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JOB DISAMENITIES, JOB SATISFACTION, AND ON-THE-JOB SEARCH: IS THERE A NEXUS?*

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ABSTRACT

This study explores the potential role of adverse working conditions at the workplace in the determination of on-the-job search in the Finnish labour market. The results reveal that workers currently facing adverse working conditions have greater intentions to switch jobs and they are also more willing to stop working completely. In addition, those workers search new matches more frequently. There is evidence that adverse working conditions consistently increase the level of job dissatisfaction and, in turn, it is job dissatisfaction that drives workers' intentions to quit and intensifies actual job search.

JEL Codes: J28, J31, J64

Key words: working conditions, job satisfaction, on-the-job search, intentions to quit

TIIVISTELMÄ

Tutkimuksessa tarkastellaan epämukavien työolojen vaikutusta työllisten työnetsintään suomalaisilla työmarkkinoilla. Tulosten mukaan epämukavissa työolosuhteissa työskentelevillä on enemmän työpaikan vaihtoaikeita ja he ovat myös halukkaampia lopettamaan kokonaan työnteon. Lisäksi he etsivät aktiivisemmin korvaavaa työpaikkaa. Tulokset tukevat näkemystä, jonka mukaan epämukavat työolot pahentavat työtyytymättömyyttä ja nimenomaan työtyytymättömyys lisää työpaikan vaihtoaikeita ja korvaavan työpaikan etsintää.

1. INTRODUCTION

In a standard competitive labour market equilibrium there is no particular incentive for job separations to occur, since the workers could not improve their labour market position by conducting a switch to another firm from their current matches. In contrast to this conjecture, there is a great deal of micro-level evidence on the dynamics of labour markets that points out that market economies are in a state of continuous turbulence (e.g. Davis and Haltiwanger, 1999; Farber, 1999). Flows of workers between jobs and between labour market states are large by any reasonable standards.

Search theory and empirical search models typically concentrate on the role of a wage in explaining job changes. Another potential reason for the existence of on-the-job search is adverse working conditions, which are without doubt a very important attribute of a job match. If a wage does not sufficiently compensate for adverse working conditions, employees can increase their utility by switching jobs from their current ones. Although non-wage job characteristics can be included in search models (e.g. Blau, 1991; Hwang, Mortensen, and Reed, 1998; Lang and Majumdar, 2004), this possibility has attracted more attention in the empirical work that is less directly tied to search models.

Extensive analysis of turnover has been made in human resource management (HRM) and personnel psychology, where attention centers on the personnel policies and job attitudes of the employees. There is also, however, an increasing interest in economics to incorporate information on working conditions and worker attitudes to the analysis of turnover. This study contributes to the literature by investigating the interactions between adverse working conditions, job satisfaction, and workers' intentions to quit.

There are empirical studies that have analyzed directly how individual characteristics and working conditions or job attributes affect employees' probability of quitting or job duration. Adverse working conditions have been found to increase quits. In most of these studies the data on working conditions are not from individual employees' workplaces, but rely on, for example, industry injury rates or work attributes typical of different occupations (e.g. Viscusi, 1979; Bartel, 1982; Herzog and Schottman, 1990; Gronberg and Reed, 1994). However, in some studies workplace-specific attributes are used. For example, Manning (2003) uses information on night shifts to explain job duration.

Another strand of the literature explains quits or job durations directly by means of job satisfaction scores, the employee's characteristics, and firm characteristics, but without

information on job attributes (e.g. Flanagan, Strauss, and Ulman, 1974; Freeman, 1978; Clark, Yannis, and Sanfey, 1998; Ward and Sloane, 2000; Clark, 2001; Lévy-Garboua, Montmarquette, and Simonnett, 2001; Kristensen and Westergård-Nielsen, 2004).[1] These studies generally discover that dissatisfied workers are more likely to quit their current matches. In other words, the self-reported level of job satisfaction is a good predictor for job mobility beyond the effect of wages. Working the other way, Akerlof, Rose and Yellen (1988) show that job changes lead to an increase in job satisfaction and Altonji and Paxson (1988) present evidence that job mobility leads to more satisfactory working hours.

This has also been the approach in the HRM literature, where the relationships of job satisfaction, organizational commitment and withdrawal cognitions to turnover have been analyzed (e.g. Cotton and Tuttle, 1986; Tett and Meyer, 1993; Griffeth, Hom, and Gaertner, 2000), using a variety of characteristics of the employees and firms. Variables that describe working conditions have been included in some of these studies.

Psychological studies show that the intentions of individuals are good predictors of their actual behaviour (e.g. Tett and Meyer, 1993). Accordingly, Kristensen and Westergård-Nielsen (2004) report that job search, which is an extreme form of intentions to quit, is a good predictor of actual quits. Instead of actual separations, the impact of working conditions and/or job satisfaction on quit intentions or job search has also been examined some studies in labour economics (van Ophem, 1991; Shields and Price, 2002; Sousa-Poza and Henneberger, 2002; García-Serrano, 2004). The relationship between job satisfaction and turnover intentions has also been analyzed from the psychological perspective (e.g. Hellman, 1997).

Our purpose is to study workers' intentions to quit using Finnish data. The Finnish case is interesting in this respect, because the binding collective labour agreements already contain some pecuniary compensation for adverse working conditions. In principle, one could therefore think that working conditions may not matter a lot for on-the-job search. However, the apparent heterogeneity of workplaces makes it hard for the collective labour agreements to take into account all the relevant aspects of working conditions. Thus, workers' subjective valuations about their working conditions can differ greatly from the ones that have been stipulated in the collective agreements by the central organizations of

[1] Johansson (2004) reports by using the ECHP (European Community Household Panel) over the period 1996-2001 that job dissatisfaction predicts quits in Finland.

employees and employers. Our earlier empirical evidence points out that perceived working conditions have a very minor role in the determination of individual wages in the Finnish labour market (Böckerman and Ilmakunnas, 2004). In contrast, adverse working conditions substantially increase the level of job dissatisfaction and the perception of unfairness of pay at workplaces. It is therefore interesting to study whether this dissatisfaction gives rise to the desire to find another job.

Our study differs from the earlier ones in this field of research in some important respects. We have a data set, the Quality of Work Life Survey, that includes not only job satisfaction scores, but also detailed information on several different aspects of working conditions at the workplace, not just conditions typical of the occupation or industry. A drawback of the data set is that it is a single cross-section and therefore actual separations cannot be observed. On the other hand, there is a variety of information on both perceived job switch intentions and actual job search, so that different measures of quit intentions can be compared.

The data make it possible to model the relationships between working conditions, satisfaction, and on-the-job search. In the first model, we explain alternative binary indicators of quit intentions by individual characteristics, firm characteristics, and working conditions. In the second, extended model, we explain binary indicators of adverse working conditions by various industry, occupation, and firm variables. A binary indicator of job dissatisfaction is then explained by these working conditions and the employees' personal characteristics. Finally, intentions to quit are explained by job dissatisfaction, wage, and some other personal characteristics. This model forms a system of probit models that have endogenous dummy explanatory variables. Since the system is recursive, it can be estimated as a multivariate probit model. This approach is similar to that used by Shields and Price (2002), but they used only one indicator of working conditions, racial harassment.

