interaction and cooperation among co-workers. Cohesive group norms are another channel through which workers can identify with their organization and might involve a sense of identity induced by group membership. Recent experimental evidence shows group membership can affect preferences over outcomes. People who are members of a group and identify with it have been shown to behave differently from people who perceive themselves as isolated individuals (Charness, 2007), be less prone to shirking and free-riding behaviour in a team production setting, especially when team members cooperate on achieving an unrelated preproduction goal (Eckel Grossman, 2005). Thus, the concept of group cohesion is also consistent with the view of adaptation to cooperation. Examining cooperative outcomes among groups of workers, the evidence in this study suggests that unionized workers are more likely to care about equitable-conformist outcomes when it comes to wage comparisons with their peers, and their effort levels are also likely to be determined by the opinion of their fellow co-workers, rather than incentives as being paid more than their peers.

The structure of the remaining of this paper is as follows: *Section 2* reviews the background to this paper. *Section 3* describes the novel dataset uses in this study, and the characteristics of the sample. *Section 4* introduces the empirical strategy used. *Section 5* discusses the methodology, *Section 6* reviews the results, and *Section 7* concludes.

2. Background

Labour unions typically serve as workers' exclusive bargaining agent at unionized workplaces, and provide collective voice in dealings with employees. Their operations are more likely to be influenced by the preferences of the median, rather than the marginal member. Unions seek to increase and compress compensation, improve working conditions, and influence workplace jurisprudence. As compared to non-union establishments, union governance is highly formalized, with conditions of work and pay designated in contracts determined through collective bargaining (Hirsch, 2008).

A pluralist perspective would suggest that the role of unions is to improve efficiency by institutionalizing/mediating workplace conflicts, such that extreme actions and manifestations of worker discontent are replaced by relatively more peaceful and professional collective bargaining and grievance processes. Thus, unions can be thought to enhance efficiency and equity in the employment relationship, by helping to efficiently and equitably resolve such conflicts. An alternative unitarist perspective would suggest that unions exacerbate employment relationship conflict for political and institutional reasons, with consequent negative efficiency and negative effects (Lewin, 2005). Freeman and Medoff (1984) identify the monopoly operation and the collective voice function as the two main "faces" of unionism. The "bad" monopoly face emphasizes allocative efficiency due to union wage distortions, along with decreases in productivity due to union work rules. The monopoly operation (Simons, 1944) entails practices likely to bring inefficiency of various forms in firm operations (Kaufman, 2004). The "good" collective voice/institutional response face emphasizes union enhancement of voice, improvements in productivity, and decreases in earnings dispersion. The voice function (Hirschman, 1970) is more likely to be conducive to efficient labour market outcomes in unionized firms, partly by promoting legitimacy at the workplace (Freeman, 1976; 1980). Legitimacy is related to reciprocal arrangements between the employer and the workers, mediated by the union. Higher levels of effort and tenure are granted in exchange to economic protection to workers (Doeringer, 1984).

The operation of unions in a pluralist perspective can be placed in a new institutional economics setting and a principal-agent framework where contracts are incompletely specified or costly to enforce. Workers have an incentive to shirk unless their actions contribute directly to their own economic self-interest. It is only via monitoring combined with contracts that appeal to their self-seeking nature that such shirking may be mitigated. The idea behind information asymmetry and optimal contracting is that a proper explanation of an economic phenomenon will reduce it to maximizing behaviour of parties engaged in contracting, given the circumstances that surround the transaction. The terms of the contract will be exogenously influenced by the access of parties to information, the costs of negotiating, and by the opportunities for cheating (Simon, 1991). The incompleteness of contracts is assumed to derive from the fact that information is incomplete or distributed asymmetrically between the parties to the contract. In that setting, reputation and repeated game incentives are important means of deterring selfish behavior (Milgrom and Roberts,

1992). Furthermore, communication mediated by a third party such as the union can also facilitate cooperation, and the experimental evidence is ample[2]. Exchanging mutual commitment, increasing trust, creating and reinforcing norms, and developing a group identity appear to be the most important processes that make communication efficacious. Unions can easily be thought to mediate those three terms.

Insights from evolutionary perspectives suggest a more broad view that can account for both self-selection and the formation of preferences though institutions and social groups. Thus, while the scenario of adaptation to cooperation in repeated prisonners' dilemma settings of unknown duration can be a rational behaviour, the ability of workers to undertake unconstrained optimization differs from the evolutionary view of "*cognitive adaptations for social exchange*" (Cosmides and Tooby, 1992; Ben-Ner and Putterman, 2000). The latter notion identifies cognitive predispositions that generate patterns of behavior under the influence of environmental stimulate, as the force behind cooperative outcomes. Ostrom (1998) discusses empirical findings where individuals achieve results that are better than "rational" (Cosmides and Tooby, 1994) by building conditions where reciprocity, reputation and trust can help to overcome the strong temptations of short-run self-interest. This description fits Sen's (1976) concept of meta-preferences, such as "commitment" and "sympathy". Loyalty can be observed, even where opportunism is possible (North, 1990; Simon, 1991)[3]. Thus, although evolutionary theory has cautioned against postulating simple altruistic motives for people, as altruists are not usually the surviving fittest, it has also suggested substantial evidence that human beings have evolved the capacity to learn reciprocity norms and general social rules that enhance returns from collective action, similar to learning a language (Cosmides and Tooby, 1992). Since prehistoric times, survival was dependent both on the aggressive pursuit of self-interest and on collective action to achieve cooperation in several aspects of everyday life. Via collective action, cooperation increased in more and more aspects of life.

Thus, it is likely that membership in a social group can transform individuals, leading to internalized roles, norms and values that affect behavior (Durlauf, 1997; Bowles, 1998;

[2] An extensive review is available in Ostrom (1998).

[3] The situational variables in Simon are monitoring and information costs. This creates a problem to achieve obedience to command (measurement problem) without loosing the benefit of delegation and specialization. His structural variables are authority embedded in necessarily incomplete contracts, reward, and identification/loyalty.

Akerlof and Kranton, 2000; Goette, et al., 2006). Distinct from learning, related views of how a trait may be advantaged in the transmission process are those of docility and conformist transmission. Docile people tend to adapt their behaviour to norms and pressure of the society (Durlauf, 1997), and this could also be the case of enlightened selfishness, rather than altruism. Docility is used to used to inculcate individuals with organizational pride and loyalty. Thus, organizational identification becomes a motivation for employees to work actively for organizational goals that does not operate in solidarity, but rather goes side by side with material rewards and enforcement mechanisms that are part of the employment contract. Furthermore, the prevalence of a trait in a population may enhance the replication propensity of each representative of that trait, independently of the payoff to those exhibiting the trait. Under quite general conditions where learning is costly, conformist transmission may be efficient in the sense that an individual who sometimes adopts traits by simply copying what others are doing rather than on the basis of the payoffs associated with various actions will do better than those who always engage in costly investigation of the relevant payoff.

In the next sections, we examine differences in patterns of behaviour between union and non-union members, using a novel dataset from four European countries. The attributes examined are the preferences for loyalty identified in a conjoint analysis setting, the voice and exit functions of the two groups, and norms of group cohesion related to the idea of the "*fair wage*" and effort observable by one's peers. A moderate interpretation of the evidence presented suggests that self-selection into union status is not enough to explain the differences observed. Those distinct patterns of behaviour by union workers are likely to be the outcome of adaptation to union-mediated cooperation. The evidence is also consistent with the broader evolutionary perspective, although the evidence does not necessarily clearly contradict the rationality assumption anywhere.

3. The Data

This section describes the creation of the novel database used in this study. The database was created as part of the EPICURUS project, a multi-country initiative funded by the European Union with the aim to study preference identification, well-being and responses in changes in the labour market status off individuals.

3.1 The EPICURUS Database

The data was collected by the EPICURUS partners in the seven European countries involved in the project, namely Denmark, Finland, France, Greece, the Netherlands, Spain, and United Kingdom. Of highest priority was to implement identical questionnaires in all seven countries. Translation was carried out in several rounds by native speakers, experienced in survey design. The total length of the questionnaire was estimated to 35 minutes. Furthermore, it was of vital importance to address the questionnaire to a homogenous group of individuals. As a first step, it was decided not to include individuals whose main activity is "still studying", and then to target the unskilled/semi-skilled employed population in low and middle occupations. The survey included only individuals with low or middle education (*i.e.* excluding individuals with a 5 or 6 education level in the 1997 ISCED International Classification scale). Additionally, self-employed individuals and employees in fishery and agriculture were not included. The final sample includes salaried workers, in all industries other than agriculture and fishery. These are between the ages of 18 and 65, with a maximum educational level of 4 in the 1997 ISCED International Classification scale. Respondents were screened through their answers in the first five questions in the questionnaire.

The fieldwork was carried between August and September 2004 in all seven countries. Four well-known European interviewing companies were employed in the task. The companies carrying out the surveys reported no complains from the respondents, ensured that the quality of the questionnaire was of a high standard, and further suggested that weighting was necessary for the purposes of the project[4]. The final outcome was a dataset containing the essential demographic information and extensive information at the individual and the household level. A large number of questions addressed issues related to current and past job outcomes. Of special focus was information related to perceptions of overall job satisfaction and well-being, as well as certain of their facets. Finally, the second part of the questionnaire was specially designed to elicit opinions about jobs and their attributes, using a conjoint analysis technique.

[4] *A posteriori* analysis of background variables showed that the gross sampling (individuals who received the invitation e-mail to participate) had its effect in the net sample (individuals who finally answered the questionnaire). This implies that the net sample neatly represents the targeted population.

3.2 The Sample

The sample is described in *Table 1* and definitions and summary statistics of all variables used are given in Figures A2 and A6 in the appendix, for the conventional and the conjoint analysis variables, respectively[5]. The database comprises of 5,463 observations in total. The budget and time constraints allowed around 1,000 observations per country, with the exception of Greece (800), Spain and Finland (300). With respect to the rates of unionization that are of interest to this study, Table 1 indicates that the data reflect quite well the true rates of unionization per country. Minor differences are to be expected, since the sample focuses on the semi-skilled employed population. The official statistics (European Commission, 2006) indicate rates of unionization that range from very low (8 % in France, and 16% in Spain) to very large (74% in Finland, and 80% in Denmark). The rest of the figures are 20% in Greece, 25% in the Netherlands, and 29% in the U.K. The respective figures in the *EPICURUS* database are a close match.

[*INSERT TABLE 1 ABOUT HERE*]

Given the very high rates of unionization in the Scandinavian countries, and the small sample sizes in Finland and Spain, the sample chosen in order to examine differences between union and non-union workers in this study comprises of workers in four countries: France, Greece, Netherlands and the United Kingdom. *Table 2* presents averages for key variables and t-tests for mean differences between the samples of union and non-union workers. These are given for the pooled sample of countries and also for each country in the sample separately. The statistics indicate that union workers in the pooled sample are more likely to earn wage premia as reflected by their net monthly wages on average (wages are deflated by the purchasing power parity per country). They are also more likely to be older, with more experience and on-the-job tenure. They are more likely to have more than ten years of tenure on the job. Furthermore, they are likely to be male, in permanent jobs, in the public sector, and in large firms, with more than 100 employees. Unionized workers are more likely to have received some form of training during the last year. Examining industries, members of trade unions are more likely to be found in Public Administration and Defense, Health and Social

[5] An extensive analysis of the questionnaire and the database is available in reports to the European Union by the EPICURUS project (2004; 2005).

Work, Transportation and Communications, Manufacturing and Utilities. Occupation statistics indicate that unionized workers are more likely to be found in Technical and Associate Professional occupations, Crafts and Related, Plant and Machine Operatives. A large number of unionized workers is also found in occupations classified as Other Occupations. Minor differences between the four countries exist, but not of significant magnitude.

[*INSERT TABLE 2 ABOUT HERE*]

4. Empirical Strategy

4.1 Loyalty

Hirschman (1970) postulated that the extent to which organizational members are willing to trade off the certainty of exit against the uncertainties of exercising voice "*is clearly related to the special attachment to an organization, known as loyalty*" (p. 77). Loyalty is posited to be positively correlated with the exercise of voice and negatively correlated with exit behaviour[6]. While most of the empirical evidence examined the tradeoff between exit and voice to justify how firms might benefit from the existence of unions, the presence/emergence of loyalty has received little attention (Cahuc and Kramarz, 1997). In one of the very few related empirical studies Boroff and Lewin (1997) linked loyalty to exit and voice expressions. However, the empirical evidence did not fully support the proposition that unionized workers will be more loyal to their employers than nonunion workers.

Among the most profound contributions of this study is the examination of preferences for loyalty in a novel setting. The concept of loyalty under examination is closer to that inspired by Akelof (1983) in defining gift-exchange. In the design introduced here, each respondent received 5 hypothetical job offers (vignettes), entailing different attributes. Each vignette was defined by ten attributes that had been identified as important in determining the perception of quality at work. Furthermore, each vignette entailed different levels of attributes. These attributes are described in more detail in the next section. Among them, an attribute defined as behaviour at work presented workers with two distinct scenaria. Some of the vignettes

[6] Expressions of loyalty operationalized include: "*giving private and public support to the organization*" (Rusbelt, et al, 1988), organizational commitment or "the *degree to which a person identifies with an organization*" (Boroff and Lewin, 1997), and "*organizational citizenship*" (Cappelli and Rogovsky, 1998).

entailed the option: "Loyalty from both sides (employer and employee) is required; Shirking and low performance is impossible", while some others: "The firm requires no loyalty; Shirking and low performance is possible"[7].

In the context of this paper, the conjoint analysis aims at eliciting preferences regarding various aspects of a job using statistical methods and benefiting from the homogeneity of the population in this particular sample. The main objective is to identify how individuals value the various attributes of a job they have been presented with, importantly the attribute of loyalty, based on their choices and rating of each vignette that involves different levels of attributes identified as important for influencing the quality of work. The rationale follows the works of Lancaster (1966, 1971) and Rosen (1974), *i.e.* assumes 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*. Data collected for conjoint analysis is essentially a hybrid between standard data collected by survey methods, and data obtained by the means of experimental methods. This data collection process essentially involves stated preference methodology, rooted in random utility theory (McFadden, 1973; Hanemann, 1984; *inter alia*).

Of primary importance to this study is the revealed preference for the loyalty attribute and the examination of this preference in the two sub-samples, of union and non-union workers, respectively. We examine preferences for such reciprocal loyalty, as revealed by this attribute's impact on the vignette evaluation, and its acceptability. Furthermore, we examine the trade-off ratio between the existence of loyalty and wage increases, to access the importance of the loyalty component in the two samples. The interpretation is intuitive: under specific functional form assumptions, this ratio reveals the amount of compensation required by an employee in order to settle in a job that involves no loyalty from both sides. We utilize a wide range of statistical methods in examining vignette evaluation and acceptability.

[7] The following detailed explanations were readily and easily available for respondents upon request. Such detailed explanations were easily available for all attributes upon request. The "Loyalty-No Shirking" attribute explained: "*The firm treats you with the same norms as the other firms operating in the same labour market, except for the specific attributes mentioned above. Loyalty to your employer is required. Thus, you cannot get away with shirking (e.g. by taking longer coffee breaks than allowed, by working slowly) and low performance work. The employer has loyalty to you. Thus the employer will not fire you for the duration of your contract whatever its length (including lifetime contracts)*". The "No Loyalty-Shirking" attribute explained: "*The firm treats you with the same norms as the other firms operating in the same labour market, except for the specific attributes mentioned above. No loyalty to your employer is required. Thus, you can get away with shirking (e.g. by taking longer coffee breaks than allowed, by working slowly) and low performance work. The employer has no loyalty to you. Thus the employer can fire you at any time and you can leave the job at any time too*". The duration of the contract was also specified in each vignette separately.

4.2 Exit and Voice

One of the most discussed empirical findings in the collective bargaining literature is that union workers express greater dissatisfaction with their jobs than otherwise comparable non-union workers. This finding is paradoxical, thinking that union workers are able to increase wages and fringe benefits, to improve seniority protection and grievance systems, and to have a greater voice in the workplace. The most prominent explanation is Hirschman 's (1970) "exit-voice" theory (Freeman, 1976; 1980; Freeman and Medoff, 1984). Hirschman (1970) sought to explain why dissatisfied citizens don't necessarily leave their communities (governments) and move elsewhere, and why dissatisfied customers don't necessarily switch to other firms. Adopting a more institutional perspective, Hirschman focused on stayers rather than movers or switchers. That is, some dissatisfied citizens and some dissatisfied customers choose to stay rather than leave and, as part of staying, attempt to get their dissatisfactions redressed. This is what Hirschman refers to as the exercise of voice, which he then contrasts with moving or switching behavior, referred to as exit.

In order for the workers' voice to be heard effectively, it is important for the union to make them aware of what is wrong with their jobs. Thus, a by-product of unionization is the polarization of the firm's workforce, and union members can be expected to express less job satisfaction than non-union workers. In order for firms to hear the workers effectively, the firm's workforce must express itself "loudly". Note, however, that this dissatisfaction is not genuine in the sense that it leads to quits, but is instead a device through which the union can tell the firm that its workers are unhappy and demand more (Kochan and Helfman, 1981, Freeman and Medoff, 1984).

