



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.
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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
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25 and make the employees happier.
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30
31 Until now economists and sociologists hardly paid any attention to intrinsic
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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
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49 psychologists.
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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.
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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

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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.
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32

33
34 To answer these questions we analyze data from the second round of the ESS
35
36 held in 2004 (ESS, 2004). Our set contains data from twenty European countries
37
38 about happiness, income, hours of work and job characteristics¹. Actually, we have
39
40 two measures of happiness, which are more detailed than most American or English
41
42 studies. The data stems from all over the continent, and from all type of countries.
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48 We do not elaborate on the discussion about the use of subjective indicators of
49
50 subjective well-being as good measures of utility. The question whether utility or
51
52 subjective well-being can be measured with questions about satisfaction and
53
54 happiness is an important one, but has been addressed more than adequately by others,
55
56 who showed both theoretically and empirically (Clark, Frijters & Shields 2008, Frey,
57
58 Stutzer 2002, Kahneman, Krueger 2006, Blanchflower, Oswald 2004) that these
59
60

¹ England and France drop out because of missing data on some crucial variables.

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

2 Happiness and work

Hours of work and income

Standard micro-economic labour supply models relate utility or happiness positively to wages and negatively to hours of work (Ehrenberg, Smith 1997 p.180). Hours of work or effort is regarded as a disutility that needs to be compensated to seduce workers to come to work and put some effort into their jobs. The standard model would predict that, in equilibrium, part-time workers have the same level of happiness as full-time workers. As long as the choice for hours of work is unconstrained or voluntary, the lower income of part-time workers is offset by the utility of extra leisure. This would result in the same level of happiness for both part-time and full-time workers. If the choice is constrained and thus more or less involuntary, say by the availability of jobs, happiness will differ between part-time and full-time workers. 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

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

On the other hand part-time jobs could increase happiness because it increases the flexibility of working hours, thereby improving the work-life balance. It also can give social and self esteem and thus increasing happiness (Booth, van Ours 2009). Workers might enjoy working a few hours, instead of being unemployed. It is well documented in the psychological literature that non-monetary rewards make workers more satisfied with their job (Diener et al. 1999). If these rewards are not accounted for, the marginal effects of income or hours of work might be biased and thus showing that part-time workers feel happier than full-time workers. Also contact with colleagues and intrinsic motivation might affect happiness of (part-time) workers. A Dutch standard measure of well-being at work includes the possibilities to talk and confer with colleagues during normal working hours. Sometimes this is impossible due to the nature of the work, i.e. working in a noisy environment. Thus a priori the effect of part-time work on happiness is unclear. It can go both ways, some argue that is positive, others that it is negative.

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

the other hand are more satisfied with their working hours when working full-time. Booth and Van Ours (2008) report for British men and women that hours of work does not affect life satisfaction, but for women they find a positive effect of part-time work on job satisfaction. Clark (1997) reports, based on a large scale British survey, a negative effect of hours of work on job satisfaction. Gash, Mertens et al. (2009) report that a decrease in working hours makes British and German women happier. Sousa-Poza and Sousa-Poza (2000b, 2000a), analyzing the 1997 ISSP, report a negative effect of women's working hours on their job satisfaction, but do not find an effect for men. Kristensen and Johansson (2008) report a strong negative effect of the natural logarithm of working hours on job satisfaction. Holst and Trzcinski (2003) show that German mothers are more satisfied working part-time than full-time. Peiró (2006) finds for some countries negative effects and for others positive effects of part-time work on happiness. Seldom a strong effect is found.

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

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

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

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

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

Job characteristics

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

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

9 Karasek (1979) and Karasek and Theorell (1990) state that jobs become
10 stressful if the amount of inputs and outputs as seen by the worker is unbalanced. A
11 worker can handle complex jobs as long as he has enough autonomy to deal with
12 these complexities. So autonomy and supervision should have a positive effect on
13 satisfaction. Both autonomy and supervision gives the worker discretion to deal with
14 complexities that he encounters in his job. Based on this job demand model Sousa-
15 Poza and Sousa-Poza (2000b, 2000a) suggest that education should have a negative
16 effect on satisfaction, because it is seen as a labour input. In general it is so, that a job
17 that is felt as stressful should have a negative effect on satisfaction.
18

