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Do fringe benefits affect job satisfaction?

*Bachelor thesis*

Prague 2020

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## **Declaration of Authorship**

I hereby proclaim that I wrote my bachelor thesis on my own under the leadership of my supervisor and that the references include all resources and literature I have used.

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Prague, 7 May 2020

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Signature

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## **Bibliographic note**

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## **Abstract**

Fringe benefits remain a substantial part of the compensation, but their influence on job satisfaction is ambiguous. Their presence might result in decreased job satisfaction and reduced job mobility. The aim of this thesis is to test the hypothesis that fringe benefits affect job satisfaction. The study uses data from the National Longitudinal Survey of Youth conducted in 2017 and applies five regression models to determine the relationship between job satisfaction, fringe benefits, and various work aspects. The outcomes revealed that significant types of fringe benefits are a flexible work schedule, paid maternity leave, and tuition reimbursement for certain types of schooling. The availability of each of these might increase job satisfaction. However, the effect of four other types of fringe benefits appears to be negative. This thesis also examines the perception of fringe benefits for different subsamples and finds that men value the availability of a flexible work schedule more than women and medical insurance is positively correlated with job satisfaction only for single workers. Therefore, this thesis supports the hypothesis that fringe benefits affect job satisfaction.

## **Keywords**

job satisfaction, fringe benefits, determinants of job satisfaction, benefits, compensation

## **Bibliografický záznam**

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## **Abstrakt**

Zaměstnanecké benefity jsou využívány jako odměňování a kompenzace za práci, ale jejich význam při určování spokojenosti s prací je nejasný. Tato forma odměny by mohla mít za následek snížení pracovní spokojenosti a mobility. Cílem této práce je otestovat hypotézu, zda zaměstnanecké benefity ovlivňují spokojenost s prací. Studie využívá data z dlouhodobého průzkumu - National Longitudinal Survey of Youth provedeného v roce 2017 a používá pět regresních modelů k odhalení vztahu mezi spokojeností s prací, benefity a různými aspekty práce. Výsledky poukázaly na typy zaměstnaneckých výhod, které mají signifikantní vliv na spokojenost s prací. Tyto výhody jsou flexibilní pracovní doba, placená mateřská dovolená a hrazené školení zaměstnavatelem, všechny tyto tři mají pozitivní vliv na spokojenost s prací. Nicméně, vliv čtyř jiných typů benefitů se jeví jako negativní. Tato práce také zkoumá, jak benefity vnímají různé podskupiny. Analýzou se zjistilo, že muži oceňují pružnou pracovní dobu více než ženy a zdravotní pojištění je pozitivně korelováno s pracovní spokojeností pouze u svobodných pracovníků. Tato práce tedy podporuje hypotézu, že zaměstnanecké výhody ovlivňují spokojenost s prací.

## **Klíčová slova**

spokojenost s prací, zaměstnanecké výhody, determinanty spokojenosti s prací, benefity, kompenzace

# Bachelor's Thesis Proposal

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*Notes: Please enter the information from the proposal to the Student Information System (SIS) and submit the proposal signed by yourself and by the supervisor to the Academic Director ("garant") of the undergraduate program.*

## Proposed Topic:

Do fringe benefits affect job satisfaction?

## Preliminary scope of work:

### **Research question and motivation**

Main question of the thesis is to find out how fringe benefits affect job satisfaction. Fringe benefits stand as an important part of work compensation but confirming their role in determining job satisfaction has been mixed at best. They might be a welcomed complement to monetary earnings, but they can also substitute for part of earnings and reduced job mobility. The goal of this thesis is to find out which benefits have negative and which positive impact on job satisfaction and to specify how different people react to these benefits.

Various studies have been conducted to find out the factors which determine job satisfaction and the way it influences productivity in the organization, for example job satisfaction was found to be negatively related to job turnover (Freeman 1978), absenteeism (Clegg, 1983), and positively related to productivity (Mangione and Quinn, 1975). Therefore, it is useful to understand which job characteristics and provisions increase job satisfaction. Although fringe benefits stand as an important piece of worker compensation packages they have not been given much attention in the job satisfaction literature. To the best of my knowledge, there is only one relatively recent paper analyzing the relationship between fringe benefits and job satisfaction (Artz, 2010).

### **Contribution**

I will analyze which benefits have significant impact of job satisfaction between years 1997 to 2015, which is a significant extension over the work of Artz (2010), then summarize the opinions of others and try to do my own survey of perception of benefits as income compensation. The result can be beneficial for employers when they decide which benefits they want to offer to satisfy as many employees as possible, because I will identify potential heterogeneities among employees in perception of fringe benefits.

### **Methodology**

The data used will be from the National Longitudinal Survey of Youth. This United States panel data contain a measure of overall job satisfaction and many variables measuring the qualities of one's job, for example flexible schedule, life insurance and debatable topic about retirement plan. I will use ordinary least squares and, possibly also multinomial models to model the dependence of job satisfaction on job characteristics.

Further, I will collect my own data in form of a survey among Czech employees. The goal of the survey is to directly find out how employees assess fringe benefits and check whether Czech employees have similar attitudes as US employees.

## **Outline**

### Abstract Introduction

1. why is my topic interesting
2. brief overview of existing literature
3. main results and what they mean
4. how is the thesis organized

### Job satisfaction determinants

1. general determinants of job satisfaction
2. types of fringe benefits

### Methodology

1. description of relevant data
2. data analysis
3. impact of benefits on job satisfaction
4. my own survey

### Results

1. rejecting / not rejecting hypotheses about influence of fringe benefits of job satisfaction
2. my interpretation of the results

### Conclusion

1. broader interpretation of results
2. implications for practice
3. topics for further research

## **List of academic literature:**

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## **Acronyms**

**OLS** Ordinary least squares

**SWB** Subjective well-being

**NLSY** National Longitudinal Survey of Youth

**BLS** Bureau of Labor Statistics

**MLE** Maximum likelihood estimation

## Introduction

Fringe benefits remain an important part of compensation, with the interest in them among employers has been growing during recent years. However, their presence might result in decreased job satisfaction and also in reduced job mobility. Firstly, besides income, fringe benefits are one of the essential components of compensation for work. According to the US Bureau of Labor Statistics, in 2019 benefits formed approximately 31% of total the compensation for all civilian workers in the USA. Specifically, insurance plans made up almost 28% of all benefit compensation, paid leave approximately 23%, retirement and savings plans 16.5%, legally required benefits such as Social Security and Medicare roughly 23% with the remainder comprising supplemental pay. These benefits are often not taxed and are, therefore, advantageous to both the business and employees. Secondly, fringe benefits can substitute for salary. According to Baughman, DiNardi & Holtz-Eakin (2003), employers decreased salaries after a few years, once several benefits had been offered to employees. Therefore, fringe benefits can affect job satisfaction negatively if an employee prefers a higher income rather than fringe benefits. In addition, it may happen that an employee's spouse already has the provision of a specific fringe benefit, thus a second provision may be perceived as unnecessary and, therefore, may reduce job satisfaction.

The most comprehensive study about the impact of fringe benefits on job satisfaction was conducted by Artz in 2010. He used five waves of the National Longitudinal Survey of Youth, with each wave representing every alternate year from 1996 to 2004. The pooled cross-sectional estimation offered compelling results that fringe benefits serve as determinants of job satisfaction and using a fixed-effects regression, fringe benefits were established as significant and positive determinants of job satisfaction. The results of an individual NLSY wave did not offer very compelling evidence that fringe benefits affect job satisfaction.

The aim of my thesis is to test the hypothesis that fringe benefits affect job satisfaction. If they do, I would like to find whether the effect is positive or negative. Moreover, I ask what is the effect of specific types of fringe benefits on job satisfaction and investigate the preferences for fringe benefits among different sub-samples of workers. In addition, I would like to find the effect of specific types of fringe benefits on job satisfaction, and to investigate the preferences for fringe benefits of different sub-samples.

The data used in this thesis are individual-level data coming from the most recent wave of the National Longitudinal Survey of Youth conducted in 2017. I compare OLS estimation with a more suitable ordered probit estimation. Furthermore, for simplifying the interpretation of the ordered probit regression, I use probit regression. My contribution lies in presenting the most recent picture of the significance of fringe benefits in relation to job satisfaction, which could be helpful to employers in deciding what benefits to offer their employees.

The thesis is structured as follows: Chapter 1 deals with literature review on the subject of job satisfaction and its determinants. Chapter 2 describes the data sample, survey questions, and possible answers and explains the creation of variables. Chapter 3 introduces the methodology used to analyse the data and describes the regression models. Chapter 4 presents the results and conclusion summarizes our findings.

# 1 Literature review

## 1.1 Job satisfaction and life satisfaction

Job satisfaction is one of the key determinants of life satisfaction. People spend a large portion of their day at work; actually, an average person spends about 90,000 hours at work over a lifetime. Job dissatisfaction is connected to a high rate of resignations (Freeman, 1978), low work productivity and work effort, employee absenteeism and high employee turnover. Therefore, knowledge of this topic is very helpful in terms of understanding the economy of a particular country and the behaviour of people on the labour market. Furthermore, job satisfaction is considered to be a strong predictor of the individual well-being. Therefore, it interacts with everyday life behaviour, mood and decisions in life. Economists such as Hamermesh and Freeman began to examine the factors affecting well-being at work, by introducing job satisfaction as a subjective variable and used it for complementing the explanatory models of the labour market behaviour.

Tait, Padgett, & Baldwin (1989) declared that job satisfaction and life satisfaction are correlated with a coefficient of 0.44. In addition, scientists speculated that there are three possible ways in which job satisfaction influences life satisfaction.

First of all, we can observe a spillover effect, where an employee's job experiences spill over into his or her life, and, on the contrary, how a happy or unhappy life spills over into job experiences and evaluations. Judge & Watanabe (1994) even called this relationship 'reciprocal'. Secondly, there is segmentation, when job and life experiences are separated, without affecting each other. Finally, there is compensation, where an individual is unhappy at work and tends to compensate for this in ordinary life and vice versa. According to Judge and Watanabe (1994), the spillover model seems to describe most US workers.



## 1.2 Definition of job satisfaction

The definition of job satisfaction has many forms. Hoppock (1935) defined job satisfaction as “any combination of psychological, physiological, and environmental circumstances that causes a person truthfully to say, ‘I am satisfied with my job’”. Commonly it is explained by the degree to which employees like their work (Agho, Mueller and Price, 1993), or their general approach toward the job (Lofquist and Dawis, 1978, Brief, 1998). According to Locke (1976), it is the positive and pleasurable feelings as a result of the individual’s analysis of their job and the experience gained. Ugboro and Obeng (2000) outlined job satisfaction as a positive attitude towards work as a result of the working life or the harmony between an employee and his/hers working conditions. Weiss (2002) has argued that researchers should distinguish between subjective and objective evaluation, while Robbins and Judge (2009) pointed out the same thing in their studies. The definition changes with the individuals: some people can report a much higher level of satisfaction under worse conditions, than those who have better conditions.

Therefore, it is difficult to keep all the employees satisfied, since everyone values things differently. In essence, a worker can be happy with some conditions related to the job, but concurrently unhappy with other things. Each employee has a specific point of view about their job and career, and generally, this point of view does not change over time. Staw & Ross (1985) stated that an employee’s job satisfaction score is consistent over time, even though the employee changes their job. Staw, Bell & Clausen (1986) claimed that temperament in childhood is statistically related to adult job satisfaction. House, Shane & Herold (1996) attribute the variations of job satisfaction among employees to differences in their disposition. Further, according to Judge, Locke, Durham, & Kluger (1998), a fundamental personality trait and self-assessments correlate with job satisfaction. Judge, Heller, & Mount (2002) stated that the perception and conscientiousness of the individual can also affect how he or she is satisfied with their job. Hence, in observing job satisfaction, we face a problem with many unobservable characteristics,

e.g. how does one measure a person's temperament?

### **1.3 Job performance**

Presumably, job satisfaction goes hand in hand with performance. It begins with the Hawthorne studies, which mentioned the impact of employee satisfaction with achievements. On the contrary, Iaffaldano & Muchinsky (1985) argued that the notion "a happy worker is a productive worker" is only a management fad. However, further research does not agree with this assumption. Schnake (1991) demonstrated that satisfaction affects interest. A satisfied and happy worker is more productive, inventive and meets the fulfilment of their formal job requirements better than the worker who is dissatisfied. In addition, Organ & Ryan (1995) stated the fact that job satisfaction correlates with organisational citizenship behaviour.

Therefore, dissatisfaction is an issue of substantial importance for both employers and employees: very dissatisfied workers can even act with aggression, face burnout or make a withdrawal (Spector, 1997). Further research showed that dissatisfied employees may be involved in counterproductive activities, such as theft, poor service and toxic rumours. Besides these problems, employees' dissatisfaction increases turnover intention, which leads to actual turnover. Staw, Calder, Hess and Sandelands (1980) stated that the company's direct costs are the expenditures incurred in selecting, recruiting, and training new employees. On the opposite, low morale, strain on other workers and the depletion of social capital is an indirect cost of the firm. (Dess Shaw, 2001).

### **1.4 Relevant job satisfaction theories**

There are several theories that try to clarify the determinants of subjective well-being. First, we can mention bottom-up and top-down theories. The bottom-up approach assumes that happiness is the sum of many small pleasures, and if the pleasures outweigh the pains a person will judge his or her life as happy. This originates from the assumptions of a "naturalistic"

approach, suggesting that subjective well-being is something like the sum of positive and negative effects (Veenhoven, 1996).

Many studies on job satisfaction commonly apply this “bottom-up” theory, where work-role inputs, such as years of education, time spent at work and exhausting and demanding job, represent the ‘pain’. Therefore, an increase in one of these inputs should, *ceteris paribus*, decrease job satisfaction. In contrast, work-role outputs, such as compensation, job security and advancement opportunities, represent the ‘pleasure’ and, therefore, an increase in one of these outputs should, *ceteris paribus*, increase job satisfaction.

The theory assumes that job satisfaction will increase if work-role outputs outweigh work-role inputs. On the other hand, top-down theories assume that there is a global tendency to see things positively, and this tendency influences the momentary experiences of an individual (Diener & Emmons, 1984). In this latter approach, the personality of an individual plays a central role.

Herzberg (1959) came up with the Two-factor Theory, introducing two key factors that affect employee job satisfaction. This theory differentiates between ‘motivators’ and ‘hygiene’ factors. The motivators (achievement, appreciation, work itself and advancement) arising from the intrinsic conditions of the job itself are characterised by giving positive satisfaction. On the other hand, the hygiene factors (supervision, interpersonal relations, salary, benefits, and job security) do not provide positive satisfaction or higher motivation, but their absence can lead to dissatisfaction. They can only cause outward happiness, but are not strong enough to turn dissatisfaction into satisfaction. According to this theory, both motivation and hygiene factors are connected with each other. The hygiene factors move an employee from job dissatisfaction to no job dissatisfaction, however, only the motivation factors can move an employee from no job dissatisfaction to job satisfaction.