Departing from the analysis in Hersch and Stone (1990), this study examines the concepts of voice and exit in terms of expressed worker job satisfaction[8], and the intention to quit the firm in the future nearby, respectively. Both are considered a by-product of worker loyalty. In the next section, we examine the possible explanations of the job satisfaction differentials between union and non-union workers, and the determinants of quitting intentions. The

[8] Most of the literature interprets the lower job satisfaction of unionized workers as voice. A skeptical view would question whether job satisfaction as expressed in surveys, and that expressed to managers and supervisors, is one and the same. An alternative measure of voice, not available in our dataset is formal grievance fillings. However, job satisfaction and grievance filings have been found to be negatively related and the empirical evidence indicates that the grievance filing rates of non-union workers are half of that of union workers (for an extensive review of that literature, see Lewin, 2005).

specifications and methodology are discussed in the next sections. Summary statistics for the two samples of union and non-union workers in *Table 3* indicate union workers are less likely to be less satisfied with more aspects of their job. They are less satisfied with their job overall, their relationships with their employer, and his/her behaviour, the work load and work tension, the level of stress, and the physical risk of the job. However, they are more likely to be satisfied with job security. More objective measures such as the number of reported work-related injuries and sicknesses verify that picture. Unionized workers are more likely to have reported a work-related sickness or injury, and furthermore, the number of such reports is more likely to be higher for union workers. Finally, they are more likely to find their job to be tiring, of low quality in terms of the environment, dangerous, and physically demanding. However, despite those "voiced" expressions of dissatisfaction, the last row of Table 3 indicates that unionized workers are much less likely to intend to quit their job in the near future. This finding is consistent with a large amount of empirical evidence in the union literature (Lewin (2005) provides an exhaustive review).

[*INSERT TABLE 3 ABOUT HERE*]

4.3 Group Cohesion

The main idea of group cohesion in this study stipulates that besides identifying with their organization via reciprocal arrangements mediated by the union, unionized workers further exhibit a further sense of identification with their co-workers. Such group norms can be the outcome of adaptation to cooperation, expressed in a form of cognitive dissonance[9]. One solution for the firm which desires to encourage cooperation is to compress the pay structure. Pay compression reduces effort, but is also makes cooperation less unattractive. In general, it is optimal on productivity grounds to compress the wage structure, at least to some extent, to further cooperation (Lazear, 1991). Among the implications of this reasoning is that pay compression is an equilibrium response to a problem that exists only among some types of workers. Firms that have less cooperative workers optimally choose a more compressed wage structure. Another possible argument for pay compression is that if firms cannot monitor the output of workers perfectly, then workers have an incentive to exaggerate their output and

[9] The notion of cognitive dissonance goes back to Festinger (1957), and involves a situation where people are confronted with a phenomenon that conflicts with their previously held beliefs, thus creating internal pressure for an after-the-fact rationalization of the unexpected phenomenon. In Akerlof and Dickens (1982), individuals choose their beliefs and then process information to reinforce those beliefs.

lobby for higher wages. As a result of pay compression to the "fair outcome" in unionized firms, it is likely that a certain level of effort becomes a self-enforcing norm, observable by other workers. Kandel and Lazear (1992) incorporate this notion in a model where it is assumed that deviations from the equilibrium value of effort are disliked by other workers, thereby bringing disutility to the deviator. The extent of this disutility affects the equilibrium level of effort. Thus, a (Nash) equilibrium effort level becomes a self-enforcing norm.

As a result of pay compression in unionized firms, it is likely that the norms that govern the behaviour of union workers, related to "*fair treatment*" and its relationship to the effort exerted on the job differ from those of non-union workers. The analysis in Keynes (1936) implies that workers should react to raises smaller to those given by other firms as they would to pay cuts. Indeed, much of union wage negotiations concern the question of what constitutes a fair wage. For the most part, the conception of fair treatment it is not based on absolute standards, but, rather, on comparison of one's own situation with that of other persons. According to Festinger (1954), persons have an innate psychological need to compare their actions and treatment with those of others. People use comparison with others as a guide to how they ought to behave or be treated. Similarly to children, or human eyes in reaction to the light, individuals calibrate their actions by the social standards set by others (Rayo and Becker, 2007). Rees (1993) reviews anecdotal evidence on how the wages of others can be a powerful force in determining worker satisfaction and bargaining outcomes between employers and union representatives. The comparison was always made upward rather than downward; that is, the reference group or person always earned more than the union or employee that first suggested the comparison. Employers do not insist on fairness, the workers and their unions do. One additional argument to the reference set is past wages. Consistent with this observation is the role of past wages in all labour negotiations. Labor disputes often concern the level of past wages, which are the benchmark for current negotiations.

In this study, group cohesion is examined by observing the impact of reference wages on job satisfaction and quitting intentions, as well as the stated factors that govern the effort exerted on the job. The analysis focuses on the differences between union and non-union workers.

5. The Methodology

5.1 Conjoint Analysis

In the context of this study, preferences for job attributes are elicited using the conjoint analysis technique[10]. The second part of the questionnaire was designed specifically for this purpose. 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. This technique essentially involves four main steps. These are: (1) Identification of the relevant characteristics - aspects of the good to be evaluated; (2) Quantification – level assignment to the characteristics; (3) Design of scenarios (vignettes), as a combination of the former two steps[11]; (4) Preference identification of the respondents, by ranking, rating, or discrete choice.

Skepticism regarding stated preferences has not been spared, as economists traditionally relied on market or revealed preference data. The key issue is whether models estimated from stated preference data yield reliable inferences about real market behaviour that can lead to valid predictions. It is often claimed that real behaviour can only be captured by observing what individuals actually do, rather than relying on what they say they will do. It may be that real world choice behaviour, where respondents are actually faced with the choice between two jobs will differ from the choice they make when they are asked to evaluate the two hypothetical vignettes. Furthermore, choices elicited in hypothetical settings are likely to be susceptible to framing effects and be affected by the degree of "contextual realism" one establishes for respondents. On the other hand, a number of studies have claimed that stated preferences and revealed preferences match up surprising well in different choice contexts, cultures and time periods (Louviere et al., 2000, p. 12). Of primary importance is that respondents understand, are committed to and can respond to the hypothetical questionnaires

[10] The first studies on conjoint-analysis came from marketing research (Luce and Tukey, 1964; Green and Srinivasan, 1978). van Beek *et al.* (1997) and van Leeuwen and van Praag (2002) were the first to have applied this approach to labour economics. It has also been applied to environmental economics, health economics, and international comparisons (Recent studies include: Kapteyn *et al.*, 2007; van Soest *et al.*, 2007; Lindeboom, and van Doorslaer, 2004; King et al. 2004).

[11] 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.

that are put before them. A great benefit of stated preference data is the ability to yield multiple observations per respondent on hypothetical decision contexts. Observed cannot easily capture that extent of information. While the debate is still active, the use of the vignette approach in this study is considered complementary and enriching for the purposes of the analysis, as no conventional survey data can provide with this particular information.

The approach assumes that a job *j* may be adequately described by a vector of attributes a_n, contained in a job vignette. Individuals are then offered a list of vignettes, and asked to evaluate them on a discrete scale of the type: 0, 1, …, 10. Furthermore, they are asked to reply whether that job would be acceptable by them. Then, the evaluation and/or acceptability of that particular job is a function of its attributes. In this manner, the respondents are forced to trade off some characteristics for others and to incorporate opportunity cost into their decision-making process. The vignettes are eventually analyzed in terms of how sensitive the answers are with respect to changes in the vignette descriptions.

Considering the case of evaluation of a job *j*:

$$U(J_j) = U(a_{jm})$$

where a_{mj} is a vector of *m* characteristics describing a job *j*. Ten such job attributes were considered in the vignettes designed for the EPICURUS survey. Individuals are indifferent between two jobs *1* and *2*, if $U(a_{1m}) = U(a_{2m'})$. Knowledge of the function *U(.)* makes it possible to calculate trade-off ratios, defined as the extent to which an individual may accept less of one job characteristic when compensated by an increase in another characteristic, without the overall evaluation of a job being affected. The trade-off ratio between attributes 1 and 2 is $\frac{\partial U}{\partial a_{j1}} \Big/ \frac{\partial U}{\partial a_{j2}}$.

In the design introduced here, each respondent received 5 hypothetical job offers (vignettes), entailing different attributes. Each vignette was defined by ten attributes that had been identified as important in determining the perception of quality at work. Furthermore, each vignette entailed different levels of attributes. Orthogonality and large variance of the vignettes was ensured in the design phase. Moreover, the value of the ten attributes being

chosen at random, the likelihood of correlation between individual characteristics and vignette attributes is reduced. The 10 varying attributes of each vignette were: (1) Net wage (as a percentage increase from the current wage); (2) type of contract (e.g., permanent or temporary); (3) working hours; (4) working times; (5) access to training opportunities; (6) work organization; (7) control over own work; (8) work intensity; (9) age of retirement; (10) and patterns of loyalty from the side of the firm and the side of the employee. After being presented with each vignette, the respondent then had then to evaluate it on a 0 to 10 scale (where 0 stands for the worse possible job offer and 10 for the best possible) and had to state whether a job entailing such attributes would be acceptable by him/her or not. A typical vignette is presented in Table A2 in the appendix, the range of attributes in the vignettes is given in Table A3, and summary statistics for attribute incidence is given in Table A4 in the appendix[12]. *Table A4* verifies that the incidence of vignette attributes does not differ between union and non-union workers. However, unionized workers consistently give lower valuations of hypothetical jobs and are less likely to find them acceptable.

Finally, of primary importance during the implementation of the questionnaire was to avoid possible framing effects. A framing effect occurs when choices made under the influence of institutionally determined framing may later be repeated even in the absence of the framing effect if the effects of exposure to the object of choice, or dissonance reduction effects are strong (Bowles, 1998). However, nowhere in the conjoint analysis questionnaire was union identity stressed, or even mentioned to respondents. Furthermore, there were only two collective action-related questions, placed 35th and 36th in a total of 73 questions during the 1st part of the questionnaire. For the typical respondent there would be a time interval of at least 10 minutes before getting to the second part of the questionnaire where the vignette approach was implemented. Thus, it is rather unlikely that the choices of respondents were explicitly or consciously framed by their union identity.

5.2 The COLS approach

It is assumed that an individual *i*'s latent evaluation, U_{ij}, of a job, *j*, depends on the values of the job's *m* attributes, a_{jm}, as specified in the vignette experiment. It can also be considered

[12] For some recent studies exploring the richness of the EPICURUS database and the vignette questionnaire approach in particular, the reader is referred to Ferrer-i-Carbonell *et al.* (2007), Pouliakas and Theodossiou (2007), Kristensen and Eriksson (2007), Lafranchi *et al.* (2006).

to depend on *k* personal and current job characteristics of the individual, denoted by X_k. Hence:

$$U_i(J_j) = U_i(a_{jm}; X_k) \qquad (1)$$

Individuals were given a set of five job vignettes and asked to evaluate each job vignette on a discrete scale of the type: 0, 1, …, 10. Thus, their true evaluation is a latent variable as its true value is not observed exactly. The observed evaluation *U** is an ordered categorical variable that can typically be modeled in the context of the ordered probit or logit model. In the estimation of the empirical equivalent of (1), if it is assumed that U_{ij}^* is a *linear* function of the *m* attributes, the *k* individual characteristics, and a random error term, ε_i:

$$U_{ij}^* = \gamma' a_{ij,m} + \delta' X_{ik} + \varepsilon_{ij} \qquad (2)$$

In this study, it is considered appropriate to impose a linearization of the ordinal evaluation responses[13]. There are mainly two reasons that make this choice attractive. The first reason is that cardinal evaluations facilitate the computation of the tradeoff ratios between the attributes. The second reason is that a sequence of evaluation responses is collected for each individual. Thus, the estimation of (2) also needs to consider the fact that the evaluation of five vignettes by each individual might not be independent. It is likely to be correlated with unobserved individual traits and the model needs to control for the unobserved heterogeneity. The introduction of this feature in the context of ordered models does not provide with flexibility and is rather unattractive.

The linearization used is the Cardinal OLS (COLS) approach (van Praag and Ferrer-i-Carbonell, 2004, Ch. 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. Thus, any observed value of the discrete variable U_{ij}^* represents a transformation of the latent evaluation U_{ij} belonging to one of the intervals: [0, 0.5], (0.5, 1], …, (9.5, 10]. Normalizing the scale to the [0,1]-interval, the COLS approach replaces the inexactly known value of

[13] The same rationale holds in the analysis of job satisfaction, which is also an ordered categorical variable, measured on a scale from 1 (lowest) to 10 (highest) in the *EPICURUS* database.

U_{ij} by its conditional expectation $\overline{U}_{ij}$, according to the following formula (Maddala, 1983, p.366):

$$\overline{U}_{ij} = E(U_{ij} \mid \lambda_{n-1} < U_{ij} \leq \lambda_n) = \frac{n(\lambda_{n-1}) - n(\lambda_n)}{N(\lambda_n) - N(\lambda_{n-1})} \qquad (3)$$

where n(.) and N(.) stand for the normal density and distribution functions, respectively, and λ takes its values in {0, 0.05, 0.15, …, 0.95, 1}.

After the observed evaluation of the vignette has been transformed into the conditional mean of the latent evaluation, OLS can be applied to the transformed linear model:

$$\overline{U}_{ij}^{*} = \gamma' a_{ij,m} + \delta' X_{ik} + \varepsilon_{ij} \qquad (4)$$

where ε_i 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), nearly identical to those obtained by ordered probit (except for a factor of proportionality), as efficient as probit estimates (Stewart, 1983), but computationally much easier.

Finally, taking into account the probable correlation structure between the five individual vignette evaluations the error term ε_{ij} is decomposed into an individual-specific effect θ_i and a white noise component ζ_{ij}, where E(ε_{ij})=0 and E(θ_i, ζ_{ij})=0. Fixed-effects and random-effect models will be utilized in the analysis of the vignette evaluation, the latter having the obvious advantage to control for all individual and current job characteristics. The random effects model will also allow us to estimate a model with interactions between the loyalty attribute and individual characteristics of intuitive interest. The equivalent of (4) will also be estimated for the two samples of union and non-union workers, including fixed effects, then incorporating individual characteristics in a random effects setting, and finally controlling for selection into unionization. The aim is to strengthen the robustness of the findings presented in the next section. The estimation of vignette acceptability follows a similar logic and structure, in the context of limited dependent variable models, as it is a binary variable.

5.3 Selection into Union Status

Akerlof (1982) implies that it is the preferences for gift exchange that lead to union formation, rather than union membership shaping preferences for loyalty. It is part of the empirical strategy in this study to estimate preferences for reciprocal loyalty, as stated in the evaluation and the potential acceptability of alternative job scenarios, for the two samples of union and non-union workers. Thus, it is of interest to account for sample selection, as the magnitude of the effect of the attributes on vignette evaluation and acceptability is only observed after the individual has decided to join a union or not. Thus, it is possible that union status has both an intercept and a slope effect on evaluation and acceptability, and a sample selection model is called for. In order to check for robustness, estimates for union and non-union workers are also presented, treating the union status as endogenous. Vignette evaluation equations are estimated via COLS, accounting for the fact that each sample is a non-random sample of all workers. This is accomplished via a two-step Heckman's selection correction model, also known as an endogenous switching regime model (Lee, 1978; Maddala, 1983). In the first stage a probit model is used to describe the latent propensity of an individual to become a member of a trade union, as follows:

$$S_i^* = \beta' Y_i + \omega_t \qquad (5)$$

where: Y_i is a vector of exogenous variables, and ω is a normally distributed error term with $E(Y_i, \omega)=0$. At least one variable in (5) must be identifying the selection equation, while excluded from the evaluation equation (4). The probability of an individual being a union member is calculated in the probit model framework. The estimated coefficients $\hat{\beta}$ are then used for the calculation of the inverse Mills ratios that are included in the second step estimation of the evaluation equations by union status. The ratios are obtained by the following formulas:

$$\mu_i^U = Cov(\varepsilon_t^U, \omega_i) \times \frac{n(\hat{\beta} Z_i)}{N(\hat{\beta} Z_i)} \qquad (6)$$

$$\mu_i^{NU} = Cov(\varepsilon_t^{NU}, \omega_i) \times \frac{n(\hat{\beta} Z_i)}{1 - N(\hat{\beta} Z_i)} \qquad (7)$$

Incorporating (6) and (7), the second step vignette valuation equations to be estimated become:

$$\overline{U}_{ij}^{*} = \gamma' a_{ij,m} + \delta' X_{ik} + \mu_i^{U} + \varepsilon_{ij} \quad (8)$$

$$\overline{U}_{ij}^{*} = \gamma' a_{ij,m} + \delta' X_{ik} + \mu_i^{NU} + \varepsilon_{ij} \quad (9)$$

Estimating (8) and (9), the coefficients, $\hat{\gamma}$ and $\hat{\delta}$ provide consistent estimates of the effect of the independent variables on the vignette evaluation. With a similar rationale, vignette acceptability equations can be corrected for sample selection using a Heckman probit model with selection, estimated via maximum likelihood. Alternatively, models incorporating fixed effects that can account for selection effects are also presented.

