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### What makes workers happy?

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## What makes workers happy?

### Abstract:

This article answers the question what makes workers happy?. It does so by combining insights from micro-economics, sociology and psychology. Basis is the standard utility function of a worker that includes income and hours of work and is elaborated with job characteristics. In this way it is possible to answer whether part-time workers are happier than full-time workers. The utility function is estimated on basis of the European Social Survey 2004 which contains all necessary information. The results show that workers optimize income and hours of work as predicted by micro-economics, but also that part-time workers are happier than full-time workers. Challenging work with a high level of autonomy makes the workers happy, work pressure makes workers unhappy. Higher educated workers are unhappier than lower educated workers, we find a negative effect of education, but this is compensated by the type of jobs these higher educated hold.

JEL codes: J22, J28, J30, J81

## What makes workers happy?

### 1 Introduction

An increasing body of literature about happiness shows that employment makes people happy (Clark, Frijters & Shields 2008, Frey, Stutzer 2002). Kahneman and Krueger (2006) give excellent overviews of the literature about happiness. From them we know that employed persons are much happier than unemployed persons. Loss of employment has a much severe negative impact on the happiness of people than the loss of part of their income. A related question, hardly addressed yet by economists is what makes workers happy? There is a vast amount of literature by psychologists about job satisfaction (Diener et al. 1999) and related to job satisfaction about quality of work by sociologists (Karasek 1979, Karasek, Theorell 1990), economists have only begun to do research about happiness and job satisfaction.

Only recently economists started to address questions about happiness of people. It used to be a common assumption that utility could not be measured directly and that it therefore was necessary to analyze preferences as revealed by the actual choices that were made by consumers and employees. Much of the labour market research concentrated on wages, hours of work, rate of return on human capital etc. Research about labour circumstances was mostly addressed within the framework of compensating wage differentials (Ehrenberg, Smith 1997). As long as workers were compensated enough they could be persuaded to do dirty and hazardous jobs. This was analyzed within the standard micro-economic model in which work is seen as a disutility. In this model workers need to be compensated for the effort and hours they supply on the labour market. A standard result is that in equilibrium the compensation needed to induce workers to come to work and actually put some effort into their job make them as happy (have the same utility level) as voluntary unemployed persons. In

1  
2 this model work is a disutility, by definition, and not seen as something that can be  
3  
4 intrinsically rewarding.  
5

6  
7 From happiness research we know that the absolute income level hardly  
8  
9 affects happiness. The relative income level is much more important. Earning a higher  
10  
11 income than one's neighbour positively affects happiness. Although employed  
12  
13 persons receive higher incomes than unemployed persons, the income difference does  
14  
15 not wholly account for the difference in happiness between employed and  
16  
17 unemployed (Blanchflower, Oswald 2004). Additionally to the income difference  
18  
19 there must be something in the job that explains the differences in happiness between  
20  
21 employed and unemployed persons. A possible explanation is that work is  
22  
23 intrinsically rewarding and that these intrinsic rewards give the employees satisfaction  
24  
25 and make the employees happier.  
26  
27  
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29

30  
31 Until now economists and sociologists hardly paid any attention to intrinsic  
32  
33 rewards or intrinsic motivation. One of the few exceptions is Frey (1997) who  
34  
35 actually models crowding out of intrinsic motivation by extrinsic motivation and thus  
36  
37 affecting the amount of effort supplied within a single job. With this model he wants  
38  
39 to show why in some instances incentive pay does not have the expected effect on  
40  
41 effort and productivity. He does not address the question what makes a job more  
42  
43 intrinsically rewarding. In the model it simply is assumed that some jobs intrinsically  
44  
45 motivate employees. He does not explain which jobs are intrinsically motivating, or  
46  
47 what makes a job intrinsically motivating. This question is mostly addressed by  
48  
49 psychologists.  
50  
51  
52  
53

54  
55 Psychologists produced an extensive body of literature about job satisfaction.  
56  
57 Much of this research is driven by the model of Hackman and Oldham (1980). They  
58  
59 argue that a job increases motivation and thereby satisfaction when a job requires skill  
60  
variety, offers task identity and significance, autonomy and gives immediate feedback

1  
2 to the worker. Strangely enough, at least from an economic perspective, they do not  
3  
4 incorporate factors like (monetary) compensation and hours of work or effort levels.  
5  
6 From other research it is known that good career possibilities and learning  
7  
8 opportunities affect intrinsic motivation and job satisfaction, too (Baron, Kreps 1999 p.  
9  
10 317).  
11  
12

13  
14 In this paper we would like to address the question what makes workers happy.  
15  
16 We address this question from an economic perspective and relate it to the recent  
17  
18 literature about happiness. We therefore look at the trade off between hours of work  
19  
20 and income, but also how happiness is affected by relative or subjective income. One  
21  
22 of the main questions we are interested in is whether part-time employed workers are  
23  
24 happier than full-time employed workers? The evolving literature suggests that this  
25  
26 indeed is so (Booth, van Ours 2008, Clark 1997), but evidence is sparse. Next to this  
27  
28 we also pay attention to the effect of job characteristics on the happiness of workers.  
29  
30 For this sake we combine literature about happiness and job satisfaction.  
31  
32  
33

34  
35 To answer these questions we analyze data from the second round of the ESS  
36  
37 held in 2004 (ESS, 2004). Our set contains data from twenty European countries  
38  
39 about happiness, income, hours of work and job characteristics<sup>1</sup>. Actually, we have  
40  
41 two measures of happiness, which are more detailed than most American or English  
42  
43 studies. The data stems from all over the continent, and from all type of countries.  
44  
45  
46

47 We do not elaborate on the discussion about the use of subjective indicators of  
48  
49 subjective well-being as good measures of utility. The question whether utility or  
50  
51 subjective well-being can be measured with questions about satisfaction and  
52  
53 happiness is an important one, but has been addressed more than adequately by others,  
54  
55 who showed both theoretically and empirically (Clark, Frijters & Shields 2008, Frey,  
56  
57 Stutzer 2002, Kahneman, Krueger 2006, Blanchflower, Oswald 2004) that these  
58  
59  
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<sup>1</sup> England and France drop out because of missing data on some crucial variables.

