The effect of working hours on subjective well being

Abstract

This thesis uses the subjective well being scores of 53.000 Europeans as a proxy for their utility.[1] It is an attempt to explain the lack of consensus of the role working hours play in the average individual utility function. It will be shown that the sample choice and the origin of the sample are important determinants for the relation between working hours and subjective well being (SWB), and for the influence working more or less than fulltime has on the likelihood of being very happy. The interaction effects of different demographic subgroups and 20 different European countries is explored for both the effect of marginal working hours on SWB and the effect of working more or less than full-time on the chance of being very happy.

Master Thesis
Candidate: Wieke Tonies (280439)
Economics of Markets, Organisations and Policy
Erasmus School of Economics, Erasmus University Rotterdam
Supervisor: Prof. dr. Robert Dur
August 2011

ERASMUS UNIVERSITEIT ROTTERDAM

---

[1] I use utility, subjective well being and overall happiness interchangeable in this thesis. I'm fully aware of the different meaning of the concepts. I have also taken notice on the doubt many economists have on the use of subjective well being as a proxy for utility. I do motivate in a separate chapter why this is defendable, those who are not convinced are advised to just look at this thesis as a study on subjective well being.

Table of content

1. Introduction

In neoclassical economic theory it is assumed that individuals maximize their utility. They know their preferences and these preferences are consistent. Working hours have a negative effect on a person's utility. The income received in return compensates for this effect. There is a tradeoff between leisure and income. Individuals maximize the number of hours they spend on a paid job in such way that they optimize their utility. The outcome of this optimization process depends on their wage, non-working income, wealth and nature for (dis)utility obtained from working hours and leisure. Therefore the optimal amount of working hours for each individual is reached when his marginal rate of substitution, between work and leisure, expressed as utility, received in wage and enjoyment of leisure, equals his wage rate. At this point the individual is indifferent between an extra hour of work and an extra hour of leisure.

Easterlin (1974) started using surveys, providing large datasets on an individual level, to test neo-classic theory empirically. This lead to the famous Easterlin paradox; even though richer Americans were happier than poor ones in a given year, average happiness had not increased over the past 30 years (38 years later it still hasn't despite rising average income). It became apparent hat income only increases utility if not all basic needs are satisfied. According to Myers (2000) this point was reached at about $8000 (in the year 2000). When that level of income is reached the effect of marginal utility of income diminishes and becomes almost negligible. SWB scores reported in representative surveys are now common use to approximate individual utility levels. It is an ongoing discussion whether this is an appropriate way to measure utility, which will be discussed further on.

With the relationship between utility and income being less clear than once assumed, one can start wondering what motivates people to work. Do people really dislike working? Is the reason people work just to earn money to afford a desirable standard of living? If it isn't income per se that makes people satisfied, than what else compensates them for the hours they spent on a paid job? One of the explanations could be that humans are intrinsically motivated to work, and receive direct utility from it. If so, work should be worth pursuing in itself, disregarding any income or other non-financial rewards such as social contacts. If not, thus working hours provide disutility, the neo-classics where right, and people need to get at least some kind of (non) financial compensation. At least as long as we stay and I have no desire to

default on this, within the paradigm that the human race is utility maximizing 'specie'.[2] To know the direct effect working hours have on SWB is important for our understanding of its role in a person's utility function, and consequently in our understanding of labor markets.

This thesis provides insights on the role working hours play in a person's utility function. I use little over 53000 observations obtained from the European Social Survey to show how belonging to a demographic subgroup and the origin of an individual, interacts with the utility received from working hours. [3] My work hooks up with the work of Okulics-Kozary (2010), who traced the different effects working hours have on the SWB of Europeans and Americans. The reason for his research was, and I quote: *"Clearly there is a lack of cross national research on the effect of working hours on happiness and this paper is a first attempt at filling this gap"* (p. 227). Many contradicting claims have been made on the interaction between SWB and working hours. I suspect the origin of the survey and the demographic characteristics of the sample to be at least partly responsible for these contradictions. I use the exact same dataset with the exact same questions to test this relationship on different countries and different demographic subgroups.

---

[2] There are examples where the utility maximizing theory is empirically proven wrong due to lack of self control. For example: smoking, obesity or watching television. A good overview is provided by Stutzer and Frey (2006).
[3] The European Social survey is funded by the European Science Foundation. Four waves have now been made public. 22 countries participated in the first round, 26 in round 2, 25 in Round 3, 31 in Round 4. Detailed information can be found on the website: www.europeansocialsurvey.org.

2. Literature on working hours in relation to SWB

There is no consensus on the relationship between utility and working hours. In their overview on recent developments in the economics of happiness, Dolan, Peasgood and White (2007) devote a short subchapter to this subject. They start with the sentence: *While evidence is relatively clear that employment is better than unemployment, the relationship between the amount of work (e.g. numbers of hours worked) and well being is less straight forward* (p. 102). In the literature four different claims are made about the effect working hours have on SWB. These claims are: linear positive, linear negative, hill-shaped and no effect, which will be summarized in that order.

According to Weinzierl (2005) and Meier and Stutzer (2006) SWB rises with longer working hours. Okulics-Kozaryn (2010) finds that more working hours increases the chance of being very happy, for Americans, but not Europeans. Many studies focus on differences between fulltime and part-time employment. Some report lower SWB-scores for part-time employment (Berger; 2009, Schoon, Hanson and Salmela-Aro, 2005; Gruber and Mullainathan, 2005; Bardasi and Francesconi, 2004; Stutzer and Frey 2004). If this is the effect working hours have on SWB, this implies that working hours are an ever increasing source of utility.

Pouwels, Siegers and Vlasblom (2006) find a negative relationship based on German GSOEP data from the 1999 wave. They report the disutility from working hours is responsible for underestimating the positive utility effect from earned income. Utility from income is 12% higher for women and 25% for men, if controlled for working hours. Okulics-Kozaryn (2010) finds a negative relationship between working hours and the chance of being very happy for Europeans. Abundant part-time/fulltime comparisons favor part-time jobs in terms of their effect on happiness (Gash, Mertens and Gordo, 2010; Booth and Ours 2008a)

Several papers suggest the effect of marginal working hours on SWB is hill shaped. Knabe & Ratzel (2010) do not agree with the findings of Pouwels, Siegers and Vlasblom, and use the same dataset (GSOEP 1999–2006) to prove them wrong. After controlling for individual fixed effects they find a weak but positive relationship between SWB and working hours and a negative one for working hours squared. Frey, Benesch and Stutzer (2007) use both working hours (positively correlated), and working hours squared (negatively correlated) as control variables. Menteşoğlu and Vendrik (2011) use panel data and find different optimal working hours, due to hedonic adaptation effects. This means that people get used to a certain

state or condition, in this case working hours. Therefore a short-term and a long term optimum exist. For the short run the highest association with happiness lies at 30 hours a week, for the long run at 37 hours. This inverted U-shaped relationship implies that people do have an intrinsic motivation for working. They simply like it to a certain extent. Only after a certain amount of hours the positive effect is overtaken by the negative and marginal utility obtained from an extra hour of work becomes negative. There are 2 important suspects for this increasing marginal disutility of working hours: professional/personal life conflicts and overtime. Barnett, Gareis and Brennan (2009) test the effect of marginal working hours on the quality of family life in terms of marital role quality, work-family conflict and psychological distress. They show that the amount of working hours and the way couples divide their cumulated working hours influence these quality measures. The squared number of hours people work positively influences work-family conflict and negatively influences marital role quality. Because these factors are obviously correlated to SWB, these findings could explain the negative effect of squared working-hours on SWB. Golden and Wiens-Tuers (2006) show that overtime is a significant factor in causing job and overall life dissatisfaction. Overtime is associated with the most demanding jobs in terms of working hours, causing jobs with long working hours to produce more disutility.

Some studies claim or implicitly show working hours have no effect on overall happiness (Blanchflower and Oswald, 2004a). Gray, Qu, Stanton and Weston , 2004) show that Australian men with long working hours have lower job satisfaction, but those long working hours do not effect overall well being. The same holds true for British working women (Booth and Van Ours; 2008b), job satisfaction is higher for women in part-time positions, but life satisfaction is not effected by long working hours.

If we do not assume the homogeneity of average utility functions across countries, it is unsurprising we find different patterns. Menteşoğlu and Vendrik (2011) and Knabe and Ratzel (2009) use German panel data (GSOEP), and Frey, Beuesch and Stutzer (2007) use the first wave of the European social survey. Bardasi and Francesconi use the British household panel survey. Luttmer (2005) uses the American NSFH. Gray, Qu, Stanton & Weston (2004) use the Australian HILDA, Schoon, Hansson and Salmela-Aro (2005) use different datasets from the UK, Estonia and Finland, and so on. If average utility functions differ between countries, the origin of the dataset might explain some of the different findings. If the origin of the data influences the results, we must be careful in generalizing findings from one country to other countries. To test if differences arise between countries, using the same

dataset with the exact same control variables and no differences in questioning, can help explain different conclusions.

