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Gender Differences in Life Satisfaction

Bachelor thesis

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Abstract

What is happiness? This question has been asked by people throughout the entire existence of mankind. Initially, this problem was considered by philosophers who studied it from different perspectives. To date, identifying the sources of happiness and their dependence on external factors has not lost its relevance. Conversely, it became deeper, since economists have also joined in the study of this issue. A number of new approaches to the analysis of the level of happiness has appeared, and the research results can have a significant impact on the economic and social policy of countries. My thesis concentrates on gender differences in life satisfaction, which is a topic of interest nowadays. Women's rights have highly improved over recent decades. How has it changed female life satisfaction? Has it somehow affected male happiness? These are the questions I consider in my research.

Keywords

Abstrakt

Co je štěstí? Tato otázka byla položena lidmi po celou dobu existence. Zpočátku byl tento problém zvažován filozofy, kteří jej studovali z různých perspektiv. Identifikace zdrojů štěstí a jejich závislosti na vnějších faktorech dosud neztratila svůj význam. Naopak se to prohloubilo, protože ekonomové se také zapojili do studia tohoto problému. Objevila se řada nových přístupů k analýze úrovně štěstí a výsledky výzkumu mohou mít významný dopad na hospodářskou a sociální politiku zemí. Moje práce se zaměřuje na genderové rozdíly v životní spokojenosti, která je dnes předmětem zájmu. Práva žen se v posledních desetiletích velmi zlepšila. Jak to změnilo životní spokojenost žen? Ovlivnilo to nějak mužské štěstí? To jsou otázky, které ve svém výzkumu zvažuji.

Klíčová slova

ekonomie štěstí, spokojenost se životem, subjektivní blahobyt, nerovnost, gender, porovnání

Declaration of Authorship

1. The author hereby declares that he compiled this thesis independently, using only the listed resources and literature.

2. The author hereby declares that all the sources and literature used have been properly cited.

3. The author hereby declares that the thesis has not been used to obtain a different or the same degree.

Prague   Anastasiia Tolnykina

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Bachelor's Thesis Proposal

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Research question and motivation

Is there any difference between female and male level of happiness? How has the gender gap in life satisfaction changed over time?

The economics of happiness is a fast developing field. It is focused on quantitative measurement of people's well-being, often referred measured using questions on life satisfaction, which is treated as a proxy for individuals' utility. My thesis will concentrate on gender differences in these measures, which is a topic of interest nowadays. Women's rights have highly improved over recent decades. How has it changed female life satisfaction? Has it somehow affected male happiness? These are the questions I will consider in my research.

Contribution

Existing research suggests that historically women reported higher levels of subjective well-being than men, however, with the shifts of rights of women the happiness gap has diminished. By the start of the 21st century, women reported happiness levels on par with or lower than those reported by men (Stevenson, Betsey, and Justin Wolfers 2009). There are several studies describing how education, job opportunities and professional status of men and women affect their life satisfaction. These factors originate in gender norms and some social and cultural conditions. For example, a high level of female relative to male happiness is characteristic of countries with a high proportion of Muslims, a low proportion of Catholics, and absence of communist history. A low rate of female non-agricultural employment is also associated with higher female-versus-male happiness and satisfaction (Meisenberg, Gerhard, and Michael A. Woodley 2015).

My thesis will document the evolution of happiness of men and women over time and its dependence on different factors. While existing literature focuses mainly on women's life satisfaction, I will consider male happiness and difference between them as well. Most of the literature on the topic is based on an examination of either the gender gap itself or influence of some separate factors on this gap. I will expand the field of studies by correlating gender differences in well-being to such country-specific characteristics as gender norms, fertility rates, share of household duties performed by men, women labor force participation, etc. to determine what is responsible for changes in the gender gap in happiness. The research can open a prospect for improvement of people's life satisfaction and approach elimination of the gap between female and male happiness.

Methodology

For the empirical research I will use the World Value Survey data for XX countries and YY years (1981-2016) related to level of male and female life satisfaction. First, I will use OLS and ordered models to identify the gender gap in life satisfaction for each country (or group of countries if the number of observations falls too low) and year separately. Next, I will relate the estimated gender gap to measures describing the level of female emancipation, gender norms, and gender equality. If data allows, I will also estimate individual-level determinants of life satisfaction including individual-reported views on gender equality as the explanatory variables.

Outline

1. Introduction
2. Theory and literature review
3. Data
4. Methodology
5. Analysis of the results
6. Conclusion

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Contents

1. Introduction

What is happiness? This question has been asked by people throughout the entire existence of mankind. Initially, this problem was considered by philosophers who studied it from different perspectives. Subsequently, psychologists joined the study of the problem, considering the psychological aspects of achieving the highest level of happiness and well-being. To date, identifying the sources of happiness and their dependence on external factors has not lost its relevance. Conversely, it became deeper, since economists have also joined in the study of this issue. A number of new approaches to the analysis of the level of happiness has appeared, and the research results can have a significant impact on the economic and social policy of countries.

We define happiness as a person's emotional assessment of his own life over a long period of time and his personal moral perception of the events taking place with him. This concept is complementary, but not identical to subjective well-being and life satisfaction (Raibley, 2012). A broader concept is subjective well-being, which is defined as a kind of psychological assessment by people of their lives, containing cognitive and emotional components (Diener et al., 2003). The cognitive component includes satisfaction with life, which depends on the assessment of satisfaction with various spheres of life: family, income, health, work, etc., and the emotional component - the level of happiness - is associated with positive or negative emotions of a person (Myers, Diener, 1995). The level of well-being can also be determined based on objective indicators: GDP per capita, crime rate, income level, etc. (Huppert et al., 2009; Lim, Putnam, 2010). Most researchers consider the level of happiness and satisfaction with life as identical concepts; in the proposed study, the level of happiness and level of satisfaction with life will also be considered synonymous.

This paper will focus on differences in life satisfaction between men and women and its development over time. This decision was made for the reason that there is currently a paucity of literature on gender issues that studies them using longitudinal data and provides data on the development of life satisfaction of men and women over time and on factors that affect it.

The aim of this study is to analyze the relationship between the level of life satisfaction of men and women and various demographic and socio-economic factors and evaluate the differences between them over time.

To achieve this goal, the study sets the following tasks:
1) Consider the theoretical aspects of studying the economics of happiness;
2) On the basis of data from the World Values Survey, determine how demographic and socio-economic factors affect life satisfaction and evaluate gender differences in this process, using the logit model;
3) To study the dynamics of the level of life satisfaction of men and women.

The methodological base is formed by methods of descriptive analysis of statistical data, tabular and graphical methods of data presentation, regression analysis and construction of a logit model. To process the data, the application program Microsoft Excel and the statistical program R are used.

2.   Literature Review

The concept of happiness in the economic context is becoming increasingly popular. This field of research considers economic and other factors that determine human happiness, reveals its dependence on the level of economic development of the country, and searches for parameters to assess the level of happiness of the society as a whole.

For a long time, an objective approach dominated economic science, according to its income in absolute terms was considered as the most adequate indicator of individual or family well-being, and national income (GDP per capita) as an indicator of the country's economic well-being. Over the past few decades, there has been a change in the understanding of the concept of well-being. Today, some economists argue that the well-being of a nation is determined not only by economic well-being, but also by other factors. A new indicator has been introduced: "subjective well-being". Measurements now include a set of evaluation criteria, one of which is economic well-being, determined by the value of GDP per capita. In addition, another measurement criteria are satisfaction with life, tolerance in a particular country, freedom of choice and action, level of religiosity, patriotism, democratization of society and many others.

Although women historically showed higher levels of life satisfaction than men (Blanchflower and Oswald, 2004), women's lives experienced transformation in many countries over the past few decades. The reason of this change is the feminist movement, supported by cultural and technological change. Feminism dates back to the 18th century and since then women have gained some significant rights such as right to vote and right to property. The vindication of the actual equality of women and men started in the 1960s. Feminists criticized the idea that women can only realize themselves in the household and parenting and drew attention to the fact that everyday violence and suppression of women happens not only in politics, but also in the field of domestic relations, work, culture and leisure. The political activity of feminists focused on such issues as equal pay for equal work, childbearing rights, domestic violence, discrimination and sexual violence. In the US and Europe, the feminist movement became widespread. In 1979, the UN adopted the Convention on the Elimination of All Forms of Discrimination against Women.

Feminism entailed many changes in European and the US society, including the right of women to vote in elections, a wide choice of professions with wages more or less comparable to the wages of men of the same profession, the right to file for divorce, the right of women to have control over their own bodies and the right to decide which medical intervention is acceptable for them, as well as many other social changes. This amendment significantly influenced women's lives and therefore life satisfaction. It is logical to assume that subjective well-being of women increased due to these changes, all other things being equal. However, factual research of B. Stevenson and J. Wolfers (2009) showed that women's life satisfaction has fallen both absolutely and relatively to men in the US over the past years. The authors called this observation a 'paradox of declining female happiness'.

According to Stevenson and Wolfers (2009) there might be several explanations of this phenomenon. Firstly, social role of women has changed. When women got an opportunity to work, they didn't give up their housework and therefore got a 'second shift'. It is hard to achieve the same level of satisfaction in several areas of work. Secondly, women may feel more comfortable than before and report more honestly about their life satisfaction. Thirdly, women may now compare themselves to a larger group of people, including men, and therefore probability that they will come short of expectations gets greater. Finally, there might be other factors that have decreased women's life satisfaction. For example, such trends as decreased social cohesion, increased anxiety and neuroticism, and increased household risk have not only reduced well-being in general, but were also likely to have a greater impact on women than men. This is why women's life satisfaction has fallen absolutely and relatively to that of men.