6. Results and Discussion

6.1 Unionism and Loyalty

Table 4 presents selected coefficients from the estimation of vignette evaluation, for the samples of union and non-union employees respectively. The coefficients presented are those of the wage attribute, the loyalty attribute, as well as a point estimate of the non-linear combination of those two estimates reflecting the trade-off ratio between wages and loyalty that was described in the previous section. The interpretation of the latter ratio is rather intuitive. It incorporates the opportunity cost idea and reflects the wage compensation the average worker would require in exchange for the loss of an attributed such as mutual loyalty with his/her employer. Panel (A) presents estimates from a COLS model with fixed-effects, Panel (B) estimated from a COLS model with random effects and controls for individual and work-related characteristics. Finally, Panel (C) presents estimates from a COLS model with a Heckman correction for selection into union status. The identifying variables in the selection equation are industry categories and a variable reflecting past unemployment experience. All identifying restrictions used were insignificant in predicting vignette evaluation. *Table A4* in the Appendix provides estimates for the whole range of attributes. Finally, estimates and ratios are presented for the pooled sample and then for each country in the sample separately, to check for robustness. A consistent pattern emerges in all panels of Table 4. The effect of the wage attribute on vignette evaluation is higher for the sample of non-union workers, while the effect of the loyalty attribute if much higher for the sample of union workers. t-tests of the form $\frac{\gamma_1 - \gamma_2}{\sqrt{\sigma_{\gamma_1}^2 - \sigma_{\gamma_2}^2}}$ for the difference between the two coefficients are significant at the

10% level for the latter attribute. In terms of the trade-off ratios for the pooled sample, the ratios suggest that unionized workers would have to be compensated at least 50% more than non-union workers in order to give up loyalty as an attribute of a job. The figures are 51.75% in the fixed-effects models, 57.39% in the random effects model, and 58.77% in the Heckman model. The wage compensation required for the loss of loyalty is consistently close to 18% for union workers, and ranging from 8% to 14% for non-union workers. This pattern is prevalent in the vast majority of the estimates by country. The difference in the trade-off ratios is rather smaller in France, and Greece, but the difference is close to 100% in the Netherlands and the United Kingdom.

[*INSERT TABLE 4 ABOUT HERE*]

The results in Table 4 suggest that union workers value reciprocal loyalty to their employer more highly then non-union workers. In *Table 5*, it is examined whether that pattern persists in the estimation of the determinants of the acceptability of a job scenario. Acceptability is considered an alternative form of vignette evaluation. Since the scenarios were hypothetical in the context of a survey, acceptability of a vignette is not considered to reflect lower loyalty per se. However, summary statistics for the vignette variables given in Table A3 in the Appendix have already shown that union workers are less likely to give a high evaluation and accept a vignette on average. The strategy in examining vignette acceptability is similar to that for vignette evaluation, in the context of limited dependent variable models, since acceptability is a binary decision. Four sets of selected estimates are presented for the two samples of interest. Estimates in Panel A of Table 5 are from a conditional logit model that accounts for unobserved individual heterogeneity in the form of fixed individual effects. Panel (B) presents estimates from an alternative-specific conditional logit model, also known as McFadden's choice model (McFadden, 1973). The latter is a specific case of the model in Panel (A). Its contribution in this setting is that it identifies observations across individuals where attributes do not vary and does not incorporate those observations in the analysis. Since individuals were given a random sample of five vignettes to evaluate, it is likely that there were cases where some of the attributes did not vary in all vignettes given to an individual. Thus, the use of this model is considered beneficial for the robustness of the findings. Furthermore, estimates in Panel (C) are from a logit model with random effects that also incorporates controls for individual and work-related characteristics. Panel (D) presents estimates from a probit model with selection that accounts for the potential non-randomness

of the two samples. With the inclusion of fixed-effects in the first two panels, the calculation of marginal effects is not as straightforward. Thus, odds ratios are presented in panels (A) and (B), and marginal effects are shown in panels (C) and (D). Finally, the respective estimation results for the whole range of attributes are given in Table A5 in the appendix.

The odds ratios and marginal effects presented in Table 5 indicate a pattern similar to that in Table 4. Both samples of workers are more likely to find a job that involves loyalty acceptable, but the odds are higher for union workers. In Panel (A) union workers are 1.8 more likely to accept a job that requires and guarantees loyalty than a job that doesn't, while the figure is 1.1 for non-union workers. The gap narrows somewhat in panel (B) where some of the observations are dropped when attributes do not vary. The odds become 0.176 for union workers and 0.141 for non-union workers. The difference is more pronounced in panels (C) and (D) where marginal effects from a random effects logit and a heckman-type probit model are presented. Union workers are 8% more likely to accept a job involving loyalty than one that is not, while non-union workers are 5% more likely to accept such a job. The figures are quite similar in the heckman-type model. In terms of the trade-off ratios of the coefficients for the pooled sample, the wage compensation required for the loss of loyalty is consistently higher for the sample of non-union workers. The difference is close to 50% in panel (A), 25% in panel (B), and more than 100% in panels (C) and (D). The pattern persists in the estimates by country, with the exception of France.

[*INSERT TABLE 5 ABOUT HERE*]

The results in Tables 5 and 6 suggest that the notion of loyalty to the organization expressed through reciprocal arrangements is valued more highly by union workers compared to their non-union counterparts. Furthermore, the incorporation of fixed effects accounting for individual unobserved heterogeneity, combined with the separate use of sample selection models suggests that the formation of such preferences is more likely to operate in the context that Hirschman envisaged, rather than Akerlof's interpretation of union formation based on self-selection due to pre-existing preferences. The interpretation of the results is that preferences for loyalty involving reciprocal arrangements are likely to be the outcome of adaptation to cooperation, which is mediated by the union and gives rise to such arrangements. Thus, induced norms eventually become internalized and can be applied in novel settings by workers that adapt to them, such as union workers.

As a further test of this proposition, Table 6 presents estimates of vignette evaluation and acceptability in the random effects model framework that include controls for individual characteristics, and further account for interaction effects between individual characteristics and the loyalty attribute. Such interactions serve in performing intuitive tests of the idea that the preference for loyalty is likely to arise as an outcome of adaptation rather than as a pre-existing preference. In the 1st panel of Table 6, an interaction between the loyalty attribute and unemployment experience during the last year is included. The rationale is simple; individuals coming from unemployment are more likely to be new on the job, as well as new union members. Estimates of the interaction terms for the two samples reveal that the unemployment-loyalty interaction terms exhibits a negative impact on the evaluation of a job for the sample of union workers. The magnitude of the coefficient is large and comparable to that of the loyalty component. The interaction term is insignificant for the sample of non-union workers. This is an interesting pattern, suggesting that employees that are new on the job and/or the union are less likely to value reciprocal loyalty highly as a job component, compared to unionized employees that did not experience unemployment in the recent past. However, unemployment experience does not alter the impact of loyalty on job evaluation significantly for non-union workers. This pattern is more likely to favour the adaptation explanation for the prevalence of the loyalty preference.

A second interaction of intuitive interest arises from the idea that a greater preference for loyalty might arise in settings where anonymity is lower and communication is easier. Such a setting could be that in small firms, where workers are more likely to know their employers and supervisors personally and be able to identify with the firm. Estimates including an interaction term with small firm size (between 1 and 10 employees) suggest the loyalty attribute is valued more highly by non-union workers in small firms. However, the coefficient of the interaction term is insignificant for union workers. This result is interpreted as complementary evidence on the "loyalty filtering" role of the labour union, as the prevalence of such a preference is equally likely to arise among union workers in small and large firms. It could also be seen as an outcome of the mediating role of the union that facilitates communication between workers and the organization, as well as information transmission. These functions are easier to occur without any such third part mediation in small firms.

[*INSERT TABLE 6 ABOUT HERE*]

A moderate interpretation of the results from the conjoint analysis, that takes into account the control for selection and the interaction effects, is that without strongly refuting the prospect that workers who prefer greater attachment to their organizations become union members, it is also likely that such preferences are encouraged ad strengthened by the mediating role of the union. Workers adapt and internalize such values, applying them in new setting such as the one suggested in this study. The evidence so far is consistent with full rationality on behalf of the workers.

6.2 Exit and Voice

The results in the last section revealed that union workers exhibit a higher preference for jobs involving mutual loyalty. This section examines the implications of this preference for current job outcomes. Two sets of estimates are presented. We first examine the determinants of job satisfaction to determine whether or not the patterns revealed in Table 3 persist in a regression analysis setting. A relative dissatisfaction has already been shown to prevail among the sample of union workers. The main four possible explanations offered (Hersch and Stone, 1990) include: (a) the *reverse causation* between unionization and job satisfaction; (b) the *flatter wage-tenure profile* in the union sector; (c) *compensating differentials* giving rise to a union premium for less favourable working conditions (Duncan and Stafford, 1980) and; (d) a *"hirschmanian exit-voice" mechanism*. Several independent tests reject the former three explanations (Borjas 1979; Kochan and Helfman, 1981; Hersch and Stone, 1990; *inter alia*). Following the strategy in Hersch and Stone (1990), our analysis tests the high-tenure, compensating differentials and voice explanations. Then, we examine the impact of job satisfaction on the intention to quit the firm for the two samples of union and non-union workers, respectively.

Table 7 presents COLS estimates from a regression of job satisfaction. Coefficients and standard errors, clustered at the country level, are presented. The list of explanatory variables includes the wage rate (divided by the PPP conversion factor, for reasons of comparability), union membership, and a vector of personal and job characteristics. Personal characteristics include gender, cohabitation/marriage status, and the log of the number of children aged less than 16. Work-related characteristics include firm-size, dummies for the sector of activity, tenure, experience, permanent job, training during the last year, and controls for occupation (1-digit). *Column (1)* presents estimates from a standard job satisfaction regression, in which

no explicit working conditions are accounted for. In accordance with most of the literature, unionized workers are less satisfied with their job overall, ceteris paribus. The coefficient is -0.095, statistically significant at the 1% level[14]. The log of wage rate and experience are positively related to job satisfaction. So is marriage, training and the permanent contract variable. The logarithm of tenure is negatively related to job satisfaction, and so if the dummy for male (with the exception of Greece, and that is why an interaction term between gender and Greece is included in the regression). The education variables are all insignificant, a finding that is not unexpected, since the sample was designed to be homogeneous, targeting the low-skilled, with relative low levels of education. Finally, civil servants appear to have the highest job satisfaction among the four categories for sector of occupation.

[*INSERT TABLE 7 ABOUT HERE*]

Column 2 tests the high-tenure hypothesis, by introducing an interaction term between tenure and union membership in the specification of Column 1. This interaction term examines whether the negative coefficient of union status is only due to the higher tenure of union members. Job satisfaction has already been shown to be U-shaped in tenure, as revealed by the negative coefficient of the log of tenure variable. The coefficient of this interaction term is small, positive, and statistically insignificant. The effect of union status becomes insignificant at the 10% level when the interaction term is included, However, this is probably due to collinearity with the interaction variables, because the magnitude of the coefficient does not decline, but actually increases to -0.107. Another test (not shown) performed interacted the union status variable with categorical variables for tenure. Interactions with high-tenure and low-tenure also rendered insignificant estimates, also rejecting the high-tenure scenario.

Columns 3 and 4 perform tests of the compensating differentials explanations. In *Column 3*, two variables are added that account for the log of number of work-related injuries and illnesses during the last two years. Those were symptoms that required the employee to take at least one day off-work. In Table 3, unionized workers were already shown to have a greater incidence and number of work-related illnesses and injuries. Thus, the inclusion of these variables tests for the presence of compensating wage differentials that can explain the lower union job satisfaction. While both variables exhibit a negative impact on job

[14] In regressions for each of the countries in the sample, separately (not shown), the union coefficient is: France: -0.057, Greece: -0.135***, Netherlands: -0.080**, United Kingdom: -0.086*.

satisfaction, both the coefficient of union membership and the log wage rate are not significantly reduced. Furthermore, interaction terms between injury and illness rates and union membership (results available upon request) are statistically insignificant. The results in Column 3 suggest that while work-related injuries and illnesses are likely to reduce job satisfaction, these variables are neither enough to explain the lower job satisfaction of union workers, nor their wage premia. *Column 4* follows the strategy in Hersch and Stone (1990), by adding the working condition variables that were identified as most important in explaining the union wage premium by Duncan and Stafford (1980). These include: (1) MACHINE: a categorical variable equal to 1 for workers who state that the speed of machine or assembly line if very important or the most important factor for the amount of effort they put in their job; (2) INTENSITY: an index in the [0, 1] interval, created as a summation of workers' stated opinion for the intensity of the factors that make their job hard. Replies ranged from 1 to 5, and the options were: (a) high speed or high rhythm, (b) tight deadlines, (c) relationship with the boss or supervisor, (d) colleagues or co-workers. Thus, the index is 0 for a worker for whom none of these factors make his/her job hard, and 1, for a worker for whom all of these factors make it tough; (3) IDEAS: equal to 1 if employee is frequently, nearly always or always to put own ideas into practice at work. The relevant variables in the literature aim to capture machine operators, effort at work, and freedom at work. In the estimation including those variables in Column 4, the former two are negatively related to job satisfaction, while as expected freedom to put own ideas in practice exerts a positive impact on job satisfaction. Furthermore, the inclusion of the three variables reduces the magnitude of both the union status and log(wage) coefficients. However, the negative union status coefficient remains significant, and thus this compensating differentials explanation is still not enough to explain the lower job satisfaction of union members.

Thus, the results in Table 7 verify that union membership has an impact on job satisfaction that is independent of wages and objective working conditions. The explanation of the observed lower job satisfaction as an expression of voice is related to the literature on grievance fillings, and can be related to the argument by Simon (1951) that when employees are required to relinquish substantial authority over their actions to the employer and further to another mediating institution such as the union, this is likely to have psychological consequences, such as to undermine the sense of being on control of one's own life (Bowles, 1998).

In *Table 8*, we examine the issue of the genuineness of the lower union job satisfaction, by observing the potency of the union dissatisfaction on the intention to quit the firm in the near future. This variable is created from answers to the question: "*What would be the main reason to stop working with your current employer in your main job?*" 34.6% of the employees in the sample replied: "*I will quit myself*". The summary statistics in Table 3 have already indicated that the propensity to quit is higher among non-unionized workers. The figures are 38% for non-union workers, and 23% for union workers, and the difference is statistically significant at the 1% level. Table 8 presents logit estimates of the determinants of the intention to quit. The specification is similar to Hersch and Stone (1990) and includes union status, job satisfaction, wages, and a set of personal and work characteristics. *Column 1* presents the estimates for the pooled sample, with an interaction term between union status and job satisfaction. Then, Columns 2 and 3 present the same sets of estimates for the two samples of union and non-union workers, respectively. Coefficients, standard errors, and the respective marginal effects are presented. The coefficient of union membership is negative, statistically significant, and large for the pooled sample. The marginal effect is -0.133, indicating the union membership reduces quitting intentions by 13.3%. The magnitude of the effect is large, comparable to that of having a permanent contract. Job satisfaction exerts a negative impact on the propensity to quit. The marginal effect is -0.044, significant at the 1% level. Thus, an increase of job satisfaction from approximately 6 to 8 (½ standard deviations below the mean to ½ s.d. above the mean) reduces the propensity to quit by 4.4%. The coefficient of the interaction between union status and job satisfaction is insignificant, suggesting that the lower job satisfaction of unionized workers does not increase their quitting propensity. In the separate estimates by union status in *Columns 2 and 3*, the marginal effect of job satisfaction is -0.024 for unionized workers and -0.047 for non-union workers. Both effects are statistically significant at the 1% level, but the difference between the two is statistically significant. Thus, the interpretation of the effect of dissatisfaction is on the intention to quit is similar to Freeman and Medoff (1984). Unions do exert a "voice" impact on job satisfaction, and this dissatisfaction has a larger effect on the propensity to quit for union workers.

[*INSERT TABLE 8 ABOUT HERE*]

6.3 Unionism and Group Cohesion

After examining attitudes towards the firm, in this section we examine attitudes related to colleagues as an outcome of interaction between co-workers in a given setting. Cohesive group norms are examined in terms of peer wage comparisons and effort-inducing factors. Summarizing results from a large-scale survey of pay-setting practices by employees, Bewley (1998) observes that non-union workers care more about changes in salary but are relatively insensitive to absolute levels or levels relative to what comparable workers make in other firms. The situation differed somewhat in unionized companies, for labour unions fostered awareness of pay rates in the labour market in order to stimulate member interest in wage gains. "*Non-union companies seemed to be isolated islands, with most workers having little systematic knowledge of pay rates at other firms... Like players in the stock market, the most concrete datum that workers have with which to judge the correctness of their current wage rate is the rate they were paid in the past… though concern about worker reaction and morale curbed pay cutting, the reaction was to reduction in pay relative to its former level. The fall relative to levels at other firms was believed to have little impact on morale, though it might increase turnover.*" Bewley (1998, p.485). This empirical observation contributed to the "coherent arbitrariness conjecture" (Ariely et al., 2003; 2007), according to which individuals do not have a prior good idea of their preferences, but formulate these based on experience and stimuli provided by the environemnt. This idea can explain the maintenance of inter-industry wage differentials.