The same can be said about demographic subgroups: many related studies have been performed using a single subgroup. Schoon, Hansson and Salmela-Aro (2005) only use married couples. Gash, Mertens and Gordo (2010) investigate part-time/fulltime differences for women. Holst and Trzcinski (2000) use women with a child as there sample. Gray, Qu, Stanton and Weston's (2004) sample is fathers with their families. I therefore split my sample according to major demographic subgroups to investigate the differences in the effect of working hours on SWB. Differences are compared between men and women, ages under 42 and 42 or over, partner and no partner, low and high income, low and high education and to have children and not to have children.

3.   Hedonic adaptation and interpersonal utility comparison

Empirical research on subjective well being brings some difficulties with it. Two concepts are essential for a good understanding of the validity of this kind of research. Although it does feed critique on my own research, I want to mention both *hedonic adaptation* and *interpersonal utility comparison*.

Hedonic adaptation is an effect we have to take into consideration when evaluating research results based on static situations (Brinckman and Campbell, 1971; Headey and Wearing, 1989). People are known to adapt to new situations. Clark, Diener, Georgellis and Lucas (2008) cannot reject the hypotheses of completely adapting to marriage, divorce, widowhood, birth of child and layoff. Therefore it might be that cross section analysis leads to overestimation the effect events have on overall happiness. The effect a variable has on happiness might be in transition toward complete adaptation. It could theoretically be the case that the effect of working hours on SWB does not hold in the long run, because people will adapt to changed circumstances. Clark, Diener, Georgellis and Lucas also find that this is not the case for unemployment. Montesogly and Vendric take these hedonic adaptation effects into account and therefore find different optimal working hours for the long and the short run.

Interpersonal utility comparison is a touchy subject for economists concerned with empirical happiness research. Orthodox economists argue that we cannot compare utility or overall happiness scores, between persons because of the qualia problem (Di Tella and MacCulloch, 2006). This is the problem of different internal transformation processes between persons for positive or negative events. Suppose we measure at different occasions the happiness of two different persons, before and after consuming good C. Both experience the event in a positive way. Person A consequently reports higher increases after consumption than person B does. The conclusion after running a regression will now be: Person A receives more utility from good C than person B does. But what if person B has a conversion factor smaller than 1 times the factor person A uses. There is no standard for the conversion of the old state of happiness to the new state of happiness after an event. Therefore the happiness increase of person A cannot be compared to that of person B. This problem worsens when reaching the bottom or the top of a happiness scale. A person at the top (bottom) of the scale reports less happiness increase (decrease) after a positive (negative) occurrence. This doesn't mean a positive event doesn't affect the ones at the top; it is just not possible to express any

increase on the scale, due to boundaries. Diminishing marginal happiness therefore can be falsely observed, in regressions outputs, due to reaching the upper or lower boundaries.

4.　　Subjective well being as a proxy for utility

SWB is measured in most surveys in one of the following (or similar) ways:

*"*Taken all together, how would you say things are these days? Would you say that you are very happy, quite happy or not too happy*"[4].

" All things considered, how satisfied are you with your life as a whole nowadays? Please answer using this card, where 0 means extremely dissatisfied and 10 means extremely satisfied":*

Extremely Dissatisfied *00 01 02 03 04 05 06 07 08 09 10* **Extremely Satisfied** *(88= don't know).[5]*

To describe SWB as a proxy for utility let's first look at the exact meaning of utility. Clark, Frijters and Shields (2008) argue that utility has the following two characteristics. *1 Utility guides individual choice in the sense that choices serve to maximize the expected stream of utility. 2 Utility is the outcome of both choices and chance factors that were outside the control of the individual but whose possibility was taken into account when decisions were made* (p. 115). The question is does SWB fulfill these definitions. Coming up with hard evidence is impossible. There is however circumstantial evidence that it does.

The first argument why SWB is a good proxy for Utility is its correlation with objective criteria. Circumstances that most of us would consider valuable and part of utility, like marriage or employment do correlate significantly with overall life satisfaction or happiness. The trade-offs from these variables have to some extent been quantified. Carrol Frijters and Shield (forthcoming) estimate the implicit value of marriage to be about twice an average year income, making the reward worth pursuing. The time and trouble people are prepared to go through in their pursuit of finding a partner is therefore justified. The possibility of an increase in happiness is guiding the individual to take his chances in finding a life partner. The same holds for seeking a new job with higher job satisfaction. We invest effort, sometimes endure a loss of income, to take our chances in the pursuit of more happiness. When we obtain this higher job satisfaction we indeed score higher on SWB. These examples, and many more can be conjured up, relating to SWB are the things we try to

---

[4] Question comes from the General Social Survey (GSS).
[5] Question comes from GSOEP.

maximize through the choices we make, and when we have attained them, they are reflected in the outcome of SWB scores.[6]

Another argument is neurological in nature. We, or better, brain scientists, have established significant positive and negative correlations between SWB-scores and emotional expressions and brain activity that are proven to be linked with positive or negative feelings (Davidson, 2004). This means that in the outcome of our SWB-score true objective happiness is represented. Psychologists (Diener and Lucas 1999) showed that people are very good in predicting the state of another person's happiness showed on a video. We can predict other persons SWB-scores. This implies that subjective well being is at least to some extent observable and therefore less subjective than we might expect.

Research show that utility theory does correspond with how individuals optimize SWB. SWB can predict future behavior. Individuals do for example discontinue activities that are responsible for low levels of well being. Gardner and Oswald (2006) show that low SWB scores predict future marital break-up. It can also predict which people will quit their jobs. Controlled for income and other job variables, SWB is shown to be the driving force of behavioral choices. In this case to quit with a disutility providing job (Clark 2001).

The most important critics on these subjective well being questions as a proxy for utility are that it is subjective, it is not a verifiable life experience, nor a known personal fact like someone's income. It is a retrospective judgment very likely to be clouded by the respondent's current mood and immediate context in which the question is asked. Even though it is explicit in the questions to consider all things, recent events have extra weight on the construction of life satisfaction (Schwartz, 1987; Redelmeier and Kahneman, 1996). Even something as unrelated to long term life satisfaction like the atmospheric conditions when answering the question, or finding a dime just before answering the question, influences the answers to life satisfaction and overall happiness significantly. Those effects on SWB questions increase the noise in the correlation between life satisfaction and utility. But with large enough samples we can presume the average effect of these factors to be zero (Bechetti 2011).

Many economists hold on to the tradition that economic research should be about the observable. Inference of utility should be based on the outcome of individual choices on

---

[6] Argument has been rewritten but finds its origin in: Clark, Frijters and Shield: Relative Income, Happiness and Utility (2008).

consumption, savings and investments.[7] Frey and Stutzer (2002) summarize these arguments extensively.

Another argument is that there is more to utility than just happiness. It just doesn't completely cover the whole concept. Kimball and Willis (2006) argue that other aspects of utility exist in addition to happiness or life satisfaction, namely autonomy, competence, personal growth, positive relationships, self-acceptance, engagement and meaning. These other aspects of the concept of utility form a trade off with happiness or life satisfaction.

It is up to the reader to decide which side of the discussion you feel most comfortable with. I assume opponents, of the usage of SWB as a proxy for utility, do agree life satisfaction is an important value as such. It therefore is valuable to do research on what influences human overall happiness.

---

[7] The theory behind this is called "revealed preference".

5.   Research Design

5.1   Research questions

As mentioned in the literature section, a lot is unclear concerning the effect of working hours on SWB. I therefore will perform an explorative research on this topic. I use two different regression techniques, linear and logistic. Both quite common in life satisfaction literature.[8] The reason for using these two different techniques is twofold. It makes my results more comparable with other papers and it makes my outcomes more convincing as both regressions confirm each other's outcome. First I test the connection between each additional working hour and SWB. For this I use a static linear regression model. Second I test the effect working more than fulltime, compared to part-time, has on the chance an individual will report a 9 or 10 as SWB-score. For this I will use a binary logistic regression model. Lack of consensus in the literature on the effect working hours have on utility is my motive to clear things up. This lack of consensus refers to both the effect of marginal working hours and to differences between fulltime and part-time employment. With my two regression models I cover both issues. With linear regression it will be possible to test the correlation between additional working hours and overall happiness. Several shapes have been proposed. It might be downward sloping, upward sloping or it can have an inverted U-shape. Off course I will control for a large set of variables that are known to correlate to happiness scores. I will discuss them in the next section. My logistic regression model tests the difference between the influence of part-time and more than fulltime employment on SWB, but not average SWB, but the chance someone has a very high life satisfaction score. I classify someone to be very satisfied when she reports a score of 9 or 10. If we look at the whole sample (over 53.000 observations) about 30% (figure 2) of all observation belong to this category.

I suspect the origin and the selected sample to be part of the reason such contradicting views exists in the literature. I will therefore explore the correlation on a European level, my whole sample, and test all countries separately. I will also test differences between several demographic sub-groups.

---

[8] For example: Theodossiou (1998), Bardasi and Francesconi (2004), Okulics-Kozary (2010) use logistic regression to test the influence determinants of utlity have on the chance on a particular happiness score. Linear regression is among many others used by Booth and Ours (2008), Frey, Benesch and Stutzer (2007), and Clark (2003).

