

Charles University in Prague

Faculty of Social Sciences  
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BACHELOR THESIS

Does work in non-profit sector pay off?

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Academic Year: **2013/2014**

## Bibliographic Information

Kopeček, M. (2014). *Does work in non-profit sector pay off?* (Bachelor thesis). Charles University in Prague, Faculty of Social Sciences, Institute of Economic Studies.

## Abstract

This thesis examines the relation between working in a non-profit sector and subjective perception of happiness. The first part is dedicated to introduction and historical context of happiness. The second part examines various literature dedicated to this phenomenon. In the last part statistical regressions are estimated to prove or reject the correlation using data from US National Longitudinal Survey of Youths 1997. Most of the models render the relation as insignificant, from one model we get that people from low-income families tend to be *happy all of the time* less often when working in a non-profit organization.

JEL Classification: I31, J01, J31, D03, L33

Keywords: happiness, non-profit, work, satisfaction

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## Abstrakt

Tato práce se věnuje vztahu mezi prací v neziskovém sektoru a subjektivnímu pocitu štěstí. První část je věnována úvodu a historickému kontextu nahlížení na štěstí. Druhá část rozebírá různou literaturu věnující se tomuto fenoménu. V poslední části ukazují výsledky statistických regresí za pomoci dat z amerického National Longitudinal Survey of Youths 1997. Většina modelů vykresluje vztah jako nesignifikantní, jeden model ukazuje, že lidi z chudších rodin jsou méně často *šťastní neustále*, když pracují v neziskové organizaci.

Klasifikace JEL: I31, J01, J31, D03, L33

Klíčová slova: štěstí, neziskový sektor, práce, spokojenost

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## Declaration of Authorship

The author hereby declares that he compiled this thesis independently, using only the listed resources and literature. The author grants to Charles University permission to reproduce and to distribute copies of this thesis document in whole or in part.

Prague, July 30<sup>th</sup> 2014

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Martin Kopeček

## Acknowledgments

Foremost, I would like to express my sincere gratitude to my thesis supervisor Julie Chytilová for without her important advices and professional guidance I wouldn't be able to finish this thesis. Also I would like to thank Benedikt Kotmel for his help with graphical layout and support during research and writing.

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# Bachelor Thesis Proposal

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Proposed topic: Does Unpaid Work Pay Off?

## Topic characteristics

Recently, more and more attention is being focused towards happiness and satisfaction indices. However, mostly it is about comparing the results of such index with some national indicators.

In my thesis I would like to make use of a narrower look. In particular, I would like to compare levels of happiness and satisfaction among groups of people that differ by their motivation for income maximization on one hand and non-profit work on the other hand. The main question proposed is whether among these groups, despite their different life attitude, one gains the same levels of satisfaction and happiness. The answer to this question is to be done by questionnaire and statistical testing.

## Outline

- Introduction
  - About satisfaction and happiness indices
  - The Historical Evolution of Views of Life Motivation
  - Operation of non-profits, comparison with for-profits
- What and How Influences happiness and satisfaction levels
- Empirical validation of the main hypothesis – “Does unpaid work pay off?”
- Conclusion
  - Evaluation of the inquiry
  - Comparison of results with known happiness and satisfaction indices.

## Core Bibliography

Daniel Kahneman and Angus Deaton: High income improves evaluation of life but not emotional well-being; PNAS September 21, 2010 vol. 107 no. 38 16489-16493

Matthias Benz: Not for the Profit, but for the Satisfaction? – Evidence on Worker Well-Being in Non-Profit Firms; Kyklos, Volume 58, Issue 2, pages 155–176, May 2005

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Lubomír Mlčoch: Ekonomie štěstí: proč méně může být více; Politická Ekonomie, 2, 2007

Stefano Zamagni: Why happiness and capabilities should stay together

# 1 Introduction

It is now forty years since Richard Easterlin published his article “Does Economic Growth Improve the Human Lot? Some Empirical Evidence”. In this article he observed, that even though in the after World War II period the income grew strongly in the United States, the levels of reported happiness did not correlate. Easterlin claims that we rate our well-being relatively and therefore even though short term variations of income may have an influence on peoples’ happiness, in the long term the norm that we are trying to exceed adapts itself and compensates for the short term effect. (Easterlin, 1974)

According to some more recent studies it also seems that the perceived levels of happiness do not grow with income above certain level of household income even in short term. Kahneman and Deaton observed this level at approximately 75 000 USD (Kahneman, & Deaton, 2010-09). Maybe we have reached the saturation point in income.

In 2005 Matthias Benz examined differences of workers’ job satisfaction in non-profit and for-profit firms (Benz, 2005) and found out that there is a positive correlation between working in a non-profit firm and job satisfaction. Judge and Watanabe twelve years earlier showed positive correlations of job satisfaction and life satisfaction (Judge, & Watanabe, 1993).

At the same time share of non-profit companies all over the world keeps growing and what used to be a marginal sector is now transforming into significant part of the market. Despite wages in non-profit sector are in general lower or zero, it still attracts growing number of people. (Salamon & Sokolowski, & Geller, 2012)

The aim of my thesis is to examine the composition of perceived happiness and specifically if there is or is not a correlation between happiness and employment in a non-profit firm.

## 1.1 Historical perception of happiness

The term happiness has been perceived by many very different views throughout the history. In a pure etymological view in most of the languages the word happiness comes from luck. The English version comes from the 13<sup>th</sup> century Middle English word “hap” (as in “happen”; from Old Norse “happ” from Proto-Germanic “khapan”) meaning chance or good luck (Onions, 1996). The same goes for “heur” as in bonheur, good fortune, in Old French (McMahon, 2009). In German “das Glück” stands for both happiness and luck even today, as well as “lykka/lukka” in Old Norse and “luc” from Middle Dutch. And so it does in Slavonic languages for the words “šťěstí” (Czech), “счастье” (Russian) and “szczęście” (Polish). One of the few exceptions might be Welsh, where the word for happiness first meant “wise” („happy”, n. d.).

From the short etymological summary, it is clear, that in many cultures happiness has been considered as something that person could not control. It was often attributed to deities and stars, to the wheel of fortune as it was metaphorically symbolized by Greeks with the goddess of Fortune added later by the Romans (Robinson, 1946).

Might the wheel of fortune be a Greek metaphor, in Greek philosophy the view was different. Aristotle saw happiness, according to him the *eudaimonia* - the highest human good, as a way of

controlled well-being with the use of rationality that was to be pursued through the whole life by exercising the faculty of reason. („Aristotle”, 2014). Similarly Plato argued that to live a happier life one needs to force all parts of the soul - the reason, spirit and appetite (where the rational part has got the lead) - to fulfil its function at its best (Haslanger, 2004). Still both of them saw happiness as something we could influence, but not instantly. Happiness in the Greek sense was about how life is lived in the long term. And the same thinking we have to project on the term happiness, which was rather perceived as a quality of living a life than a momentary state of mind. To attain such a quality, one must work so hard that most of the people just don't get to the “happy state” (McMahon, 2009).

In the more modern conception, the one of Christians and Jews, happiness has been strongly connected with religion, God and after-life. According to McMahon Christians have three circumstances where happiness can be found: either in the past, in the Garden of Eden before the Original Sin, or in the future, in the Kingdom Come. The third place then being the heaven where the saints are in union with God (McMahon, 2009). For our thesis we will hope this is not the case as according to this perception, happiness clearly cannot be achieved during one's lifetime (not even moderately close before or after).

It wasn't until 18<sup>th</sup> century with the era of enlightenment when this happiness perception vanished to let for a completely opposite way of thinking. The liberalization of life allowed for every man to enjoy his life and seek happiness in his current life. The pleasures on Earth were no more a reason to be ashamed, but more of a reason to live for. Moreover, many of these claims were anchored in the very key state documents. Note the 1776 United States Declaration of Independence's second sentence:

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.<sup>1</sup>

This, however, is not a return to the Greek philosophy. We have to remember that in the Greek way, happiness was meant as a life-span quality more than a fleeting impression of a moment. The happiness gain from the (recently forbidden) pleasures was coming with orientation on consumption and didn't have the scope of a well-lived life, the morality of Plato's just person (just as in justice) or the ordered soul. Nicely described in Jeremy Bentham's Principles of Morals and Legislation where greatest happiness is defined as a predominance of pleasure over pain (Bentham, 1823). Later his colleague, John S. Mill argues that moral pleasures are more influencing one's happiness than others (Mill, 1863).