1 indicators can be used and analyzed as measures of overall utility. We believe that  
2  
3 answers on questions about happiness and satisfaction are good measures of utility  
4  
5 and can therefore be analyzed in a larger context, i.e. changes over time and or  
6  
7 comparisons between countries. These kinds of analyses are useful in the sense that  
8  
9 they learn scientists and policymakers what makes workers and other people happy  
10  
11 and what actions should be taken by policymakers to increase happiness.  
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19

## 20 **2 Happiness and work**

### 21 *Hours of work and income*

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25  
26  
27 Standard micro-economic labour supply models relate utility or happiness positively  
28  
29 to wages and negatively to hours of work (Ehrenberg, Smith 1997 p.180). Hours of  
30  
31 work or effort is regarded as a disutility that needs to be compensated to seduce  
32  
33 workers to come to work and put some effort into their jobs. The standard model  
34  
35 would predict that, in equilibrium, part-time workers have the same level of happiness  
36  
37 as full-time workers. As long as the choice for hours of work is unconstrained or  
38  
39 voluntary, the lower income of part-time workers is offset by the utility of extra  
40  
41 leisure. This would result in the same level of happiness for both part-time and full-  
42  
43 time workers. If the choice is constrained and thus more or less involuntary, say by  
44  
45 the availability of jobs, happiness will differ between part-time and full-time workers.  
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Happiness will be lowest for the group that is most constrained, because they have  
fewer possibilities to adjust the hours of work in the direction they prefer.

Other exemptions from this trade-off might be because part-time jobs have  
fewer non-monetary rewards, although ideally this should result in higher wages. Part-  
time jobs might be dead-end jobs that have no opportunities for career advancement  
and therefore give less job satisfaction and thus less happiness, and are less fun to do



1  
2 (Booth, van Ours 2009). I.e. it is recorded that part-time jobs offer less career  
3  
4 opportunities, personal growth, educational advancement and might be dull boring  
5  
6 dead-end jobs (Gallie et al. 1998, Hakim 1997). This might lower the happiness of  
7  
8 part-time workers.  
9

10  
11 On the other hand part-time jobs could increase happiness because it increases  
12  
13 the flexibility of working hours, thereby improving the work-life balance. It also can  
14  
15 give social and self esteem and thus increasing happiness (Booth, van Ours 2009).  
16  
17 Workers might enjoy working a few hours, instead of being unemployed. It is well  
18  
19 documented in the psychological literature that non-monetary rewards make workers  
20  
21 more satisfied with their job (Diener et al. 1999). If these rewards are not accounted  
22  
23 for, the marginal effects of income or hours of work might be biased and thus  
24  
25 showing that part-time workers feel happier than full-time workers. Also contact with  
26  
27 colleagues and intrinsic motivation might affect happiness of (part-time) workers. A  
28  
29 Dutch standard measure of well-being at work includes the possibilities to talk and  
30  
31 confer with colleagues during normal working hours. Sometimes this is impossible  
32  
33 due to the nature of the work, i.e. working in a noisy environment. Thus a priori the  
34  
35 effect of part-time work on happiness is unclear. It can go both ways, some argue that  
36  
37 is positive, others that it is negative.  
38  
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40  
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43  
44

45 We have hardly any evidence about the effect of hours of work on happiness,  
46  
47 because most happiness studies do not control for hours of work or part-time work (cf.  
48  
49 Booth, van Ours 2008, Booth, van Ours 2009). Actually this is strange because in the  
50  
51 basic micro-economic labour supply model hours of work or leisure enter directly the  
52  
53 utility function of workers and should be controlled for (Pouwels, Siegers & Vlasblom  
54  
55 2008, Knabe, Rätzel 2010). There is some evidence that part-time work affects the  
56  
57 happiness of people. Booth and Van Ours (2009) report that Australian women are  
58  
59 more satisfied with their working hours when working part-time. Australian men on  
60

1  
2 the other hand are more satisfied with their working hours when working full-time.  
3  
4 Booth and Van Ours (2008) report for British men and women that hours of work  
5  
6 does not affect life satisfaction, but for women they find a positive effect of part-time  
7  
8 work on job satisfaction. Clark (1997) reports, based on a large scale British survey, a  
9  
10 negative effect of hours of work on job satisfaction. Gash, Mertens et al. (2009) report  
11  
12 that a decrease in working hours makes British and German women happier. Sousa-  
13  
14 Poza and Sousa-Poza (2000b, 2000a), analyzing the 1997 ISSP, report a negative  
15  
16 effect of women's working hours on their job satisfaction, but do not find an effect for  
17  
18 men. Kristensen and Johansson (2008) report a strong negative effect of the natural  
19  
20 logarithm of working hours on job satisfaction. Holst and Trzcinski (2003) show that  
21  
22 German mothers are more satisfied working part-time than full-time. Peiró (2006)  
23  
24 finds for some countries negative effects and for others positive effects of part-time  
25  
26 work on happiness. Seldom a strong effect is found.  
27  
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32

33 Many studies concentrated on the Easterlin paradox (Clark, Frijters & Shields  
34  
35 2008, Frey, Stutzer 2002, Di Tella, MacCulloch & Oswald 2003, Layard 2005).  
36  
37 Easterlin (1974) found in his study no relation between income and happiness.  
38  
39 Although many western countries showed a growth in income, these same countries  
40  
41 did not show a growth in happiness. Later studies (Clark, Frijters & Shields 2008, i.e.  
42  
43 Blanchflower, Oswald 2004), based on micro-data, show that there appears to be a  
44  
45 small effect of income on happiness and that this effect is stronger in less developed  
46  
47 countries than in well developed countries.  
48  
49  
50

51 An explanation for the Easterlin paradox that was put forward and tested  
52  
53 (Clark, Frijters & Shields 2008, Frey, Stutzer 2002, Layard 2005) is that relative  
54  
55 income is much more important than income level. It is not so much income level that  
56  
57 is related to happiness, but it is much more so that the relative income of a person has  
58  
59 a positive effect on happiness. This finding implies that if everyone increases his or  
60

1  
2 her income with the same percentage than this will have no effect on their happiness,  
3  
4 because the relative positions do not change. If however a single person sees an  
5  
6 increase in his income, and thus sees an increase in his income relative to his  
7  
8 neighbours, than he becomes happier.  
9

10  
11 The Easterlin paradox is further explained by means of adaptation, habituation  
12  
13 and changing (increasing) aspirations levels (Frey, Stutzer 2002). People adapt rather  
14  
15 quickly to the new situation and change their aspiration levels, a mechanism well  
16  
17 described in psychological literature (Diener et al. 1999). Frey concludes that at one  
18  
19 point in time richer people report higher levels of happiness, but with clear  
20  
21 diminishing marginal utility. Ferrer-i-Carbonell (2005) comes to the same conclusion,  
22  
23 interpreting the relative income effect as a 'hedonic treadmill' or preference drift.  
24  
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27

