ESSAYS ON LABOR ECONOMCIS

By

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Abstract

This dissertation studies various aspects of labor economics, such as subjective well-being, the effects of pronatalist policies as well as tools that are helpful for economic analysis such as using incentives in surveys. Subjective well-being has become a popular topic in labor economics as some economists suggest that subjective well-being and utility are closely related. Economic theory suggests that individual characteristics and the quality of formal institutions, in particular corruption, should influence the level of one's well-being and understanding this connection help better understand different aspects of incentives of corruption. Understanding fertility decisions of women depending on financial incentives is another relevant topic for labor economics. Pronatalist policies can have heterogeneous effects as women with different socio-economic backgrounds would view the strength of financial incentives differently. Finally, I evaluate how financial incentives are used in convincing people to take a survey. Both academic and commercial researchers struggle to increase response rates in surveys, and understanding how these incentives work contributes to solving the low response rate problem. First chapter studies the effect of corruption on subjective well-being using data from eight waves of the Russian Longitudinal Monitoring survey that follows over 8000 respondents in all parts of Russia from 2004 to 2011. Subjective well-being has been used by economists to study the utility function and social welfare, and this is the first study that examines the impact of corruption on the subjective well-being of individuals. While corruption in general hurts the economy, policies to decrease the level of corruption are difficult to implement because being corrupt is beneficial (unless caught). I find that people who work in highly corrupted occupations (legislators, police officers, judges) have higher levels of subjective well-being compared with those in non-corrupted occupations. Higher subjective well-being in this case could be partly attributed to unreported income, as well as non-

monetary factors, such as having more power over other individuals. I also show that the current anti-corruption policy in Russia that started after 2007 has not decreased the positive effect on subjective well-being of working in a corrupt occupation.

The second chapter studies the effect of the Maternity Capital Program in Russia for various population groups. This research finds that age and cultural differences contribute to the uneven effects of the program on population fertility. Unlike previous research, I control for the confounding effect of regional pronatalist policies. I find that controlling for regional policies did not change the size of the Maternity Program effect, and that the effect of the program is uneven between different groups of women: working women, younger women, women without property and from Caucasian Region of the country are more likely to have additional children.

The third chapter studies how different types of monetary incentives offered in an online survey influences the response rate of chemistry faculty members. Respondents were offered $10 and $5 prepaid debit cards, the opportunity to participate in a lottery with an expected payoff of $5 and a $5 donation to the charity for completion of the survey. Response rates are compared among groups of respondents with different incentives to the group of respondents that were not offered any compensation for participation in the survey. To receive the promised incentive the respondent was required to provide contact information, and not all respondents who chose to participate in the survey chose to receive the incentive. We find that cash incentives increased the probability of response compared to no incentives, but lottery and charity donations did not influence the response rate. We also found that compared to charity, people requested fewer incentives in all other groups, including cash incentives and the lottery.

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Contents

1. Working in Corrupt Occupations in Russia and Its Impact on Subjective Well-Being

1.1. Introduction

Empirical research shows that there are both direct and indirect effects of corruption on welfare and subjective well-being. Indirectly, a high level of corruption in the country limits economic progress, and negatively affects GDP and investment. In addition, high levels of corruption directly decrease the overall level of subjective well-being through the time and effort required to cope with corrupt behavior, or psychological costs associated with a general climate of unlawfulness (Welsh, 2008). Even though corruption is one of the factors that slows down the economic development of the country, many countries are unsuccessful in eradicating it. Understanding the connection between individual subjective well-being and personal motivation of being corrupt can give us a better view on why fighting corruption is not a trivial process. Although there are a number of papers that show this relationship, they do so using the country as the unit of analysis. The influence of corruption on individual-level subjective well-being has not been studied. This paper uses panel data from Russia, a country that is consistently ranked as having a high level of corruption to evaluate whether working in a corrupted occupation influences subjective well-being. I find that those in occupations with high levels of corruption report higher levels of subjective well-being. In addition, anti-corruption programs have had no discernable effects on the subjective well-being of those in corrupt occupations.

To determine the effect of corruption on subjective well-being, I begin by evaluating whether there is any difference in the level of subjective well-being for people, whose occupation is generally viewed as highly corrupted in Russia (police officers, legislators) compared with other occupations. Also I will examine whether an anti-corruption program that was implemented in 2007 by the government made any difference in those estimated effects. I use data, provided by the National Research University Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS - Russia Longitudinal Monitoring survey (RLMS-HSE). These data are designed to monitor the effect of economic and political reforms on health and economic well-being of individuals in the Russian Federation. It contains information on income, employment, subjective well-being, as well as general social characteristics of the respondents throughout Russia who have been followed for 19 waves since 1992.

Using a variety of econometric methods, I show that those working in corrupted occupations have higher subjective well-being than those working in non-corrupted occupations, the result holds for alternative methods of estimation and the effect is not present in the estimation of the same model for a country with low corruption level (the UK). In addition, I find that the anticorruption policy implemented during my study timeframe has not succeeded in decreasing this positive effect.

The rest of the paper is organized as follows. In section 2, I provide overview of previous research, related to subjective well-being and corruption. In section 3, I present methodology used to estimate the model. In section 4, I talk about data used in the research and how key variables were constructed. In section 5, I present the main findings of the analysis. In section 6 and 7, I talk about key issues and limitations of the analysis and provide robustness checks to address them.

1.2. Factors Related to Subjective Well-Being

Subjective well-being, which refers to such things as life satisfaction or happiness, has become a popular topic for economists (Frey, Slutzer (2000); B. Stevenson and J. Wolfers (2007); Rayo, Luis, and Gary S. Becker (2007); John F. Helliwell (2008); Andrew E. Clark, Sarah Flèche, Claudia Senik (2014)). Economic theory suggests that individual characteristics and the quality of formal institutions should influence the level of one's utility function or well-being. In particular, the corruption level in a country can be one of the indicators of the quality of formal institutions.

Research on subjective well-being (or happiness) is of interest among economists. Although it will never be possible to prove that happiness measures utility function, some economists suggest that subjective well-being and utility are closely related and reported subjective well-being can be a good approximation of measuring utility (Clark et al, 2008). Gary Becker when talking about happiness and well-being in his blog[1] argues that happiness may be an important component of utility, and often, not always, moves in the same direction as utility. And in the work examining the link between twice relative happiness function, derived from biological model, where the individual responds to peer comparisons and adaptation to circumstances, and some findings from the empirical work Rayo and Becker (2007) considers that maximizing happiness is closely linked, if not identical, to maximizing utility in the standard economic way. Also, the self-reported measure of utility has been studied in psychology for many decades now as well and the approximation of the individual utility based on the representative survey is successfully used in psychological research. With the help of the certain questions in the survey is it possible to get individuals cognitive assessment of to what

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[1] http://www.becker-posner-blog.com/2010/01/happiness-and-wellbeing--becker.html

extent they are satisfied with their current quality of life. Such reported subjective well-being has been used in the literature as a representation of an individual's utility.

Data on subjective well-being is used to assess economic puzzles on both individual and country-level research. The general results show that income, relative income, age, gender, employment status, health, personal relationships, and the political environment have effects on subjective well-being. Subjective well-being plays an important role in development of the countries. Helliwell (2008) suggests that international differences in life satisfaction reflect international differences in the quality of life, and deserve to be taken seriously.

Various socio-economic factors are found to influence subjective well-being. There are a large number of studies that examine the relationship between personal income and subjective well-being and they show that money does buy happiness. However the relationship between income and happiness is not linear. There is a diminishing marginal effect of income on subjective well-being (Diener, Lucas, Oishi and Suh, 2002). Only a small portion of subjective well-being is explained by differences in income among different people (Easterlin, 2001). It was also found that relative income plays important role in the level of subjective well-being. For example it was found that in the United States higher earnings of neighbors are associated with lower levels of self-reported happiness, controlling for an individual's own income (Luttmer, 2005). Furthermore, researchers have shown that winning the lotteries or having other significant unexpected increases in income results in improvements to happiness (Gardner and Oswald 2001). But it is also possible that causation could go both ways – wealthier people have higher level of subjective well-being or happier people are better performing at work and get higher income.

According to several studies on average people in rich countries are happier than in poor countries (Graham, 2005, Stevenson, Sacks and Wolfers, forthcoming). This result could be due to other factors than income, such as better health support and more protected human rights. On the other hand studies that examined the relationship between subjective well-being and income per capita for various countries over time find that the relationship is not always positive. Several studies show that in countries, where income per capita increased in the last years (such as United States or Japan), the level of happiness stayed on the same level or declined (Frey and Stutzer, 2002). One possible explanation of that paradox is that people tend to adjust to current life level and aspire even more. Besides, Easterlin (1974, 1995) argues that economic growth does not mean higher level of happiness in the country since the relative subjective well-being is more important.

Not only income itself, but also employment status contributes to a person's level of subjective well-being. In general, research shows that people who are unemployed are much less happy than people who are employed, even when controlling for other factors such as lower income. Another aspect of employment that is found to influence level of subjective well-being is whether one works for the other person or is self-employed (Blanchflower, Oswald and Slutzer, 2001). It could be explained by the fact that self-employed people have higher self-determination and freedom. Self-employed people are found to be more satisfied with their job and as the result have higher life satisfaction level.

As well as being unemployed lowers level of happiness for a person, countries with a higher unemployment rate have lower average levels of subjective well-being. Given the trade of between unemployment and inflation, research shows that overall result is that

unemployment has bigger impact on subjective well-being than inflation. However, younger

people and the more educated are more concerned about inflation (Blanchflower, 2007).

In studies of subjective well-being in the USA and Great Britain (data covers years from

1970 to 1998) a positive relationship between each additional year of education and subjective

well-being is found (Blanchflower and Oswald, 2004). The effect is found to be greater for

women then for men. Studies that used data on life satisfaction for Germany and Switzerland

show that people with higher education have higher levels of life satisfaction (Frey, 2007; Frey,

Slutzer, 2000).   This could partly be due to the increases in income associated with more

education and higher income leading to higher levels of subjective well-being (Bukenya,

Gebremedhin, Schaeffer, 2003).

Besides income, employment status and education, research has determined that

subjective well-being depends on gender, age and other factors, such as marital status.

Subjective well-being is found to be U-shaped function of age (Blanchflower and Oswald, 2006).

In their study the authors suggest that happiness decreases with age up to mid-forties and then

starts increasing. For men and women the average age of minimum happiness is slightly

different (a few years less for women). This pattern was found for both Americans and

Europeans and in research that controls for other characteristics that influence subjective well-

being, such as income, marriage, education.

Studies show that generally and in the USA in particular level of happiness for women

declined both absolutely and compared to men (Stevenson, Wolfers, 2009). Using data for

other countries confirm this trend. In comparison in 1970s women were reporting higher level

of subjective well-being then men did.

Married people have better physical and mental health compared to single people as well earning higher incomes. Several studies that were using data for different countries and different time periods found that marriage definitely increases overall subjective well-being (Stack and Eshleman, 1998), but it is possible that causality is reversed and happier people are more likely to be married.

Besides, there are a large number of studies on happiness in psychology, sociology, political science and philosophy. And only recently psychological research that mostly focuses on effect of personality and mental processes on happiness was linked to economics and effects of economic parameters on subjective well-being.

Although all these factors have great influence on subjective well-being, there are many other factors that contribute to satisfaction in life. There is evidence that direct political participation rights of the citizens increase their subjective well-being. Studies comparing the United States and Switzerland show that overall reported life satisfaction is higher with more direct participation rights as preferences of the citizens are better observed and taken into account (Frey and Slutzer, 2006). Clark et al (2014) provides systematic evidence that economic growth does even out the distribution of subjective well-being, despite the associated rise in income inequality. Sulemana (2015) in the study that used data from 2012 Afrobarometer from Ghana found that level of trust both personal and institutional was positively correlated with subjective well-being.

There are a number of other studies showing that the level of corruption influences the level of life satisfaction in a country. Helliwell et al (2006) used a large international sample to link individual characteristics and social aspects to subjective well-being, and found that improving the honesty and efficiency of government positively and significantly influenced

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subjective well-being. Further, Helliwell et al (2014) showed that not just that people who live in countries with more honest and efficient government have higher subjective well-being, but that actual changes in governance quality since 2005 have led to large changes in average life satisfaction. Bjornskov et al (2010) in a cross-country study of influence of institutions on the level of national happiness, used different types of indicators of quality of formal institutions, and found that in general that there is a positive effect of the quality of institutions (lack of corruption) on the level of happiness of the country. Among different indices that were used to estimate the quality of formal institutions, they used "honest and efficient government index", used by Helliwell et al (2006) that measures the average rule of law including the control of corruption by the government. It was also found that key explanatory variables (such as income, level of education, employment) that are associated with increased subjective well-being, have less of impact on subjective well-being in all of the developing regions, and especially in the Former Soviet Union and Eastern Europe countries, than in the OECD (Helliwell, 2003).

Some research finds that the role of government on the level of subjective well-being seems to be bigger in countries with worse governance and lower incomes (Helliwell, Huang, 2008). In the literature that studies social capital, different sorts of trust are among the most influential explanatory factors on the level of subjective well-being (Halpern 2005). This suggests that the level of corruption, which is likely associated with reduced trust should have a significant effect on happiness. Studies that as primary goal have analyzed the effect of cultural differences on subjective well-being also find that corruption decreases subjective well-being as a factor that limits economic progress, but also increases the sense of frustration among people (Heukamp, Arino, 2010).

Other research suggests that people that are more likely to be corrupt are leaning towards government jobs in their occupational choice. Hanna and Wang (2014) in their paper study behavior of students and real government workers in India. Both students and government workers were given a simple task in the laboratory setting and were observed whether they are going to cheat to complete this task; students were also followed over several years to determine their career choice after graduation. They found that students who demonstrate antisocial preferences in the laboratory games are more likely to prefer to enter the government. Also, they found that cheating on the laboratory task predicts future corrupt behavior of a government worker and indicates a meaningful propensity towards corruption. Their paper demonstrates that selection can be an important determinant of corrupt behavior in a country with high levels of corruption even for individuals that face the same incentive structure.

Although there are many studies that estimate the effect of corruption on subjective well-being on the country level, no research has examined this on an individual's level of subjective well-being. In this research, I study Russia, a country with significant levels of corruption, and examine whether living in a corrupted environment and working in a corrupted occupation influences estimates of an individual's reported subjective well-being.

Inglehart et al (2013) in the study that analyzes the decline of subjective well-being in Russia after the collapse of the Soviet Union show that already with the start point with life satisfaction in the Soviet Union was lower than in much poorer countries, after the collapse of the Soviet Union, subjective well-being in Russia fell to extremely low levels, reaching the lowest recorded level of life satisfaction in 1995. They show that since 2000, situation improved, but in 2011 Russia still ranked slightly lower than its level in 1981. Subjective well-

being patterns might be different for transitional economies compared to results found in US or European studies. For example, usually unemployment would decrease subjective well-being of individual, but Eggers, Gaddy, and Graham (2006) when studying the effect of regional unemployment rates on subjective well-being in post-Soviet Russia found a small but significant effect in the other direction. The opposite of expected effects of factors that influence subjective well-being doesn't always find support in studies of Russia. Graham, Eggers, and Sukhtankar (2006) studied the effect of unexplained happiness on future economic outcomes using data from Russia from 1995 to 2000 and found that happier people have higher future income. Meanwhile in their paper they control for general socio-economic factors and show that the main effects on subjective well-being also hold for individuals in Russia: wealthier people are happier, married people are, on average, happier than non-married people, becoming divorced has negative and significant effect on happiness level, those that became unemployed were significantly less happy than other respondents, health is positively and significantly correlated with happiness.