As the time went the pursuit of happiness has been more and more connected with income, money, social status and other tangible assets. Only recently Richard Easterlin heated up the discussion with his famous 1974 article pointing out that there has been high increase in GDP in the decades after World War II, however happiness levels didn't follow. At least not forever. He claimed that people value their happiness against the society norm, which in turn adapts itself in short term horizon. In the later years he has been supported by Robert Lane, who attributes the happiness growth in developed countries more to health and relationships (Lane, 2000), and

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<sup>1</sup> Retrieved from The U.S. National Archives and Records Administration website on the 6/28/2014

Kahneman and Deaton who claim that higher income does not correlate with happiness but only with life evaluation (Kahneman, & Deaton, 2010-09).

On the other hand there have been also scientists that claimed the opposite. In 2003 Hagerty and Veenhoven published their article claiming that there is a correlation of happiness and income (Hagerty, & Veenhoven, n. d.). Moreover they were followed by Stevenson and Wolfers who found a strong correlation of happiness with logarithm of income. Specifically they concentrated on both absolute income (e.g. how much money in dollars one gets) and relative income (how much money one gets compared to his peers) and both turned significant (Stevenson, & Wolfers, 2008). Later in 2010 Easterlin has made some reaffirmations (Easterlin & McVey & Switek & Sawangfa, & Zweig, 2010-12) however the question lies more or less still open.

## 1.2 The Growth of the Non-profit Sector

As mentioned in the first part of the introduction, employment in the non-profit firms is highly correlated with job satisfaction. This should support growth of this sector and according to Salamon, Sokolowski and Geller it does. Their study on the development of the non-profits in the US in the “decade of turmoil”, that is between the years 2000 and 2010, suggests, that there are some solid foundations for sustained growth. We should mention that for the purposes of their study the non-profits are defined as “entities exempted from income taxation under Section 501(c)(3) of the Internal Revenue Code (IRC)”.

The first interesting statistic is that in the 2010 the non-profit workforce accounted to about 10% of the total workforce (excluding governmental employment), which is nearly 10.7 million workers. This is a huge number as it is nearly 10 times more than the number of workers in agriculture and even twice as many workers as in construction. The distribution of non-profit employees across United States is not uniform. Most of them are concentrated on the north of eastern coast where as much as 16% of the private employment is non-profit. On the eastern coast only 8% of the private workforce is non-profit, which even though under-average, is still a good number. On bottom line are Texas and Alaska with 5.2% and Nevada with only 2.6%.

The distribution of non-profit employment by field is also interesting. The highest share in the 2010 was the field of non-profit hospitals with more than third of the total (37%). The second highest non-profit employment has been in the field of education with 15% of the total and the third highest was social assistance (13%) followed by nursing homes (11%) and ambulatory health (9%). If we do account for the fields absolute size and look on the relative shares of non-profit employment we will see that the strongest root have non-profits taken in education, where 64% of the private employment is non-profit, 54% of the social assistance services and 43% of the health services. Only 3% share of non-profit employment is in the professional services, which is expectable.

So much for the static information, far more important are the trends. Between the beginning of the millennium and 2010 there has been a 2.1% growth of the non-profits, but 0.6% drop in for-profits. Moreover, the non-profit sector showed annual growth in every years of the decade despite the years 2007 and 2008 when the recession started. Also in every year except one the growth in the non-profit sector has been higher than in its for-profit counterpart. The growth was

also not concentrated to some specific industries or regions; contrarily it has been region-wide and field-wide.

The reasons for such growth may be several. It is probable that some of the trend might have been fuelled by governmental spending after the start of the recession. It is however clear that even though the growth in the past decade has been in all fields, the fields in which it has been higher than for-profit sector are few: healthcare, education and social services – that is 87% of the non-profit employment, while 91% of the for-profit employment is concentrated in manufacturing, construction, wholesale, and retail trade.

Even though the growth of the non-profits continues, it's proportion to the for-profits decreases as the for-profits begin to grow even in the until-recent non-profit governed fields. In education, for-profits grew almost two times faster than non-profits, in social assistance even more than two times faster and even in health services the for profits have outran the non-profits. Therefore if we have a look on the net share the non-profits have lost 3.9% in education, 7.4% in social assistance and 2% in health services. On the other hand they have gained 2.8% in arts and 1.2% in other services.

Despite the recent market share decreases in some of its key economy fields, the non-profit sector has shown a solid growth and most notably was not affected by the 2007-2009 recession as its growth in the expansion before has been virtually the same (about 2%).

## 2 Related Literature Analysis

### 2.1 Kahneman, Deaton: High income improves evaluation of life but not emotional well-being

In the similar way we mentioned the two views on happiness in our introduction, short term and long term, Kahneman and Deaton recognize emotional well-being and life evaluation. By emotional well-being they mean everyday feeling of an individual, which is measured by questions about yesterday's emotional experience. Life evaluation should refer to overall evaluation one makes when she thinks about her life as whole and is measured using Cantril Self-Anchoring Scale, which makes respondents imagine where they are on a ladder of ten steps with best possible life at the top and worst at the bottom.

They conducted an analysis of correlation between income and happiness separately for emotional well being and life evaluation aspects, both of them using data from Gallup-Healthways Well-Being Index, which consists of more than 450 000 responses. In their exploration they find out, that these two have different correlates. While income and education influences is more related to overall life evaluation, factors like health, care giving and loneliness are the ones predicting the everyday emotional well-being.

When natural logarithms of income are plotted against these two well-being variables, Kahneman and Deaton find out that there is a steady increase of life-evaluation, however with emotional well-being there is only moderate slope and the relation diminished while income approaches circa 75 000 USD. They conclude that “high income buys life satisfaction, but not

happiness, and that low income is associated both with low life evaluation and low emotional well-being.” (Kahneman, & Deaton, 2010-09)

## 2.2 Judge, Watanabe: Another look at the job satisfaction – life satisfaction relationship

In the last thirty years, numerous studies examining correlation between job satisfaction and life satisfaction have been introduced (e.g. (Tait & Padgett, & Baldwin, 1989) or (Rain, 1991)), yet most of them do not prove causal relations. Judge and Watanabe focused on examining this causal relationship.

They took factors that might influence job satisfaction including working conditions, education, wage, working hours, job tenure and many more and proceeded with correlations on job satisfaction. Then similar work has been done with life-related variables like age, race, gender, relationship status and health which have been correlated with life satisfaction. Then these outcomes have been examined, whether they are in correlation with one another and most importantly, if they are with correlation with their future values five years later in 1977. The overall outcome of this thorough examination is nicely graphically shown in the Figure 1.

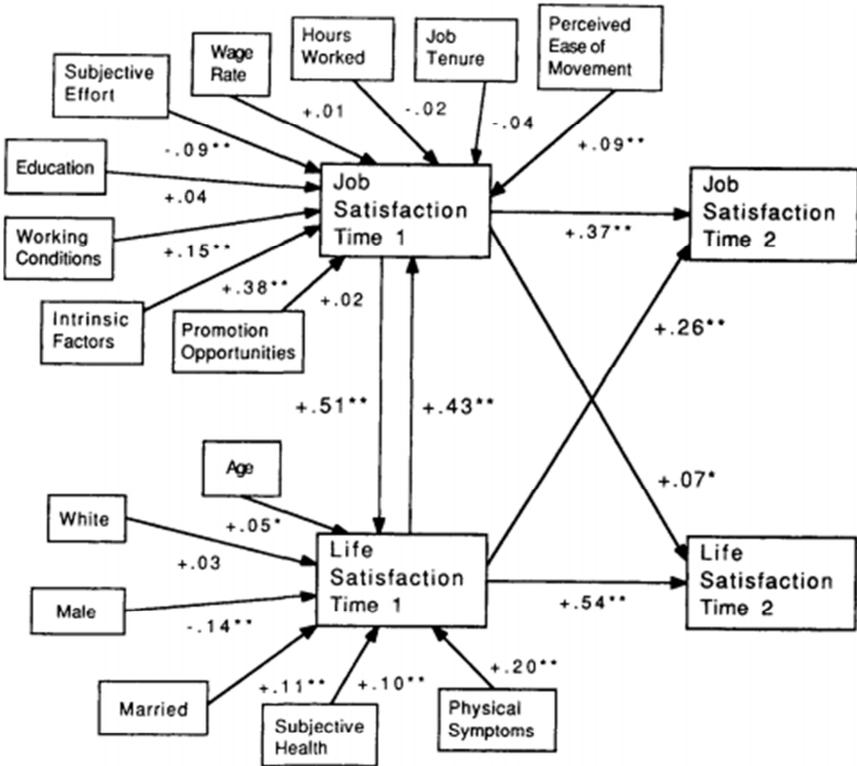


Figure 1 - Causal relationship model (source: Judge & Watanabe 1993)

The present time relationships of job satisfaction and life satisfaction turn out to be significant at 99% level and with strong coefficients, however this does not necessarily mean a causal relationship as the two might be just in some sort of collinearity. More interesting are the results of the correlations including previous period. For the future job satisfaction we have 99% level significance of present life satisfaction with a moderately high coefficient of .26. For the

future life satisfaction we have lower significance and lower coefficient with present job satisfaction. The significance level is however still above 95%, meaning that not only job satisfaction correlates with life satisfaction, but there is also a causal relationship. (Judge, & Watanabe, 1993)

### 2.3 Preston: The Nonprofit Worker in a For-Profit World

The average wage differential in non-profit and for-profit firms has been estimated in 1997 as 20% for professionals and managers and 5% for clerical and sales workers. Preston uses theoretical models together with survey data to document and name the sources of this differential.