The rest of the study is structured as follows. Section 2 describes the modelling approaches. Section 3 provides an overview of the data and Section 4 reports the estimation results. Section 5 concludes.

2. MODELLING APPROACHES

2.1. Explaining intentions to quit with job disamenities

We start with models where we explain a binary indicator of intentions to quit directly by means of working conditions. We have several alternative measures for the intentions, which are explained in the next section. As explanatory variables we have dummy variables that describe various aspects of disamenities and various individual and workplace characteristics. The latent intention and its observation rule are

$$qi^* = Zi\gamma + Xi\beta + \varepsilon i$$

$$qi = 1(qi^*>0)$$

where **1** is an indicator function.[2] Z includes job disamenities and X other variables and i indexes the employees. The error term ε is assumed to be normally distributed, and we use the probit model.

The choice of variables to be included in X is partly determined by arguments from the large literature on job search in the labour market (e.g. Eckstein and Van den Berg, 2003). While much of the work deals with search when unemployed, there have been empirical analyses on-the-job search by Blau (1992), Pissarides and Wadsworth (1994), and Manning (2003), among others.

Wage and tenure are the variables that have been given most attention in the literature. Search theory gives a prediction that a wage should have a negative impact on separations and on-the-job search, since a high current wage means that the worker is unlikely to find an offer with a higher wage. The models also typically predict that the probability of quitting decreases with tenure. The reason for this is that longer current tenure is consistent with a longer implicit search process that has not yet led to a switch from the current match. This increases the overall probability that the current match between a worker and a firm is among the best available in the labour market.

There are other important variables that have a potential influence on on-the-job search. Empirical studies have demonstrated that there are workers' characteristics such as age,

[2] In a choice model we could think that the latent quit intention was the difference of random utilities in another job and the present job. However, since we have data only on the attributes of the current job, it is difficult to justify the model with a random utility framework.

sex, marital status, and education that are important determinants of on-the-job search. In addition, past job changes have been found to predict future separations (Munasinghe and Sigman, 2004). Controlling for past labour market behaviour may also help in obtaining a coefficient for tenure that is not affected by worker heterogeneity in the propensity to quit.

In addition to the individual employees' characteristics, we also include, among variables X, various characteristics of the workplace, like indicators of high performance work practices, plant size, industry, and the regional unemployment rate. A complete list of the variables is explained in detail in Section 3.

2.2. Interaction of disamenities, dissatisfaction and intentions to quit

The second model is formed in three steps. In the first step we explain K separate discrete measures of disamenities z_j by variables X_1. The latent disamenities z_j* and their observation rule are

$$z_{ji}^* = X_{1i}\beta_{1j} + \varepsilon_{1ji}, \quad j=1,\ldots,K$$

$$z_{ji} = \mathbf{1}(z_{ji}^*>0)$$

In the second stage, dissatisfaction is explained by the realized disamenies z_j and variables X_2:

$$d_i^* = \Sigma_j\gamma_j z_{ji} + X_{2i}\beta_2 + \varepsilon_{2i}$$

$$d_i = \mathbf{1}(d_i^*>0)$$

where d* is latent dissatisfaction and d a binary measure of observed dissatisfaction. In the final stage, intentions to quit are explained by means of realized job dissatisfaction d and variables X_3:

$$q_i^* = \delta d_i + X_{3i}\beta_3 + \varepsilon_{3i}$$

$$q_i = \mathbf{1}(q_i^*>0)$$

where q* is latent intention and q a binary indicator for observed intentions to quit.

It is assumed that in all stages there are unobserved individual characteristics and therefore the error terms of the different stages are correlated. The unobserved individual

characteristics can, for example, be attitudinal factors stressed in the psychological literature on mobility and individual characteristics that affect occupational choice. The K+2 equations form a system of discrete dependent variable models with endogenous dummy explanatory variables. However, the system is recursive, i.e. intentions to quit do not explain disamenities or satisfaction, and satisfaction does not explain disamenities. Therefore, the model can be estimated as a multivariate probit model (see Greene, 2003). We use the Geweke-Hajivassiliou-Keane (GHK) simulated maximum likelihood estimator implemented to Stata by Cappelari and Jenkins (2003).

To identify the model it is necessary that the variables X1, X2, and X3 are not the same. In X1 we include occupation and industry dummies that do not appear in the other equations, and some characteristics of the workplace, like plant size, which may also appear in the other equations. In X2 we include personal characteristics and some workplace characteristics. Finally, X3 comprises wages and variables that are related to the individual, but not included in X2, like the past history of job changes. The last equation therefore gives, in principle, the wage-satisfaction trade-off. The choice of the particular variables partly follows the discussion in section 2.1. above.

3. THE DATA

The data set that we are using in this study is the Quality of Work Life Survey (QWLS) of Statistics Finland. It is conducted at irregular intervals. We use the data from the year 1997. The initial sample for QWLS is derived from a monthly Labour Force Survey (LFS) of Statistics Finland, where a random sample of the working age population is selected for a telephone interview. The 1997 QWLS was based on LFS respondents in September and October who were 15-64-old wage and salary earners with a normal weekly working time of at least five hours. 3795 individuals were selected for the QWLS sample and invited to participate in a personal face-to-face interview. Out of this sample, 2978 persons, or around 78 per cent, participated (see Lehto and Sutela, 1999). Owing to missing information on some variables for some workers, the sample size used in this study is around 2750 observations.

The QWLS survey contains a number of questions about the subjective views of workers with respect to their working conditions, as well as about the perceived job satisfaction. In addition, QWLS includes information on the personal characteristics and work experience

of the respondents. Statistics Finland supplements QWLS with information from the LFS on, for example, working time and exact labour market status. Supplementary information on the industry and location of the employer as well as annual earnings and the level and field of education of the respondents was gathered from various registers maintained by Statistics Finland. The variables that we are using are described in detail in Appendix 1, and Appendix 2 reports descriptive statistics for the explanatory variables included.