19 Finally literature about employee relations (Gallie et al. 1998, Huiskamp 2004)
20 tells us that next to autonomy, employee development has a positive impact on
21 satisfaction. Within this literature employee development is seen as more than
22 promotion possibilities, or career advancement. It includes learning and training
23 opportunities, skill development and other ways in which employees can improve
24 themselves. If employers provide ample opportunities for these kinds of employee
25 development than satisfaction will increase. This literature also tells us that good
26 relations with your colleagues improves satisfaction. Part of the non-monetary
27 rewards of jobs is having contact with colleagues, just being able to chat and have a
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good laugh. Also Kahneman and Sugden (2005) report that socializing at and after work has a positive impact on happiness.

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

The Model

Based on the above mentioned literature one could state that the following utility function would be an adequate summary of the literature:

$$U = f(I, H, J)$$

in which: U = happiness or satisfaction

I = income

H = hours of work

J = job characteristics

Because we expect happiness to be concave in hours of work and income (Clark, Frijters & Shields 2008, Frey, Stutzer 2002) we enter the natural logarithms of these 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 considering the high correlation (.72) between these two measures. We label this
2
3
4 measure happyfaction. Happyfaction is the average of satisfaction and happiness.
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7 As basic independent variables in our model we include the natural logarithm
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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
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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.
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23 Next to the direct income measure we also include a measure of subjective
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25 income. Respondents were asked ‘Which of the descriptions on this card comes
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27 closest to how you feel about your household’s income nowadays?’ with possible
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29 answers: living comfortably on present income, coping on present income, finding it
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31 difficult on present income and finding it very difficult on present income. We think
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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
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37 relative judgement of the respondents and thus indicates relative income. Because
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39 people want to compete with the Joneses (Frank 1985) this implies that if they state
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41 that they can do so they have a relatively high income, whereas if they state that they
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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).
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49 Also it is known that income aspirations increases with actual income (Rainwater
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51 1994) in (Easterlin 2005), so a subjective measure is probable better than an objective
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53 measure of relative income.
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The questionnaire contains twenty questions about job characteristics. To reduce the number of variables we performed a factor analysis on these twenty variables about job characteristics. We found four different factors, one related to autonomy, a second one related to work pressure or stress, a third one related to career and development possibilities and a fourth one relating to irregular working hours. In our model we included the factor scores of these four factors.

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

Next to these job related variables we control for other variables that are known to have an effect on happiness. These variables are: health (a subjective measure), married man (reference category), single man, single woman and married women, the presence of a child aged 12 or younger in the household, age, age squared. We also include a variable indicating if persons trust other persons (trust) or want that the government should decrease income inequality (equal), based on the findings of Frey and Stutzer (2002). We also control for travel time to work and travel time to work squared (cf. Stutzer, Frey 2008).

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

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 proof to be different from the other models
15
16 we did estimate and do report here.
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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.
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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
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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 refused to answer the income question. The effect becomes smaller when we add
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3
4 more control variables in the model and becomes insignificant in model IV. This is
5
6
7 mainly due to subjective or relative income, for which we find a strong positive effect.
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9 Employees who state that they live comfortably on their present income are much
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11 happier than employees who find it difficult to live on their present income,
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13
14 irrespective of their absolute income.
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16 The income and hours effect is according to a standard utility function,
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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
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22 on happiness has the same size but opposite direction than that of income in the first
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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
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29

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

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

Firm size does have an effect on happiness, although the effect is difficult to interpret. The employees in the smallest firms are most happy, in the one but smallest are much less happy, then it increases with firm size, but the employees in the biggest firms (reference category) are the least happy. The number of colleagues in the same department does not have an additional effect. It is known that good relations with colleagues improves job satisfaction and of course in large organizations or departments it is more likely to encounter pleasant colleagues, but it is also more likely to encounter less pleasant colleagues. Probably the effect of good relationships with colleagues does not depend on the number of colleagues.

Employees who would not turn down another job with higher pay are unhappier than the employees who would turn down such an job offer. This reveals the importance of making your personnel happy. The subjective labour market situation affects happiness too. Employees who report that they will find similar jobs than they have now elsewhere quite easily are happier than employees who find it difficult to find a similar job elsewhere. Employees who can easily be replaced report the same level of happiness as employees who are difficult to replace. Implicit contracting as indicated by temporary contract, and easily replaced in the job (firm-specific human capital) does not seem to affect happiness.