In addition to changes in gender rights, there are several other country-specific factors that have impact on women's and men's life satisfaction. For example, communist history of a country means not only lower subjective well-being for everyone, but this effect is also stronger for women than for men. Similar results were obtained for education and political freedom. Prolonged education has more negative impact on men's than on women's life satisfaction, while political freedom enhances the

subjective well-being of men more than of women (G. Meisenberg, M. A. Woodley, 2015).

As for influence of GDP growth rate on happiness, the research of C. Graham and E. Lora (2009) showed that people are less satisfied in faster growing countries. It was called the 'paradox of unhappy growth'. This trend is reasonable, because many of the changes following after rapid growth, such as inequality and insecurity inflict lower levels of well-being in the short term, since people have to adapt to the transformations (Graham and Lora, 2009).

There are two different points of view on the matter of influence of a country development on its citizens' level of subjective well-being. While S. Vieira Lima's research (2011) shows that in the poorest countries the gap in life satisfaction between men and women is the highest, C. Graham and S. Chattopadhyay (2013) document opposite results. It can be explained by different methodologies chosen by authors of these articles. Vieira Lima uses open-ended questions to measure subjective well-being, while Graham and Chattopadhyay use questions, answering to which people evaluate their lives according to the scale from the worst possible to the best possible life. Meisenberg and Woodley (2015) take Vieira Lima's side. They confirm results of Viera Lima's research and add that greater gender equality doesn't lead to higher life satisfaction of women compared to men and that a society with a higher level of women's employment involves lower level of female well-being.

Factors that influence men's and women's life satisfaction are related not only to country-specific criteria, but also to private choices and interests of people. For example, according to S. Humpert (2013) sport, welfare or parental activities have effect only on women's subjective well-being. A union or a political party membership might even decrease life satisfaction (Humpert, 2013). Graham and Chattopadhyay (2013) have found that married people are happier in rich countries, while non-married are happier in poorer regions. Moreover, married women are more satisfied than married man, especially in high income countries.

3. Data

3.1. Problems of estimation

Before starting to identify the correlation between the level of life satisfaction and various individual and country characteristics, it is necessary to study approaches to assessing subjective well-being and problems connected with them. Is it possible to measure happiness objectively with the help of questionnaires, or we can only get subjective indicators? Is the questionnaire the only measurement method? Do people really have an idea of a certain level of satisfaction with their own life and are their answers to the question an adequate reflection of this idea? Ruut Veenhoven (1991) claims that a vast body of empirical research on these issues provides answers to the questions.

Firstly, he points out that the objective measurement in the social sciences differs from that in the exact sciences, and the measurement of the level of happiness cannot be equivalent to the measurement of temperature. The reason for this lies in the fact that the real perception of life is only partially reflected in the social behavior of a person. Moreover, such attributes of happiness as a joyful appearance are obviously more common among happy people, but can also be recorded in unhappy people. Even body language is not recognized as the most reliable indicator. Therefore, observation is not so reliable as a method of measuring happiness.

Another method is self-assessment of the level of personal happiness by the respondent, expressed in various kinds of answers to questions - both direct and indirect, during anonymous questionnaires or personal interviews. Despite the fact that the validity of this method raised doubts among many scientists, empirical studies have shown that it is quite reliable (Veenhoven, 1991).

Another serious aspect in assessing life satisfaction is its exposure to situational influences - mood, weather, morning news, and so on. This is one of the few serious shortcomings in assessing life satisfaction that has been identified and confirmed in many empirical studies. However, in practice, these biases are leveled for large sample sizes (Strack and Martin, 1987). However, there is a more systematic

measurement error. It is caused directly by the wording of the question, the formats of the answers, and the sequence of topics in the interview. According to the estimates of Andrews and Whitney (1976), this error accounts for up to 50% of the scatter of answers in studies of happiness. There are several reasons for such a high sensitivity of the studied indicator. On the one hand, even a person who has a certain idea of his or her own level of life satisfaction is not always able to correlate it with a ten-point scale, which means that the answers can vary even with a constant level of life satisfaction.

The problem of comparison is also aggravated by the fact of using a scale limited by minimum and maximum values. This aspect is especially pronounced when several respondents choose polar, for example, maximum values, because in reality nothing can be said about the actual ratio of their level of life satisfaction, except that they are all very satisfied.

Nevertheless, most of the problems described above are, in fact, not significant for large sample sizes.

3.2. The data source

In this thesis we are going to use data from the World Values Survey (WVS). The WVS is an international research project that operates for nearly forty years and examines values and attitudes of individuals in almost 100 countries. The World Values Survey is carried out by a network of social scientists and is coordinated by the World Values Survey Association. This project is one of the largest cross-country comparative studies on socio-political attitudes.

In total, during the period 1981-2020, seven waves of the survey were conducted: 1981-1984, 1990-1994, 1995-1998, 1999-2004, 2005-2009, 2010-2014 and 2015-2019. The results of each wave are processed for several years and published in open access on The World Values Survey website and then become a subject of analysis for social scientists all over the world. At the time of the research an outcome of the seventh wave have not been available for research yet. So, for the purpose of this

thesis we will work with data from the sixth wave of the WVS, as with the newest available data.

The World Values Survey's objective is to measure and monitor opinions, attitudes and to analyze them on a wide range of topics. We can divide them into four blocks. The first block of topics is attitudes towards politics, political participation, and the degree of support for democracy. The second block is tolerance towards foreigners and ethnic minorities, national identity, culture, diversity, religion and levels of religiosity. The third block is the attitude towards environment, safety assessment. The fourth block is related to work, family, gender roles and subjective well-being.

3.3. The dependent variable

The pivotal question for this research and the dependent variable is life satisfaction (*LS*). In the World Value Survey's database, we can find it under the variable number A170. In the 6th wave the question about it was formulated as follows:

"All things considered, how satisfied are you with your life as a whole these days? Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely satisfied" where would you put your satisfaction with your life as a whole? (Code one number)"

Apart from the above-mentioned answers, the variable also takes values of
-1: Don't know
-2: No answer
-3: Not applicable
-5: Missing; Unknown

These options do not fit our object of interest and therefore are excluded from the observations.

If we take a closer look to the data from the World Values Survey (Table 2.1), we will see that the average life satisfaction is rather high (6.6 from 10). The first

quantile amounts to 5, the median is 7 and the third quantile totals to the 8th satisfaction level. It implies that circa half of people reports higher than the 7th level of life satisfaction. From the contingency table we know that 18.3% of respondents experience dissatisfaction in life (values from 1 to 4).

Table 2.1: **Descriptive statistics of the variable LS – life satisfaction**

Min.	1st Qu.	Median	Mean	3rd Qu.	Max
1	5	7	6.6	8	10

Contingency table

1	2	3	4	5	6	7	8	9	10
15025	10293	17428	20026	48988	37945	50530	61847	34982	45965

Source of data: The World Values Survey

Figures 2.1 and 2.2 provide information about dynamics of life satisfaction. The graphs show average levels of life satisfaction reported by men and women over a 34-year period – waves 1 to 6. The average satisfaction of both men and women attains the maximum value (7.2 for men and 7.3 for women) during the first wave and then declines rapidly. Initially, in the first wave the level of female life satisfaction is higher than the male's one. In the second wave they lower to the value of 6.9 and get almost equal. Subsequently, the average level of women's satisfaction drops steeper and reaches its minimum at a rate of 6.3 and stays at this level for two waves, while male's life satisfaction, although decreasing flatter, keeps falling until wave 4, gets significantly lower than female's level and reaches its minimum at the value 6.1. These low values might be caused by global crises and depressions of this period, including, for example, Mexican (1994-95), Asian (1997-98), Russian (1998), Turkish (2001) and Argentine (1999-2002) economic crises, bursting of dot-com bubble (2001) and early 2000s recession. Afterwards, both of the indexes increase, equalize and reach their peaks at 6.8.

