

THREE-YEARS IN EXPECTATION:
THE EFFECT OF “MATERNITY CAPITAL” POLICY ON HOUSING AND EDUCATION
EXPENDITURES:

by

Leila Mukanova

A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Arts

(Economics)

at

NAZARBAYEV UNIVERSITY -
SCHOOL OF HUMANITIES AND SOCIAL SCIENCE

2018

Acknowledgements

I would like to express my gratitude to my Principal Thesis Adviser, Dr. Dana Bazarkulova, for her guidance, inspiration and support throughout the process of research. I would like to thank my committee member, Dr. Berk Yavuzoglu, for important and constructive suggestions. I would like to express my appreciation to my external adviser, Charles Becker, for valuable comments, clarifications and remarks. Also, I would like to express my deep gratitude to the members of my family, for their infinite love and support, and my friends and colleagues for inspiration, help and positive spirit.

Abstract

This paper assesses the effectiveness of the “maternity capital” subsidy by estimating the changes in consumption patterns of families with two children in the Russian Federation between 2000-2016. The main focus is on the housing and education expenditures as they represent two main ways of current usage of the subsidy. The research covers four different time periods of families with two children, which are expenditures in the first year after the second child’s birth and the three consecutive years. I found that the subsidy decreases the housing expenditures by 18.4 percent and increases the education expenditure by 63 percent at the year of the second child’s birth using the Difference-in-Difference method.

Contents

Abstract	i
1 Introduction	1
2 Family policy in Russia	4
3 Literature review	7
4 Data	9
5 Methodology	12
6 Results	15
7 Conclusion	19

1 Introduction

The necessity to achieve a larger population led the government of the Russian Federation in 2007 to follow a pronatalist policy. This policy is aimed to encourage the birth rate and often is carried out by subsidy provisions and tax benefits for families with children. On the one hand, such fiscal instruments mitigate differences between households in the number of children, since having an additional child means increased costs. On the other hand, these instruments work as a tool against the aging population problem, as the increase in the number of newborns will decrease the proportion of people over 60 to the overall population.

In this paper, I focus on the Russian pronatalist reform implemented in 2007. According to this reform, a woman who gives birth to second, third or subsequent child starting from January 1, 2007, is provided with one-time “maternity capital” lump-sum subsidy. “Maternity capital” is the amount of money equivalent to 10,000 U.S. dollars, indexed to inflation. It is given in the form of a certificate once only for a family and can be requested when the child reaches the age of three. Only parents holding Russian citizenship and giving a birth to a child, registered as a Russian citizen, are eligible to receive the subsidy. This certificate can be used for any of the following purposes: housing conditions improvement (investment in living space located in Russia, or payments of the mortgage loan), mother’s pension savings, or children’s education (Federal’nyy zakon 2006). Since the first introduction of the “maternity capital” subsidy a series of amendments have been made. For instance, from 2009 families having the mortgage can use the subsidy for mortgage payments without waiting for 3 years (Federal’nyy zakon 2008, Federal’nyy zakon 2010). From 2010 subsidy can be used for the construction of housing without the involvement of construction firms (Federal’nyy zakon, 2010). The program was intended to terminate on December 31, 2016.

However, later on, it was extended until the end of 2021.

By the end of 2016, the government of the Russian Federation issued 7.6 million certificates. Approximately 55 percent of those eligible for subsidies fully used the provided financial aid, and 6 percent used it partially (Pensionnyy fond Rossiyskoy Federatsii 2016). Cases of unredeemed certificates are usually associated with the presence of bureaucratic and legislative barriers (Borozdina 2016). By 2016, 91.4 percent of certificate-owners used their subsidies to improve living conditions. However, starting from 2013, a number of households changed their preferences and used the aid to cover educational costs of their children. Annually this number grows by 26.8 percent (Pensionnyy fond Rossiyskoy Federatsii 2016).

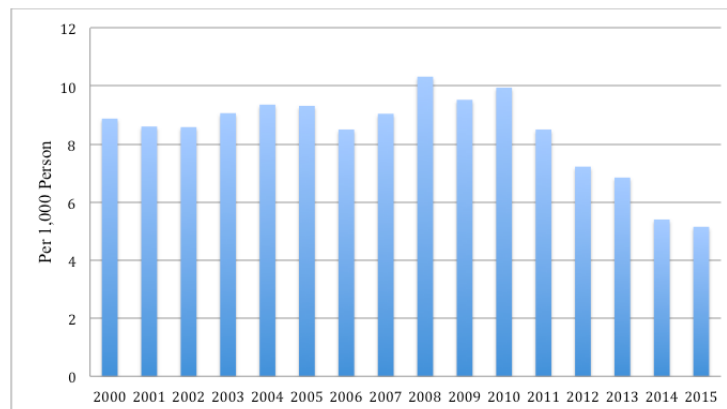


Figure 1: Crude birth rate starting from the 1st child. Data source: RLMS

As reported by Figure 1, births rates remained at high levels for the first seven years starting from 2000, namely, the number of births annually rose by 38,000 babies. The reason is probably related to the increase in a number of women of child-bearing age in 2000 - 2005. This is represented by a big cohort of girls born in between 1982 and 1987, one of the high fertility periods in Russia, who attained full legal age. Also, families had an opportunity to give birth to the planned children, whose birth were postponed due to the economic crisis of the 90s. From 2007

to 2010 number of births substantively raised in comparison to previous periods. According to the opinion of Russian analysts, this rise is associated with the pronatalist reforms introduced in 2007. Statistics show the implementation of the “maternity capital” subsidy, which is the part of the pronatalist reform, resulted in an annual increase in births by 60,000 babies, which is 1.5 times as much as in 2000 - 2007 (Bashkin 2016). In addition, it reduced the interval between the births (Slonimczyk and Yurko 2014). However, despite the baby boom, the fertility rate was declining from 2010, which was also associated with the decreasing number of fertile-aged people (Frejka 2012) and the persistence of two-child family ideology, other macroeconomic and social effects. This also coincided with the increase in a number of requests for the “maternity capital” subsidy use (Terentyev et al. 2015). Figure 1 confirms that the negative trend in birth rates remains the same, even if there was a strong growth between 2007 and 2010.