Existing literature raises the following questions when it comes to the effect working hours have on SBW. This thesis is an attempt to fill this gap by answering the following questions:

- What is the marginal effect of working hours on SWB, and how does working part-time or more than full-time influence the chance of being very happy?
- Is this effect homogeneous across 20 European countries?
- Is this effect homogeneous across different demographic groups? (Gender, Education, Age, Living with a partner, Having a child at home and Income).

I would like to point out that it is the isolated effect of working hours on SWB that is the scope of my research. The uncontrolled correlation between working hours and happiness is almost zero and insignificant. Figure 4 (page 21) shows the relationship between working hours and SWB with and without the control variable.

5.2   Data and sample

I use all four waves of the European Social Survey for my analysis. 32 countries have at least once participated in one of the waves of the European social survey. All rounds contain completely new participants, making it unsuitable for panel research, but it does result in a very large sample. Each wave contains about 2000 observations per participating country. The four waves have a cumulative amount of over 190.000 observations.

By selecting my sample of interest I lose quite some observations. At first I drop all participants that are not active in a paid job for at least 1 hour per week. Second I drop all participants younger than 25 and over 64. The reason to drop all below 25 is twofold. The first reason is the confusing measurement of income. The income is measured in total net household income. Even though I do control for family composition it will result in unrepresentative answers, because a substantial part of young adults under 25 still live under their parents roof. This results in reporting their parents' net income instead of their own. Second, I'm interested in the effect of working hours on happiness. This is measured best when these working hours are spent on the job they identify themselves with. Not the kind of work they do for example next to their studies**.** For the same reason I drop all subjects aged over 64. If someone over 65 does some paid work just to have something to do, it leads to misleading results. I also drop all observations that refused to answer, or did not know the

answer to the questions considering income, age, education, and off course overall happiness. For missing observations on other control variables I use the average answer, because I do not want to reduce the usable observations by too much. One of the aims of this thesis is to do cross country comparison. I therefore need countries with sufficient observations to obtain significant results. Some countries only participated in one or two of the four rounds, or did not report family income. I decided to drop all countries with less than 1400 useful observations. After loosing all these observation I still have over 53.000 observation spread over 20 countries.

For the logistic model I only select those who work more than full-time or who work less. I consider 40 hours as a normal full time job. Therefore I drop all who exactly work 40 hours. This is about 20% of the sample.

Figure 1 Sample distribution according to country.
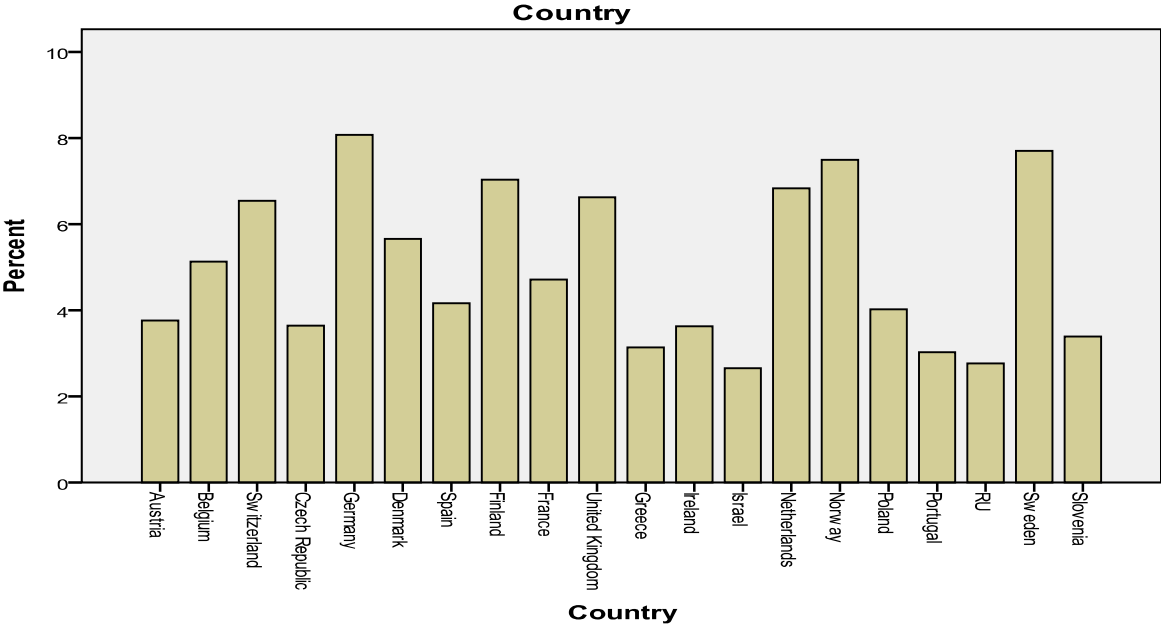
5.3 Models

5.3.1 The linear regression model(s)

One of the aims of this thesis is to test the effect each additional working hour has on SWB. I use a linear regression model to test the shape and the strength of the interaction. Three types of linear forms, and one second order polynomial have past in the literature section. In summary we have: linear rising, linear flat (no correlation) and linear downward. The second order polynomial is the inverted U-shape. Not suggested by existing literature is the second

15

order polynomial model with the (non inverted) U-shape. This is not unimaginable as it could imply disutility from working, however more interesting jobs might be the ones that require more working hours, resulting in marginal positive utility after a certain point.

The shape depends on the beta coefficients of the variables 'Full Time Equivalent' (FTE) and 'Full Time Equivalent squared' (FTE^2). I propose 2 models. Both models include all independent variables that serve as control variables; they differ in the set of independent variables of interest. Model 1 only includes FTE, Model 2 includes both FTE and FTE^2. I choose the model that best fits the relationship. Model 1 is the best fit for a linear relationship. Model 2 is the best fit for a curved relationship. When the beta-coefficient for FTE is positive we obtain a positive linear relationship. When negative, it is downward sloping and in the case the beta is (around) zero, working hours have no effect on SWB. A positive beta for FTE in combination with a negative one for FTE^2 results in an inverted U or hill-shape. In case a negative beta for FTE is combined with a positive one for FTE^2 it results in a U-shape.

I decide what the best model is based on the F-score, more precisely on the change of the F-score. I use hierarchical linear regression and include FTE^2 in the second block if the regression. The added value of FTE^2 to the R-square of the model is decisive for the model of choice. In other words, if, and only if, FTE^2 has significant (p<0,1) additional explaining power to the variance of SWB, on top of all control variables and FTE, I use model 2. In all other cases, I will not be able to reject the H0 of linearity, and therefore use model 1.

5.3.2 The logistic regression model

The logistic model continues the exploration on different effect of working hours on SWB in a less subtle way. I will test whether working more than full time or part time influences the chance of being very happy. Just like in the linear model we test if these differences are homogeneous across countries and demographic sub-groups. As said before, I consider a person to be very happy when she scores a 9 or a 10 on the 11 point happiness scale. About 30% of all Europeans belong to this category (figure 2). I consider 40 hours to be a fulltime job. I want to test the difference between working part-time and working more than fulltime. Therefore I drop all observations that work exactly 40 hours. Figure 1 shows how the sample is spread over these categories.

Figure 2.Sample distribution according to working hours. More, less or exactly 40 hours
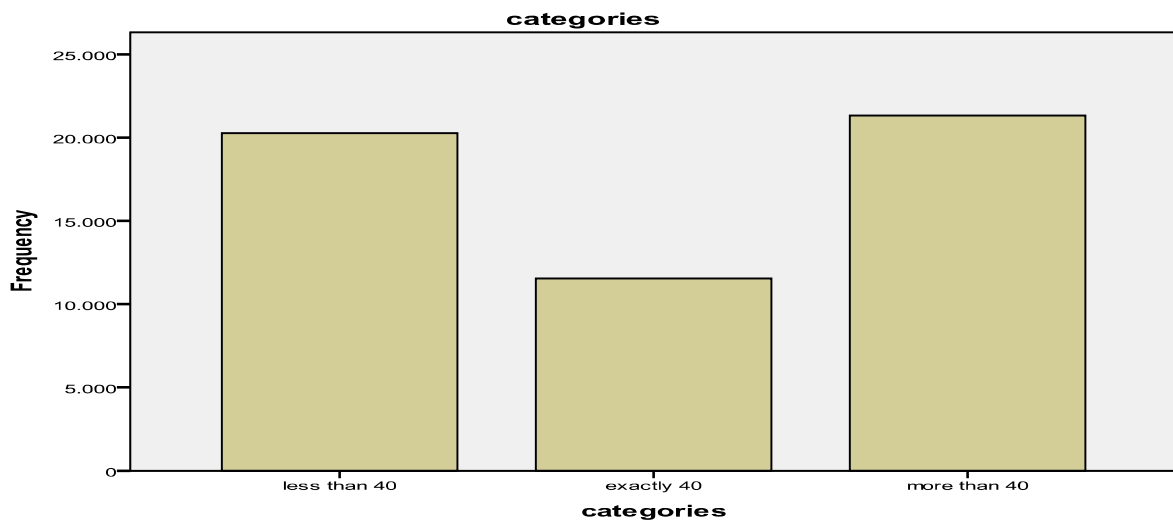
5.4 Variables

5.4.1 Linear regression variables

Dependent variable

The dependent variable used in my linear regression model is subjective well being (SWB). I measure this by the single question:

"All things considered, how satisfied are you with your life as a whole nowadays? Please answer using this card, where 0 means extremely dissatisfied and 10 means extremely satisfied":

**Extremely   Extremely**
Dissatisfied *00   01   02   03   04   05   06   07   08   09   10* **Satisfied**   *(88=Don't know)*

Figure 3 Sample distribution according to life satisfaction

figure 2 shows the answer distribution to this question. The average life satisfaction for all 20 countries together is 7.3. Graph 3 shows the country average. As we can see large differences exist between the European countries. Russia has the lowest average score of 5.23, closely followed by Portugal that scores a 5.71 on average. The Scandinavian countries together with the Netherlands and Switzerland report the highest SWB scores. Denmark scores an 8.55 on average and therefore is the undisputed leader when it comes to average life satisfaction.