Gender differences in life satistsfaction over time

Gender differences in life satistsfaction over time

Source of data: the World Values Survey
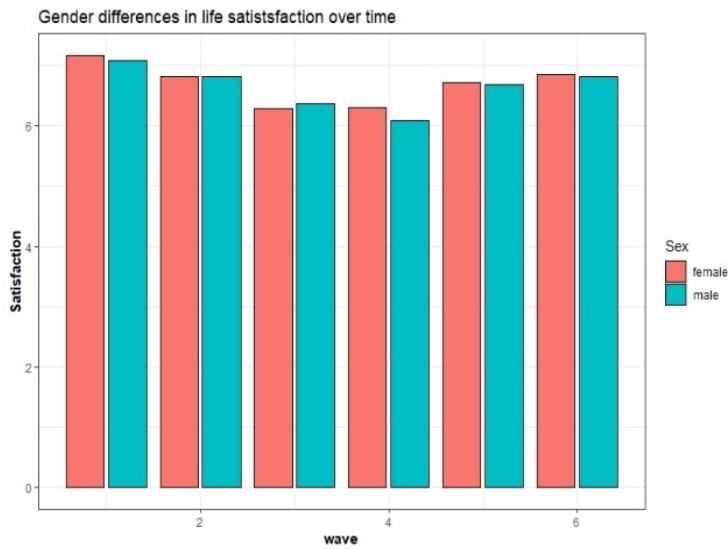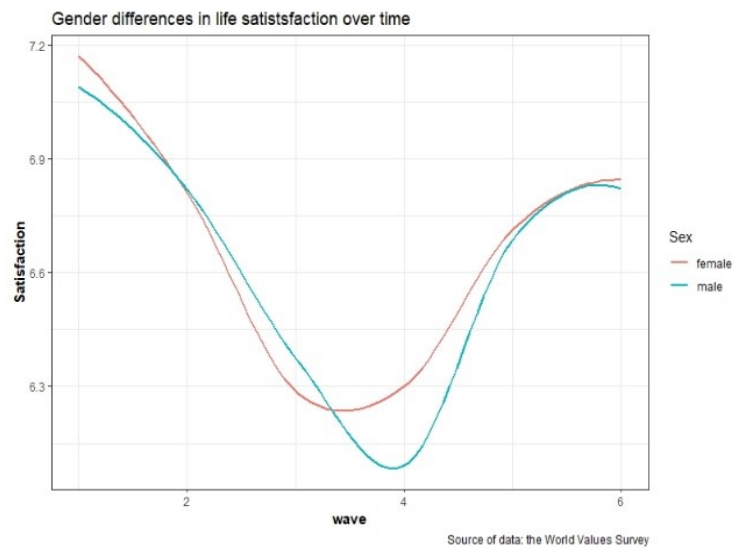
3.4. Testing of the hypothesis on individual level

We will divide the research into two parts. First, we will test if gender difference in life satisfaction is influenced by living and working conditions. The second hypothesis will state that gender difference in life satisfaction is also affected by country-specific factors.

At this stage, we test hypotheses related to the search for variables or factors that influence life satisfaction at the individual level. We will estimate, how demographic conditions such as age, state of health, belief in God, drinking alcohol, marital status, number of children, and socio-economic conditions such as employment, education and income level influence men's and women's life satisfaction for each wave separately. Let us take a closer look at the above-mentioned variables. Their descriptive statistics are presented in Appendix, table A1.

3.4.1.　　Gender

Gender (*male*) is a dummy variable that represents whether a respondent is a woman (0) or a man (1).

3.4.2.　　Age

Age (*age*) is a count variable that represents age of respondents in years and takes values from 13 to 102 in our database. Missing or unsuitable values mentioned earlier (-1 to -5) are excluded from observations. The average age of

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respondents is 41, standard deviation of the variable is 16.13.

Figure 2.3. represents dependence of average life satisfaction on age of a respondent. We can see there a graph of a convex function. Many researchers note a direct quadratic relationship between age and level of life satisfaction: young and old people tend to show higher degree of satisfaction than middle-aged people (Blanchflower and Oswald, 2008). Unfortunately, my data does not allow for a quadratic form of age and therefore I will not include it.

Figure 2.3 shows that life satisfaction in childhood is high and, on average, girls are more satisfied than boys. Subsequently, the life satisfaction falls steeply by the age of 40. The decline in middle ages can be explained by such a factor as a midlife crisis. For men, it reaches a minimum then and later increases again while female life satisfaction keeps decreasing, but more smoothly, by the age of 80 and then rises sharply.

Figure 2.3:
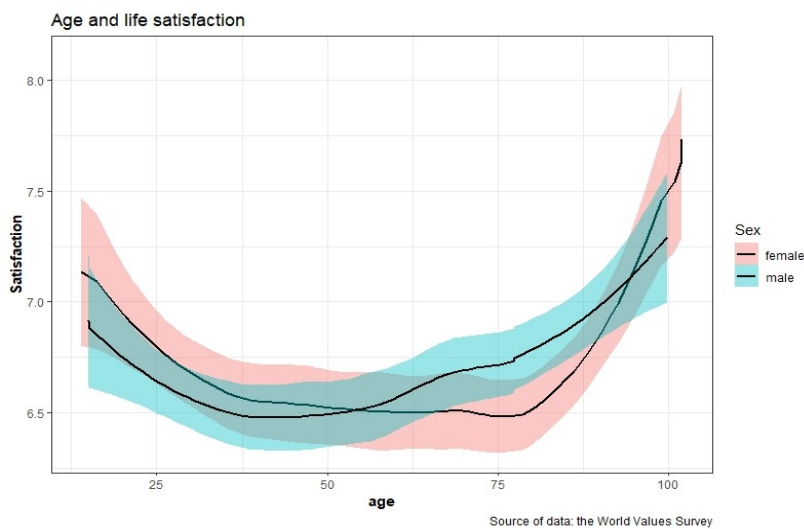
3.4.3. State of health

The question about state of health displays self-assessment of health by a respondent. Answers take values from 1 to 5, where 1 is 'very good' and 5 is 'very poor'. The variable is transformed to a dummy (*health*), representing whether a person considers her or his state of health good (1) or bad (0). The mean value of the variable is 0.9265, standard deviation is 0.26. This implies that 92.65% of respondents consider themselves healthy.

Figure 2.4 shows that the difference between life satisfaction of healthy and unhealthy people is big – the mean of 6.72 for healthy and 4.75 for unhealthy people.

State of health and life satistsfaction

Source of data: the World Values Survey
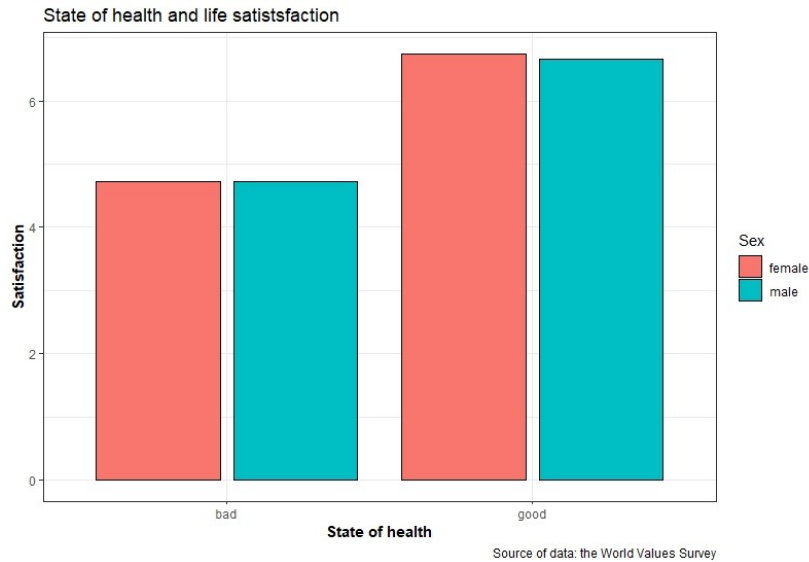
3.4.4. Belief in God

Belief in God (*believer*) is a dummy variable that represents whether a respondent believes in God (1) or not (0). The mean value of the variable is 0.8761, standard deviation is 0.33. This implies that 87.61% of respondents believes in God.

Figure 2.5 shows that the difference between life satisfaction of believers and

Belief in God and life satistsfaction

Source of data: the World Values Survey

13
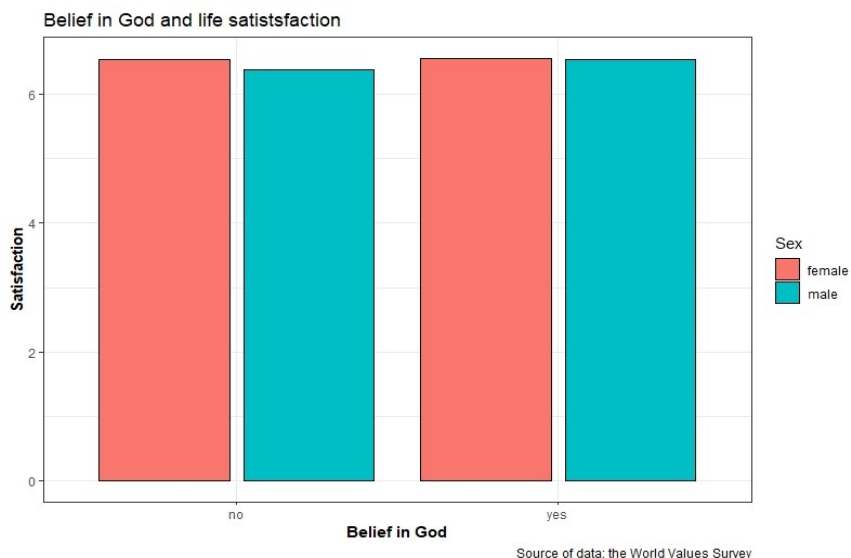
atheists is small – the mean of 6.56 for believers and 6.45 for atheists. Although we have to notice that male-atheists are less satisfied (at the mean value of 6.38) than male-believers (6.54). Moreover, they illustrate lower level of life satisfaction than women that do not believe in God (6.54).

3.4.5. Marital status

The question about marital status (*single, partner*) is transformed to a set of dummy variables that divides people into three categories: single (*single* = 1 and *partner* = 0), married or having a partner (*single* = 0 and *partner* = 1) and divorced or widow (*single* = 0 and *partner* = 0). In total, 25.01% of the respondents are single, 63.87% has a partner or a spouse and the rest are divorced or widowed.

Figure 2.6 shows that single people are less satisfied with life (6.61) than those with partners (6.67), but more satisfied than widowed or divorced (6.01). In addition, women are more satisfied with being single or having a partner than men, but less satisfied with being divorced or widowed.