The phenomena that we are interested in explaining are workers' intentions to quit and on-the-job search. We have information on those who would change jobs within the same occupational field, if they could receive the same pay as now (23.5 per cent of employees), and on those who would switch to another occupational field (24.9 per cent). From these measures we can derive an indicator of intentions to quit, JOBSWITCH, which is the sum of the two sub-cases (48.4 per cent). Our second measure of quit intentions relates to a hypothetical situation where the respondents received so much money from, for example, a lottery or an inheritance that they could live without having to work. LOTTOSTOP is an indicator for those who would in this situation stop working completely (18.8 per cent of employees). The other alternatives were to only do some work every now and then, to work considerably shorter hours, and to continue working as now.3

As to actual job search behaviour, we have three measures. JOBSEARCH is a dummy variable that indicates that the employee has looked for another job at some stage during the last six months (15.1 per cent of the employees).[4] SEARCH4 is a dummy for employees that have searched for a job during the last four weeks (6.3 per cent of employees). EMPLOFFICE is a dummy for being a registered job seeker in an employment office (6.8 per cent). There are some inconsistencies between the measures that capture actual job search. For example, among those that report having looked for another job in the last four weeks 14.8 per cent say that they have not looked for another job in the last six months. There are two explanations for this. It is possible that some

[3] We note that there are also some other possible job switch intention measures, like retirement intentions and aspirations to become an entrepreneur. Hyytinen and Ilmakunnas (2004) examine the determinants of entrepreneurial intentions using the QWLS data and find that job dissatisfaction increases entrepreneurial aspirations.

[4] In the job search and job switch intention questions missing observations have been interpreted to indicate that the respondent has not looked for a job or has no intentions to quit. Depending on the question, there were 4 – 16 such cases (0.1 – 0.5 per cent of observations). In the question of willingness to switch to the same or a different field, the answer "don't know" was also interpreted as indicating that there were no intentions to quit. There were 65 such cases (2 per cent of the observations). In the "lottery" question there were 1 per cent of "don't know" answers that were interpreted as "would not stop working".

respondents have thought that six months is "the last six months, not accounting for the last four weeks". Another explanation is that the JOBSEARCH variable comes from the QWLS questionnaire filled in during a personal interview, whereas the SEARCH4 variable comes from the LFS telephone survey. It is possible that in the different survey environments the respondents have received somewhat different information on the time periods that the questions deal with or have forgotten what they answered in the LFS survey (which is conducted before QWLS). Another inconsistency is that among those registered as job seekers in an employment office 60 per cent have not been looking for another job in the last four weeks and 48 per cent not in the last six months. It is likely that many of those registered as job seekers in an employment office are actually not active job seekers. Therefore it seems that the employment office variable is a less reliable measure of workers' intentions to quit than the job search variables.

These job switch intention and job search intention measures can be compared with actual job switches. Ilmakunnas and Maliranta (2003) report that the separation rate in the Finnish business sector varied between 17 and 28 per cent in the 1990s. These figures underestimate actual turnover, since they are based on comparisons of end-of-the-year situations at the plant level. Hence, they do not account for short employment spells within the year, i.e. hiring and separation of a person during the same year. On the other hand, they include both quits and layoffs, thereby overestimating quits. It is therefore difficult to tell what the actual proportion of workers quitting is, but it is safe to say that the actual quit rate is below the share of workers intending to switch jobs or actually searching for a new job.

The subjective valuations of harms and hazards related to working conditions are measured in the QWLS survey by the use of different categories. For perceived harms, there is a five-point scale in which the highest category corresponds to the perception by a worker that a feature of working conditions is 'very much' an adverse factor at the workplace. For perceived hazards, the highest category among three possibilities is the one in which the respondent considers a feature at the workplace as 'a distinct hazard'. Responses to the questions about adverse working conditions can be aggregated by forming a dummy variable that equals one if there is at least one clearly adverse factor (HARM) and a dummy that equals one if there is at least one distinct hazard (HAZARD). These variables seem to capture different aspects at Finnish workplaces, as implied by the relative small correlation of 0.31 that prevails between these two key variables that are used to describe adverse working conditions.

We use the following dummy variables as other job disamenities. UNCERTAINTY tells us that there is at least one clear insecurity factor at the workplace, NOVOICE implies that there is at least one aspect of work that the worker cannot influence at all, NEGLECT is a dummy for the existence of at least one aspect where the worker gets no support from superiors, ATMOSPHERE tells us that the worker experiences at least one negative aspect in the work atmosphere almost daily, and CONFLICTS is a dummy for at least one type of conflict that is often experienced at the workplace. Additionally, we have dummy variables for physically or mentally very demanding work (HEAVYPHYSIC and HEAVYMENTAL, respectively), poor advancement opportunities (NOPROMOTION), discrimination at the workplace (DISCRIMINATION), difficulty of taking breaks (NOBREAK), and for working mostly outdoors (OUTDOORS).

Job dissatisfaction is measured by the alternatives 1 (very satisfied; 30.6 per cent of respondents), 2 (quite satisfied; 63.1 per cent), 3 (rather dissatisfied; 5.3 per cent), and 4 (very dissatisfied; 1 per cent). We form a dissatisfaction dummy (JOBDISSATISFACTION) that indicates the two highest dissatisfaction categories 3 and 4. The WAGE variable is a logarithm of hourly earnings.

We include a large set of control variables. There are variables that describe the employment relationship, pay system, and high performance work practices. We include dummy variables for working-time-related aspects, like temporary contract (TEMPORARY), part-time work (PART_TIME), night work (NIGHT), shift work (SHIFT), and overtime almost daily (MUCHOVERTIME), and for the payment system (FIXEDPAY, PIECERATE). On-the-job training is measured by the number of days in training (DAYSTRAINING). Other dummies give an indication of working a high share of time in teamwork (HIGHTEAM), team-related problems (TEAMPROBLEM), and managerial tasks (MANAGER).

There are typical human capital variables that are age and its square (AGE and AGE^2), and dummies for females (FEMALE), union membership (UNION), marital status (SINGLE), working spouse (SPOUSEWORK), level of education (dummies EDU_1 to EDU_4), and field of education (dummies EDUHUM, EDUBUS, EDUTECH, EDUCARE). The number of children is included as a continuous variable (CHILDREN). In addition, we include work history variables, a dummy for those that have had over 3 different occupations (OVER3PROFS), the number of job switches (SWITCHES) in the past, the unemployment history of a worker (dummies UMOS_1 to UMOS_4 for the

length of past unemployment), tenure and its square (TENURE and TENURE^2), a dummy for second job holders (SECONDJOB), and dummies for 10 occupation groups.

There is some information available on the health of the worker, the number of absences (SICKABSENCE) and self-assessment of work capacity (CONDITION, in scale 0 to 10). Information on the employer includes dummies for the public sector and foreign private owners (PUBLIC, FIRMFOREIGN), plant size group (dummies PSIZE_1 to PSIZE_4), and dummies for employment growth (EMPGROWTH), unstable financial situation (FIRMUNSTABLE), and the high share of female workers (FEMSHARE). Finally, we include industry dummies (14 industries), and the regional unemployment rate (UN) for capturing the possible regional variation.