Further research indicates that job satisfaction is connected with working conditions, and defines intrinsic and extrinsic job dimensions as key determinants for employee job satisfaction (Kalleberg, 1977). The intrinsic job

characteristic is the nature of the work itself. According to Judge & Church (2000), this is the most crucial job facet: to have interesting and challenging work, to develop and realize one's own ideas, to have autonomy and variety, best predict overall job satisfaction. Income, promotion and career opportunities belong to the extrinsic dimension. Individuals who value this aspect have obtaining monetary rewards as the main ambition of the job.

### **1.5 Job satisfaction determinants**

The determinants of job satisfaction are the primary subjects of this Bachelor's thesis. My aim is to find which of these factors are significant and how they influence job satisfaction. Specifically, I will explore in more detail fringe benefits and in what manner their perception changes in different subsamples.

Generally, one of the most discussed dimensions of employee job satisfaction is gender. Most researchers agree with the fact that women are more satisfied at work than men, in spite of their disadvantaged position in the labour market and the existing gender wage gap. This phenomenon is known as the 'gender paradox'.

Many authors support Clark and his interpretation of job satisfaction as function of expectations, where women have lower expectations about labor market and, therefore, they can be more easily fulfilled. Women in the female-dominated workplaces have usually higher levels of job satisfaction than in male-dominated workplaces. Among men they tend to have higher expectations and, therefore, display lower satisfaction levels. However, Bender, Donohue and Heywood (2005) argued that job satisfaction of women is higher because greater work-home flexibility. The gender discrimination faded, once this element has been included in the analysis.

Smith, Kendall & Hulin (1969) mentioned factors such as the work itself, co-workers, supervision, pay, working conditions, company policies, procedures and opportunities for promotion. Sousa-Poza and Sousa-Poza (2000), agreed that job-match quality and type of contract are major determinants

of overall job satisfaction. Other determinants, such as influence on company decision-making, colleagues' work support and career advancement opportunities also appear relevant. However, the literature also examines other determinants of job satisfaction, such as age, race, union status, income, and many more.

Vila and García-Mora (2005) found a direct positive impact of education on employee satisfaction with most aspects of a job, while it did not have a significant impact on overall job satisfaction. Clark and Oswald (1996) showed a negative impact of educational level on job satisfaction, suggesting that education increases job aspirations. On the other hand, knowledge workers have better job security and higher wages than other kinds of workers (Tampoe, 1993) and these factors are consistently associated with higher job satisfaction (Wilczyńska, Batorski & Sellens, 2016).

The impact of age has also not yet been proved in the existing literature. Clark, Oswald, & Warr (1996) demonstrated that job satisfaction was U-shaped with age, while Borooah (2009) showed that young and middle-aged people are less likely to have a high level of satisfaction than older workers.

Another observed aspect affecting satisfaction is job security. Probst & Brubaker (2001) stated that dissatisfaction with job security has a negative impact on overall job satisfaction. Other elements of job satisfaction include, for example, the negative effect of firm size (Idson, 1990), the positive impact of the black race by Bartel (1981), and the negative effect of union membership, as shown by Borjas (1979). In addition, Lane, Esser, Holte, & McCusker (2010) stated that autonomy given to employees and communication between employees and management might affect an individual's job satisfaction.

The most examined job aspect is income, which is one of the main reasons why people work (Jurgensen, 1978). Putting it simply, people work to live, and the monetary aspect of the work is what preserves the living. However, for employees in developed countries, the question generally is not between working and starving, but rather of working for what amount of money.

People's income widely differs, this dispersion is relatively high in the United States (Lee, 1999). Smith, Kendall & Hulin (1969) stated that pay satisfaction is one of the key components of overall job satisfaction. Clark and Oswald (1996) found that work satisfaction was inversely linked with comparative salary rates, implying that employee satisfaction decreased as the incomes of people they were compared with increased. Malka and Chatman (2003) found that income and job satisfaction are positively correlated. On the contrary, Gerhart & Rynes (2003) concluded that pay level and general job satisfaction are not correlated at all. In addition, Clark (2005) confirmed the relatively insignificant role of salary. However, the importance of financial reward for job satisfaction might vary with an individual. Kifle & Kler (2007) analysed not only overall job satisfaction, but also specific satisfaction with income. Indeed, there is sufficient literature observing the salary-level-job satisfaction relationship, but the confusion and different opinions exist.

Income is closely related to employee recognition, the judgment of an employee's contribution, which involves evaluating and acknowledging the results of his or her work. By creating a culture of recognition, employees become happier, more loyal and productive. A common way of respecting someone is by income. However, innovative methods of appreciation for employees are the icing on the cake that keeps employees motivated and engaged. Apart from direct compensation, benefits encompass all other inducements and services provided by an employer to employees (BLS, 2005)

However, firms must be careful about substituting salary with non-salary benefits. Firstly, there is the theoretical problem of knowing how well these substitutes for salary benefits in workers' preference pattern. Secondly, the issue of measuring total real compensation increases as a smaller fraction of compensation is taken in an easily measured form, such as salary.

On the other hand, job perks are not subject to taxation and are therefore advantageous for employers. The increase in salary supplements offered by firms can also be explained by the savings that are made possible by group

purchase of some benefits, notably insurance. The turnover rate can also be reduced; offering benefit packages is often enough to make employees stick around for the long run. Low turnover goes hand in hand with better morale; employees will be loyal and would be willing to work harder, which leads to greater productivity.

Fringe benefits remain an essential part of compensation, but in job satisfaction literature, they have not been given much attention. Their effect is not clear; they can increase as well as decrease job satisfaction. Studies conducted by Baughman, DiNardi and Holtz-Eakin (2003) showed that employers reduced salaries when benefits were introduced. Therefore, fringes can rather have a negative impact on job satisfaction, if an employee does not want them instead of a higher salary. For instance, it may happen that another worker in the family already has a specific benefit (such as insurance) and thus a second one is not needed. However, Woodbury (1983) found that many employees give up salary in exchange for more job perks, which can increase job satisfaction. Since benefits are not taxed, the employee avoids taxation as opposed to salary, and thereby satisfaction is increased.

Pensions are often used as the predominant proxy variable for fringe benefits, so they consequently estimate the impact of perks on job satisfaction. Artz (2008), as well as Donohue and Heywood (2004) stated that pensions have no significant effect on job satisfaction. On the contrary, Bender, Donohue and Heywood (2005) found opposite results. Moreover, Heywood and Wei (2006) found the impact of pensions on job satisfaction is positive. On the other hand, Luchak and Gellatly (2002) reported that pension accruals decrease job satisfaction. They stated that if employees' pensions increase, workers may feel more vulnerable to job loss, since companies may lay off employees to minimize pension liabilities.

Donohue and Heywood (2004) stated that holiday and sick pay significantly correlated with job satisfaction, but no significance for childcare, pension, profit-sharing, health insurance, or employer-provided training. Uppal (2005) found that the number of fringe benefits offered to employees is pos-

itively correlated with job satisfaction. Benz (2005) included most of the fringe benefits found in NLSY waves from 1994 to 2000 and found three significant estimates for fringe benefits, two of them positively and one negatively related to job satisfaction.

Saltzstein (2001) mentioned that both flexible and compressed work schedules decrease job satisfaction, while childcare and the ability to work from home is positively correlated to job satisfaction. However, Bryson, Cappellari & Lucifora (2005) found that these family-friendly policies do not have significant impact on employee job satisfaction.

The most comprehensive study was conducted by Artz (2010). He used a panel dataset of five NLSY waves (every alternate year from 1996 to 2004). Fringe benefits were found to be significant and positive determinants of job satisfaction. In detail, his results implied that there is no significant difference between the preferences for fringes between men and women. However, non-union workers and workers with children living at home value fringe benefits more than their respective counterparts. Finally, he exhibited interesting differences in coefficients of fringe benefits between single and married workers: childcare is only valuable to single workers, while availability of health insurance is negatively related to job satisfaction only for married workers.

Some of these mixed results may come from the use of alternate data sources. In addition, we must take into account non-random worker sorting: workers choose the job themselves according to what they prefer, such as dreams and childhood experience. Therefore, non-measurable individual preferences can cause bias. Another source of the inconclusive results could be the possible endogeneity of fringe benefits. Since salary and job satisfaction are closely related and personal characteristics affecting both income and job satisfaction in parallel are unobservable, it is possible that endogeneity between fringe benefits and salary could raise a simultaneity bias between fringe benefits and job satisfaction. This might happen in our model as well. We can not observe the individual preferences regarding



work-life balance or whether the respondent works for money or just for pleasure. However, the main aim of this thesis is to find association rather than causation, which is possible even when endogeneity occurs.

My motivation to find which fringe benefits are valued by employees stems from being fascinated by the thin line between salary and fringe benefits. Providing the right motivation and desired job conditions to meet employee requirements and expectations increases productivity. The appropriate benefits are the icing on the cake when it comes to employee recognition. Moreover, I would like to test whether the significance of fringe benefits has not changed since 2004, when the latest study was conducted by Artz (2010).

## 2 Data and descriptive statistics

### 2.1 Data Source

There are many sources of data about job satisfaction. For example, the Health and Retirement Study which is a longitudinal panel study conducted in the United States. Data sources about job satisfaction from Europe are, for instance, The European Union Statistics on Income and Living Conditions and the International Social Survey Programme, which contains states from other continents as well. However, for this study I am going to use data from one of the National Longitudinal Surveys. It is a collection of surveys sponsored by the Bureau of Labor Statistics of the U.S. Department of Labor. These surveys collect data at multiple points in time and each of these samples consists of several thousand men and women, many of whom have been surveyed over several decades.

Specifically, I am going to use the data from the newest National Longitudinal Survey of Youth, which specializes on youths' transition from school to the labour market. This longitudinal project follows the lives of a sample of American youth born between 1980 and 1984. The data was first collected in 1997 and is biannually collected up till now. Only the last round conducted in 2017-2018 is used in my thesis. Therefore, the respondents were 32 to 38 at the time of their interviews. This survey contains all the variables that are considered to be necessary for this analysis, such as demographic and family background, education, job-specific characteristics including occupation, job satisfaction, fringe benefits and income, but also attitudes and expectations. Furthermore, I can access this data source as a student.

Data are not panel but cross-sectional, since only one year has been used. From the total of 5321 employed respondents about 2240 observations have missing values of job-specific characteristics and 1211 observation have incomplete information about socio-demographic characteristics. After erasing these observations with missing necessary information about 1870 observations have left and this amount is sufficient for my analysis, so there is no need to use other sources. However, I was concerned if data are still ran-

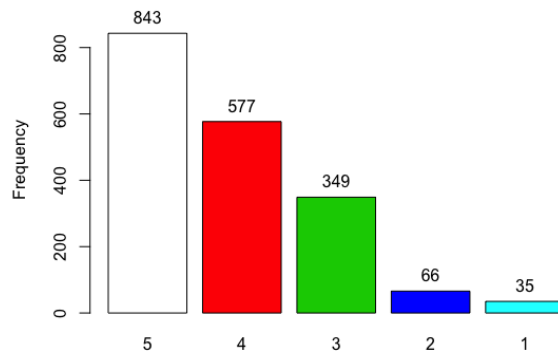
dom, so I compared summary statistics (mean and standard deviation) to the original dataset and primary variables such as *age*, *race*, *female*, *degree* and *healthstatus* are consistent.

## 2.2 Variables description and quick overview

The main analysis of this study is focused on job satisfaction and its relation to fringe benefits. Therefore, the dependent variable is job satisfaction. Respondents answered the question “Which of the following best describes how you feel about your job assignment?” on a 5-point scale between ‘Like it very much’ (1) and ‘Dislike it very much’ (5). However, this rating was adjusted by reversing the scale in order to make the data more understandable and easier for interpretation. Therefore, variable *jobsatisfaction* has values between (5) for those who like their job very much and (1) for those who do not like it at all.

The dispersion of this variable can be seen in the graph below:

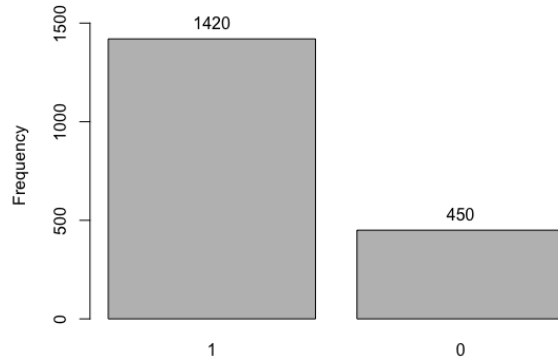
Figure 1: Distribution of *jobsatisfaction*



From a total of 1870 respondents, almost half of them are very satisfied with their job and like it very much, exactly 45.1%. Next category, which indicates that an employee likes the job fairly well contains almost 31%. Approximately 18.7% of the respondents think that their job is just fine and only a small amount of them are considered to be dissatisfied with their job. In detail, 3.5% of them dislike their job somewhat and 2% are very dissatisfied and dislike it very much. To distinguish between employees who truly like their job and employees who think it is just fine or don't like it at all, variable *jsbinary* was made by transforming *jobsatisfaction* into a dummy variable based on median (4). Therefore, *jsbinary* is 1 if an employee likes his/her job - ‘Like it very much’ (5) or ‘Like it fairly well’ (4). If an

employee thinks his/her job is just fine or doesn't like it - 'Think it is OK' (3), 'Dislike is somewhat' (2), 'Dislike is very much' (1), the value of *jsbinary* is 0. The graph below indicates the distribution of values of this variable. Almost 76% of the respondents actually like their job. The rest containing 24% are considered to do not like their job or do not mind it.

Figure 2: Distribution of *jsbinary*



The first set of explanatory variables is regarding socio-demographic characteristics including, for example, sex, race, marital status and age. These are necessary for the determination of the perception, attitudes and standards. Also, they determine whether the sample is representative for generalization purposes. The next category contains variables related to human capital such as education and personality traits. Acquisition of knowledge and skills might influence job satisfaction as well. Next set of variables is regarding employment and job-specific characteristics, for instance, income and occupation. Also, information about fringe benefits is included, which is essentially needed.

First category are variables regarding socio-demographic characteristics. Variable regarding gender (*female*) has values (1) for women and (0) for men. Job satisfaction regarding gender differences was examined by many scientists. For instance, Sloane & Williams (2000) reported higher levels of job satisfaction for females compared to males, in spite of females earned lower income. However, equal conditions for men and women suggest that the gender-job satisfaction paradox does not occur any longer, because of appropriate institutional labour market interventions that has been introduced

in the past decades (Kaiser 2007). Race is transformed into dummy variable (*race*) based on if the person is Black or Hispanic (1), (0) otherwise. According to Smith, Smith & Rollo (1974) black employees acquire lower levels of satisfaction because of fewer promotional opportunities available for them, which leads to racial differences. Regarding sex, there is a balance between men and women. Approximately 53.5% of the sample are women and the rest, approximately 46.5%, are men. Also, the distribution of race is quite similar, 53.6% are white and 46.4% belong to Black or Hispanic race.