Figure 2.6:

Source of data: the World Values Survey
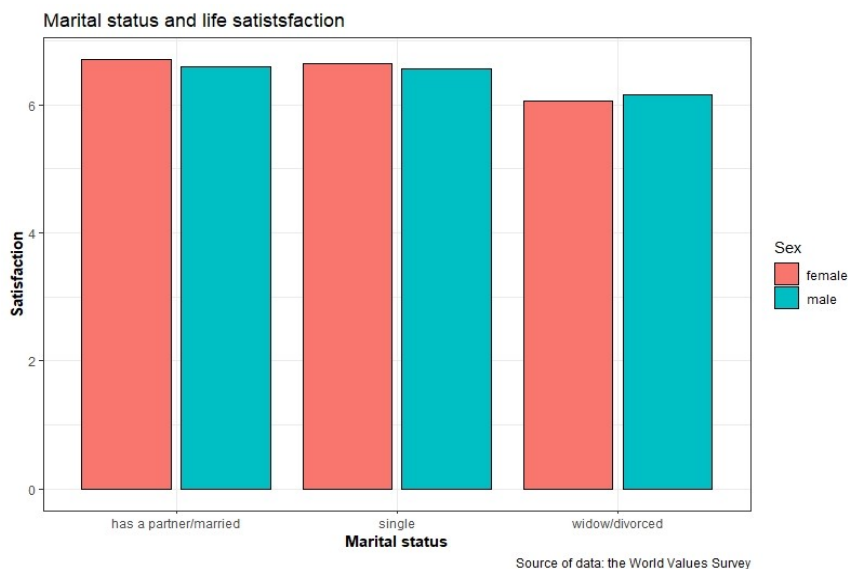
3.4.6. Number of children

Number of children (*children*) is a censored count variable that represents number of children of a respondent and takes values from 0 to 8, where 8 stands

for eight or more children. The average number of children of respondents is 2, standard deviation of the variable is 1.83.

Figures 2.7 and 2.8 represent dependence of average life satisfaction on number of children of a respondent. The average satisfaction of women attains the maximum value (6.69) for those who do not have children. Men's life satisfaction in that case is lower (6.59), but the graph also reaches a peak. Such a high rate might be caused by both tender age when most people do not have kids and have higher life satisfaction (as we have mentioned before) and financial and private freedom, absence of liability of parenting. Having one child drops life satisfaction and it stays at almost the same level for the second child. Afterwards, both of the indexes increase and reach their peaks (6.61 for men, which is maximum value for them, and 6.62 for women) for the third child. Then with increasing of the number of children decreases life satisfaction. For men the relationship between them is almost linear, while for women having eight or more children cause a rise of satisfaction again. The decline in satisfaction after the third child is caused by potential financial problems of the family and responsibility to work harder to make more money. Since in most of the families nowadays it is traditional for women to take care of children and for men to earn money, especially for large families, the part of the graphs after the 5th child differs considerably for men and women.

Figure 2.7:

Figure 2.8:

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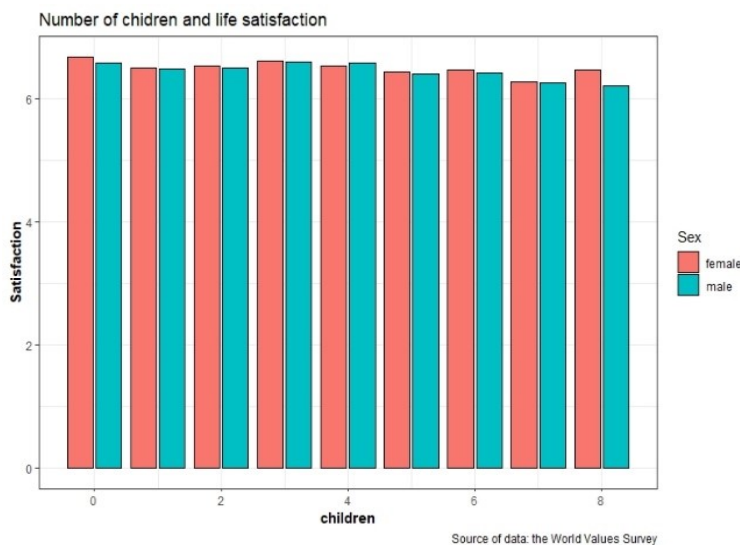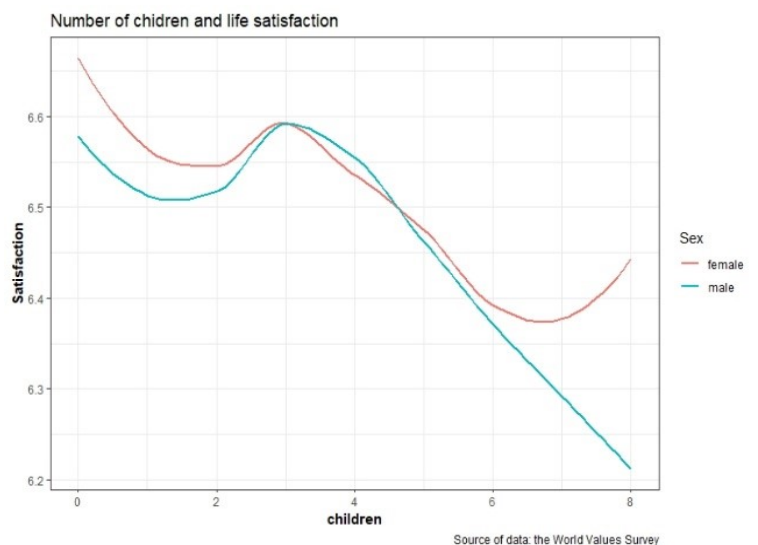
3.4.7.   Employment

The question about employment is transformed to a dummy variable (*employed*) that represents whether a respondent is employed (1) or not (0). The mean value of the variable is 0.5491, standard deviation is 0.50. This implies that 54.91% of respondents are employed.

Figure 2.9 shows that the difference between life satisfaction of employed and unemployed people is remarkable – the mean of 6.72 for employed and 6.49 for unemployed people.

Figure 2.9:
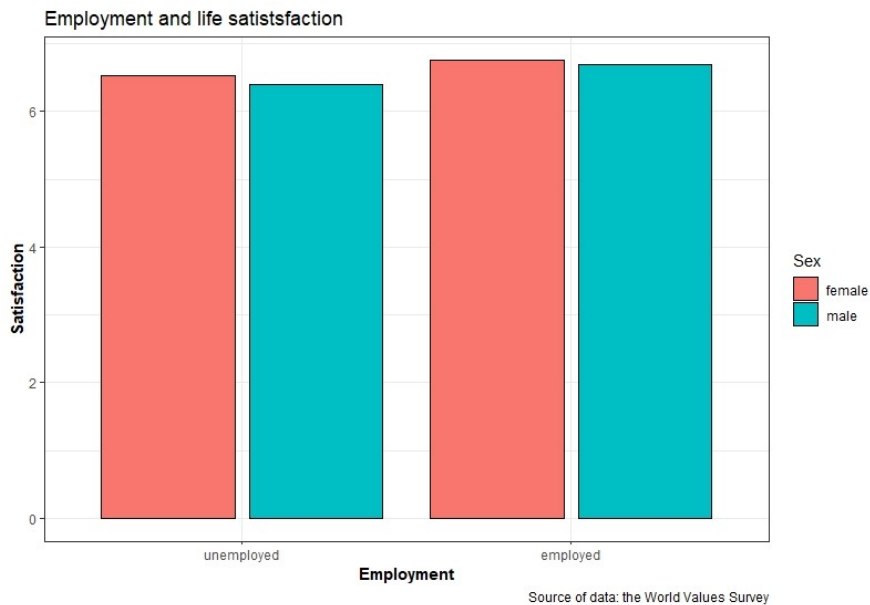
3.4.8.   Education

The question about education displays the highest education level attained by a respondent. Answers take values from 1 to 8, where 1 is 'inadequately completed elementary education', 2 is 'completed (compulsory) elementary education', 3 is 'incomplete secondary school: technical/vocational type/(compulsory) elementary education and basic vocational qualification', 4 is 'complete secondary school: technical/vocational type/secondary, intermediate vocational qualification', 5 is 'incomplete secondary: university-preparatory type/secondary, intermediate general qualification', 6 is 'complete secondary: university-preparatory type/full secondary, maturity level certificate', 7 is 'some university without degree/higher education - lower-level tertiary certificate' and

8 is 'university with degree/higher education - upper-level tertiary certificate'. The variable is transformed to a set of dummy variables (*educ1, educ2*) that divides people into three categories: with elementary education (for answers 1, 2 and 3; *educ1 = 1, educ2 = 0*), secondary education (for answers 4, 5 and 6; *educ1 = 0, educ2 = 1*) and higher education (for answers 7 and 8; *educ1 = 0, educ2 = 0*). In total, 30.56% of the respondents has elementary education, 45.48% has secondary education and the rest has higher education.

Figure 2.10 shows that people with secondary education are less satisfied with life (6.58) than those with higher education (6.97), but more satisfied than the ones with elementary education (6.41).