We do find a negative effect of education on happiness. This corroborates the findings of Sousa-Poza and Sousa-Poza (2000b, 2000a). They say that education should be seen as an employee input into the job, just as hours of work and other effort measures, and therefore should have a negative effect on job satisfaction and thus on happiness in our model. The investment in human capital should be rewarded by obtaining jobs with favourable job characteristics, like autonomy and development possibilities. Otherwise the highly educated employees suffer. We corroborate this effect for happiness although the bivariate correlation between education and happiness is positive, though small (.08). It becomes negative after inclusion of the job related variables. Higher educated employees perceive more autonomy, more work pressure, more career and development possibilities. These and other job-related variables influence the relation between education and happiness. Other studies about happiness that do not include job related variables report a positive relation between education and happiness (cf. Frey, Stutzer 2002).

Tables 3 and 4 present the analysis of satisfaction, our second measure of happiness and happyfaction, the combined measure of happiness and life satisfaction. These analyses show similar results as the analyses of happiness. Parameters of the

variables have similar sign and size, thus we can draw the same conclusions, with respect to the happiness of part-time workers.

5 Summary and conclusions

In this paper we tried to answer the question what makes workers happy, with an emphasis on the effect of working hours. We raised this question because it is known that employed persons are happier than unemployed persons, but it is less well understood what aspects of employment makes employees happy. The main contribution of this paper is that it integrates insights from economics, sociology and psychology into one framework. The basis of this framework is standard micro-economic labour supply theory in which an employee maximizes utility by balancing working hours and income. This model is elaborated with job characteristics of which it is known that it affects job satisfaction or intrinsic motivation and thereby happiness. We also include other control variables known to affect happiness.

We analyzed three measures of happiness and all three measures produced similar results. Our main finding is that part-time working employees are happier than full-time working employees. Employees trade income with working hours, i.e. income has a positive effect on happiness whereas working hours has a negative effect, but the negative effect of working hours is larger than the positive effect of income. Therefore part-time workers are happier than full-time workers. This finding holds for the full model that also includes job characteristics and other control variables. That is not to say that income is totally unimportant, the income effect in the final model is insignificant, but workers attach more value to subjective or relative income. Earning an income on which employees live comfortably makes them happy, irrespective of their absolute level of income. This finding corroborates other research that also concludes that relative income is more important than absolute income.

Pouwels, Siegers et al. (2008) present a similar effect on basis of the German Socio-Economic Panel. They also find a negative effect of working hours on the happiness of people, but they do not restrict their analysis to working persons. Because they are more interested in how the inclusion of hours of work affects the effect of income on happiness within households their sample also includes non-workers. This might be a reason why they find a somewhat smaller effect of working hours on happiness than we do. They also do not control for relative income and do not control for job characteristics that influence happiness. Knabe and Rätzl (2010) only partly corroborate the results of Pouwels, Siegers et al. (2008) on the German Socio-Economic Panel.

We find a strong effect of development possibilities of workers on their happiness. We also find effects of having autonomy within the job and work pressure. Irregular working hours shows only a small effect on happiness of workers. These findings corroborate what is known from sociology and psychology about intrinsic motivation and job satisfaction. Next to hours of work and income these characteristics do influence the happiness of employees. So employers can make their employees happier, and thereby more productive by designing jobs that have a high amount of autonomy, in which employees can develop themselves, in which the work pressure is not high and in which employees do not need to work irregular hours.

Furthermore we found a negative effect of education. This negative effect of education might be counterintuitive, because it mostly has a positive on happiness for society at large. The explanation for this negative effect is that education is seen as an input into the job, i.e. a kind of effort, which needs to be compensated just as working hours.

Another contributor to the happiness of workers, hardly to be influenced by employers, is the commuting time. Employees with long and short commuting times are unhappier than employees with moderate commuting times.

We do find big differences in happiness between employees from different countries. Future research could aim at explaining these differences. The variables that we included in the model do not explain the differences away, although the ranking of the countries changes somewhat after controlling for the different variables. We furthermore could investigate the differences between men and women. Booth et al. find that the part-time or working hours affect foremost hold for women and much less for men.