In *Table 9*, we incorporate variables reflecting wage comparisons with similar workers, and own past. Two specific questions in the questionnaire addressed such issues. In particular, respondents were asked: "*If you compare your earnings from your main job, of this year with your main job earnings a year back: Are your present earnings? … (a) Much more than last year (more than 10%); (b) Somewhat more than last year (about 10% more); (c) About the same as this year; (d) Somewhat less than last year (about 10% less); (e) Much less than last year (more than 10% less); (f) Last year I was not working; (g) Don't know*". At some later point, they were also asked: "*All things considered, which of these statements do you feel best describes your present pay?... (a) I earn much less than other workers who have a similar type of work; (b) I earn somewhat less than other workers who have a similar type of work; (c) I earn about the same as other workers who have a similar type of work; (d) I earn somewhat more than other workers who have a similar type of work; (e) I earn much more*

than other workers who have a similar type of work; (f) Don't know". We transform the categories into both questions into three groups, indicating earning more, about the same, and less than similar workers/own past. We then incorporate them into the specifications of job satisfaction and quitting intention regressions of Table 8.

The results in Table 9 indicate wage comparisons exert a significant impact on job satisfaction in the pooled sample. Individuals are more satisfied with their jobs when earnings more than similar workers, and when their wage has increased compared to last year. Performing the same set of estimations for the sample of union workers separately renders an insignificant coefficient for earning more than similar workers. It is only the coefficient for earning less than their peers that exerts a large negative impact on job satisfaction. Comparisons with the past are also statistically significant. Estimates for the sample of non-union workers suggest that earning more than one's peers significantly increases job satisfaction, and earning less decreases it symmetrically. Earning more than one year also has a higher impact on job satisfaction than for the sample of union workers. This pattern of behavior suggests a more conformist attitude towards wages by union workers, and a status-seeking pattern by non-union workers[15].

Examining the impact of wage comparisons on quitting intentions, comparison variables render insignificant coefficients for the pooled sample and the sample of union workers. It is only non-union workers earning less than similar workers that are more likely to quit their jobs. Non-union workers earnings whose wage increased compared to last year are also less likely to quit their jobs. Both coefficients are statistically significant at the 5% and the 10% level respectively. Thus, the evidence from both panels of Table 9 is closer to the spirit of Keynes, as all workers seem to care for relative outcomes, but in a different way. Unionism gives rise to more conformist norms among union workers. Even a disadvantageous social custom, such as a fair wage may become a persistent norm, in the spirit of Akerlof (1980). Non-union workers exhibit more status-seeking patterns. Knowledge that they earn less than their peers is more likely to induce quitting intentions in a similar fashion as a wage decrease.

[*INSERT TABLE 9 ABOUT HERE*]

[15] In Akerlof's (1997) definition of status-seeking behaviour, utility depends positively on the difference between the individual's own status and the status of others. In the case of conformist behavior, utility declines as distance between the individual's behaviour and that of everyone else increases.

Finally, Table 10 presents responses about the factors that are important in the effort put in their work, and the factors that would induce an increase in that effort. Means and standard deviations for the two samples are presented, along with significance levels from t-tests for the difference in the averages between union and non-union workers. Among the interesting differences, union workers are more likely to consider fellow-worker opinion important for the effort they put in their job. Furthermore, being paid more than similarly qualified colleagues is less likely to make them increase their effort compared to non-union workers. Both patterns are consistent with the observations in Lazear (1991) and Kandel and Lazear (1992), where as a result of pay compression to the "fair outcome" in unionized firms, it is likely that a certain level of effort becomes a self-enforcing norm, observable by other workers. Deviations from the equilibrium value of effort are likely to be disliked by other workers, thereby bringing disutility to the deviator. The extent of this disutility affects the equilibrium level of effort. Thus, a (Nash) equilibrium effort level becomes a self-enforcing norm.

[*INSERT TABLE 10 ABOUT HERE*]

7. Conclusion

Utilizing a novel dataset with unusually rich information on workers from four European countries, this study examines differences in the patterns of behaviour between employees that are members of a trade union and non-union workers that have been suggest or implied in the union literature. The evidence suggests that (a) union workers are more likely to value loyalty as a job attribute, where higher effort is reciprocated with job security provisions. The evidence indicates this preference is more likely to be the outcome of exposure and adaptation to cooperation mediated by the union, rather than a pre-existing preference leading to self-selection into union membership. (b) Consistent with the loyalty observation, they are less likely to intend to quit their jobs, although they express greater dissatisfaction with their job, and with most of its facets. (c) Union workers are more likely to exhibit conformist preferences when it comes to wage comparisons with their peers, while non-union workers are more likely to show status-seeking patterns. (d) Consistent with idea of the "*fair wage*" idea, union workers are more likely to state that their effort levels are influenced by peer

observation and the opinions of their colleagues, rather than by the provision of relative wage incentives such as higher payment than that similarly qualified workers.

The evidence endorses the idea of adaptation to cooperative outcomes that is entirely consistent with rationality on behalf of the workers. Without entirely overlooking the concept of self-selection, this study offers empirical evidence suggesting that economic organization can also impact on preferences through cultural transmission, *i.e.* learning. Although learned under one set of circumstances, rules and habits initially induced by exposure become can become self-enforced norms and generalized reasons for behavior. Reciprocal arrangements, such as job security provisions in exchange for higher effort and/or no shirking are found to be valued more highly by union workers compared to their non-union counterparts. Such arrangements are typically mediated by trade unions in unionized workplaces, and can become the norm for union workers in novel settings. This loyalty conjecture is reinforced by the evidence suggesting that union workers are more likely to exercise the voice rather than the exit option in their current jobs. Finally, it is shown that as a result of the likely pay compression to the "fair outcome" in unionized firms, some sort of bounded rationality is induced to workers. Conformist compliance to the "*fair wage*" appears to be more of a necessary agreement, as upward looking comparisons are significant in influencing their utility from work, and status-seeking patterns are more likely to prevail in the non-union sample. Finally, the empirical evidence is in agreement with the view that as a result of pay compression to the "*fair outcome"* a certain level of effort becomes a self-enforcing norm, observable by other workers.

References

Akerlof, G. A., (1980). 'A Theory of Social Custom of Which Unemployment May be One Consequence'. *Quarterly Journal of Economics*. Vol. 94, No. 4 (Jun.), pp. 749-775.

Akerlof, G. A., (1982). 'Labor Contracts as Partial Gift Exchange'. *Quarterly Journal of Economics*. Vol. 97, No. 4 (Nov.), pp. 543-569.

Akerlof, G. A., (1983). 'Loyalty Filters'. *American Economic Review*. Vol. 73, No. 1, pp. 54-63.

Akerlof, G. A., (1997). 'Social Distance and Social Decisions'. *Econometrica*. Vol. 65, No. 5 (Sep.), pp. 1005-1027.

Akerlof, G. A., and W. T. Dickens, (1982). 'The Economic Consequences of Cognitive Dissonance'. *American Economic Review*. Vol. 72, No. 3 (Jun.), pp. 307-319.

Ariely, D., Loewenstein, G. and D. Prelec, (2003). 'Coherent arbitrariness: Stable demand curves without stable preferences'. *Quarterly Journal of Economics*. Vol. 118, No. 1, pp. 73-105.

Ariely, D., Loewenstein, G. and D. Prelec, (2007). 'Tom Sawyer and the Construction of Value'. Journal of Economic Behavior and Organization. Vol. 60, No. 1 (May), pp. 1-10.

Ben-Ner A., and L. Putterman, (2000). 'On Some Implications of Evolutionary Psychology for the Study of Preferences and Institutions'. *Journal of Economic Behavior and Organization*. Vol. 43, pp. 91-99.

Bewley, T. F., (1998). 'Why not cut pay?' *European Economic Review*, Vol. 42, pp. 459-490.

Borjas, G. J., (1979). 'Job Satisfaction, Wages and Unions'. *Journal of Human Resources*, Vol. 14, No. 1, pp. 21-40.

Boroff, K. E., and D. Lewin, (1997). 'Loyalty, Voice, and Intend to Exit a Union Firm: A Conceptual and Empirical Analysis'. *Industrial and Labor Relations Review*. Vol. 51, No. 1 (Oct.), pp. 50-63.

Bowles, S., (1998). 'Endogenous Preferences: The Cultural Consequences of Markets and Other Economic Institutions'. *Journal of Economic Literature*. Vol. 36. No. 1 (Mar.), pp. 75-111.

Cahuc, P., and F. Kramarz, (1997). 'Voice and Loyalty as a Delegation of Authority: A Model and a Test of Matched Worker-Firm Panels'. *Journal of Labor Economics*, Vol. 15, No. 4, pp. 658-688.

Cappelli, P., and N. Rogovsky, (1998). 'Employee Involvement and Organizational Citizenship: Implications for Labor Law Reform and "Lean Production"'. *Industrial and Labor Relations Review*, Vol. 51, No. 4 (Jul.), pp. 633-653.

Carpenter, J. P., (2005). 'Endogenous Social Preferences'. *Review of Radical Political Economics*. Vol. 37, No. 1, pp. 63-84.

Charness, G., Rigotti, L., and A. Rustichini, (2007). 'Individual Behavior and Group Membership'. *American Economic Review*, Vol. 97, No. 4, pp. 1340-1352.

Cosmides, L., and J. Tooby, (1992). 'Cognitive Adaptations for Social Exchange'. *The American Economic Review Papers and Proceedings*. Vol. 84, No. 2 (May), pp. 327-332.

Cosmides, L., and J. Tooby, (1994). 'Better than Rational: Evolutionary Psychology and the Invisible Hand'. In: Barkow, J. H., Cosmides, L., and J. Tooby (eds), *The Adapted Mind. Evolutionary Psychology and the Generation of Culture*. New York: Oxford University Press, pp. 163-228.

Doeringer, P. B., (1984). 'Internal Labor Markets and Paternalism in Rural Areas', in: Paul Osterman (ed.), *Internal Labor Markets*. Cambridge: MIT Press.

Doeringer, P. B., (1986). 'Internal Labor Markets and Noncompeting Groups'. *American Economic Review*, Vol. 76, No. 2, pp. 48-52.

Duncan, G. J., and F. P. Stafford, (1980). 'Do Union Members Receive Compensating Wage Differentials?' *American Economic Review*, Vol. 70, No. 3, pp. 355-371.

Dunlop, J. T., (1944). *Wage Determination under Trade Unions.* New York, NY: Holt.

Durlauf, S. N., (1997). 'The Memberships Theory of Inequality: Ideas and Implications'. University of Wisconsin Working Paper.

Eckel, C. C., and P. J. Grossman, (2005). 'Managing Diversity by Creating Team Identity'. *Journal of Economic Behavior and Organization*, Vol. 58, 371-392.

EPICURUS, (2004). 'The EPICURUS Database', *Final Report for the Workpackage QUESTION*.

EPICURUS, (2005). 'Report on Individual Stated Job Preferences: a Conjoint Analysis Approach', *Report for the Workpackage NOVEL*.

European Commission, (2006). *Industrial Relations Report*. URL: http://ec.europa.eu/employment_social/social_dialogue/docs/ir_report2006_en.pdf

Ferrer-i-Carbonell, A., and P. Frijters, (2004). 'How Important is Methodology for the Estimates of the Determinants of Happiness?' *Economic Journal*, Vol. 114, pp. 641-659.

Ferrer-i-Carbonell, A., van Praag, B., and I. Theodossiou, (2007). 'Image and Reality: the Case of Job Satisfaction'. University of Aberdeen Mimeo.

Festinger, L., (1954). "A Theory of Social Comparison Processes". *Human Relations*, 7, pp. 114-140.

Festinger, L., (1957). *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press. .

Freeman, R. B., (1976). 'Individual Mobility and Union Voice in the Labor Market'. *The American Economic Review Papers and Proceedings*. Vol. 66, No. 2 (May), pp. 361-368.

Freeman, R. B., (1980). 'The Exit-Voice Trade-Off in the Labor Market: Unionism, Job Tenure, Quits and Separations'. *The Quarterly Journal of Economics*, Vol. 94, No. 4 (Jun.), pp. 643-673.

Freeman, R. B., and J. L. Medoff, (1984). *What Do Unions Do?* New York: Basic Books.

Goette, L., Huffman, D., and S. Meier, (2006). 'The Impact of Group Membership on Cooperation and Norm Enforcement: Evidence Using Random Assignment to Real Social Groups'. *American Economic Review*. Vol. 96, No. 2 (May), pp. 212-216.

Green, P. E., and V. Srinivasan, (1978). 'Conjoint Analysis in Consumer Research: Issues and Outlook'. *Journal of Consumer Research: An Interdisciplinary Quarterly*. Vol. 5, pp. 103-123.

Hanemann, W., (1984). 'Welfare Evaluations in Contingent Valuation Experiments with Discrete Responses: Reply'. *American Journal of Agricultural Economics*, Vol. 69, pp. 332-341.

Hersch, J., and J. A. Stone, (1990). 'Is Union Job Satisfaction Real'. *Journal of Human Resources*. Vol. 25, No. 4, pp. 736-751.

Hirsch, B. T., (2008). 'Sluggish Institutions in a Dynamic World: Can Unions and Industrial Competition Coexist?' *Journal of Economic Perspectives*. Vol. 22, No. 1 pp. 153-176.

Hirschman, A. O., (1970). *Exit, Voice and Loyalty.* Cambridge, MA: Harvard University Press.

Hirschman, A. O., (1982). 'Rival Interpretations of Market Society: Civilizing, Destructive or Feeble'. *Journal of Economic Literature*. Vol. 20, 1463-1484.

Kandel, E., and E. P. Lazear, (1992). 'Peer Pressure and Partenrships'. *The Journal of Political Economy*, Vol. 100, No. 4 (Aug.), pp. 801-817.

Kapteyn, A., Smith, J. P., and A. van Soest, (2007). 'Vignettes and Self-Repors on Work Disability in the United States and the Netherlands'. *American Economic Review*. Vol. 97, No. 1 (March), pp. 461-473.

Kaufman, B. E., (2004). 'What Unions Do: Insights from Economic Theory'. *Journal of Labor Research*. Vol. 25, No. 3 (Sep.), pp. 351-382.

Keynes, J. M., (1936). *The General Theory of Employment, Interest and Money*. MacMillan, Cambridge University Press.

King, G., Murray, C. J. L., Salomon, J. A., and A. Tandon, (2004). 'Enhancing the Validity and Cross-Cultural Comparability of Measurement in Survey Research'. *American Political Science Review*. Vol. 98, No. 1 (Feb.), pp. 191-207.

Kochan, T. A., and D. E. Helfman, (1981). 'The Effects of Collective Bargaining on Economic and Behavioral Job Outcomes'. MIT Working Paper 1181-81.

Kristensen, N., and E. Johansson, (2008). 'New Evidence on Cross-Country Differences in Job Satisfaction using Anchoring Vignettes'. *Labour Economics*. Vol. 15, No. 1 (Feb.), pp. 96-117.

Lafranchi,, J., Larguem, M., and M. Nancy, (2006). 'Would you Accept this Job? An Evaluation of the Decision Utility of Workers in the For-Profit and Non-Profit Sectors'. Université Panthéon-Assas Mimeo.

Lancaster, K., (1966). 'A New Approach to Consumer Theory', *Journal of Political Economy*, Vol. 74, pp. 132-157.

Lancaster, K. (1971), *Consumer Demand: A New Approach*, New York: Columbia University Press.

Lazear, E. P., (1991). 'Labor Economics and the Psychology of Organizations'. *Journal of Economic Perspectives*. Vol. 5, No. 2, pp. 89-110.

Lee, L., (1978). 'Unionism and Wage Rates: A Simultaneous Equations Model with Qualitative and Limited Dependent Variables', *International Economic Review*, Vol. 19, No. 2, pp. 415-433.

Lewin, D., (2005). 'Unionism and Employment Conflict Resolution: Rethinking Collective Voice and its Consequences'. *Journal of Labor Research*. Vol. 26, No.2 (Jun.). pp. 209-239.

Lindeboom, M., and E. van Doorslaer, (2004). 'Cut-Point Shift and Index Shift in Self-Reported Health'. *Journal of Health Economics*. Vol. 23, pp. 1083-1099.

Louviere, J. J., Hensher, D. A., and J. D. Swait, (2000). *Stated Choice Methods: Analysis and Applications*, Cambridge University Press.

Luce, R. D., and J. W. Tukey, (1964). 'Simultaneous Conjoint Measurement: A New Type of Fundamental Measurement'. *Journal of Mathematical Psychology*. Vol. 1, pp. 1-27.

Maddala, G. S., (1983). *Limited-Dependent and Qualitative Variables in Econometrics*. Cambridge: Cambridge University Press.

McFadden, D., (1973), *Conditional Logit Analysis of Qualitative Choice Behaviour*, University of California at Berkeley, Berkeley, CA.

Milgrom, P., and J. Roberts, (1992), *Economics, Organization and Management*, Englewood Cliffs: Prentice Hall. .

North, D., (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

Okun, A., (1975). 'Inflation: Its Mechanics and Welfare Costs'. *Brookings Papers on Economic Activity*. Vol. 1975, No. 2, pp. 351-401.

Okun, A., (1981). *Prices and Quantities: A Macroeconomic Analysis*. Washington D.C.: The Brookings Institution.

Ostrom, E., (1998). '*A Behavioral Approach to the Rational Choice Theory of Collective Action: Presidential Address, American Political Science Association, 1997*'. *American Political Science Review*, Vol. 92, No. 1, pp. 1-22.