According to Figure 2, the number of births after the first child declined significantly in 2006, a period when a decision of upcoming reform was announced. Starting from 2007 to 2010, the number of the second and subsequent newborns increased. Since 2006, people could be deferring childbearing in anticipation of the policy. The presence of a gap between 2006 and 2007 can be considered as an effect of the policy.

In this paper, I focus on families with one or two children. Since the subsidy cannot be redeemed until the second child turns three, I estimate the change in housing and education-related expenditures for families who expect to receive 10,000 USD maternity capital after the birth of the second child. I consider spending on housing and education as they represent two main ways of current usage of the subsidy. It is likely that the policy will adjust the shares devoted to raising a child, especially because the majority of recipients choose to spend the subsidy on purchasing accommodation (Pensionnyy fond Rossiyskoy Federatsii 2016). This means that the increase of

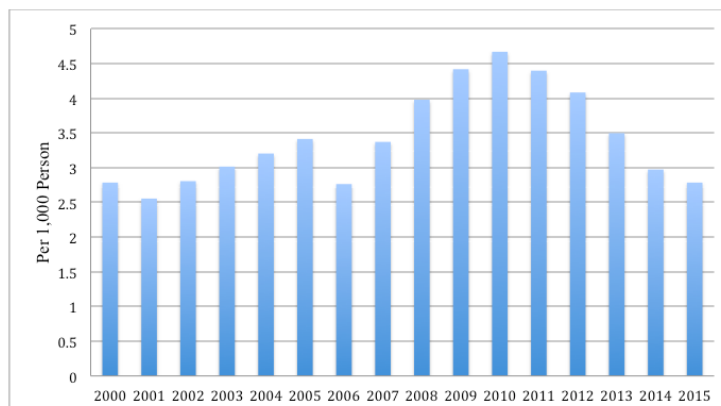


Figure 2: Crude birth rate starting from the 2nd child. Data source: RLMS

the budget share on housing or education expenditures will be compensated by the subsidy. Subsequently, information obtained about the costs will allow us to determine whether there is a change in the consumption pattern of families.

The paper is organized as follows. Section II provides an introduction to the family policy in Russia. Section III is devoted to the brief overview of previous works and studies concerned with the effect of family subsidies on fertility and consumption. Section IV provides a detailed description of the data and variables used in the analysis. Section V presents a description of both econometric models and methodology. Section VI represents the estimation results of the analysis. Section VII concludes the study and proposes the further discussion on this topic.

2 Family policy in Russia

The Russian system of family policy and key issues regarding the institution of the family have been regulated by the “Russian Federation Family Code” since 1 March 1996 (in addition to extra

concepts and laws¹). Years ago a provision of targeted assistance for the low-income families was used as a main tool of the family policy. However, due to the persistence of the negative trend in fertility, starting from 2005, the government introduced a number of innovations into existing family-related support measures (Yelizarov 2011). A description of the main changes implemented in the family policy is presented below.

The improved family policy system uses a mechanism of allowances indexation, which adjusts the amount of the benefits for inflation. Also, it provides mothers with parental leave allowances regardless of their working status. Parental leave starts right after the end of maternity leave and lasts until the child reaches the age of three. For the first 18 months of parental leave, mothers are provided with benefits. However, the amount of available allowances for a working mother is higher. The non-working mother is able to get a fixed amount of childbirth allowance, which is 26 USD (1,500 rubles) for the first child, and 53 USD (3,000 rubles) for the second and subsequent children. The same financial assistance for a working mother is 40 percent of her wage and is limited by regulations. The lower limit of allowance cannot be less than the amount provided to a non-working mother, the upper limit is 105 USD (6,000 rubles). For the next 18 months, the government supplies only 50 rubles (about 0.70 USD) per month in total per family, which has a very low monetary value today. This type of payment was established in 1994 and has not been adjusted for inflation.

The system of maternity leave provides women with 20 or 28 paid weeks: 20 when the mother gives birth to one child, and 28 when the mother gives birth to twins or more. The amount of allowance is based on the average wage rate of a mother for the last two years and ranged between

¹The “Family Policy Concept” from 12 May 1993, the federal law “On State benefits to citizens with children” from 19 May 1995, and the “National Plan of Action for Children” from 14 September 1995.

87 USD (6,204 rubles) and 3,491 USD (248,164.38 rubles) in 2016. Women are protected from termination of employment during the maternity leave. Mothers completing vocational training and university studies are also eligible for maternal leave benefits, but the amount of benefits for them is significantly less.

The system of lump-sum assistance consists of different types of payments, such as a one-time payment in respect of a child's birth, a "childbirth medical voucher", a "maternity capital", etc. The one-time payment is equivalent to 284.3 USD (6,350.33 rubles) and is paid for each live birth to either the mother or father, regardless of social status and occupational category. The voucher is a part of a governmental "The Health" program aimed to ensure that mothers in the prenatal, perinatal and neonatal period will have access to high-quality medical services. The nominal value of this benefit is 194 USD (11,000 rubles), which consists of three coupons. The first coupon covers services on antenatal care in the amount of 53 USD (3,000 rubles), the second pays for the maternity home services in the amount of 105 USD (6,000 rubles), the third one - for two medical check-ups of a child in the amount of 18 USD (1,000 rubles) per each visit. Money provided can be used to cover medical expenses at any hospital that the mother prefers. The only requirement to get the voucher for women with Russian citizenship is to have at least 12 weeks of continuous visits to doctors during the pregnancy period.