Figure 2.10:
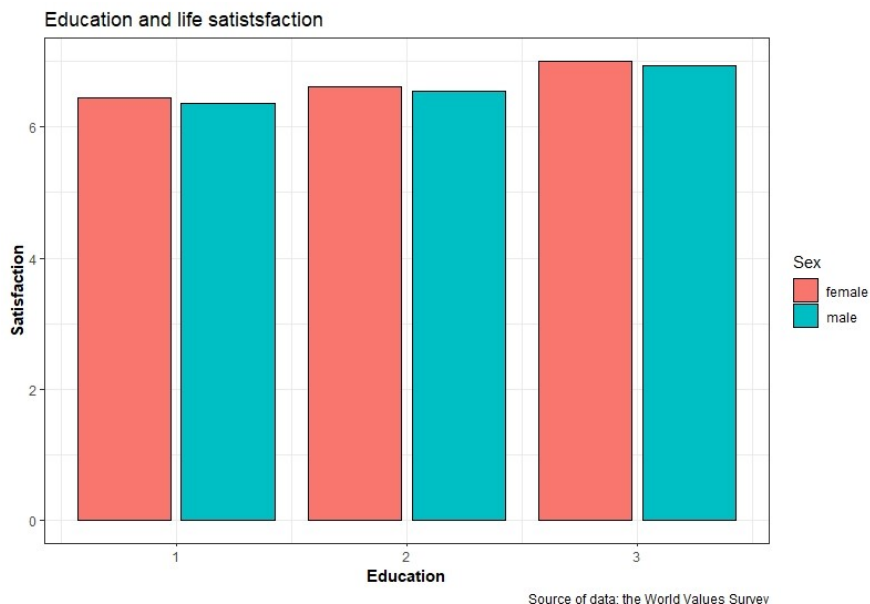
3.4.9.   Income level

Income level (*income*) is an ordinal variable that takes values from 1 to 10 and represents self-reported position of a resident on a ten-step ladder, where on the first step (1) stand the poorest 10% of people in the country and on the highest step (10) stand the richest 10% of people in the country. The average income level of respondents is 4.62, standard deviation of the variable is 2.33.

Figure 2.11 represents dependence of average life satisfaction on self-reported level of income of a respondent. The average satisfaction attains the minimum

value (5.72) on the first step of the ladder and the maximum value (7.78) on the last step. The relationship is linear and the function increase steadily.

Figure 2.11:
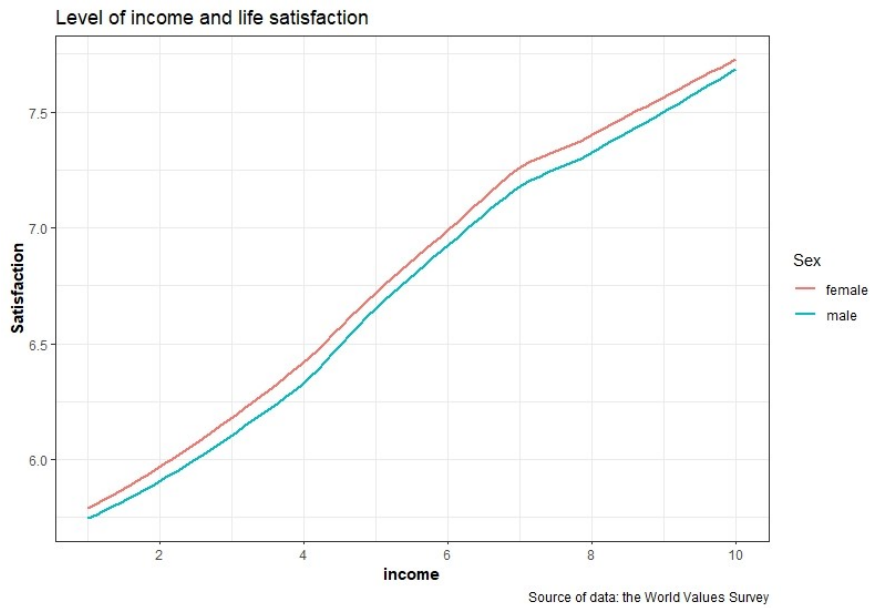
3.5. **Testing of the hypothesis on regional level**

The second step that we will make is estimating influence of country-specific factors on life satisfaction. Here we will detect the deeper reasoning for difference in subjective well-being between men and women. We will also learn, how state of mind and conventional wisdom in different countries affect life satisfaction of their citizens. We will mainly focus on people's opinion on rights and duties of men and women.

In order to do that we will include in the model dummy variables that are represented as statements about this opinion with responses 'agree' or 'disagree'. There are also some statements that involve larger selections of answers, for example, 'agree strongly', 'agree', 'disagree' and 'disagree strongly', we will transform them into ordinal factor variables. The list of the statements of interest follows. Their description and statistical values are presented in Appendix, tables A2 and A3.

3.5.1. When jobs are scarce, men should have more right to a job than women (*G_job*)

The question was asked in the waves 2 to 6. It is transformed to a dummy variable that represents whether agrees with the statement (1) or not (0). The mean value of the variable is 0.4813, standard deviation is 0.50. This implies that 48.13% of respondents (or 41.61% of women and 55.25% of men) thinks that when jobs are scarce, men should have more right to a job than women.

3.5.2. If a woman earns more money than her husband, it's almost certain to cause problems (*G_wage*)

The question was asked in the waves 3 and 6. It is transformed to a dummy variable that represents whether agrees with the statement (1) or not (0). The mean value of the variable is 0.5025, standard deviation is 0.50. This implies that 50.25% of respondents (or 49.30% of women and 51.26% of men) thinks that if a woman earns more money than her husband, it's almost certain to cause problems.

3.5.3. On the whole, men make better political leaders than women do (*G_politic*)

The question was asked in the waves 3 to 6. It is transformed to an ordinal factor variable that takes values from 1 (agree strongly) to 4 (disagree strongly). The mean value of the variable is 2.40, standard deviation is 0.92. It means that people tend to disagree with the statement. Women report less agreement with it.

3.5.4. University is more important for a boy than for a girl (*G_uni*)

The question was asked in the waves 3 to 6. It is transformed to an ordinal factor variable that takes values from 1 (agree strongly) to 4 (disagree strongly). The mean value of the variable is 2.96, standard deviation is 0.92. It means that people tend to disagree with the statement. Women report less agreement with it.

3.5.5. Having a job is the best way for a woman to be an independent person (*G_indep*)

The question was asked in the waves 2 and 6. It is transformed to a dummy variable that represents whether agrees with the statement (1) or not (0). The mean value of the variable is 0.6974, standard deviation is 0.46. This implies that 69.74% of respondents (or 74.18% of women and 64.63% of men) thinks that having a job is the best way for a woman to be an independent person.

4. Methodology

4.1. Model

4.1.1. Base model

Our research assumes the use of independently pooled cross-sectional data. These are cross-sections drawn from the same population independently each year and therefore we will not meet a problem with serial correlation of residuals. A classical regression model for this type of data looks like this:

$$y_{it} = \beta_0 + \beta_1 x_{1it} + \cdots + \beta_k x_{kit} + u_{it} \qquad u_{it} \sim N(0, \sigma^2)$$
$$i = 1,2, \ldots, N, t = 1,2, \ldots, T, k = 1,2, \ldots, n$$

We will divide the research into two parts. Firstly, we will estimate the model on a demographic level, in order to evaluate control variables, described in the chapter 2.4. The cross-sections will be taken separately for each wave. The regression model is as follows:

$$LS_i = \beta_0 + \beta_1 male_i + \beta_2 age_i + \beta_3 age_{sq_i} + \beta_4 health_i + \beta_5 believer_i + \beta_6 single_i$$
$$+ \beta_7 partner_i + \beta_8 children_i + \beta_9 employed_i + \beta_{10} educ1_i$$
$$+ \beta_{11} educ2_i + \beta_{12} income_i + u_i,$$

The objective of the second part is to evaluate the dependence of gender differences in life satisfaction on socio-economic factors, using country-specific variables, stated at the chapter 2.5. In order to do that we will add them into the model.

$$LS_i = \beta_0 + \beta_1 male_i + \beta_2 age_i + \beta_3 age_{sq_i} + \beta_4 health_i + \beta_5 believer_i + \beta_6 single_i$$
$$+ \beta_7 partner_i + \beta_8 children_i + \beta_9 employed_i + \beta_{10} educ1_i$$
$$+ \beta_{11} educ2_i + \beta_{12} income_i + \beta_{13} G_{job_i} + \beta_{14} G_{wage_i} + \beta_{15} G_{politic_i}$$
$$+ \beta_{16} G_{uni_i} + \beta_{17} G_{indep_i} + u_i,$$

4.1.2. Logit model

In order to build the right model we need to pay attention to the fact that dependent variable is ordinal, that makes the application of the linear regression model incorrect. For the analysis of variables of this type it will be possible to use the ordered logit model. Despite the apparent similarity between the models underlying the linear and logistic regression, we cannot use the linear regression equation in situations where the dependent variable is a factor. One of the conditions required to perform linear regression analysis is the presence of a linear relationship between the dependent and

independent variables. If the dependent variable is a factor, this condition cannot initially be met. This is what underlies the difference between linear and logistic equations: the latter is a logistic transformation of the former. In other words, the logistic regression equation is a linear regression equation on a logarithmic scale. Logarithmic transformation allows expressing non-linear relationships in a linear form.

Before proceeding to the implementation of the selected method, we will briefly present the theoretical aspects of constructing this model.