References

- Baron, J.N. & Kreps, D.M. 1999, *Strategic Human Resources: Frameworks for General Managers*, Wiley & Sons, New York.
- Blanchflower, D.G. & Oswald, A.J. 2004, "Well-being over time in Britain and the USA", *Journal of Public Economics*, vol. 88, no. 7-8, pp. 1359-1386.
- Booth, A.L. & van Ours, J.C. 2009, "Hours of Work and Gender Identity: Does Part-time Work Make the Family Happier?", *Economica*, vol. 76, no. 301, pp. 176-196.
- Booth, A.L. & van Ours, J.C. 2008, "Job satisfaction and family happiness: The part-time work puzzle", *Economic Journal*, vol. 118, no. 526, pp. F77-F99.
- Clark, A.E. 1997, "Job satisfaction and gender: Why are women so happy at work?", *Labour Economics*, vol. 4, no. 4, pp. 341-372.

- Clark, A.E., Frijters, P. & Shields, M.A. 2008, "Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles", *Journal of Economic Literature*, vol. 46, no. 1, pp. 95-144.
- Di Tella, R., MacCulloch, R.J. & Oswald, A.J. 2003, "The Macroeconomics of Happiness", *The review of economics and statistics*, vol. 85, no. 4, pp. 809.
- Diener, E., Suh, E.M., Lucas, R.E. & Smith, H.L. 1999, "Subjective well-being: Three decades of progress", *Psychological bulletin*, vol. 125, no. 2, pp. 276-302.
- Easterlin, R.A. 2005, "Building a Better Theory of Well-Being" in *Economics and Happiness - Framing the Analyses*, eds. L. Bruni & P.L. Porta, Oxford University Press, Oxford, pp. 29-64.
- Easterlin, R.A. 1974, "Does Economic Growth Improve the Human Lot?" in *Nations and Households in Economic Growth: Essays in Honor of Moses Abramowitz*, eds. P.A. David & M.W. Reder, Academic Press, New York, pp. 89-125.
- Ehrenberg, R.G. & Smith, R.S. 1997, *Modern Labor Economics: Theory and Public Policy*, Addison-Wesley, Reading, Massachusetts.
- ESS Round 2: European Social Survey (2008): *ESS-2 2004 Documentation Report. Edition 3.1*. Bergen, European Social Survey Data Archive, Norwegian Social Science Data Services.
- Ferrer-i-Carbonell, A. 2005, "Income and well-being: an empirical analysis of the comparison income effect", *Journal of Public Economics*, vol. 89, no. 5-6, pp. 997-1019.

- 1 Frank, R.H. 1985, *Choosing the right pond : human behavior and the quest for status*,
2
3 Oxford University Press, Oxford.
4
5
6
7
8 Frey, B. 1997, "On the relationship between intrinsic and extrinsic work motivation",
9
10 *International Journal of Industrial Organization*, vol. 15, pp. 427-439.
11
12
13
14 Frey, B.S. & Stutzer, A. 2002, "What Can Economists Learn from Happiness
15
16 Research?", *Journal of Economic Literature*, vol. 40, no. 2, pp. 402-435.
17
18
19
20 Gallie, D., White, M., Cheng, Y. & Tomlinson, M. 1998, *Restructuring the*
21
22 *Employment Relationship*, Oxford University Press, Oxford.
23
24
25
26 Gash, V., Mertens, A. & Romeu-Gordo, L. 2009, *Women between Part-Time and*
27
28 *Full-Time Work: The Influence of Changing Hours of Work on Happiness and*
29
30 *Life-Satisfaction*, The University of Manchester, Manchester.
31
32
33
34 Greene, W.H. 1998, *LIMDEP version 7.0 Users's Manual Revised Edition*,
35
36 Econometric Software Inc, Plainview.
37
38
39
40 Greene, W.H. 1990, *Econometric Analysis*, Macmillan Publishing Company, New
41
42 York.
43
44
45
46 Hackman, J.R. & Oldham, G.R. 1980, *Work Redesign*, Addison Wesley, Reading.
47
48
49
50 Hakim, C. 1997, "A Sociological Perspective on Part-time Work" in *Between*
51
52 *Equalization and Marginalization. Women working Part-time in Europe and the*
53
54 *United States of America*, eds. H. Blossfeld & C. Hakim, Oxford University Press,
55
56 Oxford, pp. 22-70.
57
58
59
60 Holst, E. & Trzcinski, E. 2003, "High Satisfaction Among Mothers Who Work Part-
time", *Economic Bulletin*, vol. 40, no. 10, pp. 327-332.