Figure 4. Average country scores on Life Satisfaction
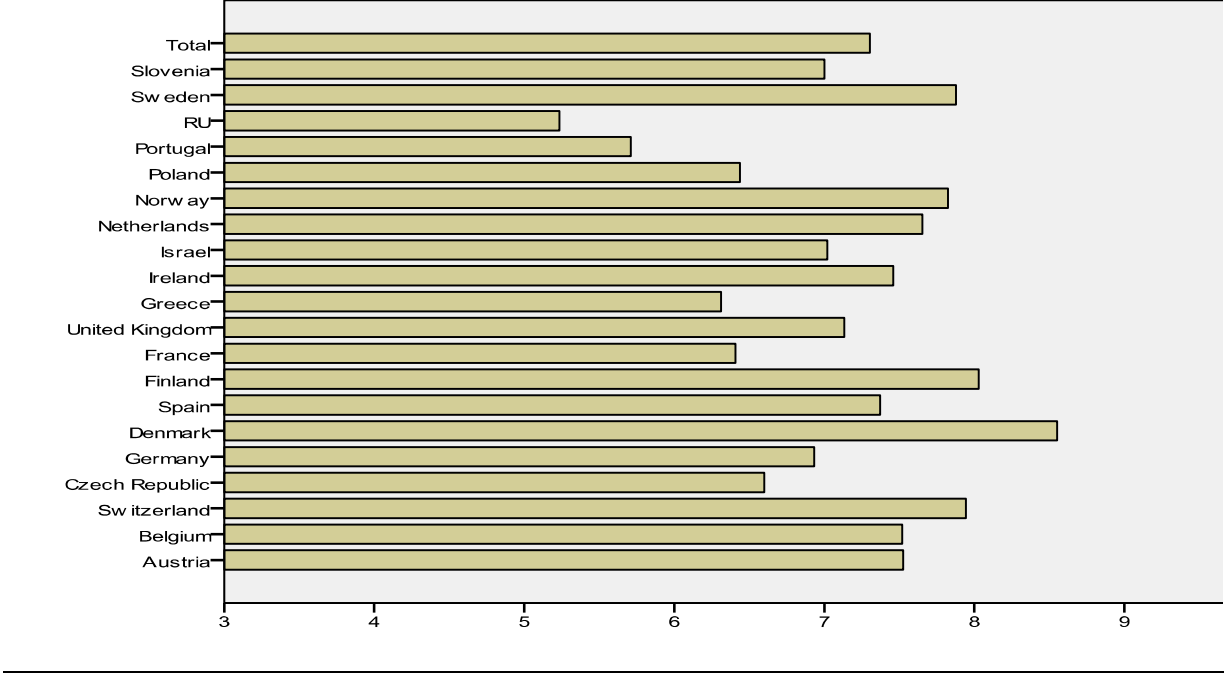
Independent variable(s) of interest

The linear model has full-time equilibrium (FTE) of someone's working hours as its independent variable of interest. This is the number an individual reported as an answer to the following question divided by 40.

Regardless of your basic or contracted hours, how many hours do/did you normally work a week (in your main job), including any paid or unpaid overtime?

To use the equivalent instead of the raw number has no mathematical reason. It does not influence or change any effect or significance. It just makes interpretation easier as it saves some zeros, especially useful for FTE-squared, my second independent variable of interest.

I include FTE-squared to test for nonlinearities in the relation between working hours and SWB. FTE-squared is needed to obtain a U or inverted U-shape, in combination with an opposing effect of FTE. I only include FTE-square in the regression if I can reject the H0 that the relationship is linear.

<u>Control Variables</u>

The control variables I include in the regressions capture many potential differences between people with different working hours, which could possibly be the reason behind different scores of SWB. Dolan, Peasgood and White (2007) give a good overview of the economic research that has been performed on factors that influence individual SWB. I included, as control variables, all determinants of SWB that have been shown in economic literature to influence individual SWB.[9] That is if a question corresponding to these variables is included in the European Social Survey. I will go through all the determinants of life satisfaction that I use as control variables. I will briefly summarize what effect these variables are supposed to have according to existing literature.

Income

Micro economic theory predicts that a higher income level brings an individual to a higher indifference curve and should therefore increase his utility and happiness. The real world is less straight forward. Even though real income has risen in the western economies, average happiness has remained roughly the same or increased marginally. Income matters most for those who have least. Up to the first $8.000(Myers 2000) the relationship is positive; then marginal utility diminishes and from around $12.000(McMahon 2006) there is only a small positive relationship or none. What does matter from this point is the income someone earns compared to relevant others (Ferrer-i-Carbonell, 2004). People that earn more than similar persons in their surroundings receive utility out of this relatively good position. The opposite holds for these who have less. To control for all these income effects I have included dummies for different income groups. Next to those absolute income groups I included one dummy for those who earn substantially (€3000) lessthan their reference group and one dummy for those who earn substantially more (€3000)than their reference group.

Income is measured on family level. The question respondents were asked to answer was the following:

---

[9] As long as it has been mentioned in one of the economic overviews on life satisfaction (Frey and Stutzer (2002); Dolan, Peasgood and White (2007); Bechetti and Pelloni (2011).

*"Using this card, if you add up the income from **all** sources, which letter describes your household's total **net** income? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income".*

To make it possible to compare individuals I have transformed this family income into individual income. The answer to the household income question had to be chosen out of 12 ranges of net income. Because these income groups are not in linear order (see appendix), I used the middle of each income category to base my calculations on. I have used the OECD-modified equivalence scale to calculate the individual equivalent of family income. [10] The OECD suggests with this equivalent scale to asses a weight of 1 to the first adult household member, 0.5 for the second adult and 0.3 for each additional child.[11] For example: If a household contains 2 adults and 3 children with a total family income of €60.000, we calculate the individual equivalent by dividing €60000 by 2.4 (1+0.5+0.3+0.3+0.3=2.4), resulting in the individual equivalent income of €25.000.

In choosing the reference group I followed Ferrer-i-Carbonell (2004). The reference group of an individual contains all individuals living in the same country, within the same age group, with the same level of education. The highest level of education had to be chosen out of 5 categories.[12] I divided age into 5 categories with a range of 10 years each. Now the relevant income is the mean adjusted income of the reference group an individual belongs to. The relative income is calculated by subtracting the relevant income from the individual income equivalent, resulting in a positive number for those who have a positive relative income and a negative number for those with a negative relative income.

Age

Age has a U-shaped relationship-curve with SWB. Life satisfaction reaches its lowest point somewhere between 32 and 50 years of age (Oswald, 1997; Blanchflower and Oswald 2004a; Ferrer-i-Carbonell, and Gowdy, 2007). Easterlin (2006) makes clear that we should not confuse the effect of age on life satisfaction with average happiness at a certain age. Not controlling for income, health, employment, marital status, etc he obtains a hill-shaped relation. I included 'age' and 'age-squared' in the regression.

---

[10] http://www.oecd.org/dataoecd/61/52/35411111.pdf.
[11] This is in line with other papers, for example Brandolini and Smeeding (2008).
[12] Age categories are: 25-34, 35-44, 45-54, 55-64.

Partner

Marriage or living with a partner increases happiness according to many studies. It is almost always included as a control variable in the existing literature concerning SWB (Blanchflower and Oswald, 2004; Frijters and Beatton, 2008, and many others).

Gender

Most studies report higher levels of SWB for women (Aleisina, Di Tella and MacCullloch, 2004). Some however find no gender difference (Louis and Zhao, 2002). I included a dummy for being female in the regression.

Minority status

The two largest ethnic groups in the US, blacks and Hispanics, report different levels of SWB compared to whites. Hispanics score higher (Luttmer, 2005) blacks score lower than whites (Thoits and Hewitt, 2001). I included a dummy for belonging to a minority. I have no literature to relay on in hypothesizing the effect for Europe.