According to her all workers, that have a tendency to contribute to social welfare produced by some non-profit organization are willing to trade off their wages for those social benefits. However each worker is different, i.e. the workers have heterogeneous preferences in the wage redistribution. When there are enough such workers to fulfil the needs of the non-profit firm, then the wage offered by the non-profit will be lower than that of the for-profit firm. Moreover firms providing greater social benefits would be able to offer lower wages. On the other hand there is lower pressure on cost (wage) minimization in non-profit firms. Also the non-distribution constraint put on the firm may lead the management to redistribute the potential surplus to the employees. Both of these forces go towards higher wages. This ambiguity leads to different wage differentials among industries. According to Preston the difference should be greatest among managerial and professional occupations as these workers are by their position far from generating social benefits.

Preston uses two datasets to support her analyses. The 1980 Worker Assessment of Jobs' Non-monetary Characteristics by the Sociology Department of Harvard University and the 1979 Current Population Survey conducted by the United States Bureau of the Census. In the first analysis the wage differential is confirmed to be 0.21 on 99% level for professional and managerial workers however insignificant for clerical and sales workers. Next the industry composition influence is tested, whether it might be the source of low non-profit wages. Using dummy variables for industry grouping the model has been reestimated and the non-profit wage differential for professionals did fall to 0.182 and still remained significant, yet only on 90% level. When Preston adds non-pecuniary work characteristic variables the wage variable becomes higher again and strongly significant.

The important thing in Preston's thesis is the use of selectivity-adjusted methods that account for predispositions of workers (e.g. some workers might work for a smaller wage in non-profit organization just because they don't have the ambition to build a better career). In the first method the significance of the professional workers wage differential remained, however the coefficient is unrealistically high (0.41). In the second method both coefficients are insignificant so either there is no selectivity bias or the model has not identified the self-selection procedure. Preston also uses longitudinal data to test the selectivity hypothesis, yet these results also turn out to be insignificant.

Even though the tests on selectivity bias are not conclusive, they may give some support to the selectivity hypothesis. The wage differential is confirmed to exist for professional and

managerial workers and not confirmed for clerical and sales workers. Most importantly the thesis suggests that the wage differential is a result of workers accepting the lower wage for social externalities provided by non-profit firms, although this does not have to hold for all industries. (Preston, 1989)

## 2.4 Benz: Not for the Profit, but for the Satisfaction

Matthias Benz decided to investigate the nature of job satisfaction. Specifically, whether job satisfaction of workers in non-profit firms is different that those from the “for-profit” firms. The previous works on these topics examined the wage differentials and did not come to clear conclusions. The wages in the non-profit firms may be either lower, as non-profits often work on a semi-voluntary basis, but also, as these organizations can’t produce any profit that would be redistributed among the shareholders, the wages can be in fact higher. This ambiguity can mislead such examinations of worker utility and render them insignificant.

That is why Benz estimated a model on a subjective variable of job satisfaction that has been gathered through direct questioning of people. The data is from a similar survey that is used in this thesis, however from an earlier period (which did not contain question about happiness), the National Longitudinal Study of Youth 1979 (NSLY79) and the British Household Panel Survey (BHPS). Four waves 1994 – 2000 are used from the NLSY79 and nine waves 1991 – 1999 from the BHPS.

In both these surveys strong and significant correlates have been obtained, even similar in magnitude. These results indicate that workers in the non-profit firms have higher job satisfaction than those that work for for-profit firms. Further examination shows that it is to some extent industry specific effect, as the “professional services” industries have lower coefficients on the non-profit indicator variable, but still significant and not marginal in magnitude. Also in the later models fringe benefits are added with the conclusion but the amount of employee benefits does not alter the results significantly. (Benz, 2005)

## 3 Empirical Analysis

Before we start our empirical analysis I would like to pay attention to the issues with measuring happiness and using the results in statistics and shortly make us familiar with the data sample and variables we are going to use. Then will the model definition and its estimates follow.

### 3.1 Happiness as a Statistical Variable

Happiness is a subjective variable and not a directly measurable one and therefore standard techniques cannot be applied. Methods used to extract perceived happiness levels are only over four decades old and usually consist of different variations of questionnaires asking respondents directly how are they happy or how have they been happy. In 1965 first such a question concerning life satisfaction has been introduced by Hadley Cantril. The main problem with happiness, satisfaction and other subjective variables is however not the question itself, but the answer. Unless we are in an environment, where people are used to being tested and evaluate

their lives, there's a problem with interpreting their answers (Likert, 1932). Before we can proceed with our empirical research we have to state some assumptions.

According to Ferrer-i-Carbonell and Paul Frijters, there are three essential assumptions for questions on happiness and satisfaction ( $GS$  stands for general satisfaction in their case)<sup>2</sup>:

1. General satisfaction is a positive monotonic transformation of an underlying metaphysical concept called welfare and denoted by  $W(\cdot)$ : if  $GS_{it} > GS_{is}$  then  $W_{it} > W_{is}$ .
2. General satisfaction is interpersonally ordinally comparable: if  $GS_i > GS_j$  then  $W_i > W_j$ .
3. General satisfaction is interpersonally cardinally comparable:  $(W_i - W_j) = \omega(GS_i, GS_j)$  with  $\omega(\cdot)$  a function that is known up to a multiplicative constant. Normally  $\omega(GS_i, GS_j)$  is taken to be  $(GS_i - GS_j)$ .

The first assumption tells us that if our variable (happiness) is greater, the person has to be happier and vice versa. From studies on this topic we know that such questions are highly correlated with objective measurements (e.g. smiling), therefore this assumption holds. The second assumption tells us that if our variable is higher for person  $i$  than for person  $j$ , then person  $i$  is happier than person  $j$ . Using observation from studies on this topic we can also prove this empirically. The third assumption insists that difference between values say 3 and 4 is the same for all respondents. This assumption is harder to back up, but according to some sources it holds and we will assume so too (Ferrer-i-Carbonell, & Frijters, 2004). Surely, there are statistical models that allow for heterogeneous choice, where this proportional odds assumption does not have to hold (e.g. the generalized ordinal logit model), but as we drop the assumptions, the worse interpretable results we get.

## 3.2 Additional Variables

To control for additional factors that influence our relationship we will include some general characteristic variables in our regressions. These variables can be divided into two separate groups: personal characteristics and job characteristics.

### 3.2.1 Personal characteristics

The first group contains variables that try to describe the differences among respondents in our sample. We will include gender, education, relationship status health and age.

According to recent studies, the happiness gender gap where women were happier than men has eroded in the past 40 years and men now tend to be the happier (Stevenson, & Wolfers, 2009). As we will see in our regression, this may not be true for our sample.

For education the studies indicate, that the more years of university, the less are people happy, even though the difference is not huge and may be more influenced by how the education matches the current employment, than the objective number of years (Michalos, 2008).

Relationship status is also important. According to Stack and Eshleman, married people are much happier, than those unmarried, and so are the cohabitants, although the coefficient there is

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<sup>2</sup> Taken from their methodology of happiness research (Ferrer-i-Carbonell, & Frijters, 2004)

three times smaller. They do however indicate, that this relationship could be more influenced by the fact that people in relationships are in a better financial state (Stack, & Eshleman, 1998).