Next independent variable is *age*. All of the sampled people are somewhere in the middle of working like; stated minimum of age is 32 and maximum is 38 years old; there are no outliers. Besides *age* the quadratic form of this variable was added to the model (*age2*) to capture the possible quadratic relationship. Clark, Oswald, and Warr (1996), who investigated how job satisfaction changes with age, found strong evidence for a U-shaped relationship between them. Furthermore, Bucheli, Melgar, Rossi & Smith (2010) showed a non-linear relationship between age and job satisfaction and Singh & Sanjeev (2013) identified this relationship also as convex (U-shaped) implying that older people are more likely to have more realistic expectations about their job and a higher perception of achievements. However, being 6 years the biggest age difference in our sample, there probably will not be shown the impact of age on job satisfaction and their probable U-shaped relationship.

The quality of health is another explanatory variable. People answered the question ‘In general, how is your health?’ on a scale of 1 for the best to 5 for the worst condition. Variable *healthstatus* was made by transforming it vice versa; therefore, excellent (5), very good (4), good (3), fair (2) and poor (1). The health condition of the respondents is quite good. Approximately 92% have excellent, very good or good health status, 8% have just fair or even poor health.

Marital status is also included in the model with values 1 for *married*, 0 otherwise. Having a wife or husband might significantly influence the rate of

job satisfaction and mainly the perception of fringe benefits. For instance, if an employee's spouse already has the provision of a specific benefit, the second provision may be unnecessary and, therefore, can decrease job satisfaction. In our sample, 62% of the respondents are married, the rest are never married, separated, divorced or widowed.

Furthermore, marriage and relationships are related to the number of children. Specifically, how many are still residing in the household, which is another independent variable (*childrenhome*), and how many live on their own (*childrennothome*). This variable is divided into two for a better comparison of feelings about job satisfaction since children living still at home affect working days of their parents much more than children living on their own. Looking at the total number of children the most frequent value is 2 which makes almost 40% of the answers. Approximately 30% of the respondents have only 1 child and 19.5% have 3 children. Most of the respondents, approximately 85%, still live with their child(ren) in one household, which probably means they have small kids or teenagers. No kids have only 4 respondents, which is 0.2%.

Also, the location is very important, people living in an urban area have bigger competition and therefore employers' expectations are higher. Failure to meet their expectations might result in a decreased rate of job satisfaction. Therefore, the variable *urban* indicating whether the residence is in an urban or a rural area has been added to the model with values urban (1) and rural (0). Obtaining the values, almost 80% of the respondents reside in an urban area and approximately 20% in rural; therefore, most of them probably face higher standards.

Next category of variables is related to human capital. The first predictor is associated with education. Specifically the question was "What is your highest degree received?" and the possible answers were 'None' (0), 'General Educational Development' (1), 'High school diploma' (2), 'Associate/Junior college' (3), 'Bachelor's degree' (4), 'Master's degree' (5), 'PhD' (6) and 'Professional degree' (7). Therefore, variable *degree* stands for the highest degree

received. It is probable that more educated people have higher expectations about their career than others, and failure to meet these expectations may lead to lower employee job satisfaction. Bucheli, Melgar, Rossi & Smith (2010) found that with an increase of the educational level the rate of job satisfaction decreases. This may be induced by interplay between reality and expectations. Higher educated people anticipate higher salary or better working conditions than lower educated people and when their expectations are not fulfilled, they can report lower rate of job satisfaction. To analyse and make overview of the educational level of the respondents easier, variable *highdegree* was made transforming the variable *degree*. Sample was divided into 3 categories according to if the respondent has less than high school diploma (1), high school diploma (2) or college degree (3). Exactly 45% of the respondents have Associate/Junior college and higher degree, 39.4% have high school diploma as the highest degree received and 15.6% have the General Educational Development or none degree.

For mitigation of the impact of unmeasurable individual preferences which can be fixed only by using panel data, variables concerning personal traits have been involved. These were collected in 2010; however, types of personality are expected not to change significantly in 7 years. All of them were given as statements with seven possible answers according to how much the worker agrees or disagrees that each statement describes who they are and how they act. The first is indicating if the employee works hard as others: “I do not work as hard as the majority of people around me.” with values 1 for ‘Disagree strongly’ and 7 for ‘Agree strongly’. Variable *hardworker* is a dummy with values 1 if the worker disagrees with that strongly or at least moderately, 0 otherwise. The second concerns amount of work an employee does. The statement was “I do what is required, but rarely anything more.” Therefore, a dummy variable *extraworker* has values 1 if the worker disagrees strongly or moderately, 0 otherwise. The third is about work standards; the sentence was “I have high standards and work toward them.” Thus, a dummy variable *highstandards* was made if the worker agrees strongly or moderately



(1), (0) otherwise. The last variable is concerning effort at work; “I make every effort to do more than what is expected of me.” If the worker agrees with that strongly or moderately the dummy variable *high effort* is 1, and 0 otherwise. Analysing attitudes and expectations among respondents, the percentage of employees who work as hard as the majority of people around them is 85.2%. Therefore, the respondents could be considered to be hard workers. Almost 74% of the respondents declared that they do what is required and frequently something more. High standards have 85.5% of the respondents and approximately 74% make every effort to do more than what is expected of them. Although the results considering personal traits could be slightly distorted due to individual perception and standards, our sample probably consists of well-working people.

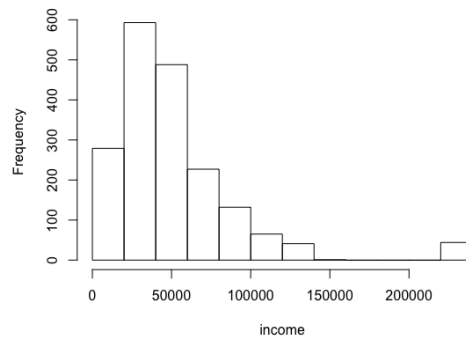
Last category are variables regarding job characteristics. *Occupation* has been transformed into many dummy variables according to what does the person do e.g., teachers, scientists, officers, technicians and counsellors. In other words, if the person is, for example, an officer the coefficient of variable *office* is 1, 0 otherwise. Professions used within the model are listed in the table below.

Occupation	Variable
Executive, administrative and managerial	<i>executive</i>
Management related	<i>management</i>
Mathematical and computer scientists	<i>mathematical</i>
Engineers, architects, surveyors, engineering and related technicians	<i>engineers</i>
Physical scientists, social scientists and related workers, life, physical, and social science technicians	<i>scientists</i>
Counselors, social, and religious workers	<i>counselors</i>
Lawyers, judges, and legal support workers	<i>lawyers</i>
Teachers, education, training, and library workers	<i>teachers</i>
Entertainers and performers, sports and related workers, entertainment attendants and related workers	<i>entertainment</i>
Media and communication workers	<i>media</i>
Health diagnosis and treating practitioners, health care technical and support	<i>health</i>
Protective service	<i>protective</i>
Food preparations and serving related	<i>food</i>
Cleaning and building service	<i>cleanbuild</i>
Personal care and service workers	<i>personalcare</i>
Sales and related workers	<i>sales</i>
Office and administrative support workers	<i>office</i>
Farming, fishing, and forestry	<i>farming</i>
Construction trades and extraction workers	<i>construction</i>
Installation, maintenance, and repair workers	<i>installation</i>
Production and operating workers	<i>production</i>
Setter, operators, and tenders	<i>setter</i>
Transportation and material moving workers	<i>transport</i>

Source: NLSY

Another explanatory variable is income, however its impact on job satisfaction is very subjective. As it already has been said, people have different needs, standards and expectations. Therefore, an employee with low income can be very happy with his job, because it exceeded his expectations. On the contrary, different worker with significantly higher income can be though unsatisfied because he/she thinks, that he/she deserves more money and therefore his/hers expectation did not meet the reality. The question people answered was “During 2016, how much income did you receive from wages, salary, commissions, or tips from all jobs, before deductions for taxes or for anything else?” For the model the logarithmic form of income will be used. According to existing literature, the effective way for evaluating changes in income is the percentage change, not its absolute value. The distribution of income is very wide, minimum is \$48 and maximum is approximately \$235,000. However, truncated values were applied to the top 2% of the observations. The lowest value for the top 2% (\$149,000) was used as the truncation level and values at or over this level were averaged.

Figure 3: Histogram of *income*



Next independent variable is union status. The question was “On this job assignment, are you covered by a contract that was negotiated by a union or employee association?” with two possible answers; (1) for yes, (0) otherwise. Non-union works may feel much more vulnerable than union workers and this may affect job satisfaction, thus this factor should be contained in the model. Most respondents are non-union workers, exactly 83% of them. In other words, they are not covered by a union which centres on collective

bargaining over wages, benefits and working conditions.

Other independent variables are *paidvacation*, which is the answer for “How many total days of paid sick, vacation or personal leave are you entitled to each year?” and *numberofemploy* regarding employer size. People answered an open question “At the place where you work, how many employees does the employer have?” A good management-employee relationship is necessary for the satisfactory organization and performance of any firm. In bigger firms, this relationship might not be so close as in smaller firms and employees might not feel so engaged. Scherer (1976) stated that low levels of job satisfaction rates are correlated with large firms. The average amount of paid vacation days is 12.93, however, approximately 15.4% have zero available. The maximum is 365 which means the whole year, but only 12 respondents reported this value. Exactly 70.3% of the respondents have only 21 or fewer days of paid vacation available. The distribution of this variable is left-skewed with only a few outliers. There are almost 55% of the respondents whose employer has at most 5 employees. Approximately 80% of them are employed in companies with a maximum of 25 employees. This fact suggests that most of them work in smaller firms. This variable also has a left-skewed distribution.

The main aspect of this study is fringe benefits and their impact of job satisfaction. The data used contain ten possible fringes and if an employer offers this kind of benefit the answer is yes (1), (0) otherwise. Included benefits are listed below with their names in the model:

Fringe benefits	Variable
A flexible work schedule	<i>flexsch</i>
Medical, surgical or hospitalization insurance which covers injuries or major illnesses off the job	<i>medical</i>
Life insurance that would cover your death for reasons not connected with your job	<i>lifeins</i>
Dental benefits	<i>dental</i>
Paid maternity or paternity leave	<i>paidmater</i>
Unpaid maternity or paternity leave which would allow you to return to the same job, or one similar to it	<i>unpaidmater</i>
A retirement plan other than Social Security	<i>retire</i>
Tuition reimbursement for certain types of schooling	<i>tuition</i>
Company provided or subsidized childcare	<i>childcare</i>
Employee Stock Ownership Plan(s)	<i>stock</i>

Source: NLSY

Analysing fringe benefits variables *numberofbenefits* and *lotsofbenefits* were made to determine the number of benefits. Median of *numberofbenefits* is 6; therefore variable *lotsofbenefits* is 1 if an employee has 6 or more fringe benefits, 0 otherwise.

This table shows that approximately 62% of the employees have 6 or more benefits.

<i>lotsofbenefits</i>	Frequency	Percentage
1	1161	62.1
0	709	37.9
Total	1870	100

Specifically, 17.8% have 7 benefits and 16.7% have 6 benefits available. There are 15.2% of the respondents with 8 benefits accessible. Only 2.5% of the respondents do not have any benefits to choose from.

<i>numberofbenefits</i>	Frequency	Percentage
7	332	17.8
6	312	16.7
8	284	15.2
5	181	9.7
9	169	9.0
2	160	8.6
1	117	6.3
3	103	5.5
4	101	5.4
10	64	3.4
0	47	2.5
Total	1870	100

If we take a closer look at the relationship between *lotsofbenefits* and *jobsatisfaction* 29.4% employees have at least 6 benefits and are very satisfied at work against 15.7% who are satisfied as well but have less than 6 benefits.

	<i>lotsofbenefits</i>	
<i>jobsatisfaction</i>	0	1
1	0.6951872	1.176471
2	2.0855615	1.443850
3	8.4491979	10.213904
4	11.0160428	19.839572
5	15.6684492	29.411765
Sum	37.9144385	62.085561

Approximately 49% of the respondents like their job well or fairly well with at least 6 benefits available. On the other hand, 26.7% of the respondents like their job just the same and have less than 6 benefits accessible.

	<i>lotsobenefits</i>	
<i>jsbinary</i>	0	1
0	11.22995	12.83422
1	26.68449	49.25134
Sum	37.91444	62.08556

Approximately 82.7% of the employees could have unpaid maternity leave which allow them to return to the same job, or similar to it. Benefits relating to health status are also highly available; almost 77% of the respondents could have medical insurance and 74.7% of the respondents are offered dental benefits. A retirement plan other than Social Security is made available approximately to 73.4% of the respondents. Exactly 69% of the employees could have life insurance that would cover death for reasons not connected with their job. A flexible schedule could be used by 65.2% of the respondents. Paid maternity or paternity leave is not so common, only 49.2% of the respondents could take it. Approximately 46.8% of the respondents are employed in the company which offers tuition reimbursement for certain types of schooling. Employee stock ownership plans are available only to 22.6% of the respondents. The last benefit is childcare which is not often available; only 10% of the respondents work in the company that provides or subsidizes childcare.

Detailed table with mean and standard deviation of all variables is below:

Table 2.2: Descriptive statistics with mean and standard deviation

Variable	mean	sd	Variable	mean	sd
jobsatisfaction	4.137	0.96	office	0.092	0.29
female	0.535	0.50	farming	0.004	0.07
race	0.464	0.50	construction	0.035	0.18
age	35.12	1.44	installation	0.032	0.17
healthstatus	3.727	0.89	production	0.006	0.08
married	0.624	0.48	setter	0.032	0.17
childrenhome	1.911	1.13	transport	0.053	0.23
childrennothome	0.252	0.76	income	52417	39999
urban	0.799	0.40	union	0.170	0.38
degree	2.761	1.47	paidvacation	12.93	31.47
executive	0.220	0.41	numberofemploy	443.5	6527
management	0.111	0.31	hardworker	0.852	0.36
mathematical	0.019	0.14	extraworker	0.736	0.44
engineers	0.012	0.11	highstandards	0.858	0.35
scientists	0.011	0.10	higheffort	0.742	0.44
counselors	0.016	0.12	numberofbenefits	5.713	2.59
lawyers	0.004	0.07	flexsch	0.652	0.48
teachers	0.055	0.23	medical	0.770	0.42
entertainment	0.011	0.10	lifeins	0.690	0.46
media	0.005	0.07	dental	0.748	0.43
health	0.066	0.25	paidmater	0.493	0.50
protective	0.029	0.17	unpaidmater	0.828	0.38
food	0.045	0.21	retire	0.735	0.44
cleanbuild	0.021	0.14	tuition	0.468	0.50
personalcare	0.019	0.14	childcare	0.104	0.31
sales	0.065	0.25	stock	0.226	0.42



### 3 Methodology

The dependent variable job satisfaction is an ordered response variable taking on the values  $\{1, 2, \dots, 5\}$  and this type of variables needs special treatment because its range of values is extensively restricted. The OLS model assumes continuous dependent variable, therefore the ordered response models are more convenient for our regression. Also, they can serve as a robustness check of the OLS analysis. Specifically, I will use an ordered probit model, although the logistic and normal distributions are similar and, therefore, the logit and probit estimation results are comparable.

The model is derived from a latent variable model according to Wooldridge (2010) as follows:

The latent variable  $y^*$  is determined by

$$y^* = x\beta + e, \quad e | x \text{ Normal}(0, 1)$$

where  $x$  does not contain a constant and for the values of  $y$  holds

$$\begin{aligned} y &= 1 \text{ if } y^* \leq \alpha_1 \\ y &= 2 \text{ if } \alpha_1 < y^* \leq \alpha_2 \\ &\vdots \\ y &= 5 \text{ if } y^* > \alpha_4 \end{aligned}$$

where where  $\alpha_1 < \alpha_2 < \dots < \alpha_4$  are unknown cut points (or threshold parameters).