Let for an arbitrary ordinal random variable Y varying in the interval from 1 to J, the following inequality holds:

$$P(Y \leq 1) \leq P(Y \leq 2) \leq \cdots \leq P(Y \leq J)$$

The inequality determines the process of accumulating probability:

$$P(Y \leq j) = \pi_1 + \cdots + \pi_j, \qquad j = 1, \dots, J$$

Then the cumulative logit will look like:

$$logit[P(Y \leq j)] = \log \frac{P(Y \leq j)}{P(Y > j)} = \log \left[\frac{\pi_1 + \cdots + \pi_j}{\pi_{j+1} + \cdots + \pi_J} \right] = \beta_0 + x\beta, \qquad j = 1, \dots, J$$

4.2. Econometric problems

4.2.1. Reliability and validity

Econometric estimates of the parameters of the presented model can be biased for a number of obvious reasons. Inaccuracy in the values of regressors are very likely (variables represent respondents' answers to the questionnaire questions, which are not always objective). This fact can be explained by several reasons. First, when answering the question about the level of satisfaction, each individual represents and understands the answer in his own way. Accordingly, the answers received by the interviewer can be interpreted and understood in different ways due to the subjective nature of the topic of happiness in principle. In addition, differences in responses and research systems may be related to cultural and mental differences in the countries in which the research is conducted. This means that the population of one country can emotionally approach the answer to the question posed, while others, due to their mentality,

are more restrained, that will affect the presented answer. Since the model is multiple regression, the direction of the resulting bias for an individual parameter is ambiguous. Even an order of questions in a questionnaire may have an impact on answers. In order to minimize the bias in the dependent variable, the question about satisfaction with life must be asked in the beginning of the survey so that not to shift opinions of respondents (Paul and Ranzani, 2008).

4.2.2. Missing observations

In the research we deal with longitudinal data, which includes six waves of survey conducting within 34 years. Although there is a set of fundamental questions that were asked in every wave, most of the questions varies. It is no wonder that some of them were asked in one wave and were not in another. In addition, the surveys were not conducted in the identical countries each wave. Moreover, respondents were allowed to report that they do not know an answer to a question or refuse to answer at all. That is why a lot of missing observations presents in the dataset. We will exclude them from the dataset and assume them to be random and not causing any bias.

4.2.3. Endogeneity

Almost all regressors in empirical models are endogenous in a varying degree. Strong correlation of one of the regressors in multiple regression can cause a noticeable bias in parameter estimates in the opposite direction for other regressors. In the presented model this primarily relates to income and state of health. For example, a person with good health is more likely to be more satisfied with his or her life, but also happy people tend to be healthier. The same applies to the level of income.

4.2.4. Heterogeneity

Estimates may be inconsistent due to the presence of unobservable individual effects. The reason for the biases in the estimates can be described as follows. From the composite error v_{it}, one can select an unobservable individual effect α_i that is invariant in time for any i-th individual. If the values of the regressors

correlate with this component, there is a bias in parameter estimates in cases where the estimation method does not take into account this phenomenon. In our case the problem is eliminated due to the fact that the samples are very big and make independently pooled cross-sections.

5. Results

5.1. Individual level

In this part of the research we will evaluate the logit model for each wave of the survey (Table A4). We will also estimate the model for men and women separately. The results for females are presented in the Table A5, for males – in the Table A6. The model is based on demographic explanatory variables such as age, state of health, marital status, number of children, employment status and level of income for all countries. We do not use the variables belief in God and education here, because the questions that compose them do not present in each wave of the survey. A lot of observations were deleted due to missingness. Numbers of observations vary from wave to wave.

5.1.1. Gender

First, we consider the gender dummy variable *male* from the table A4 with general estimation. It turns out to be significant at the 5% significance level in each wave of the survey, except of the wave 2. The reason of insignificance might be that average life satisfaction of men and women equalized within this wave, as we have seen in descriptive statistics of the variable, and therefore gender did not affect life satisfaction much. Since coefficients for each wave are negatively correlated with the dependent variable, we can conclude that women are on average more satisfied with their lives than men.

5.1.2. Age

The regressor *age* turned out to be significant at the 5% significance level in almost every wave of general, male and female estimation. It appears to be insignificant only in the third wave of male estimation. The variable is also

positively correlated with life satisfaction for all the waves, except of the third one for women, and therefore on average life satisfaction grows with age of people, but it was decreasing in the third wave for women. It would be interesting to look also at the variable age squared, but, unfortunately, the data did not allow for the quadratic form of age.

5.1.3. State of health

Good health appears to be significant at the 1% significance level in each wave for both genders and is positively correlated with life satisfaction as expected. We can conclude that good health makes life satisfaction to increase for both men and women in every wave.

5.1.4. Marital status

Now let us consider marital status. It contains three possible values – being single, having a partner or a spouse and being divorced or widowed and consists of two dummy variables: *single* and *partner* in order not to cause the dummy variable trap. We can notice an unexpected result here – the variable *single* turned out to be insignificant in the first wave for both genders and also in the second wave for women. It is significant at the 10% and 5% significance level for the males' wave 4 and 5. The regressor *partner* turns out to be insignificant for men in the wave 4 and is significant only at the 10% level in the first wave. However, it can be seen that in other waves both being single or having a partner significantly (at the 1% significance level) increase the likelihood that a person will be satisfied with life, while being widowed or divorced decrease it. This can be explained by the fact that it is often hard to remain alone and cope with various aspects of life without a partner. We can also conclude that men are more indifferent to having a partner than women.

5.1.5. Number of children

The regressor *children* acts ambiguously. Let us take a closer look at each wave:

Wave 1: it is significant at the 10% significance level for general and female model and **positively** correlate with life satisfaction, but is insignificant for the male estimation.

Wave 2: the regressor is significant at the 10% significance level for female model and is **negatively** correlated with life satisfaction, but is insignificant for the male and general estimation.

Wave 3: the variable is significant at the 1% significance level for all models and is **positively** correlated with life satisfaction.

Wave 4 and 5: the regressor is significant at the 1% significance level for all models and is **negatively** correlated with life satisfaction.

Wave 6: the variable is significant at the 5% significance level and is **positively** correlated with life satisfaction.

We can conclude that for women in some periods of time an increase in the number of children leads to a growth in satisfaction, but in others it engenders a decline. For men, it also may cause either an increase or a decrease in life satisfaction or not affect it significantly at all. This ambiguous behavior of the variable can be explained by the Figure 2.8 that represents that the dependence of life satisfaction on number of children is not linear and, for example, with changes in the average number of children from wave to wave the relationship between life satisfaction and number of children may be also changed.

5.1.6. Employment status

The variable *employed* is insignificant in the first and sixth wave generally and for women and in the third and sixth wave for men. There is a negative correlation between life satisfaction and being employed in the first wave for men, in the second and third wave for women and generally. From the fourth wave it became positive for all the models. This implies that previously employed people tended to be less satisfied with their lives than unemployed. Now it works in the opposite way.

5.1.7.　　Income level

Income level (*income*) is an ordinal factor variable that represents self-reported position of a resident on a ten-step ladder, where on the first step (1) stand the poorest 10% of people in the country and on the highest step (10) stand the richest 10% of people in the country. Since it is a factor, we will get nine dummy variables in the models, nearly half of which are insignificant in every wave. The observations from all the waves proves that the relationship between self-reported income and life satisfaction is not linear. Some variables have negative correlation with the dependent variable every wave. We can see that averagely the fastest growth of satisfaction causes the move from the lowest step of the ladder to the second one. Moreover, this growth increases over time.

5.2.　Socio-economic level

We will take the values only for the sixth wave due to lack of observations in other waves. The chosen questions were not asked in every wave and therefore it is impossible to make a model with all waves. The estimation of the logit model is presented in Appendix, table A7.

We can see that the variable G_job is significant at the 1% significance level and negatively correlated with life satisfaction. This implies that people who think that when jobs are scarce, men should have more right to a job than women are less likely to be satisfied with their lives, especially it concerns to men, because they have a lower coefficient.

The regressor G_job is also significant at the 1% significance level and is positively correlated with life satisfaction. This implies that people who think that if a woman earns more money than her husband, it's almost certain to cause problems are more likely to be satisfied.

The regressor G_politic is an ordinal factor variable with values from 1 (strongly agree) to 4 (strongly disagree). It is divided into three dummies, from which only one is significant. It is positively correlated with life satisfaction.

The regressor G_uni is also an ordinal factor variable with values from 1 (strongly agree) to 4 (strongly disagree). It is divided into three dummies, from which two are significant. The first of them is positively correlated with life satisfaction, while the second is correlated negatively.

The variable G_indep is significant at the 1% significance level and positively correlated with life satisfaction. This implies that people who think that having a job is the best way for a woman to be an independent person are more likely to be satisfied with their lives, especially it concerns to men, because they have a higher coefficient.

To sum up, there is a difference in the opinions of men and women to these questions, but it is not very big and the average answers are not noticeable.

6.   Conclusion

In this thesis we analyzed the relationship between the level of life satisfaction of men and women and various demographic and socio-economic factors and evaluated the differences between them over time. In order to do that we used longitudinal data from the World Values Survey. Firstly, we considered the theoretical aspects of studying the economics of happiness and life satisfaction. Then we transformed the variables from the dataset to a proper condition and conducted descriptive analysis for every variable. Afterwards we built two logit models.

The first one was developed in order to estimate the impact of demographic variables on life satisfaction of men and women over time. As a result, we found out that gender was insignificant in the second wave of the survey, because men and women reported the same average value of satisfaction then. We also learned that age and life satisfaction are positively correlated. This implies that on average when a person gets older, he or she becomes more satisfied with the life. The other fact that we found out is that being single or having a partner or a spouse increase the likelihood of being satisfied with life while being widowed or divorced decrease it. In addition, employed people used to tend to be less satisfied with their lives than unemployed until the fourth wave. Now it works in the opposite way. Moreover, we learned about self-reported income that the fastest growth of satisfaction causes the move from the lowest step of the income ladder to the second one and this growth increases over time (from the first wave to the sixth).