Russia is consistently ranked by various corruption indices as a country with high level of corruption. The Transparency International Corruption Perceptions Index in 2012 ranked Russia 133 (position relative to the other countries, out of 176, rank 1 – very clean) with score of 28 (0-100, 0 - highly corrupt, 100 - very clean). For comparison the United States scored 73 and ranked 19 out of 176 countries.

Some studies argue that corruption in Russia is part of its cultural heritage. Until the year 1715, Russian government officials did not receive fixed salaries, but instead received legal bribes from anyone who needed the government official to fulfill their duties (Klyuchevsky, 1911). During the Soviet Union, corruption resulted from having state officials making decisions

about the distribution of key resources (instead of the market), and during the transition period, state officials were still deciding on who would get ownership rights (privatization), credits or perform major social projects. Combined with weak legislative and judicial systems, corruption increased in the country (Levins, Satarovb, 2000).

Today Russia is viewed as highly corrupt within and outside of the country. There are two general categories of corruption in Russia. One is when officials in lower-level government agencies who earn low salaries increase their income with bribes. A second involves much higher bribes among the top management of companies (especially government-owned) as well as politicians and heads of the government agencies[2]. In addition, Russia's most corrupt areas are its major cities (Ioenscu, 2011).

To determine the effect of corruption on subjective well-being inside of Russia, I will examine whether there is any difference in the level of subjective well-being for people, whose occupation is generally viewed as highly corrupted in Russia (police officers, legislators, and the like) and those who live in areas with a high level of corruption. Also I will examine whether an anti-corruption program that was implemented in 2008 by the government made any difference in these effects. As the result of this program, politicians, media and public people started to talk more about fighting corruption in the country, and there were regular show-case firings of officials that were discovered to take bribes. These policies were designed to put more pressure on people who work in corrupted occupations and may have influenced subjective well-being.

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[2] Based on: http://www.newizv.ru/society/2011-01-14/139263-kto-bolshe.html, 01/14/2011

http://svpressa.ru/society/news/104366/, 11/18/2014

1.3. Methods

Following the econometrics literature, I will estimate a latent variable (subjective well-being) model with ordered response data. Subjective well-being can be described by the function: $Y_{it} = \alpha + \beta_c C_{it} + \beta_{it} X_{it} + \lambda_i + \varepsilon_{it}$.

Where Y_{it} is an unobserved continuous variable, presenting individuals $i=1,\ldots,I$ subjective well-being at time $t=1,\ldots,T$

C_{it} is a dummy variable, indicating if individual works in the environment that has high level of corruption

X_{it} is a vector of independent explanatory variables,

λ_i is individual fixed effect, correlated with the vector of explanatory variables X_{it}.

And ε_{it} is the error term following logistic distribution.

Instead of observing Y_{it} we have ordered categorical response variable, that in this case has 5 categories.

As there is no available fixed-effects estimator for ordered categorical outcome, in the subjective well-being literature two methods are commonly used: either to construct binary variable based on life satisfaction survey response and estimate conditional binary fixed-effects model (Clark, 2003), or to treat ordered response for life satisfaction as continuous and use linear fixed-effects models (Di Tella et al., 2001 and Senik, 2004). The problem with the first approach is that the threshold for the binary variable depends on the judgment of the researcher and with the second approach that estimator is often inconsistent (Chamberlain

1980). There are also some other new approaches that try deal with issues of those two methods that are used in recent papers, such as Ferrer-i-Carbonell and Frijters estimator (Ferrer-i-Carbonel and Frijters (2004)).

I will use several methods to estimate effect of working in a corrupt occupation on subjective well-being. I will start with using simple logit model, clustered on individuals. Then I will use the conditional logit model using binary dependent variable, as it was suggested for panel data with ordered response variable in Chamberlain (1980). As a robustness check I will treat the ordered response for life satisfaction as continuous, as well as use a method developed in Ferrer-i-Carbonell and Frijters (2004) that uses individual specific thresholds for the construction of the binary variable.

For estimations that use binary dependent Y_{it} is derived from the individual's response to the following question: "To what extent are you satisfied with your life in general at the present time?" With possible answers: fully satisfied, rather satisfied, both yes and no, less than satisfied and not at all satisfied.

Y_{it} = 1 if respondent's answer to the question about overall satisfaction in life was: fully satisfied, rather satisfied

Y_{it} = 0 if respondent's answer to the same question was: less than satisfied and not at all satisfied, both yes and no

To determine whether the environment has a high level of corruption I separate the group of occupations that are generally viewed as more corrupt. According to different reports, including the report of the Head of Investigation Committee, A.Bastrikin[3], such occupations as

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[3] Available at http://www.newizv.ru/society/2011-01-14/139263-kto-bolshe.html, 01/14/2011

legislators, judges, officials, and police officers have high levels of corruption. In addition, some top level managers in government organizations are also reported to be more corrupt where average bribes, according to different reports[4], varied from 30 000 rubles (about 1 000 dollars) to 300,000 rubles (10 000 dollars). Note also that if person from that list of highly corrupt occupations is corrupt it means this person is taking bribes rather than giving them. In the model, C is an indicator for working in an occupation that has a high corruption level. Following the literature, I will also include measures of the log of household income per person, dummies for health, dummies for marital status, dummies for sex, dummies for level of education, age, age squared, whether respondent has children as control variables, X_i.

In order to study the impact of the anti-corruption policy on subjective well-being, I use a difference-in-differences (DID) estimation with individual fixed effects where:

The treatment group is C_i, defined as working in occupations with high levels of corruption.

Subjective well-being is described by the function:

$$Y_{it} = \beta_0 + \beta_1 C_{it} + \beta_2 A_{it} + \beta_3 C_{it} A_{it} + \beta X_{it} + \lambda_i + \varepsilon_{it}$$

Where Y_{it} is binary variable for happiness,

$C_{it} = 1$ if in the treatment (working in an occupation with a high level of corruption)

$A_{it} = 1$ for waves of survey after 2008

$C_{it} A_{it}$ is the Difference-in-Differences estimator.

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[4] http://svpressa.ru/society/news/104366/ - Overview of results of polls asking about corruption perception 11/18/2014

X$_{it}$ is the same as in the previous model with addition of dummy variables for years of survey.

1.4.   Data

To study the relationship between corruption and subjective well-being I use data provided by the National Research University Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS - Russia Longitudinal Monitoring survey, RLMS-HSE. These data are designed to monitor the effect of reforms on health and economic well-being of individuals in the Russian Federation; it contains information on income, employment, subjective well-being, as well as general social characteristics of the respondents all over Russia who have been followed for 20 waves since 1992.

The first four surveys were conducted in 1992 and 1993 as a panel survey with four waves, in cooperation with the State Committee on Statistics of the Russian Federation. The second panel survey began in late 1994 with a new sample and Russian subcontractor. Since 1994, the team has collected a new round of data almost every year in the second phase of the project.

For each wave of the second phase of the survey target sample size was 4,000 households, the number of households though drawn into the sample was increased to 4,718 accounting for non-response rate of about 15 percent. The number of sampled households was increased in 2010 to 6000. In practice, instead of sampling households, the survey uses dwelling units to draw the sample as they are easier to track, the dwelling units though almost always housed one household. Once the dwelling units were determined before the first wave of

survey, attempts were made to keep the whatever household resided in the dwelling in the sample, meaning that even after refusal to participate in the round of survey, the next round interviewers returned to the dwelling in the effort to obtain an interview from that household or any new household which had moved in. In addition, after round 7 households who moved out of the sample of dwellings were followed in order to maintain the quality of longitudinal studies as well as possible. This attributed to increased number of respondents over time.

For this particular research I analyze data from waves 7 (data collected in 1996) through 20 (data collected in 2011), but for the main part of the research I use waves 13 (year 2004) through 20 due to more consistency in data for these years. As the survey progressed, the number of observations increased with each wave (see Table A of Appendix), in every wave about 40% of the respondents were male, average age of respondents is 43 years. After cleaning and recoding the data, only 90000 to 100000 observations ultimately used in the regressions with about 9000 to 10000 unique individuals, depending on the method.

Occupations were coded according to the four-digit International Standard Classification of Occupations: ISCO-88. The four-digit codes can be collapsed into one-, two-, or three-digit codes (for the summary of the one-digit level participant's occupations see Table 1- 1). The group of occupations with high levels of corruption include police officers, judges, armed forces; senior officials of political-party organizations, senior officials of employers', workers' and other economic-interest organizations, senior officials of humanitarian and other special-interest organizations, directors and chief executives, production and operations department managers in different industries, finance and administration department managers and other high-level department managers in the organizations or enterprises owned or co-owned by the government. About 2% of observations are in corrupt occupations and 73-78% of them are

men, depending on the wave. Table 1- 2 shows average in wave number of respondents in both types of occupations.

Figure 1- 1 shows average level of life satisfaction for two groups of respondents: respondents, who work in occupations with high levels of corruption and other respondents. Lower life satisfaction in the 1990s denotes the unstable economic and political situation in the country with high uncertainty for the future, combined with serious financial crisis in 1998. We can see from the graph that the average level of life satisfaction for respondents, working in the corrupted environment is higher during all periods of the survey. This could be due to several factors: higher incomes, better health conditions, better working conditions, or other factors. Figure 2 shows the average family income for the two groups of respondents. Occupations with high levels of corruption have higher income, since many of them are in senior or top level management, who typically have higher salaries or part of that income might be "unofficial", meaning coming from taking advantage of corrupt environment. Also, it might be that higher life satisfaction of the respondents that is seen on Figure 1- 1 in the group of occupations with high levels of corruption is due to higher income.

On the other hand, government employees can have stressful jobs with unpleasant working conditions, so their health on average in lower compared to other people (see Figure 1- 3). Since health conditions have an impact on subjective well-being, lower health should decrease the difference between the higher level of life satisfaction of the corrupt group and the lower level of subjective well-being of the other occupations.

In the analysis I use several categorical variables that I describe below including education, health, marital status. Variables that measure health and marital status were split into five (0-1) categories for health and four (0-1) categories for marital status depending on

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the options were for answering the corresponding question. Because the level of education was defined differently throughout different waves of the survey, we take the level of education in the last (20th) wave. There are 9 categories (for description of categories for health, marital status, and education see Table B of Appendix).

Construction of categories for the income variable deserves more explanation to better understand the data. Income is measured as real household monthly income per person in 1992 rubles. Household income includes all possible kinds of income, including work payment, state transfers (children's benefits, stipends, subsidies, etc.), private transfers (from family, relatives, friends, church, etc.), the value of the home production of fruits, vegetables, meat and dairy products consumed or given away, net of the expenditure on home production (e.g. seed, fertilizers, feed). This is a very broad measure of household general net income

The level of education also required significant recoding. In Russia the structure of the educational system is very specific and diverse. School has maximum 11 grades: the first 4 are "primary education" and 5th through 11th is called "secondary education." Children have an option to drop out of school after 9th grade and get "incomplete secondary education" diploma, and with this diploma you can be admitted to some technical vocational schools. Technical colleges, art colleges, musical colleges and medical colleges are separate institutions and you gain admission to them directly after 11th grade. Graduate school usually takes 3 years and is valued less than PhD Degree in Western Universities. Students become a "Candidate of Science" after graduate school. Post-graduate education usually takes much longer, and consists only of research, usually with no academic supervisor, and is a highly prestigious degree. After completing a post graduate-dissertation one becomes a "Doctor of Science." The approximate number of years of schooling for each level of schooling is provided in Table C of Appendix.

1.5.   Subjective Well-Being Estimates for Individual

Russians

1.5.1. Effect of working in the corrupt occupations on SWB

To start the analysis I use a binary logistic model, clustered on individual, with the dependent variable equal to 1 if person is satisfied with the life and equal to 0 if person is not satisfied with the life to estimate the effect of personal characteristics, such income, age, gender, level of health, marital status, having kids on life satisfaction for the full sample and separately for men and women. Marginal effects from this model are reported in Table 1- 3.

Regression results show as expected that compared to getting a university degree there is negative effect of having less education for full sample. However, for men there is no difference in the estimated impact of going to technical college compared with a university degree in terms of subjective well-being. As found in the US, people are less happy until middle age, and then become happier again. Health is an important factor in life satisfaction, having better health increases probability of having higher subjective well-being and this holds for both men and women separately as well. Having children makes women more satisfied with life, but does not have a statistically significant effect on men. Being married increases subjective well-being compared to not being married for both men and women, and divorce has negative effect on life satisfaction for women and men. In general, men have higher life satisfaction than women. Having higher income improves subjective well-being for both men and women. The results for marital status, income and health are consistent with results fond in other research (Graham, Eggers, and Sukhtankar (2006). We can also see that people in Russia are feeling more satisfied with life with time, which is explained by the time period of

data – the country has been going through transition period during these years with a lot of reforms and changes in life (this trend was shown on Figure 1- 1).

Next I estimate the effect of working in a corrupt occupation on life satisfaction using logit model, clustered on individual and conditional logit model that controls for individual fixed effects. Table 1- 4 presents the marginal effects from a model using the same factors as in Table 1- 3, using logit model, clustered on individual, and including the variable that indicates if the person is working in environment with high level of corruption or not (job occupation-corrupt). The estimated covariates included in the model are similar to the previous results. Looking at the variable of interest, job occupation - corrupted, increases a person's probability of having good subjective well-being by 11.8%. This could be due to number of factors. Note that if people in those occupations are corrupt, they are likely to be corrupt themselves, and they are more likely to take bribes rather than give them. Taking that into account, the positive effect could just be unreported income. We know that more income increases subjective well-being and it is likely that in the survey people do not report their rents from being corrupt. One other possible explanation is that occupations that are in the "corrupted occupations" have a lot of power over subordinates or other people. Interestingly the effect of working in a corrupt occupation is more significant for men.

Another approach to estimate the relationship between subjective well-being and working in a corrupt occupation is fixed effects model. To be able to use fixed effects we need respondents to switch occupations between the waves of survey. The switch of occupation is most likely endogenous, and subjective well-being literature generally doesn't address the causation of the effect, but rather studies the correlation of certain socio-economics characteristics to subjective well-being. Table 1- 5 shows how many respondents switched to\from corrupt occupation for every wave of survey. Most of the respondents stayed in the

same occupation, about 0.5 % switched to the occupation with high level of corruption, while slightly less (0.4 %) switched from corrupt occupation to occupation with low level of corruption each year.

Table 1- 6 presents the results using a conditional logit model that controls for individual fixed effects. Coefficients report the increase in odds of being more satisfied in life and their numerical value is hard to interpret, so I will only look at a sign of the coefficient. The result from the logit model, clustered on id still holds: switching to the corrupt occupation increases personal subjective well-being, in particular for men. For graphs showing predicted probabilities from two estimations: logistic, clustered on id and conditional logistic see Figure 1- 4 and Figure 1- 5. Based on the predicted probabilities from logistic regression, clustered on id people working in the corrupt occupation have higher life satisfaction than those who have jobs with low level of corruption. Conditional logistic regression shows that at least for few years after 2000, 2005 and 2010 the same was true.