Given the standard normal assumption for  $e$ , we can compute each response probability:

$$\begin{aligned} P(y = 1 | x) &= P(y^* \leq \alpha_1 | x) = P(x\beta + e \leq \alpha_1 | x) = \Phi(\alpha_1 - x\beta) \\ P(y = 2 | x) &= P(\alpha_1 < y^* \leq \alpha_2 | x) = \Phi(\alpha_2 - x\beta) - \Phi(\alpha_1 - x\beta) \\ &\vdots \\ P(y = 5 | x) &= P(y^* > \alpha_4 | x) = 1 - \Phi(\alpha_4 - x\beta) \end{aligned}$$

The parameters  $\alpha$  and  $\beta$  can be estimated by MLE. For each  $i$  the log-likelihood function is

$$l_i(\alpha, \beta) = 1[y_i = 1]\log[\Phi(\alpha_1 - x_i\beta)] + 1[y_i = 2]\log[(\Phi(\alpha_2 - x_i\beta) - \Phi(\alpha_1 - x_i\beta))] \\ + \dots + 1[y_i = 5]\log[1 - \Phi(\alpha_4 - x_i\beta)]$$

The same methodology was used by Artz (2010) when he analysed the individual wave of cross-sectional data.

However, interpreting the results of the ordered probit model can be a little bit complicated, we can simplify it by using probit model. For this model the dependent variable has to be dummy variable. In other words, it has to take values only 0 and 1. Therefore *jobsatisfaction* was transformed into a dummy variable based on median (4) and the new variable *jsbinary* was created corresponding to the original value. Response probability of binary probit model can be computed the same way as for the ordered probit model.

$$P(y = 1 | x) = 1 - P(y = 0 | x) = 1 - \Phi(\alpha_1 - x\beta) = \Phi(x\beta - \alpha_1)$$

### 3.1 Basic determinants of job satisfaction

#### 3.1.1 Model 1: Baseline model

For a start, a simple model will be constructed to run a regression to make sure that findings are consistent with the results of the previous literature.

The model is described by the following equation:

$$\begin{aligned} jobsatisfaction_i = & \beta_0 + \beta_1 female_i + \beta_2 race_i + \beta_3 age_i + \beta_4 age2_i \\ & + \beta_5 healthstatus_i + \beta_6 married_i + \beta_7 childrenhome_i \\ & + \beta_8 childrennohome_i + \beta_9 urban_i + \beta_{10} degree_i \\ & + \beta_{11} executive_i + \beta_{12} management_i + \beta_{13} mathematical_i \\ & + \beta_{14} engineers_i + \beta_{15} scientists_i + \beta_{16} counselors_i \\ & + \beta_{17} lawyers_i + \beta_{18} teachers_i + \beta_{19} entertainment_i \\ & + \beta_{20} media_i + \beta_{21} health_i + \beta_{22} protective_i + \beta_{23} food_i \\ & + \beta_{24} cleanbuild_i + \beta_{25} personalcare_i + \beta_{26} sales_i \\ & + \beta_{27} office_i + \beta_{28} farming_i + \beta_{29} construction_i \\ & + \beta_{30} installation_i + \beta_{31} production_i + \beta_{32} setter_i \\ & + \beta_{33} transport_i + \beta_{34} \log(income)_i + \beta_{35} union_i + u_i \end{aligned} \tag{4.1.1}$$

where *jobsatisfaction* is dependent variable representing the job satisfaction of an employee,  $\beta_0$  is an intercept and  $\beta_1$  to  $\beta_{35}$  are the coefficients corresponding for all the explanatory variables described in Chapter 2 and  $u$  is an error term.

### 3.1.2 Model 2: Extended model

More explanatory variables have been added to the next regression. Specifically, more job-specific characteristics including *paidvacation* and *numberofemploy* and variables concerning personal attitudes.

The model is described by the following equation:

$$\begin{aligned}
 jobsatisfaction = & \beta_0 + \beta_1 female_i + \beta_2 race_i + \beta_3 age_i + \beta_4 age2_i \\
 & + \beta_5 healthstatus_i + \beta_6 married_i + \beta_7 childrenhome_i \\
 & + \beta_8 childrennothome_i + \beta_9 urban_i + \beta_{10} degree_i \\
 & + \beta_{11} executive_i + \beta_{12} management_i + \beta_{13} mathematical_i \\
 & + \beta_{14} engineers_i + \beta_{15} scientists_i + \beta_{16} counselors_i \\
 & + \beta_{17} lawyers_i + \beta_{18} teachers_i + \beta_{19} entertainment_i \\
 & + \beta_{20} media_i + \beta_{21} health_i + \beta_{22} protective_i + \beta_{23} food_i \\
 & + \beta_{24} cleanbuild_i + \beta_{25} personalcare_i + \beta_{26} sales_i \\
 & + \beta_{27} office_i + \beta_{28} farming_i + \beta_{29} construction_i \\
 & + \beta_{30} installation_i + \beta_{31} production_i + \beta_{32} setter_i \\
 & + \beta_{33} transport_i + \beta_{34} log(income)_i + \beta_{35} union_i \\
 & + \beta_{36} paidvacation_i + \beta_{37} numberofemploy_i \\
 & + \beta_{38} hardworker_i + \beta_{39} extraworker_i + \beta_{40} highstandards_i \\
 & + \beta_{41} higheffort_i + u_i
 \end{aligned} \tag{4.1.2}$$

where *jobsatisfaction* is the response variable with values form 1 to 5,  $\beta_0$  is an intercept and  $\beta_1$  to  $\beta_{41}$  are the coefficients corresponding for all the explanatory variables described in Chapter 2 and  $u$  is an error term.

Some explanatory variables might be endogenous in the model. For example, the type of occupation, one has is influenced by his/her personality traits that also directly affect job satisfaction. Similarly, a person for whom self-realisation is the most important (and we do not observe this characteristic) would choose a job based on satisfaction and would not be concerned about the salary. This might create a spurious negative correlation between wage and job satisfaction and cause the coefficient by salary to be down-

wards biased. To mitigate such concerns a rich set of explanatory variables capturing individual demographic characteristics, education, and concerning personal attitudes was added to the model. Given the available data, more could not be done. Because of this, I am aware that the estimated coefficients should be rather interpreted as the degree of association between explanatory variables and job satisfaction rather than as causal effects.

### 3.2 Models with fringe benefits

With these models we will test our hypothesis that fringe benefits affect job satisfaction. For a start, only a variable concerning number of fringe benefits is included. If its coefficient is statistically significant, it supports our hypothesis. To the next model we add all the specific types of benefits and determine which of them are significant (if any) and which of them are not significant.

The Breusch-Pagan test for heteroskedasticity rejected the null hypothesis that homoskedasticity is present in Model 3 and Model 4. Therefore, we need to correct for heteroskedasticity using robust standard errors. Running the variance inflation factors, none of them exceeds the threshold set by Wooldridge (2010), therefore, multicollinearity is not present.

### 3.2.1 Model 3: Extended model with number of benefits

The next regression is multiple regression with all the explanatory variables described above and the only variable concerning fringes is *numberofbenefits*. If the coefficient of *numberofbenefits* is statistically significant, it supports our hypothesis that fringe benefits and job satisfaction are correlated.

The form of the model is described by the following equation:

$$\begin{aligned} jobsatisfaction_i = & \beta_0 + \beta_1 female_i + \beta_2 race_i + \beta_3 age_i + \beta_4 age2_i \\ & + \beta_5 healthstatus_i + \beta_6 married_i + \beta_7 childrenhome_i \\ & + \beta_8 childrennohome_i + \beta_9 urban_i + \beta_{10} degree_i \\ & + \beta_{11} executive_i + \beta_{12} management_i + \beta_{13} mathematical_i \\ & + \beta_{14} engineers_i + \beta_{15} scientists_i + \beta_{16} counselors_i \\ & + \beta_{17} lawyers_i + \beta_{18} teachers_i + \beta_{19} entertainment_i \\ & + \beta_{20} media_i + \beta_{21} health_i + \beta_{22} protective_i + \beta_{23} food_i \\ & + \beta_{24} cleanbuild_i + \beta_{25} personalcare_i + \beta_{26} sales_i \\ & + \beta_{27} office_i + \beta_{28} farming_i + \beta_{29} construction_i \\ & + \beta_{30} installation_i + \beta_{31} production_i + \beta_{32} setter_i \\ & + \beta_{33} transport_i + \beta_{34} \log(income)_i + \beta_{35} union_i \\ & + \beta_{36} paidvacation_i + \beta_{37} numberofemploy_i \\ & + \beta_{38} hardworker_i + \beta_{39} extraworker_i + \beta_{40} highstandards_i \\ & + \beta_{41} higheffort_i + \beta_{42} numberofbenefits_i + u_i \end{aligned} \tag{4.2.1}$$

where *jobsatisfaction* is the response variable with values form 1 to 5,  $\beta_0$  is an intercept and  $\beta_1$  to  $\beta_{42}$  are the coefficients corresponding for all the explanatory variables described in Chapter 2 and  $u$  is an error term.

### 3.2.2 Model 4: Extended model with fringe benefits

The next model is constructed with all the explanatory variables described above and instead of *numberofbenefits* all types of benefits are used. If some coefficient of fringe benefits is statistically significant, it supports our hypothesis and there is correlation between the specific benefit and job satisfaction.

The form of the model is described by the following equation:

$$\begin{aligned}
 jobsatisfaction_i = & \beta_0 + \beta_1 female_i + \beta_2 race_i + \beta_3 age_i + \beta_4 age2_i \\
 & + \beta_5 healthstatus_i + \beta_6 married_i + \beta_7 childrenhome_i \\
 & + \beta_8 childrennothome_i + \beta_9 urban_i + \beta_{10} degree_i \\
 & + \beta_{11} executive_i + \beta_{12} management_i + \beta_{13} mathematical_i \\
 & + \beta_{14} engineers_i + \beta_{15} scientists_i + \beta_{16} counselors_i \\
 & + \beta_{17} lawyers_i + \beta_{18} teachers_i + \beta_{19} entertainment_i \\
 & + \beta_{20} media_i + \beta_{21} health_i + \beta_{22} protective_i + \beta_{23} food_i \\
 & + \beta_{24} cleanbuild_i + \beta_{25} personalcare_i + \beta_{26} sales_i \\
 & + \beta_{27} office_i + \beta_{28} farming_i + \beta_{29} construction_i \\
 & + \beta_{30} installation_i + \beta_{31} production_i + \beta_{32} setter_i \\
 & + \beta_{33} transport_i + \beta_{34} log(income)_i + \beta_{35} union_i \\
 & + \beta_{36} paidvacation_i + \beta_{37} numberofemploy_i \\
 & + \beta_{38} hardworker_i + \beta_{39} extraworker_i + \beta_{40} highstandards_i \\
 & + \beta_{41} higheffort_i + \beta_{42} flexsch_i + \beta_{43} medical_i \\
 & + \beta_{44} lifeins_i + \beta_{45} dental_i + \beta_{46} paidmater_i \\
 & + \beta_{47} unpaidmater_i + \beta_{48} retire_i + \beta_{49} tuition_i \\
 & + \beta_{50} childcare_i + \beta_{51} stock_i + u_i
 \end{aligned} \tag{4.2.2}$$

where *jobsatisfaction* is the response variable with values form 1 to 5,  $\beta_0$  is an intercept and  $\beta_1$  to  $\beta_{51}$  are the coefficients corresponding for all the explanatory variables described in Chapter 2 and  $u$  is an error term.



### 3.2.3 Model 5: Extended model with fringe benefits

The last model is probit model for simplifying the interpretation of results. The dependent variable has to be binary. Therefore, *jobsatisfaction* was transformed into the new response variable *jsbinary*.

The regression is described by the following equation:

$$\begin{aligned}
 jsbinary_i = & \beta_0 + \beta_1 female_i + \beta_2 race_i + \beta_3 age_i + \beta_4 age2_i \\
 & + \beta_5 healthstatus_i + \beta_6 married_i + \beta_7 childrenhome_i \\
 & + \beta_8 childrennohome_i + \beta_9 urban_i + \beta_{10} degree_i \\
 & + \beta_{11} executive_i + \beta_{12} management_i + \beta_{13} mathematical_i \\
 & + \beta_{14} engineers_i + \beta_{15} scientists_i + \beta_{16} counselors_i \\
 & + \beta_{17} lawyers_i + \beta_{18} teachers_i + \beta_{19} entertainment_i \\
 & + \beta_{20} media_i + \beta_{21} health_i + \beta_{22} protective_i + \beta_{23} food_i \\
 & + \beta_{24} cleanbuild_i + \beta_{25} personalcare_i + \beta_{26} sales_i \\
 & + \beta_{27} office_i + \beta_{28} farming_i + \beta_{29} construction_i \\
 & + \beta_{30} installation_i + \beta_{31} production_i + \beta_{32} setter_i \\
 & + \beta_{33} transport_i + \beta_{34} \log(income)_i + \beta_{35} union_i \\
 & + \beta_{36} paidvacation_i + \beta_{37} numberofemploy_i \\
 & + \beta_{38} hardworker_i + \beta_{39} extraworker_i + \beta_{40} highstandards_i \\
 & + \beta_{41} higheffort_i + \beta_{42} flexsch_i + \beta_{43} medical_i + \beta_{44} lifeins_i \\
 & + \beta_{45} dental_i + \beta_{46} paidmater_i + \beta_{47} unpaidmater_i + \beta_{48} retire_i \\
 & + \beta_{49} tuition_i + \beta_{50} childcare_i + \beta_{51} stock_i + u_i \quad (4.2.3)
 \end{aligned}$$

where *jsbinary* is the tranformed dummy response variable with values 0 and 1,  $\beta_0$  is an intercept and  $\beta_1$  to  $\beta_{51}$  are the coefficients corresponding for all the explanatory variables described in Chapter 2 and  $u$  is an error term.

## 4 Results

### 4.1 Determinants of job satisfaction

Generally, comparing the results of OLS and Ordered probit regression, they do not vary much (Table 5.1.1). Moreover, they uniformly identify significant variables. In order to quantify the magnitude of the significant effects, we apply marginal effects obtained from the ordered probit regression (Table A.1).

The first variable is *female* and has a positive coefficient in both regressions. This means that females tend to be more satisfied than males. This might correspond with the gender job satisfaction paradox, which is a phenomenon occurring when women report much higher levels of job satisfaction than men despite their disadvantaged labour market position, e.g. [77]. However, this variable is insignificant in both regressions.

The variable indicating race has a negative coefficient, suggesting that Black or Hispanic people are in the lower categories of job satisfaction, but the t-statistic is very low. Race probably does not play a big role in determining job satisfaction. This is in accordance with Bartel (1981), who showed that the sign of the racial differential in job satisfaction cannot be predicted a priori.