28 Based on the increasing evidence on the negative effect of hours worked on  
29  
30 happiness and job satisfaction and the absent or small effect of absolute income, we  
31  
32 expect that part-time workers are happier than full-time workers. This is the main  
33  
34 hypothesis that we would like to test.  
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39

#### 40 *Job characteristics*

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43  
44 The previous section started with the suggestion that part-time jobs might be dead-end  
45  
46 jobs that have no opportunities for career advancement. Part-time jobs also might  
47  
48 differ in other characteristics from full-time jobs that could influence the happiness of  
49  
50 workers. Sociologists (Gallie et al. 1998, Hakim 1997) report that the quality of part-  
51  
52 time jobs is lower than that of full-time jobs. This would imply that part-time workers  
53  
54 are unhappier than full-time workers, because quality of the job affects satisfaction  
55  
56 (Diener et al. 1999). There is also a vast amount of psychological literature about the  
57  
58 relation between quality of the job and satisfaction. Most of this literature is based on  
59  
60

1  
2 the job characteristic model of Hackman and Oldham (1980). They argue that a job  
3  
4 increases motivation and thereby satisfaction when a job requires skill variety, offers  
5  
6 task identity and significance, autonomy and gives immediate feedback to the worker.  
7  
8  
9 This model has been tested over and over again (Parker, Wall 1998). Some of the  
10  
11 relations do not hold all of the time, but the model is mostly corroborated. What  
12  
13 stands out is the positive effect of autonomy and that of career advancement on  
14  
15  
16 satisfaction.

17  
18  
19 Karasek (1979) and Karasek and Theorell (1990) state that jobs become  
20  
21 stressful if the amount of inputs and outputs as seen by the worker is unbalanced. A  
22  
23 worker can handle complex jobs as long as he has enough autonomy to deal with  
24  
25 these complexities. So autonomy and supervision should have a positive effect on  
26  
27 satisfaction. Both autonomy and supervision gives the worker discretion to deal with  
28  
29 complexities that he encounters in his job. Based on this job demand model Sousa-  
30  
31 Poza and Sousa-Poza (2000b, 2000a) suggest that education should have a negative  
32  
33 effect on satisfaction, because it is seen as a labour input. In general it is so, that a job  
34  
35 that is felt as stressful should have a negative effect on satisfaction.  
36  
37  
38

39  
40 Finally literature about employee relations (Gallie et al. 1998, Huiskamp 2004)  
41  
42 tells us that next to autonomy, employee development has a positive impact on  
43  
44 satisfaction. Within this literature employee development is seen as more than  
45  
46 promotion possibilities, or career advancement. It includes learning and training  
47  
48 opportunities, skill development and other ways in which employees can improve  
49  
50 themselves. If employers provide ample opportunities for these kinds of employee  
51  
52 development than satisfaction will increase. This literature also tells us that good  
53  
54 relations with your colleagues improves satisfaction. Part of the non-monetary  
55  
56 rewards of jobs is having contact with colleagues, just being able to chat and have a  
57  
58  
59  
60

1  
2 good laugh. Also Kahneman and Sugden (2005) report that socializing at and after  
3  
4 work has a positive impact on happiness.  
5

6  
7 From the literature about implicit contracting and firm-specific human capital  
8  
9 we know that firm-specific human capital should increase satisfaction (Baron, Kreps  
10  
11 1999, Lazear, Gibbs 2009). Firm-specific human capital is provided when an  
12  
13 employee and employer enter a relation with a long time horizon. To make the  
14  
15 investment worthwhile the employee relation has to last and returns on investment  
16  
17 have to be shared. So situations in which it is likely that employees and employers  
18  
19 enter implicit contracts one can expect that these employees are more satisfied than  
20  
21 employees who deal with hard contracts.  
22  
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29

### 30 *The Model*

31  
32  
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34  
35 Based on the above mentioned literature one could state that the following utility  
36  
37 function would be an adequate summary of the literature:  
38  
39  
40  
41

$$42 \quad U = f(I, H, J)$$

43  
44 in which:  $U$  = happiness or satisfaction

45  
46  $I$  = income

47  
48  $H$  = hours of work

49  
50  
51  $J$  = job characteristics  
52  
53  
54  
55

56 Because we expect happiness to be concave in hours of work and income (Clark,  
57  
58 Frijters & Shields 2008, Frey, Stutzer 2002) we enter the natural logarithms of these  
59  
60 variables in our empirical equation.

### 3 Data and Method

We use the ESS round two dataset (ESS round 2, 2004) to test the hypotheses. The ESS is interesting to analyze because it contains data from twenty two European countries, scattered around the continent. The ESS contains data from both members and non-members of the European Union, Nordic and southern countries and eastern and western countries, countries that used to be under the influence of the former Soviet Union and countries under the influence of the United States of America. So we have a broad array of countries.

We use data from twenty two countries out of the twenty four that participated in the second round of the survey. We cannot use the data from France and England, because crucial information is missing. We restricted the sample to persons being in paid work, working at least ten hours per week, aged between twenty five and sixty, and had no missings on the most relevant variables, i.e. life satisfaction, happiness, hours of work, education. Our final sample contains 11986 persons.

An advantage of the European social survey is that it contains two questions about happiness. The first question is about life satisfaction and reads (B24): ‘All things considered, how satisfied are you with your life as a whole nowadays? We label this question satisfaction. Psychologists refer to satisfaction as a cognitive process. The second question is more directly on happiness and reads (C1): Taking all things together, how happy would you say you are? We label this question happiness. Psychologists see happiness as an emotional or affective state. Both questions were rated on an eleven point scale from zero (low) to ten (high). Because the two lowest categories were hardly used we collapsed the lowest three categories, so we have measures on a nine point scale. Because both question are related to utility, we also combined these two measures into a single one. We are encouraged to do so

1  
2 considering the high correlation (.72) between these two measures. We label this  
3  
4 measure happyfaction. Happyfaction is the average of satisfaction and happiness.  
5