The positive effect of working in the corrupt occupation on personal subjective well-being could be due to two things: first, chosen occupations do experience high level of corruption due to additional income from bribes and, second, it is possible that people, who work in the corrupt occupations, just enjoy using (or abusing) their power over others. If the increase in subjective well-being comes from unreported bribes, we can calculate using coefficients from log of family income and corrupt occupation dummy, how much income we could attribute to that difference in subjective well-being. It turns out that income, including bribes should be about 2.7 times higher than reported income (assuming that income from bribes was not reported). The average bribe in 2011 for chosen occupations varies from 30 000 rubles to 300,000 rubles, average salary for corrupt occupations in 2011 was about 17500, with minimum salary 2500 and maximum almost 200,000. We do not know how many bribes a

person takes per month, but comparing the numbers it is possible that some of that higher subjective well-being for corrupt occupations might be attributed to unreported income, but there could be other reasons as well.

Taking into account Hanna and Wang (2014) work it is also possible that people, working in government related occupations, have personal preferences towards being corrupt, and have higher subjective well-being due to the "perfect match" of their job choice and their personal preferences towards corrupt jobs.

High levels of corruption are a big problem for Russia and decreasing the corruption level is constantly named as one of the major preferences in the state policy. Looking at the result of the analysis increasing salaries for the government employees should partly compensate for the personal benefits of being corrupt, but we can also see that there are other factors that motivate people to still work around the legal system, possibly having the power in their hands.

1.5.2. Do Anti-Corruption Policies Affect Subjective Well-Being?

Starting 2007 government of Russia began a massive show-case anticorruption program with public trials of government employees caught taking bribes. Table 1- 7 shows the results of estimation of the effect of this anticorruption program. Variable "Occupation-corrupt*Year after 2007" represent people whose occupations were in the "corrupted" group after the start of the program in 2007. The coefficient for this variable is negative but not statistically significant (p= 0.58), which means that program has not reduced the level of subjective well-being for individuals in corrupted occupations. In fact, reports indicate that since the start of the program the values of bribes increased. On the other hand, it could be that not enough time has passed to see the results of the program. Interesting though, that dummies for years

after 2008 has negative effect on SWB as it was the election year with lots of political changes following as well as a world-wide economic crisis.

1.6.   Robustness Checks

There are several difficulties with data that influence these results. First, professional choice is endogenous. It might be the case that choice of corrupt occupation and higher SWB may be correlated with unobserved factors. However, the conditional logit approach controlled for time-invariant unobservable.   Second, occupations that are presented in the corrupt category are predominantly male professions, so results for women, if insignificant, might be due to small sample.   Third, we do not know if people were reporting their official income or full income, including the additional income from bribery. So income might be misreported and if so increase in SWB for corrupted professions might be due to unreported income from bribes. To check this we can calculate how much more income should they have to have to obtain the current level of SWB.

In general subjective well-being is, as follows from the name, subjective personal evaluation of the person's state of well-being and, ideally, to estimate the model we should use some sort of fixed effects model for original categorical response. This would take care of, first, variation of the subjective responses among individuals (what some person evaluates as "fully satisfied", another evaluates as "rather satisfied") and compare the fluctuation between responses of a particular person in different periods of time and, second, eliminate the subjective judgment of the researcher of how to construct binary variable (is "both yes and no" is still "satisfied" or already "not satisfied" with life?). To address some of these issues further I provide robustness checks that use a variety of empirical approaches. .

There are several issues that might affect the estimated results. First, working in certain occupation indicates high level of corruption in an indirect way. It could be that working for the government or in government-owned companies can result in higher subjective well-being. Second, when using binary dependent variable, I lose data compared to the original categorical responses. Third, there is no efficient way to estimate panel data models with categorical responses, and the results might depend on the chosen method of estimation.

To address the first problem I show that results for corrupted occupations do not hold for a dataset from a different country, with a low level of corruption, the United Kingdom (UK) is ranked 17th in the world transparency out of 174, where 174 is most corrupt), where those occupations are not associated with being corrupt. In addition, I show that the result does not hold for occupations in government organizations that are less likely to be corrupt.

Table 1- 8(A) presents results from estimation of subjective well-being model with the variable that indicates occupations that are corrupt in Russia using data from 2005 wave of British Household Panel Survey. I used similar control variables (real income, marital status, health level, level of education, whether respondent has kids, age) and chose the same occupations based on ISO-1988 coding and whether company is owned by the government for top managers. According to this estimation there is no statically significant effect of working in these occupations on subjective well-being, for both men and women. Which supports the statement that effect found in Russia is associated with the level of corruption, not general specifics of the occupations.

Table 1- 8(B) shows that if we estimate the same equation using other public occupations in Russia that are less likely to corrupt (in this case it is nurses and school teachers) the effect of working in these occupations (or rather switching to them) is negative for women and insignificant for men. This indicates that previous results are not general for all government occupations, but only for those with high level of corruption.

Table 1- 8(C) presents results from estimation using ordered probit model, clustered in id to address the second problem. Here dependent variable is the original response to the life satisfaction question with 5 possible answers, recoded such that 1 is not satisfied with life and 5 if fully satisfied, so increase in dependent variable indicates increase in life satisfaction. My initial results hold when the regression is estimated using this method: working in the corrupt occupation increases subjective well-being.

To address the third problem I show that a widely used approach for estimation self-reported subjective well-being gives similar result.

Table 1- 8(D) presents the results of estimation of the model for subjective well-being with corruption variable using OLS fixed effects, so here I treat respondent's self-reported life satisfaction as a continuous variable. We can see that the results are similar to what I found before, with positive effect of working in the corrupt occupations.

Finally, to address the third problem I will estimate the same model using Ferrer-i-Carbonell and Frijters estimator, that uses individual specific binary recoding procedure using the individual specific information of the second derivative of the log likelihood function for the conditional logit estimator (for detailed description see Ferrer-i-Carbonel and Frijters (2004)). This Method also finds positive effect of working in corrupted occupation on subjective well-being (see Table 8(E)). Coefficients are consistent with findings from conditional logit model.

1.7.   Conclusion

Previous research showed that high levels of corruption in the country have negative effects on subjective well-being (Welsch, 2008).   I use panel data from 14 waves of the large longitudinal survey that follows respondents in all parts of Russia from 1998 to 2011 to examine the effect of corruption on subjective well-being. This paper is the first to study the impact of working in a corrupt occupation on individual subjective well-being. I show that people, whose occupations are reported to have the highest levels of corruption (police officers, legislators, judges, top management of government owned companies, etc) have higher subjective well-being than individuals working in non-corruption occupations. Individuals who switch to those occupations increase their subjective well-being. This effect may be partially due to unreported income from taking bribes, but there are other factors, besides unreported income that increase life satisfaction of those who work in corrupt occupations.

Since occupation is used as a proxy for corruption, I conduct several robustness checks to evaluate the quality of my results. First, I used the same model on the British Household Panel Survey dataset, to show that working in occupations that are corrupt in Russia but not corrupt in the UK has no significant effect on subjective well-being in the UK. I examined whether other government employees in Russia that have lower levels of corruption (nurses and school teachers) have a similarly high level of subjective well-being as corrupt occupations and found that this was not the case. This suggests that the positive effect on the subjective well-being among those occupations may be due to the high level of corruption. I also tried several different econometric methods that are used for estimation in life satisfaction literature to show that results are not affected by the chosen estimation method.

An increase in income for occupations that are potentially corrupt should decrease people's motivation for taking bribes. I also tested if the current anticorruption policy affects the positive effect of being corrupt on SWB and found that it has no effect on the subjective well-being of those working in corrupt occupations.

For the further research it would be interesting to try to identify people who are affected by corruption (forced to pay bribes) and see if they have lower subjective well-being. Besides there are other non trivial circumstances (from economical and political to cultural changes) happened during the time period of the survey in Russia that might have an influence on people's personal or average subjective well-being.

2. The Diverse effects of the first five years of the Maternity Capital Program in Russia.

2.1. Introduction

A number of countries with declining fertility rates have adopted different types of explicitly pronatalist policies in order to improve low-to-negative population growth. The rate of success of such policies has varied, but in general monetary incentives are found to have positive effects on the fertility rates.

Currently Russian fertility is among the lowest in the world. It had been declining in the last years of the Soviet Union, but after its collapse, birth rates decreased dramatically and stayed low until recent years. That is why in 2007 new Maternity Capital Program was introduced, offering monetary benefits to women for giving birth to a second child during the years the program will be in effect (right now 2016 is announced to be the last year of the program). These monetary benefits are equivalent to $11,000 dollars in a one-time payment in the form of an issued certificate that could be used for limited purposes, such as education, pension funds and property payments.

Although 2% of federal expenditures per year are attributed to the program, the effectiveness of the program is questionable. Not all of the increase in birth rates is attributed to the new policy. Overall, an improving economy and stable political situation during the program could have also resulted in families having more children. The main concerns about the causal effect of the program are: 1) the increase of the birth rates might be partly due to changes in regional pronatalist policies that happened after 2007; 2) an uneven effect of the

policy on various population groups, such as increased birth rates in the geographical regions that already have high birth rates; and 3) the increase of the birth rates might be partly due to families just rescheduling births rather than having more children.

Most analysis that studied the results of the program was limited to simple descriptive statistics and very few studies addressed some of the concerns about the effects of the program. In this paper I study the effect of the program for various population groups and find that age and cultural differences contribute to the uneven effect of the program on population fertility. Unlike previous research, I control for the confounding effect of regional pronatalist policies. I find that controlling for regional policies did not change the size of the Maternity Program effect, and that the effect of the program is uneven between different groups of women: working women, younger women, women without property and from Caucasian Region of the country are more likely to have additional children.

2.2.   The Impact of Pronatalist Policies

Fertility decisions are viewed by economists as a part of consumers' utility maximization problem, that are determined by income, child costs, and individual preferences (Becker, 1960). Therefore government policies that provide monetary benefits for having children should increase the fertility rate, however the effect should vary across the population and depend on the relative change in income from the policy. High cash benefits may have a greater effect on low-income families. Also the policy could have a different effect on families where women were unemployed or earned a much smaller percentage of family income. Compared to families where the woman has a low-paid job, the opportunity costs for having children will be higher in the case of well-paid women. Women facing a higher opportunity cost of being absent

from the labor market face a higher price for children, and so will have fewer children (Holz et al, 1997).

A number of countries (France, Australia, France, Singapore and Canada) with declining fertility rates have adopted different types of explicitly pronatalist policies in order to address low population growth. In their work estimating the effects of financial incentives on fertility on the household level, using individual data from the French Labor Force Survey combined with detailed data of the French tax-benefit system, Larouge and Salanie (2008) found that financial incentives played an important role in fertility decisions in France. In Australia in 2002, the baby bonus scheme was introduced to increase the fertility rate of population. According to this program a family was eligible to receive about $5000 to offset the cost of child bearing. As the result fertility intentions rose after the announcement of the Baby Bonus, and the birth rate is estimated to have risen modestly (Drago et al, 2009). The Baby Bonus Scheme was also introduced in Singapore in 2001, with some adjustments in further years, to improve country's fertility rate by providing cash incentives. The scheme is consist of two components, Cash Gift and Children Development Account (CDA). There are other European countries practicing baby bonuses as well. After World War II France introduced a program, where tax advantages increased with number of children. Research shows that such program overall had positive effect on number of children per household (Chen, 2011).

In the Canadian province of Quebec, the Allowance of Newborn Children program, that took place between May 1, 1988 and September 30, 1997, paid up to $8000 to families following the birth of child. The policy is found to have a strong, positive, and robust impact on fertility, with the increase in fertility of those eligible for the new program by 12 percent on average, and by 25 percent for those eligible for the maximum benefit (Milligan, 2005). One cross-country analysis studied the effect of government support for fertility based on the data from 22

countries for the period 1970 to 1990; they found that direct cash benefits have positive and significant effects on fertility. Increasing assistance for the first child has a greater effect on fertility than for subsequent children (Gauthier, Hatzius, 1997).

Even though The US does not have direct pronatalist policies in the form of baby benefits or paid maternity leave, the personal tax exemption, besides the direct function of relieving for low-income households and families of the burden of taxation, was found to have a positive and significant effect on birthrates (Whittington, Alm, and Peters , 1990). The dependent exemption from income taxes decreases the price of a child to a household, and should influence the timing and/or number of children observed in a family. In another paper that studied the relationship between dependent exemption feature of the United States federal income tax and fertility behavior of married coupled in 1979-1983 Whittington (1992) found that the exemption had a positive and significant impact on the likelihood of having a birth.

Today several countries are facing different kinds of demographic problems because of declining birth rates. Most Western countries are experiencing fertility rates below replacement rates, for example Portugal has to deal with low fertility levels since the 1980s[5]. Despite of having one of the highest life expectancies in the world, Japan is experiencing a decline in population starting 2007, with constantly declining birth rates, and is projected to follow this trend in the future (Based on the Health and Welfare ministry estimation). South Korea also has declining population with very low TFR of 1.21 per woman, and recently the Korean government announced that encouraging women to have children became a prioritized issue, promising to develop social reforms in that direction.

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[5] Fertility rates are based on data from The World Bank: http://data.worldbank.org/indicator/SP.DYN.TFRT.IN

Currently Russian fertility is among the lowest in the world. The total fertility rate was already declining in the late 1980s during the Soviet Union due to natural changes in demographic structure, but after the collapse of the Soviet Union due to unfavorable economic and social conditions, the total fertility rate in Russia dropped dramatically from 1.89 in 1980 to 1.73 in 1991 to 1.29 in 2005 (with low 1.17 in 1999). In response, a policy was introduced in 2007 to improve the fertility rate by providing monetary incentives to have second or subsequent child with the total amount of benefits worth about $11,000. The results of this policy are important also as other countries facing demographic crisis can follow the similar strategy.

The Maternity Capital program allows a woman that had a second or subsequent child to receive a certificate for total amount of benefits of about $11,000 (equivalent amount in rubbles that is revised annually and adjusted for inflation) at any time after the child reaches the age of three. The money can be used for a limited number of purposes: 1) acquiring housing; 2) paying for children's education; or 3) investing in the mother's retirement fund. Women can apply for Maternity Capital only once in their lifetimes. Most of the certificates (over 90%) are used to improve housing conditions.

According to the Russian Federal State Statistical Service in April 2013 the average monthly income per person was 29,453 rubbles, while the median 21,268 rubbles, which corresponds to annual income in dollars of approximately $9,900 dollars (mean) and $7,148 (median). 47.8% of the Russian population make somewhere between $315 and $845 of average income per person per month, while 13.1% of population lives below poverty line (http://www.gks.ru/free_doc/new_site/population/bednost/3-1-4.htm). Thus, the Maternity

Capital program provided a payment that exceeded average (median) income--a sizeable

financial incentive.