Another tool of the family policy is a provision of tax deductions for parents. The government offers two types of tax allowances - social (for education and medical treatment of a child) and standard. Standard allowance implies a reduction in the taxable income of the parents by 295 USD (16,800 rubles) for the first child, and by 632 USD (36,000 rubles) for each subsequent child. The social allowance reduces the taxable income by the amount equivalent to the parent's spending on medicine, medical services for children, and education of a child to the age of 24. Both types of

allowance have different upper limits. Additional types of governmental assistance are aimed to support only socially vulnerable members of society and provided to parents of children aged three and older.

The presence of additional support for families with children listed above makes the task of disentangling the effect of “maternity capital” from the parental leave benefits difficult. However, in this paper, I make the same assumption as Slonimczyk and Yurko (2014), that an increase in parental leave allowances was not significant.

3 Literature review

Many researchers have investigated the effect of subsidies on fertility. Among the studies conducted on micro-level data, subsidies and other financial incentives are found to have a notable positive effect on decisions regarding whether or not to have subsequent children (for instance, see Laroque and Salanie 2008, Ekert-Ja e et al. 2002, Milligan 2005, etc.). Boccuzzo et al. (2008) investigate the effect of a postponed lump-sum child subsidy, which has similarities to the “maternity capital”, on fertility decisions. This research focuses on the birth bonus system in Friuli-Venezia Giulia (Italy) and confirms that “baby bonuses” positively impact fertility among women with low-income levels and low education level. Also, they claim that in response to the subsidy, the probability of abortions decreases. Studies based on macro-level data have mixed results. For instance, Gauthier and Hatzius (1997) consider time series data from 1970 to 1990 from 22 countries. The authors examine two types of models: the first covers all the countries and the second - particular cohorts within those countries. They conclude that both models demonstrate an insignificant real effect of cash transfers on fertility. In contrast, analysis of the dynamics of the birth rates

in Britain (Ermisch 1988) results in the opposite, namely, an increase of child allowances raise the likelihood of third and fourth births. Also, generous subsidies stimulate women to give birth at younger ages.

Several studies assess the impact of the maternity capital reform on changes in birth rates and birth intervals in Russia. Brainerd et al. (2007) point out that the underlying reasons for declining total fertility rates in Russia beginning in the 1990s are related to a decrease in income, declining marriage rates and an increase in unemployment. Such findings, in turn, emphasize the importance of financial subsidies in stimulating the birth rate. Slonimczyk and Yurko (2014) focus on fertility and labor force participation. Estimates of a dynamic structural model led to the conclusion that policy has a positive impact on fertility. A study by Chirkova (2013) confirms the results of the previous research. The author shows that the changes in family policy increase the probability of giving birth to a second child by 2,2 percent on average. Moreover, the author points out that the effect of the reform is defined mainly by the low-educated women. Also, depending on the gender of the first child the probability of having a second child differs, which is called child gender preference. Finally, for families with restricted living conditions, the effect of the policy is minor. Both studies use Russia Longitudinal Monitoring Survey (RLMS). In contrast to previous studies, Kopeykina (2017) finds that maternity capital assistance has not changed the reproductive behavior of prospective parents. She estimates the effect of the subsidy on an interval between bearing the first and second child. According to results neither the time of transition nor the overall risk of bearing a second child change. Frejka and Zakharov (2012) show that in the post-reform period the fertility rate of second and subsequent births increases, but the ratio of transition to motherhood decreases. Moreover, the authors say that only the timing of births is affected. People change their preference in terms of the timing by giving higher order births earlier than they planned, but there

is no effect in terms of the number of children.

However, little research has been carried out concerning the effect of the subsidy on consumption behavior of households. One example is a paper by Forry (2009). She claims that the provision of childcare allowances releases financial burdens of low-income families. Specifically, mothers' out-of-pocket costs and share of household income devoted to child care decrease by 250 USD and by 10 -14 percent, respectively. Another example is an article by Jones et al. (2015). Using Canadian expenditure surveys for twelve years, the authors examine the effect of various child cash benefits on total family costs and changes in the probability of consumption of various goods and services. The findings indicate a rise in expenditures on child care, education, groceries, rent, and transportation, along with a fall in consumption of tobacco, alcohol and eating out. The authors claim that children, directly and indirectly, benefit (through "resource channel" and the "family process channel") from such shifts in expenditures.

To sum up, the effectiveness of the family subsidies should be investigated from different points of view, as they affect different aspects of human life. Since there have been no studies concerning the effect of "maternity capital" on consumption using the case of the Russian Federation, my paper contributes to the empirical literature.

4 Data

For this study the data was retrieved from the Russia Longitudinal Monitoring Survey (RLMS), a nationally representative survey covering the period from 1994 up to 2016. The survey was conducted by the National Research University Higher School of Economics, Institute for Health Metrics and Evaluation, Carolina Population Center, the University of North Carolina at Chapel

Hill, and the Institute of Sociology in the Russian Academy of Sciences. The survey aims to evaluate the impact of government reforms on both economic and health situations in Russia. It provides detailed information on the characteristics of communities, households, and individuals. In addition, the survey includes information on an individual level such as labor market participation, earnings, and education of adults as well as household level such as family expenditures and others. The survey was conducted in twenty-five rounds and included 10,000 individuals out of 4,000 households in each round. The committee selected representative 32 oblasts and 7 districts including St.Petersburg, Moscow city, and oblast.