The variable indicating age is significant and positive in both regressions. These results are similar to Bernal, Snyder and McDaniel's (1998) results, which indicated a significant but weak positive age-job satisfaction relationship. Therefore, as employees are getting older, in our sample, they are more likely to be in higher stages of job satisfaction. Specifically, they are 81% more likely to be very satisfied with their job. On the contrary, older employees are about 19% less likely to be fairly satisfied, 43% less likely to think their job is just fine, and about 12% less likely to be somewhat dissatisfied. The quadratic coefficient is also significant, but it is negative. This does not correspond to the U-shaped theory mentioned in Chapter 2. However, various types of relationships have been reported across studies, such as linear, U-shaped or inverted U-shaped. In our sample, the age dis-

person is very small, thus the type of relationship might not be shown, and this result might be slightly distorted.

Overall status of health is very significant and this variable has a positive effect on job satisfaction. With better health status, employees are more likely to have a higher rate of job satisfaction. To be precise, they are 7.6% more likely to be very satisfied with their job. This relationship might be reciprocal, because job satisfaction is most strongly associated with mental or psychological problems. According to Faragher, Cass, and Cooper (2013) job satisfaction may influence the overall health of a worker.

Marital status is also significantly correlated with job satisfaction. The positive coefficient suggests that employees who are married are more likely to be more satisfied with their job than never-married, separated, or divorced employees. Specifically, employees who have a husband or wife are 7.5% more likely to be very satisfied with their job. Saner & Eyüpoğlu (2013) found that the job levels of the married professors are overall higher than of the unmarried professors. However, the quality of marriage also matters. According to Rogers and May (2003) satisfaction in marriage is related with job satisfaction over the long term.

Having children might positively affect job satisfaction. Both variables (*childernhome* and *childrennothome*) have positive coefficients, suggesting that employees with children are more likely to have higher rates of job satisfaction. However, only the variable indicating how many of them reside in the household is significant. In more detail, employees with children still living with them are about 2% more likely to be very satisfied with their job.

The residential area has high t-value and looking at the coefficient, we can see, that people living in a city tend to be less satisfied than people living in a rural area. Specifically, they are 4.8% less likely to like their job very much and 2.5% more likely to think it is just fine.

Education is negatively correlated with job satisfaction. As the degree obtained gets higher the rate of job satisfaction is decreases. Knowledge

workers are about 1.1% less likely to be very satisfied with their jobs. This suggests that more educated people have higher expectations and, therefore, might eventually be less satisfied with their jobs than less educated people. However, this variable is insignificant.

Regarding occupation, two variables have low p-value, but are not significant - *production* and *counselors*. Production and operating workers are almost 20% less likely to be very satisfied with their jobs, 11% more likely to be neither satisfied nor dissatisfied, about 4% more likely to be somewhat dissatisfied, and 3.8% more likely to be very dissatisfied. However, being a counsellor might positively affect the rate of job satisfaction. Specifically, counsellors, social, and religious workers are about 16% more likely to be very satisfied with their jobs, 8% less likely to think it is just OK, and about 3% less likely to be somewhat dissatisfied or dissatisfied.

Union status is negatively correlated with job satisfaction, but insignificant. Employees who are covered by a union are more likely to be less satisfied with their job than non-members. This result is consistent with previous studies (Bryson, Cappellari & Lucifora, 2004).

Income is significantly and positively correlated with job satisfaction. Employees who have a high income are more likely to be in the higher categories of job satisfaction. This is not a surprising result, since people generally work for money. According to Bakan and Buyukbese (2013), employees' income level and employees' job satisfaction are highly correlated. However, the results do not give any idea of the direction of the causality. Employees could obtain high levels of job satisfaction, because they are motivated to receive a high income for their work effort. However, employees could receive high income by putting more effort into the job, because they are attracted by other things, such as a high level of job satisfaction or satisfaction due to promotion.

Table 5.1.1: Model 1 - Baseline model

	OLS		Ordered probit	
	Coef.	Std. Err.	Coef.	Std. Err.
female	0.063	0.054	0.086	0.064
race	-0.02	0.048	-0.012	0.056
age	1.652*	0.765	2.057*	0.905
age2	-0.023*	0.011	-0.029*	0.013
healthstatus	0.161***	0.025	0.192***	0.03
married	0.158**	0.051	0.191**	0.06
childrenhome	0.042*	0.022	0.055*	0.026
childrennothome	0.05	0.033	0.06	0.04
urban	-0.092	0.057	-0.122	0.068
degree	-0.02	0.019	-0.029	0.023
executive	-0.021	0.125	-0.024	0.149
management	-0.053	0.132	-0.07	0.157
mathematical	-0.272	0.199	-0.32	0.232
engineers	-0.077	0.23	-0.094	0.273
scientists	-0.036	0.244	-0.085	0.289
counselors	0.33	0.212	0.425	0.263
lawyers	-0.091	0.354	-0.154	0.412
teachers	0.153	0.153	0.192	0.184
entertainment	0.097	0.241	0.101	0.289
media	0.119	0.322	0.132	0.387
health	-0.01	0.146	-0.023	0.174
protective	-0.034	0.173	0.03	0.209
food	-0.176	0.155	-0.204	0.183
cleanbuild	0.012	0.19	-0.006	0.224
personalcare	-0.073	0.198	-0.063	0.233
sales	-0.154	0.143	-0.187	0.168
office	-0.058	0.136	-0.085	0.161
farming	0.25	0.354	0.35	0.449
construction	-0.055	0.166	-0.059	0.196
installation	0.187	0.169	0.195	0.203
production	-0.498	0.307	-0.549	0.351
setter	-0.121	0.168	-0.144	0.198
transport	-0.169	0.149	-0.179	0.177
log(income)	0.104**	0.033	0.122**	0.039
union	-0.012	0.062	-0.028	0.073
Num. obs.	1870		1870	

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Running the extended model (Table 5.1.2 and for marginal effects Table A.2), we can see that variables *age*, *age2*, *healthstatus*, *married*, *children-home*, and *income* remain significant. R-squared has increased from 0.06 to 0.07, which means our model describes only about 7% of the total variation in job satisfaction. However, low R-squared is generally accepted for studies in the field of social sciences, because human behaviour cannot be predicted accurately.

The first added variable *paidvacation* is significant at the 10% significance level and positively correlated with job satisfaction. Offering more days of paid holidays increases job satisfaction. However, the impact is really low. Employees who have more vacation days are only about 0.01% more likely to be very satisfied with their job. The variable *numberofemploy* is insignificant with a negative coefficient, suggesting that bigger firms have less satisfied workers. This may stem from management-worker relations not being so close.

Among the variables regarding personality traits, only one is significant - *high effort*. It is positively correlated with job satisfaction, signifying that employees who make every effort to do more than what is expected of them are more likely to be at higher rates of job satisfaction. Specifically, they are approximately 5% more likely to be very satisfied, 1% less likely to be fairly satisfied, 2.8% less likely to be neither satisfied nor dissatisfied and 1.3% less likely to be dissatisfied. The variable *extraworker* has high t-statistic, but is not significant. It is positively correlated with job satisfaction, therefore, workers who do what is required, and frequently something more are more likely to be in higher categories of job satisfaction. Employees who work as hard as the majority of people around them tend to be more satisfied and, on the contrary, employees who have high standards and work toward them are more likely to be less satisfied with their jobs.

Table 5.1.2: Model 2 - Extended model

	OLS		Ordered probit	
	Coef.	Std. Err.	Coef.	Std. Err.
female	0.055	0.055	0.078	0.065
race	-0.017	0.048	-0.008	0.057
age	1.714*	0.764	2.155*	0.906
age2	-0.024*	0.011	-0.03*	0.013
healthstatus	0.154***	0.026	0.186***	0.03
married	0.147**	0.052	0.179**	0.061
childrenhome	0.041	0.022	0.053*	0.026
childrennothome	0.052	0.033	0.064	0.04
urban	-0.089	0.057	-0.123	0.068
degree	-0.022	0.019	-0.031	0.023
executive	-0.038	0.125	-0.044	0.149
management	-0.066	0.132	-0.088	0.158
mathematical	-0.281	0.199	-0.338	0.233
engineers	-0.069	0.23	-0.084	0.273
scientists	-0.058	0.244	-0.111	0.289
counselors	0.316	0.212	0.408	0.263
lawyers	-0.113	0.354	-0.179	0.414
teachers	0.148	0.153	0.19	0.184
entertainment	0.092	0.24	0.099	0.289
media	0.125	0.321	0.136	0.387
health	-0.009	0.145	-0.02	0.174
protective	-0.066	0.174	-0.004	0.209
food	-0.191	0.155	-0.219	0.183
cleanbuild	0.016	0.19	-0.003	0.224
personalcare	-0.053	0.198	-0.038	0.234
sales	-0.176	0.143	-0.211	0.169
office	-0.068	0.136	-0.098	0.161
farming	0.281	0.356	0.399	0.455
construction	-0.063	0.165	-0.063	0.197
installation	0.183	0.169	0.193	0.204
production	-0.488	0.307	-0.535	0.352
setter	-0.127	0.168	-0.148	0.199
transport	-0.168	0.149	-0.175	0.178
log(income)	0.093**	0.034	0.11**	0.04
union	-0.006	0.062	-0.024	0.073
paidvacation	0.001	0.001	0.002	0.001
numberofemploy	0.000	0.000	0.000	0.000
hardworker	0.053	0.068	0.056	0.08
extraworker	0.082	0.057	0.094	0.067
highstandards	-0.023	0.071	-0.025	0.083
higheffort	0.118*	0.057	0.132*	0.067
Num. obs.	1870		1870	

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

## 4.2 Impact of fringe benefits on job satisfaction

Obtaining results from the first regression (Table A.3 and for marginal effects Table A.4), we can see that the above-mentioned variables remained significant except  $\log(\text{income})$ . The significance probably moved to the new added variable  $\text{numberofbenefits}$  which is very significant in both OLS and ordered probit regressions. Moreover, the sign of its coefficient is positive, thus the number of fringe benefits is positively correlated with the rate of job satisfaction. This supports our hypothesis, that fringe benefits affect job satisfaction. This is in accordance with Artz (2010). In detail, workers who are offered more fringe benefits are 1.8% more likely to be very satisfied, 0.4% less likely to be fairly satisfied, 1% less likely to be neither satisfied nor dissatisfied and 0.5% less likely to be dissatisfied.

Running the extended model with all specific types of fringe benefits (Table 5.2.2), the R-squared increases to 0.1088, which means our model describes more than 10% of the total variation in job satisfaction. The variables  $\text{age}$ ,  $\text{age2}$ ,  $\text{healthstatus}$ ,  $\text{married}$ ,  $\text{childrenhome}$ ,  $\text{childrennothome}$ ,  $\text{urban}$  and  $\log(\text{income})$  are significant. In detail, the variable  $\text{age}$  is positively correlated with job satisfaction and the quadratic form of it is negatively correlated. The variables  $\text{healthstatus}$ ,  $\text{married}$ ,  $\text{childrenhome}$  and  $\log(\text{income})$  also have positive coefficients. This corresponds to the previous results. However, significance also moved to  $\text{childrennothome}$  and  $\text{urban}$ . In more detail,  $\text{childrennothome}$  is positively correlated and  $\text{urban}$  is negatively correlated with job satisfaction. Therefore, workers living in a city tend to be less satisfied than workers living in a rural area. Specifically, they are 5.6% less likely to be very satisfied with their job, 1.5% more likely to be just fairly satisfied, and about 3% more likely to be neither satisfied nor dissatisfied (see Table A.5).

Regarding benefits, 3 out of 10 variables related to them are significant, specifically  $\text{flexsch}$ ,  $\text{paidmater}$ , and  $\text{tuition}$ . Besides those,  $\text{childcare}$  is significant at the 10% significance level. The results show that the coefficients of these are positive, which means, that these benefits are positively correl-



ated with job satisfaction. However, 4 out of 10 have negative coefficients - *medical*, *lifeins*, *dental*, and *stock*. This means that the availability of any of these benefits may reduce job satisfaction.

Regarding the significant variables, the availability of a flexible work schedule may increase job satisfaction; employees who have this benefits are 10% more likely to be very satisfied, 2% less likely to be just fairly satisfied, 5.4% less likely to be neither satisfied nor dissatisfied, 1.5% less likely to be somewhat dissatisfied and almost 1% less likely to be very dissatisfied with their job. For a better idea of this influence, we can say that additional job satisfaction from a flexible schedule is comparable to additional job satisfaction of income increased by one-third of the average  $\log(\text{income})$ . The variable indicating the availability of paid maternity or paternity leave is positively correlated with job satisfaction, suggesting that workers who are offered this benefit tend to be in higher categories of job satisfaction. They are 7.6% more likely to be very satisfied and, on the contrary, 1.8% less likely to be fairly satisfied, 4% less likely to be neither satisfied nor dissatisfied, 1% less likely to be somewhat dissatisfied and 0.7% less likely to be very dissatisfied. We can also say, that additional job satisfaction from this benefit is comparable to additional job satisfaction of income increased by 2 standard deviations of  $\log(\text{income})$ . Tuition reimbursement for certain types of schooling is positively correlated with job satisfaction; employees who can use it are 6.6% more likely to be very satisfied with their job. On the other hand, they are 1.6% less likely to be moderately satisfied, 3.5% less likely to think their job is just fine, and about 1.5% less likely to be dissatisfied. In other words, additional job satisfaction from offering tuition reimbursement is comparable to additional job satisfaction of income increased by one-sixth of the average  $\log(\text{income})$ .

*Childcare* is significant at the 10% significance level and employees who can have company-provided or subsidized childcare are more likely to have higher rates of job satisfaction. Specifically, they are approximately 7% more likely to like their job very much, 2% less likely to like their job fairly well,

3.7% less likely to think their job is just fine, and about 1.4% less likely to dislike their job. Variables *lifeins* and *retire* are also nearly significant with high t-statistics. The availability of life insurance may reduce job satisfaction. Employees who can have it are 5% less likely to be very satisfied. On the contrary, they are 1.4% more likely to be moderately satisfied, 2.8% to think their job is just OK and about 1% are more likely to be dissatisfied with their job. Employees who are offered a retirement plan other than Social Security are 5.3% more likely to be very satisfied, 1% less likely to be fairly satisfied, 2.9% more likely to be neither satisfied nor dissatisfied and about 1.3% less likely to be dissatisfied.

Insignificant variables are *medical*, *dental*, *unpaidmater* and *stock*. Regarding these, employees who are offered medical insurance tend to have lower rates of job satisfaction. Specifically, they are about 2% less likely to like their job very much, 1% more likely to think their job is just fine, and 0.5% more likely to be dissatisfied with their job. Availability of dental benefits is negatively correlated with job satisfaction; workers who can have them are 2.7% less likely to be very satisfied with their job. The variable indicating the availability of unpaid maternity or paternity leave has a positive coefficient, which means that employees who are entitled to it are more likely to have higher rates of job satisfaction. Specifically, they are 2.3% more likely to like their job very much, 1.2% less likely to think their job is OK, and 0.2% less likely not to like their job very much. The availability of an employee stock ownership plan is negatively correlated with job satisfaction. Employees who can have it are 2.2% less likely to be very satisfied, 0.5% less likely to be fairly satisfied, 1% more likely to be neither satisfied nor dissatisfied, and 0.5% more likely to be dissatisfied. However, the availability of any of these does not play a significant role in determining job satisfaction.