In his 2007 blog, Gary Becker suggested that the Maternity Capital policy would be more

effective at raising birth rates than child subsidies have been elsewhere. However, he also

noted that other factors that lead to small families such as the high level of women's education,

expensive housing, and high divorce rates, would not be greatly affected by these child

subsidies, and thus would reduce the effectiveness of the Maternity Capital program on

fertility. Since the program was implemented, there has been only limited analysis of its

effectiveness. Various government reports on the effect of the program are based on the

simple descriptive analysis. Estimating the results of the program is challenging since there

were a lot of factors, besides the program that have an impact on the change of the birth rates

in Russia over this past decade. There were also concerns that even if the program has an effect

overall, this effect might not be distributed evenly over different population groups. The three

main concerns about the results of maternity capital program are: 1) the increase of the birth

rates might be partly due to other changes in pronatalist policy, including regional financial aid

to the families having more children that are comparable in the amounts to Maternity Capital

program; 2) various population groups (such as those from the Caucasian region) may be more

likely to respond than others—thus the program is just paying for fertility that would have

already taken place; 3) the increase of the birth rates might be partly due to families just

rescheduling births rather than having more children; and 4) the program might be too

expensive for the results it is providing.

Levin et al (2016) did not look directly at the results of the Maternity Capital Program, but

did examine the desire to have a second child and actual fertility patterns covering the time

when the program was in effect   Their results show that that among Russian first-time mothers, being in stable employment as well as better housing, being married and having an older child is positively correlated with probability of having a second child.

Slonimcsyk and Yurko (2014) studied whether rescheduling births is taking place during the program and how it affects program outcomes. They found that the policy increases fertility by about 0.15 children per woman as of 2011 taking into account rescheduling births, and about 0.4 without accounting for rescheduling births, the effect is much lower than what a simple descriptive analysis would suggest. The effect of the program is still below the replacement rate of 2.1, but still significantly decreases the rate of declining of population. Also, they found that the policy has stronger effect on women with spouses and that women without a college degree are more likely to have additional births (Slonimcsyk, Yurko, 2014). The main focus of the paper though was addressing the concern of possible rescheduling births effects on the results of the program.

Although their paper found evidence related to birth rescheduling and showed that taking into account birth rescheduling the actual effect of the program is smaller than government reports suggest, there are several caveats to this work. First Slonimcsyk and Yurko did not consider and did not control for the effect of regional policies and heterogeneous response. At the same time the Maternity Capital program was introduced, other policies at the regional level were also established including an increase in child benefits, changes in maternity leave structure, and additional regional maternity benefits programs. Child benefits are paid after birth of every child, but the amount of the one-time child payment is much less than Maternity Capital, and in 2013 it was about $250. More importantly, around the same time, regions started to introduce their own financial aid programs most of those were for families having

their third and all subsequent children. Second, they examined the long term effects of the

Maternity Capital program on any birth order, not the policy-relevant second birth. As a result,

they could be understating the effect of the program. Most importantly, they do not account

for women from diverse ethnic backgrounds and whether the overall increased birth rates were

result of more births in high-fertility groups as well or whether the program is just paying for

increase in births of a relatively small percentage of women, in particular from population

groups with already sufficiently high fertility rates. If this is the case, (Slonimcsyk, Yurko, 2014)

will be overstating the impact of the program.

In this paper, I study the diverse response to the program of the different groups of women,

including factors that should account for the biggest difference of the response, such as

geographical location and age. In addition I expand the discussion of the effect of programs,

providing financial bonuses after the birth of children on fertility rate to specific regional policy.

Compared to previous research I use improved methods and allow for heterogeneous

responses to the policy when study overall effect of the program. When estimating the effect of

the program the panel difference-in-differences estimation structure I use is superior to the

cross-sectional estimates found in (Slonimcsyk, Yurko, 2014) because it controls for unobserved

heterogeneity.

The effect of the program is likely to differ by a number of demographic characteristics. To

address this, I examine whether the Maternity Capital program had heterogeneous effects on

women depending on the following factors: age, marital and employment status, property in

possession, income, or savings. I study the diversity of the effect of the program based on

these factors for a number of reasons. Age plays an important role in the decision to have

children; while now more women postpone having children to be able to build the career,

younger women can be more convinced to have children earlier by offering financial incentives since it will compensate for the loss of income during the maternity leave. The employment status of women can play a role too: financial incentives can compensate for the loss of income during the maternity leave. Different levels of income might make a difference in the response to the program because the financial sector is only developing in Russia, and even the average Russian family does not have access to mortgages. Since the maternity capital benefits are allowed for only certain types of expenses, and statistics show that most of it is used to improve living conditions (such as buying property or paying for housing), there might be different effects of the policy for families depending on whether they have property or not, and this effect might still be different for families with different incomes. I will examine the effect of the program for women from families with different financial characteristics such as family income and savings.

This research addresses one of the biggest concerns of policy-makers: that program has uneven effect throughout different regions of the country. Historically, in the Caucasian regions of Russia, families have more children compared to European part of Russia. I will study whether the program has different effects depending on the geographical location as families that traditionally have more children might have rescheduled the births of children.

Finally, in order to address the concerns about effects of other regional programs I include information on the timing of regional programs as controls for my estimates. Also, when it comes to regional policies one of regional programs —the Maternity Financial Aid program in Moscow, stands out and I separately compare it to the national Maternity Capital program in terms of the effect.

2.3.   The Model

Ideally to estimate the effect of pronatalist policy on birth rates we would have to look at number of children for women who are out of the child bearing age (assumed to be 49) and who had an opportunity to participate in the Maternity Capital program and compare it to the number of children for women who were out of the child bearing age before program started or after the program was over. As the program has started only in 2007 most women who are able to participate in it have not reach age of 49 and we don't have the full life span information of how many children they would have. This is why to estimate the results of the program right now I make a string assumption that women who have no children are not influenced by Maternity Capital program, and women who already have one or more children at the time of program start or who have their first child during the program will be making the decision of whether to have more children among other factors under the influence of the program. This assumption is strong, but valid as the program was announced as temporary and it was unclear what is long term expectation of the program to stay, and based on that making a decision of having the first child taking into account possibility of having financial support after the second child was a very long shot and unrealistic.

To estimate the effect of the policy on number of children for women, I use two approaches: Difference-in-differences (DID) estimation and a before-after estimator. In the DID model, the interaction effect, cannot be evaluated simply by looking at the sign, magnitude, or statistical significance of the coefficient on the interaction term when the model is nonlinear (Aia, Nortonb, 2003). A commonly acceptable approach is estimating such models using linear regression with interaction terms even though the dependent variable is binary.

For difference-in-difference approach, that is defined by the following equation:

$$Y_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 A_{it} + \beta_3 T_{it}A_{it} + \beta X_{it} + \lambda_i + \varepsilon_{it}$$

Where Y_{it} is binary variable, indicating if women i gave birth in the period t,

$T_{it} = 1$ if belongs to treatment (women with 1 or more children, hence eligible for the program in case of giving birth). The Control group includes women who have no children or women who already gave birth to a second child while the program was in effect, hence not eligible for the program as they already used it. $A_{it} = 1$ in the time period when the treatment occurs (waves of survey after 2007). The program was introduced in January 2007 and most of the births in 2007 are from before-program pregnancies. $T_{it}A_{it}$ is interaction term that identifies the treatment effect of the Maternity Capital program.

The second approach is to estimate equation with dummy variable for time period after the policy was in effect (after 2007) for women who are eligible for the program. For this model I estimate the following equation using OLS and logistic regressions:

$$Y_{it} = \beta_0 + \beta_1 A_{it} + \beta X_{it} + \lambda_i + \varepsilon_{it}$$

Where Y_{it} is binary variable, indicating if women i gave birth in the period t, $A_{it} = 1$ in the time period when the treatment occurs (waves of survey after 2007). X_i includes interaction terms to estimate the effect of the program for different groups as well as controls for demographic characteristics. The model is estimated separately for women with different income, marital status, employment status, different regions and age groups.

2.4. Data

I use data from Russian Longitudinal Monitoring Survey (RLMS), household panel survey, provided by the National Research University Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS. These data are designed to monitor the effect of reforms on health and the economic wellbeing of individuals in the Russian Federation; it contains information on income, employment, as well as general social characteristics of the respondents all over Russia who have been followed for 19 waves since 1992.

The first four surveys were conducted in 1992 and 1993 as a panel survey with four waves, in cooperation with the State Committee on Statistics of the Russian Federation. The second panel survey began in late 1994 with a new sample and Russian subcontractor. Since 1994, the team has collected a new round of data almost every year in the second phase of the project. For this particular research I analyze data from the second phase of the survey, using waves 5 (data collected in 1994) through 20 (data collected in 2011).

Three separate datasets from RLMS were used in this research: individual, household and community data. Each adult in the household is interviewed individually as well as one selected household member is asked a series of questions about the whole household. In addition, data about the surrounding community, such as infrastructure, prices, employment and educational opportunities is collected for each region. All three datasets are linked to each other, allowing me to use household and community data for analysis of individual behavior.

The key variables that determine women's eligibility for the program is the number of children and whether women gave birth in the current year. This data can be found in both

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household and individual datasets in the following manner. The number of children is provided by individual data using the respondent's answer to the question about the number of children younger than 18 years old. Since having a child who is older than 18 years also qualifies a woman for program eligibility, I construct a variable that records number of children ever mentioned in the survey for a particular woman, which takes care of situations when a child becomes older than 18. "Birth" is recorded when a new baby appears in the household data. Similar to the Slonimcsyk and Yurko (2014) I include in the sample women who are between 15 and 49 years of age.

2.5.   Results

First, I checked that my results are consistent with those that were found in the previous research, studying effects of the Maternity Capital Program. In the Slonimcsyk and Yurko (2014) paper they use two approaches to evaluate the effect of the program. First, DID OLS clustered on the individual, and, second, before-after estimator for women eligible for the program. In addition to those estimates, I run OLS, and panel difference in difference, and before-after for women, who are not eligible for the program to compare results for eligible group and I add controls for the regional fertility program.

According to the results of the difference-in-difference estimator program increased number of births for women, who are eligible to participate in it (

Table 2- 1, Model 1). In addition, I use panel regression in addition to OLS, clustered on

id

Table 2- 1, Model 3 and Model 4), and control for regional Maternity Capital Program (

Table 2- 1, Model 2 and Model 4). I find that while results from all models are consistent with the previous study, panel estimates show a bigger effect, women who are eligible for the program have almost 9% higher probability of giving birth compared to women that are not eligible for the program, which corresponds to about 0.6 increase in fertility rate (given 34 years of child bearing lifespan and 21% of women that fall into category of eligible for the program). The Before-after model (Table 2- 2) estimates before-after model for two groups of women: women who are eligible for the program and for women who are not eligible for the program. The increase in number of births after the program was in effect was almost 10 times greater for women who were eligible for the program, which means that the increase in birth rates is not only due to overall increase in fertility in Russia, but program resulted in more births. The difference in coefficients according to Chow test is statistically significant.

Moreover, results are still the same (

Table 2- 3) when controlled for other variables (marital status, family income per person, number of kids, age and age squared). The effect of the program seems to be in the range of 6%-14.5% increase in probability of birth, with the effect being much higher when controlling for other variables. In both sets of estimations regional policies do not have significant effects on the probability of giving birth.

Previous research has shown that the effect of financial incentives on fertility is likely to vary both with economic development (see Schultz 1973 and Jones and Tertilt 2008) and with cultural norms (Fernandez 2009). The population of Russia is culturally diverse as the result of many nationalities living in the country, as well as various economic conditions throughout the territory. Russia has about 180 ethnic groups that are primarily tied to geographical location. Often, federal districts – geographical areas that are mainly designed to uphold federal laws on a specific territory -- will represent groups of people with relatively similar cultural, economic and social characteristics. They have similar economic conditions, quality of live, and share social norms and religious preferences. Religion plays an important role in distinguishing some regions from others. Although a large amount of the Russian population is non-religious, those with a religion are Russian Orthodox, and Islam is the second largest religion in Russia predominantly amongst Caucasian ethnicities. Thus, the Caucasian region traditionally has families with larger numbers of children. European Russia, the area near the Ural Mountains, and in southwest Siberia, where the large metropolitan areas are located, generally have better economic conditions and might be less responsive to monetary incentives. This could also mean that the Maternity Capital program would have different effects for various groups within Russia.

I will examine whether these effects differ by age, income, savings, marital status, employment status, property ownership, and across different regions.

To estimate equations for marital status, employment status and property ownership, I split all women into two groups (creating a dummy variable, indicating relation to one of the groups), then an interaction term with the dummy variable and time period after start of the program.

Table 2- 4 presents the result of estimation with interaction terms for marital status, work status and property ownership. These results show that the effect of the program is about 3% bigger for employed women and close to 3.5 % bigger for women without property, but no difference in effect was found by marital status. My results are different from what previous studies found for marital and employment status. It is likely that the difference comes from different approaches used in the studies. I analyze the effect of the program on the birth of second child, while Slonimcsyk and Yurko (2014) were looking at the long term effects on any birth order. As Maternity Program affects only second or subsequent children I believe my approach provides more accurate results.

One of the complimentary problems in the country is maternity leave, by law women are provided with 150 days (70 days before giving birth and 70 days after) of fully paid maternity leave, after that one of the parents (in almost 100% cases it will be mother) can take a leave until the child is 1.5 years old with 40% of salary compensation and additional 1.5 years of non-paid leave. In most cases, women leave the job for two to three years with loss of income. Financial compensation from the Maternity capital program can be viewed as a compensation for the income loss. In this case it will be logical if it affects working women. The constraints on the use of money that come from the program separates additional group of women that are affected by the program: those that are planning to use money to obtain property.

This shows that the effect of the program is already uneven among some groups of women, so it may happen that program's effect is also concentrated among certain groups of women, defined by the level of income.

To estimate the effect of the program depending on the income women are divided by

real family income per person into 4 income groups of the same size (Table 2- 5). For all four

groups women who are eligible for the program are compared to those who are not (Table 2-

6). Women in all income groups have higher probability of giving birth if they are eligible for the

program, but the program has the highest effect on the women in Group 2 (women with

monthly family income range from 4485 rubles, about $150, to 8465 rubles, about $280), who

have 6.5% higher probability of giving birth compared to women who are not eligible for the

program. The smallest effect of the program is on the women in Group 1 (women with family

income from 0 to 4485 rubles, about $150). Running the Chow test, though, shows that the

difference between the income groups is not statistically significant, with p-value in all cases

more than 0.3.

When looking at the women split by savings, I consider two groups: those that have

savings and those who do not, and both groups are compared to women who are not eligible

for the program. The difference of the effect of the program between groups is not statistically

significant.

Even though I show that effect of the program is different for different groups of

women, overall program has positive effect on birth rates. Despite the positive results there are

some concerns about the significance of this increase of the birth rates.

Fertility behavior is different for different age groups, there will be different factors that

influence decision to have or not to have a child at age 22 compared to 35. Financial factor

probably will have more weight at younger ages as there is less time to develop career and

reach financial stability. I examine if Maternity Capital policy had different effects on women

from different age groups. I estimate before-after equations for 4 age groups separately for

women who are eligible for the program and those who are not. Table 2- 8 presents breakdown number of women in each age group by program eligibility status. The results of estimation (Table 2- 9) show that birth rates increased for ages below 30 years for women who are eligible for the program, while a negative or no change in birth rates for those who are not eligible for the program. For age group above 30 years after 2007 there is a decrease in number of births for eligible women. But there is an increase in birth rates for age group 30-40 for not eligible women and no change in number of births for women of the40+ age group who are not eligible for the program. As I pointed out above these results might indicate that for younger women financial incentives matter more, another explanation could be that women above 30 years old already had their second child by the time of the start of the program and for them using the program meant having a third child, which is a much bigger decision. Interestingly, recently the government of Russia announced that one of the recent concerns of the fertility situation in the country is that women are giving birth later than before, so in that sense this program can temporarily improve the situation given that it's announced to last for a limited time only.