The highest correlation with happiness has got naturally the health variable. Independently of other categories, expectably people feeling healthier tend to feel much happier in their lives than those feeling less healthy (Gerdtham, & Johannesson, 2001). Although in my opinion this could be caused by many very different reasons. Either are people happier because their objective state of health is better, or their objective state of health is better because they are feeling happier (e.g. stress causes immunity problems (Padgett, & Glaser, 2003)) or independently on how healthy or happy are they feeling, they rate high, just out of their optimism.

In the case of age there are very recent solid empirics that subjective well-being increases over time, but there may be significant differences between people based on their life experience – e.g. people that lived during World War II, or even the Great Depression may have different happiness perception pattern than people who did not encounter any hardships at all (Simring, 2013)

### **3.2.2 Job characteristics**

In the second group of variables we will include those that describe the nature of job the respondents have. These will be wage and benefits, number of working hours, job satisfaction and most importantly whether our subject works in a non-profit organization.

Starting with wage, as we touched in the introduction, there is not any strong evidence that would support any positive or negative long term relation with happiness. However there are relations either short term or limited by a specific amount and probably in a causal way from money to happiness. (Pischke, 2010).

Working hours is an interesting variable, because according to recent study on this topic, “Europeans Work to Live and Americans Live to Work”, there are different correlations in Europe and in the United States. The findings show that Americans tend to be happier with more working hours as they believe that the hard work leads to success, while Europeans find the work as a necessary evil to get their lives funded (Okulicz-Kozaryn, 2011).

Job satisfaction is expectably highly correlated with happiness as job is a very important part of our lives. The positive correlation of job satisfaction and happiness can be explained via two factors: the employee satisfaction with work assessment and recognition and satisfaction with the level of responsibility. When an employee finds his task interesting and meaningful she gains even more satisfaction when she has higher responsibility (Borkowska, 2007).

## **3.3 The NLSY97 Dataset**

### **3.3.1 Dataset description**

As a dataset for the empirical analysis I have chosen the US National Longitudinal Survey of Youth 1997. The main decision factor has been the inclusion of the crucial information for my work, the perceived level of happiness. The dataset is based on a nationally representative sample

of almost 9000 youth respondents born between 1980 and 1984. The respondents have been interviewed since 1997 every year in the first years of the study and every two years later until present day. The main aim of the survey is to track transition of youths from school to work and into adulthood. Therefore lots of information on employment like job satisfaction, employer details, job details, industry is included.

The dataset also includes information about other important topics that need to be used in statistical analyses. These include family life, relationship details, life expectations, drug use and similar. The survey also includes information about parents however this is limited to basic data like marital and employment histories, health, income and expectations about the main respondents.

Due to the lower age of the respondents in 1997 we will have to use just the most recent data from 2010 in our analyses, so that we will get data from respondents of age between 25 and 30. This still gives us a sample with over 8000 observations from randomly (apart from age) chosen respondents, which should be a sufficiently big sample to use.

### **3.3.2 Data collection methodology**

Maybe the most important thing in statistical output interpretations is a good interpretation of data on input. When we don't know in which form have been the input data we cannot understand what is the information gained from the regression coefficients. In this section I would like to describe what methods were used to gather the data. In our case questionnaires were used exclusively for the data collection, therefore we are going to be talking about questions and answers used for the each variable.

For the main variable, happiness, much of the possible methodology has been described in the section 3.1. In NLSY97 the following question on self assessment of happiness has been used:

How much of the time during the last month have you been a happy person?

- 1 All of the time
- 2 Most of the time
- 3 Some of the time
- 4 None of the time

It is important to notice that the data behind this variable that we will see in the regression output concern the past month which is a compromise between the view of happiness as a life evaluation quality and the immediate feeling of well-being. Another important notice is that the scale is decreasing, i.e. the highest happiness has got the value of 1 and the lowest the values of 4. For a better and more straightforward interpretation of the variable we will invert the order for our regressions.

A similar (though maybe more straightforward) question has been used for self assessment of health:

In general, how is your health?

- 1 Excellent
- 2 Very good
- 3 Good

- 4 Fair
- 5 Poor

Again we will take care of the decreasing scale, but in this case there is more notable caveat in the individual answers. All of the answers from 1 to 3 describe positive attitudes towards one's health, number 4 is still somewhat positive and only the last answer captures a negative one and very negative indeed.

The last subjective question used in this thesis is about job satisfaction.

Which of the following best describes how you feel about your {job assignment} with {employer name}?

- 1 Like it very much
- 2 Like it fairly well
- 3 Think it is OK
- 4 Dislike it somewhat
- 5 Dislike it very much

Unlike for health the answers for this question seem very balanced. We will also invert the order due to the decreasing scale. Important notice is that in the survey this question has been used for all the employments through the whole year while we will be using it just for the current employment due to the fact that we have our happiness variable just for the past month.

The static and yearly personal respondents' information has been collected in a fairly regular manner: gender with two options male and female, current age in years on the first interview (the later values have been calculated) and the highest grade completed as of the day of the interview. The marital/cohabitation status has been divided into ten categories:

Marital or cohabitation status as of the survey date.

- 1 Never married, cohabiting
- 2 Never married, not cohabiting
- 3 Married, spouse present
- 4 Married, spouse absent
- 5 Separated, cohabiting
- 6 Separated, not cohabiting
- 7 Divorced, cohabiting
- 8 Divorced, not cohabiting
- 9 Widowed, cohabiting
- 10 Widowed, not cohabiting

This is very thorough description which goes beyond what we need. For our regressions we will therefore use values 1, 3, 5, 7 and 9 as one category of cohabiting respondents and 2, 4, 6, 8, 10 as the rest.

The questions on job characteristics are also interesting. Working hours have been placed in bins with the width of 10 hours. The wage has got two variables, the actual wage in dollars and the wage with benefits as a "total compensation". I used this variable to compute the "dollar value" of benefits.

For the non-profit variable the following question has been used:

At {employer name} are you employed by:

- 1 Government

- 2 Private for profit company
- 3 Non-profit organization (including tax exempt and charitable)
- 4 Working WITHOUT PAY in a family business or farm
- 5 Member of the Armed Forces

In the source data for my thesis I used the condition of value 3 as a dummy variable indicating by value one that the respondent works in a non-profit organization. Respondents without pay and members of the Armed forces were not included in the data. For the rest the dummy variable will have a value of zero.

### 3.4 Descriptive Statistics

In the survey most of the questions have the opportunity to provide no answer. Such answers are labelled and so we can easily omit those in our empirical analysis. Since we need all the variables we are using filled in we have to drop the incomplete observations. This way we will drop not only those that did not fill any of the questions, but of course also those unemployed. After this selection we have 6 533 observations (5 724 when the job satisfaction variable is included).

In the following table we have numerous statistical observations concerning our variables divided into two parts based on whether the observation has been from a respondent that works at the time in a non-profit firm or no. This division obviously is not well balanced as we have only 555 observations from non-profit employment and as many as 5 978 other observations.

Variable	Non-profit (555 observations)				Others (5 978 observations)			
	Mean	Median	Minimum	Maximum	Mean	Median	Minimum	Maximum
Happiness	2.81	3.00	1.00	4.00	2.79	3.00	1.00	4.00
No relationship	0.47	0.00	0.00	1.00	0.47	0.00	0.00	1.00
Male	0.66	1.00	0.00	1.00	0.48	0.00	0.00	1.00
Wage	1 724.00	1 450.00	7.00	15 000.00	1 550.80	1 285.00	2.00	15 000.00
Fringe benefits	55.75	0.00	0.00	7 167.00	169.67	0.00	0.00	8 000.00
Health	3.90	4.00	1.00	5.00	3.73	4.00	1.00	5.00
Age	27.35	27.00	25.00	30.00	27.24	27.00	25.00	31.00
Hours per week	32.70	40.00	1.00	140.00	36.13	40.00	1.00	168.00
Years of education	15.69	16.00	0.00	95.00	13.76	14.00	0.00	95.00
Family income	57 343.00	50 000.00	5.52	178 750.00	63 841.00	50 566.00	0.00	290 810.00
Job satisfaction	4.10	4.00	1.00	5.00	3.77	4.00	1.00	5.00

Table 1 - Overview of the main statistics partitioned by non-profit and others

The most important variable for our thesis is the happiness variable (hence on the top). According to the data respondents in non-profit organizations feel on average happier than other respondents. The difference is not huge and we will see in the regressions whether the difference is caused by working a non-profit organization or for example by the fact that there are more males in non-profits. One test we although can do now is a two sample mean t-test. With the test statistic of 0.85 we get a p-value of 0.3966 so we cannot reject the null hypothesis of zero difference between the means of happiness.