Political persuasion

In related economic literature little is said about the effect of political persuasion of a person. In psychological literature this has been given more attention. Napier and Jost, (2008) gives an overview of the psychological findings that right wingers are happier than left-wingers. The most important reason is that left orientated people are more affected by inequality. I created a dummy for those who place themselves on the left side of the political spectrum.[13]

Social interaction

Literature is consistent about the positive linear relationship between social interaction and SWB (Barker, 2005; Lelkes, 2006; Pichler, 2006). I included the intensity of social interaction in the regression.[14]

---

[13] *"In politics people sometimes talk of "left" and "right". Using this card, where would you place yourself on this scale, where 0 means the left and 10 means the right?":*

Left *00 01 02 03 04 05 06 07 08 09 10* **Right** *(88=don't know).*

[14] *"Using this card, how often do you meet socially with friends, relatives or work colleagues?": Never 01, Less than once a month 02, Once a month 03, Several times a month, 04,Once a week 05, Several times a week 06, Every day 07 ,(88=Don't know).*

Trust in other people

Trust in other people is a relatively strong predictor for SWB. (Helliwell 2003, 2006; Helliwell and Putnam, 2004). I included the self assessed trust in other people in the regression.[15]

Education

Different studies show different outcomes on the relation between the level of education and SWB. Some report a positive relationship. Higher levels of education respond to higher levels of happiness (DeNeve and Cooper, 1998). Others find the highest scores for SWB to be associated with middle levels of education (Stutzer, 2004). Because there is no clear justification from the literature to expect a linear relationship between the level of education and SWB, I include dummies for the different education levels. A description of all educational Categories can be found in the appendix.

Health

The effect of health is undoubted and very strong (Dolan & Kahneman, 2008). Good health is associated with high levels of well being. I included a dummy for the middle category of health and one for the two poorest self assessed health categories.[16]

Unemployment

Unemployment has a large negative effect on SWB (Frey and Stutzer, 2002; Böckerman and Ilmakunnas, 2005, and many others). The unemployed are not included in my sample. There is however proof of a so called 'scar effect'. This is the effect temporary unemployment has on long term SWB. Even after people are re-employed in a similar wage scheme and level of responsibilities, individuals never return to their old levels of SWB (Lucas, Clark, Georgellis and Diener2004). Because of this scar effect I have included a dummy for those who have been unemployed, of any duration, in the last 5 years.

---

[15] Question used: "*Using this card, generally speaking, would you say that most people can be trusted, or that you can't be too careful3 in dealing with people?Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted*".

[16] Question used: "*How is your health in general? Would you say it is: very good, 1 good, 2 fair, 3 bad, 4 or, very bad? 5, (8=Don't know).*

Having children

Haller and Hadler (2006) find that having children has no significant effect on happiness, and Dolan and Kahneman (2008) show that having children has a negative effect on SWB. This effect becomes stronger for families living in relatively harsh conditions like single parenthood, poor families or children who need special care because of physical or mental disabilities. According to (Lelkes, 2006) a positive relationship between children and happiness is more likely to arise when family income is corrected for the family composition. I include a dummy for those individuals who have at least 1 child living at home.

Religiosity

Abundant papers report a significant and positive relationship between the degree someone considers herself religious and/or participates in religious activities (Lelkes, 2006; Clark and Lelkes, 2009; (Becchetti and Pelloni, 2011; Filipic, Perovic, Kosor, 2011)). I included the degree someone considers herself being a religious person, on a scale from 0 to 10, in the regression.

5.4.2 logistic regression variables

The logistic regression differs from the linear one in the following 2 ways:
- It has the dummy variable 'very happy' as dependant variable. Any participant meeting the criterion, a 9 or 10 on the 11 point scale, is considered very happy.
-The independent variable of interest is the dummy variable for working more than full-time. All other variables are identical to the linear model.

6   Results

6.1   The whole sample

Table 1 shows the linear regression with the variable of interest and all its control variables. This is the outcome of the regression performed on the whole sample. The model of choice for the whole sample is model 1. Therefore only FTE is included. The adjusted R-square is 0,245. Country differences partly explain the variance. Leaving the country dummies out of the regression leaves an R-square of 0,212.

Table 1. Linear Regression of the whole sample.

	B	S.E.	t-value
Constant	7,603***	(0,153)	49,787
Full time equivalent 40/h	-0,090***	(0,028)	-3,247
Adjusted Income12.001-24.000=reference income			
Adjusted income<12000	-0,251***	(0,026)	-9,829
Adjusted income 24001-36000	0,037	(0,030)	1,238
Adjusted income>36000	0,087**	(0,035)	2,471
Relative Income between -3000_3000= reference			
Relative income -3000 (neg.)	-0,051**	(0,026)	-1,967
Relative income 3000 (pos.)	0,135***	(0,029)	4,627
Age	-0,089***	(0,007)	-13,044
Age^2	0,001***	(0,000)	12,536
Male=reference			
Female	0,094***	(0,016)	5,860
Education 3 = reference group			
dEDU1	-0,070*	(0,039)	-1,789
dEDU2	0,019	(0,024)	,764
dEDU4	0,052	(0,046)	1,133
dEDU5	0,033*	(0,019)	1,760
Health good=reference group			
Health middle	-0,674***	(0,020)	-33,717
Health poor	-1,451***	(0,048)	-30,245
Living alone = reference Group			
living with partner	0,598***	(0,019)	32,164
No child =reference group			
At least 1child living at home	0,037**	(0,018)	2,070
Not part of minority = reference Group			
Part of minority	-0,269***	(0,038)	-7,086

Not unemployed last 5 year = reference group.			
Unemployed last 5 year	-0,411***	(0,025)	-16,716
Middle or rightwing=reference group			
left of political spectrum	-0,241***	(0,016)	-14,746
Degree of religiosity	0,038***	(0,003)	13,411
Social interaction	0,129***	(0,006)	22,867
Trust in other people	0,141***	(0,004)	39,212
NL=Reference country			
DcountryAT	0,116**	(0,048)	2,394
DcountryBE	-0,057	(0,044)	-1,299
DcountryCH	0,245***	(0,041)	5,905
DcountryCZ	-0,245***	(0,052)	-4,700
DcountryDE	-0,228***	(0,040)	-5,742
DcountryDK	0,627***	(0,043)	14,607
DcountryES	0,121***	(0,047)	2,564
DcountryFI	0,302***	(0,041)	7,450
DcountryFR	-0,833***	(0,046)	-18,264
DcountryGB	-0,345***	(0,041)	-8,362
DcountryGR	-0,775***	(0,053)	-14,629
DcountryIE	-0,183***	(0,049)	-3,722
DcountryIL	-0,318***	(0,055)	-5,761
DcountryNO	-0,089**	(0,040)	-2,213
DcountryPL	-0,491***	(0,050)	-9,810
DcountryPT	-1,359***	(0,055)	-24,850
DcountryRU	-1,348***	(0,057)	-23,610
DcountrySE	0,169***	(0,040)	4,261
DcountrySI	0,060	(0,052)	1,165
Round1= reference Round			
dROUND2	0,044**	(0,022)	2,004
dROUND3	0,051**	(0,022)	2,319
dROUND4	0,135***	(0,021)	6,307

Notes: 2 digit country codes in the appendix; Significance: *p<0,1;**p<0,05;***p<0,01

All of the control variables are in line with the described happiness literature. The direct effect of income is positive and diminishing. A negative relative income has a negative influence on SWB. A positive relative income increases SWB. The influence of age is U-shaped. Females are happier than males. Higher levels of education are associated with higher levels of SWB, but not linear rising. The highest score is obtained by the second highest education group. Poor health is disastrous for overall happiness, while living with a partner greatly increases overall happiness. Having at least one child living at home increases SWB and is significant. Though many studies conclude differently, this is in line with Lelkes

(2006), as I do control for the mentioned essential control variables. The scar effect of unemployment is confirmed as people out of unemployment less happy than the reference group. High levels of social interaction and having trust in people are important determinants for high levels of SWB. The degree of religiosity also increases happiness, while being left-wing orientated on the political spectrum has a negative effect on SWB. Finally we observe large differences between countries, and overall happiness is slightly rising as we see an increase in the happiness over the 4 rounds.

The independent variable of interest, FTE, has a highly significant and negative relationship with overall life satisfaction. The significance of the F-change did not justify the inclusion of FTE^2. I therefore apply model 1. The coefficient is -0,09, which means that having a normal full-time job of 40 hours lowers the overall happiness of the average individual in my sample with almost one tenth of a point on the 11 point scale. Working 20 hours lowers it with 0,045, 60 hours with 0,135, etc. Graph 1 shows this relationship. The line for the uncontrolled relationship is shown as well. The difference beteen the two lines can be interpreted as the disutility the average person recieves from working hours.