Although demographic situation is not optimistic for Russia, fertility rates vary across regions and some are doing better than others. Another concern about the program is that most of its budget will go to the regions with high birth rates (such as North Caucasian), rather than other regions.

Table 2- 10 presents fertility rates for 2006, before Maternity capital program was announced, and for 2011, when Maternity Capital program was in action for several years, for 8 districts of Russia as well as metropolitan areas of Moscow and Saint Petersburg. As it was already mentioned the highest fertility rates are in North Caucasian Federal District, Siberia and Ural also have comparatively high fertility rates. The lowest are Central federal District, and in particular in Moscow and Saint Petersburg.

I estimate the effect of the program for different regions and based on those estimations Maternity Capital program does affect some regions more than others. Results in

Table 2- 11 show that regions with high fertility rates (North Caucasian, and Siberia) are more responsive to the program than Moscow and Saint Petersburg where fertility rates are lower. It is likely that the offered amount of money is not enough for Moscow and Saint Petersburg region due to much higher housing rates. On the other hand, Ural with initially high fertility rate did not have big increase in birth rates due to the program, it did though have 25% increase in birth rates according to raw data. This can be explained that number of births per women naturally grew over time, without the particular effect of the program. Women in the Central region seem to be the most responsive to the program. This region had an originally low fertility that increased number of births after the program was implemented.

It is also interesting that Moscow seems to be the region that is not responsive to fertility programs in general. In 2003, almost 10 years earlier than in any other region, Moscow adopted its own fertility program that paid a significant amount of money for having children before age 30 of both parents. In 2012 those one time payments were 60,000 rubles (about $2000) for the first child, 83,000 rubles (about $2700) for the second child and 118,000 rubles (close to $4000) for the third or more subsequent children.

Despite the monetary incentives Moscow does not have any difference in birth rates. I compare probability of giving birth in Moscow versus Moscow region and Saint Petersburg (

Table 2- 12) in years after 2003 for women age 15 to 30 years. Moscow, Saint Petersburg and Moscow region are very similar in many ways: economically, culturally and socially, but neither Saint Petersburg nor the Moscow region had any pronatalist programs of their own until 2013. Estimation results show no difference in probability of giving birth for women in Moscow compared to these two other regions.

2.6.   Conclusions

In 2007 as an attempt to improve falling fertility rates in the country, the government of Russia introduced a new Maternity Capital Program offering one-time large financial benefits to women who give birth or adopted a second or subsequent child. Even though birth rates increased since then, it is argued that the effect of the program is not sufficient.

In particular there are multiple concerns that indicate that the effect of the program is much smaller than simple descriptive analysis shows, the three biggest and most discussed are:

1) The increase of the birth rates might be partly due to changes in regional pronatalist policies that happened after 2007;

2) An uneven effect on the various population groups, such as increased birth rates in the geographical regions that already have high birth rates;

3) The increase of the birth rates might be partly due to families just rescheduling births rather than having more children.

While previous research addressed rescheduling births issue, it still does not answer other important questions about the results that we see from the program, such as how diverse the effect of the program is for different population groups, and is the effect of the program

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smaller also due to regional maternity programs that contribute to the increased birth rates. In this research I address those questions.

I find that regional policies did not influence the birth rates during the time when Maternity Program was in effect. Controlling for regional programs, the result of the policy fertility rate increased by 0.6 children, which is still below the replacement rate.

I also find that program has diverse effects for different groups of women and is concentrated among a certain group of women, defined, for example, by the age group and cultural aspects. According to the results of this study working women and women without property were more likely to have additional children. Diversion, attributed to employment status, is likely to be based on the complex of financial tradeoffs women face when having another baby. And even though working women are affected the most, this is only the small percentage of the targeted population. The bigger effect for women without property is probably attributed to the limitations of the use of the money provided by the program, as there are only three options for using the Maternity Capital and housing purchases are by far the most popular option.

The biggest diversity of the effect of the program was found for different age groups and geographical regions. The effect of the program is the highest for women up to age 30 and in Caucasian and Central regions and the lowest for Moscow and Saint Petersburg as well as Ural and Northern and North Western regions. For younger women provided financial help plays big role in the decision of having more children and probably this is why they are affected the most. Culture also plays an important role, as one can see from the results of this study the concern that program has most effect in the regions with already high birth rates seems to be a valid. The Caucasian region that has traditionally the high fertility rates has the biggest effect of

the program. I also find that in regions, such as Ural, the big increase in birth rates over the past years is attributed not to the Maternity Capital Program.

With such regional differences in the effect of the program, adjusting pronatalist policies to the regional specifics might optimize expenses, especially taking into account that some regions, like Moscow are shown to be in general not responsive to monetary incentives for increasing fertility rates. Overall, such diverse effects of the program for different groups of women decrease the number of targeted women affected by the program. As the result for the amount of government expenses used for the program overall results are not high enough. If women see the program as the compensation for the loss of income – change in maternity leave policy might provide same results with less budget expenses.

3. Influence of cash, lottery and charity incentives on response rate of web survey among faculty members.

3.1.   Introduction

There are two common problems researchers face when working with collecting data through surveys: response rates and response bias. This paper looks into the non-response behavior of the respondents, which even after many years of research is poorly understood. Currently, since online surveys are more prevalent, the problem of low response rates is also related to the mode of the survey. Although online surveys decrease the cost of conducting the survey, they still require a lot of resources to administrer, and even after using such techniques as personalization and follow ups, response rates are very low. In combination to the specific survey set up, incentives are another commonly used technique to increase response rates (Dillman et al, 2009). Studies cannot agree on a definite strategy when it comes to what types of incentives are best to boost response rates of the online survey as it depends on many characteristics of the respondents and the survey itself (Anseel, Lievens, Schollaert, Choragwicka, 2010).

An experimental design is a logical format of the research that tries to answer the question of whether certain type of incentives can increase response rates of the survey. Controlled experiments have been used to identify causal effects in various areas of research as it allows setting up proper treatment and control groups and a lot of time control for order of events to

happen. In the case of incentives, respondents are usually randomly divided into several groups with different types of incentives or without any.

For best results, survey design should be tailored with the typical respondents' characteristics in mind. Faculty members are often picked as a resource of professional information collected via surveys. Some studies suggest that response increasing techniques that are used for different types of surveys such as marketing research surveys or household surveys will not work as well on professionals or might have a different effect. This is why it is important to understand how different incentives influence response rates of a particular group of respondents, in this case faculty members for an online survey.

3.2. Increasing response rates using incentives

Both academic and marketing researchers struggle to increase response rates to surveys they are conducting. In general response rates to surveys have dropped over the last 25 years. Patterns in survey participation are complex and not fully understood, and are influenced by such factors as personalization, follow-ups, media of the survey, timing of approach, length of questionnaires, and other factors (Goyder, 1987; Sheehan, 2001). Response rates are higher given a higher level of education (Curtin et al, 2000; Goyder, Warriner, and Miller, 2002), younger age (Goyder, 1986; Moore and Tarnai, 2002), and being a women (Curtin et al 2000; Moore and Tarnai, 2002). Factors that influence the response rates of the survey and techniques to improve response rates have been studied in many dimensions, but the results of such research still does not draw a clear picture of the best approach to increasing response rates. Overall such research does find a strong effect of incentives on improving response rates (Mercer et al, 2015), but often the results are contradicting each other. For example, Warriner et al. (1996) studies the effects on response rates to mail surveys of prepayment cash

incentives, charitable donations, and the chance to win a lottery prize. The effectiveness of the prepaid cash rewards was demonstrated, but not those for the lottery or charitable donations. In contrast, Goritz and Wolff (2007) found that lotteries have positive effects on response rates of surveys.

One of the reasons for such contradicting results is that research suggests that reactions to incentives are different among different respondents groups. Anseel, Lievens, Schollaert, Choragwicka (2010) looked globally at factors that can help improve response rates for all types of survey media. They used over 2000 surveys covering about 1.2 million individual respondents, published in 12 journals in Psychology, Management, and Marketing during the period 1995–2008 to conduct a large-scale quantitative study review of published response rates to compare the effect of different response enhancing techniques and response rates over time. They find that reactions to incentives are different among different respondents groups: incentives are more effective for non-working respondents, but less effective for non-managerial employees and top executives.   They also find that different groups of respondents reach to some particular incentives better than other incentives: top executives are more responsive to salience, while managers respond well to sponsorship. Finally, they concluded that for non-managerial samples web-based administration is more effective in comparison to the other response enhancing techniques.

Other studies also show that the effect of the chosen approach also depends on the type of the respondent and the type of survey and what might work for one particular group often is found not supported by other research for different survey settings. University of California recommends (based on the Dillman, Smyth, & Christian (2009)) that their faculty members consider the following factors when attempting to increase response rates: perceived importance of the survey, level of interest faculty has in the research, trust that the data will be

used and maintained properly, minimizing respondent burden and perception of reward for participation.

When it comes to faculty members participating in the survey themselves, results also do not draw one conclusion. Fahimi et al (2006), used data from a nation-wide study of faculty members at postsecondary institutions where different levels of incentives (in the amount of $20 or $30) were offered and found that offering incentives increased response rates and the cost of the study per response, but the higher amount of the incentive did not improve the outcomes. Birnholtz, Horn, Finholt and Bae (2004) conducted an experiment among engineering researchers to see if offering gift certificates by mail or email compared to cash as incentives will lead to higher response rates and found that even among technologically advanced respondents cash incentives still lead to higher response rates.

Several researchers have focused on the effect of different types of techniques, including monetary incentives, on response rates, but did not comment on type of respondent. James, Ziegenfuss, Tilburt, Harris and Beebe (2011) studied the effects of payment timing, form of payment, and requiring a social security number on survey response rates, where respondents were randomized to receive immediate $25 cash, immediate $25 check, promised $25 check, or promised $25 check requiring as social security number. Immediate monetary incentives yield higher response rates than promised monetary incentives in this population of nonresponding physicians. Promised incentives yield similarly low response rates regardless of whether personal information is requested. Furse and Steward (1982) found that promised contribution to charity did not produced higher response rates for a mail-in survey compared to no incentives.

Besides different effects of the incentives for different groups of the respondents, there is another separate problem: reactions to web surveys are different from traditional modes. First, lower response rates to web surveys have been a major concern for survey researchers. To improve the response rate in web-based surveys, the practice of using monetary prizes, such as prepaid debit cards or participation in a lottery are quite commonplace both within the contexts of higher education and marketing research. (Laguilles, Williams, Saunders, 2010).

Millar and Dillman (2011) conducted two experiments designed to evaluate several strategies for improving response to web and web-mail mixed-mode surveys. They find that providing a simultaneous choice of response modes does not improve response rates (compared to only providing a mail response option). However, offering the different response modes sequentially, in which web is offered first and a mail follow-up option is used in the final contact, improves web response rates and makes them equivalent to using only mail. They also show that providing cash incentive in advance is a useful method for improving web response rates.

Laguilles, Williams, Saunders (2010) studied the effect of lottery incentives on response rates among web surveys of college students, conducting four real-life experiments. They found that the lottery incentives not only positively affected response rates but also exerted differential effects by gender: although females were more likely than males to respond to the survey overall, the response rate difference between males and females were smaller for the incentive group compared to the control group, but difference between incentive group and control group was statistically significant only for men.

When it comes to choosing the type of incentives, there are several techniques that are traditionally considered. Prepaid monetary incentives consistently result in the largest positive effect on response rates, but there is also research that shows no significant effect of these

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types of incentives on participation rates. Bosnjak and Tuten (2003) studied the effect of prepaid, postpaid and prize drawing incentives on response rates of web based surveys. The authors investigated this question experimentally in the context of a web-based survey among members of a professional association in Virginia. The results indicate that prepaid incentives in web surveys seem to have no advantages concerning the willingness to participate, actual completion rates, and the share of incomplete response patterns when compared with postpaid incentives. Furthermore, postpaid incentives show no advantages over no incentives. Finally, compared to no incentives, prize drawings increase completion rates and also reduce various incomplete participation patterns.

The results from Cobanoglu and Cobanoglu (2003), research indicate that offering a luggage tag to each respondent and including them in a draw for a bigger value prize (a personal digital assistant) yields the highest response rate.

Deutskens, Ruyter, Wetzels and Oosterveld (2004) among other findings conclude that vouchers seem to be the most effective incentive in long questionnaires, while lotteries are more efficient in short surveys. A follow-up study revealed that lotteries with small prizes, but a higher chance of winning are most effective in increasing the response rate.

This research contributes to the discussion about the effect of monetary incentives offered in the web surveys to faculty members as well as examining other characteristics that impact response rates and further respondent's decision to accept the offered incentive. We used the response behavior information for the survey among chemistry faculty members and demographic information that respondents were asked to provide during the survey. As a monetary incentive respondents were offered $20 and $10 prepaid debit cards, the opportunity to participate in the lottery to win a $50 prepaid debit card with 1 in 10 chance to win, and a $5 donation to the charity for completion of the survey. The results are compared

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among groups of respondents with different incentives and to the group of respondents that were not offered any compensation for participation in the survey. We find that cash incentives increased the probability of response compared no incentives and lottery and charity donations didn't influence the response rate. When respondents finished the survey they were given an option to request the incentive they were offered in the beginning of the survey. In order to do that they had to provide certain contact information. We found that compared to charity people requested fewer incentives in any other groups, including cash incentives and the lottery.

3.3. Methods

We launched the survey among chemistry faculty members of the universities in the United States taken from the membership rolls of the American Chemical Society (ACS). The survey asked participants about factors that influence the outcomes of scientific discoveries in chemistry field, such as resources available, university policies, or sharing knowledge with other scholars. In particular, participants were asked how their research expenses and funding affect research outcomes. ACS is the largest scientific society in the field of chemistry with members at all professional levels and in all fields of chemistry, chemical engineering and related fields, this is why participants of the survey were chosen from members of the ACS.

Respondents were randomly divided into 5 groups with different incentives and one control group without an offered incentive. Table 3- 1 provides an overview of the 5 groups with incentives and control group with no offered incentives. Incentives to complete the survey include a $20 and $10 prepaid debit cards, the opportunity to participate in the lottery with a 10% expected payoff of winning a $50 prepaid debit card, and a $5 donation to the

charity from the provided list for completion of the survey. There are two groups that were offered a $20 dollar prepaid debit card, when first group was sent out, the incentive was not announced in the email, that resulted in having a second round with $20 prepaid debit cards, this time announced in the email with invitation to participate in the survey. While having those two groups was not an initial intention, it gives us additional control group to compare respondents' behavior in requesting the incentives and response rates. All of these five groups had 1000 respondents who received the email that invited them to participate in the survey. The control group email was sent to over 2400 participants. Email for all groups followed the same patterns with one reminder after one week and a second reminder after 10 days. Participants were given two weeks to complete the survey. After completing the survey participant were required to fill out contact information in order to receive the incentive.