From the results concerning dummy variables we see that there is the same proportion of singles in non-profits as in the other firms, and the proportion is well balanced. There is also two times more men than women in non-profits in our sample, while about fifty per cent in the remaining firms.

One interesting and according to my opinion even suspicious is the information that the average wage is higher in the non-profit sector. The median wage is about 13% higher in the non-profits, which is not a value that other studies indicate. The fringe benefits are lower in non-profits and also family income is lower, which is more realistic.

Results for the rest of the variables are as expected. The job satisfaction is higher in non-profits which is what Matthias Benz observed in his study (Benz, 2005). Even when we do a regression similar to the one Benz estimated, that is job satisfaction as an explained variable, we get a strongly significant positive coefficient with magnitude 0.29 for the non-profit indicator variable. Complete results are located in Appendix on page 29.

Age and health are comparable in both groups more precisely health is 4.5% higher in non-profits, but that should not be problem.

### 3.5 Regression Model

For my analysis I have chosen as statistical software Gretl 1.9.12 which is a free open-source package suited for econometric analysis with easy interface and GNU R interconnectivity.

#### 3.5.1 Model definition

Since we will work only with the latest wave of the panel survey, we will not have a time-factor included. Our model will therefore have a following structure:

$$y_i = \alpha + \beta X_i + u_i$$

Where  $\alpha$  is a constant, and  $X$  is a matrix of explanatory variables used in the regression and  $\beta$  is a matrix of their coefficients. The explained variable  $y$  is the happiness. When we expand the matrix  $X$  into linear expression, the model equation is going to look as follows:

$$\text{happiness} = \text{const} + \beta_1 \text{is\_male} + \beta_2 \text{is\_alone} + \beta_3 \text{is\_nonprofit} + \beta_4 \text{l\_wage} + \beta_5 \text{benefits} + \beta_6 \text{health} + \beta_7 \text{age} + \beta_8 \text{working\_hours} + \beta_9 \text{education} + \beta_{10} \text{l\_family\_income}$$

#### 3.5.2 OLS Assumptions

As we are going to use OLS as our estimation technique, we have to verify some of the assumptions that have to be met. Specifically for OLS to be applicable, we have to have a model that is linear in parameters, random sample, exogeneity, homoscedasticity and normality of residuals

## Linear in parameters

The linearity of our model can be seen directly from its equational form:

$$happiness = const + \beta_1 is\_male + \beta_2 is\_alone + \beta_3 is\_nonprofit + \beta_4 l\_wage + \beta_5 benefits + \beta_6 health + \beta_7 age + \beta_8 working\_hours + \beta_9 education + \beta_{10} l\_family\_income$$

## Random sample

National Longitudinal Study of Youths claims to be a nationally representative sample. Therefore it should accurately reflect the members of the entire population, in this case being the population of the United States. Hence it fulfils the assumption of random sample. Though only for the population of the US, i.e. our results won't be applicable in other samples.

## Zero conditional mean (exogeneity)

The zero conditional mean assumption can be proved by two sub-conditions: the mean of the residuals is zero and residuals are not correlated with any explanatory variable. For the first condition we will estimate the model from 3.5.1 and save the residuals. Then we will compute the mean  $\mu = -2.15 \times 10^{-16}$  which is basically zero. Next we have to find correlates and corresponding ttest p-values. According to the following table we see that the correlates are almost zero and with no significance. Using this I consider this assumption as fulfilled.

	no	relationship	male	nonprofit	wage	benefits	working	hours	education	age	health	household	income	job	satisfaction
correlation	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
p-value	1.000	1.000	1.000	0.999	1.000	1.000	0.957	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Figure 2 - Correlations of residuals and explanatory variables

## No perfect collinearity

Perfect collinearity is not present in our model, since neither is any variable in a linear relationship with another variable, nor is any variable constant. However we will get into trouble when we start regressing subsamples. In the gender partitioned subsample the variable *is\_male* is going to be constantly zero or one. The same problem is going to happen when we partition the sample using the relationship variable *is\_alone*. In these cases we will omit these variables to ensure no perfect collinearity.

## Homoscedasticity

For testing heteroscedasticity we have two tests, each with the same goal. The first one I will do is the Breusch-Pagan test. In this test we will firstly estimate results from our model and then regress our variables onto squared residuals from the estimation:

$$u^2 = \delta_0 + \delta_1 is\_male + \delta_2 is\_alone + \delta_3 is\_nonprofit + \delta_4 l\_wage + \delta_5 benefits + \delta_6 health + \delta_7 age + \delta_8 working\_hours + \delta_9 education + \delta_{10} l\_family\_income$$

If we confirm joint significance on this second regression, we have to reject the null hypothesis, which is in this case homoscedasticity. The p-value of the F-test is in this case almost zero, so we have a strong sign of heteroscedasticity.

For the confirmation we will also do White’s test of heteroscedasticity. This test is a bit more complex as it requires us not only to regress all the explanatory variables on the residuals, but also their cross-products and their squared values. Fortunately we can use instead a model where we will use the fitted values:

$$u^2 = \delta_0 + \delta_1 happiness + \delta_2 happiness^2$$

The outcome of this test is unfortunately very similar to the Breusch-Pagan test, the p-value is again very close to zero. Therefore we have to reject homoscedasticity.

To deal with heteroscedasticity there are various techniques. From using logged data for exponential-like variables (which I already do), using different specifications of models or using heteroscedasticity consistent standard errors. I chose the last option - all of the standard errors in the models are going to be robust standard errors.

**Normality of residuals**

The last assumption we have to meet is the normality of residuals. Once again we will estimate our model and get the fitted residuals. In this case we will then proceed to a test of normality. Using Gretl we will do a Doornik-However. As you can see clearly in the Figure 3, we have to reject the null hypothesis of normality. But since we have a moderate sample of over 6000 this should not be a problem as there’s asymptotic normality guaranteed by the previous five assumptions.

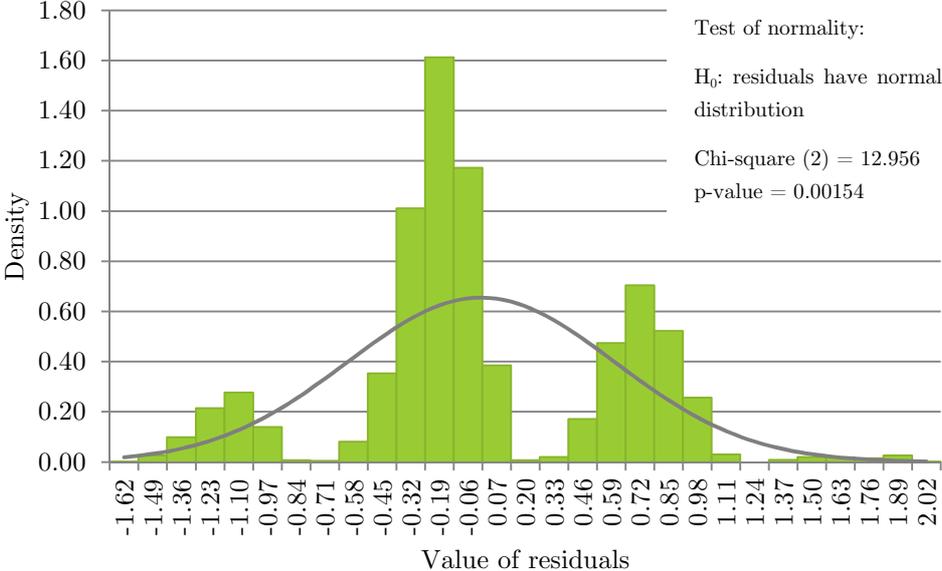


Figure 3 - Distribution of residuals together with normal distribution

### 3.6 Regressing the Whole Sample

Firstly we will start with a simple OLS regression linking happiness to various factors including a dummy variable signaling that our respondent works in a non-profit organization at the time. Our dataset also includes important information about respondents' perceived quality of health and job related variables such as working hours, benefits, wage and even family income. Remaining variables include standard set of information like gender, relationship status, age and education.