- Huiskamp, R. 2004, *Employment Relations in Transition: An Introduction in Theory, Trends and Practice*, Lemma, Utrecht.
- Kahneman, D. & Sugden, R. 2005, "Experienced utility as a standard of policy evaluation", *Environmental & Resource Economics*, vol. 32, no. 1, pp. 161-181.
- Kahneman, D. & Krueger, A.B. 2006, "Developments in the Measurement of Subjective Well-Being", *Journal of Economic Perspectives*, vol. 20, no. 1, pp. 3-24.
- Karasek, R.A. 1979, "Job demands, job decision latitude, and implications for job redesign", *Administrative Science Quarterly*, vol. 24, pp. 285-307.
- Karasek, R.A. & Theorell, T. 1990, *Healthy work, Stress, productivity, and the reconstruction of working life*, Basic Books, New York.
- Knabe, A. & Rätzl, S. 2010, "Income, happiness, and the disutility of labour", *Economics Letters*, vol. 107, no. 1, pp. 77-79.
- Kristensen, N. & Johansson, E. 2008, "New evidence on cross-country differences in job satisfaction using anchoring vignettes", *Labour Economics*, vol. 15, no. 1, pp. 96-117.
- Layard, R. 2005, *Happiness: Lessons from a new science*, Allan Lane, London.
- Lazear, E.P. & Gibbs, M. 2009, *Personnel Economics in Practice*, John Wiley & Sons, New York.
- Parker, S. & Wall, T. 1998, *Job and Work Design: Organizing Work to Promote Well-Being and Effectiveness*, Sage Publications, Thousand Oaks.

- 1
2 Peiró, A. 2006, "Happiness, satisfaction and socio-economic conditions: Some
3
4 international evidence", *Journal of Socio-economics*, vol. 35, no. 2, pp. 348-365.
5
6
7
8 Pouwels, B., Siegers, J. & Vlasblom, J.D. 2008, "Income, working hours, and
9
10 happiness", *Economics Letters*, vol. 99, no. 1, pp. 72-74.
11
12
13
14 Rainwater, L. 1994, "Standards of Living and Families: Observation and Analysis", ,
15
16 pp. 25-39.
17
18
19
20 Snijders, T. & Bosker, R. 1999, *Multilevel Analysis: An introduction to basic and*
21
22 *advanced multilevel modeling*, Sage Publications, London.
23
24
25
26 Sousa-Poza, A. & Sousa-Poza, A.A. 2000a, "Taking Another Look at the Gender/Job-
27
28 Satisfaction Paradox", *Kyklos*, vol. 53, no. 2, pp. 135-152.
29
30
31
32 Sousa-Poza, A. & Sousa-Poza, A.A. 2000b, "Well-being at work: a cross-national
33
34 analysis of the levels and determinants of job satisfaction", *Journal of Socio-*
35
36 *economics*, vol. 29, no. 6, pp. 517-538.
37
38
39
40 Stutzer, A. & Frey, B.S. 2008, "Stress that Doesn't Pay: The Commuting Paradox",
41
42 *Scandinavian Journal of Economics*, vol. 110, no. 2, pp. 339-366.
43
44
45
46 van der Meer, P. & Wielers, R. 1998, "Hierarchy, Wages and Firm Size", *Acta*
47
48 *Sociologica (Taylor & Francis Ltd)*, vol. 41, no. 2, pp. 163-172. -
49
50
51
52
53
54
55
56
57
58
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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, orderer 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
firmsize 1					0.068	0.040	0.042	0.041
firmsize 2					0.018	0.039	-0.002	0.040
firmsize 3					0.058	0.036	0.048	0.037
firmsize 4					0.014	0.039	0.001	0.040
firmsize 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