This panel data provides an opportunity to observe family consumption decisions, changes in individual and household characteristics. Following the same individuals for over 16 years results in attrition of original sample size and unbalanced panel data. This means that the number of households from the representative sample decreased every period. For example, the number of interviewed households declined by almost 12 percent in rural, and by 15 percent in urban areas from 2000 to 2005. In order to preserve representativeness of the sample, every year the committee included new households instead of families who dropped out.

For this study, I use longitudinal data from rounds IX - XXV covering the period from 2000 to 2016. I focus on families with mothers aged 18 - 50 years having at least one child at the time of the survey between 2000 and 2013. Mothers having one or two children are followed for the four-year period starting from the birth of the child. Mothers with three or more children are followed only for four years after the birth of the second child. I follow mothers for the four years because I aim to investigate the effect of the “maternity capital” on housing and education consumption of eligible families in expectation of the subsidy. The cases of multiple births and birth intervals less than four years between the second and third child are excluded from the sample. Mothers who

gave birth to the second child since 1 January 2007 are regarded as the holders of a right for the “maternity capital” subsidy and comprise the group of interest.

Maternity capital is paid in a lump-sum to mothers of the second and subsequent children in three years after the child’s birth. Maternity capital can be spent on housing improvements, children’s education, and mother’s retirement savings. The literature reports that less than 1 percent of “maternity capital” subsidy fund was used for mother’s pension savings until 2016 (Annual Report, 2016). Moreover, there is no data on pension contributions and annual savings in RLMS survey. Also, by now there exist time constraints, which do not allow researchers to observe mothers, who devoted their subsidy on pension savings, at years after they retire. Thus, I focus my attention on two other categories of expenditures allowed by the subsidy policies: housing and children’s education.

A description of all the variables used in the analysis is presented in Table 2 (Appendix 1). Detailed information on allowed expenditures within the subsidy of maternal capital is aggregated in two categories, which are housing and child’s education. Other variables include a number of family members, mother’s age, etc. The survey also provides household-level data on the total income of a household for 30 days, as well as on the total income of each household member. I consider the total income of the whole household since I assume that the household members make joint decisions on all types of expenditures with a shared budget constraint. All income and expenditure values on education, housing services are normalized to 2007 rubles using the Consumer Price Index (CPI).

The final sample consists of 2,714 unique mothers with one or two children and reported either housing or education expenditures or both. I use this sample as a base to construct new datasets, using Propensity Score Matching (PSM) technique, which is the method employed to balance the

categories of families with two children. The summary statistics on individuals and households are presented in Table 5 (Appendix 1). According to the data from Table 5, a mother having one child, on average give birth at the age of 24, while the mothers with two children have their first child at about 22. Almost 50 and 53 percent of first-born babies are boys among mothers with the only child and mothers with two children respectively.

Tables 3 and 4 (Appendix 1) present the summary statistics on housing and children's education expenditures. The tables contain information on average expenditure levels of families with one or two children for four consecutive years. Families with two children on average spend more both on housing and education than one-child families. Overall, the expenditures on education show an upward trend. In addition, housing expenditures of mothers with one child and mothers with two children before 2007 tend to grow during the four-year period.

5 Methodology

In this study, I focus on mothers with one or two children. Since, in this case, the subsidy cannot be redeemed for three years after the second child's birth by eligible mothers, I investigate the effect of the subsidy on housing and education spending behavior in expectation of maternal capital. I use Difference-in-Difference method to estimate housing and education expenditures at the year of second child's birth and three consecutive years. The treatment group includes women who have 2 children, while the control group consists of women who have the only one child both before and after the policy implementation.

Prior to the estimation of the Difference-in-Difference method, I revisited the composition of the treatment group by applying PSM in order to fix the self-selection problem, which arises in

non-experimental datasets. As a result of self-selection, individuals can choose to be a part of a group eligible for “maternity capital” by altering childbearing decisions. Women may change the timing of second and subsequent childbirth in response to the policy, or may even alter their decision if they have only one child. I applied PSM method to balance the categories of families having two children, such that self-selection problem will not result in a biased estimate in the final model.

Initially proposed by Rosenbaum and Rubin (1983), the PSM allows the pseudo-randomization of an observational dataset. This is achieved through direct modeling of a treatment assignment process and forming subgroups of people with the same likelihood of participation in the treated or control groups. PSM includes two main steps: estimation of the propensity score and the matching process. The first step is an estimation of the propensity score, which calculates the conditional probability of being treated given the vector of observed variables. The second step implies matching treated individuals with untreated ones who have the closest value of propensity scores. In other words, PSM matches treated and untreated individuals who have the most similar observed characteristics (Caliendo 2008).

In order to estimate the propensity score, I include the following variables in the model: age of a mother, the gender of the first child, the birth interval between the first and second child, the logarithm of the total monthly income of a household before the birth of the second child and the last reported mother’s education level prior to the birth of the second child. Propensity score allows to combine given five variables in one index for each individual. Matching between individuals based on one of these variables provides an opportunity to form a group of policy-affected (PA) and not policy-affected (NPA) individuals with similar characteristics.