6  
7 As basic independent variables in our model we include the natural logarithm  
8  
9 of hours worked and income. Because many persons did not answer the question  
10  
11 about their income we included a dummy variable to indicate the missings on income.  
12  
13 In the survey income is measured in categories. We recoded these categories, taking  
14  
15 logarithms of the midpoints. Missings were replaced by 1 becoming zero after taking  
16  
17 of the logarithms. So the dummy for missing incomes represents the direct effect of  
18  
19 the missing income on happiness.  
20  
21

22  
23 Next to the direct income measure we also include a measure of subjective  
24  
25 income. Respondents were asked 'Which of the descriptions on this card comes  
26  
27 closest to how you feel about your household's income nowadays?' with possible  
28  
29 answers: living comfortably on present income, coping on present income, finding it  
30  
31 difficult on present income and finding it very difficult on present income. We think  
32  
33 that this question is a good measure of relative income. Because the level of existence  
34  
35 security is high in the ESS countries an answer to this question must be based on the  
36  
37 relative judgement of the respondents and thus indicates relative income. Because  
38  
39 people want to compete with the Joneses (Frank 1985) this implies that if they state  
40  
41 that they can do so they have a relatively high income, whereas if they state that they  
42  
43 find it difficult to do so means that they have a relatively low income. Constructions  
44  
45 of objective relative income measures always face the problem of defining the  
46  
47 relevant reference group (Clark, Frijters & Shields 2008, Ferrer-i-Carbonell 2005).  
48  
49 Also it is known that income aspirations increases with actual income (Rainwater  
50  
51 1994) in (Easterlin 2005), so a subjective measure is probable better than an objective  
52  
53 measure of relative income.  
54  
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1  
2 The questionnaire contains twenty questions about job characteristics. To  
3  
4 reduce the number of variables we performed a factor analysis on these twenty  
5  
6 variables about job characteristics. We found four different factors, one related to  
7  
8 autonomy, a second one related to work pressure or stress, a third one related to career  
9  
10 and development possibilities and a fourth one relating to irregular working hours. In  
11  
12 our model we included the factor scores of these four factors.  
13  
14

15  
16 Next to these job characteristics we include other job related variables. These  
17  
18 are: education, being a supervisor, firm size coded in five categories of which the last  
19  
20 one (biggest firm) is the reference category, the number of colleagues in the  
21  
22 department (indicators for contact possibilities), whether an employee would turn  
23  
24 down a job offer, doing a similar job at another employer at higher wage, having a  
25  
26 temporary job (indicators for an implicit contract) if they think they can find a similar  
27  
28 job easily elsewhere (subjective labour market indicator) and if they can easily be  
29  
30 replaced within their job (subjective indicator for firm-specific human capital).  
31  
32  
33

34  
35 Next to these job related variables we control for other variables that are  
36  
37 known to have an effect on happiness. These variables are: health (a subjective  
38  
39 measure), married man (reference category), single man, single woman and married  
40  
41 women, the presence of a child aged 12 or younger in the household, age, age squared.  
42  
43 We also include a variable indicating if persons trust other persons (trust) or want that  
44  
45 the government should decrease income inequality (equal), based on the findings of  
46  
47 Frey and Stutzer (2002). We also control for travel time to work and travel time to  
48  
49 work squared (cf. Stutzer, Frey 2008).  
50  
51  
52

53  
54 Missings on most variables were replaced by the sample average or mode.  
55  
56 Using list wise deletion of missing data would lead to a substantial smaller sample.  
57  
58

59  
60 We have several options for the specification of the regression model to test  
our hypotheses. A first option would be to estimate an ordered response model and



1  
2 include a term for possible selection bias. The reason to this is that it is known that  
3  
4 unemployment has a strong negative effect on happiness and that the working  
5  
6 population is not a random selection of the total population. This non-randomness can  
7  
8 bias the estimated effects in an unknown way. However in all of the models we  
9  
10 estimated we did not find a significant selection effect. I.e. the correlation between the  
11  
12 error terms of the selection equation and the happiness equation differed not  
13  
14 significantly from zero. The results did not prove to be different from the other models  
15  
16 we did estimate and do report here.  
17  
18  
19

20  
21 Because our data come from twenty two different countries we want to take  
22  
23 account of differences in variances of happiness between countries. We did so in two  
24  
25 ways. First we estimated an ordered response model, controlling for multiplicative  
26  
27 heteroscedasticity using country dummies in the variance function (Greene 1998,  
28  
29 Greene 1990). A more natural way to take account of differences at the country level  
30  
31 is to use multi-level models (Snijders, Bosker 1999), but this has the disadvantage that  
32  
33 we have to assume that happiness is measured as an interval variable, instead as an  
34  
35 ordinal variable. It is not yet possible to estimate ordered responses in a multi-level  
36  
37 setting by the available software. We decided to present only the results from the  
38  
39 ordered response models. All models give qualitatively the same results. In analysing  
40  
41 the combined measure, happyfaction, we use a regression with multiplicative  
42  
43 heteroscedasticity, using country dummies to model the variance.  
44  
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49  
50 Although we analyze a cross-section which makes it impossible to make  
51  
52 claims about causality, we sometimes make these claims because of the underlying  
53  
54 theoretical model and of what we know from other happiness and job satisfaction  
55  
56 research. We are aware that for a proper analysis of causal effects we need  
57  
58 longitudinal data, which we do not have.  
59  
60

## 4 Results

In table 1 we present the scores on the three happiness variables by country. The countries are ordered according to their score on 'happiness'. The rank order hardly differs between the measures, suggesting that both variables, happiness and satisfaction measure more or less the same. Their correlation of .72 suggests the same. We see that the employed in the Nordic countries are the happiest and most satisfied. The Icelanders are the happiest with a score of 6.59 (the maximum of the scale is 8). The score might now be lower due to the economic crises that made Iceland almost go bankrupt. Of the non-Nordic countries the Swiss and Irish score the highest. Belgium along with Luxembourg, the Netherlands and Austria score above average. The southern and east-European countries together with Germany score below the mean. The five lowest scoring countries, Poland, Hungary, Estonia, Slovakia and Ukraine are all countries that used to be behind the iron curtain.

We also see that the standard deviations of the happiness and satisfaction scores differ per country, justifying the heteroscedastic models. The lowest standard deviation is 1.13 (Iceland) and the highest standard deviation is 2.09 (Ukraine).

For the larger part the ranking of the countries coincides with the ranking of the countries as measured in the ISSP.