4. THE RESULTS

4.1. Basic results

We estimated probit models for workers' intentions to quit from their current matches, their willingness to stop working completely, and actual on-the-job search. The marginal effects from the models are reported in Tables 1 and 2. The results reveal that workers currently facing adverse working conditions tend to have more intentions to change their matches. In particular, those workers are more willing to change their jobs (holding wage constant) who face at least one notable harm or factor of uncertainty, have mentally heavy work, feel that they have no promotion chances or face discrimination (Table 1, column 1).[5] Workers who have at least one notable hazard at the workplace, feel neglect or a bad working atmosphere, have mentally heavy work, or have team-work-related problems are more willing to stop working completely if they win in a lottery (Table 1, column 2). Moreover, the marginal effects are quite large. For example, those having clear harms at the workplace have a 5.7 per cent higher probability of having job switch intentions. Uncertainty, poor promotion prospects, and discrimination all lead to at least an 8 per cent higher probability of intentions to quit.

[5] We also experimented with alternative definitions of the disamenity variables. In our basic definition of perceived harm and hazard dummies the variables are equal to one if the worker reports at least one significant adverse factor at the workplace. A specification of the HARM and HAZARD variables as a sum of reported significant harms and hazards at the workplace also yields evidence that adverse working conditions increase workers' intentions to quit.

In addition, workers currently facing adverse working conditions tend to search new matches more frequently (Table 2, columns 1-2). Uncertainty, poor promotion chances, and discrimination have a clear positive impact on both job search variables. Job search during the last six months is also affected by the feel of neglect and job search during the last four weeks by perceived harms and the difficulty of taking breaks. In contrast, the results for the employment office variable show no clear empirical evidence for the role of adverse working conditions, since only the uncertainty variable obtains a significant coefficient. However, as discussed in the earlier section, this particular variable is probably not a good measure of workers' quit behaviour. The marginal effects of the disamenity variables on actual job search are lower than on job switch intentions, as could be expected. In addition, the pseudo R^2 of the models is higher for the models in which actual on-the-job search is explained. This means that unobservable idiosyncratic factors are more important in the determination of intentions.

All in all, the results are in line with the perspective that labour markets are in disequilibrium at any given point of time in the sense that workers located in adverse working conditions are forced to look for outside opportunities in order to improve their labour market position. This is inconsistent with the existence of adequate compensating wage differentials for adverse working conditions, but consistent with frictions and non-competitive labour markets.

We briefly summarize some interesting results on the control variables included. Against *a priori* beliefs, workers with higher hourly wages have more intentions for changing their jobs, and holding their current wage constant (Table 1, column 1). This result may arise, for example, because there are certain unobservable disamenities in high-paying occupations that are not captured in the questions by the QWLS. However, in the job search equations (Table 2, columns 1-2) wage has a significant negative coefficient.[6]

Singles have more intentions of changing their jobs, because their labour market behaviour is not restricted by family-related reasons. Also, those whose spouses work are more inclined to switch jobs. These variables are also significant in the equation for job search during the last four weeks. More educated workers are less willing to stop working completely (the model for LOTTOSTOP). In this sense, money seems to matter less for them, compared with the content of work. Education has, however, a positive impact on

[6] The wage plays a role in search behaviour in the labour market despite the fact that the Finnish wage distribution is highly compressed by its nature in comparison with many other European countries (see Moisala, 2004).

actual job search. It is likely that more educated workers have more opportunities in the labour market. Workers who assess themselves to be in a good condition to work are more inclined to search for a new job, but interestingly they are less likely to have job switch intentions or to stop working completely.

Work history seems to matter, although the results vary somewhat across models. Tenure has an inverted U-shaped effect on job switch intentions, but it is not significant in the other models. Previous changes in occupation and previous job switches predict current on-the-job search, which is in accordance with the hobo syndrome reported by Munasinghe and Sigman (2004). Workers with temporary contracts and part-time workers search for new jobs more frequently, and part-timers also have more job switch intentions.[7] Unemployment experiences are positively related to job search through an employment office, as expected.

Workers in foreign-owned companies and in companies that are financially unstable have more job switch intentions. The only other significant firm or plant variables are dummies for smaller plants. They obtain negative coefficients in the equation for search through an employment office. This indicates that workers in smaller firms may be more inclined to use informal job search channels or that in larger firms there are more workers at an risk of layoff and therefore registered at an employment office.

Workers search less in regional labour markets with a high unemployment rate. This may be a sign of the discouraged worker effect.[8] However, workers seem to search more from employment offices in high unemployment regions at the same time. On the other hand, unemployment does not have an effect on job switch intentions.

Overall, the results vary across the models. This shows that our different measures of intentions to quit describe slightly different kinds of labour market behaviour. However, the influence of working conditions is more consistent across the models than the impact of specific worker or firm characteristics.

[7] These findings are in line with the literature. For example, Pissarides and Wadsworth (1994) discover that temporary or part-time employment encourages on-the-job search by men but not women. In addition, skilled workers search more than the unskilled do in Britain.

[8] Kristensen and Westergård-Nielsen (2004) report for Denmark by using the European Community Household Panel (ECHP) that the level of average job satisfaction increases as there is an increase in unemployment. Thus, in addition to the discouraged worker effect, high unemployment should also yield fewer intentions to quit because an increase in the level of job satisfaction dampens workers' quit behaviour.

4.2. Results from recursive models

We estimated the recursive models by concentrating on the three work disamenities that had the most consistently significant effect in the basic models in the previous section. These are HARM, HAZARD, and UNCERTAINTY. Furthermore, we estimated three-equation models where only one disamenity at a time was included. We also estimated models with two or three disamenities at the same time, but the results are not shown in the table and we only briefly discuss them below. Finally, we estimated the multivariate probit model separately for four alternative quit intention measures, excluding the employment office variable.

In all the models the explanatory variables for the disamenity (HARM, HAZARD, or UNCERTAINTY) were occupation dummies (10), PUBLIC, FIRMFOREIGN, PSIZE_2 to PSIZE_4, FIRMUNSTABLE, and industry dummies (14). The variables in the JOBDISSATISFACTION equation were the disamenity in question, WAGE, FEMALE, AGE, AGE^2, EDU_2 to EDU_4, EDUHUM, EDUBUS, EDUTECH, EDUCARE, TENURE, $TENURE^2$, FIXEDPAY, PIECERATE, PART_TIME, DAYSTRAINING, MANAGER and CONDITION. Finally, the quit intention variable (JOBSWITCH, LOTTOSTOP, JOBSEARCH, or SEARCH4) was explained by JOBDISSATISFACTION, WAGE, FEMALE, AGE, AGE^2, OVER3PROFS, SWITCHES, CHILDREN, EDU_2 to EDU_4, TENURE, $TENURE^2$, UMOS_1 to UMOS_4, TEMPORARY, PART_TIME and UN.

The estimation results for the joint model for disamenities, dissatisfaction and quit behaviour based on multivariate probit models are summarized in Tables 3-5. The results are reported in the following way. We have three disamenity variables out of which only one at a time is included. On the other hand, we have four alternative quit intention variables. This means that we have 12 different models to estimate. The tables report the coefficients of the disamenities in the dissatisfaction equation (Table 3), the coefficients of dissatisfaction in the quit intention equation (Table 4) and the coefficient of wage in the quit intention equation (Table 5). Each of the tables has 12 entries, reflecting the different models estimated. The coefficients of the other explanatory variables are not reported in the tables. Note that the figures are the estimated coefficients, not the marginal effects, which would vary between different combinations of outcomes for quit intentions, dissatisfaction and disamenity.