Some demographic characteristics of the respondents are provided in Figure 3- 1 and Table 3- 2. Figure 3- 1 presents gender of respondents by group. Overall 1212 of 7422 (about 16% percent) of 7422 respondents are women, ranging from 15% to 17% for different incentive groups, and we ended up not having gender data for about 348(5%) of respondents.

Table 3- 2 presents percentage break down of respondents by age group for every type of incentive. The average age of the respondent is close to 58; about 24% of respondents were 50 to 60 years old; about 20% of respondents were 40 to 50 years old and 19% of respondents were 60 to 70 years old; other age groups were 10% or less of total number of respondents, and for about 17% of respondents we didn't have age data.

As it can be seen from the tables, demographic characteristics are similar for all groups as expected for random assignment of respondents to groups.

3.4. Results

Table 3- 3 present the response rates for all groups. Group A2, offered the $20 gift card, had the highest response rate, followed by group B, offered the $10 gift card, while participation in the charity had the lowest response rate even compared to the no incentive group. Response rates for groups A2, B and C are statistically different from group F were no incentives were provided with p-value <0.01; A2 and C are also statistically different from each other with p-value <0.01; A2 and B are statistically different from each other with p-value 0.032 and B and C are not statistically different from each other (p-value 0.052).

As we can see from

Table 3- 5, not all respondents requested their incentives after completing the survey. The most respondents who requested incentives were in group A, the difference is statistically significant from all other groups with p-value<0.01. Table 3- 4 shows the relative cost per observation based on response rate and requesting the incentive rate for all groups of incentives. All groups are statistically different with p-value <0.01. As expected, the most "expensive" observations are in group A2 ($12.69) – they group with highest response rate and largest cash value of incentives and the least expensive are in groups C ($2.26) and D ($2.91).

Table 3- 5 shows the percentage of women and men that were invited to participate and responded to the survey. The percentage of women who responded to the survey was larger or equal (as in case of group C) to the percentage of men. The biggest difference in percentages of respondents is for group A2 where we offered $20 prepaid debit card, where 34% of women responded to our request to participate in the survey and only 28% of men.

Table 3- 6 and Table 3- 7 break down responses by group and age category. The youngest respondent was born in 1985, so participants are divided into 6 age group categories by decades starting at age 30. Table 3- 6 presents percentage of all participants in that age group who completed the survey with a particular incentive (for example, 41% of all people between 30 and 40 years old who were offered prepaid debit card $10 in group B finished the survey); in bold is the group with top response rate for the age category. For the most age categories group A2 had the highest response rates, while for participants between ages 40 and 50 group B had the highest response rate, although this is still close to group A2 response rate. Also, for ages over 80 the lottery group had the highest response rate. Table 3- 7 presents percentages of respondents who finished the survey and agreed to provide their information for the incentives. Groups with top percentages are in bold, as you can see from the table most people requested the incentive in group A2 for ages below 70, and after that age the top group was group D that offered charity donations.

Table 3- 8 present results of the probit model with response outcome and requesting the incentive after finishing the survey regressed on the incentive groups and personal characteristics. Coefficients are marginal effects. In the Table 8 the outcome variables in both cases are binary: responded (1) or not responded (0) or requested the incentive (1) or not requested the incentive (0). The variables of interest are dummy variables for the incentive groups A, A2, B, C and D compared to group F, group of respondents with no incentives, in the model with response outcome as dependent variable; and groups A, A2, B and C compared to group D, charity group, in the model with request of incentive as a dependent variable. Both models are controlled for year of birth, gender, year of getting a PhD, department and composition of research group. As you can see from the results in the column "Response" people were more likely to respond to the survey when offered $20 and $10 prepaid debit cards for completing the survey compared to no incentives, and lottery, charity and not announced prepaid debit card in the invitation email seem not to have an effect on the response rate. Coefficients for groups with $20 and $10 dollar gift card are statistically different from each other too (with p-value 0.0005), so the bigger the money prize, the higher the response rate. Also, younger respondents and women were more likely to take a survey. When it came to actually providing us with information to request the offered incentive, you can see from the column "Incentive request" that when respondents in any other group were less likely to request the incentive compared to group D, were they were offered where they had to pick a charity for donation from the provided list. Coefficients for groups with $20 not announced in the email, $10 gift card and lottery are not statistically different from each other with p-value >0.1, while $20 gift card group is statistically different from the rest with p-values <0.01 comparing with $20 not announced in the mail group and $10 group; and with p-value <0.05 comparing to lottery group.

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Table 3- 9 present results of the probit model where time of response, in minutes, was regressed on the incentive groups and personal characteristics. Dependent variable is time difference between time of invitation and time the respondent started the survey. As we can see from the results respondents in Chemistry and Chemical Engineering Departments were talking longer time to start the survey, by about 46 hours; respondents who got their PhD later were responding to the survey by about 40 minutes later and respondents who have postdocs were responding later by about 3.4 hours for every postdoc student. All other variables have no effect on the time of the response. It is important to keep in mind that there are many factors that influence how fast the respondent will start the survey, including current schedule of a particular faculty member and how often the respondent has a habit to check their email.

3.5. Conclusion

Surveys have been an efficient and convenient way to gather information for all types of research and there are many techniques that try to improve the quality and amount of responses that surveys receive. Even though this topic has been studied for many years non response behavior of the respondents is still poorly understood, and the changing mode of surveys contributes to the conflicting answers in previous studies.

For best results survey design should be tailored with the typical respondents' characteristics in mind. Faculty members are often picked as a resource of professional information collected via surveys and what causes faculty to have higher response rates is an important question that we are trying to answer. In particular, this paper studies how different types of monetary incentives offered in a web survey influence the response rate of chemistry faculty members.

We launched the survey among chemistry faculty members of the universities in the United States taken from the membership rolls of the American Chemical Society (ACS) and along with this survey we conducted the experiment to study the effect if incentives on the response rates of faculty members. Respondents were randomly divided into 5 groups with different incentives and one control group without an offered incentive. And were offered $20 and $10 prepaid debit cards, the opportunity to participate in the lottery with an expected payoff of $50 and a $5 donation to the charity for completion of the survey. Response rates are compared among groups of respondents with different incentives to the group of respondents that were not offered any compensation for participation in the survey. To receive the promised incentive the respondent was required to provide contact information, and not all respondents who chose to participate in the survey, chose to receive the incentive. We find that cash incentives increased the probability of response compared no incentives and lottery and charity donations did not influence the response rate. We also find that compared to charity, respondents requested fewer incentives in any other groups, including cash incentives and the lottery. Finally, we find that respondents in Chemistry and Chemical Engineering Departments, respondents who got their PhD later, respondents who have postdocs were starting the survey later after initial invitation.

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The following are the tables, providing additional information on the dataset and some

variables I used in Chapter 1. Table A shows total number of respondents in the dataset per

each wave of survey. Table B describes construction of categorical variables (education,

marital status and health) and income variable. Additionally, categories for education

variable are specific for education system in Russia, to have better understanding of them

Table C links level of education to approximate number of years of education.

Table A. Number of observations per each wave of survey

Wave	Number of respondents	Percent	Cumulative
7	8,340	5.1%	5.1%
8	8,697	5.3%	10.5%
9	9,074	5.6%	16.0%
10	10,098	6.2%	22.2%
11	10,499	6.4%	28.7%
12	10,634	6.5%	35.2%
13	**10,659**	**6.5%**	**41.7%**
14	**10,333**	**6.3%**	**48.1%**
15	**12,491**	**7.7%**	**55.7%**
16	**12,301**	**7.6%**	**63.3%**
17	**11,864**	**7.3%**	**70.6%**
18	**11,816**	**7.3%**	**77.8%**
19	**17,810**	**10.9%**	**88.8%**
20	**18,302**	**11.2%**	**100.0%**
Total	162,918	100%	

TableB. Description of categorical variables

Variable	Description of the variable	Description of categories
Education	Highest level of education of the respondent by 2011	-primary education, incomplete secondary education
		-secondary education
		-professional courses of drivers, accountants, etc
		-technical vocational school
		-technical colleges, art colleges, musical colleges and medical colleges
		-graduate school
		-post graduate school, "Doctor of science" degree
Health	Respondent's answer to the question: How would you evaluate your health?	- very good
		- good
		- average – not good, but not bad
		- bad
		- very bad
Marital Status	Respondent's answer to the question: What is your current marital status?	- not married
		- married
		- divorced, not remarried
		- widowed
Income	Real family income per person in 1992 rubles	

Table C. Level of education and number of years at school

Level of education	Approximate number of years of school
primary education, incomplete secondary education	9
secondary education	11
professional courses of drivers, accountants, etc	10
technical vocational school	10-12
technical colleges, art colleges, musical colleges and medical colleges	15-17
university, institution, academy, including master's degree	15-17
graduate school	18-20
post graduate school, "Doctor of science" degree	Over 20

Tables and Figures

Figure 1- 1

Mean and standart deviation of SWB by occuaption type

Figure 1- 2

Mean and standart deviation of family income per person by occupation type

Figure 1- 3

Mean and standart deviation of self reported health by occupation type

Figure 1- 4

Predicted life satisfaction using logit model clustered on id
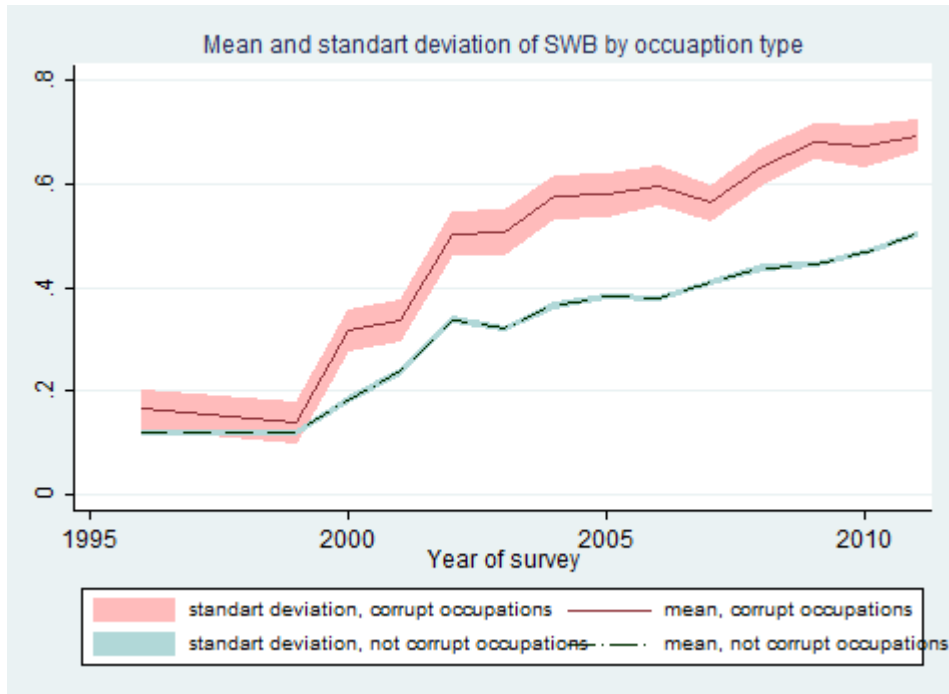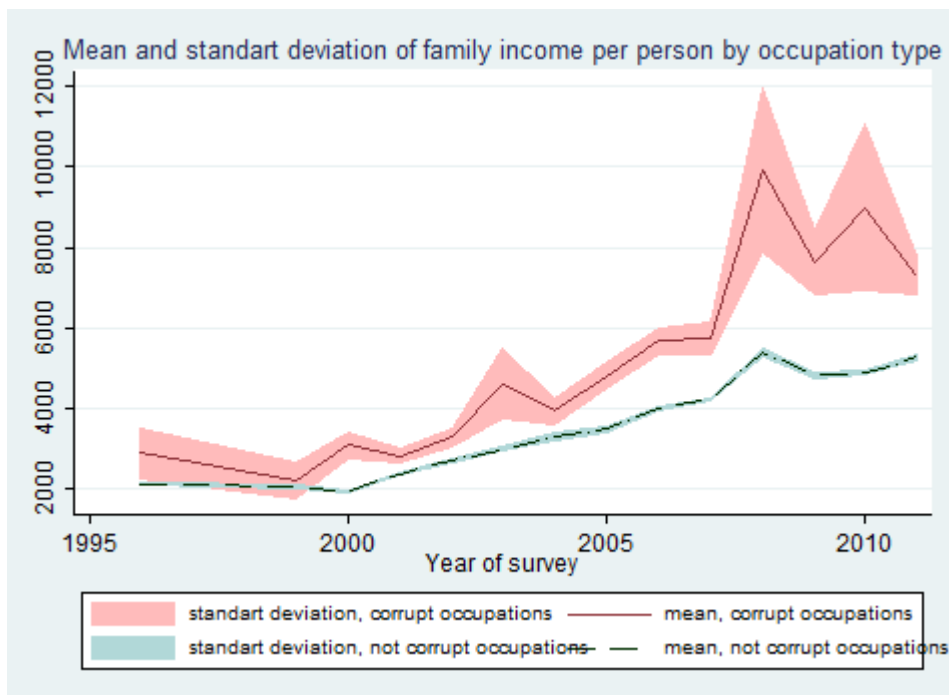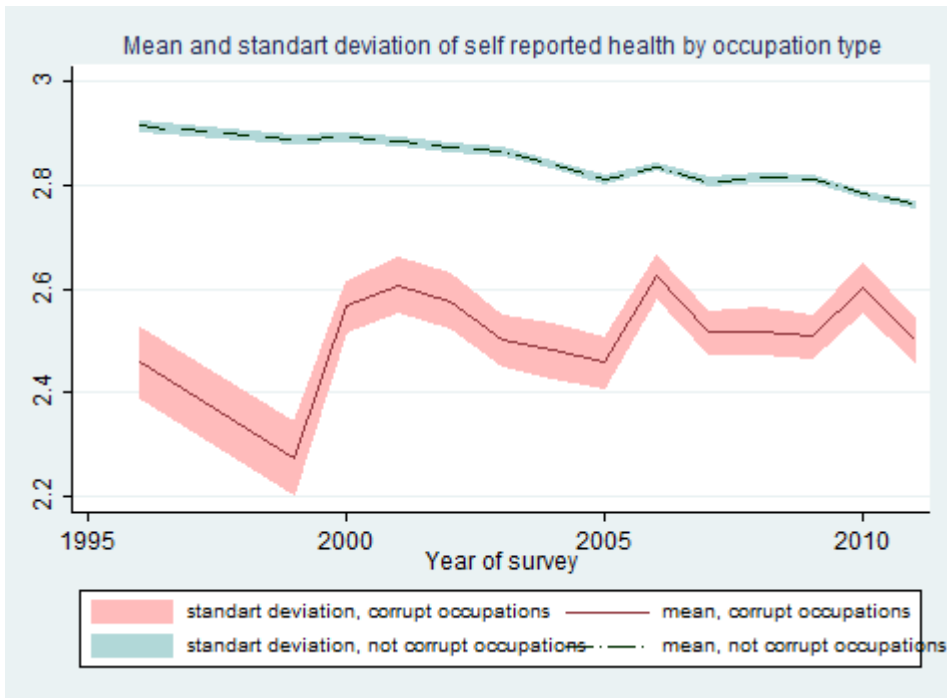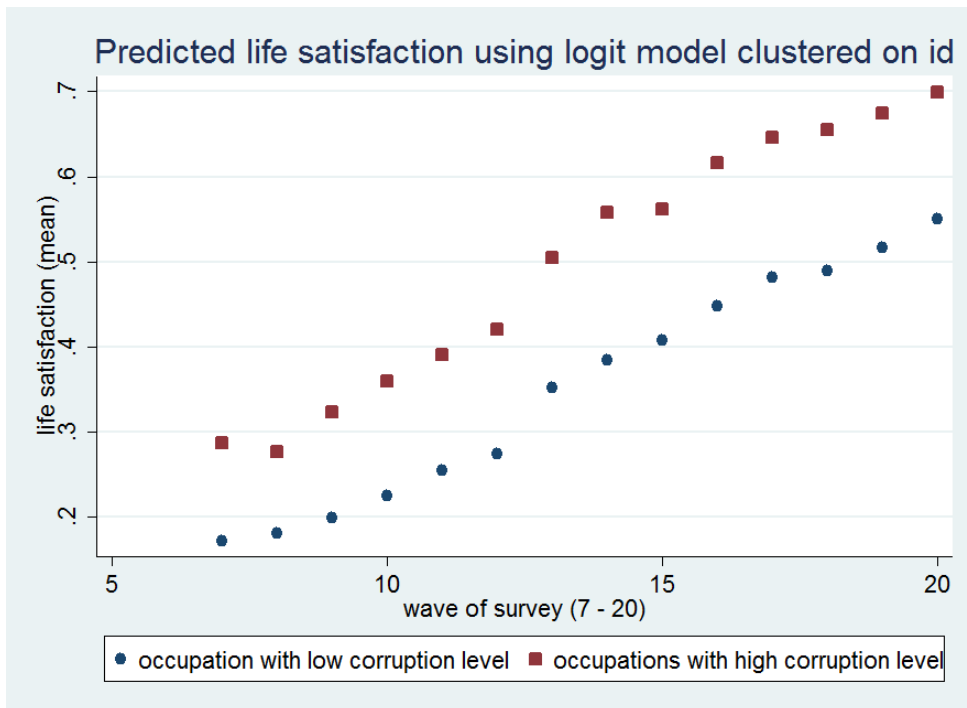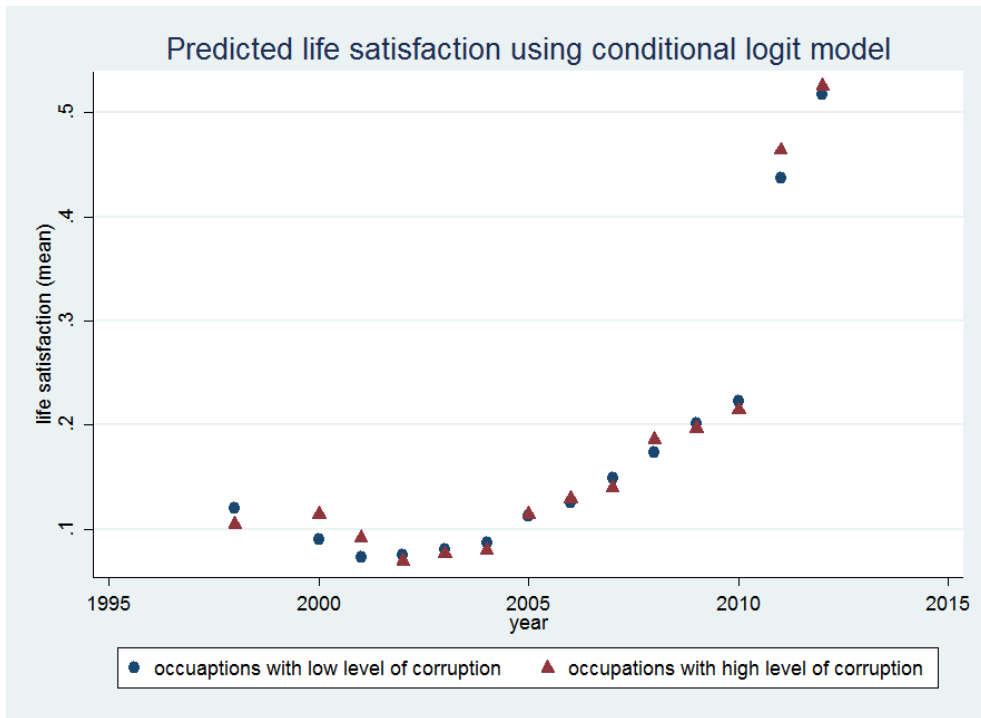
Figure 1- 5