### *Income and hours of work*

Table 2 contains the results of the analysis of the variable 'happiness'. We find a clear negative effect of hours worked on happiness. It is a stable effect in all models, so hours of work clearly is a disutility. In model I we find a positive effect of our absolute income measure on happiness, including a strong positive effect of the missing income dummy variable. Probably more high than low income employees

1  
2 refused to answer the income question. The effect becomes smaller when we add  
3  
4 more control variables in the model and becomes insignificant in model IV. This is  
5  
6 mainly due to subjective or relative income, for which we find a strong positive effect.  
7  
8 Employees who state that they live comfortably on their present income are much  
9  
10 happier than employees who find it difficult to live on their present income,  
11  
12  
13  
14 irrespective of their absolute income.

15  
16 The income and hours effect is according to a standard utility function,  
17  
18 although relative income is more important than absolute income. Comparing the  
19  
20 parameters of log hours worked and log income we see that the effect of hours worked  
21  
22 on happiness has the same size but opposite direction than that of income in the first  
23  
24 three models. A test on this restriction is accepted. In model IV the effect of hours  
25  
26 worked is stronger than the absolute income effect.  
27  
28  
29

30  
31 However, in model III the marginal effects of hours worked on the levels of  
32  
33 happiness are one and a half time as large as the marginal effects of income. This  
34  
35 implies that to obtain the same level of happiness income needs to rise sharper than  
36  
37 hours of work. This can directly be seen in table 4 that contains the results of the  
38  
39 analysis of happyfaction. Because happyfaction is estimated with a normal regression  
40  
41 model we can compare the parameters of hours of work and income directly. These  
42  
43 parameters can be interpreted as marginal effects. We see in the final model (IV) that  
44  
45 the effect of working hours is much stronger than the effect of income. A ten per cent  
46  
47 increase in hours worked should be compensated with a more than ten per cent  
48  
49 increase in income. This indicates that part-time workers are happier than full-time  
50  
51 workers, even if working part-time comes with a loss of income.  
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59 *Job characteristics*  
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1  
2 In model III we add several job characteristics and job related variables in the analysis.  
3  
4 We find that autonomy does increase happiness. Employees that have more autonomy  
5  
6 in their job report higher levels of happiness. We find a negative effect of work  
7  
8 pressure. Employees under pressure report less happiness than employees who do not  
9  
10 feel pressure or stress. Career advancement and development possibilities do have the  
11  
12 expected positive effect on happiness. Irregular working also has a negative effect on  
13  
14 happiness, although it disappears in model IV. These effects of job characteristics are  
15  
16 well documented within the labour and organizational psychology literature (Parker,  
17  
18 Wall 1998). In our analysis career advancement and development does have the  
19  
20 strongest effect of these four job characteristics. The effects of work pressure and  
21  
22 autonomy are similar whereas irregular working hours is the least important.  
23  
24  
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27

28 Being a supervisor has no effect on happiness. Autonomy within the job is  
29  
30 much more important than supervising other employees. Although supervisors  
31  
32 generally do earn a higher income (van der Meer, Wielers 1998), supervising as such  
33  
34 does not increase happiness. Employees holding a temporary job do not report lower  
35  
36 levels of happiness. This might be somewhat surprising because holding a temporary  
37  
38 job increases insecurity and most people do want to avoid insecure situations.  
39  
40  
41

42 Firm size does have an effect on happiness, although the effect is difficult to  
43  
44 interpret. The employees in the smallest firms are most happy, in the one but smallest  
45  
46 are much less happy, then it increases with firm size, but the employees in the biggest  
47  
48 firms (reference category) are the least happy. The number of colleagues in the same  
49  
50 department does not have an additional effect. It is known that good relations with  
51  
52 colleagues improves job satisfaction and of course in large organizations or  
53  
54 departments it is more likely to encounter pleasant colleagues, but it is also more  
55  
56 likely to encounter less pleasant colleagues. Probably the effect of good relationships  
57  
58 with colleagues does not depend on the number of colleagues.  
59  
60

1  
2 Employees who would not turn down another job with higher pay are  
3  
4 unhappier than the employees who would turn down such an job offer. This reveals  
5  
6 the importance of making your personnel happy. The subjective labour market  
7  
8 situation affects happiness too. Employees who report that they will find similar jobs  
9  
10 than they have now elsewhere quite easily are happier than employees who find it  
11  
12 difficult to find a similar job elsewhere. Employees who can easily be replaced report  
13  
14 the same level of happiness as employees who are difficult to replace. Implicit  
15  
16 contracting as indicated by temporary contract, and easily replaced in the job (firm-  
17  
18 specific human capital) does not seem to affect happiness.  
19  
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23 We do find a negative effect of education on happiness. This corroborates the  
24  
25 findings of Sousa-Poza and Sousa-Poza (2000b, 2000a). They say that education  
26  
27 should be seen as an employee input into the job, just as hours of work and other  
28  
29 effort measures, and therefore should have a negative effect on job satisfaction and  
30  
31 thus on happiness in our model. The investment in human capital should be rewarded  
32  
33 by obtaining jobs with favourable job characteristics, like autonomy and development  
34  
35 possibilities. Otherwise the highly educated employees suffer. We corroborate this  
36  
37 effect for happiness although the bivariate correlation between education and  
38  
39 happiness is positive, though small (.08). It becomes negative after inclusion of the  
40  
41 job related variables. Higher educated employees perceive more autonomy, more  
42  
43 work pressure, more career and development possibilities. These and other job-related  
44  
45 variables influence the relation between education and happiness. Other studies about  
46  
47 happiness that do not include job related variables report a positive relation between  
48  
49 education and happiness (cf. Frey, Stutzer 2002).  
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56 Tables 3 and 4 present the analysis of satisfaction, our second measure of  
57  
58 happiness and happyfaction, the combined measure of happiness and life satisfaction.  
59  
60 These analyses show similar results as the analyses of happiness. Parameters of the

1  
2 variables have similar sign and size, thus we can draw the same conclusions, with  
3  
4 respect to the happiness of part-time workers.  
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## 10 **5 Summary and conclusions**