Figure 5. Relationship SWB and working hours. With and without control variables.
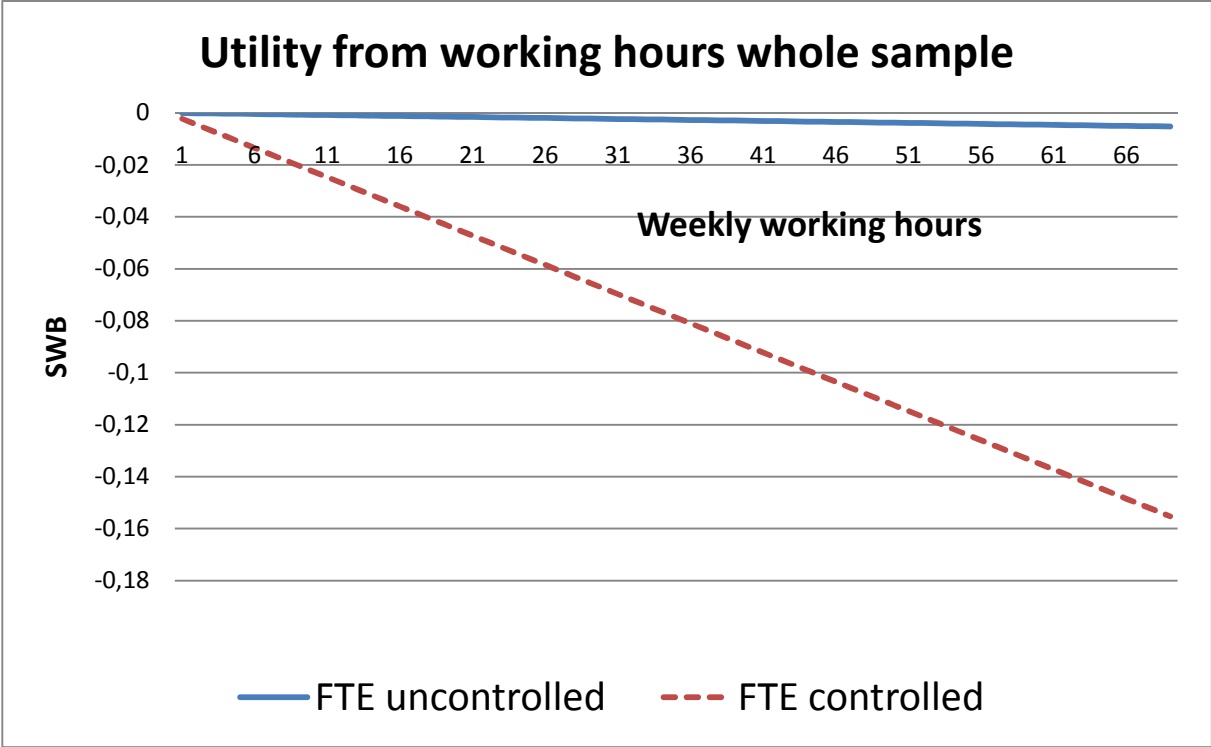
Table 2 shows the results obtained from the logistic regression for the whole sample. The numbers of interest are the odds ratios, exp (B). The interpretation of this number is the following: if a person belongs to the group represented by the dummy, the odds ratio is the chance of success (being very happy) compared to the reference group. If this number is smaller than 1, the chance of being very happy is lower for those meeting the criteria, if it is more than 1, chances are higher. For example females are 1.215 times more likely to report 'very happy' than males are. Or in other words, females are 21.5% more likely to be very happy than males. The normal variables (no dummies), like degree of religiosity and trust in people, should be interpreted in the following way. Each additional point on the religiosity scale increases the chance of being very happy with the factor of the odds ratio. For example, someone who scores a 5 on the religiosity scale is 1,23 (1*1,042*1,042* 1,042*1,042*1,04) times as likely to report very happy compared to being not religious.

Most control variables have similar effects as they did in the linear model, but some do differ. Interesting is that low income has a much weaker negative effect on the chance of being very happy. High income does increase the chance of being very satisfied with life. The effect of a negative relative income still is negative but not significant. Where the highest levels of SWB are associated with the 2 highest education categories in the linear model, the highest chances of being very happy are associated with the two lowest levels of education. People living with a partner are twice as likely to report a high SWB-score as those who are not. And a low health results in only 1/3 of the chance of being very happy compared to those who report good health.

The chance of reporting a very high happiness score is higher for those who work part time compared to those who work more than full-time. The odds ratio for the group that does work more than fulltime is 0,943 compared to those working part-time. Therefore, if all other variables stay the same, more than fulltime employment reduces the likelihood of a high SWB-score by 5,57%.

Table 2. Logistic regression for the whole sample

	B	S.E.	Wald	Exp(B)
More_than_Full Time	-0,059	(0,027)	4,759	0,943**
Adjusted Income12.001-24.000=reference income				
Inc_Less_12000	-0,070	(0,042)	2,754	0,932*
Inc24001_36000	0,023	(0,045)	0,273	1,024
Inc_over_36001	0,121	(0,052)	5,427	1,129***
Relative Income between -3000_3000= reference				
Relative income -3000 (neg.)	-0,021	(0,042)	0,252	0,979
Relative income 3000 (pos)	0,165	(0,045)	13,640	1,179***
Age	-0,090	(0,011)	68,013	0,914***
Agesquared	0,001	(0,000)	62,074	1,001***
Male=reference				
DummyFemale	0,195	(0,026)	56,980	1,215***
Education 3=reference				
dEDU1	0,267	(0,067)	15,761	1,307***
dEDU2	0,174	(0,039)	20,196	1,190***
dEDU4	-0,039	(0,073)	0,281	0,962
dEDU5	-0,017	(0,029)	0,366	0,983
Health good=reference				
dHEALTHm	-0,644	(0,036)	320,690	0,525***
dHEALTHp	-0,881	(0,102)	75,204	0,415***
Living alone = reference				
Living with a partner	0,655	(0,031)	437,904	1,925***
No child=reference				
At least 1 child at home	0,018	(0,029)	0,380	1,018*
Not part of minority=reference				
Part of minority	-0,173	(0,065)	7,082	0,841***
Not unemployed past 5 year				
Unemployed past 5 year	-0,232	(0,043)	29,833	0,793***
Middle or rightwing=reference group				
Left of political spectrum	-0,203	(0,026)	60,316	0,816***
rlgdgr	0,041	(0,004)	85,089	1,042***
sclmeet	0,126	(0,009)	179,937	1,134***
ppltrst	0,117	(0,006)	374,972	1,124***

Note: Country en Round dummies are included in the regression

6.2   Demographic subgroups

Table 3 shows the linear model of choice per demographic sub-group. We see the beta coefficients for FTE and FTE^2 (in case of model 2), the standard errors between brackets and the significant level is shown by the amount of stars (*p<0,1;**p<0,05;***p<0,01).

Differences between opposing groups are shown with their t-values and significant levels are again represented by stars.[17]

Table 3 Beta coefficients for the independent variable(s) of interest.(linear regression)

		b FTE (st error)	t-value	b FTE^2 (st error)	t-value
All	Model 1	-0,090*** (0,028)	-3,247		
Women	Model 1	-0,150*** (0,040)	-3,722		
Men	Model 1	-0,054 (0,040)	-1,348		
Difference		0,096*	1,699		
Age=<41	Model 1	-0,120*** (0,040)	-2,990		
Age > 41	Model 1	-0,053 (0,038)	-1,387		
Difference		0,067	1,218		
Edu Low	Model 1	-0,084** (0,038)	-2,223		
Edu high	Model 1	-0,087** (0,40)	-2,146		
Difference		0,003	0,005		
Partner	Model 1	-0,124*** (0,032)	-3,904		
No partner	Model 1	-0,027 (0,058)	-0,459		
Difference		0,097	-1,47		
With child	Model 1	-0,147*** (0,037)	-3,934		
No child	Model 1	-0,008 (0,042)	-0,179		
Difference		0,139**	-2,48		
Income Low	Model 1	-0,123*** (0,035)	-3,528		
Income High	Model 2	-0,246 (0,159)	-1,544	0,137* (0,080)	1,714

Regression has been performed on the subgroup only. All other individuals were excluded

We see that groups with different demographic characteristics show large differences in their coefficients of FTE. It matters quite a lot to witch sub-group someone belongs. If you are female, under 41, have a partner, a low income or a child, the disutility obtained from working hours increases. Education does not seem to play a role in the utility received from working hours. The differences for having at least one child or no child, and for living with a partner or not living with a partner, are not significant. If we however further split our sample, as shown in table 4, we see that these differences become larger and significant. For example:

---

[17] T statistic for the difference between the coefficients is the Student's t. (b1-b2)/((SE1)^2+(SE2)^2))^0.5

a women under the age of 42 receives 0,24 point disutility from a full time job. The rest, so all that are not female and under the age of 42, only receive 0,054 points of disutility.

Table. 4Beta coefficients for combinations of demographic sub-groups. (linear regression)

	Beta FTE	t-value
Women under 41	-0,230*** (0,059)	-3,932
Rest of sample	-0,054* (0,032)	-1.684
Difference	0,176***	2,627
Under 41&Child	-0,213*** (0,054)	- 3,970
Rest of sample	-0,051 (0,033)	-1,516
Difference	0,162**	2,563
With Partner under 41	-0,163*** (0,047)	-3,449
Rest of sample	-0,051 (0,034)	-1,483
Difference	0,112*	1,931
Women under 41 with child	-0,292*** (0,075)	- 3,918
Rest of sample	-0,067** (0,030)	- 2,202
Difference	0,225***	2,809
High income male	0,149** (0,061)	2,452
High income female	-0,158** (0,066)	-2,393
Difference	0,307 ***	3,415

The high income group has a U-shape relationship. Implying that only jobs with long hours are providing utility for the rich, the ones with short hours provide disutility. This kind of odd relationship is likely to be explained by gender differences. Table four shows the difference between high income males and high income females. It turns out that high income males obtain utility out of their working hours; however high income females obtain disutility from working hours. Since family income is reported, I assume that it is likely that a great deal of high income women work part-time, causing the negative influence of the first working hours. But this is just my theory on this.