Table 5.2.2: Model 4 - Extended model with fringe benefits

	OLS		Ordered probit	
	Coef.	Std. Err.	Coef.	Std. Err.
female	0.085	0.055	0.101	0.066
race	-0.054	0.048	-0.046	0.058
age	1.831*	0.748	2.243*	0.911
age2	-0.026*	0.011	-0.032*	0.013
healthstatus	0.161***	0.028	0.18***	0.03
married	0.157**	0.053	0.18**	0.061
childrenhome	0.038	0.021	0.053*	0.026
childrennothome	0.066*	0.032	0.085*	0.04
urban	-0.096	0.052	-0.142*	0.068
degree	-0.038	0.02	-0.032	0.023
executive	0.048	0.126	-0.044	0.15
management	-0.042	0.134	-0.112	0.159
mathematical	-0.24	0.221	-0.34	0.234
engineers	-0.12	0.206	-0.164	0.276
scientists	-0.056	0.203	-0.132	0.292
counselors	0.335	0.183	0.394	0.263
lawyers	-0.212	0.33	-0.255	0.416
teachers	0.253	0.144	0.276	0.186
entertainment	0.164	0.212	0.154	0.292
media	0.129	0.306	0.127	0.391
health	0.031	0.142	-0.025	0.175
protective	0.13	0.179	0.017	0.211
food	-0.12	0.162	-0.171	0.187
cleanbuild	0.033	0.192	0.051	0.228
personalcare	0.015	0.219	-0.063	0.237
sales	-0.089	0.151	-0.238	0.171
office	-0.009	0.133	-0.098	0.162
farming	0.383	0.304	0.471	0.458
construction	0.061	0.172	0.000	0.199
installation	0.213	0.147	0.27	0.205
production	-0.518	0.366	-0.571	0.353
setter	-0.055	0.184	-0.126	0.2
transport	-0.028	0.152	-0.098	0.179
log(income)	0.065	0.036	0.086*	0.042
union	0.017	0.059	-0.004	0.075
paidvacation	0.001	0.000	0.001	0.001
numberofemploy	0.000	0.000	0.000	0.000
hardworker	0.09	0.076	0.095	0.081
extraworker	0.073	0.061	0.079	0.067
highstandards	-0.058	0.077	-0.039	0.083
higheffort	0.08	0.06	0.13	0.068
flexsch	0.205***	0.051	0.256***	0.058
medical	-0.028	0.097	-0.051	0.109
lifeins	-0.064	0.071	-0.136	0.09
dental	-0.062	0.092	-0.068	0.112
paidmater	0.141**	0.05	0.192**	0.062
unpaidmater	0.064	0.066	0.058	0.076
retire	0.111	0.077	0.134	0.093
tuition	0.114*	0.051	0.167**	0.063
childcare	0.12	0.067	0.179	0.093
stock	-0.04	0.058	-0.056	0.071
Num. obs.	1870		1870	

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Interpreting the results of the ordered probit regression might be rather difficult. For this reason, we can use the probit model with the transformed dependent variable *jsbinary*. Obtaining the results of the probit regression (Table 5.2.3 and for marginal effects Table A.6), we can see that variables *healthstatus* and *married* are significant and positively correlated with job satisfaction. Specifically, healthier people are 6.5% more likely to like their jobs and married workers are 7.5% more likely to be satisfied with their jobs. Regarding occupation, there are 3 significant variables - *counselours*, *teachers*, and *installation*. This suggests that counsellors, social, and religious workers are 18% more likely to be like their jobs. Teachers, education, training, and library workers are about 14% more likely to be satisfied and installation, maintenance, and repair workers are about 15% more likely to be satisfied with their jobs.

From variables indicating the availability of fringe benefits, two out of ten are significant - *flexsch* and *tuition*. Workers who are able to have a flexible work schedule are 10% more likely to be satisfied or to like their jobs. The availability of tuition reimbursement for certain types of schooling is also positively correlated with job satisfaction. Employees who are offered this benefit are 6% more likely to be satisfied with their job. The variable *retire* is significant at 10% significance level with a positive coefficient. Specifically, employees who can have a retirement plan other than Social Security are almost 7% more likely to like or be satisfied with their job.

Running the extended models with fringe benefits for both genders separately (Table A.7), we can see that men value the availability of a flexible work schedule more than women. However, the variable *paidmater* is significant at the 10% significance level for women, with a positive coefficient unlike that for men, where it has much lower t-statistic and is negatively correlated with job satisfaction. *Unpaidmater* is insignificant in both regression and positively correlated with job satisfaction only for women. On the other hand, men value a retirement plan other than Social Security, while women do not. *Childcare* has a positive coefficient only for women. Therefore, the

availability of this benefit for men might decrease job satisfaction. On the other hand, offering the employee stock ownership plan is positively correlated with job satisfaction only for men, while for women it has a negative coefficient.

The perception of fringe benefits can also differ between married and single employees. Obtaining the results (Table A.8), we can see that married employees value the availability of a flexible work schedule more than single employees. Medical insurance is positively correlated with job satisfaction only for single workers. For married workers, it is negatively correlated with job satisfaction and has high t-statistics. This may be the result of the wasteful duplication of fringe benefit provision between spouses. If a worker's spouse already has this benefit for the whole family, then the insurance for both is useless and needlessly reduces salary, resulting in lower job satisfaction. Dental benefits are also negatively correlated with job satisfaction only for married workers. The variable *paidmater* has a positive coefficient in both regressions. However, its t-statistics for married employees is higher than for single employees. Therefore, for married workers, it has greater value in determining job satisfaction. Tuition reimbursement for certain types of schooling is positively correlated with job satisfaction for all workers. However, for single workers, this variable is significant, while for married workers it is not. On the contrary, a retirement plan other than Social Security is valued more by married workers.

Table 5.2.3: Model 5 - Extended model with fringe benefits

	OLS		Probit	
	Coef.	Std. Err.	Coef.	Std. Err.
female	0.085	0.055	0.062	0.085
race	-0.054	0.048	-0.135	0.074
age	1.831*	0.748	1.796	1.169
age2	-0.026*	0.011	-0.025	0.017
healthstatus	0.161***	0.028	0.222***	0.039
married	0.157**	0.053	0.25**	0.077
childrenhome	0.038	0.021	0.017	0.033
childrennothome	0.066*	0.032	0.072	0.049
urban	-0.096	0.052	-0.156	0.09
degree	-0.038	0.02	-0.039	0.029
executive	0.048	0.126	0.205	0.185
management	-0.042	0.134	0.023	0.195
mathematical	-0.24	0.221	-0.242	0.288
engineers	-0.12	0.206	0.075	0.356
scientists	-0.056	0.203	0.195	0.395
counselors	0.335	0.183	1.014*	0.415
lawyers	-0.212	0.33	0.016	0.536
teachers	0.253	0.144	0.596*	0.243
entertainment	0.164	0.212	0.474	0.396
media	0.129	0.306	0.24	0.506
health	0.031	0.142	0.172	0.219
protective	0.13	0.179	0.124	0.263
food	-0.12	0.162	-0.117	0.227
cleanbuild	0.033	0.192	0.121	0.278
personalcare	0.015	0.219	0.028	0.286
sales	-0.089	0.151	0.083	0.213
office	-0.009	0.133	0.208	0.2
farming	0.383	0.304	0.567	0.618
construction	0.061	0.172	0.053	0.245
installation	0.213	0.147	0.672*	0.281
production	-0.518	0.366	-0.668	0.431
setter	-0.055	0.184	0.016	0.246
transport	-0.028	0.152	-0.092	0.217
log(income)	0.065	0.036	0.101	0.052
union	0.017	0.059	0.101	0.099
paidvacation	0.001	0.000	0.001	0.001
numberofemploy	0.000	0.000	0.000	0.000
hardworker	0.09	0.076	0.132	0.101
extraworker	0.073	0.061	0.138	0.084
highstandards	-0.058	0.077	-0.018	0.105
higheffort	0.08	0.06	0.123	0.086
flexsch	0.205***	0.051	0.332***	0.073
medical	-0.028	0.097	-0.049	0.137
lifeins	-0.064	0.071	-0.106	0.115
dental	-0.062	0.092	-0.036	0.143
paidmater	0.141**	0.05	0.075	0.081
unpaidmater	0.064	0.066	0.057	0.097
retire	0.111	0.077	0.226	0.118
tuition	0.114*	0.051	0.205*	0.082
childcare	0.12	0.067	0.083	0.121
stock	-0.04	0.058	-0.101	0.091
Num. obs.	1870		1870	

Data source: NLSY 2017

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

### 4.3 Czech employee benefits market

Looking at the benefits offered in the USA, we can tell that the benefits offered in the Czech republic are totally different. First of all, in the Czech Republic, the social and health insurance is a mandatory tax paid by employees. These contributions are automatically deducted from employees' salaries and part of them is also paid by the employer. Specifically, an employee pays 11% and an employer pays 31% of the gross wage base. Self-employed workers pay social and health insurance as part of their compulsory contributions. Health insurance in the United States operates on a commercial basis and is voluntary. Most Americans have insurance mediated by their employers. However, the State provides Medicare for pensioners and for the poor. Maternity leave is viewed as a benefit in the USA; mothers are only entitled to 12 free, but unpaid weeks, after the birth of a child. While in the Czech Republic the maternity allowance is paid by the State for 28 weeks if certain conditions are met.

For analysis of the Czech fringe benefits market, I will use a summary of the Employee Benefits Survey which took place in 2016. This survey was conducted by social partners represented in the Council of the Economic and Social Agreement of the Czech Republic with 1013 respondents generated by random sampling. In 2016, 97% of employers provide at least one benefit and, on average, they provide their employees with 8 benefits. More than half of employers offered benefits such as a meal allowance, pension and/or life insurance contribution, training allowance, paid holidays of more than 4 weeks, flexible working hours, company cars for private purposes, paid leave in the event of obstacles to work and contribution to major events (for example, the birth of a child or retirement). One of the most popular benefits in 2016 is the meal allowance provided by 86% of companies. The second most popular benefit is the pension and/or life insurance contribution, which was provided by 64% of employers. The training allowance was in third place. It was provided by a total of 57% of employers. Providing extra holidays is also a very popular benefit. In 2016, 57% of employers provide

longer leave to their employees. On average, employees are provided with an additional 5 days of leave. The use of company cars for private purposes is also popular. This benefit is offered by 54% of employers within the survey, however, only 9% of them offer this benefit to all their employees. Rarely used benefits include compensation of wages for the first 3 days of temporary incapacity for work which is offered by 6% of employers and, for example, days of paid sick leave offered by 17% of employers. In 2016, one-third of the employers allowed working from home. However, only for 6% of them offered this benefit to all employees, regardless of their position.

There are very few studies dealing with determinants that affect job satisfaction in the Czech Republic, which has ranked among the countries with low levels of job satisfaction. A study conducted by Sokolová, Mohelská and Zubr (2016) showed that salary and fringe benefits are significant factors that affect job satisfaction. Their results indicated that pay and fringe benefits have negative impact on job satisfaction, since the average level of these determinants is lower than the average level of overall job satisfaction. Other mentioned determinants include career growth, supervision, recognition, working conditions, co-workers, nature of work and communication.



## Conclusion

The main aim of this thesis was to test the hypothesis that fringe benefits affect job satisfaction. The data used are from the National Longitudinal Survey of Youth and a set of OLS and ordered probit regressions was run. To complement the difficult-to-interpret ordered probit results, the job satisfaction variable was additionally transformed into a dichotomous variable and a probit analysis was run.

The outcomes revealed that the number of fringe benefits is significantly and positively correlated with job satisfaction. Furthermore, three out of ten specific types of benefits are significantly correlated with job satisfaction, specifically, the availability of a flexible work schedule, paid maternity leave and tuition reimbursement for certain types of schooling. All of these are positively related to job satisfaction, suggesting that their availability may increase job satisfaction. However, four out of ten types of fringe benefits are negatively correlated with job satisfaction, specifically, medical insurance, dental benefits, unpaid maternity leave and employee stock ownership plan. Therefore, offering any of these benefits may result in decreased job satisfaction, but their effect is not significant.

To further investigate the proposition that fringe benefits are significant determinants of job satisfaction, estimation is repeated on subsamples defined along two dimensions: gender and marital status of individuals. Firstly, the results suggest that men and women value benefits differently. The flexible work schedule is valued more by men than women and paid maternity leave is positively related to job satisfaction only for women. Child-care also has a positive coefficient only for women, unlike that for men. Therefore, the availability of this benefit for men might decrease job satisfaction. The perception of fringe benefits can also differ between married and single employees. Married workers value the availability of a flexible work schedule more than single workers. Medical, surgical, or hospitalization insurance is positively correlated with job satisfaction only for single workers. This may be the result of the wasteful duplication of fringe benefit

provision between spouses.

The main contribution of this thesis is the complex analysis of determinants of job satisfaction and the current depiction of the impact that fringe benefits have on job satisfaction. The overall results support the hypothesis that fringe benefits are related to job satisfaction. Employers should be careful when substituting wages with them and, even though fringes are tax-advantageous and could save the worker from an increased tax burden, their impact can also be negative. For example, in the case of a specific benefit being unnecessary, and substituting wages with it might result in decreased job satisfaction.

The issue of job satisfaction is, however, complicated and influenced by various factors many of which are unmeasurable. Therefore, for further research, I would recommend analysing longitudinal data to control for the potentially biasing unobservable individual characteristics which are the main limitations of this thesis. In addition, there is much room for analysing the impact of particular types of fringe benefits in other countries. The perception of fringe benefits in the Czech Republic may be completely different since the offered types of benefits vary from country to country.