Subsample:	Everyone	Everyone
Dependent variable:	Happiness 1-4 scale	Happiness 1-4 scale
Constant	2.747 *** (0.000)	3.293 *** (0.000)
Respondent is male	-0.070 *** (0.000)	-0.081 *** (0.000)
Not married neither engaged	-0.098 *** (0.000)	-0.092 *** (0.000)
Works in a non-profit organization	0.029 (0.271)	0.027 (0.321)
Natural log of wage	0.014 (0.224)	-0.004 (0.741)
Benefits	0.000 (0.563)	0.000 (0.331)
Subjective evaluation of health	0.138 *** (0.000)	0.124 *** (0.000)
Age	-0.017 *** (0.001)	-0.018 *** (0.001)
Working hours per week	0.001 (0.220)	0.001 (0.114)
Highest grade of education completed	-0.008 *** (0.000)	-0.006 *** (0.001)
Log of family income	0.018 * (0.070)	0.013 (0.206)
Job satisfaction		0.072 *** (0.000)
R-squared	0.059	0.073
p-value	0.000 ***	0.000 ***
n	6 533	5 724

Table 2 - OLS Regression on happiness, unrestricted sample<sup>3</sup>

As we can see in the Table 2, the model has VERY low R-squared, meaning it does not explain the happiness well, which we will see often in our regressions. This is however not as big issue as it seems, because we are not trying to fully explain happiness, instead we are trying to prove or reject the hypothesis of correlation with working in non-profit organization. The p-value shows the model is significant and as we can see more than a half of the variables are significant

<sup>3</sup> \*\*\* 0.00 < p-value < 0.01  
 \*\* 0.01 < p-value < 0.05  
 \* 0.05 < p-value < 0.1

on a 99% level. This however does not hold for our main variable, whether respondent works in a non-profit organization.

From the significant variables we can still derive valuable info. We can state that happiness is lower with singles, which is an expectable result. Also expectable is the result of the largest coefficient, respondent perceived level of health, which states, that healthier respondents are more likely to be happier. Additional coefficients indicate that females tend to be happier, while older and/or more educated respondents are less happy. The remaining coefficient, perceived job satisfaction, tells us that respondent more satisfied with her job is more likely to be happier. From research on job satisfaction in non-profit sector we know, that job satisfaction is positively correlated with working in non-profit firms (Benz, 2005), however the overall effect of non-profit employment on happiness seems to be so small that the coefficients turn insignificant. Due to known correlation of job satisfaction with working in a non-profit we will however not include this variable in our next models, as it would break the variable independence.

Another interesting observation is that neither wage, benefits nor family income are significant. According to studies on the topic of income and happiness, above certain level additional income brings very little increase in happiness (Kahneman, & Deaton, 2010-09), however at lower levels this should become significant. We will get to subsamples based on family income later in this thesis.

### 3.7 Regressing the Subsamples

To properly investigate potential effects of working in a non-profit organization on happiness, we have to look deeper and differentiate among different subsets of respondents. What does not hold for the whole dataset might hold for some of its partitions.

#### 3.7.1 Gender

The first criterion is basic separation by gender. Using the indicator variable for male respondents we get two subsets of 3 241 and 3 432 men and women respectively of age between 25 and 30. For the examination of this subset we will use Ordinary Least Squares as in the previous model. Due to perfect collinearity, we must obviously omit the first explanatory variable – whether respondent is male.

The Table 3 shows us a similar view as Table 2 with unrestricted sample. R squared is little higher, however still very small, and the model is significant. Evaluation of health is the strongest driver along with relationship status. Age and education coefficients are still very low and the variables are now significant only on 95% level. We still cannot reject the null hypothesis of non-profit indicator variable as well as variables connected with employment (working hours, benefits and family income) even on 80% level apart from wage, which is significant for men and is strongly insignificant for women.

Subsample:	Male	Female
Dependent variable:	Happiness 1-4 scale	Happiness 1-4 scale
Constant	2.596 (0.000)	2.858 (0.000)
Not married neither engaged	-0.103 *** (0.000)	-0.095 *** (0.000)
Works in a non-profit organization	0.036 (0.261)	0.012 (0.786)
Natural log of wage	0.030 * (0.052)	-0.001 (0.973)
Benefits	0.000 (0.810)	0.000 (0.564)
Subjective evaluation of health	0.154 *** (0.000)	0.122 *** (0.000)
Age	-0.016 ** (0.018)	-0.019 ** (0.013)
Working hours per week	0.000 (0.747)	0.001 (0.164)
Highest grade of education completed	-0.008 *** (0.000)	-0.007 * (0.051)
Log of family income	0.010 (0.418)	0.023 (0.126)
R-squared	0.070	0.068
p-value	0.000 ***	0.000 ***
n	3 241	3 432

Table 3 - OLS Regression on happiness, partitioned by gender

### 3.7.2 Family income

As mentioned above, according to the recent studies, perceived happiness does not grow with long term income growth above certain level (Easterlin & Hinte, & Zimmermann, 2010). In short term, above certain levels of income the correlation of happiness and income gets very small (Kahneman, & Deaton, 2010-09). This income differentiation might be very important to our thesis. If different income groups tend to have different income-happiness curves, there might also be a difference in their levels of happiness in dependence on employment in non-profit sector. We will use the 75 000 USD level of family income to distinguish respondents which according to Kahneman and Deaton don't gain additional happiness by income growth and 25 000 USD which is has been set as a top limit for poverty in 2010 in the United States. (U. S. Department of Health & Human Services 2010 Poverty Guidelines, 2010)

Subsample: Dependent variable:	Income > 75 000 Happiness 1-4	Income < 25 000 Happiness 1-4	Income rest Happiness 1-4
Constant	2.181 ** (0.039)	3.202 ** (0.015)	2.055 *** (0.001)
Respondent is male	-0.056 ** (0.039)	-0.094 ** (0.015)	-0.070 *** (0.001)
Not married neither engaged	-0.132 *** (0.000)	-0.099 ** (0.022)	-0.086 *** (0.000)
Works in a non-profit organization	0.063 (0.155)	-0.042 (0.527)	0.030 (0.412)
Natural log of wage	0.028 (0.156)	-0.061 ** (0.035)	0.035 ** (0.041)
Benefits	0.000 (0.398)	0.000 (0.181)	0.000 * (0.051)
Subjective evaluation of health	0.140 *** (0.000)	0.135 *** (0.000)	0.138 *** (0.000)
Age	-0.016 * (0.071)	-0.020 (0.104)	-0.018 ** (0.013)
Working hours per week	0.001 (0.518)	0.000 (0.944)	0.001 (0.185)
Highest grade of education completed	-0.016 *** (0.007)	0.000 (0.969)	-0.008 *** (0.000)
Log of family income	0.067 * (0.057)	0.030 (0.215)	0.067 * (0.059)
R-squared	0.064	0.054	0.062
p-value	0.000 ***	0.000 ***	0.000 ***
n	1 895	1 264	3 374

Table 4 - OLS Regression on happiness, partitioned by family income

Here the results are once again very similar. The wage-related variables are insignificant for the wealthier partition, which is what we have expected, since the level of happiness should not grow with additional income in this group. Our non-profit indicator is however also insignificant stating that among the wealthier families there is no additional happiness gain for working in a non-profit firm. All other variables give us very comparable results as in the previous models. The strongest driver is health, followed by relationship status and gender.

### 3.7.3 Relationship status

Since relationship has been one of the strongest drivers of perceived levels of happiness in the previous models, we should look into these subsets of our dataset. Firstly, we will have a look at the dataset containing only those respondents, that are neither married, nor in any kind of

relationship. By partitioning using the indicator variable we have been using in the past regressions we get a sample of 3 101 and 3 432 respondents for respondents in a relationship and the ones that are not respectively. The indicator variable is obviously omitted.

Subsample:	Single	In a relationship
Dependent variable:	Happiness 1-4 scale	Happiness 1-4 scale
Constant	2.741 *** (0.001)	2.595 *** (0.004)
Respondent is male	-0.080 *** (0.001)	-0.060 *** (0.004)
Works in a non-profit organization	0.014 (0.712)	0.039 (0.270)
Natural log of wage	-0.007 (0.681)	0.034 ** (0.025)
Benefits	0.000 (0.119)	0.000 ** (0.045)
Subjective evaluation of health	0.125 *** (0.000)	0.148 *** (0.000)
Age	-0.013 * (0.089)	-0.021 *** (0.002)
Working hours per week	0.000 (0.651)	0.001 (0.182)
Highest grade of education completed	-0.003 (0.278)	-0.012 *** (0.000)
Log of family income	0.011 (0.387)	0.030 * (0.051)
R-squared	0.042	0.068
p-value	0.000 ***	0.000 ***
n	3 101	3 432

Table 5 - OLS Regression on happiness, partitioned by relationship status

Similarly to the previous models we have significant coefficients with health, age, and gender. As in the previous subset we state that women are likely to be happier than men. Unlike before we now don't have significant coefficient with education.