As for the second model with socio-economic factors, we can conclude that there is no big difference in opinions of men and women and that people with more feministic sights are more likely to be satisfied with their lives. Moreover, women on average have more feministic opinions.

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Appendices

A1: Descriptive statistics of variables – demographic level

	mean	stand.dev.	female mean	female stand.dev.	male mean	male stand.dev.
life satisfaction	6,59881	2,44549	6,60347	2,45964	6,56849	2,436631
male	0,48241	0,49969	0	0	1	0
age	40,7198	16,1348	40,8656	16,1385	40,7101	16,14059
age squared	1918,43	1487,05	1930,45	1494,4	1917,83	1483,132
health	0,92646	0,26103	0,91617	0,27714	0,93714	0,24271
believer	0,87614	0,32942	0,89912	0,30117	0,8481	0,358927
single	0,25081	0,43348	0,21549	0,41116	0,2859	0,451842
partner	0,63846	0,48045	0,62897	0,48308	0,65047	0,476823
children	1,91502	1,82998	2,00712	1,80059	1,82294	1,855918
employed	0,54913	0,49758	0,42931	0,49498	0,67848	0,467062
elementary education	0,3056	0,46066	0,3181	0,46574	0,29245	0,454887
secondary education	0,4548	0,49795	0,45537	0,49801	0,45435	0,497913
income	4,61954	2,33695	4,52786	2,33209	4,70958	2,339088

Source of data: the World Values Survey

A2: Description of country-specific variables

variable	values	waves	statement
G_job	1 or 0	2 to 6	When jobs are scarce, men should have more right to a job than women
G_wage	1 or 0	3 and 6	If a woman earns more money than her husband, it's almost certain to cause problems
G_politic	1 to 4	3 to 6	On the whole, men make better political leaders than women do
G_uni	1 to 4	3 to 6	University is more important for a boy than for a girl
G_indep	1 or 0	2 and 6	Having a job is the best way for a woman to be an independent person

Source of data: the World Values Survey

A3: Descriptive statistics of variables – socio-economic level

	mean	stand.dev.	female mean	female stand.dev.	male mean	male stand.dev.
G_job	0,48133	0,49965	0,41609	0,49291	0,5522	0,49727
G_wage	0,50248	0,5	0,49296	0,49995	0,5126	0,49985
G_politic	2,4	0,92361	2,4462	0,92919	2,35096	0,91495
G_income	1,7843	0,75604	1,73113	0,73092	1,83996	0,77762
G_uni	2,96226	0,92143	3,06925	0,8923	2,84749	0,9382
G_indep	0,69739	0,45939	0,74183	0,43763	0,64626	0,47814

Source of data: the World Values Survey

A4: Individual level logit model

	wave 1		wave 2		wave 3		wave 4		wave 5		wave 6	
	Value	p value	Value	p value	Value	p value	Value	p value	Value	p value	Value	p value
male	-0,1403	0,0120	-0,0180	0,5196	-0,0325	0,0360	-0,2221	0,0000	-0,1190	0,0000	-0,0803	0,0000
age	0,0068	0,0006	0,0087	0,0000	-0,0014	0,0233	0,0072	0,0000	0,0098	0,0000	0,0047	0,0000
good health	1,0611	0,0000	1,2589	0,0000	1,3505	0,0000	1,0060	0,0000	1,5048	0,0000	1,4486	0,0000
single	-0,1860	0,1088	0,2331	0,0001	0,4425	0,0000	0,1300	0,0007	0,1941	0,0000	0,2823	0,0000
partner	0,2924	0,0009	0,3249	0,0000	0,2437	0,0000	0,0814	0,0103	0,2357	0,0000	0,3322	0,0000
children	0,0481	0,0229	0,0007	0,9458	0,0952	0,0000	-0,0228	0,0000	-0,0428	0,0000	0,0141	0,0012
employed	-0,0916	0,1314	-0,0840	0,0046	-0,0812	0,0000	0,0596	0,0007	0,0592	0,0001	0,0064	0,6260
income.1	0,4241	0,0000	0,4701	0,0000	1,1565	0,0000	1,5074	0,0000	1,5974	0,0000	2,1445	0,0000
income.2	0,0625	0,4608	0,0604	0,2947	-0,0991	0,0002	0,0851	0,0138	0,1442	0,0000	0,5175	0,0000
income.3	0,0656	0,4634	-0,1388	0,0105	0,2039	0,0000	-0,1109	0,0008	-0,1315	0,0000	-0,0187	0,5532
income.4	-0,0323	0,7207	-0,0021	0,9694	0,0524	0,0443	0,0498	0,1157	-0,0278	0,3127	0,1688	0,0000
income.5	0,2907	0,0018	-0,1097	0,0424	0,0656	0,0110	0,0393	0,1933	0,1403	0,0000	0,0127	0,6715
income.6	-0,2354	0,0117	-0,0815	0,1034	-0,0133	0,5973	-0,0294	0,3023	0,0019	0,9422	-0,0004	0,9890
income.7	-0,1439	0,1229	-0,0032	0,9432	0,1142	0,0000	0,0503	0,0594	0,0411	0,0736	0,0598	0,0069
income.8	0,0492	0,5947	-0,0543	0,1838	-0,0856	0,0003	-0,0212	0,3931	0,0069	0,7385	-0,0194	0,2962
income.9	0,0917	0,2865	0,0743	0,0555	0,2013	0,0000	0,0564	0,0137	-0,0153	0,3995	0,0014	0,9295
Intercepts:												
1|2	-3,3003	0,0000	-1,7767	0,0000	-1,4761	0,0000	-1,8025	0,0000	-1,7358	0,0000	-1,9895	0,0000
2|3	-2,6023	0,0000	-1,3110	0,0000	-0,9164	0,0000	-1,0864	0,0000	-1,1501	0,0000	-1,4436	0,0000
3|4	-1,8372	0,0000	-0,6762	0,0000	-0,2447	0,0000	-0,5438	0,0000	-0,4715	0,0000	-0,8133	0,0000
4|5	-1,1633	0,0000	-0,1830	0,0428	0,2456	0,0000	-0,1433	0,0143	0,0605	0,1894	-0,2774	0,0000
5|6	-0,3363	0,0594	0,7297	0,0000	1,0119	0,0000	0,7003	0,0000	0,9084	0,0000	0,5971	0,0000
6|7	0,3083	0,0826	1,2479	0,0000	1,4468	0,0000	1,1604	0,0000	1,4660	0,0000	1,1851	0,0000
7|8	1,0623	0,0000	1,8164	0,0000	1,9811	0,0000	1,7071	0,0000	2,1769	0,0000	1,9255	0,0000
8|9	2,1636	0,0000	2,6653	0,0000	2,8002	0,0000	2,3839	0,0000	3,1809	0,0000	2,8906	0,0000
9|10	3,2288	0,0000	3,2905	0,0000	3,4972	0,0000	3,1033	0,0000	3,9425	0,0000	3,6070	0,0000

Source of data: The World Values Survey

A5: Individual level logit model - female

	wave 1		wave 2		wave 3		wave 4		wave 5		wave 6	
	Value	p value	Value	p value	Value	p value	Value	p value	Value	p value	Value	p value
age	0,0050	0,0640	0,0077	0,0000	-0,0029	0,0005	0,0074	0,0000	0,0092	0,0000	0,0053	0,0000
good health	1,0740	0,0000	1,2576	0,0000	1,3334	0,0000	1,0889	0,0000	1,5199	0,0000	1,4582	0,0000
single	-0,1441	0,3400	0,1280	0,1053	0,3957	0,0000	0,1380	0,0055	0,2380	0,0000	0,2902	0,0000
partner	0,2902	0,0069	0,2970	0,0000	0,2493	0,0000	0,1025	0,0082	0,2778	0,0000	0,3484	0,0000
children	0,0496	0,0805	-0,0244	0,0845	0,0944	0,0000	-0,0194	0,0034	-0,0389	0,0000	0,0144	0,0140
employed	0,0588	0,4511	-0,2253	0,0000	-0,1421	0,0000	0,0604	0,0122	0,0697	0,0004	0,0013	0,9386
income.1	0,1894	0,1328	0,5790	0,0000	1,1215	0,0000	1,3728	0,0000	1,5513	0,0000	2,1352	0,0000
income.2	0,0268	0,8175	-0,0429	0,6063	-0,1041	0,0059	0,0796	0,1016	0,1606	0,0001	0,5519	0,0000
income.3	0,1401	0,2479	-0,1881	0,0165	0,1833	0,0000	-0,1266	0,0064	-0,1655	0,0000	-0,0158	0,7224
income.4	0,0422	0,7347	-0,0401	0,6125	0,0274	0,4594	0,0424	0,3470	-0,0464	0,2344	0,1639	0,0002
income.5	0,2710	0,0346	-0,1103	0,1564	0,0565	0,1234	0,0391	0,3691	0,1192	0,0021	0,0108	0,7972
income.6	-0,2226	0,0836	-0,0338	0,6393	0,0121	0,7340	-0,0173	0,6719	-0,0006	0,9860	-0,0292	0,4325
income.7	-0,0502	0,6942	0,0413	0,5222	0,1166	0,0007	0,0764	0,0434	0,0335	0,2983	0,0255	0,4110
income.8	0,2178	0,0835	-0,0681	0,2438	-0,0718	0,0306	-0,0371	0,2935	-0,0028	0,9236	-0,0392	0,1306
income.9	-0,0904	0,4543	0,1211	0,0278	0,1935	0,0000	0,0810	0,0128	-0,0273	0,2827	-0,0123	0,5690
Intercepts:												
1|2	-3,4779	0,0000	-1,9808	0,0000	-1,5466	0,0000	-1,6921	0,0000	-1,7386	0,0000	-1,8950	0,0000
2|3	-2,6602	0,0000	-1,5155	0,0000	-0,9839	0,0000	-0,9529	0,0000	-1,1433	0,0000	-1,3831	0,0000
3|4	-1,7746	0,0000	-0,8981	0,0000	-0,3260	0,0000	-0,4104	0,0000	-0,4597	0,0000	-0,7650	0,0000
4|5	-1,1342	0,0000	-0,3996	0,0011	0,1495	0,0218	-0,0115	0,8835	0,0919	0,1338	-0,2353	0,0000
5|6	-0,2158	0,3642	0,5375	0,0000	0,9248	0,0000	0,8307	0,0000	0,9628	0,0000	0,6464	0,0000
6|7	0,4063	0,0865	1,0611	0,0000	1,3524	0,0000	1,2908	0,0000	1,5218	0,0000	1,2313	0,0000
7|8	1,1073	0,0000	1,6022	0,0000	1,8514	0,0000	1,8152	0,0000	2,2178	0,0000	1,9570	0,0000
8|9	2,1146	0,0000	2,4462	0,0000	2,6449	0,0000	2,4906	0,0000	3,1954	0,0000	2,9182	0,0000
9|10	3,2194	0,0000	3,0962	0,0000	3,3449	0,0000	3,1955	0,0000	3,9616	0,0000	3,6478	0,0000