Figure 3- 1
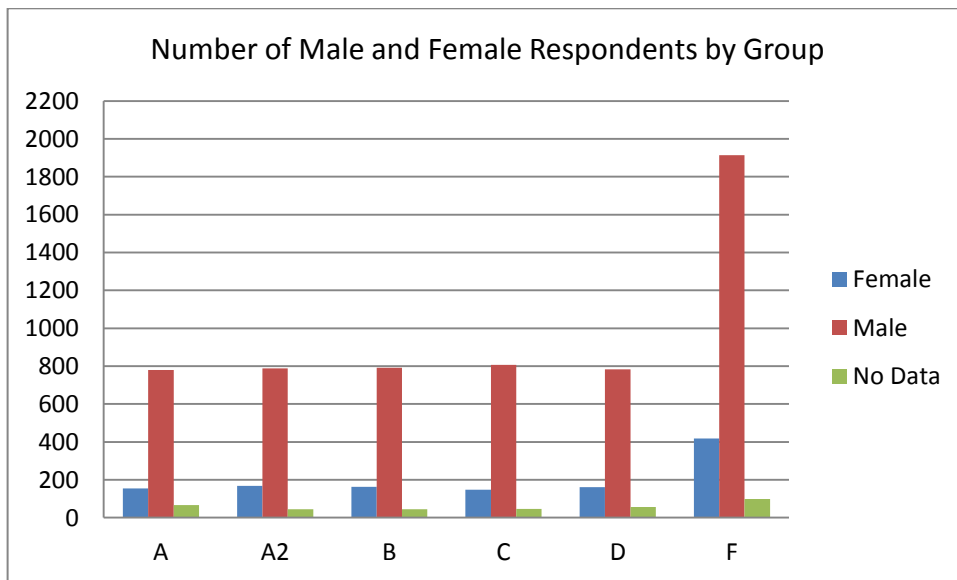
Table 1- 1

Number of people – years per higher code occupation group

Occupation	Freq.	Percent	Cum.
0 - Army	637	0.69	0.69
1 - Legislators, Senior Managers, Officials	4,631	5.04	5.73
2 - Professionals	15,666	17.04	22.77
3 -Technicians and Associate Professionals	15,282	16.62	39.39
4 - Clerks	5,507	5.99	45.38
5 - Service Workers and Market Workers	10,339	11.25	56.63
6 - Skilled Agricultural and Fishery Workers	425	0.46	57.09
7 - Craft and Related Trades	12,714	13.83	70.92
8 - Plant and Machine Operators and Assemblers	15,333	16.68	87.59
9 - Elementary (Unskilled) Occupations	11,406	12.41	100.00
Total	91,940	100.00	

Table 1- 2

Average in wave of survey number of people in corrupt and not corrupt occupations

	high level of corruption	low level of corruption
logit, clustered on id		
full	104	3594
men	71	1575
women	33	2019
conditional logit		
full	74	2400
men	51	1095
women	23	1304

Table 1- 3 Binary Logit, clustered on id.

VARIABLES[1]	Full sample	Women	Men
Education variables:			
primary education, incomplete secondary education	-0.0596***	-0.0566***	-0.0605***
	(0.0107)	(0.0133)	(0.0176)
secondary education	-0.0669***	-0.0567***	-0.0779***
	(0.00875)	(0.0110)	(0.0141)
professional courses of drivers, accountants, etc	-0.0604***	-0.0422***	-0.0715***
	(0.0106)	(0.0155)	(0.0150)
technical vocational school	-0.0767***	-0.0804***	-0.0717***
	(0.00881)	(0.0121)	(0.0133)
technical colleges, art colleges, musical colleges and medical colleges	-0.0456***	-0.0572***	-0.0183
	(0.00790)	(0.00956)	(0.0136)
graduate school	0.0295	0.0478	-0.0461
	(0.0612)	(0.0744)	(0.0562)
post graduate school, "Doctor of science" degree	0.0648	0.0810*	0.0593
	(0.0415)	(0.0470)	(0.0659)
Age	-0.0216***	-0.0194***	-0.0240***
	(0.000910)	(0.00115)	(0.00149)
Age squared	0.000223***	0.000204***	0.000242***
	(9.69e-06)	(1.20e-05)	(1.62e-05)
Health variables:			
very good	0.233***	0.256***	0.215***
	(0.0142)	(0.0213)	(0.0192)
Good	0.149***	0.154***	0.142***
	(0.00493)	(0.00660)	(0.00737)
Bad	-0.163***	-0.153***	-0.177***
	(0.00826)	(0.00977)	(0.0148)
very bad	-0.301***	-0.269***	-0.372***
	(0.0259)	(0.0282)	(0.0572)
Having kids	0.0266***	0.00448	0.0640***
	(0.00776)	(0.0102)	(0.0118)
Marriage variables:			
Married	0.0852***	0.0800***	0.0897***
	(0.00769)	(0.00981)	(0.0123)
Divorced	-0.0425***	-0.0401***	-0.0464**
	(0.0105)	(0.0125)	(0.0186)
Widowed	-0.0146	-0.0145	-0.0412
	(0.0127)	(0.0143)	(0.0318)
Gender(men)	0.0271***		
	(0.00564)		
Year of survey	0.0179***	0.0181***	0.0173***
	(0.000842)	(0.00108)	(0.00134)
Family income per person(log)	0.110***	0.113***	0.105***
	(0.00347)	(0.00457)	(0.00524)
Observations	90,647	53,504	37,143

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[1]Reported are marginal effects. Education variable is compared to university, institution, academy, including master's degree, health variable to fair health, marriage to never married.

Table 1- 4

Effect of corruption on SWB using logit, clustered on id

VARIABLES[1]	Full sample	Women	Men
Job occupation – corrupt	**0.117*****	**0.084****	**0.126*****
	(0.023)	**(0.043)**	**(0.028)**
Education variables:			
primary education, incomplete secondary education	-0.058***	-0.06***	-0.05***
	(0.012)	(0.015)	(0.019)
secondary education	-0.065***	-0.056***	-0.073***
	(0.01)	(0.012)	(0.015)
professional courses of drivers, accountants, etc	-0.042***	-0.029	-0.046***
	(0.012)	(0.018)	(0.017)
technical vocational school	-0.079***	-0.092***	-0.064***
	(0.01)	(0.014)	(0.015)
technical colleges, art colleges, musical colleges and medical colleges	-0.043***	-0.062***	-0.003***
	(0.01)	(0.0011)	(0.015)
graduate school	0.654	-0.077	-0.007
	(0.081)	(0.1)	(0.078)
post graduate school, "Doctor of science" degree	0.032	0.085	-0.001
	(0.05)	(0.062)	(0.072)
Age	-0.023***	-0.021***	-0.024***
Age squared	(0.001)	(0.001)	(0.0017)
	0.00023***	0.0002***	0.00024***
	(4.61e-05)	(5.99e-05)	(7.29e-05)
Health variables:			
very good	0.277***	0.312***	0.248***
	(0.017)	(0.026)	(0.023)
Good	0.171***	0.18***	0.158***
	(0.0057)	(0.008)	(0.008)
Bad	-0.173***	-0.17***	-0.174***
	(0.01)	(0.008)	(0.016)
very bad	-0.318***	-0.294***	-0.371***
	(0.0.28)	(0.032)	(0.061)
Not having kids	-0.019**	-0.001	-0.045***
	(0.01)	(0.013)	(0.015)
Marriage variables:			
Married	0.11***	0.105***	0.111***
	(0.01)	(0.012)	(0.015)
Divorced	-0.0.27**	-0.029**	-0.023
	(0.012)	(0.014)	(0.02)
Widowed	-0.0001	-0.003	-0.02
	(0.014)	(0.016)	(0.034)
Gender(men)	0.021***		
	(0.006)		
Year of survey	0.012***	0.014***	0.01***
	(0.006)	(0.001)	(0.0016)
Family income per person(log)	0.123***	0.127***	0.115***
	(0.004)	(0.006)	(0.006)
Observations	65,914	38,522	27,392

[1]Reported are marginal effects. Education variable is compared to university, institution, academy, including master's degree, health variable to fair health, marriage to never married, controlled for no response on question whether respondent has kids.

Table 1- 5

Respondents who switched occupation group between rounds of survey

wave of survey	respondends, stayed in the same occupation	respondents, switched to corrupt occupation	respondents, switched to not corrupt occupation
13	3976	28	16
14	4123	29	26
15	5107	21	30
16	5411	46	25
17	5483	29	46
18	5795	25	15
19	2587	4	9
20	7269	25	7
Total	39751	207	174

Table 1- 6

	Effect of corruption on SWB using conditional logit		
VARIABLES[1]	Full sample	Women	Men
Job occupation - corrupt	**0.247***	**0.204**	**0.370**
	(0.127)	**(0.148)**	**(0.244)**
Age	-0.117***	-0.123**	-0.0788
	(0.0410)	(0.0491)	(0.0800)
Age squared	0.00152***	0.00137***	0.00149***
	(0.000153)	(0.000242)	(0.000201)
Health variables:			
very good	0.850***	0.792***	0.892***
	(0.0931)	(0.125)	(0.140)
Good	0.478***	0.415***	0.531***
	(0.0333)	(0.0478)	(0.0463)
Bad	-0.577***	-0.512***	-0.603***
	(0.0538)	(0.0899)	(0.0673)
very bad	-1.360***	-1.798***	-1.185***
	(0.152)	(0.295)	(0.181)
Not having kids	-0.102	-0.216*	0.0295
	(0.0816)	(0.117)	(0.114)
Marriage variables:			
Married	0.234***	0.331***	0.162*
	(0.0678)	(0.101)	(0.0918)
Divorced	-0.200**	-0.125	-0.252**
	(0.0798)	(0.127)	(0.104)
Widowed	-0.368***	-0.441*	-0.418***
	(0.108)	(0.252)	(0.125)
Gender(men)	-13.66		
	(574.4)		
Year of survey	0.0529	0.0481	0.0356
	(0.0395)	(0.0458)	(0.0791)
Family income per person(log)	0.327***	0.299***	0.350***
	(0.0233)	(0.0342)	(0.0317)
Observations	40,132	17,371	22,759

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[1]Health variable is compared to fair health, marriage to never married, controlled for no response on question whether respondent has kids.