The propensity score is estimated as follows:

$$Pr(F_i = 1|controls) = \beta_0 + \beta_1age_i + \beta_2male_i + \beta_3interval_i + \beta_4income_{it-1} + \beta_4education_{it-1} \quad (1)$$

where F equals 1 if mother gave birth to the second child after 2007, and 0 otherwise, age_i is the age of i th mother at the birth of the second child, $male_i$ equals to 1 if i th mother's first child is a boy and 0 otherwise, $interval_i$ is the birth interval between the first and second child, $income_{it}$ is the logarithm of the total monthly income of a household one year before the birth of the second child, and $education_{it}$ is mother's education level before the birth of the second child. Families, based on their current income level, may decide to have another child or adjust the planned date of birth of the second one. Also, mothers may have a different level of knowledge on available family support programs and subsidies depending on their education level. Hence, based on their knowledge, they may alter the timing of birth or even change preferences in the number of children.

Once I obtain the propensity scores, I run the matching procedure. In the matching procedure, I use *the nearest neighbor matching with replacement with caliper* method. The *nearest neighbor matching* means that for each PA, NPA with the closest value of the propensity score will be matched. The NPA individuals can be used more than once as a probable match for other PA individuals. *Caliper* represents the maximum permitted difference between the matched individuals. I will test the following types of the caliper (0.01, 0.05, 0.25) and choose the one with the best matching results. More detailed description of the PSM procedure and explanation on a number of individuals matched is presented in Appendix 2.

Afterwards, I combine balanced datasets for the obtained treatment group using the PSM with the individuals from the control group. Finally, I apply the Difference-in-Difference method including the explanatory variables mentioned in Table 2. In addition, I apply the same estimation

for the consequent three years on housing and education expenditures.

6 Results

I estimated the propensity score for the case of housing expenditures at the year of second child's birth using Equation (1). According to the estimation results in Table 1, propensity score was calculated for 484 individuals. This amount is explained by the fact that only this number of people reported information on all five variables and housing expenditures at the year of second child's birth. Almost all the included variables, except for dummies on mother's education level, are statistically significant.

Table 1: Correlates of the Propensity Score

(Housing expenditures, at the year of birth of the 2nd child)

	Probit	dydx
Age of mother	0.081*** (0.024)	0.023*** (0.007)
First child is a boy	-0.185 (0.132)	-0.053 (0.038)
Birth interval	-0.088*** (0.025)	-0.025*** (0.007)
Income _{t-1} (in log)	0.448*** (0.062)	0.129*** (0.016)
<i>Education level of mother (Ref: Unfinished secondary education)</i>		
Unfinished secondary education and extra courses	1.051* (0.571)	0.302 (0.189)
Secondary school diploma	0.483 (0.537)	0.159 (0.187)
Vocational secondary education diploma	0.579 (0.539)	0.187 (0.188)
Higher education diploma and more	0.512 (0.546)	0.168 (0.190)
Constant	-5.877*** (0.960)	
Observations	484	484

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

Thus, I was able to match individuals using *the nearest neighbor matching with replacement with caliper* method. I use caliper of 0.05 because it returns better results on variables used in the

matching process compared to the one with a caliper of 0.25 and 0.01. The results of the matching are presented in the first part of Table 6 (Appendix 1). It shows the results of the pre- and post-matching t -tests for five variables used in the estimation process. The high value of p confirms an hypothesis that the matched individuals do not differ. Results from Table 6 partially validate the matching method since almost all variables show no significant differences between the groups of PA and NPA.

As a result of a propensity score matching with replacement with a caliper, I obtained 700 matches, which is presented in Table 8 (Appendix 1). These matches form the treatment group in the Difference-in-Difference method. The control group consists of 787 mothers with one child, who was born in between 2000 and 2013 and reported their expenditures on housing at the year of first child's birth. I constructed eight balanced datasets for the treatment group using the PSM procedure. First four datasets correspond to the housing expenditures for four consecutive time periods starting from the birth of the second child. The remaining four datasets are constructed for the educational expenditures at the second child birth's year, and the three following years. Table 6 (Appendix 1) shows the results of the pre- and post-matching t -tests for five variables during three consecutive years after the second child's birth using housing expenditures as an outcome variable. Next, Table 7 (Appendix 1) represents the matching results using spendings on education as an outcome variable for the four investigated time periods. Table 9 (Appendix 1) shows information on number of matches for the case of education expenditures. Observed expenditures on housing of control group families in the birth year of the only child correspond to housing expenditures of treatment group families at the birth year of the second child. The same applies for the following years.

Finally, I proceed to the estimation of housing and education expenditures using Difference-

in-Difference method. The results of Difference-in-Difference estimates on both expenditure categories are illustrated in Tables 10 and 11 (Appendix 1), also the same model including additional features is shown in Tables 12 and 13 (Appendix 1).

Table 10 (Appendix 1) shows the estimation of the model, which includes only three main variables: *Policy*, $Policy \times Treatment$, and year dummies instead of the *Policy*. Without controlling for household, individual and regional characteristics, it seems that families eligible for the “maternity capital” reduce their housing expenditures in anticipation of getting a subsidy. There is a significant decrease in the following three time periods by 40.5 in the year of the second child’s birth, 28.6 and 26.4 percent after two and three years respectively. In contrast, the families with two children in the absence of the subsidy spend significantly more on housing. These treatment families consumed more than families having the only child: by 25.7 percent at the birth year, by 29.3 percent in two and 34.5 percent in three years after.

Table 12 (Appendix 1) presents an estimation of the model using the Difference-in-Difference method with the extra explanatory variables, which control for household, individual and regional characteristics. Even though signs of $Policy \times Treatment$ and *Treatment* variables are the same, the addition of control variables results in the loss of significance for several time periods. Families eligible for the subsidy decrease their housing spending throughout the four-year period. A significant decrease by 18.4 percentage points takes place at the year of the second child’s birth. In addition, a significant fall by 34.9 percent in housing spending appears three years after the second child’s birth.