The results reveal that job disamenities consistently increase the probability of job dissatisfaction and, in turn, it is job dissatisfaction that tends to increase the probability of job switch intentions and actual job search. For example, the HARM variable gets the coefficient 0.70 (with corresponding t-statistics of 3.48) in an equation in which job dissatisfaction is explained in the second stage. In the third stage of the same recursive model, a dummy variable for job dissatisfaction gets the coefficient 0.85 (with corresponding t-statistics of 5.13) in an equation in which the JOBSWITCH variable is explained. This means that the prevalence of perceived harms at the workplace increases job dissatisfaction among employees and job dissatisfaction drives workers' quit intentions. The results for the other disamenity and quit intention variables are fairly similar.

We also estimated the models by including equations for two of the job disamenity variables at the same time. In this case, we had to estimate four probit models as a recursive system. These results showed that job disamenities consistently increase the level of job dissatisfaction. In addition, we included all three disamenity variables (HARM, HAZARD and UNCERTAINTY) in the model at the same time. In this extension the UNCERTAINTY variable turned out to be statistically insignificant in the dissatisfaction equation, but otherwise the results remained the same.

The results of the wage variable in Table 5 reveal the same pattern as earlier. Wage obtains a significant negative coefficient for job search equations (JOBSEARCH and SEARCH4), but its coefficient is positive in the JOBSWITCH equation and insignificant in the LOTTOSTOP equation. Moreover, the coefficients of the wage variable are relatively low even in the search models. In principle, we could use the coefficients of wage and dissatisfaction in the search equations to evaluate the monetary value of job satisfaction, i.e. wage compensation that would be needed to compensate for dissatisfaction to keep the probability of job search constant (see e.g. Herzog and Schottman, 1990). However, the figure calculated in this way is too large to be a reasonable estimate. (The coefficients of dissatisfaction in column 3 of Table 4 are approximately ten times the absolute value of the corresponding coefficients of (log) wage in column 3 of Table 5.) It is likely that the discrete nature of the dissatisfaction variable makes it difficult to estimate the exact monetary value of dissatisfaction.[9]

[9] We also had access to the QWLS from the year 2003. However, we did not have information on annual earnings and some of the questions have slightly changed from the previous survey. We estimated recursive models with these data by using a self-reported wage category as the wage variable

5. CONCLUSIONS

This study has explored the role of adverse working conditions for on-the-job search in the Finnish labour market. We took advantage of the Quality of Work Life Survey, which includes not only job satisfaction scores, but also detailed information on several different aspects of working conditions at the workplace, not just conditions typical of the occupation or industry. The evidence points out that those workers facing adverse working conditions have more job switch intentions and they are more willing to stop working completely, if they win in a lottery. In addition, those workers search for a new job more frequently. However, the other determinants of the alternative measure of quit intentions vary, showing that they represent different kinds of search processes. The results from recursive models reveal that adverse working conditions increase the level of job dissatisfaction and, in turn, it is the perception of job dissatisfaction that drives workers' job change intentions and intensifies actual job search. The results emerge despite the fact the unemployment rate was high (12.7 per cent) during the year in which the survey was conducted, which discourages workers' intentions to quit.

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and a set of other variables that were as close to those used here as possible. The results were in accordance with those reported in this paper.

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Table 1. Probit marginal effects on intentions to switch jobs or stop working completely.

	JOBSWITCH, Probit model	*LOTTOSTOP, Probit model*
WAGE	0.020	0.000
	(1.77)*	(0.05)
HARM	0.057	-0.009
	(2.32)**	(0.50)
HAZARD	0.012	0.043
	(0.50)	(2.57)**
UNCERTAINTY	0.087	-0.010
	(3.98)***	(0.65)
NOVOICE	0.037	0.025
	(1.55)	(1.43)
NEGLECT	0.050	0.049
	(1.89)*	(2.60)***
ATMOSPHERE	0.001	0.066
	(0.04)	(2.71)***
CONFLICTS	0.038	-0.036
	(0.90)	(1.24)
HEAVYPHYSIC	0.053	0.058
	(1.09)	(1.62)
HEAVYMENTAL	0.087	0.102
	(2.06)**	(3.02)***
NOPROMOTION	0.080	0.026
	(3.53)***	(1.61)
DISCRIMINATION	0.093	-0.007
	(4.08)***	(0.42)
NOBREAKS	-0.001	-0.035
	(0.04)	(1.48)
OUTDOORS	0.016	-0.016
	(0.33)	(0.50)
TEMPORARY	0.043	-0.020
	(1.24)	(0.78)
PART_TIME	-0.060	0.011
	(1.65)*	(0.41)
NIGHT	0.051	0.070
	(0.50)	(0.98)
SHIFT	-0.007	-0.001
	(0.14)	(0.04)
MUCHOVERTIME	0.012	0.004
	(0.23)	(0.11)
FIXEDPAY	0.019	-0.019
	(0.61)	(0.88)
PIECERATE	0.093	-0.049
	(1.35)	(1.11)
DAYSTRAINING	-0.010	0.001
	(0.46)	(0.04)
HIGHTEAM	-0.029	-0.002
	(1.19)	(0.10)
TEAMPROBLEM	-0.006	0.029
	(0.29)	(1.75)*
MANAGER	0.021	-0.011
	(0.86)	(0.63)
FEMALE	0.009	-0.009
	(0.32)	(0.42)
AGE	0.010	-0.006
	(1.27)	(1.07)
AGE^2	-0.000	0.000
	(1.99)**	(1.58)
UNION	-0.037	0.016
	(1.31)	(0.79)
SINGLE	0.099	-0.033