Table 5 shows the different outcomes for the variable of interest obtained from the logistic regression. This are the odds differences to be very happy when working more than fulltime compared to part-time for all different demographic groups. We see that some demographic characteristics have a moderating effect on this difference, namely a high

education, a high income, being a male, and being older than 42. The opposites amplify the differences in the odds for high SWB between working more or less than 40 hours. Having a child or a partner did have an interaction effect in the linear model, but do not matter much when it comes to the likelihood of being very happy when working more than fulltime or part-time.

We can conclude that it does matter which sub-group is used as a sample. Different subgroups react different to working hours in terms of happiness. It also matters whether you test overall SWB or the chance for a particular level of SWB.

Table 5. Odds ratio for 'very happy' when working more than full time. (Logistic regression)

Dependent variable: 'Very happy' (Life satisfaction 9 or 10)

Group	B	(S.E.)	Wald	Exp(B)
All	-0,59	(0,027)	4,717	0,943**
Women	-0,96	(0,058)	5,820	0,909**
Men	-0,028	(0,038)	0,535	0,972
Age <=41	-0,072	(0,039)	3,397	0,931*
Age >41	-0,029	(0,059)	0,49	0,972
Edu Low	-0.087	(0,04)	4,684	0,917**
Edu High	-0,023	(0,037)	0,392	0,977
Partner	-0,059	(0,031)	3,648	0,942*
No partner	-0,045	(0,056)	0,631	0,956
With Child	-0,050	(0,038)	1,771	0,951
No Child	-0,049	(0,40)	1,516	0,952
Low Income	-0,093	(0,035)	7,098	0,911***
High Income	0,014	(0,043)	0,103	1,003

6.3 Countries

Table 3 shows the linear regression outcome for the variables FTE and FTE^2 sorted by country. Again with the best fitted model, the beta coefficient, standard errors within brackets, the t values and the level of significance are represented by stars (*p<0,1;**p<0,05; ***p<0,01). For Austria and Great Britain model 2 best describes the effect working hours have on SWB. For all other countries the H0 of linearity could not be dismissed. In summary,

2 countries have a significant U-shaped relationship. Thirteen countries have a linear negative correlation between FTE and SWB, of which three are significant. Five countries have a positive linear relationship. All five of them are insignificant. The beta's of some countries do differ significantly from each other. For example the beta-coefficients of FTE in Norway and Portugal differ 0,49 points (t-value 2,392) on the eleven point scale of overall happiness.

Table 5 Beta coefficients for the independent variable(s) of interest.(linear regression)

Dependent variable: life satisfaction (0-10)

	Model	b FTE		t-value	bFTE^2	t-value
AT	Model 2	-1,196**	(0,570)	-2,097	0,605**(0,296)	2,046
BE	Model 1	-0,026	(0,105)	-0,243		
CH	Model 1	-0,028	(0,118)	-0,349		
CZ	Model 1	-0,062	(0,184)	0,338		
DE	Model 1	-0,192*	(0,103)	-1,865		
DK	Model 1	-0,141	(0,104)	-1,348		
ES	Model 1	-0,135	(0,146)	-0,922		
FI	Model 1	0,020	(0,094)	0,212		
FR	Model 1	0,07	(0,176)	0,399		
GB	Model 2	-0,866**	(0,361)	-2,398	0,372** (0.191)	1,944
GR	Model 1	-0,250	(0,168)	-1,484		
IE	Model 1	-0,228*	(0,132)	-1,727		
IL	Model 1	0,212	(0,180)	1,179		
NL	Model 1	-0,061	(0,085)	-0,723		
NO	Model 1	0,146	(0,105)	1,385		
PL	Model 1	-0,039	(0,163)	-0,242		
PT	Model 1	-0,342*	(0,175)	-1,952		
RU	Model 1	-0,243	(0,251)	-0,966		
SE	Model 1	-0,090	(0,101)	-0,886		
SI	Model 1	-0,167	(0,179)	-0,932		

Table 6 shows how working more than fulltime compared to part-time influences the likelihood someone reports a very high happiness score. Eight out of the twenty countries included in my sample report significant different odds between working more than full-time

and part-time. Two of those favor more than fulltime, six have higher odds for those who work part-time.

Table 6 Odds ratio's for 'very happy' when working more than full time (logistic regression)

Dependent variable: 'Very happy' (Life satisfaction 9 or 10)

Country	B (SE)	Wald score	Exp(B) (p-value)
AT	0,058 (0,132)	0,194	1,060
BE	-0,238(0,114)	4,359	0,788**
CH	-0,093(0,095)	0,965	0,911
CZ	-0,073(0,223)	0,108	0,930
DE	-0,208(0,101)	4,256	0,812**
DK	0,082(0,094)	0,771	0,912
ES	-0,334(0,148)	5,117	0,716**
FI	0,096(0,092)	1,084	1,1
FR	0,151(0,087)	2,999	1,163*
GB	-0,112(1,109)	1,062	0,892
GR	-0,414(0,219)	3,592	0,661*
IE	-0,114(0,136)	0,707	0,892
IL	-0,010(0,166)	0,004	0,990
NL	0,129(0,114)	1,265	1,137
NL	0,136(0,079)	3,002	1,146*
PL	0,039(0,192)	0,040	1,039
PT	-0,547(0,311)	3,089	0,579*
RU	-0,864(0,356)	5,880	0,421**
SE	-0,044 (0,072)	0,380	0,952
SI	0,219(0,226)	0,940	0,803

This strengthens the idea that we have to be cautious when generalizing the utility received from working hours. In some countries working more than full-time increases your chance of being very happy, while in others it is the opposite, or there is no effect. Research conducted on data from a single country is useful in determining how people's utility in that country respond to working hours. But it should not be generalized to human beings as a whole. Okulicz-Kozaryn (2010) does give good insight in the differences between Europeans and Americans. He therefore rightfully claims to provide extra insights in the understanding of labor markets. His concluding words are*: "We tend to think about labor markets in terms*

of observable characteristics such as wages and working hours, but there is more to that. This paper contributes to our understanding of labor markets: Americans are happier to work more than Europeans" page 231. This thesis contributes in refining this claim. We cannot speak about Europe as a homogeneous group of countries. Within Europe there are large differences in how working hours influences overall happiness.

7.   Conclusion

Overall the average person out of 20 European countries obtains disutility from working hours. This is in line with neo-classic utility theory. Looking at demographic subsamples reveals large differences in the strength of this disutility. Being female, under 42 years of age, having a child, having a partner and having a low income amplifies the disutility received from working hours. Being male, over 41years of age, with a high income, no partner and no child at home are moderators for the disutility from working hours.

Working part-time increases the chance of being very happy compared to those who work more than fulltime. Demographic subgroups interact with the size of these odds differences. Being female, under the age of 42, with a low income and a low education increases this difference. Having a partner or a child does not increase the difference in likelihood of being very happy due to working more or less than 40 hours.

Individuals from different countries receive different utility from working. Most countries report disutility from working, 13 out of 20, of which 3 are significant. 2 countries have a significant U-shaped relationship between working and SWB. Individuals from 4 out of twenty countries report a positive relationship between SWB and working hours. But none of these coefficients are significant. The chance of being very happy is significantly lower when working more than full-time for 6 out of 20 countries. In two countries people working more than full-time have a significant higher chance of being very happy than those who work part-time.

References

Aleisina, A., Di Tella, R. and MacCullloch, R. (2004). Inequality and happiness : Are Europeans and Americans different? *Journal of Public Economics,* 88: 2009-2042.

Barker, D.J.P. (2005). The developmental origins of well-being. *The Science of Well-Being.*

Bardasi, E. and Francesconi, M. (2004). The impact of atypical employment on individual well-being: Evidence from a panel of British workers. *Social Science and Medicine,* 58: 1671-1688.

Barnett, R.C., Gareis, K.C. and Brennan, R. T. (2009). Reconsidering worktime: A multivariate longitudinal within-couple analysis. *Community, Work & Family*, 12(1): 105-133.

Becchetti, L. (2011). Income, relational goods and happiness. *Applied Economics*, 43: 273-290.

Becchetti, L. and Pelloni, A. (2011). What are we learning from the life satisfaction literature? *Government of the Italian Republic (Italy), Ministry of Economy and Finance, Department of the Treasury Working Paper*, 2.

Berger, E.M. (2009). Maternal employment and happiness: The effect of non-participation and part-time employment on mothers' life satisfaction. *SOEPpaper*,178; *DIW Berlin Discussion Paper*, 890.

Booth, A.L. and Ours, J.C. (2008). Job satisfaction and family happiness: the part-time work puzzle. *Economic Journal,* 118: 77-79.

Böckerman, P. and Ilmakunnas, P. (2005). Interaction of working conditions, job satisfaction, and sickness absences: Evidence from a representative sample of employees. *Social Science & Medicine,* 67(4): 520-528.

Booth, A.L., and Ours, J.C. (2008b). Hours of work and gender identity: does part-time work make the family happier? *Economica.*

Blanchflower, D. G. and Oswald, A. J. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics, Elsevier,* 887 (8): 1359-1386.