Pouliakas, K., and I. Theodossiou. (2007). 'Measuring Adaptation to Non-Permanent Employment Contracts using a Conjoint Analysis Approach'. University of Aberdeen Mimeo.

Rayo, L., and Becker, G. S., (2007). 'Evolutionary Efficiency and Happiness', *The Journal of Political Economy,* Vol. 115, No. 2, pp. 302-337.

Rees, A. (1993). 'The Role of Fairness in Wage Determination', *Journal of Labor Economics,* Vol. 11, No. 1, pp. 243-252.

Rosen, S., (1974), 'Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition', *Journal of Political Economy*, Vol. 82, pp. 34-55.

Rusbelt, C. E., Farrell, D., Rogers, G., and A. G. Mainous, (1988), 'Impact of Exchange Variables on Exit, Voice, Loyalty And Neglect: An Integrative Model of Responses to Declining Job Satisfaction', *Academy of Management Journal*. Vol. 31, No. 3 (Sep.), pp. 599-627.

Sen, A., (1976). "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory." *Philosophy and Public Affairs*. Vol. 6, No. 4, pp. 317-344.

Simon, H. A., (1991). 'Organizations and Markets'. *Journal of Economic Perspectives*. Vol. 5, No. 2, pp. 25-44. Republished in: *Journal of Public Administration Research and Theory*. Vol. 5, No. 3 (Jul., 1995), pp. 273-294.

Simons, H. C., (1944). 'Some Reflections on Syndicalism'. *The Journal of Political Economy*, Vol. 52, No. 1 (Mar.), pp. 1-25.

Stewart, M.B., (1983), 'On Least Squares Estimation when the Dependent Variable is Grouped', *Review of Economic Studies,* Vol. 50, pp. 737-753.

van Beek, K. W. H., Koopmans, C. C., and B. M. S. van Praag, (1997). 'Shopping at the Labour Market: A Real Tale of Fiction'. *European Economic Review*. 41, pp. 295-317.

van Leeuwen, M. J., and B. M. S. van Praag, (2002). 'The Costs and Benefits of Lifelong Learning: The Case of the Netherlands'. *Human Resource Development Quarterly*. Vol. 13, No. 2, pp. 151-168.

van Praag, B. M. S., and A. Ferrer-i-Carbonell, (2004). *Happiness Quantified: A Satisfaction-Calculus Approach*, Oxford University Press.

van Soest, A., Delaney, L., Harmon, C., Kapteyn, A., and J. P. Smith, (2007). 'Validating the Use of Vignettes for Subjective Threshold Scales'. IZA DP No. 2860.

Table 1
Trade Union Density Rates

	OFFICIAL STATISTICS[a]	EPICURUS DATA	
	% Union Members	% Union Members	Sample Size
POOLED SAMPLE	36.0%	34.0%	5,463
DENMARK	80.0%	80.0%	1,011
FRANCE	8.0%	13.0%	1,008
GREECE	20.0%	23.0%	800
NETHERLANDS	25.0%	29.0%	1,007
SPAIN	16.0%	17.0%	304
FINLAND	74.0%	58.0%	331
UNITED KINGDOM	29.0%	19.0%	1,002

Notes:
[a] Source: European Commission, Industrial Relations Report, (2006), p.25.

Table 2
Sample Averages and Mean Differences between Unionized and Non-Unionized Workers

	Pooled Sample [3,817]		France [1,008]		Greece [800]		Netherlands [1,007]		United Kingdom [1,002]	
	Union	***Non-Union***	***Union***	***Non-Union***	***Union***	***Non-Union***	***Union***	***Non-Union***	***Union***	***Non-Union***
	[800]	*[3,017]*	*[127]*	*[881]*	*[183]*	*[617]*	*[296]*	*[711]*	*[194]*	*[808]*
MNWAGE	1,751***	1,547	1,666*	1,453	1,563***	1,143	1,860***	1625	1,816	1,862
HOURS	35.83***	34.78	35.67	35.21	40.39	40.20	34.17***	31.23	34.36	33.55
AGE	42.21***	36.36	37.66***	34.36	42.42***	36.19	46.18***	41.44	38.95***	34.22
EXPERIENCE	24.18***	18.30	18.83***	15.53	23.10***	16.73	28.16***	23.37	22.64***	18.06
TENURE	14.22***	8.04	13.87***	8.87	12.44***	7.17	17.31***	10.43	11.42***	5.73
TENURE1-2	8.8%	25.7%***	3.9%	23.8%***	15.3%	29.5%***	7.1%	13.1%***	8.3%	36.0%***
TENURE3-5	17.3%	28.1%***	17.3%	25.9%**	16.9%	26.4%***	13.2%	30.2%***	23.7%	29.8%*
TENURE5-10	19.0%	20.2%	26.0%*	18.8%	18.6%	23.5%	14.2%	20.7%***	22.2%	18.8%
TENURE>10	55.0%***	26.0%	52.8%***	31.4%	49.2%***	20.6%	65.5%***	36.0%	45.9%***	15.4%
MALE	64.0%***	45.0%	54.3%***	42.0%	80.9%***	59.3%	63.2%***	42.8%	53.6%***	39.1%
TRAINING	42.8%***	35.2%	48.8%***	32.7%	16.4%	14.9%	44.9%**	38.0%	60.3%**	51.1%
PERMANENT	90.4%***	83.3%	87.4%*	80.5%	83.1%	77.5%	92.9%***	87.1%	95.4%***	87.4%
PRIVATE	41.3%	65.7%***	40.2%	61.5%***	53.0%	80.4%***	37.2%	52.6%***	37.1%	70.5%***
NONPROFIT	9.5%	8.0%	2.4%	3.3%	1.6%	2.1%	19.3%	20.7%	6.7%	6.4%
CIVILSERV	31.1%***	14.4%	44.9%***	23.5%	37.2%***	14.9%	23.7%***	10.4%	27.8%***	7.6%
PUBLIC	18.1%***	11.9%	12.6%	11.7%	8.2%***	2.6%	19.9%	16.3%	28.4%***	15.5%
FIRM1_10	10.0%	24.7%***	3.2%	17.5%***	23.5%	50.6%***	6.8%	14.4%***	6.7%	21.8%***
FIRM10_24	9.8%	15.4%***	4.7%	11.5%**	19.7%	20.4%	7.4%	13.5%***	7.2%	17.6%***
FIRM25_99	21.6%	20.7%	16.5%	20.3%	24.6%***	16.2%	23.3%	23.5%	19.6%	21.9%
FIRM100_499	28.9%***	18.3%	30.7%***	20.4%	23.0%***	8.8%	30.4%***	22.6%	30.9%***	19.3%
FIRM>=500	29.8%***	21.0%	44.9%***	30.3%	9.3%***	4.1%	32.1%*	26.0%	35.6%***	19.4%
Industries:										
MINEQUARRY	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
UTILITIES	3.0%***	1.0%	2.4%	1.5%	3.8%**	1.3%	2.7%***	0.6%	3.1%***	0.6%
MANUFACTURING	8.6%*	6.8%	6.3%	4.1%	12.6%	10.2%	6.1%	5.2%	10.3%	8.7%
CONSTRUCTION	6.1%	5.0%	3.2%	3.8%	20.2%***	11.5%	2.0%	3.1%	1.0%	3.0%
TRADE	6.4%	15.8%***	3.2%	11.4%***	4.4%	22.5%***	8.5%	14.9%***	7.2%	16.5%***
SERVICES	2.0%	4.6%***	0.0%	4.3%**	3.8%	8.4%**	2.0%	2.1%	1.6%	4.2%*
TRANSCOM	10.4%***	6.8%	17.3%***	8.2%	7.1%	4.9%	6.8%	5.6%	14.4%***	7.7%
FINANCIAL	3.1%	4.6%*	1.6%	2.5%	2.7%	2.8%	1.0%	3.1%*	7.7%	9.7%
REALBUSINESS	0.6%	1.7%**	2.4%	2.2%	0.0%	0.5%	0.3%	1.4%	0.5%	2.4%
OTHERSERV	10.8%	11.4%	3.2%	5.0%	6.0%	8.8%	15.9%	17.6%	12.4%	14.9%
PUBADMINDEF	15.4%***	7.4%	23.6%***	13.2%	12.6%***	6.0%	15.2%***	4.9%	12.9%***	4.5%
EDUCATION	3.9%	4.0%	4.7%	4.9%	1.6%	1.3%	2.7%	4.1%	7.2%	5.1%
HEALTHSOCIAL	11.6%*	9.5%	10.2%	11.1%	7.1%	4.2%	15.9%	14.5%	10.3%	7.3%
SOCPERSONAL	5.3%	4.0%	2.4%	4.2%	11.5%***	5.0%	3.7%	3.2%	3.6%	3.6%
PRIVATHH	0.0%	1.0%***	0.0%	1.8%	0.0%	1.8%*	0.0%	0.1%	0.0%	0.1%
MULTINATIONAL	0.4%	0.8%	0.0%	0.3%	1.6%	3.6%	0.0%	0.0%	0.0%	0.0%
OTHER	12.5%	15.6%**	19.7%	21.7%	4.9%	7.3%	17.2%	19.6%	7.7%	11.8%
Occupations:										
MANAGER	2.0%	3.2%*	0.8%	1.7%	2.7%	2.1%	0.3%	1.7%*	4.6%	6.8%
PROFESSIONAL	2.6%	2.0%	0.0%	1.3%	4.9%***	0.5%	0.7%	1.4%	5.2%	4.5%
TECHASSOC	12.5%*	10.3%	19.7%*	13.7%	13.1%	10.1%	12.2%	11.1%	7.7%	6.1%
CLERICAL	21.6%	26.1%**	24.4%	30.2%	12.0%	12.2%	18.9%	27.0%***	33.0%	31.3%
CRAFT	4.5%*	3.1%	0.8%	2.3%	6.0%	6.3%	5.4%*	3.1%	4.1%**	1.6%
PERSPROTECT	5.0%	4.1%	8.7%**	4.0%	0.6%	2.4%	7.1%	7.5%	3.6%	2.6%
LABOURINGMCMT	5.6%	4.6%	6.3%	4.7%	14.2%	10.7%	1.4%	2.3%	3.6%	2.1%
SALESERVIC	8.3%	17.8%***	8.7%	18.5%***	8.7%	27.7%***	8.8%	9.1%	6.7%	17.2%***
PLANTMACHINE	7.1%***	2.7%	0.8%	1.3%	12.6%***	4.7%	6.1%**	2.8%	7.7%***	2.7%
ARMED	2.9%*	1.9%	0.8%	3.5%	2.7%	2.8%	5.1%***	0.1%	1.0%	1.0%
OTHER	27.9%**	24.2%	29.1%***	19.0%	22.4%	20.6%	34.1%	33.9%	22.7%	24.1%

Notes: p<0.10, ** p<0.05, *** p<0.01: From a t-test of mean differences between union and non-union workers.

Table 3
(Sub-)Sample Averages and Mean Differences
between Unionized and Non-Unionized Workers

Source: EPICURUS Data (2004)

	Pooled Sample		**France**		**Greece**		**Netherlands**		**United Kingdom**	
	Union	Non-Union	Union	Non-Union	Union	Non-Union	Union	Non-Union	Union	Non-Union
# Observations	800	3,017	127	881	183	617	296	711	194	808
Satisfaction with:										
Job Overall	6.73	6.79***	6.61	6.58	6.71	6.91	7.25	7.35	6.04	6.43**
Promotion Prospects	4.11	4.29	3.17	3.41	4.45	4.92**	4.29	4.58	4.15	4.51
Total Pay	5.14**	5.06	4.30	4.18	5.76	5.92	5.33	5.54	4.82	4.94
Relations with Boss	6.60	6.92**	5.91	6.26	7.75	8.04**	6.50	6.85**	6.11	6.84***
Job Security	7.00**	6.85	7.16**	6.43	7.50**	7.03	7.05	7.58***	6.34	6.53
Use of Initiative	6.47	6.80	5.60	6.41***	6.37	6.48	7.05	7.31*	6.24	7.03***
The Work Itself	6.83	7.04	6.41	6.86*	6.95	7.11	7.38	7.58	6.15	6.70***
Hours of Work	6.84***	6.79	6.48	6.34	7.12	7.06	7.15	7.24	6.32	6.67*
Times of Work	6.66	6.92	6.21	6.48	6.93	7.16	7.15	7.55**	6.02	6.72***
Employer's Behaviour	5.78	6.47***	4.34	5.70***	7.98	8.06	5.71	6.36***	4.76	6.17***
Work Load	5.78	6.21*	5.67	6.01	5.73	6.17**	6.11	6.47**	5.40	6.22***
Work Tension	5.33	5.81**	4.48	5.28***	5.33	5.81**	6.05	6.40**	4.78	5.89***
Level of Job Stress	5.10	5.61*	4.35	4.93*	4.85	5.48***	5.91	6.39***	4.59	5.75***
Physical Risk	5.88	6.64***	5.46	6.07*	5.04	6.11***	6.45	7.04***	6.13	7.32***
Finds job to be:										
Tiring	0.71	0.63	0.78	0.72	0.73***	0.62	0.69**	0.61	0.66***	0.56
Of low environ. quality	0.56***	0.46	0.63	0.57	0.73***	0.55	0.45***	0.34	0.54***	0.37
Dangerous	0.47***	0.33	0.51***	0.35	0.77***	0.53	0.34***	0.22	0.37***	0.24
Physically demanding	0.34	0.29	0.38	0.35	0.45	0.39	0.30	0.26	0.27***	0.17
Observed Characteristics:										
INJURED	0.17***	0.12	0.26**	0.18	0.15**	0.09	0.16**	0.11	0.16***	0.09
ILL	0.27***	0.20	0.35***	0.23	0.17**	0.11	0.25	0.21	0.33***	0.22
#INJURIES	0.31***	0.20	0.51***	0.27	0.26**	0.14	0.27	0.19	0.28	0.18
#ILLNESSES	0.74**	0.49	0.80	0.62	0.40***	0.21	0.87	0.54	0.84*	0.53
LINJURED	0.16***	0.10	0.25***	0.15	0.14***	0.08	0.14**	0.09	0.15***	0.08
LSICK	0.28***	0.21	0.36*	0.26	0.19***	0.11	0.25	0.20	0.35***	0.23
Propensity to Quit	0.23	0.38***	0.14	0.31***	0.15	0.24**	0.24	0.42***	0.35	0.52***

Notes: * p<0.10, ** p<0.05, *** p<0.01: From a t-test of mean differences between union and non-union workers.

Table 4
Conjoint Analysis Coefficients and Trade-Off Ratios

Source: EPICURUS Data (2004)

	(A) COLS with Fixed Effects			(B) COLS with Random Effects & Individual Characteristics			(C) Heckman Correction		
Vignette Evaluation	***Union***	***Non-Union***	***t-test***	***Union***	***Non-Union***	***t-test***	***Union***	***Non-Union***	***t-test***
(1) *Pooled Sample*									
v(WAGE)	1.005***	1.071***	-1.524	1.019***	1.091***	-1.590	1.014***	1.095***	-1.647
	[0.044]	[0.024]		[0.046]	[0.025]		[0.050]	[0.027]	
V(LOYALTY)	0.174***	0.122***	1.660	0.184***	0.126***	1.796	0.183***	0.125***	1.638
	[0.031]	[0.017]		[0.032]	[0.017]		[0.035]	[0.019]	
Loyalty/Wage Ratio	0.173***	0.114***		0.181***	0.115***		0.181***	0.114***	
	[0.033]	[0.016]		[0.033]	[0.016]		[0.037]	[0.018]	
# Observations	3,923	14,793		3,522	13,109		16,862	16,694	
(2) *France*									
Loyalty/Wage Ratio	0.119***	0.089		0.098**	0.091		0.090*	0.070	
	[0.043]	[0.163]		[0.043]	[0.180]		[0.047]	[0.174]	
# Observations	611	4,234		554	3,768		4,459	4,343	
(3) *Greece*									
Loyalty/Wage Ratio	0.096*	0.087***		0.101*	0.082***		0.092***	0.071	
	[0.056]	[0.027]		[0.056]	[0.030]		[0.033]	[0.058]	
# Observations	915	3,085		770	2,525		3,295	3,295	
(4) *Netherlands*									
Loyalty/Wage Ratio	0.241***	0.119***		0.235***	0.137***		0.253***	0.133***	
	[0.060]	[0.036]		[0.061]	[0.036]		[0.066]	[0.038]	
# Observations	1,457	3,467		1,300	3,010		4,375	4,330	
(5) *United Kingdom*									
Loyalty/Wage Ratio	0.208***	0.146***		0.221***	0.143***		0.232***	0.141***	
	[0.050]	[0.024]		[0.050]	[0.024]		[0.053]	[0.025]	
# Observations	940	4,007		898	3,806		4,733	4,726	

Notes: * p<0.10, ** p<0.05, *** p<0.01
Loyalty/Wage Ratio provides a point estimate and standard error for the non-linear combination of the estimates.