There is a possible interpretations of such a response. I assume that eligible for the subsidy families decrease their housing expenditures, including rental costs. The legislation amendments may be the reason for changes in consumption behavior of treated families. Overall, between

2006 and 2015 there were nineteen amendments and supplements made to the “Federal Law on Supplementary governmental measures to support families having children” of 29.12.2006 which regulates the “maternity capital” subsidy. Table 14 (Appendix 1) provides information on five main amendments related to housing expenditures. In particular, starting from 2009 the government reduced the subsidy-waiting period for eligible families having the mortgage prior the birth, to use the subsidy without three-year waiting. Initially, this amendment was expected to operate until the end of 2010 but with the deadline abolishment, families can still use the subsidy without three-year expectation to cover the mortgage. Since some eligible families would buy an apartment or invest in construction of housing, spendings for their housing expenditures on average would decrease. It is likely that eligible families having the mortgage would decrease their housing expenditures immediately right after the second child’s birth. Families without a mortgage would spend less on housing only three years after.

Next, I consider the effect of subsidies on education expenses of treated families in Russia. According to the the “Federal Law on Supplementary governmental measures to support families having children” of 29.12.2006, the “maternity capital” is supposed to cover any educational expenses of children. Table 15 (Appendix 1) shows the main changes made between 2000-2015 in education spending regulations in comparison to the original maternal capital law. The amendments changed only the type of the educational organization, whose services can be covered by the subsidy. Thus, the parents are still able to cover any educational costs of a child not older than 25. However, I focus on educational expenditures represented by the costs on education of only pre-school and school-aged children.

Table 11 (Appendix 1) shows the estimation results on changes in education expenditures using Difference-in-Difference method, which includes only $Treatment$, $Policy \times Treatment$, and year

dummy variables. Table 13 (Appendix 1) shows the estimates using the Difference-in-Difference method with additional explanatory variables controlling for household, individual and regional characteristics. According to Table 11 (Appendix 1), in absence of the policy, families with two children spend more on education than families with one child. Also, it is a significant increase of eligible families' expenditures on education by 98.5 percent at the year of the second child's birth, and by 48.9 percent a year after.

Results in Table 13 (Appendix 1) show that after the addition of extra controls, families with two children demonstrate higher spending level on education compared to families with the only child. Eligible families significantly increase their expenditures by 63 percent at the year of the second child's birth and by 41.9 percent two years later. Probably eligible families knowing that after the three years they will receive money for "maternity capital" certificate, parents possess freed funds and start spending on education of their children more. Another possible explanation is that increase in education expenditures takes place because parents may send their first child to preschool or additional courses, because they are more busy after the second child's birth. The positive trend in expenditures on education is being maintained for the investigated four-year period.

7 Conclusion

The paper analyzed the effect of the "maternity capital" implemented in 2007 on consumption behavior of eligible families in three-year expectation of the subsidy in Russia. Particularly, the main focus of the paper is the changes in housing and children's education expenditures.

As a result, I found that eligible families decrease their expenditures on housing starting from

the year of second child's birth using the Difference-in-Difference method. To be precise, there is a significant decrease of housing expenditures at the year of second child's birth by 18.4 percent and by approximately 35 percent three years after. In addition, I suggested that the decrease in housing expenditures is probably connected to the introduction of new amendments in the current legislation. I also proposed that another possible reason is the improvement of family's living conditions which reduced spending on rent, municipal services and etc.

In contrast, the estimates of subsidy on education expenditures show that eligible families increase spending on education by 63 percent at the year of the second child's birth and by 41.9 percent two years later. I assume that education expenditures of eligible families increased because of the relocation of available resources. Families that expect to get 10,000 USD after three years, may decrease housing spending and invest the freed funds in the education of their children. Overall, the suggested explanations of obtained results on both types of expenditures validate each other.

In general, these results can be implemented in further investigation of this topic and further developments in family-based policies. This research currently covers periods from 2000 to 2016, and it is suggested to increase the scope of the study by expanding the data for longer time periods with new RLMS data available.

References

1. Arpino, Bruno, and Arnstein Aassve. "Estimating the causal effect of fertility on economic wellbeing: data requirements, identifying assumptions and estimation methods." *Empirical Economics* 44, no. 1. (2013): 355-385.
2. Bashkin, Mikhail. "Vliyaniye materinskogo kapitala na demograficheskuyu situatsiyu v Rossii." *Internet-zhurnal Naukovedeniye* 8, no. 2. (2016).
3. Boccuzzo, Giovanna, Marcantonio Caltabiano, Gianpiero Dalla Zuanna, and Marzia Loghi. "The impact of the bonus at birth on reproductive behaviour in a lowest-low fertility context: Friuli-Venezia Giulia (Italy), 1989-2005." *Vienna yearbook of population research*. (2008): 125-147.
4. Borozdina, Ekaterina, Anna Rotkirch, Anna Temkina, and Elena Zdravomyslova. "Using maternity capital: Citizen distrust of Russian family policy." *European Journal of Women's Studies* 23, no. 1. (2016): 60-75.
5. Brainerd, Elizabeth. "The baby decision amid turmoil: understanding the fertility decline in Russia of the 1990s." *National Council for Eurasian and East European Research*. (2007).
6. Caliendo, Marco, and Sabine Kopeinig. "Some practical guidance for the implementation of propensity score matching." *Journal of economic surveys* 22, no. 1. (2008): 31-72.
7. Chirkova, Serafima. "Do pro-natalist policies reverse depopulation in Russia." *University of Santiago mimeo*. (2013).
8. Ekert-Jaff, Olivia Heather Joshi, Kevin Lynch, Rmi Mougins, Michael Rendall, and David