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# Appendix

Table A.1: Model 1 - Marginal Effects

	Like it very much (5)		Like it fairly well (4)		Think it si OK (3)	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
female	0.034	0.025	-0.008	0.006	-0.018	0.013
race	-0.005	0.022	0.001	0.005	0.003	0.012
married	0.075**	0.024	-0.016**	0.005	-0.04**	0.013
urban	-0.048	0.027	0.012	0.008	0.025	0.014
executive	-0.009	0.059	0.002	0.013	0.005	0.031
management	-0.028	0.062	0.006	0.012	0.015	0.033
mathematical	-0.122	0.084	0.014***	0.003	0.067	0.048
engineers	-0.037	0.106	0.007	0.018	0.02	0.058
scientists	-0.034	0.112	0.007	0.019	0.018	0.061
counselors	0.168	0.101	-0.059	0.046	-0.08	0.043
lawyers	-0.06	0.158	0.011	0.019	0.032	0.087
teachers	0.076	0.073	-0.022	0.025	-0.039	0.035
entertainment	0.04	0.115	-0.01	0.034	-0.021	0.058
media	0.052	0.154	-0.014	0.048	-0.027	0.076
health	-0.009	0.068	0.002	0.015	0.005	0.036
protective	0.012	0.083	-0.003	0.021	-0.006	0.043
food	-0.079	0.069	0.013	0.007	0.043	0.039
cleanbuild	-0.002	0.088	0.001	0.02	0.001	0.046
personalcare	-0.025	0.091	0.005	0.017	0.013	0.049
sales	-0.073	0.064	0.013	0.007	0.039	0.036
office	-0.033	0.063	0.007	0.011	0.018	0.034
farming	0.139	0.175	-0.046	0.075	-0.067	0.077
construction	-0.023	0.077	0.005	0.015	0.012	0.041
installation	0.077	0.081	-0.022	0.028	-0.039	0.039
production	-0.2	0.111	0.005	0.026	0.112	0.064
setter	-0.056	0.076	0.01	0.01	0.03	0.042
transport	-0.07	0.068	0.012	0.008	0.038	0.038
union	-0.011	0.029	0.002	0.006	0.006	0.015
age	0.813*	0.358	-0.187*	0.084	-0.426*	0.188
age2	-0.011*	0.005	0.003*	0.001	0.006*	0.003
healthstatus	0.076***	0.012	-0.017***	0.003	-0.04***	0.006
childrenhome	0.022*	0.01	-0.005*	0.002	-0.011*	0.005
childrennothome	0.024	0.016	-0.005	0.004	-0.012	0.008
degree	-0.011	0.009	0.003	0.002	0.006	0.005
log(income)	0.048**	0.016	-0.011**	0.004	-0.025**	0.008

Data source: NLSY 2017

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Table A.1: Model 1 - Marginal Effects

	Dislike it somehow (2)		Dislike it very much (1)	
	dy/dx	Std. Err.	dy/dx	Std. Err.
female	-0.005	0.004	-0.003	0.003
race	0.001	0.003	0.000	0.002
married	-0.012**	0.004	-0.008**	0.003
urban	0.007	0.004	0.004	0.002
executive	0.001	0.009	0.001	0.006
management	0.004	0.01	0.003	0.007
mathematical	0.023	0.02	0.017	0.017
engineers	0.006	0.018	0.004	0.013
scientists	0.005	0.019	0.004	0.013
counselors	-0.019*	0.008	-0.011*	0.004
lawyers	0.01	0.03	0.007	0.022
teachers	-0.01	0.009	-0.006	0.005
entertainment	-0.006	0.015	-0.003	0.009
media	-0.007	0.019	-0.004	0.011
health	0.001	0.011	0.001	0.007
protective	-0.002	0.012	-0.001	0.008
food	0.014	0.014	0.01	0.01
cleanbuild	0.000	0.013	0.000	0.009
personalcare	0.004	0.015	0.003	0.01
sales	0.012	0.012	0.009	0.009
office	0.005	0.01	0.004	0.007
farming	-0.016	0.015	-0.009	0.008
construction	0.004	0.012	0.002	0.009
installation	-0.01	0.009	-0.006	0.005
production	0.045	0.036	0.038	0.038
setter	0.009	0.014	0.006	0.01
transport	0.012	0.013	0.008	0.01
union	0.002	0.004	0.001	0.003
age	-0.122*	0.055	-0.079*	0.037
age2	0.002*	0.001	0.001*	0.001
healthstatus	-0.011***	0.002	-0.007***	0.002
childrenhome	-0.003*	0.002	-0.002*	0.001
childrennothome	-0.004	0.002	-0.002	0.002
degree	0.002	0.001	0.001	0.001
log(income)	-0.007**	0.002	-0.005**	0.002

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table A.2: Model 2 - Marginal Effects

	Like it very much (5)		Like it fairly well (4)		Think it si OK (3)	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
female	0.031	0.026	-0.007	0.006	-0.016	0.013
race	-0.003	0.022	0.001	0.005	0.002	0.012
married	0.071**	0.024	-0.015**	0.005	-0.037**	0.013
urban	-0.049	0.027	0.012	0.008	0.025	0.014
executive	-0.017	0.059	0.004	0.013	0.009	0.031
management	-0.035	0.062	0.007	0.011	0.019	0.033
mathematical	-0.129	0.084	0.015***	0.003	0.072	0.049
engineers	-0.033	0.106	0.007	0.019	0.018	0.058
scientists	-0.044	0.112	0.008	0.017	0.023	0.061
counselors	0.161	0.101	-0.056	0.046	-0.077	0.043
lawyers	-0.07	0.157	0.012	0.016	0.038	0.088
teachers	0.076	0.073	-0.022	0.025	-0.038	0.036
entertainment	0.039	0.115	-0.01	0.034	-0.02	0.058
media	0.054	0.154	-0.015	0.049	-0.028	0.076
health	-0.008	0.069	0.002	0.015	0.004	0.036
protective	-0.002	0.083	0.000	0.019	0.001	0.044
food	-0.085	0.069	0.014*	0.006	0.046	0.039
cleanbuild	-0.001	0.089	0.000	0.02	0.001	0.047
personalcare	-0.015	0.092	0.003	0.019	0.008	0.049
sales	-0.082	0.064	0.014*	0.007	0.045	0.036
office	-0.039	0.063	0.008	0.011	0.021	0.034
farming	0.158	0.175	-0.055	0.08	-0.075	0.075
construction	-0.025	0.077	0.005	0.015	0.013	0.042
installation	0.077	0.081	-0.022	0.028	-0.039	0.039
production	-0.195	0.113	0.006	0.025	0.111	0.066
setter	-0.058	0.076	0.011	0.01	0.031	0.042
transport	-0.068	0.068	0.012	0.008	0.037	0.038
union	-0.009	0.029	0.002	0.006	0.005	0.015
hardworker	0.022	0.031	-0.005	0.006	-0.012	0.017
extraworker	0.037	0.026	-0.008	0.005	-0.02	0.014
highstandards	-0.01	0.033	0.002	0.008	0.005	0.017
higheffort	0.052*	0.026	-0.011*	0.005	-0.028	0.014
age	0.852*	0.358	-0.197*	0.085	-0.448*	0.189
age2	-0.012*	0.005	0.003*	0.001	0.006*	0.003
healthstatus	0.073***	0.012	-0.017***	0.003	-0.039***	0.007
childrenhome	0.021*	0.01	-0.005*	0.002	-0.011*	0.005
childrennothome	0.025	0.016	-0.006	0.004	-0.013	0.008
degree	-0.012	0.009	0.003	0.002	0.006	0.005
log(income)	0.043**	0.016	-0.01**	0.004	-0.023**	0.008
paidvacation	0.001	0.000	0.000	0.000	0.000	0.000
numberofemploy	0.000	0.000	0.000	0.000	0.000	0.000

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$



Table A.2: Model 2 - Marginal Effects

	Dislike it somehow (2)		Dislike it very much (1)	
	dy/dx	Std. Err.	dy/dx	Std. Err.
female	-0.005	0.004	-0.003	0.003
race	0.000	0.003	0.000	0.002
married	-0.011**	0.004	-0.007**	0.003
urban	0.007	0.004	0.004	0.002
executive	0.003	0.009	0.002	0.006
management	0.005	0.01	0.004	0.007
mathematical	0.024	0.02	0.018	0.017
engineers	0.005	0.018	0.003	0.012
scientists	0.007	0.02	0.005	0.014
counselors	-0.018*	0.008	-0.01*	0.004
lawyers	0.012	0.03	0.008	0.023
teachers	-0.01	0.008	-0.006	0.005
entertainment	-0.005	0.015	-0.003	0.009
media	-0.007	0.019	-0.004	0.011
health	0.001	0.01	0.001	0.007
protective	0.000	0.012	0.000	0.008
food	0.015	0.014	0.01	0.011
cleanbuild	0.000	0.013	0.000	0.008
personalcare	0.002	0.014	0.001	0.01
sales	0.014	0.013	0.01	0.009
office	0.006	0.011	0.004	0.007
farming	-0.018	0.014	-0.01	0.007
construction	0.004	0.012	0.003	0.008
installation	-0.01	0.009	-0.006	0.005
production	0.043	0.036	0.035	0.037
setter	0.009	0.014	0.006	0.01
transport	0.011	0.013	0.008	0.009
union	0.001	0.004	0.001	0.003
hardworker	-0.003	0.005	-0.002	0.003
extraworker	-0.006	0.004	-0.004	0.003
highstandards	0.001	0.005	0.001	0.003
higheffort	-0.008	0.004	-0.005	0.003
age	-0.126*	0.055	-0.081*	0.036
age2	0.002*	0.001	0.001*	0.001
healthstatus	-0.011***	0.002	-0.007***	0.002
childrenhome	-0.003*	0.002	-0.002*	0.001
childrennothome	-0.004	0.002	-0.002	0.002
degree	0.002	0.001	0.001	0.001
log(income)	-0.006**	0.002	-0.004**	0.002
paidvacation	0.000	0.000	0.000	0.000
numberofemploy	0.000	0.000	0.000	0.000

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table A.3: Model 3 - Extended model with number of benefits

	OLS		Ordered probit	
	Coef.	Std. Err.	Coef.	Std. Err.
female	0.067	0.054	0.079	0.065
race	-0.04	0.048	-0.028	0.057
age	1.831*	0.749	2.083*	0.907
age2	-0.026*	0.011	-0.029*	0.013
healthstatus	0.166***	0.028	0.186***	0.03
married	0.161**	0.054	0.184**	0.061
childrenhome	0.039	0.022	0.055*	0.026
childrennothome	0.056	0.032	0.073	0.04
urban	-0.087	0.053	-0.12	0.068
degree	-0.038	0.02	-0.033	0.023
executive	0.059	0.129	-0.021	0.15
management	-0.033	0.137	-0.089	0.158
mathematical	-0.264	0.226	-0.334	0.233
engineers	-0.099	0.213	-0.125	0.274
scientists	-0.053	0.212	-0.117	0.289
counselors	0.343	0.176	0.424	0.263
lawyers	-0.171	0.327	-0.18	0.414
teachers	0.201	0.145	0.218	0.185
entertainment	0.131	0.216	0.14	0.29
media	0.192	0.318	0.21	0.388
health	0.04	0.145	-0.012	0.174
protective	0.124	0.183	0.017	0.21
food	-0.092	0.164	-0.125	0.185
cleanbuild	0.071	0.195	0.098	0.226
personalcare	0.063	0.219	0.038	0.235
sales	-0.065	0.152	-0.187	0.17
office	-0.028	0.137	-0.107	0.161
farming	0.431	0.324	0.526	0.453
construction	0.056	0.175	0.024	0.198
installation	0.179	0.152	0.234	0.204
production	-0.575	0.331	-0.599	0.353
setter	-0.101	0.18	-0.152	0.199
transport	-0.059	0.156	-0.132	0.178
log(income)	0.051	0.036	0.064	0.041
union	-0.016	0.058	-0.054	0.074
paidvacation	0.001	0.001	0.001	0.001
numberofemploy	0.000	0.000	0.000	0.000
hardworker	0.069	0.075	0.064	0.08
extraworker	0.077	0.062	0.079	0.067
highstandards	-0.051	0.077	-0.032	0.083
higheffort	0.09	0.061	0.142*	0.068
numberofbenefits	0.041***	0.01	0.046***	0.011
Num. obs.	1870		1870	

Data source: NLSY 2017

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Table A.4: Model 3 - Marginal Effects

	Like it very much (5)		Like it fairly well (4)		Think it si OK (3)	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
female	0.031	0.026	-0.007	0.006	-0.017	0.014
race	-0.011	0.023	0.003	0.005	0.006	0.012
married	0.072**	0.024	-0.016**	0.005	-0.039**	0.013
urban	-0.048	0.027	0.012	0.008	0.025	0.014
executive	-0.008	0.059	0.002	0.013	0.004	0.031
management	-0.035	0.062	0.007	0.011	0.019	0.034
mathematical	-0.127	0.084	0.015***	0.003	0.071	0.049
engineers	-0.049	0.106	0.009	0.016	0.026	0.059
scientists	-0.046	0.112	0.009	0.017	0.025	0.062
counselors	0.168	0.101	-0.06	0.047	-0.08	0.043
lawyers	-0.07	0.157	0.012	0.016	0.038	0.089
teachers	0.087	0.073	-0.026	0.026	-0.044	0.035
entertainment	0.056	0.116	-0.015	0.037	-0.029	0.057
media	0.084	0.154	-0.025	0.056	-0.042	0.074
health	-0.005	0.069	0.001	0.016	0.003	0.037
protective	0.007	0.083	-0.002	0.02	-0.004	0.044
food	-0.049	0.072	0.009	0.011	0.027	0.04
cleanbuild	0.039	0.09	-0.01	0.026	-0.02	0.046
personalcare	0.015	0.093	-0.004	0.024	-0.008	0.049
sales	-0.073	0.065	0.013	0.008	0.04	0.036
office	-0.042	0.063	0.009	0.011	0.023	0.034
farming	0.206	0.167	-0.079	0.086	-0.095	0.066
construction	0.01	0.079	-0.002	0.02	-0.005	0.041
installation	0.093	0.081	-0.028	0.03	-0.047	0.039
production	-0.215*	0.108	0.001	0.031	0.123	0.063
setter	-0.059	0.076	0.011	0.01	0.032	0.043
transport	-0.052	0.069	0.01	0.01	0.028	0.038
union	-0.021	0.029	0.005	0.006	0.011	0.016
hardworker	0.025	0.031	-0.006	0.006	-0.014	0.017
extraworker	0.031	0.026	-0.007	0.006	-0.017	0.014
highstandards	-0.013	0.033	0.003	0.008	0.007	0.017
higheffort	0.056*	0.026	-0.012*	0.005	-0.03*	0.014
age	0.824*	0.359	-0.192*	0.086	-0.436*	0.19
age2	-0.012*	0.005	0.003*	0.001	0.006*	0.003
healthstatus	0.074***	0.012	-0.017***	0.003	-0.039***	0.007
childrenhome	0.022*	0.01	-0.005*	0.002	-0.012*	0.005
childrennothome	0.029	0.016	-0.007	0.004	-0.015	0.008
degree	-0.013	0.009	0.003	0.002	0.007	0.005
log(income)	0.025	0.016	-0.006	0.004	-0.013	0.009
paidvacation	0.001	0.000	0.000	0.000	0.000	0.000
numberofemploy	0.000	0.000	0.000	0.000	0.000	0.000
numberofbenefits	0.018***	0.005	-0.004***	0.001	-0.01***	0.002

Data source: NLSY 2017

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Table A.4: Model 3 - Marginal Effects