Table 5
Conjoint Analysis Coefficients and Trade-Off Ratios

Source: EPICURUS Data (2004)

	(A) Conditional Logit		(B) McFadden's Choice Model		(C) Logit with Random Effects & Individual Characteristics		(D) Heckman Probit	
	Odds Ratios [S.E.]				**Marginal Effects (S.E.)**			
Vignette Acceptability	***Union***	***Non-Union***	***Union***	***Non-Union***	***Union***	***Non-Union***	***Union***	***Non-Union***
(1) *Pooled Sample*								
v(WAGE)	22.008***	26.407***	22.801***	28.332***	0.490***	0.600***	0.455*	0.567***
	[4.561]	[2.752]	[5.337]	[3.408]	[0.031]	[0.018]	[0.255]	[0.042]
V(LOYALTY)	1.748***	1.450***	1.732***	1.601***	0.086***	0.052***	0.079	0.046***
	[0.264]	[0.102]	[0.287]	[0.126]	[0.020]	[0.011]	[0.049]	[0.011]
Loyalty/Wage Ratio	0.181***	0.114***	0.176***	0.141***	0.179***	0.088***	0.173***	0.081***
	[0.050]	[0.022]	[0.055]	[0.024]	[0.044]	[0.019]	[0.044]	[0.019]
# Observations	2,438	9,831	2,115	8,230	3,214	11,910	16,554	15,495
(2) *France*								
Loyalty/Wage Ratio	0.322	0.075	0.626	0.152*	0.054	0.032	0.001	0.041
	[0.288]	[0.062]	[0.537]	[0.079]	[0.224]	[0.054]	[0.209]	[0.054]
# Observations	273	2,272	220	1,670	488	3,272	4,297	3,764
(3) *Greece*								
Loyalty/Wage Ratio	0.140*	0.096**	0.155*	0.111***	0.161**	0.078**	0.155**	0.072**
	[0.077]	[0.038]	[0.080]	[0.038]	[0.071]	[0.036]	[0.065]	[0.034]
# Observations	720	2,575	755	2,600	770	2,525	3,295	3,295
(4) *Netherlands*								
Loyalty/Wage Ratio	0.263***	0.135***	0.182*	0.197***	0.268***	0.117***	0.274***	0.113**
	[0.096]	[0.049]	[0.099]	[0.056]	[0.081]	[0.045]	[0.080]	[0.045]
# Observations	899	2,236	735	1,845	1,191	2,726	4255	4,021
(5) *United Kingdom*								
Loyalty/Wage Ratio	0.135	0.150***	0.143*	0.150***	0.155**	0.107***	0.168**	0.093***
	[0.087]	[0.037]	[0.085]	[0.040]	[0.074]	[0.029]	[0.070]	[0.028]
# Observations	546	2,748	405	2,115	765	3,387	4,591	4,264

Notes: * p<0.10, ** p<0.05, *** p<0.01
Loyalty/Wage Ratio provides a point estimate and standard error for the non-linear combination of the estimates.

Table 6
Conjoint Analysis Interaction Effects

Interaction with:	(A) **Evaluation** COLS with Random Effects ***Coef. [S.E.]***		(B) **Acceptability** Logit with Random Effects ***Odds Ratio [S.E.]***	
(1) Unemployment experience during last year:				
	Union	***Non-Union***	***Union***	***Non-Union***
v(LOYALTY)	0.195***	0.122***	0.084***	0.050***
	[0.033]	[0.018]	[0.020]	[0.012]
UNEMPLOYMENT	0.108	0.046	-0.049	0.028
	[0.121]	[0.041]	[0.054]	[0.025]
v(LOYALTY)x UNEMPLOYMENT	-0.196*	0.031	0.026	0.022
	[0.113]	[0.042]	[0.078]	[0.028]
# Observations	3,522	13,129	3,214	11,930
(2) Employed in a small firm:				
v(LOYALTY)	0.174***	0.111***	0.076***	0.035***
	[0.033]	[0.019]	[0.021]	[0.012]
FIRM1_10	-0.036	-0.053*	-0.064*	-0.037**
	[0.089]	[0.032]	[0.037]	[0.017]
v(LOYALTY)xFIRM1_10	0.091	0.060*	0.113	0.072***
	[0.086]	[0.032]	[0.071]	[0.024]
# Observations	3,522	13,109	3,214	11,910

Notes:
* p<0.10, ** p<0.05, *** p<0.01

Table 7
Explanations of the Union Satisfaction Differential

Dependent variable: Overall Job Satisfaction; COLS; EPICURUS Data (2004)

	(1)	*(2)*	*(3)*	*(4)*
	Baseline	***High-Tenure***	***Compensating Differentials***	
LMWAGE	0.072**	0.073**	0.068**	0.056**
	[0.029]	[0.029]	[0.029]	[0.028]
LHOURS	-0.039	-0.039	-0.024	-0.014
	[0.052]	[0.052]	[0.051]	[0.049]
MALE	-0.091***	-0.091***	-0.098***	-0.073**
	[0.032]	[0.032]	[0.032]	[0.030]
MALExGREECE	0.141**	0.141**	0.149**	0.125**
	[0.064]	[0.064]	[0.064]	[0.061]
MARRIED	0.053*	0.053*	0.046	0.054*
	[0.029]	[0.029]	[0.029]	[0.027]
LCHILDLT16	0.032	0.032	0.034	0.014
	[0.027]	[0.027]	[0.026]	[0.025]
LEXPERIENCE	0.065***	0.065***	0.063***	0.056***
	[0.021]	[0.021]	[0.021]	[0.020]
LTENURE	-0.055***	-0.057***	-0.056***	-0.054***
	[0.016]	[0.017]	[0.016]	[0.015]
TRUNION	-0.095***	-0.107	-0.072**	-0.067**
	[0.032]	[0.076]	[0.032]	[0.031]
TRUNIONxLTENURE	-	0.005	-	-
		[0.031]		
LINJURED	-	-	-0.136***	-
			[0.039]	
LSICK	-	-	-0.151***	-
			[0.026]	
MACHINE	-	-	-	-0.049*
				[0.025]
INTENSITY	-	-	-	-0.744***
				[0.063]
IDEAS	-	-	-	0.329***
				[0.024]
TRAINING	0.132***	0.132***	0.128***	0.096***
	[0.027]	[0.027]	[0.027]	[0.026]
PERMANENT	0.054	0.055	0.046	0.068*
	[0.037]	[0.037]	[0.037]	[0.036]
FRANCE	0.115***	0.116***	0.120***	0.061*
	[0.038]	[0.038]	[0.037]	[0.036]
GREECE	0.152**	0.152**	0.118**	0.249***
	[0.060]	[0.060]	[0.060]	[0.058]
NETHERLANDS	0.293***	0.293***	0.280***	0.252***
	[0.039]	[0.039]	[0.038]	[0.037]
CONSTANT	-0.057	-0.058	-0.01	0.174
	[0.211]	[0.211]	[0.209]	[0.202]
No. of Observations	3,379	3,379	3,379	3,360
R2	0.054	0.054	0.072	0.148
F	5.64***	5.48***	7.15***	15.63***

Notes:
* p<0.10, ** p<0.05, *** p<0.01; Robust standard errors; Specifications also include dummy variables for: EDUCATION [4], FIRMSIZE [5], SECTOR [4], and OCCUPATION [11].

Table 8
Quitting Intentions

Dependent variable: Propensity to Quit, Logits, EPICURUS Data (2004)

	Pooled	***Union***	***Non-Union***
	Coef. [SE]	Coef. [SE]	Coef. [SE]
	M.Eff.	*M.Eff.*	*M.Eff.*
JOBSATISFACTION	-0.203 [0.022]	-0.174 [0.054]	-0.202 [0.022]
	*-0.044****	*-0.024****	*-0.047****
TRUNION	-0.657 [0.348]	-	-
	*-0.133***		
TRUNIONxSATISFACTION	0.030 [0.051]	-	-
	0.007		
LMWAGE	0.152 [0.096]	0.476 [0.294]	0.079 [0.103]
	0.033	*0.065*	*0.018*
LHOURS	-0.660 [0.165]	-0.895 [0.545]	-0.630 [0.174]
	*-0.144****	*-0.122**	*-0.146****
LSECEDUC	0.026 [0.172]	-0.350 [0.438]	0.198 [0.194]
	0.006	*-0.043*	*0.047*
HSECEDUC	0.242 [0.151]	-1.157 [0.360]	0.542 [0.174]
	0.053	*-0.140****	*0.127****
PSECEDUC	0.138 [0.147]	-0.522 [0.320]	0.317 [0.171]
	0.030	*-0.068**	*0.074**
MALE	0.310 [0.095]	0.536 [0.270]	0.281 [0.104]
	*0.068****	*0.070***	*0.065****
MARRIED	-0.330 [0.095]	-0.498 [0.269]	-0.333 [0.103]
	*-0.072****	*-0.070**	*-0.077****
LCHILDLT16	0.309 [0.088]	0.923 [0.239]	0.219 [0.097]
	*0.067****	*0.126****	*0.051***
LEXPERIENCE	-0.429 [0.069]	-0.427 [0.216]	-0.412 [0.073]
	*-0.094****	*-0.058***	*-0.095****
LTENURE	-0.319 [0.053]	-0.861 [0.152]	-0.239 [0.058]
	*-0.070****	*-0.117****	*-0.055****
PERMANENT	0.784 [0.128]	1.857 [0.491]	0.701 [0.135]
	*0.152****	*0.152****	*0.149****
TRAINING	0.120 [0.088]	0.222 [0.232]	0.108 [0.097]
	0.026	*0.031*	*0.025*
FRANCE	-0.751 [0.123]	-1.078 [0.370]	-0.714 [0.132]
	*-0.152****	*-0.115****	*-0.157****
GREECE	-0.967 [0.151]	-1.203 [0.405]	-0.977 [0.166]
	*-0.186****	*-0.131****	*-0.202****
NETHERLANDS	0.230 [0.126]	-0.341 [0.314]	0.392 [0.141]
	*0.051**	*-0.045*	*0.093****
CONSTANT	3.319 [0.694]	2.287 [2.127]	3.408 [0.744]
No. of Observations	3,379	717	2,662
Pseudo R2	0.142	0.230	0.129
Log-Likelihood	-1,880.4	-297.9	-1,545.0
LR x2	623.7***	177.7***	458.3***

Notes: * p<0.10, ** p<0.05, *** p<0.01
Marginal Effects for discrete change of dummy variable from 0 to 1, evaluated at the mean of the rest of the variables

Table 9
Reference Norms

Source: EPICURUS Data, 2004

	Job Satisfaction (COLS) Coef.[S.E.]			***Quits (Logit)*** M.Eff.[S.E.]		
	Pooled	*Union*	*Non-Union*	*Pooled*	*Union*	*Non-Union*
PEERS_MORE	0.152***	0.092	0.169***	0.009	-0.032	0.032
	[0.034]	[0.065]	[0.040]	[0.026]	[0.036]	[0.031]
PEERS_LESS	-0.190***	-0.240***	-0.178***	0.035	-0.051	0.055**
	[0.028]	[0.060]	[0.032]	[0.021]	[0.033]	[0.025]
PAST_MORE	0.193***	0.116*	0.210***	-0.031	0.032	-0.046*
	[0.029]	[0.063]	[0.033]	[0.021]	[0.039]	[0.024]
PAST_LESS	-0.123***	-0.140*	-0.119***	-0.047	-0.001	-0.051
	[0.038]	[0.072]	[0.045]	[0.029]	[0.045]	[0.032]
LMWAGE	0.032	-0.050	0.046	0.032	0.064	0.017
	[0.029]	[0.064]	[0.033]	[0.021]	[0.041]	[0.024]
LHOURS	-0.014	0.137	-0.035	-0.153***	-0.125	-0.154***
	[0.052]	[0.131]	[0.057]	[0.037]	[0.076]	[0.042]
MALE	-0.081***	-0.101*	-0.077**	0.082***	0.070**	0.083***
	[0.029]	[0.061]	[0.033]	[0.021]	[0.034]	[0.025]
MARRIED	0.043	0.050	0.038	-0.066***	-0.058	-0.071***
	[0.029]	[0.061]	[0.033]	[0.021]	[0.040]	[0.024]
LCHILDLT16	0.036	0.020	0.044	0.068***	0.117***	0.052**
	[0.027]	[0.056]	[0.031]	[0.020]	[0.033]	[0.023]
LEXPERIENCE	0.084***	0.070	0.087***	-0.104***	-0.074**	-0.107***
	[0.022]	[0.056]	[0.025]	[0.016]	[0.032]	[0.018]
LTENURE	-0.038**	-0.055	-0.034*	-0.069***	-0.108***	-0.057***
	[0.016]	[0.036]	[0.019]	[0.012]	[0.021]	[0.014]
TRUNION	-0.093***	-	-	-0.094***	-	-
	[0.032]			[0.023]		
JOBSATISFACTION	-	-	-	-0.042***	-0.024***	-0.045***
				[0.005]	[0.008]	[0.005]
PERMANENT	0.033	0.086	0.021	0.155***	0.154***	0.152***
	[0.038]	[0.095]	[0.042]	[0.022]	[0.023]	[0.027]
TRAINING	0.099***	0.130**	0.094***	0.034*	0.03	0.033
	[0.027]	[0.054]	[0.031]	[0.020]	[0.033]	[0.023]
FRANCE	0.143***	0.195**	0.130***	-0.169***	-0.121***	-0.177***
	[0.038]	[0.087]	[0.043]	[0.023]	[0.031]	[0.027]
GREECE	0.220***	0.270***	0.216***	-0.195***	-0.139***	-0.211***
	[0.044]	[0.086]	[0.052]	[0.025]	[0.035]	[0.030]
NETHERLANDS	0.302***	0.395***	0.275***	0.034	-0.041	0.067*
	[0.039]	[0.076]	[0.046]	[0.029]	[0.042]	[0.035]
CONSTANT	0.049	0.109	-0.002	-	-	-
	[0.212]	[0.504]	[0.239]			
No. of Obs.	3,177	674	2503	3,177	674	2503
R2	0.107	0.145	0.107	0.146	0.227	0.134
Log-Likelihood	-3262.7	-618.3	-2623	-1756.6	-280.8	-1441
F	10.17***	3.01***	8.21***	-	-	-
LR x2	-	-	-	598.33***	165.27***	446.06***

Notes: * p<0.10, ** p<0.05, *** p<0.01; Robust standard errors; Specifications also include dummy variables for: EDUCATION [4], FIRMSIZE [5], SECTOR [4], and OCCUPATION [11].

Table 10
Effort Inducing Norms

Source: EPICURUS Data, 2004

From 1 (very unimportant) to 5 (very important):	**Union (800)**		**Non-Union (3,017)**			
	Mean	(S.D.)	Mean	(S.D.)	t-test	
Which is important for the effort you put in your work?						
A machine or assembly line	2.34	(1.60)	2.14	(1.49)	3.11	***
Clients or customers	3.64	(1.35)	3.90	(1.29)	-4.90	***
A supervisor or boss	3.44	(1.24)	3.51	(1.25)	-1.42	
Your colleagues	3.94	(1.07)	3.81	(1.17)	2.89	***
Your own discretion	4.13	(0.97)	4.14	(0.97)	-0.39	
Payment incentives	3.56	(1.32)	3.78	(1.31)	-4.13	***
Reports and appraisals	3.41	(1.24)	3.49	(1.27)	-1.53	
Which will induce you to increase your effort in your job?						
Speeding up of the machine or assembly line	2.13	(1.41)	2.09	(1.37)	0.72	
Closer contact with clients and customers	3.13	(1.31)	3.35	(1.30)	-4.22	***
Strict supervision	2.45	(1.27)	2.56	(1.29)	-2.13	**
Your fellow workers opinion	3.46	(1.22)	3.43	(1.24)	0.71	
Pay incentives	3.76	(1.20)	3.95	(1.18)	-4.09	***
Reports and appraisals	3.26	(1.28)	3.41	(1.25)	-3.01	***
The risk of losing your job	3.30	(1.32)	3.40	(1.33)	-1.76	*
Being paid more than similarly qualified colleagues working in other firms	3.41	(1.23)	3.52	(1.26)	-2.16	**

Notes:

Appendix

Figure A1
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*

Notes:

Figure A2
Vignette Attributes and Variable Names

Type of contract (dummy variables)	
(v)CT_PNORISK	Permanent contract with no risk of being fired
(v)CT_PRISK	Permanent contract with risk of being fired & with economic compensation
(v)CT_PHIGHRISK	Permanent contract with risk of being fired & with no economic compensation
(v)CT_TPERM	One-year contract with high probability of continuation with a permanent contract
(v)CT_TTEMP	One-year contract with high probability of continuation with a temporary contract
(v)CT_TFIRED	One-year contract with no probability of continuation (Reference Group)
Ln(Working hours)	
(v)LHOURS	Working hours (ranged from 20 to 50)
Net wages per hour:	
(v)WAGE	(Expressed as a percentage of wages at the current job)
Working schedules (dummy variables)	
(v)WK_FLEXIBLE	Flexible working hours
(v)WK_OFFICE	Office working hours (you can choose which days your work)
(v)WK_ROTATE	Rotating shifts (system)
(v)WK_EMPLOYER	Employer decides (Reference Group)
Training (dummy variables)	
(v)TRAIN_30-90	3 months training 1 month training
(v)TRAIN_5-10	10 days training 5 days training
(v)TRAIN_0-1	1 day training
(v)TRAIN_NO	No training (Reference Group)
Work organization (dummy variables)	
(v)ORG_ALONE	Job not in teamwork
(v)ORG_VARYING	Job in varying teamwork
(v)ORG_TEAM	Job in fixed team (Reference Group)
Control over own work (dummy variables)	
(v)JB_FIXROUTINE	Job has a fixed routine
(v)JB_TASKCHOICE	Can choose order tasks: job tasks are fixed, but you may decide when & how things are done
(v)JB_OWNCONTROL	No one controls your work (Reference Group)
Intensity due to high speed (dummy variables)	
(v)HIGHSPEED	Often high speed
(v)MEDIUMSPEED	Sometimes high speed
(v)LOWSPEED	Never working at high speed (Reference Group)
Intensity due to tight deadlines (dummy variables)	
(v)DEADOFTEN	Often tight deadlines
(v)DEADSOME	Sometimes tight deadlines
(v)DEADNEVER	Never working with tight deadlines (Reference Group)
Retirement & Labour disability (dummy variables)	
(v)RETIRE65	Have to stop before 65 (have to stop before 65 because the job is physically very demanding)
(v)RETIRE60	Early retirement 55 (firm has early retirement plans)
(v)RETIRE55	Early retirement 60 (firm has early retirement plans)
(v)RETIRENO	The firm has no early retirement plans (Reference Group)
Loyalty-no shirking(dummy variables)	
(v)LOYALTY	Loyalty from both sides; shirking & low performance impossible
(v)NOLOYALTY	The firm requires no loyalty; shirking & low performance is impossible