	(3.04)***	(1.38)
SPOUSEWORK	0.048	0.004
	(1.98)**	(0.22)
EDU_2	-0.018	-0.054
	(0.51)	(2.19)**
EDU_3	0.071	-0.122
	(1.45)	(4.21)***
EDU_4	0.061	-0.122
	(1.10)	(3.79)***
EDUHUM	0.077	-0.005
	(1.38)	(0.11)
EDUBUS	0.063	-0.018
	(1.72)*	(0.65)
EDUTECH	0.066	0.045
	(1.86)*	(1.67)*
EDUCARE	-0.007	-0.032
	(0.15)	(0.92)
OVER3PROFS	-0.028	0.036
	(0.89)	(1.59)
SWITCHES	0.009	0.004
	(1.34)	(0.67)
UMOS_1	0.023	0.004
	(0.71)	(0.16)
UMOS_2	0.008	0.033
	(0.17)	(0.98)
UMOS_3	-0.015	-0.010
	(0.30)	(0.29)
UMOS_4	-0.031	0.026
	(0.54)	(0.61)
TENURE	0.008	0.005
	(1.81)*	(1.57)
$TENURE^2$	-0.000	-0.000
	(2.96)***	(0.61)
SECONDJOB	-0.060	-0.025
	(1.05)	(0.58)
SICKABSENCE	-0.007	0.005
	(0.76)	(0.88)
CONDITION	-0.016	-0.019
	(1.93)*	(3.49)***
PUBLIC	0.046	0.014
	(1.18)	(0.52)
FIRMFOREIGN	0.110	0.006
	(2.69)***	(0.20)
PSIZE_2	-0.005	0.020
	(0.19)	(1.05)
PSIZE_3	-0.023	0.014
	(0.75)	(0.63)
PSIZE_4	0.000	-0.024
	(0.00)	(0.80)
EMPGROWTH	-0.006	-0.022
	(0.19)	(0.93)
FIRMUNSTABLE	0.062	-0.002
	(2.14)**	(0.08)
FEMSHARE	0.029	0.019
	(1.03)	(0.92)
UN	-0.001	0.002
	(0.58)	(1.46)
Industry dummies	Yes	Yes
Pseudo R^2	0.08	0.13
Observations	2753	2753

Robust z statistics in parentheses
significant at 10%; ** significant at 5%; *** significant at 1%

Table 2. Probit marginal effects on actual on-the-job search.

	JOBSEARCH, Probit model	*SEARCH4, Probit model*	*EMPLOFFICE, Probit model*
WAGE	-0.015	-0.006	0.001
	(3.08)***	(2.28)**	(0.68)
HARM	0.015	0.019	-0.001
	(1.23)	(2.58)***	(0.17)
HAZARD	0.017	0.000	0.003
	(1.38)	(0.02)	(0.62)
UNCERTAINTY	0.026	0.015	0.013
	(2.31)**	(2.43)**	(2.69)***
NOVOICE	-0.000	0.005	0.007
	(0.04)	(0.68)	(1.44)
NEGLECT	0.037	0.006	0.003
	(2.66)***	(0.84)	(0.56)
ATMOSPHERE	0.014	0.012	-0.007
	(0.75)	(1.10)	(1.10)
CONFLICTS	0.020	-0.000	-0.007
	(0.90)	(0.00)	(0.74)
HEAVYPHYSIC	-0.019	-0.012	-0.001
	(0.89)	(1.18)	(0.06)
HEAVYMENTAL	0.001	0.014	-0.005
	(0.06)	(1.07)	(0.49)
NOPROMOTION	0.047	0.016	0.006
	(4.23)***	(2.63)***	(1.16)
DISCRIMINATION	0.063	0.012	0.001
	(5.16)***	(1.83)*	(0.28)
NOBREAKS	0.016	0.019	0.005
	(0.92)	(1.73)*	(0.71)
OUTDOORS	-0.007	0.017	0.005
	(0.29)	(1.10)	(0.54)
TEMPORARY	0.075	0.038	0.056
	(4.26)***	(3.61)***	(6.06)***
PART_TIME	0.064	0.035	0.081
	(3.28)***	(3.25)***	(7.16)***
SHIFT	-0.002	0.000	0.019
	(0.07)	(0.04)	(1.51)
MUCHOVERTIME	-0.039	-0.014	-0.008
	(1.95)*	(1.33)	(0.85)
FIXEDPAY	0.021	-0.009	-0.005
	(1.33)	(0.97)	(0.62)
PIECERATE	-0.016	-0.015	0.018
	(0.47)	(1.05)	(1.11)
DAYSTRAINING	0.011	-0.006	-0.004
	(1.00)	(0.92)	(0.95)
HIGHTEAM	0.005	-0.003	0.002
	(0.40)	(0.40)	(0.35)
TEAMPROBLEM	-0.006	-0.005	0.002
	(0.54)	(0.75)	(0.42)
MANAGER	0.006	0.001	-0.000
	(0.45)	(0.13)	(0.04)
FEMALE	-0.027	-0.008	0.014
	(1.82)*	(1.05)	(2.12)**
AGE	0.010	0.001	0.000
	(2.26)**	(0.49)	(0.17)
AGE^2	-0.000	-0.000	-0.000
	(2.93)***	(0.74)	(0.24)
UNION	0.005	-0.003	-0.011
	(0.38)	(0.40)	(1.77)*
SINGLE	0.014	0.026	-0.009
	(0.84)	(2.35)**	(1.66)*
SPOUSEWORK	-0.002	0.015	-0.009

	(0.18)	(2.11)**	(1.84)*
EDU_2	0.018	0.023	-0.008
	(1.01)	(2.47)**	(1.06)
EDU_3	0.055	0.053	-0.006
	(1.95)*	(2.71)***	(0.69)
EDU_4	0.036	0.041	-0.011
	(1.13)	(1.86)*	(0.97)
EDUHUM	0.005	-0.002	0.015
	(0.19)	(0.13)	(1.00)
EDUBUS	0.016	0.005	0.003
	(0.89)	(0.51)	(0.36)
EDUTECH	0.007	-0.004	0.009
	(0.40)	(0.51)	(1.09)
EDUCARE	0.021	-0.012	-0.001
	(0.84)	(1.05)	(0.16)
OVER3PROFS	0.040	0.009	0.003
	(2.50)**	(1.06)	(0.53)
SWITCHES	0.015	0.001	-0.002
	(3.94)***	(0.83)	(1.95)*
UMOS_1	0.004	0.004	0.015
	(0.29)	(0.51)	(1.88)*
UMOS_2	-0.012	-0.003	0.052
	(0.61)	(0.28)	(4.06)***
UMOS_3	-0.003	0.024	0.068
	(0.14)	(1.80)*	(4.49)***
UMOS_4	-0.014	0.026	0.064
	(0.58)	(1.58)	(3.74)***
TENURE	-0.000	0.000	-0.002
	(0.05)	(0.06)	(2.30)**
$TENURE^2$	-0.000	-0.000	0.000
	(1.57)	(0.90)	(1.90)*
SECONDJOB	0.013	0.003	-0.011
	(0.42)	(0.18)	(1.29)
SICKABSENCE	-0.005	-0.004	-0.001
	(1.11)	(1.64)	(0.68)
CONDITION	0.010	0.004	0.003
	(2.15)**	(1.66)*	(1.86)*
PUBLIC	-0.025	-0.004	-0.003
	(1.43)	(0.43)	(0.34)
FIRMFOREIGN	-0.012	-0.000	-0.001
	(0.59)	(0.00)	(0.12)
PSIZE_2	-0.009	-0.004	-0.009
	(0.75)	(0.61)	(1.98)**
PSIZE_3	-0.013	-0.010	-0.013
	(0.90)	(1.29)	(2.41)**
PSIZE_4	-0.001	-0.001	-0.007
	(0.03)	(0.10)	(0.88)
EMPGROWTH	0.004	-0.008	-0.010
	(0.25)	(0.93)	(1.42)
FIRMUNSTABLE	0.009	-0.004	0.000
	(0.62)	(0.57)	(0.04)
FEMSHARE	0.004	0.006	0.002
	(0.28)	(0.75)	(0.43)
UN	-0.004	-0.002	0.001
	(3.44)***	(3.10)***	(1.74)*
Industry dummies	Yes	Yes	Yes
Pseudo R^2	0.23	0.21	0.36
Observations	2747	2712	2712

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
The variable NIGHT is not included in these models, because it predicts the SEARCH4 variable perfectly.