11  
12 In this paper we tried to answer the question what makes workers happy, with an  
13 emphasis on the effect of working hours. We raised this question because it is known  
14 that employed persons are happier than unemployed persons, but it is less well  
15 understood what aspects of employment makes employees happy. The main  
16 contribution of this paper is that it integrates insights from economics, sociology and  
17 psychology into one framework. The basis of this framework is standard micro-  
18 economic labour supply theory in which an employee maximizes utility by balancing  
19 working hours and income. This model is elaborated with job characteristics of which  
20 it is known that it affects job satisfaction or intrinsic motivation and thereby happiness.  
21 We also include other control variables known to affect happiness.  
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36 We analyzed three measures of happiness and all three measures produced  
37 similar results. Our main finding is that part-time working employees are happier than  
38 full-time working employees. Employees trade income with working hours, i.e.  
39 income has a positive effect on happiness whereas working hours has a negative effect,  
40 but the negative effect of working hours is larger than the positive effect of income.  
41 Therefore part-time workers are happier than full-time workers. This finding holds for  
42 the full model that also includes job characteristics and other control variables. That is  
43 not to say that income is totally unimportant, the income effect in the final model is  
44 insignificant, but workers attach more value to subjective or relative income. Earning  
45 an income on which employees live comfortably makes them happy, irrespective of  
46 their absolute level of income. This finding corroborates other research that also  
47 concludes that relative income is more important than absolute income.  
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2 Pouwels, Siegers et al. (2008) present a similar effect on basis of the German  
3  
4 Socio-Economic Panel. They also find a negative effect of working hours on the  
5  
6 happiness of people, but they do not restrict their analysis to working persons. Because  
7  
8 they are more interested in how the inclusion of hours of work affects the effect of  
9  
10 income on happiness within households their sample also includes non-workers. This  
11  
12 might be a reason why they find a somewhat smaller effect of working hours on  
13  
14 happiness than we do. They also do not control for relative income and do not control  
15  
16 for job characteristics that influence happiness. Knabe and Rätzel (2010) only partly  
17  
18 corroborate the results of Pouwels, Siegers et al. (2008) on the German Socio-  
19  
20 Economic Panel.  
21  
22  
23  
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25  
26 We find a strong effect of development possibilities of workers on their  
27  
28 happiness. We also find effects of having autonomy within the job and work pressure.  
29  
30 Irregular working hours shows only a small effect on happiness of workers. These  
31  
32 findings corroborate what is known from sociology and psychology about intrinsic  
33  
34 motivation and job satisfaction. Next to hours of work and income these  
35  
36 characteristics do influence the happiness of employees. So employers can make their  
37  
38 employees happier, and thereby more productive by designing jobs that have a high  
39  
40 amount of autonomy, in which employees can develop themselves, in which the work  
41  
42 pressure is not high and in which employees do not need to work irregular hours.  
43  
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48 Furthermore we found a negative effect of education. This negative effect of  
49  
50 education might be counterintuitive, because it mostly has a positive on happiness for  
51  
52 society at large. The explanation for this negative effect is that education is seen as an  
53  
54 input into the job, i.e. a kind of effort, which needs to be compensated just as working  
55  
56 hours.  
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1  
2 Another contributor to the happiness of workers, hardly to be influenced by  
3 employers, is the commuting time. Employees with long and short commuting times  
4 are unhappier than employees with moderate commuting times.  
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8  
9 We do find big differences in happiness between employees from different  
10 countries. Future research could aim at explaining these differences. The variables  
11 that we included in the model do not explain the differences away, although the  
12 ranking of the countries changes somewhat after controlling for the different variables.  
13  
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16  
17 We furthermore could investigate the differences between men and women. Booth et  
18 al. find that the part-time or working hours affect foremost hold for women and much  
19 less for men.  
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Table 1. Means and standard deviations of satisfaction, happiness and happyfaction

| Country        | happiness |      |      | satisfaction |      | happyfaction |      |
|----------------|-----------|------|------|--------------|------|--------------|------|
|                | N         | Mean | S.d. | Mean         | S.d. | Mean         | S.d. |
| 15 Iceland     | 193       | 6.59 | 1.13 | 6.50         | 1.23 | 6.55         | 1.13 |
| 6Denmark       | 570       | 6.42 | 1.26 | 6.56         | 1.27 | 6.49         | 1.18 |
| 9 Fnland       | 764       | 6.17 | 1.18 | 6.17         | 1.19 | 6.17         | 1.09 |
| 3 Swiss        | 759       | 6.10 | 1.36 | 6.00         | 1.54 | 6.05         | 1.33 |
| 18 Norway      | 761       | 6.00 | 1.33 | 5.79         | 1.50 | 5.89         | 1.30 |
| 14 Ireland     | 530       | 5.97 | 1.49 | 5.78         | 1.55 | 5.88         | 1.38 |
| 21 Sweden      | 779       | 5.87 | 1.38 | 5.90         | 1.43 | 5.88         | 1.32 |
| 2 Belgium      | 596       | 5.82 | 1.24 | 5.53         | 1.38 | 5.67         | 1.19 |
| 16 Luxembourg  | 544       | 5.79 | 1.71 | 5.85         | 1.90 | 5.82         | 1.65 |
| 17 Netherlands | 639       | 5.73 | 1.18 | 5.54         | 1.38 | 5.64         | 1.17 |
| 1 Austria      | 576       | 5.55 | 1.70 | 5.48         | 1.88 | 5.51         | 1.68 |
| 8 Spain        | 488       | 5.50 | 1.48 | 5.31         | 1.63 | 5.40         | 1.40 |
| 22 Slovenia    | 319       | 5.48 | 1.59 | 4.95         | 1.88 | 5.21         | 1.59 |
| 5 Germany      | 830       | 5.37 | 1.75 | 4.96         | 2.02 | 5.17         | 1.74 |
| 12 Greece      | 469       | 5.09 | 1.80 | 4.76         | 1.81 | 4.93         | 1.66 |
| 4 Chech        | 609       | 5.06 | 1.74 | 4.61         | 1.98 | 4.84         | 1.73 |
| 20 Portugal    | 441       | 4.87 | 1.62 | 3.78         | 1.97 | 4.32         | 1.55 |
| 19 Poland      | 402       | 4.83 | 1.98 | 4.33         | 2.20 | 4.58         | 1.91 |
| 13 Hungary     | 408       | 4.71 | 2.04 | 3.68         | 2.05 | 4.20         | 1.82 |
| 7 Estonia      | 613       | 4.50 | 1.89 | 3.91         | 2.03 | 4.20         | 1.78 |
| 23 Slovakia    | 347       | 4.37 | 1.81 | 3.81         | 2.15 | 4.09         | 1.78 |
| 24 Ukrain      | 349       | 3.79 | 2.09 | 2.79         | 1.96 | 3.29         | 1.75 |
| Total          | 11986     | 5.51 | 1.70 | 5.21         | 1.95 | 5.36         | 1.69 |