	Dislike it somehow (2)		Dislike it very much (1)	
	dy/dx	Std. Err.	dy/dx	Std. Err.
female	-0.005	0.004	-0.003	0.002
race	0.002	0.003	0.001	0.002
married	-0.011**	0.004	-0.007**	0.003
urban	0.007	0.004	0.004	0.002
executive	0.001	0.009	0.001	0.006
management	0.005	0.01	0.003	0.007
mathematical	0.024	0.02	0.017	0.016
engineers	0.008	0.019	0.005	0.013
scientists	0.007	0.019	0.005	0.013
counselors	-0.018*	0.008	-0.01*	0.004
lawyers	0.012	0.03	0.008	0.022
teachers	-0.011	0.008	-0.006	0.004
entertainment	-0.007	0.014	-0.004	0.008
media	-0.01	0.016	-0.006	0.009
health	0.001	0.01	0.000	0.006
protective	-0.001	0.012	-0.001	0.007
food	0.008	0.012	0.005	0.009
cleanbuild	-0.005	0.011	-0.003	0.007
personalcare	-0.002	0.013	-0.001	0.008
sales	0.012	0.012	0.008	0.009
office	0.007	0.011	0.004	0.007
farming	-0.021	0.011	-0.011*	0.005
construction	-0.001	0.011	-0.001	0.007
installation	-0.012	0.009	-0.007	0.005
production	0.049	0.037	0.041	0.04
setter	0.01	0.014	0.006	0.01
transport	0.008	0.012	0.005	0.008
union	0.003	0.004	0.002	0.003
hardworker	-0.004	0.005	-0.002	0.003
extraworker	-0.005	0.004	-0.003	0.003
highstandards	0.002	0.005	0.001	0.003
high effort	-0.009*	0.004	-0.006	0.003
age	-0.12*	0.054	-0.076*	0.035
age2	0.002*	0.001	0.001*	0.000
healthstatus	-0.011***	0.002	-0.007***	0.001
childrenhome	-0.003*	0.002	-0.002*	0.001
childrennohome	-0.004	0.002	-0.003	0.002
degree	0.002	0.001	0.001	0.001
log(income)	-0.004	0.002	-0.002	0.002
paidvacation	0.000	0.000	0.000	0.000
numberofemploy	0.000	0.000	0.000	0.000
numberofbenefits	-0.003***	0.001	-0.002***	0.000

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table A.5: Model 4 - Marginal Effects

	Like it very much (5)		Like it fairly well (4)		Think it si OK (3)	
	dy/dx	Std. Err.	dy/dx	Std. Err.	dy/dx	Std. Err.
female	0.04	0.026	-0.009	0.006	-0.021	0.014
race	-0.018	0.023	0.004	0.005	0.01	0.012
married	0.071**	0.024	-0.016**	0.005	-0.038**	0.013
urban	-0.056*	0.027	0.015	0.008	0.029*	0.014
executive	-0.017	0.059	0.004	0.013	0.009	0.032
management	-0.044	0.062	0.009	0.011	0.024	0.034
mathematical	-0.129	0.084	0.015***	0.003	0.073	0.05
engineers	-0.064	0.105	0.012	0.013	0.035	0.06
scientists	-0.052	0.112	0.01	0.017	0.028	0.063
counselors	0.156	0.102	-0.055	0.047	-0.075	0.044
lawyers	-0.098	0.154	0.014	0.008	0.055	0.09
teachers	0.11	0.074	-0.035	0.029	-0.055	0.035
entertainment	0.061	0.116	-0.018	0.039	-0.031	0.057
media	0.05	0.156	-0.014	0.05	-0.026	0.078
health	-0.01	0.069	0.002	0.015	0.005	0.037
protective	0.007	0.084	-0.002	0.021	-0.004	0.044
food	-0.067	0.071	0.012	0.009	0.037	0.041
cleanbuild	0.02	0.091	-0.005	0.025	-0.011	0.047
personalcare	-0.025	0.093	0.005	0.018	0.013	0.051
sales	-0.092	0.064	0.015**	0.006	0.051	0.037
office	-0.039	0.063	0.008	0.012	0.021	0.035
farming	0.185	0.173	-0.07	0.086	-0.087	0.07
construction	0.000	0.079	0.000	0.019	0.000	0.042
installation	0.107	0.081	-0.034	0.032	-0.054	0.038
production	-0.207	0.11	0.004	0.029	0.12	0.067
setter	-0.049	0.077	0.01	0.012	0.027	0.043
transport	-0.038	0.07	0.008	0.012	0.021	0.039
union	-0.002	0.03	0.000	0.007	0.001	0.016
hardworker	0.037	0.031	-0.008	0.006	-0.02	0.017
extraworker	0.031	0.026	-0.007	0.006	-0.017	0.014
highstandards	-0.015	0.033	0.004	0.009	0.008	0.017
higheffort	0.051	0.027	-0.011*	0.005	-0.028	0.015
flexsch	0.1***	0.022	-0.021***	0.005	-0.054***	0.013
medical	-0.02	0.043	0.005	0.011	0.011	0.023
lifeins	-0.054	0.036	0.014	0.01	0.028	0.019
dental	-0.027	0.045	0.007	0.012	0.014	0.023
paidmater	0.076**	0.025	-0.018**	0.006	-0.04**	0.013
unpaidmater	0.023	0.03	-0.005	0.006	-0.012	0.016
retire	0.053	0.036	-0.011	0.007	-0.029	0.02
tuition	0.066**	0.025	-0.016*	0.006	-0.035**	0.013
childcare	0.071	0.037	-0.02	0.012	-0.037*	0.018
stock	-0.022	0.028	0.005	0.006	0.012	0.015
age	0.886*	0.36	-0.212*	0.088	-0.472*	0.193
age2	-0.013*	0.005	0.003*	0.001	0.007*	0.003
healthstatus	0.071***	0.012	-0.017***	0.003	-0.038***	0.007
childrenhome	0.021*	0.01	-0.005*	0.002	-0.011*	0.005
childrennothome	0.033*	0.016	-0.008*	0.004	-0.018*	0.009
degree	-0.013	0.009	0.003	0.002	0.007	0.005
log(income)	0.034*	0.016	-0.008*	0.004	-0.018*	0.009
paidvacation	0.001	0.000	0.000	0.000	0.000	0.000
numberofemploy	0.000	0.000	0.000	0.000	0.000	0.000

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table A.5: Model 4 - Marginal Effects

	Dislike it somehow (2)		Dislike it very much (1)	
	dy/dx	Std. Err.	dy/dx	Std. Err.
female	-0.006	0.004	-0.003	0.002
race	0.003	0.003	0.002	0.002
married	-0.011**	0.004	-0.006*	0.003
urban	0.008*	0.004	0.004*	0.002
executive	0.003	0.009	0.002	0.005
management	0.007	0.01	0.004	0.007
mathematical	0.024	0.02	0.017	0.016
engineers	0.01	0.019	0.007	0.013
scientists	0.008	0.02	0.005	0.013
counselors	-0.017*	0.008	-0.009*	0.004
lawyers	0.017	0.032	0.011	0.024
teachers	-0.013	0.007	-0.007	0.004
entertainment	-0.008	0.013	-0.004	0.007
media	-0.007	0.018	-0.004	0.01
health	0.001	0.01	0.001	0.006
protective	-0.001	0.012	-0.001	0.007
food	0.011	0.013	0.007	0.009
cleanbuild	-0.003	0.012	-0.002	0.007
personalcare	0.004	0.015	0.002	0.009
sales	0.016	0.013	0.01	0.009
office	0.006	0.01	0.004	0.007
farming	-0.019	0.012	-0.01	0.005
construction	0.000	0.011	0.000	0.007
installation	-0.013	0.008	-0.007	0.004
production	0.046	0.037	0.036	0.036
setter	0.008	0.013	0.005	0.009
transport	0.006	0.011	0.004	0.007
union	0.000	0.004	0.000	0.003
hardworker	-0.006	0.005	-0.003	0.003
extraworker	-0.005	0.004	-0.003	0.003
highstandards	0.002	0.005	0.001	0.003
higheffort	-0.008	0.004	-0.005	0.003
flexsch	-0.015***	0.004	-0.01***	0.003
medical	0.003	0.006	0.002	0.003
lifeins	0.007	0.005	0.004	0.003
dental	0.004	0.006	0.002	0.004
paidmater	-0.011**	0.004	-0.007**	0.002
unpaidmater	-0.003	0.005	-0.002	0.003
retire	-0.008	0.006	-0.005	0.004
tuition	-0.009*	0.004	-0.006*	0.002
childcare	-0.009*	0.004	-0.005*	0.002
stock	0.003	0.004	0.002	0.003
age	-0.127*	0.053	-0.076*	0.033
age2	0.002*	0.001	0.001*	0.000
healthstatus	-0.01***	0.002	-0.006***	0.001
childrenhome	-0.003*	0.001	-0.002*	0.001
childrennothome	-0.005*	0.002	-0.003*	0.001
degree	0.002	0.001	0.001	0.001
log(income)	-0.005*	0.002	-0.003*	0.001
paidvacation	0.000	0.000	0.000	0.000
numberofemploy	0.000	0.000	0.000	0.000

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table A.6: Model 5 - Marginal Effects

	dy/dx	Std. Err.
female	0.018	0.025
race	-0.04	0.022
age	0.529	0.344
age2	-0.007	0.005
healthstatus	0.065***	0.011
married	0.075**	0.024
childrenhome	0.005	0.01
childrennothome	0.021	0.014
urban	-0.044	0.025
degree	-0.012	0.009
executive	0.058	0.05
management	0.007	0.057
mathematical	-0.077	0.099
engineers	0.021	0.099
scientists	0.053	0.098
counselors	0.185***	0.036
lawyers	0.005	0.156
teachers	0.138***	0.041
entertainment	0.113	0.073
media	0.064	0.12
health	0.048	0.057
protective	0.035	0.07
food	-0.036	0.072
cleanbuild	0.034	0.074
personalcare	0.008	0.082
sales	0.024	0.059
office	0.057	0.051
farming	0.129	0.1
construction	0.015	0.069
installation	0.148***	0.042
production	-0.237	0.171
setter	0.005	0.072
transport	-0.028	0.068
log(income)	0.03	0.015
union	0.029	0.027
paidvacation	0.000	0.000
numberofemploy	0.000	0.000
hardworker	0.04	0.032
extraworker	0.042	0.026
highstandards	-0.005	0.03
high effort	0.037	0.026
flexsch	0.101***	0.023
medical	-0.014	0.039
lifeins	-0.031	0.033
dental	-0.011	0.042
paidmater	0.022	0.024
unpaidmater	0.017	0.029
retire	0.069	0.038
tuition	0.06*	0.024
childcare	0.024	0.034
stock	-0.03	0.028

Data source: NLSY 2017

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Table A.7: Probit Model 5 - Subsamples (gender)

	Women		Men	
	Coef.	Std. Err.	Coef.	Std. Err.
race	-0.151	0.103	-0.089	0.114
age	1.316	1.562	2.983	1.89
age2	-0.018	0.022	-0.042	0.027
healthstatus	0.226***	0.053	0.202***	0.06
married	0.378***	0.103	0.003	0.127
childrenhome	0.033	0.046	0.014	0.052
childrennothome	0.047	0.098	0.082	0.064
urban	-0.191	0.135	-0.187	0.131
degree	-0.041	0.04	-0.06	0.047
executive	0.163	0.274	0.168	0.263
management	0.199	0.287	-0.354	0.278
mathematical	-0.359	0.649	-0.244	0.352
engineers	-5.829	255.6	0.291	0.435
scientists	0.515	0.619	-0.141	0.551
counselors	0.851	0.475	4.824	229.9
lawyers	-0.063	0.595	4.298	605.1
teachers	0.369	0.323	1.219*	0.526
entertainment	4.685	125.7	0.16	0.478
media	0.071	0.554	4.782	605.1
health	-0.009	0.295	5.105	124.8
protective	-0.391	0.436	0.432	0.35
food	-0.283	0.313	0.525	0.39
cleanbuild	-0.22	0.439	0.427	0.379
personalcare	-0.021	0.356	0.244	0.774
sales	0.257	0.314	-0.258	0.303
office	0.094	0.286	0.366	0.315
farming	3.949	376.8	0.586	0.679
construction	4.707	164.8	-0.098	0.294
installation	4.281	376.8	0.755*	0.327
production	0.087	0.767	-1.217*	0.577
setter	-0.352	0.433	0.138	0.315
transport	-0.26	0.417	-0.124	0.276
log(income)	0.004	0.066	0.436***	0.102
union	0.183	0.143	0.02	0.148
paidvacation	0.003	0.002	0.000	0.002
numberofemploy	0.000	0.000	0.000	0.000
hardworker	0.224	0.144	0.036	0.159
extraworker	0.189	0.12	0.19	0.128
highstandards	-0.01	0.154	-0.054	0.154
higheffort	0.142	0.12	0.049	0.133
flexsch	0.247*	0.104	0.451***	0.112
medical	0.007	0.18	-0.227	0.231
lifeins	-0.111	0.168	-0.058	0.169
dental	-0.069	0.187	-0.078	0.24
paidmater	0.187	0.113	-0.114	0.126
unpaidmater	0.196	0.151	-0.021	0.138
retire	0.159	0.154	0.422*	0.202
tuition	0.187	0.114	0.209	0.127
childcare	0.137	0.176	-0.068	0.179
stock	-0.207	0.133	0.054	0.134
Num. obs.	1001		869	

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$



Table A.8: Probit Model 5 - Subsamples (marital status)

	Married		Not married	
	Coef.	Std. Err.	Coef.	Std. Err.
female	0.21	0.111	-0.115	0.148
race	-0.082	0.1	-0.211	0.121
age	2.475	1.553	0.743	1.946
age2	-0.035	0.022	-0.01	0.028
healthstatus	0.234***	0.056	0.242***	0.058
childrenhome	0.133**	0.048	-0.103*	0.052
childrennothome	0.12	0.11	0.006	0.057
urban	-0.336**	0.117	0.211	0.157
degree	-0.035	0.039	-0.052	0.051
executive	0.45	0.237	-0.04	0.308
management	0.269	0.249	-0.178	0.327
mathematical	-0.133	0.326	3.921	110.4
engineers	0.298	0.5	-0.414	0.536
scientists	0.271	0.426	4.11	376.8
counselors	0.983	0.546	1.013	0.652
lawyers	0.029	0.762	-0.112	0.769
teachers	0.887**	0.314	-0.004	0.408
entertainment	0.638	0.434	4.11	265.9
media	0.175	0.662	0.175	0.757
health	0.382	0.285	-0.026	0.355
protective	0.451	0.355	-0.266	0.419
food	0.265	0.322	-0.375	0.348
cleanbuild	1.053*	0.485	-0.382	0.403
personalcare	1.199	0.675	-0.399	0.393
sales	0.312	0.283	-0.066	0.341
office	0.322	0.264	0.106	0.323
farming	4.883	94.93	-0.231	0.814
construction	-0.014	0.351	-0.002	0.362
installation	1.025**	0.367	0.149	0.456
production	-1.464*	0.706	-0.268	0.621
setter	0.579	0.351	-0.508	0.376
transport	0.194	0.291	-0.407	0.341
log(income)	0.151*	0.071	0.071	0.082
union	0.224	0.143	0.036	0.149
paidvacation	0.001	0.002	0.001	0.002
numberofemploy	0.000	0.000	0.005*	0.003
hardworker	0.145	0.139	0.149	0.158
extraworker	0.12	0.12	0.192	0.13
highstandards	0.189	0.143	-0.3	0.165
higheffort	0.071	0.123	0.152	0.131
flexsch	0.366***	0.1	0.356**	0.116
medical	-0.238	0.191	0.09	0.215
lifeins	-0.107	0.158	-0.136	0.184
dental	-0.064	0.191	0.012	0.232
paidmater	0.144	0.105	0.028	0.136
unpaidmater	0.056	0.131	0.012	0.156
retire	0.302	0.163	0.246	0.191
tuition	0.209	0.109	0.266*	0.135
childcare	0.122	0.164	0.046	0.192
stock	-0.117	0.123	-0.092	0.142
Num. obs.	1166		704	

Data source: NLSY 2017

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$