### 3.8 Regressing on Highest Happiness

In all of the models we have estimated so far we have been working with the numeric representation of happiness on a scale from 1 to 4. Using the results of these models we can now state, that with very high probability there is no general correlation of happiness and working in the non-profit sector. What we did not cover is whether there isn't some kind of correlation with being happy all the time or none of the time. For this reason we will have to modify our dependent variable. In chapter 3.8 we will analyse how our variables affect people being happy all

of the time (in the past month). The dependent variable will now be a dummy where 1 stands for respondents being happy all the time and 0 for the rest.

### 3.8.1 Unrestricted sample

Firstly we will start with the full unrestricted sample. Compared to the model in chapter 3.6 we see less significant variables. There is still significant gender indicator, telling us men tend to be little less happy all the time than women. We have also lost significance of relationship indicator. Health is still important and indicates the rationale – people feeling healthier are usually more often happy all the time. The family income is only closely below 95% significance level, its coefficient magnitude is small, but points to negative relationship between family income and high happiness. Above the 95% level we have job benefits, however with coefficient very close to zero.

Subsample:	Everyone
Dependent variable:	Highest happiness dummy
Constant	0.275 *** (0.000)
Respondent is male	-0.037 *** (0.000)
Not married neither engaged	-0.010 (0.191)
Works in a non-profit organization	0.004 (0.733)
Natural log of wage	-0.006 (0.318)
Benefits	0.000 ** (0.043)
Subjective evaluation of health	0.033 *** (0.000)
Age	-0.002 (0.509)
Working hours per week	0.000 (0.522)
Highest grade of education completed	-0.005 *** (0.000)
Log of family income	-0.009 * (0.056)
R-squared	0.020
p-value	0.000 ***
n	6 533

Table 6 - OLS Regression on highest happiness, unrestricted sample

### 3.8.2 Gender

Next we have a subsample of 3 241 men and 3 292 women. The results are very similar to the unrestricted sample in the previous chapter. We have the non significant relationship indicator, significant health and education. Interesting finding is that only man's highest happiness correlates with family income and benefits.

Subsample:	Male	Female
Dependent variable:	Highest happiness dummy	Highest happiness dummy
Constant	0.222 (0.040)	0.290 (0.025)
Not married neither engaged	-0.010 (0.283)	-0.010 (0.399)
Works in a non-profit organization	0.013 (0.407)	-0.011 (0.649)
Natural log of wage	-0.005 (0.541)	-0.007 (0.450)
Benefits	0.000 ** (0.037)	0.000 (0.730)
Subjective evaluation of health	0.031 *** (0.000)	0.036 *** (0.000)
Age	-0.001 (0.694)	-0.002 (0.651)
Working hours per week	0.000 (0.634)	0.000 (0.743)
Highest grade of education completed	-0.004 *** (0.001)	-0.006 *** (0.001)
Log of family income	-0.010 * (0.091)	-0.008 (0.247)
R-squared	0.015	0.014
p-value	0.000 ***	0.000 ***
n	3 241	3 292

Table 7 - OLS Regression on highest happiness, partitioned by gender

### 3.8.3 Family income

The family income partition for the highest happiness indicator variable shows us some differences compared to the one in 3.7.2. The relationship indicator lost its significance as well as wage and age. On the other side we have retained significance of gender and health. Most importantly we have gained 90% significance level on our non-profit employment indicator variable in the lowest family income partition. With coefficient magnitude of -0,051 we can state that people from this sample are less likely to be happy all the time when working in a non-profit organization.

Subsample:	Income > 75 000	Income < 25 000	Income rest
Dependent variable:	Highest happiness	Highest happiness	Highest happiness
Constant	-0.300 ** (0.237)	0.403 (0.044)	0.000 *** (0.999)
Respondent is male	-0.036 ** (0.011)	-0.021 (0.260)	-0.044 *** (0.000)
Not married neither engaged	0.000 (0.983)	-0.022 (0.312)	-0.015 (0.146)
Works in a non-profit organization	0.029 (0.236)	-0.051 * (0.072)	0.013 (0.479)
Natural log of wage	0.001 (0.894)	-0.024 (0.117)	-0.002 (0.756)
Benefits	0.000 (0.414)	0.000 (0.711)	0.000 *** (0.007)
Subjective evaluation of health	0.038 *** (0.000)	0.034 *** (0.000)	0.032 *** (0.000)
Age	0.002 (0.623)	0.000 (0.989)	-0.004 (0.201)
Working hours per week	-0.001 * (0.098)	0.001 (0.286)	0.001 (0.133)
Highest grade of education completed	-0.011 *** (0.001)	-0.006 ** (0.026)	-0.003 *** (0.001)
Log of family income	0.036 * (0.059)	-0.012 (0.306)	0.017 (0.311)
R-squared	0.025	0.024	0.023
p-value	0.000 ***	0.001 ***	0.000 ***
n	1 895	1 264	3 374

Table 8 - OLS Regression on highest happiness, partitioned by family income

### 3.8.4 Relationship status

The results for highest happiness in this subsample partitioned by relationship status gives us the same results as the one with the 1-4 happiness variable in chapter 3.7.3 with the only exceptions of wage and age variables losing its significance and wage variable having an opposite sign with respondents in a relationship, thus saying that with the growing wage they are likely to be happier, but less likely to be happy all the time.

## 3.9 Regressing on Lowest Happiness

By using the highest happiness dummy we discovered some interesting things. Most importantly we found a significant correlation of our non-profit employment variable among the respondents with family income under 25 000, but we also discovered the non-linear relation of happiness to wage in section 3.8.4. In this section we will cover models where the explained variable is going to be the lowest happiness dummy, gaining value 1 for people who have been in the past month before the interview happy none of the time and 0 for the remaining values.

Subsample:	Single	In a relationship
Dependent variable:	Highest happiness dummy	Highest happiness dummy
Constant	0.198 *** (0.074)	0.366 *** (0.004)
Respondent is male	-0.036 *** (0.001)	-0.038 *** (0.000)
Works in a non-profit organization	-0.017 (0.322)	0.024 (0.217)
Natural log of wage	-0.011 (0.226)	0.000 (0.968)
Benefits	0.000 ** (0.012)	0.000 (0.732)
Subjective evaluation of health	0.031 *** (0.000)	0.036 *** (0.000)
Age	0.001 (0.673)	-0.005 (0.184)
Working hours per week	0.000 (0.540)	0.000 (0.783)
Highest grade of education completed	-0.005 *** (0.001)	-0.004 *** (0.007)
Log of family income	-0.006 (0.284)	-0.015 * (0.077)
R-squared	0.020	0.021
p-value	0.000 ***	0.000 ***
n	3 101	3 432

Table 9 - OLS Regression on highest happiness, partitioned by relationship status

Unfortunately for us the frequency distribution is very unbalanced, which may cause some troubles. Only very small portion of our respondents stated that they have been happy none of the time. In the language of numbers we are talking about 86 observation from the total of 6 533 non-null responses. That makes only 1.32% of observations compared to the vast majority of respondents (98.68%) who have been happy at least some of the time.

The tables from this section are placed in the Appendix on pages 29 and following.

### 3.9.1 Unrestricted sample

As I have mentioned in the previous paragraph, we will get less significant variables. In this case (Table 11, page 30) we have only three – the family income, the relationship status and subjective evaluation of health, all of them having their coefficients significant at least on 95% level, however with values very close to zero. The p-value of the model still holds and the R-squared is very low.

### 3.9.2 Gender

With further restriction by gender (Table 12, page 31) of the sample we get even lower significance. The p-value of the model for women still holds, however for men we get insignificant

model with p-value as high as 0.25. For the women model we see the traditionally strongest variables: relationship status, subjective evaluation of health and family income. Where being in a relationship, healthier and with higher family income leads to lower tendency of being happy none of the time.