Figure A3
Vignette Summary Statistics and Attribute Incidence

	Pooled	***Union***	***Non-Union***	***t-test***
#Observations	19,085	4,000	15,085	
#Individuals	3,817	3,017	800	
EVALUATION	4.01	3.81	4.06	-5.25 ***
ACCEPTABILITY	0.30	0.28	0.31	-2.79 ***
(v)CT_PNORISK	0.19	0.19	0.19	0.56
(v)CT_PRISK	0.12	0.11	0.12	-0.48
(v)CT_PHIGHRISK	0.19	0.18	0.19	-2.59 ***
(v)CT_TPERM	0.24	0.25	0.24	0.95
(v)CT_TTEMP	0.15	0.15	0.15	0.65
(v)CT_TFIRED	0.12	0.12	0.12	0.97
(v)LHOURS	3.54	3.54	3.54	-0.43
(v)LHOURSQ	12.64	12.63	12.64	-0.35
(v)WAGE	-0.01	-0.01	-0.01	-0.18
(v)WK_FLEXIBLE	0.18	0.19	0.18	1.32
(v)WK_OFFICE	0.28	0.29	0.28	1.27
(v)WK_ROTATE	0.32	0.31	0.32	-1.02
(v)WK_EMPLOYER	0.22	0.21	0.22	-1.45
(v)TRAIN_30-90	0.29	0.29	0.29	-0.34
(v)TRAIN_5-10	0.45	0.45	0.45	-0.16
(v)TRAIN_0-1	0.25	0.26	0.25	0.80
(v)ORG_ALONE	0.29	0.30	0.29	0.72
(v)ORG_VARYING	0.30	0.29	0.30	-1.22
(v)ORG_TEAM	0.41	0.41	0.41	0.47
(v)JB_FIXROUTINE	0.41	0.42	0.41	1.19
(v)JB_TASKCHOICE	0.33	0.32	0.33	-0.88
(v)JB_OWNCONTROL	0.26	0.26	0.27	-0.39
(v)HIGHSPEED	0.28	0.28	0.28	-0.07
(v)MEDIUMSPEED	0.13	0.12	0.13	-1.38
(v)LOWSPEED	0.17	0.17	0.17	0.24
(v)DEADOFTEN	0.17	0.17	0.17	0.47
(v)DEADSOME	0.16	0.16	0.16	1.24
(v)DEADNEVER	0.09	0.09	0.09	-0.40
(v)RETIRE65	0.12	0.12	0.11	1.04
(v)RETIRE60	0.25	0.25	0.25	-1.00
(v)RETIRE55	0.20	0.20	0.20	-0.45
(v)RETIRENO	0.43	0.44	0.43	0.57
(v)LOYALTY	0.56	0.57	0.56	0.97

Notes:
* p<0.10, ** p<0.05, *** p<0.01: From a t-test of mean differences between union and non-union workers.

Figure A4
Vignette Evaluation Analysis

Source: EPICURUS Data (2004); Conjoint Analysis

	COLS with Fixed Effects			COLS with Random Effects and Individual Characteristics			Heckman's Model:	
Vignette Evaluation	*Pooled*	*Union*	*Non-Union*	*Pooled*	*Union*	*Non-Union*	*Union*	*Non-Union*
(v)CT_PNORISK	0.425***	0.482***	0.411***	0.422***	0.499***	0.400***	0.474***	0.406***
	[0.029]	[0.062]	[0.033]	[0.029]	[0.063]	[0.033]	[0.068]	[0.036]
(v)CT_PRISK	0.255***	0.329***	0.237***	0.237***	0.325***	0.212***	0.316***	0.210***
	[0.032]	[0.067]	[0.036]	[0.032]	[0.068]	[0.036]	[0.072]	[0.038]
(v)CT_PHIGHRISK	0.144***	0.144**	0.145***	0.116***	0.123*	0.113***	0.105	0.117***
	[0.033]	[0.069]	[0.037]	[0.032]	[0.068]	[0.036]	[0.071]	[0.038]
(v)CT_TPERM	0.315***	0.398***	0.296***	0.311***	0.387***	0.290***	0.362***	0.298***
	[0.034]	[0.071]	[0.038]	[0.032]	[0.068]	[0.036]	[0.069]	[0.037]
(v)CT_TTEMP	0.273***	0.223***	0.289***	0.262***	0.200***	0.278***	0.193***	0.268***
	[0.028]	[0.059]	[0.032]	[0.027]	[0.057]	[0.031]	[0.060]	[0.032]
(v)LHOURS	7.567***	8.499***	7.288***	7.387***	8.028***	7.113***	7.828***	7.264***
	[0.707]	[1.464]	[0.807]	[0.647]	[1.364]	[0.735]	[1.373]	[0.739]
(v)LHOURSQ	-1.134***	-1.257***	-1.097***	-1.111***	-1.192***	-1.075***	-1.163***	-1.098***
	[0.102]	[0.210]	[0.116]	[0.093]	[0.196]	[0.106]	[0.197]	[0.106]
(v)WAGE	1.057***	1.005***	1.071***	1.076***	1.019***	1.091***	1.014***	1.095***
	[0.021]	[0.044]	[0.024]	[0.022]	[0.046]	[0.025]	[0.050]	[0.027]
(v)WK_FLEXIBLE	0.111***	0.118**	0.109***	0.161***	0.155***	0.166***	0.166***	0.215***
	[0.026]	[0.057]	[0.030]	[0.025]	[0.054]	[0.028]	[0.055]	[0.029]
(v)WK_OFFICE	0.081***	0.041	0.090***	0.116***	0.042	0.139***	0.046	0.175***
	[0.023]	[0.049]	[0.026]	[0.022]	[0.047]	[0.025]	[0.049]	[0.026]
(v)WK_ROTATE	-0.090***	-0.101**	-0.089***	-0.049**	-0.092**	-0.037	-0.073	-0.001
	[0.021]	[0.046]	[0.024]	[0.022]	[0.046]	[0.024]	[0.049]	[0.026]
(v)TRAIN_30-90	0.107***	0.051	0.122***	0.069***	0.011	0.086***	-0.006	0.066***
	[0.020]	[0.043]	[0.023]	[0.019]	[0.041]	[0.022]	[0.043]	[0.023]
(v)TRAIN_5-10	0.091***	0.129***	0.083***	0.068***	0.082**	0.064***	0.055	0.050**
	[0.018]	[0.039]	[0.021]	[0.017]	[0.037]	[0.020]	[0.038]	[0.021]
(v)ORG_ALONE	0.114***	0.132***	0.110***	0.109***	0.100***	0.113***	0.069*	0.105***
	[0.017]	[0.036]	[0.019]	[0.017]	[0.036]	[0.019]	[0.039]	[0.020]
(v)ORG_VARYING	0.032*	0.050	0.028	0.035**	0.069*	0.027	0.068*	0.027
	[0.017]	[0.036]	[0.019]	[0.017]	[0.036]	[0.019]	[0.038]	[0.020]
(v)JB_FIXROUTINE	-0.093***	-0.097**	-0.092***	-0.122***	-0.105***	-0.128***	-0.128***	-0.149***
	[0.019]	[0.040]	[0.021]	[0.018]	[0.038]	[0.020]	[0.039]	[0.021]
(v)JB_TASKCHOICE	-0.022	-0.073*	-0.008	-0.049**	-0.085**	-0.043*	-0.097**	-0.061***
	[0.020]	[0.044]	[0.023]	[0.019]	[0.042]	[0.022]	[0.043]	[0.023]
(v)HIGHSPEED	-0.153***	-0.189***	-0.142***	-0.129***	-0.182***	-0.113***	-0.169***	-0.093***
	[0.019]	[0.042]	[0.022]	[0.019]	[0.041]	[0.021]	[0.043]	[0.023]
(v)MEDIUMSPEED	-0.008	0.097*	-0.033	0.011	0.085*	-0.005	0.087	0.007
	[0.023]	[0.051]	[0.026]	[0.024]	[0.051]	[0.027]	[0.054]	[0.029]
(v)DEADOFTEN	-0.145***	-0.231***	-0.121***	-0.149***	-0.246***	-0.122***	-0.230***	-0.115***
	[0.021]	[0.043]	[0.023]	[0.021]	[0.044]	[0.023]	[0.047]	[0.025]
(v)DEADSOME	-0.022	-0.017	-0.023	-0.008	-0.017	-0.004	0.005	0.023
	[0.021]	[0.044]	[0.024]	[0.021]	[0.045]	[0.024]	[0.049]	[0.026]
(v)RETIRE65	0.133***	0.116*	0.137***	0.137***	0.128**	0.140***	0.125**	0.126***
	[0.029]	[0.061]	[0.033]	[0.028]	[0.060]	[0.032]	[0.063]	[0.034]
(v)RETIRE60	0.238***	0.242***	0.236***	0.240***	0.245***	0.241***	0.266***	0.228***
	[0.022]	[0.048]	[0.025]	[0.022]	[0.048]	[0.025]	[0.051]	[0.026]
(v)RETIRE55	0.152***	0.121**	0.158***	0.148***	0.112**	0.157***	0.118**	0.139***
	[0.022]	[0.047]	[0.025]	[0.022]	[0.048]	[0.025]	[0.051]	[0.027]
(v)LOYALTY	0.133***	0.174***	0.122***	0.138***	0.184***	0.126***	0.183***	0.125***
	[0.015]	[0.031]	[0.017]	[0.015]	[0.032]	[0.017]	[0.035]	[0.019]
TRUNION				-0.065***				
				[0.025]				

Continued in next page

Continued from last page

Mills Lambda							0.117 [0.119]	0.116 [0.080]
Individual Characteristics	-	-	-	+	+	+	+	+
Selection Equation	-	-	-	-	-	+	+	+
Constant	+	+	+	+	+	+	+	+
# Observations	18,716	3,923	14,793	16,631	3,522	13,109	16,862	16,694
# Individuals	3,786	794	2,992	3,362	712	2,650	3,522‡	3,585‡
Within R^2	0.279	0.295	0.277	0.284	0.303	0.282	-	-
Between R^2	0.072	0.07	0.074	0.137	0.209	0.138	-	-
Overall R^2	0.207	0.211	0.208	0.231	0.264	0.231	-	-
ρ	0.354	0.377	0.347	0.23	0.248	0.224	0.142	0.137

Notes:
* p<0.10, ** p<0.05, *** p<0.01
Reference groups are:
‡ Uncensored Observations
Individual Characteristics: LMWAGE, LHOURS, MALE, MARRIED, LCHILDLT16, LEXPERIENCE, LTENURE, TRUNION, TRAINING, LFRETIRE, RETIRE<65, Dummies for: Education (4); Type of Contract (6); Work Schedules (5); Organization of Work (5); Work Intensity (6); Sector (4); Firm Size (5); **Occupation (11)**; Country (4); Constant.
Selection into Union Participation: LMWAGE, LHOURS, MALE, MARRIED, LCHILDLT16, LEXPERIENCE, LTENURE, TRAINING, LFRETIRE, RETIRE<65, Dummies for: Education (4); Type of Contract (6); Work Schedules (5); Organization of Work (5); Work Intensity Variables (6); Sector (4); Firm Size (5); **Industry (14)**; **Past Unemployment**; Country (4); Constant.

Figure A5
Vignette Acceptability Analysis

Source: EPICURUS Data (2004); Conjoint Analysis

	Odds Ratios						**Marginal Effects**				
	Conditional Logit			McFadden's Choice Model			Logit with Random Effects and Individual Characteristics			Heckman Probit with Selection	
Acceptability	***Pooled***	***Union***	***NonUnion***	***Pooled***	***Union***	***NonUnion***	***Pooled***	***Union***	***Non-Union***	***Union***	***Non-Union***
(v)CT_PNORISK	2.942***	2.364***	3.117***	3.828***	2.481***	4.289***	0.260***	0.220***	0.269***	0.162*	0.212***
	[0.389]	[0.721]	[0.460]	[0.580]	[0.857]	[0.730]	[0.028]	[0.059]	[0.031]	[0.094]	[0.027]
(v)CT_PRISK	1.849***	1.991**	1.838***	2.048***	1.897*	2.111***	0.159***	0.207***	0.145***	0.158*	0.120***
	[0.259]	[0.642]	[0.287]	[0.323]	[0.695]	[0.372]	[0.029]	[0.065]	[0.032]	[0.091]	[0.025]
(v)CT_PHIGHRISK	1.339**	0.91	1.454**	1.410*	0.84	1.601**	0.056**	0.013	0.066**	0.006	0.054**
	[0.192]	[0.303]	[0.232]	[0.253]	[0.353]	[0.320]	[0.024]	[0.045]	[0.028]	[0.043]	[0.024]
(v)CT_TPERM	1.901***	2.180**	1.880***	2.213***	2.315**	2.236***	0.165***	0.177***	0.159***	0.140	0.136***
	[0.284]	[0.739]	[0.315]	[0.376]	[0.897]	[0.427]	[0.027]	[0.058]	[0.031]	[0.086]	[0.026]
(v)CT_TTEMP	2.200***	1.954**	2.285***	2.199***	1.962**	2.286***	0.155***	0.105**	0.166***	0.076	0.126***
	[0.290]	[0.577]	[0.338]	[0.326]	[0.638]	[0.383]	[0.025]	[0.049]	[0.029]	[0.055]	[0.021]
(v)LHOURS	1.2e+10***	2.6e+11***	5.4e+09***	2.0e+11***	2.1e+13***	6.0e+10***	3.877***	3.756***	3.811***	3.723*	3.603***
	[3.7e+10]	[1.8e+12]	[1.8e+10]	[6.8e+11]	[1.6e+14]	[2.3e+11]	[0.403]	[0.801]	[0.463]	[2.037]	[0.522]
(v)LHOURSQ	0.032***	0.020***	0.036***	0.021***	0.011***	0.026***	-0.577***	-0.557***	-0.568***	-0.551*	-0.538***
	[0.014]	[0.020]	[0.017]	[0.010]	[0.012]	[0.014]	[0.058]	[0.115]	[0.067]	[0.300]	[0.076]
(v)WAGE	25.112***	22.008***	26.407***	26.643***	22.801***	28.332***	0.576***	0.490***	0.600***	0.478*	0.561***
	[2.323]	[4.561]	[2.752]	[2.828]	[5.337]	[3.408]	[0.016]	[0.031]	[0.018]	[0.245]	[0.045]
(v)WK_FLEXIBLE	1.320***	1.087	1.386***	1.264*	0.975	1.375**	0.101***	0.070*	0.112***	0.066	0.101***
	[0.141]	[0.271]	[0.165]	[0.162]	[0.277]	[0.200]	[0.019]	[0.037]	[0.021]	[0.048]	[0.018]
(v)WK_OFFICE	1.241**	0.978	1.308**	1.181	0.898	1.271*	0.075***	0.031	0.089***	0.036	0.083***
	[0.122]	[0.224]	[0.143]	[0.130]	[0.227]	[0.157]	[0.016]	[0.031]	[0.019]	[0.035]	[0.017]
(v)WK_ROTATE	0.738***	0.714	0.741***	0.625***	0.551**	0.648***	-0.017	-0.033	-0.011	-0.027	-0.002
	[0.068]	[0.154]	[0.076]	[0.068]	[0.139]	[0.078]	[0.014]	[0.027]	[0.016]	[0.031]	[0.015]