Source: ESS 2004

Table 2 Analysis of Happiness, ordered probit, with fixed country effects and controls for multiplicative heteroscedasticity with country in the variance component, robust standard errors

|                           | Model I  |          | Model II |          | Model III |          | Model IV  |          |
|---------------------------|----------|----------|----------|----------|-----------|----------|-----------|----------|
|                           | Coeff.   | Std.Err. | Coeff.   | Std.Err. | Coeff.    | Std.Err. | Coeff.    | Std.Err. |
| intercept                 | 1.314    | 0.221    | 1.387    | 0.222    | 1.623     | 0.251    | 4.982     | 0.373    |
| ln(workhours)             | -0.144   | 0.043    | -0.166   | 0.043    | -0.136    | 0.046    | -0.132    | 0.049    |
| ln (income)               | 0.211    | 0.016    | 0.106    | 0.016    | 0.091     | 0.017    | 0.008     | 0.018    |
| missing income            | 2.115    | 0.165    | 1.062    | 0.163    | 0.901     | 0.173    | 0.106     | 0.183    |
| subjective income         |          |          | 0.323    | 0.017    | 0.252     | 0.017    | 0.231     | 0.017    |
| autonomy                  |          |          |          |          | 0.088     | 0.012    | 0.095     | 0.013    |
| workpressure              |          |          |          |          | -0.147    | 0.011    | -0.107    | 0.011    |
| development               |          |          |          |          | 0.213     | 0.013    | 0.183     | 0.013    |
| irregular hours           |          |          |          |          | -0.034    | 0.011    | -0.019    | 0.011    |
| supervisor                |          |          |          |          | -0.011    | 0.025    | 0.001     | 0.026    |
| temporary job             |          |          |          |          | 0.016     | 0.030    | -0.004    | 0.031    |
| firm size 1               |          |          |          |          | 0.132     | 0.040    | 0.104     | 0.041    |
| firm size 2               |          |          |          |          | 0.054     | 0.039    | 0.035     | 0.040    |
| firm size 3               |          |          |          |          | 0.088     | 0.036    | 0.081     | 0.037    |
| firm size 4               |          |          |          |          | 0.098     | 0.039    | 0.089     | 0.040    |
| firm size 5               |          |          |          |          | reference |          | reference |          |
| number of colleagues      |          |          |          |          | 0.011     | 0.008    | 0.013     | 0.008    |
| turn down job             |          |          |          |          | -0.022    | 0.009    | -0.028    | 0.009    |
| similar job elsewhere     |          |          |          |          | 0.018     | 0.004    | 0.011     | 0.004    |
| easily replaced in job    |          |          |          |          | 0.008     | 0.004    | 0.006     | 0.004    |
| time to work              |          |          |          |          | -0.068    | 0.036    | -0.064    | 0.037    |
| time to work squared      |          |          |          |          | 0.007     | 0.004    | 0.006     | 0.004    |
| health                    |          |          |          |          |           |          | 0.288     | 0.017    |
| married man               |          |          |          |          |           |          | reference |          |
| single man                |          |          |          |          |           |          | -0.503    | 0.039    |
| single women              |          |          |          |          |           |          | -0.364    | 0.037    |
| married women             |          |          |          |          |           |          | 0.073     | 0.028    |
| child present             |          |          |          |          |           |          | 0.070     | 0.027    |
| education                 |          |          |          |          |           |          | -0.058    | 0.009    |
| age                       |          |          |          |          |           |          | -0.081    | 0.011    |
| agesq                     |          |          |          |          |           |          | 0.001     | 0.000    |
| trust                     |          |          |          |          |           |          | 0.090     | 0.006    |
| equality                  |          |          |          |          |           |          | -0.008    | 0.010    |
| N                         | 11986    |          | 11986    |          | 11986     |          | 11986     |          |
| Log likelihood function   | -20897.9 |          | -20683.0 |          | -20352.3  |          | -19835.3  |          |
| Restricted log likelihood | -21966.8 |          | -21966.8 |          | -21966.8  |          | -21966.8  |          |
| Chi squared               | 2137.9   |          | 2567.6   |          | 3229.0    |          | 4263.0    |          |
| Wald test (1)             | 2.28     | p=.131   | 1.78     | p=.182   | 0.88      | p=.348   | 5.6       | p=.018   |

Source: ESS 2004

Table 3. Analysis of Satisfaction, ordered probit, with fixed country effects and controls for multiplicative heteroscedasticity with country in the variance component, robust standard errors