Table 3. Effect of job disamenities on job dissatisfaction.

Coefficient of job disamenity in the job dissatisfaction equation				
	Dependent variable in quit intention equation			
Dependent variable in job disamenity equation	JOBSWITCH	LOTTOSTOP	JOBSEARCH	SEARCH4
HARM	0.696 (3.48)***	0.715 (3.69)***	0.695 (3.49)***	0.694 (3.50)***
HAZARD	0.569 (3.00)***	0.578 (3.12)***	0.553 (2.93)***	0.572 (3.04)***
UNCERTAINTY	0.817 (4.47)***	0.798 (4.40)***	0.804 (4.38)***	0.807 (4.42)***

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Each cell of the table reports the coefficient of job disamenity in the job dissatisfaction equation from a different specification of the multivariate probit model. The variables included are explained in the text.

Table 4. Effect of job dissatisfaction on intentions to quit.

Coefficient of job dissatisfaction in the quit intention equation				
	Dependent variable in quit intention equation			
Dependent variable in job disamenity equation	JOBSWITCH	LOTTOSTOP	JOBSEARCH	SEARCH4
HARM	0.852 (5.13)***	0.706 (4.05)***	1.139 (5.89)***	0.977 (3.92)***
HAZARD	0.865 (5.21)***	0.635 (3.60)***	1.071 (5.47)***	0.969 (3.89)***
UNCERTAINTY	0.887 (5.42)***	0.689 (3.95)***	1.142 (6.02)***	1.963 (3.88)***

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Each cell of the table reports the coefficient of job dissatisfaction in the job mobility equation from a different specification of the multivariate probit model. The variables included are explained in the text.

Table 5. Effect of wage on intentions to quit.

Coefficient of wage in the quit intention equation				
	Dependent variable in quit intention equation			
Dependent variable in job disamenity equation	JOBSWITCH	LOTTOSTOP	JOBSEARCH	SEARCH4
HARM	0.054 (2.00)**	0.016 (0.45)	-0.106 (3.44)***	-0.105 (2.86)***
HAZARD	0.055 (2.03)**	0.014 (0.40)	-0.106 (3.45)***	-0.105 (2.85)***
UNCERTAINTY	0.053 (1.97)**	0.016 (0.45)	-0.107 (3.48)***	-0.106 (2.90)***

Robust z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Each cell of the table reports the coefficient of wage in the job mobility equation from a different specification of the multivariate probit model. The variables included are explained in the text.

Appendix 1. Description of the variables.

Variable	Definition/measurement
Job switch intentions:	
JOBSWITCH	Would change jobs at the same level of pay = 1, otherwise = 0 (sum of SWITCHSAME and SWITCHOTHER)
SWITCHSAME	If could change jobs at the same level of pay, would change to the same occupational field = 1, otherwise = 0
SWITCHOTHER	If could change jobs at the same level of pay, would change to a different occupational field = 1, otherwise = 0
LOTTOSTOP	If received so much money from, for example, a lottery win or inheritance that could live comfortably without having to work, would stop working completely = 1, otherwise = 0
Actual on-the-job search:	
JOBSEARCH	Has looked for another job in the last 6 months = 1, otherwise = 0
SEARCH4	Has looked for another job during the last four weeks = 1, otherwise = 0
EMPLOFFICE	Currently registered as job seeker at an employment office = 1, otherwise = 0
Working conditions:	
HARM	At least one adverse factor that affects work 'very much' (includes heat, cold, vibration, draught, noise, smoke, gas and fumes, humidity, dry indoor air, dust, dirtiness of work environment, poor or glaring lighting, irritating or corrosive substances, restless work environment, repetitive, monotonous movements, difficult or uncomfortable working positions, time pressure and tight time schedules, heavy lifting, lack of space, mildew in buildings) = 1, otherwise = 0
HAZARD	At least one factor is experienced as 'a distinct hazard' (includes accident risk, becoming subject to physical violence, hazards caused by chemical substances, radiation hazard, major catastrophe hazard, hazard of infectious diseases, hazard of skin diseases, cancer risk, risk of strain injuries, risk of succumbing to mental disturbance, risk of grave work exhaustion, risk of causing serious injury to others, risk of causing serious damage to valuable equipment or product) = 1, otherwise = 0
UNCERTAINTY	Work carries at least one insecurity factor (includes transfer to other duties, threat of temporary dismissal, threat of permanent dismissal, threat of unemployment, threat of becoming incapable of work, unforeseen changes) = 1, otherwise = 0
NOVOICE	'Not at all' able to influence at least one factor in work (includes contents of tasks, order in which tasks are done, pace of work, working methods, division of tasks between employees, choice of working partners, equipment purchases) = 1, otherwise = 0
NEGLECT	At least one supportive factor 'never' experienced in work (includes advice or help, support and encouragement from superiors, support and encouragement from co-workers, feel of being a valued member of work community, opportunity to plan work, opportunity to apply own ideas in work, feel of own work as productive and useful) = 1, otherwise = 0
ATMOSPHERE	Experiences at least one negative aspect of work atmosphere 'daily or almost daily' or positive aspect 'never' (includes negative aspects conflicts or argument with someone else in work community or with a customer, being subject or threatened by physical violence, use of unfriendly words or gestures by co-workers or superiors, and positive aspects praise for work from co-workers or customers, opportunities for learning new things and developing in one's occupation) = 1, otherwise = 0
CONFLICTS	At least one type of conflict appears in work unit 'a lot' (includes competitive spirit, conflicts between superiors and subordinates, conflicts between employees, conflicts between employee groups) = 1, otherwise = 0
HEAVYPHYSIC	Current tasks physically 'very demanding' = 1, otherwise = 0
HEAVYMENTAL	Current tasks mentally 'very demanding' = 1, otherwise = 0
NOPROMOTION	Advancement opportunities in current workplace 'poor' = 1, otherwise = 0
DISCRIMINATION	Has fallen subject to at least one type of unequal treatment or discrimination in current workplace (includes time of hiring, remuneration, career advancement opportunities, access to training arranged by employer, receiving information, attitudes of co-workers or superiors) = 1, otherwise = 0
NOBREAKS	Can take breaks or rest periods 'far too seldom' = 1, otherwise = 0

OUTDOORS	Does principally outdoor work = 1, otherwise = 0

Job satisfaction:

JOBDISSATISFACTION	Job dissatisfaction is measured by means of alternatives 1 (very satisfied), 2 (quite satisfied), 3 (rather dissatisfied), and 4 (very dissatisfied). The JOBDISSATISFACTION variable gets value one for the two highest dissatisfaction categories 3 and 4, otherwise = 0.