Blanchflower, D. G. and Oswald, A. J. (2004a). Hypertension and happiness across nations. *Journal of Health Economics.*

Brandolini, A. and Smeeding, T.M. (2008). Income inequality in richer and OECD countries.

Brinckman, P. and Campbell, D.T. (1971). Hedonic relativism and planning the good society. *M. H. Appley, Adaptation level theory: A symposium,* 287-302. New York: McGraw-Hill.

Carrol, N., Frijters, P. and Shield, M.A. (Forthcoming). Quantifying the costs of drought: New evidence from life satisfaction data. *Journal of Population Economics.*

Clark, A.E. (2003). Unemployment as a social norm: Psychological evidence from panel data. *Journal of Labor Economics,* 21(2): 325-351.

Clark, A.E., Diener, E., Georgellis, Y. and Lucas, R.E. (2008). Lags and leads in life satisfaction: A test of the baseline hypothesis. *Economic Journal,* 118: F222-F243.

Clark, A.E., Frijters, P. and Shields, M.A. (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature,* 46(1):95-144.

Clark, A.E. and Lelkes, O. (2009). Let us pray: religious interactions in life satisfaction. *PSE, Discussion Paper*, 01.

Davidson, R.J. (2004). Well-being and affective style: Neural substrates and biobehavioural correlates. *Philosophical Transactions of the Royal Society B: Biological Sciences,* 359(1449): 1395-1411.

DeNeve, K.M. and Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin,* 124: 197-229.

Di Tella, R. and MacCulloch, R.J. (2006). Some uses of happiness data in economics. *Journal of Economic Perspectives,* 20(1): 25-46.

Diener, E. and Lucas, R.E. (1999). Personality and subjective well-being. *Well-Being: The Foundations of Hedonic Psychology,* ed.

Dolan, P. and Kahneman, D. (2008). Intrepretations of utility and their implications for the valuation of health. *The Economic Journal,* 118(525): 215-234.

Dolan, P., Peasgood, T. and White, M. (2007). Do we really know what makes us happy? A review of the literature on the factors associated with subjective well-being. *Journal of Economic Psychology,* 29: 94–122.

Easterlin, R.A. (1974). Does economic growth improve the human lot? Some emperical evidence. *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz.* New York: Academic Press.

Easterlin, R.A. (2006). Life cycle happiness and its sources. Intersections of psychology, economics and demography. *Journal of Economic Psychology,* 27: 463-482.

Ferrer-i-Carbonell, A. (2005). Income and well-being: an emperical analysis of the comparison income effect. *Journal of Public Economics,* 89(5-6): 997-1019.

Ferrer-i-Carbonell, A. and Gowdy, J.M. (2007). Environmental degradation and happiness. *Ecological Economics,* 60(3): 509-516.

Filipic, P., Perovic, L.M. and Kosor, M.M. (forthcoming). The relative importance of religious denominations for life satisfaction.

Frey, B.S. Benesch, C. and Stutzer, A. (2007). Does watching TV make us happy? *Journal of Economic Psychology,* 28(3): 283-313.

Frey, B.S. and Stutzer, A. (2002). Happiness and economics. Princeton: University Press.

Frijters, P. and Beatton, T. (2008). The mystery of the U-shaped relationship between happiness and age. *National Centre for Econometric Research Working Paper Series,* 26.

Gardner, J. and Oswald, A.J. (2006). Do divorcing couples become happier by breaking up? *Journal of the Royal Statistical Society: Series A (Statistics in Society),* 169(2): 319-336.

Gash, V., Mertens, A. and Gordo, L.R. (2010). Women between part-time and full-time work: The influence of changing hours of work on happiness and life-satisfaction. *SOEPpaper,* 268.

Golden, L. and Wiens-Tuers, B. (2006). To your happiness? Extra hours of labor supply and worker well- being. *Journal of Socio-Economics*, 35(2): 382-397.

Gray, M., Qu, L., Stanton, D. and Weston, R. (2004). Long work hours and the wellbeing of fathers and their families. *Australian Journal of Labour Economics,* 7(2): 255-273.

Haller, M. and Hadler, M. (2006). How social relations and structures can produce happiness and unhappiness: An international comparative analysis. *Social Indicators Research,* 75: 169-216.

Headey, B. and Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and social Psychology,* 57: 731-739.

Helliwell, J.F. (2003). How's life? Combining individual and national variables to explain subjective well-being. *Economic Modelling,* 20: 331-360.

Helliwell, J.F. and Putnam, R. (2004). The social context of well-being. *Philosophical Transactions of the Royal Society London,* 359: 1435-1446.

Holst, E. and Trzcinski, E. (2000). High satisfaction among mothers who work part-time. *Economic Bulletin,* 40(10): 327-332.

Kimball, M. and Willis, R. (2006). Utility and happiness. *Unpublished.*

Knabe, A. and Ratzel, S. (2010). "Income, happiness, and the disutility of labour", *Economics Letters*, 107: 77-79.

Lelkes, O. (2006). Tasting freedom: Happiness, religion and economic transition. *Journal of Economic Behavior and Organization,* 59(2): 173-194.

Louis, V.V. and Zhao, S. (2002). Effects of family structure, family SES, and adulthood experiences on life satisfaction. *Journal of Family Issues,* 23: 986-1005.

Lucas, R.E., Clark, A.E., Georgellis, Y. and Diener, E. (2004). Unemployment alters the set point for life satisfaction. *Psychological Science,* 15(1): 8-13.

Luttmer, E.F.P. (2005). Neighbours as negatives: Relative earnings and well-being. *The Quartely Journal of Economics,* 20(3): 963-1002.

McMahon, D.M. (2006). *Happiness: A History.* New York: Atlantic Monthly Press.

Meier, S. and Stutzer, A. (2006). Is volunteering rewarding in itself? Center for Behavioral Economics and Decision-Making, Federal Reserve Bank of Boston.

Menteşoğlu, G. and Vendrik, M. (2011). Adaptation, anticipation and social interaction in happiness: An integrated error-correction approach. Maastricht University and IZA.

Myers, D.G. (2000). The funds, friends, and faith of happy people. *American Psychologist,* 55: 56-57.

Napier, J.L. and Jost, J.T. (2008). Why are conservatives happier than liberals? *Psychological Science,* 19(6): 565.

Okulics-Kozary, A. (2010). Europeans work to live and Americans live to work (Who is happy to work more: Americans or Europeans?). *Journal of Happiness Studies.*

Oswald, A.J. (1997). Happiness and economic performance. *Economic Journal,* 107(445): 1815-1831.

Pichler, F. (2006). Subjective quality of life of young Europeans. Feeling happy but who knows why? *Social Indicators Research,* 75:419-444.

Pouwels, B., Siegers, J. and Vlasblom, J.D. (2006). Income, working hours, and happiness. *Economic Letters,* 99: 72-74.

Redelmeier, D. and Kahneman, D. (1996). Patients' memories of painful medical treatments: real-time and retrospective evaluations of two minimally invasive procedures. *Pain,* 116: 3-8.

Schoon, I., Hanson, L. and Salmela-Aro, K. (2005). Combining work and family life: Life satisfaction among married and divorced men and woman in Estonia, Finland and the UK. *European Psychologist,* 10: 309-319.

Schwartz, N. (1987). Stimmung als Information: Untersuchungen zum Einfluß von Stimmungen auf die Bewertung des eigenen Lebens. Heidelberg: Springer Verlag.

Stutzer, A. (2004). The role of income aspirations in individual happiness. *Journal of Economic Behaviour and Organisation,* 54: 89-109.

Stutzer, A. and Frey, B.S. (2004). Reported subjective well-being: a challenge for economic theory and economic policy. *Schmollers Jahrbuch,* 124: 1-41.

Stutzer, A. and Frey, B.S. (2006). What happiness research can tell us about self-control problems and utility misprediction. *Institute for Empirical Research in Economics Working Pape, 267.*

Theodossiou, I. (1998). The effects of low-pay and unemployment on psychological well-being: A logistic regression approach. *Journal of Health Economics,* 18(1): 85-104.

Thoits, P.A. and Hewitt, L.N. (2001). Volunteering work and well-being. *Journal of Health and Social Behaviour,* 42: 115-131.

Weinzierl, M. (2005). Estimating a relative utility function. Harvard University.

Appendix 1 Country codes

AT Austria
BE Belgium
CZ Czech Republic
DK Denmark
FI Finland
FR France
DE Germany
GR Greece
IE Ireland
IL Israel
NL Netherlands
NO Norway
PL Poland
PT Portugal
RU Russian Federation
SI Slovenia
ES Spain
SE Sweden
CH Switzerland
GB United Kingdom

Appendix 2 Education levels

ESS Education Standards:
Highest level of education, EDULVLA:
(Based on ISCED-97, categories 0 - 1, and 5 - 6 are collapsed)
Coding frame
0 - Not possible to harmonise into 5-level ISCED
1 - Less than lower secondary education (ISCED 0-1)
2 - Lower secondary education completed (ISCED 2)
3 - Upper secondary education completed (ISCED 3)
4 - Post-secondary non-tertiary education completed (ISCED 4)
5 - Tertiary education completed (ISCED 5-6)