Source of data: The World Values Survey

A6: Individual level logit model - male

	wave 1		wave 2		wave 3		wave 4		wave 5		wave 6	
	Value	p value	Value	p value	Value	p value	Value	p value	Value	p value	Value	p value
age	0,0075	0,0107	0,0113	0,0000	0,0013	0,1449	0,0073	0,0000	0,0106	0,0000	0,0042	0,0000
good health	1,0488	0,0000	1,2384	0,0000	1,3585	0,0000	0,9016	0,0000	1,4820	0,0000	1,4335	0,0000
single	-0,2630	0,1735	0,3446	0,0005	0,4871	0,0000	0,1208	0,0613	0,1033	0,0287	0,2684	0,0000
partner	0,3020	0,0665	0,2792	0,0009	0,2007	0,0000	0,0588	0,3100	0,1405	0,0004	0,3128	0,0000
children	0,0506	0,1117	0,0216	0,1501	0,0922	0,0000	-0,0268	0,0001	-0,0471	0,0000	0,0138	0,0333
employed	-0,3609	0,0003	0,1462	0,0027	0,0219	0,3974	0,0693	0,0099	0,0548	0,0164	0,0138	0,4975
income.1	0,7321	0,0000	0,3413	0,0001	1,1904	0,0000	1,6449	0,0000	1,6420	0,0000	2,1604	0,0000
income.2	0,0830	0,5108	0,1699	0,0340	-0,0944	0,0123	0,0812	0,1001	0,1192	0,0028	0,4808	0,0000
income.3	-0,0451	0,7369	-0,1283	0,0887	0,2205	0,0000	-0,0891	0,0594	-0,0930	0,0157	-0,0201	0,6533
income.4	-0,0548	0,6836	0,0284	0,7092	0,0754	0,0406	0,0563	0,2079	-0,0133	0,7343	0,1741	0,0001
income.5	0,2921	0,0353	-0,1135	0,1315	0,0763	0,0361	0,0448	0,2867	0,1627	0,0000	0,0122	0,7752
income.6	-0,2155	0,1222	-0,1222	0,0794	-0,0419	0,2373	-0,0386	0,3344	0,0013	0,9706	0,0283	0,4549
income.7	-0,2183	0,1170	-0,0349	0,5769	0,1133	0,0009	0,0285	0,4506	0,0489	0,1363	0,0933	0,0033
income.8	-0,1703	0,2212	-0,0342	0,5509	-0,0989	0,0028	-0,0044	0,9006	0,0160	0,5854	-0,0003	0,9901
income.9	0,3132	0,0123	0,0220	0,6881	0,2101	0,0000	0,0347	0,2811	-0,0025	0,9221	0,0148	0,5071
Intercepts:												
1|2	-3,1986	0,0000	-1,4702	0,0000	-1,3281	0,0000	-1,6999	0,0000	-1,6597	0,0000	-2,0168	0,0000
2|3	-2,5832	0,0000	-1,0034	0,0000	-0,7716	0,0000	-1,0038	0,0000	-1,0834	0,0000	-1,4302	0,0000
3|4	-1,9197	0,0000	-0,3493	0,0170	-0,0829	0,2895	-0,4605	0,0000	-0,4096	0,0000	-0,7863	0,0000
4|5	-1,2093	0,0000	0,1394	0,3385	0,4246	0,0000	-0,0581	0,5394	0,1020	0,1674	-0,2431	0,0005
5|6	-0,4692	0,1038	1,0294	0,0000	1,1820	0,0000	0,7876	0,0000	0,9254	0,0000	0,6235	0,0000
6|7	0,2032	0,4794	1,5439	0,0000	1,6253	0,0000	1,2480	0,0000	1,4817	0,0000	1,2150	0,0000
7|8	1,0190	0,0004	2,1424	0,0000	2,1972	0,0000	1,8187	0,0000	2,2092	0,0000	1,9715	0,0000
8|9	2,2335	0,0000	3,0003	0,0000	3,0442	0,0000	2,4973	0,0000	3,2428	0,0000	2,9411	0,0000
9|10	3,2632	0,0000	3,6030	0,0000	3,7386	0,0000	3,2338	0,0000	3,9993	0,0000	3,6430	0,0000

Source of data: The World Values Survey

A7: Socio-economic level logit model

	generally		female		male	
	Value	p value	Value	p value	Value	p value
age	0,0021	0,0209	0,0018	0,1260	0,0035	0,0115
good health	1,3589	0,0000	1,4087	0,0000	1,2699	0,0000
single	0,3427	0,0000	0,3415	0,0000	0,3433	0,0000
partner	0,3533	0,0000	0,4007	0,0000	0,2586	0,0002
children	0,0346	0,0000	0,0412	0,0002	0,0257	0,0447
employed	-0,0161	0,4893	-0,0795	0,0131	0,1087	0,0035
income.1	2,2490	0,0000	2,1200	0,0000	2,3961	0,0000
income.2	0,6955	0,0000	0,6847	0,0000	0,7179	0,0000
income.3	-0,0077	0,8994	-0,0662	0,4143	0,0767	0,4039
income.4	0,1699	0,0034	0,1116	0,1571	0,2272	0,0083
income.5	-0,0435	0,4262	-0,1356	0,0720	0,0584	0,4652
income.6	-0,0428	0,3709	-0,1183	0,0749	0,0295	0,6711
income.7	0,0077	0,8466	-0,0873	0,1146	0,1063	0,0661
income.8	-0,0210	0,5312	-0,0663	0,1519	0,0264	0,5883
income.9	-0,0152	0,5890	-0,0435	0,2589	0,0176	0,6681
believer	-0,0067	0,8601	0,0288	0,5930	-0,0460	0,3879
elem.educ.	0,1735	0,0000	0,1353	0,0037	0,1936	0,0001
second.educ.	0,0099	0,7260	-0,0234	0,5493	0,0311	0,4515
G_job	-0,1873	0,0000	-0,1088	0,0011	-0,2938	0,0000
G_wage	0,1030	0,0000	0,1019	0,0017	0,1003	0,0043
G_politic.1	0,0340	0,2695	0,0476	0,2495	0,0344	0,4604
G_politic.2	0,1267	0,0000	0,0926	0,0087	0,1731	0,0000
G_politic.3	-0,0090	0,6602	-0,0057	0,8370	-0,0087	0,7739
G_uni.1	0,1233	0,0000	0,1060	0,0106	0,1105	0,0061
G_uni.2	0,0245	0,3327	0,0583	0,1182	-0,0016	0,9650
G_uni.3	-0,0780	0,0007	-0,0736	0,0294	-0,0885	0,0056
G_indep	0,1251	0,0000	0,1458	0,0001	0,1039	0,0040
Intercepts:						
1|2	-2,1239	0,0000	-1,9323	0,0000	-2,3695	0,0000
2|3	-1,5865	0,0000	-1,4510	0,0000	-1,7589	0,0000
3|4	-0,9216	0,0000	-0,8181	0,0000	-1,0555	0,0000
4|5	-0,3441	0,0003	-0,2568	0,0409	-0,4588	0,0025
5|6	0,5424	0,0000	0,6656	0,0000	0,3892	0,0104
6|7	1,1632	0,0000	1,2673	0,0000	1,0336	0,0000
7|8	1,9077	0,0000	1,9974	0,0000	1,7973	0,0000
8|9	2,8585	0,0000	2,9639	0,0000	2,7324	0,0000
9|10	3,5594	0,0000	3,6590	0,0000	3,4419	0,0000

Source of data: The World Values Survey