-
- Shapiro. "Fertility, a timing of births and socio-economic status in France and Britain." *Population* 57, no. 3. (2002): 485-518.
9. Ermisch, John. "Econometric analysis of birth rate dynamics in Britain." *The Journal of Human Resources* 23, no. 4. (1988): 563-576.
 10. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 29.12.2006. (2006). Gosudarstvennaya Duma. N 256-FZ.
 11. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 25.12.2008. (2008). Gosudarstvennaya Duma. N 288-FZ.
 12. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 28.07.2010. (2010). Gosudarstvennaya Duma. N 241-FZ.
 13. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 29.12.2010. (2010). Gosudarstvennaya Duma. N 440-FZ.
 14. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 16.11.2011. (2011). Gosudarstvennaya Duma. N 318-FZ.
 15. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 02.07.2013. (2013). Gosudarstvennaya Duma. N 185-FZ.
 16. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 14.07.2014. (2014). Gosudarstvennaya Duma. N 684-FZ.
 17. Federal'nyy zakon "O dopolnitel'nykh merakh gosudarstvennoy podderzhki semey, imeyushchikh detey" ot 23.05.2015. (2015). Gosudarstvennaya Duma. N 131-FZ.

18. Forry, Nicole D. "The impact of child care subsidies on low-income single parents: An examination of child care expenditures and family finances." *Journal of family and economic issues* 30, no. 1. (2009): 43-54.
19. Frejka, Tomas, and Zakharov Sergei. "Comprehensive analyses of fertility trends in the Russian Federation during the past half century." Max Planck Institute for Demographic Research Working Paper, WP 2012-027. (2012).
20. Jones, Lauren E., Kevin S. Milligan, and Mark Stabile. "Child cash benefits and family expenditures: Evidence from the National Child Benefit". No. w21101. National Bureau of Economic Research. (2015).
21. Gauthier, Anne Helene, and Jan Hatzius. "Family benefits and fertility: An econometric analysis." *Population studies* 51, no. 3. (1997): 295-306.
22. Kirsanova, Irina. "Krizis na rynke zhil'ya: v chem raznitsa mezhdu 2008 i 2014 godami?" TSIAN. <https://www.cian.ru/stati-krizis-na-rynke-zhilja-chem-2008-god-otlichaetsja-ot-2014-go-218019/> (accessed March 22, 2018).
23. Kopeykina, Valeria. "The maternity capital's impact on birth intervals in Russia: Survival analysis of the transition from the 1st to a 2nd child." Stockholm University. (2017).
24. Laroque, Guy, and Bernard Salani. "Does fertility respond to financial incentives?." IZA Discussion Papers 3575, Institute for the Study of Labor (IZA). (2008).
25. Lino, Mark. "Expenditures on Children by Families, 2013." U.S. Department of Agriculture, Center for Nutrition Policy and Promotion. Miscellaneous Publication No. 1528-2013. (2014).

-
26. Milligan, Kevin. "Canadian Tax and Credit Simulator, CTaCS." Version 1. (2013): 1980-2005.
 27. Natsional'nyy issledovatel'skiy universitet "Vysshaya shkola ekonomiki". "Materinskiy kapital. Ekspertnaya pozitsiya." <https://www.hse.ru/expertise/matcapital> (accessed March 23, 2018).
 28. Pensionnyy fond Rossiyskoy Federatsii. "Publichnyy godovoy otchet Pensionnogo fonda Rossii za 2016 god." Russian Federation. http://www.pfrf.ru/files/id/press_center/godovoi_otchet/Annual_report_2016_3.pdf (accessed January 13, 2018).
 29. Rosenbaum, Paul R., and Donald B. Rubin. "The central role of the propensity score in observational studies for causal effects." *Biometrika* 70, no. 1. (1983): 41-55.
 30. Sianesi, Barbara. "An evaluation of the active labor market programs in Sweden." No. 2001: 5. Working Paper, IFAU-Institute for Labour Market Policy Evaluation. (2001).
 31. Slonimczyk, Fabian, and Anna Yurko. "Assessing the impact of the maternity capital policy in Russia." *Labour Economics* 30. (2014): 265-281.
 32. Sobolevskaya, Olga. "Materinskiy kapital priblizil rozhdeniye vtorykh detey." *IQ.HSE.RU*. <https://iq.hse.ru/news/178582372.html> (accessed October 1, 2017).
 33. Terentyev, Igor, and Volkova Olesya. "Rozhayut ne bol'she, a bystreye: Kak vlasti vpustuyu potratili na matkapital 1 trln rubley." *RBC.RU*. <https://www.rbc.ru/newspaper/2015/04/30/56bce2189a7947299f72c060> (accessed March 19, 2018).

34. Yelizarov, Valeriy. "Stimulirovaniye rozhdayemosti i podderzhki semey s det'mi v sovremennoy Rossii." Rozhdayemost' i planirovaniye sem'i v Rossii: Istoriya i perspektivy. (2011): 123.
35. Zellner, Arnold. "An efficient method of estimating seemingly unrelated regressions and tests for aggregation bias." Journal of the American Statistical Association 57, no. 298. (1962): 348-368.