Table 1- 7

Effect of anticorruption policy	
VARIABLES	SWB
Occupation-corrupt*Year after 2007	**0.0334**
	(0.0299)
Occupation-corrupt	0.0921***
	(0.0272)
Year after 2007	0.364***
	(0.0122)
2001	0.0158
	(0.0156)
2002	0.109***
	(0.0157)
2003	0.205***
	(0.0151)
2004	0.312***
	(0.0138)
2005	0.271***
	(0.0141)
2006	0.317***
	(0.0136)
2007	0.330***
	(0.0133)
2008	0.317***
	(0.0133)
2009	-0.0503***
	(0.00753)
2010	-0.0441***
	(0.00747)
2011	-0.0211***
	(0.00741)
2012	0.00680
	(0.00643)
Observations	90,647

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Controlled for family income per person, gender, education, marital status, health, number of kids, age, age squared, year of survey

Table 1- 8

Robustness checks

Robustness check	VARIABLES[1]	Full sample	Women	Men
(A) Effect of working in chosen occupations on SWB for the UK	Job occupation – corrupt	0.0247	-0.0139	0.0506
		(0.0387)	(0.0610)	(0.0502)
(B) Effect of occupation choice on SWB for nurses and school teachers	Job occupation – government, not corrupt	-0.230**	-0.244**	-0.172
		(0.109)	(0.114)	(0.389)
(C) Effect of corruption on SWB using ordered probit	Job occupation – corrupt (categorical)	0.168***	0.107*	0.207***
		(0.0378)	(0.0648)	(0.0463)
(D) Effect of corruption on SWB using OLS fixed effects	Job occupation – corrupt (categorical)	0.168***	0.107*	0.207***
		(0.0341)	(0.0561)	(0.0432)
(E) Effect of corruption on SWB using logit Ferrer-i-Carbonel and Frijters estimator	Job occupation - corrupt	0.242**	0.240	0.244*
		(0.102)	(0.176)	(0.125)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[1]Health variable is compared to fair health, marriage to never married, controlled for no response on question whether respondent has kids.

Table 2- 1 Difference in difference

VARIABLES	Model 1: OLS Clustered on ID	Model 2: OLS Clustered on ID, with regional programs	Model 3: Panel	Model 4: Panel, with regional programs
Year after 2007* Eligible for the program	**0.0587***	**0.0600***	**0.0894***	**0.0907***
	(0.00388)	**(0.00389)**	**(0.00392)**	**(0.00393)**
Year after 2007	0.00542**	0.00256	-0.0510***	-0.0540***
	(0.00270)	(0.00280)	(0.00311)	(0.00320)
Eligible for the program	0.0542***	0.0542***	0.0756***	0.0754***
	(0.00268)	(0.00268)	(0.00255)	(0.00255)
Regional program		-1.07e-05		9.01e-06
		(2.43e-05)		(2.41e-05)
Regional program amount		0.0233***		0.0202***
		(0.00568)		(0.00581)
Log income	0.00301***	0.00279***	9.18e-05	-4.50e-05
	(0.000982)	(0.000983)	(0.00110)	(0.00110)
Constant	-0.0261***	-0.0242***	0.0271***	0.0280***
	(0.00864)	(0.00864)	(0.00982)	(0.00982)
Observations	50,294	50,294	50,294	50,294
R-squared	0.068	0.068		
Number of idind			14,484	14,484

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2- 2 Before-after estimator

VARIABLES	Women eligible for the program	Women not eligible for the program
Year after 2007	**0.0669***	**0.00775***
	(0.00384)	**(0.00128)**
Constant	0.0570***	3.67e-05
	(0.00274)	(3.67e-05)
Observations	21,975	34,956
R-squared	0.011	0.006

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2- 3 Difference in difference with more controls

VARIABLES	Model: OLS Clustered on ID
Year after 2007	0.0219
	(0.0190)
Year after 2007* Eligible for the program	**0.143***
	(0.0309)
Eligible for the program	0.0889***
	(0.0168)
Number of kids	-0.00287
	(0.00915)
Age	0.00922*
	(0.00549)
Age squared	-0.000139
	(8.77e-05)
Log income	-0.0130
	(0.00883)
Marital status	0.0119
	(0.0123)
Preschool in the area	-0.0221
	(0.0145)
Regional program	-0.000162
	(0.000325)
Regional program amount	-0.000784
	(0.0472)
Property value	1.69e-10
	(4.85e-10)
Observations	1,324
R-squared	0.127

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 2- 4

VARIABLES	(2) birth	(3) birth	(1) birth
Year after 2007	0.0525***	0.0482***	0.0929***
	(0.0109)	(0.00467)	(0.0107)
Marital status	0.0146		
	(0.00909)		
After 2007* Marital status	**-0.0140**		
	(0.0121)		
Work status		0.0127***	
		(0.00184)	
After 2007* Work status		**0.0311*****	
		(0.00915)	
Property			-0.000743
			(0.00665)
After 2007* Property			**-0.0351*****
			(0.0113)
Regional program	9.39e-05*	-0.000106**	-2.72e-05
	(5.41e-05)	(4.43e-05)	(4.77e-05)
Regional program amount	0.0367***	0.0415***	0.0459***
	(0.0133)	(0.0108)	(0.0116)
Constant	0.0880***	0.0159***	0.0569***
	(0.0167)	(0.00497)	(0.00853)
Observations	14,498	20,134	21,551
R-squared	0.009	0.024	0.012

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2- 5 Income groups

Group	Min real income	Max real income
1	0	4485
2	4486	8465
3	8466	14717
4	14718	1324387

Table 2- 6 Effect of the program for different income groups

VARIABLES	Group 1	Group 2	Group 3	Group 4
Year after 2007* Eligible for the program	**0.0491*****	**0.0657*****	**0.0533*****	**0.0549*****
	(0.0129)	**(0.00840)**	**(0.00751)**	**(0.00785)**
Observations	10,803	12,414	13,622	13,771
R-squared	0.072	0.071	0.059	0.058

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2- 7 Effect of the program for different savings group

VARIABLES	No savings	Have savings
Year after 2007* Eligible for the program	**0.0948*****	**0.0857*****
	(0.00523)	**(0.0151)**
Observations	19,992	2,865
R-squared	0.067	0.065

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2- 8 Size of age groups by program eligibility

Age group	Eligible for the program	Not eligible for the program
15-20	186	5940
20-30	5440	10697
30-40	7899	7101
40+	6749	6272

Table 2- 9 Program effect by age groups

		Eligible	Not Eligible
15-20	**Age group*Year after 2007**	**0.0862***	**-0.00907*****
		(0.0483)	**(0.00138)**
	Observations	20,284	30,010
	R-squared	0.020	0.008
20-30	**Age group*Year after 2007**	**0.0536*****	**0.00152**
		(0.0102)	**(0.00120)**
	Observations	20,284	30,010
	R-squared	0.030	0.006
30-40	**Age group*Year after 2007**	**-0.0223****	**0.0191*****
		(0.00929)	**(0.00167)**
	Observations	20,284	30,010
	R-squared	0.014	0.011
40-49	**Age group*Year after 2007**	**-0.0224****	**-0.00268**
		(0.00951)	**(0.00235)**
	Observations	20,284	30,010
	R-squared	0.023	0.006

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2- 10

Name of District	Total fertility rate (2006)	Total fertility rate (2011)	Percentage change
North Caucasian Federal District*	1.629	2.006	23%
Ural Federal District	1.393	1.745	25%
Siberian Federal District	1.392	1.721	24%
Volga Federal District	1.271	1.593	25%
Saint Petersburg	1.076	1.378	28%
Northwestern Federal District	1.203	1.455	21%
Far Eastern Federal District	1.421	1.657	17%
Central Federal District	1.161	1.376	19%
Moscow	1.051	1.251	19%
Southern Federal District**	-	1.517	-

*Before 2010 includes Southern Federal District
**no data before 2010 as it was part of North Caucasian Federal District

(Source: Demoscope: Institute of Demography at the National Research University "Higher School of Economics")

Table 2- 11

	North Caucasian	Moscow and SPb	Northern and North Western	Central and Central Black-Earth
Year after 2007	-0.0227***	-0.0177*	-0.00365	-0.0232***
	(0.00636)	(0.00956)	(0.00959)	(0.00633)
Eligible for the program	0.0426***	0.0772***	0.0445***	0.0349***
	(0.00805)	(0.0111)	(0.0110)	(0.00663)
Eligible for the program*After 2007	**0.0649***	**0.0314*	**0.0271*	**0.0625***
	(0.0114)	**(0.0165)**	**(0.0156)**	**(0.0101)**
Log Income	0.00932***	-0.00369	0.000317	0.00306
	(0.00268)	(0.00355)	(0.00308)	(0.00234)
Marital Status	0.00798**	0.00750**	0.00930**	0.00942***
	(0.00332)	(0.00358)	(0.00391)	(0.00238)
Observations	5,890	4,311	2,899	7,334
R-squared	0.062	0.064	0.039	0.056
	Volga-Vaytski and Volga Basin	**Ural**	**Western Siberian**	**Eastern Siberian and Far Eastern**
Year after 2007	-0.00764	-0.0116	-0.00401	-0.0116
	(0.00678)	(0.00764)	(0.00910)	(0.00737)
Eligible for the program	0.0448***	0.0524***	0.0374***	0.0600***
	(0.00650)	(0.00743)	(0.00911)	(0.0107)
Eligible for the program*After 2007	**0.0403***	**0.0222*	**0.0682***	**0.0561***
	(0.0107)	**(0.0114)**	**(0.0145)**	**(0.0155)**
Log Income	0.00126	0.000933	0.00184	-0.00110
	(0.00209)	(0.00265)	(0.00249)	(0.00285)
Marital Status	0.00704***	0.00941***	0.00384	0.0124***
	(0.00243)	(0.00284)	(0.00371)	(0.00365)
Observations	7,549	6,476	3,850	4,075
R-squared	0.048	0.044	0.065	0.067

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2- 12 Moscow only regression. Compared to Saint Petersburg and Moscow region.

VARIABLES	birth
Year	0.336***
	(0.0547)
Moscow	**-0.142**
	(0.283)
Work status	0.0584
	(0.0788)
Age	1.270**
	(0.549)
Age squared	-0.0245**
	(0.0111)
Log Income	-2.46e-06
	(8.80e-06)
Marital Status	0.630***
	(0.209)
Constant	-694.7***
	(109.9)
Observations	1,338
Number of idind	520

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3- 1 Overview of each r group of respondents

Group	Incentive	Number of invitations
A	Prepaid debit card $20, not announced in the email	1000
A2	Prepaid debit card $20	1000
B	Prepaid debit card $10	1000
C	Lottery for $50 prepaid debit card, 10% chance of winning	1000
D	Donation to the charity	1000
F	No incentives	2431

Table 3- 2 Respondents by age ground and group of incentives

Group	30-40	40-50	50-60	60-70	70-80	80+	No data
A	9%	19%	22%	19%	10%	3%	18%
A2	8%	20%	24%	20%	9%	2%	16%
B	10%	19%	24%	20%	9%	3%	16%
C	8%	22%	23%	18%	9%	3%	17%
D	6%	19%	27%	18%	11%	2%	18%
F	7%	20%	24%	19%	10%	3%	17%
Total	8%	20%	24%	19%	10%	3%	17%

Table 3- 3 Response rate, number of partial responses and number of requested incentive

Group	Incentive	Total responses	Partial responses	Requested incentives	Emails sent	Response rate	Statistically different from Group F
A	$20, not announced in the email	198	47	84	1000	20%	No
A2	$20	279	42	177	1000	28%	Yes
B	$10	237	44	107	1000	24%	Yes
C	$50 1 from 10	201	47	91	1000	20%	Yes
D	charity	177	49	69	1000	18%	No
F	no incentives	457	138	-	2431	19%	-

Table 3- 4 Relative cost of observation

Group	Relative costs per observation based on requesting incentives rate	response rate
A	$ 8.48	20%
A2	$ 12.69	28%
B	$ 4.53	24%
C	$ 2.26	20%
D	$ 2.91	18%
F	$ -	19%

Table 3- 5 Response rate and rate of requested responses by gender

Group	Women		Men	
	Percentage responded	Chose the incentive out of all women responded in the group	Percentage responded	Chose the incentive out of all men responded in the group
A	24%	46%	20%	42%
A2	34%	63%	28%	65%
B	26%	57%	24%	43%
C	20%	47%	20%	46%
D	20%	56%	18%	60%
F	21%		19%	
Total	23%	38%	21%	37%

Table 3- 6 Response rate by age group

Group	30-40	40-50	50-60	60-70	70-80	80+
A	38%	23%	20%	19%	25%	7%
A2	**45%**	30%	**33%**	**31%**	**27%**	21%
B	41%	**32%**	26%	20%	21%	21%
C	35%	21%	22%	16%	25%	**32%**
D	22%	24%	20%	19%	17%	21%
F	24%	21%	22%	22%	19%	9%
Total	33%	24%	23%	21%	22%	17%

Table 3- 7 Rate f incentive request by age group

Group	30-40	40-50	50-60	60-70	70-80	80+
A	46%	47%	42%	38%	40%	50%
A2	**76%**	**78%**	**65%**	**55%**	52%	40%
B	62%	54%	46%	33%	37%	29%
C	69%	48%	48%	32%	62%	9%
D	69%	64%	62%	50%	**67%**	**60%**

Table 3- 8 Probit model for probability of response and incentive request

Variable name	Response	Incentive request
Group A, $20, not announced in the email	0.0116	**-0.336***
	(0.0157)	**(0.0581)**
Group A2, $20	**0.0851***	**-0.163***
	(0.0149)	**(0.0572)**
Group B, $10	**0.0491***	**-0.330***
	(0.0152)	**(0.0554)**
Group C, $50, 1 from 10	0.0107	**-0.295***
	(0.0157)	**(0.0586)**
Group D, charity	-0.00818	
	(0.0160)	
Year of birth	0.00172***	-0.000713
	(0.000493)	(0.00171)
Gender	0.0311**	0.00918
	(0.0129)	(0.0422)
Year of PhD	0.000275	0.00841***
	(0.000455)	(0.00176)
Chemistry Department	0.0286	0.179**
	(0.0245)	(0.0775)
Chemical Engineering Department	-0.0544**	0.201**
	(0.0267)	(0.0865)
Composition of research group:		
# of Graduate Students		-0.0178***
		(0.00593)
# of Undergraduate Students		0.0126**
		(0.00628)
# of Technicians		-0.0232
		(0.0296)
# of Post Doctorate Students		-0.000327
		(0.00943)
Observations	7,073	781

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3- 9 Time of response

	Variable name	OLS
Time of response	Group A, $20, not announced in the email	20.55
(in minutes)		(787.65)
	Group A2, $20	390.917
		(712.617)
	Group B, $10	-437.733
		(746.317)
	Group C, $50, 1 from 10	286.15
		(836.417)
	Group F, no incentive	-174.583
		(673.417)
	Gender	45.167
		(523.25)
	Year of PhD	40.133*
		(22.417)
	Year of Birth	-33.017
		(22.133)
	Composition of research group:	
	# of Graduate Students	-12.303
		(73.017)
	# of Undergraduate Students	23.983
		(45.85)
	# of Technicians	-111.017
		(236.1)
	# of Post Doctorate Students	204.367*
		(111.217)
	Chemistry Department	2742.217**
		(1075.133)
	Chemical Engineering Department	2731.25**
		(1189.05)
	Constant	-15280.217
		(36666.667)
	Observations	1,019
	R-squared	0.016

Standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$