Wage:

WAGE	Logarithm of hourly earnings that is calculated based on the annual earnings (FIM) obtained from tax registers and by using regular weekly hours from LFS.

Working time:

TEMPORARY	Fixed-term employment relationship = 1, otherwise = 0
PART_TIME	Part-time work = 1, otherwise = 0
NIGHT	Night work = 1, otherwise = 0
SHIFT	Uninterrupted 3-shift work = 1, otherwise = 0
MUCHOVERTIME	Does almost daily overtime for which receives compensation = 1, otherwise = 0

Payment systems:

FIXEDPAY	Fixed monthly or hourly pay (including shift work supplement) = 1, otherwise = 0
PIECERATE	Payment system is based on only piece-work or commission pay = 1, otherwise = 0

Training and work organization:

DAYSTRAINING	Number of days attended courses while being paid by employer during the last 12 months
HIGHTEAM	Works in teams 'almost all the time' or 'about three quarters of the time' = 1, otherwise = 0
TEAMPROBLEM	There is at least one problematic aspect in the work group (includes 'totally untrue' that group selects its leader, group decides about division of responsibilities, productiviness of work improves in group work, or work pressure becomes evenly distributed, and 'totally true' that group work causes conflicts) = 1, otherwise = 0
MANAGER	Tasks involve supervision of work of others or delegation of tasks = 1, otherwise = 0

Personal background characteristics:

FEMALE	1 = female, 0 = male
AGE	Age of an employee
AGE^2	Age squared
UNION	Member of trade union = 1, otherwise = 0
SINGLE	Not married=1, otherwise=0
SPOUSEWORK	Spouse is working = 1, otherwise = 0
CHILDREN	The number of children under 18 living at home
EDU_1	Comprehensive education = 1, otherwise = 0 (reference)
EDU_2	Upper secondary or vocational education = 1, otherwise = 0
EDU_3	Polytechnic or lower university degree = 1, otherwise = 0
EDU_4	Higher university degree = 1, otherwise = 0
EDUHUM	Field of education is humanities or teachers' education = 1, otherwise = 0
EDUBUS	Field of education is business, law or social science = 1, otherwise = 0
EDUTECH	Field of education is technical, natural science or computer science = 1, otherwise = 0
EDUCARE	Field of education is health care, social work, etc. = 1, otherwise = 0

Past labour market experience:

OVER3PROFS	Has been in more than three distinctly different kinds of occupations during his/her life = 1, otherwise = 0
SWITCHES	Number of job switches during the past five years
UMOS_1	Number of unemployment months during the past five years 1-6 = 1, otherwise = 0
UMOS_2	Number of unemployment months during the past five years 7-12 = 1, otherwise = 0

UMOS_3	Number of unemployment months during the past five years 13-24 = 1, otherwise = 0
UMOS_4	Number of unemployment months during the past five years 25 or more = 1, otherwise = 0
TENURE	Number of years in the current firm
$TENURE^2$	TENURE squared
SECONDJOB	Has a second job = 1, otherwise = 0

Health and absenteeism:

SICKABSENCE	Number of absences from work due to illness in the last 6 months
CONDITION	Self-assessment of working capacity. The variable is scaled from 0 (total inability to work) to 10 (top working capacity)

Information about employer:

PUBLIC	Employer is state or municipality = 1, otherwise = 0
FIRMFOREIGN	Employer is private, mainly foreign-owned enterprise = 1, otherwise = 0
PSIZE_1	Size of plant under 10 employees = 1, otherwise = 0 (reference)
PSIZE_2	Size of plant 10-49 employees = 1, otherwise = 0
PSIZE_3	Size of plant 50-499 employees = 1, otherwise = 0
PSIZE_4	Size of plant over 499 employees = 1, otherwise = 0
EMPGROWTH	The number of employees has increased in the plant during the past three years = 1, otherwise = 0
FIRMUNSTABLE	Financial situation is 'unstable' = 1, otherwise = 0
FEMSHARE	Share of females in the company is 'high' = 1, otherwise = 0

Regional variable:

UN	The regional unemployment rate based on 21 NUTS3-regions (Source: Labour Force Survey by Statistics Finland).

Dummy variables:

Industries	14 dummies based on Standard Industry Classification
Occupations	10 dummies based on the classification of occupations by Statistics Finland

Appendix 2. Descriptive statistics.

	MEAN	STD
WAGE	3.787	6.671
FEMALE	0.531	0.499
AGE	39.710	10.496
UNION	0.792	0.406
SINGLE	0.175	0.380
SPOUSEWORK	0.559	0.497
CHILDREN	0.856	1.370
EDU_2	0.559	0.497
EDU_3	0.115	0.320
EDU_4	0.087	0.282
EDUHUM	0.061	0.239
EDUBUS	0.164	0.371
EDUTECH	0.269	0.443
EDUCARE	0.102	0.303
OVER3PROFS	0.130	0.336
SWITCHES	0.743	1.646
UMOS_1	0.138	0.345
UMOS_2	0.066	0.248
UMOS_3	0.061	0.240
UMOS_4	0.045	0.208
TENURE	9.545	9.290
SECONDJOB	0.031	0.172
FIXEDPAY	0.839	0.368
PIECERATE	0.025	0.157
TEMPORARY	0.180	0.385
PART_TIME	0.102	0.302
NIGHT	0.010	0.098
SHIFT	0.041	0.199
WEEKEND	0.003	0.052
MUCHOVERTIME	0.047	0.213
NOBREAKS	0.101	0.301
OUTDOORS	0.054	0.226
HARM	0.287	0.452
HAZARD	0.339	0.473
UNCERTAINTY	0.577	0.494
VOICE	0.675	0.468
NEGLECT	0.226	0.418
ATMOSPHERE	0.107	0.309
CONFLICTS	0.064	0.244
HEAVYPHYSIC	0.050	0.218
HEAVYMENTAL	0.065	0.246
TRAINING	0.465	0.499
NOPROMOTION	0.622	0.485
DISCRIMINATION	0.299	0.458

HIGHTEAM	0.316	0.465
TEAMPROBLEM	0.415	0.493
MANAGER	0.317	0.465
SICKABSENCE	0.641	1.165
CONDITION	8.623	1.373
PUBLIC	0.343	0.475
FIRMFOREIGN	0.071	0.256
PSIZE_2	0.363	0.481
PSIZE_3	0.280	0.449
PSIZE_4	0.081	0.273
EMPGROWTH	0.108	0.311
FIRMUNSTABLE	0.159	0.365
FEMSHARE	0.405	0.491
UN	17.072	4.740