Continued in next page

Continued from last page

(v)TRAIN_30-90	1.435***	1.105	1.532***	1.547***	1.19	1.664***	0.022*	-0.024	0.035**	-0.028	0.021
	[0.124]	[0.220]	[0.148]	[0.153]	[0.262]	[0.186]	[0.013]	[0.024]	[0.015]	[0.028]	[0.014]
(v)TRAIN_5-10	1.526***	1.458**	1.533***	1.643***	1.520*	1.661***	0.038***	0.006	0.042***	-0.001	0.030**
	[0.129]	[0.280]	[0.145]	[0.170]	[0.352]	[0.194]	[0.012]	[0.023]	[0.014]	[0.022]	[0.013]
(v)ORG_ALONE	1.586***	1.729***	1.570***	1.598***	1.677***	1.598***	0.059***	0.054**	0.062***	0.034	0.047***
	[0.114]	[0.294]	[0.126]	[0.129]	[0.317]	[0.144]	[0.012]	[0.025]	[0.014]	[0.028]	[0.012]
(v)ORG_VARYING	1.436***	1.453**	1.439***	1.469***	1.322	1.523***	0.042***	0.062**	0.037***	0.049	0.033***
	[0.112]	[0.261]	[0.125]	[0.131]	[0.264]	[0.154]	[0.012]	[0.025]	[0.014]	[0.033]	[0.013]
(v)JB_FIXROUTINE	0.835**	0.724*	0.861*	0.898	0.805	0.918	-0.061***	-0.048**	-0.067***	-0.051	-0.076***
	[0.066]	[0.132]	[0.077]	[0.080]	[0.162]	[0.092]	[0.011]	[0.022]	[0.012]	[0.034]	[0.013]
(v)JB_TASKCHOICE	0.92	0.625**	0.997	0.926	0.689	0.983	-0.029**	-0.048**	-0.026**	-0.049	-0.033**
	[0.076]	[0.123]	[0.091]	[0.094]	[0.163]	[0.112]	[0.011]	[0.023]	[0.013]	[0.035]	[0.013]
(v)HIGHSPEED	0.613***	0.546***	0.633***	0.824*	0.662*	0.87	-0.074***	-0.094***	-0.065***	-0.091*	-0.054***
	[0.050]	[0.105]	[0.058]	[0.084]	[0.158]	[0.099]	[0.011]	[0.021]	[0.013]	[0.055]	[0.014]
(v)MEDIUMSPEED	1.309***	2.016***	1.196*	1.244**	1.899***	1.128	0.050***	0.065*	0.047***	0.053	0.048***
	[0.119]	[0.432]	[0.121]	[0.127]	[0.443]	[0.129]	[0.016]	[0.034]	[0.018]	[0.041]	[0.017]
(v)DEADOFTEN	0.594***	0.410***	0.636***	0.627***	0.434***	0.670***	-0.051***	-0.104***	-0.034**	-0.095	-0.017
	[0.055]	[0.090]	[0.065]	[0.064]	[0.102]	[0.076]	[0.012]	[0.020]	[0.015]	[0.058]	[0.014]
(v)DEADSOME	0.983	0.947	0.979	1.205*	0.959	1.261**	0.001	0.006	0.002	0.011	0.006
	[0.086]	[0.187]	[0.096]	[0.121]	[0.216]	[0.143]	[0.014]	[0.027]	[0.016]	[0.028]	[0.014]
(v)RETIRE65	1.479***	1.605	1.440**	1.436**	1.829*	1.337*	0.059***	0.052	0.061**	0.041	0.052**
	[0.193]	[0.494]	[0.208]	[0.212]	[0.639]	[0.220]	[0.022]	[0.044]	[0.025]	[0.042]	[0.021]
(v)RETIRE60	2.460***	2.864***	2.365***	2.279***	2.610***	2.193***	0.139***	0.150***	0.139***	0.130*	0.114***
	[0.222]	[0.610]	[0.237]	[0.242]	[0.657]	[0.259]	[0.017]	[0.037]	[0.019]	[0.071]	[0.018]
(v)RETIRE55	2.151***	2.673***	2.015***	2.028***	2.525***	1.898***	0.108***	0.111***	0.107***	0.091*	0.090***
	[0.195]	[0.555]	[0.205]	[0.210]	[0.602]	[0.221]	[0.017]	[0.035]	[0.019]	[0.053]	[0.017]
(v)LOYALTY	1.480***	1.748***	1.450***	1.605***	1.732***	1.601***	0.059***	0.086***	0.052***	0.083*	0.045***
	[0.094]	[0.264]	[0.102]	[0.113]	[0.287]	[0.126]	[0.010]	[0.020]	[0.011]	[0.048]	[0.011]
TRUNION							-0.013				
							[0.013]				
Individual Characteristics	-	-	-	-	-	-	+	+	+	+	+
Selection	-	-	-	-	-	-	-	-	-	+	+
N	12,269	2,438	9,831	10,345	2,115	8,230	15,124	3,214	11,910	16,438	15,344
N_clust	2,623	520	2,103	2,069	423	1,646	3,330	704	2,626	3,346	3,309
Log-Likelihood	-3129.6	-604.7	-2508.7	-2619.3	-521.6	-2082.2	-7223.2	-1448.3	-5718.4	-8101	-12649
chi2	3,399.9***	699.8***	2,732.5***	1,643.2***	339.7***	1,305.0***	2,238.7***	492.3***	1,778.5***	692.8***	2,108.4***

Notes:
* p<0.10, ** p<0.05, *** p<0.01
Notes in Table A4 hold.

Figure A6
Variable Definitions and Key Summary Statistics

Variable	Definition	Mean	(St. D.)
TRUNION	Dummy variable (DV) equal to 1 if respondent is a member of a trade union, 0 if not	21.0%	(0.41)
FRANCE	DV=1 if respondent is an employed sample member in France, 0 if not	26.41%	(0.44)
GREECE	DV=1 if respondent is an employed sample member in Greece, 0 if not	20.96%	(0.41)
NETHERLANDS	DV=1 if respondent is an employed sample member in the Netherlands, 0 if not	26.38%	(0.44)
UNITEDKINGDOM	DV=1 if respondent is an employed sample member in the United Kingdom, 0 if not	26.25%	(0.44)
JOBSAT	All things considered, how satisfied or dissatisfied are you with your present main job, using a 0-10 scale?	6.78	(2.09)
JOBSAT_COLS	Job satisfaction measure, transformed into a cardinal variable	0.54	(0.72)
QUIT	DV=1 if respondent replies "I will quit myself" in the question "What would be your main reason to stop working with your current employer in your main job?"	34.6%	(0.48)
MNWAGE	Monthly Wage after taxes from main job, divided by the PPP conversion factor to official exchange rate ratio (World Development Indicators).	1590.0	(1404.7)
LMNWAGE	Logarithm of Monthly Net Wage (PPP-converted)	7.22	(0.55)
HOURS	How many hours are you formally obliged to work during a working week as part of your contract of employment in your main job?	35.00	(8.88)
LHOURS	Logarithm of contractual hours of work in main job	3.51	(0.32)
PEERS _MORE	DV=1 if respondent replies "I earn somewhat more than other workers who have a similar type of work" or "I earn much more than other workers who have a similar type of work" in the question: "All things considered, which of these statements do you feel best describes your present pay?	17.5%	(0.38)
PEERS _LESS	DV=1 if respondent replies "I earn much less than other workers who have a similar type of work" or "I earn somewhat less than other workers who have a similar type of work" in the above question.	30.9%	(0.46)
PEERS _SAME	DV=1 if respondent replies "I earn about the same as other workers who have a similar type of work" in the above question	51.6%	(0.50)
PAST_MORE	DV=1 if respondent replies "Much more than last year (more than 10%)" or "Somewhat more than last year (about 10% more)" in the question: "If you compare your earnings from your main job, of this year with your main job earnings a year back: Are your present earnings ..."	28.4%	(0.45)
PAST _LESS	DV=1 if respondent replies "Somewhat less than last year (about 10% less)" or "Much less than last year (more than 10% less)" in the above question.	12.9%	(0.33)
PAST _SAME	DV=1 if respondent replies "About the same as last year" in the above question	58.7%	(0.49)
PRNOEDUC	DV=1 if highest education qualification obtained is: "No Education", "Pre-Primary", or "Primary Education"	14.3%	(0.35)
LSECEDUC	DV=1 if highest education qualification obtained is: "Lower Secondary Education"	13.3%	(0.34)
HSECEDUC	DV=1 if highest education qualification obtained is: "Upper Secondary Education"	37.5%	(0.48)
PSECEDUC	DV=1 if highest education qualification obtained is: "Post Secondary Non-Technical Education"	34.9%	(0.48)
MARRIED	DV=1 if respondent is married, 0 if not.	50.1%	(0.50)
LTENURE	Log of number of years since stated working with current employer/firm	1.77	(1.02)
LEXPERIENCE	Log of number of years since getting the first job after leaving school/full-time education	2.74	(0.77)
LCHILDLT16	Log of number of children aged less than 16	0.37	(0.49)
MALE	DV=1 if respondent is male, 0 if female	48.8%	(0.50)
AGE	Age in years	37.59	(10.74)
TENURE	Number of years since stated working with current employer/firm	9.34	(8.73)
EXPERIENCE	Number of years since getting the first job after leaving school/full-time education	19.53	(11.51)
TENURE 1_2	DV=1 if respondent has been employed with current firm for less than 2 years	22.2%	(0.42)
TENURE 3_5	DV=1 if respondent has been employed with current firm between 2 and 5 years	25.8%	(0.44)
TENURE 5_10	DV=1 if respondent has been employed with current firm between 5 and 10 years	20.0%	(0.40)
TENURE _mt10	DV=1 if respondent has been employed with current firm for more than 10 years	32.1%	(0.47)
TRAINING	DV=1 if current employer has provided any training during the last 12 months	36.8%	(0.48)
PERMANENT	DV=1 if respondent has a permanent contract (with no fixed ending time) in main job	84.8%	(0.36)
CT_PNORISK	DV=1 if respondent has a permanent contract with no risk of loosing job	58.8%	(0.49)
CT _PRISK	DV=1 if respondent has a permanent contract with risk of loosing job, but compensated	17.5%	(0.38)
CT _PHIGHRISK	DV=1 if respondent has a permanent contract with risk of loosing job, not compensated	8.5%	(0.28)
CT_TTERM	DV=1 if respondent has a temporary contract with possibility of continuation to a permanent one	2.4%	(0.15)
CT_TTEMP	DV=1 if respondent has a temporary contract with possibility of continuation to another temporary contract	4.1%	(0.20)
CT_TFIRED	DV=1 if respondent has a temporary contract with no possibility of continuation	1.8%	(0.13)
PRIVATE	DV=1 if respondent is: Employed by a private company	60.6%	(0.49)
N ONPROFIT	DV=1 if respondent is: Employed by a non-profit institution	8.3%	(0.28)
CIVIL	DV=1 if respondent is: A civil servant	17.9%	(0.38)
PUBLIC	DV=1 if respondent is: Employed in a public company	13.2%	(0.34)
FIRM1_10	DV=1 if respondent is employed in a firm employing: Less than 10 employees	21.6%	(0.41)
FIRM 10_24	DV=1 if respondent is employed in a firm employing: 10-24 employees	14.2%	(0.35)
FIRM 25_99	DV=1 if respondent is employed in a firm employing: 25-99 employees	20.9%	(0.41)
FIRM 100_499	DV=1 if respondent is employed in a firm employing: 100-499 employees	20.5%	(0.40)
FIRM _mt500	DV=1 if respondent is employed in a firm employing: More than 500 employees	22.9%	(0.42)

MINEQUARRY	DV=1 if industry of is “Mining and quarrying”	0.1%	(0.02)
UTILITIES	DV=1 if industry is “Electricity, gas and water supply”	1.4%	(0.12)
MANUFACTURING	DV=1 if industry is “Manufacturing industries”	7.2%	(0.26)
CONSTRUCTION	DV=1 if industry is “Construction”	5.2%	(0.22)
TRADE	DV=1 if industry is “Wholesale and retail trade; repair of motor vehicles and other consumer goods”	13.9%	(0.35)
SERVICES	DV=1 if sector of activity is:“Hotels and restaurants”	4.1%	(0.20)
TRANSCOM	DV=1 if sector of activity is:“Transport, storage and communications”	7.5%	(0.26)
FINANCIAL	DV=1 if sector of activity is:“Financial intermediation”	4.3%	(0.20)
REALBUSINESS	DV=1 if sector of activity is:“Real estate, renting and business activities”	1.5%	(0.12)
OTHERSERV	DV=1 if sector of activity is:“Other services”	11.2%	(0.32)
PUBADMINDEF	DV=1 if sector of activity is:“Public administration and defence”	9.1%	(0.29)
EDUCATION	DV=1 if sector of activity is:“Education”	4.0%	(0.20)
HEALTHSOCIAL	DV=1 if sector of activity is:“Health and social work”	9.9%	(0.30)
SOCPERSONAL	DV=1 if sector of activity is:“Other community, social and personal service activities”	4.2%	(0.20)
PRIVATHH	DV=1 if sector of activity is:“Private households with employed persons”	0.8%	(0.09)
MULTINATIONAL	DV=1 if sector of activity is:“Extra-territorial organizations and bodies”	0.7%	(0.09)
OTHER	DV=1 if sector of activity is:“Other activities”	14.9%	(0.36)
MANAGER	DV=1 if occupation is: “Managers in private and public sector (e.g. chief executives)”	2.9%	(0.17)
PROFESSIONAL	DV=1 if occupation is: “Professional occupations (e.g. architects, teaching professionals and doctors)”	2.1%	(0.14)
TECHASSOC	DV=1 if occupation is: “Technical occupations & associate professional (e.g. ship and aircraft controllers, nursing professionals)”	10.8%	(0.31)
CLERICAL	DV=1 if occupation is: “Clerical & secretarial occupations (e.g. library clerks, cashiers and tellers)”	25.1%	(0.43)
CRAFT	DV=1 if occupation is: “Craft and related trades workers (e.g. painters, construction workers, and printing workers)”	3.4%	(0.18)
PERSPROTECT	DV=1 if occupation is: “Personal & protective service occupations (e.g. travel attendants, personal care)”	4.3%	(0.20)
LABOURINGMCMT	DV=1 if occupation is: “Labouring in mining, construction, manufacturing and transport (e.g. freight handlers)”	4.9%	(0.21)
SALESERVIC	DV=1 if occupation is: “Sales and services occupations (sales and services, building caretakers, window cleaners, messengers, porters, doorkeepers and garbage collectors)”	15.8%	(0.37)
PLANTMACHINE	DV=1 if occupation is: “Plant and machine operators and assemblers (e.g. mining, mineral and metal, glass, wood, chemical plant operators and machine operators, assemblers, drivers and mobile plant operators, motor and ship-deck crew)”	3.6%	(0.19)
ARMED	DV=1 if occupation is: “Armed forces”	2.1%	(0.14)
OTHER	DV=1 if occupation is: “Other occupations”	25.0%	(0.43)
MACHINE	DV=1 if a machine or assembly line is “very important” or “important” in the effort respondent puts in his/her job	20.1%	(0.40)
INTENSITY_INDEX	Index created as an average of the intensity of the following factors making one’s job hard and initially valued on a scale from 1 to 5: (1) “High Speed or High Rhythm”; (2) “Tight Deadlines”; (3) “Relationship with the Boss or Supervisor”; (4) “Colleagues or co-workers”.	53.2%	(0.20)
IDEAS	DV=1 if respondent replies he/she can put own ideas into practice into work	50.7%	(0.50)
PUNEMPLOYED	DV=1 if respondent spent any weeks unemployed during last year	10.79%	(0.31)
LPUNEMPLOYED	Log of number of weeks in unemployment during last year	0.25	(0.81)
WK_SAME	DV=1 if working time in main job is: “The same every day”	54.1%	(0.50)
WK_SHIFTS	DV=1 if working time in main job is: “Changing with rotating shifts”	14.8%	(0.36)
WK_EMPLOYEE	DV=1 if working time in main job is: “Variable day to day, chosen by the employer”	10.8%	(0.31)
WK_BOTH	DV=1 if working time in main job is: “Variable day to day, chosen by the employee”	11.7%	(0.32)
WK_EMPLOYER	DV=1 if working time in main job is: “Variable day to day, chosen by both employer and employee”	8.2%	(0.27)
ORG_ALONE	DV=1 if work organization involves: “Working Always with the Same People”	17.8%	(0.38)
ORG_VARYING	DV=1 if work organization involves: “Working with Teams, that are Changing”	16.3%	(0.37)
ORG_TEAM	DV=1 if work organization involves: “Woking mostly on my own”	65.8%	(0.47)
FIXED_ROUTINE	DV=1 if job described as: ”Having a Completely Fixed Routine”	30.7%	(0.46)
TASK_CHOICE	DV=1 if job described as: “Involving a Variety of Duties, on which the respondent is responsible and can choose when to do what”	60.9%	(0.49)
OWN_CONTROL	DV=1 if job described as: “No One Controls my Work”	6.7%	(0.25)
HIGH_SPEED	DV=1 if “High Speed” is valued by 4 or 5, on a scale from 1 to 5, among the factors making job hard	36.1%	(0.48)
MEDIUM_SPEED	DV=1 if “High Speed” is valued by 2 or 3, on the same scale	37.8%	(0.48)
LOW_SPEED	DV=1 if “High Speed” is valued by 1, on the same scale	26.2%	(0.44)
DEAD_OFTEN	DV=1 if “Tight Deadlines” is valued by 4 or 5, on the same scale	41.5%	(0.49)
DEAD_SOME	DV=1 if “High Speed” is valued by 2 or 3, on the same scale	36.3%	(0.48)
DEAD_NEVER	DV=1 if “High Speed” is valued by 1, on the same scale	22.2%	(0.42)
LFRETIRE	Logarithm of formal age of retirement in one’s job	4.15	(0.06)
RETIRELT65	DV=1 if formal age of retirement in the job is less than 65	39.5%	(0.49)