### 3.9.3 Family Income

For family income subsample (Table 13, page 32) we still have significant models for low-income and middle-income families. It is probable, that for high-income families, feeling happy none of the time is caused by different factors, than the ones described by our explanatory variables. Family income is important for the other two partitions and has negative coefficient, that is with rising family income people are *happy none of the time* less often. The same goes for those feeling healthier. Obviously singles are more likely to *feel happy none of the time*. Interesting finding is that for low-income families higher wage leads to lower happiness.

### 3.9.4 Relationship Status

For the relationship status partition (Table 14, page 33) only the model for singles is significant. More years of education, higher family income and better evaluation of health lead to *feeling happy none of the time* less often.

## 4 Summary & Conclusion

In my thesis I have been trying to examine the differences of perceived happiness levels among workers from non-profit and for-profit firms. The motivation for this examination comes from studies observing positive correlations between working in non-profit firm and job satisfaction and positive correlations between job satisfaction and perceived level of happiness.

Using data from the US National Longitudinal Study of Youths 1997 I have derived model estimates of coefficients linking perceived level of happiness explanatory variables including personal characteristics variables such as gender, relationship status, age or health and also job characteristic variables such as working hours, wage, fringe benefits and non-profit dummy variable. This model has been estimated on the whole sample of the 2010 wave of the NLSY97 survey, which consists of almost 9000 respondents, as well as on numerous subsamples. I have also done two transformations of the happiness variable to identify only people who are most happy and people who are least happy.

In the estimation results, many correlations already described in different studies that I have mentioned in the chapter 3.2 have been confirmed. In our sample as well as in most of the subsamples women tend to be happier than men in alignment with what all the studies suggest, even though the newer ones suggest opposite trend (Stevenson, & Wolfers, 2009). Also the relationship status in our results indicates that people in a relationship are generally happier than the rest as observed by (Stack, & Eshleman, 1998). As expected, according to the estimates, respondents feeling healthier indicate higher frequency of happiness. According to Simring people should be feeling of happier with age (Simring, 2013), however our results show the opposite for all subsamples. For wage our results are significant only in some models. We have found that

with growing income men, people in relationship and members of middle-income families generally feel happier. On the other hand members of low-income families feel less happy with rising income, which is surprising. Also with rising family income high and middle-income family members and people in relationship feel happier, although people in general tend not to feel happy all the time that often. According to Okulicz-Kozaryn Americans should feel happier with more working hours, but our results do not support that as we found basically all of the coefficients insignificant. Not surprisingly, correlation of job satisfaction with happiness, which is one of the phenomenon that motivated my research turned out to have positive correlation, i.e. people reporting higher satisfaction with their job feel happy more often as expected.

As for the main scope of my thesis, whether working in a non-profit firm correlates with perception of happiness I haven't been able to find much evidence for correlation. In overwhelming majority of the regression models the non-profit variable turns insignificant. In only one of the models, we have significance on a 90% level. The outcome of this model is that people from low-income families tend to be *happy all of the time* less often when working in a non-profit organization. The explanation might be that people from low-income families have a lack of money for their basic needs and therefore they do not gain the additional happiness from the social benefits non-profit firm might offer to substitute for the lower income. The explanation could however be opposite, that people from low income families are less likely to be happy all of the time when they do not have general inclinations to non-profit work. To inspect a causal relation in this would need further examination.

In spite of the results of other subsamples than the one mentioned in the previous paragraph and the results of the unrestricted sample I feel we can rule out the correlation of non-profit employment and perceived level of happiness. Having in mind the studies mentioned in the introduction, I conclude there might be correlations between employment in non-profit firm and job satisfaction and between job satisfaction and happiness, however the link from non-profit employment is so weak that it falls beyond significance level.

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## 6 Appendix

Subsample:	Everyone
Dependent variable:	Job satisfaction
Constant	1.349 (0.000)
Respondent is male	0.004 (0.881)
Not married neither engaged	-0.079 *** (0.008)
Works in a non-profit organization	0.291 *** (0.000)
Natural log of wage	0.202 *** (0.000)
Benefits	0.000 (0.201)
Subjective evaluation of health	0.133 *** (0.000)
Age	0.008 (0.424)
Working hours per week	0.001 (0.638)
Highest grade of education completed	0.001 (0.917)
Log of family income	-0.007 *** (0.004)
R-squared	0.042
p-value	0.000 ***
n	5 724

Table 10 – OLS Regression on job satisfaction, unrestricted sample

Subsample:	Everyone
Dependent variable:	Lowest happiness dummy
Constant	0.080 (0.011)
Respondent is male	-0.002 (0.472)
Not married neither engaged	0.007 ** (0.018)
Works in a non-profit organization	-0.001 (0.882)
Natural log of wage	-0.001 (0.619)
Benefits	0.000 (0.200)
Subjective evaluation of health	-0.005 ** (0.024)
Age	0.001 (0.413)
Working hours per week	0.000 (0.596)
Highest grade of education completed	0.000 (0.983)
Log of family income	-0.007 *** (0.004)
R-squared	0.007
p-value	0.000 ***
n	6 533

Table 11 - OLS Regression on lowest happiness, unrestricted sample

Subsample:	Male	Female
Dependent variable:	Lowest happiness dummy	Lowest happiness dummy
Constant	0.044 (0.208)	0.114 (0.028)
Not married neither engaged	0.003 (0.455)	0.011 ** (0.010)
Works in a non-profit organization	0.000 (0.994)	-0.003 (0.784)
Natural log of wage	-0.001 (0.770)	0.000 (0.868)
Benefits	0.000 (0.262)	0.000 (0.616)
Subjective evaluation of health	-0.004 (0.103)	-0.007 * (0.094)
Age	0.001 (0.517)	0.001 (0.581)
Working hours per week	0.000 (0.766)	0.000 (0.556)
Highest grade of education completed	0.000 (0.508)	0.000 (0.860)
Log of family income	-0.003 (0.143)	-0.011 ** (0.011)
R-squared	0.003	0.013
p-value	0.250	0.003 ***
n	3 241	3 292

Table 12 - OLS Regression on lowest happiness, partitioned by gender

Subsample:	Income > 75 000	Income < 25 000	Income rest
Dependent variable:	Lowest happiness	Lowest happiness	Lowest happiness
Constant	0.001 (0.990)	0.098 (0.322)	0.158 (0.054)
Respondent is male	0.001 (0.771)	-0.005 (0.541)	-0.004 (0.348)
Not married neither engaged	0.001 (0.867)	0.017 * (0.071)	0.008 * (0.087)
Works in a non-profit organization	0.001 (0.917)	0.020 (0.280)	-0.009 (0.150)
Natural log of wage	-0.003 (0.145)	0.008 ** (0.039)	-0.003 (0.163)
Benefits	0.000 (0.324)	0.000 ** (0.031)	0.000 (0.191)
Subjective evaluation of health	0.002 (0.473)	-0.012 ** (0.040)	-0.006 * (0.070)
Age	0.000 (0.800)	0.000 (0.831)	0.002 (0.247)
Working hours per week	0.000 (0.387)	0.001 * (0.077)	0.000 ** (0.030)
Highest grade of education completed	0.000 (0.753)	-0.002 * (0.093)	0.000 (0.734)
Log of family income	0.003 (0.644)	-0.014 ** (0.033)	-0.014 * (0.080)
R-squared	0.002	0.027	0.007
p-value	0.476	0.042 **	0.014 **
n	1 895	1 264	3 374

Table 13 - OLS Regression on lowest happiness, partitioned by family income

Subsample:	Single	In a relationship
Dependent variable:	Lowest happiness dummy	Lowest happiness dummy
Constant	0.160 (0.003)	0.022 (0.462)
Respondent is male	-0.006 (0.187)	0.001 (0.844)
Works in a non-profit organization	0.003 (0.690)	-0.005 (0.417)
Natural log of wage	0.001 (0.745)	-0.002 (0.349)
Benefits	0.000 (0.890)	0.000 * (0.090)
Subjective evaluation of health	-0.008 ** (0.044)	-0.002 (0.284)
Age	-0.001 (0.650)	0.001 (0.117)
Working hours per week	0.000 (0.336)	0.000 (0.478)
Highest grade of education completed	-0.002 *** (0.008)	0.002 (0.308)
Log of family income	-0.008 *** (0.009)	-0.005 (0.129)
R-squared	0.013	0.006
p-value	0.004 ***	0.249
n	3 101	3 432

Table 14 - OLS Regression on lowest happiness, partitioned by relationship status