|                           | Model I   |          | Model II  |          | Model III |          | Model IV  |          |
|---------------------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
|                           | Coeff.    | Std.Err. | Coeff.    | Std.Err. | Coeff.    | Std.Err. | Coeff.    | Std.Err. |
| intercept                 | 1.010     | 0.217    | 1.061     | 0.217    | 1.433     | 0.243    | 3.977     | 0.363    |
| ln(workhours)             | -0.122    | 0.042    | -0.147    | 0.041    | -0.107    | 0.043    | -0.097    | 0.047    |
| ln (income)               | 0.220     | 0.016    | 0.083     | 0.016    | 0.069     | 0.017    | 0.011     | 0.018    |
| missing income            | 2.268     | 0.164    | 0.900     | 0.158    | 0.749     | 0.167    | 0.202     | 0.178    |
| subjective income         |           |          | 0.435     | 0.019    | 0.364     | 0.018    | 0.338     | 0.019    |
| autonomy                  |           |          |           |          | 0.071     | 0.012    | 0.068     | 0.013    |
| workpressure              |           |          |           |          | -0.166    | 0.011    | -0.132    | 0.011    |
| development               |           |          |           |          | 0.197     | 0.012    | 0.165     | 0.012    |
| irregular hours           |           |          |           |          | -0.036    | 0.011    | -0.024    | 0.011    |
| supervisor                |           |          |           |          | 0.002     | 0.025    | 0.020     | 0.026    |
| temporary job             |           |          |           |          | -0.013    | 0.029    | -0.039    | 0.030    |
| firm size 1               |           |          |           |          | 0.068     | 0.040    | 0.042     | 0.041    |
| firm size 2               |           |          |           |          | 0.018     | 0.039    | -0.002    | 0.040    |
| firm size 3               |           |          |           |          | 0.058     | 0.036    | 0.048     | 0.037    |
| firm size 4               |           |          |           |          | 0.014     | 0.039    | 0.001     | 0.040    |
| firm size 5               |           |          |           |          | reference |          | reference |          |
| number of colleagues      |           |          |           |          | 0.013     | 0.008    | 0.014     | 0.008    |
| turn down job             |           |          |           |          | -0.060    | 0.009    | -0.065    | 0.009    |
| similar job elsewhere     |           |          |           |          | 0.018     | 0.004    | 0.011     | 0.004    |
| easily replaced in job    |           |          |           |          | 0.006     | 0.004    | 0.003     | 0.004    |
| time to work              |           |          |           |          | -0.105    | 0.037    | -0.103    | 0.038    |
| time to work squared      |           |          |           |          | 0.011     | 0.004    | 0.011     | 0.004    |
| health                    |           |          |           |          |           |          | 0.269     | 0.016    |
| married man               |           |          |           |          |           |          | reference |          |
| single man                |           |          |           |          |           |          | -0.334    | 0.038    |
| single women              |           |          |           |          |           |          | -0.179    | 0.035    |
| married women             |           |          |           |          |           |          | 0.088     | 0.028    |
| child present             |           |          |           |          |           |          | 0.070     | 0.027    |
| education                 |           |          |           |          |           |          | -0.055    | 0.009    |
| age                       |           |          |           |          |           |          | -0.066    | 0.011    |
| agesq                     |           |          |           |          |           |          | 0.001     | 0.000    |
| trust                     |           |          |           |          |           |          | 0.113     | 0.007    |
| equality                  |           |          |           |          |           |          | -0.033    | 0.010    |
| N                         | 11986     |          | 11986     |          | 11986     |          | 11986     |          |
| Log likelihood function   | -21715.66 |          | -21333.87 |          | -20966.16 |          | -20521.22 |          |
| Restricted log likelihood | -23397.45 |          | -23397.45 |          | -23397.45 |          | -23397.45 |          |
| Chi squared               | 3363.58   |          | 4127.16   |          | 4862.58   |          | 5752.46   |          |
| Wald test (1)             | 5.03      | p=.025   | 2.13      | p=.144   | 0.69      | p=.405   | 2.99      | p=.084   |

Source: ESS 2004

Table 4. Analysis of Happyfaction, regression model of multiplicative heteroscedasticity with country in the variance component, and with fixed country effects

|                           | Model I   |          | Model II  |          | Model III |          | Model IV  |          |
|---------------------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
|                           | Coeff.    | Std.Err. | Coeff.    | Std.Err. | Coeff.    | Std.Err. | Coeff.    | Std.Err. |
| intercept                 | 3.095     | 0.283    | 3.165     | 0.274    | 3.503     | 0.289    | 6.869     | 0.384    |
| ln(workhours)             | -0.173    | 0.053    | -0.206    | 0.051    | -0.153    | 0.051    | -0.135    | 0.052    |
| ln (income)               | 0.331     | 0.020    | 0.152     | 0.021    | 0.123     | 0.020    | 0.028     | 0.020    |
| missing income            | 3.382     | 0.207    | 1.564     | 0.210    | 1.264     | 0.207    | 0.348     | 0.206    |
| subjective income         |           |          | 0.548     | 0.019    | 0.423     | 0.019    | 0.368     | 0.019    |
| autonomy                  |           |          |           |          | 0.113     | 0.015    | 0.101     | 0.014    |
| workpressure              |           |          |           |          | -0.204    | 0.013    | -0.147    | 0.012    |
| development               |           |          |           |          | 0.262     | 0.014    | 0.203     | 0.013    |
| irregular hours           |           |          |           |          | -0.049    | 0.013    | -0.031    | 0.012    |
| supervisor                |           |          |           |          | -0.006    | 0.029    | 0.012     | 0.028    |
| temporary job             |           |          |           |          | -0.015    | 0.036    | -0.044    | 0.034    |
| firmsize 1                |           |          |           |          | 0.123     | 0.047    | 0.093     | 0.045    |
| firmsize 2                |           |          |           |          | 0.044     | 0.045    | 0.021     | 0.043    |
| firmsize 3                |           |          |           |          | 0.086     | 0.042    | 0.071     | 0.040    |
| firmsize 4                |           |          |           |          | 0.072     | 0.044    | 0.056     | 0.042    |
| firmsize 5                |           |          |           |          | reference |          | reference |          |
| number of colleagues      |           |          |           |          | 0.013     | 0.009    | 0.014     | 0.009    |
| turn down job             |           |          |           |          | -0.053    | 0.011    | -0.057    | 0.010    |
| similar job elsewhere     |           |          |           |          | 0.023     | 0.005    | 0.013     | 0.004    |
| easily replaced in job    |           |          |           |          | 0.009     | 0.005    | 0.006     | 0.005    |
| time to work              |           |          |           |          | -0.111    | 0.044    | -0.104    | 0.042    |
| time to work squared      |           |          |           |          | 0.012     | 0.005    | 0.011     | 0.004    |
| health                    |           |          |           |          |           |          | 0.343     | 0.017    |
| married man               |           |          |           |          |           |          | reference |          |
| single man                |           |          |           |          |           |          | -0.527    | 0.041    |
| single women              |           |          |           |          |           |          | -0.344    | 0.039    |
| married women             |           |          |           |          |           |          | 0.075     | 0.030    |
| child present             |           |          |           |          |           |          | 0.083     | 0.029    |
| education                 |           |          |           |          |           |          | -0.060    | 0.010    |
| age                       |           |          |           |          |           |          | -0.088    | 0.012    |
| agesq                     |           |          |           |          |           |          | 0.001     | 0.000    |
| trust                     |           |          |           |          |           |          | 0.135     | 0.007    |
| equality                  |           |          |           |          |           |          | -0.024    | 0.012    |
| N                         | 11986     |          | 11986     |          | 11986     |          | 11986     |          |
| Log likelihood function   | -21406.8  |          | -21028.45 |          | -20609.69 |          | -20001.73 |          |
| Restricted log likelihood | -21753.36 |          | -21351.52 |          | -20957.35 |          | -20326.8  |          |
| Chi squared               | 693.12    |          | 646.14    |          | 695.32    |          | 650.14    |          |
| Wald test (1)             | 5.77      | p=.016   | 2.17      | p=.141   | 0.8       | p=.371   | 5.19      | p=.023   |

Source: ESS 2004