Appendix 1

Table 2: Description of the variables

Variable	Description
Housing expenditures (in log)	Housing expenditures: - purchase of building materials, - maintenance and repair of a dwelling, or moving house, - payments for municipal services and rent, etc.
Education expenditures (in log)	Education expenditures: - clubs, courses, and lessons for children, - childcare costs, - learning materials, etc.
Income	The total monthly income of a household (in log)
Number of family members	Number of people living in a household sharing both income and expenditures
Mother's age	Age of mother
Mother's education level	Educational level of the mother: - Unfinished secondary education, - Unfinished secondary education and extra courses, - Secondary school education, - Vocational secondary education, - Higher education and more
Urban	Type of area: - Urban (=1), - Rural (=0)
Marital status	Marital status: - Never married, - In a registered marriage, - Living together, not registered, - Divorced and not remarried, - Widower or widow, - Registered, not living together
Property owners	Type of ownership of dwelling: - Own (=1), - Rent (=0)
Current working status	Current working status: - Working, - On leave, - Not working

Continued on next page

Variable	Description
Living space	Total area of living space (in square meters)
Region	- Moscow and St. Petersburg, - Northern and North Western, - Central and Central Black-Earth, - Volga-Vaytski and Volga Basin, - North Caucasian, - Ural, - Western Siberian, - Eastern Siberian and Far East
Policy	Dummy variable, which equals one for period after 2007
Treatment	Dummy variable, which equals one for Treatment and is zero for Control group

Table 3: Average housing expenditures (in 2007 rubles prices)

	Obs	Woman with one child		Woman with two children			
		Before 2007	After 2007	Before 2007	After 2007		
		Mean	Mean	Mean	Mean		
Instantaneous	283	1848.922 (2268.640)	3311.527 (3271.767)	350	1822.415 (1148.662)	350	2814.387 (2810.104)
A year after	260	1933.731 (2151.365)	3259.649 (2945.355)	324	2132.922 (1531.373)	324	3121.148 (3133.871)
Two years after	227	1924.542 (2432.873)	3234.526 (3237.671)	300	3285.474 (5087.428)	300	3371.974 (3762.856)
Three years after	189	2188.795 (2656.134)	2985.495 (2759.798)	289	3407.214 (3600.893)	289	3082.915 (3007.491)

Note: Standard errors in parentheses

Table 4: Average education expenditures (in 2007 rubles prices)

	Obs	Woman having one child		Woman having two children			
		Before 2007	After 2007	Before 2007	After 2007		
		Mean	Mean	Mean	Mean		
Instantaneous	95	336.992 (656.404)	447.2661 (1051.322)	319	1096.426 (1260.648)	319	1012.987 (1015.849)
A year after	142	722.671 (1136.164)	887.015 (2033.015)	309	1124.488 (916.638)	309	1085.456 (1167.709)
Two years after	237	1295.017 (1941.017)	1484.589 (1841.492)	295	1598.130 (1638.925)	295	1624.864 (1645.076)
Three years after	258	1337 (1425.439)	1646.827 (1980.139)	279	2076.580 (1333.664)	279	2015.070 (1837.128)

Note: Standard errors in parentheses

Table 5: Descriptive statistics on individual and household variables

	Woman with one child		Woman with two children	
	Before 2007 Mean	After 2007 Mean	Before 2007 Mean	After 2007 Mean
<i>Age of mother</i>				
At the first birth	23.906 (4.446)	24.913 (4.339)	21.460 (3.156)	22.801 (3.572)
At the second birth	.	.	28.343 (4.159)	29.354 (4.478)
First child is a boy	0.513 (0.499)	0.517 (0.499)	0.550 (0.497)	0.538 (0.499)
Num. of fam. members	3.803 (1.440)	3.946 (1.526)	4.275 (1.146)	4.344 (1.342)
<i>Education level</i>				
Unfinished secondary	0.015 (0.122)	0.007 (0.087)	0.025 (0.156)	0.005 (0.074)
Unfinished secondary and extra courses	0.080	0.088	0.078	0.105
Secondary school	(0.272)	(0.283)	(0.269)	(0.307)
	0.339	0.235	0.351	0.280
	(0.473)	(0.424)	(0.477)	(0.449)
Vocational secondary	0.305 (0.460)	0.267 (0.442)	0.296 (0.456)	0.256 (0.436)
Higher and more	0.259 (0.438)	0.401 (0.490)	0.248 (0.432)	0.352 (0.477)
Urban	0.768 (0.420)	0.757 (0.428)	0.655 (0.475)	0.647 (0.477)
Property owners	0.795 (0.403)	0.824 (0.380)	0.821 (0.382)	0.868 (0.337)
Living space	49.515 (21.230)	53.916 (23.965)	54.140 (22.712)	58.359 (24.998)
Income (in 2007 rub.p.)	18037.940 (14194.970)	27653.870 (17847.510)	17277.090 (15913.210)	24869.460 (16690.760)
Number of mothers/households	570	985	339	820

Note: Standard errors in parentheses

Table 6: Pre- and post-matching *t*-tests
(Housing expenditures)

	Unmatched sample			Matched sample		
	PA	NPA	<i>p</i>	PA	NA	<i>p</i>
Housing expenditures, at the year of birth of the 2 nd child						
Age of mother	29.480	28.754	0.101	29.480	29.303	0.564
First child is a boy	0.525	0.574	0.335	0.525	0.431	0.012*
Birth interval	6.837	7.380	0.176	6.837	6.580	0.382
Income (in log)	9.897	8.933	0.000*	9.897	9.821	0.265
<i>Education level</i>						
Unfinished secondary education	0.008	0.029	0.080	0.008	0.002	0.317
Unfinished secondary education and extra courses	0.100	0.074	0.391	0.100	0.082	0.432
Secondary school diploma	0.274	0.380	0.023*	0.274	0.220	0.096
Vocational secondary education diploma	0.294	0.291	0.944	0.294	0.345	0.145
Higher education diploma and more	0.322	0.223	0.033*	0.322	0.348	0.472
Housing expenditures, one year after the birth of the 2 nd child						
Age of mother	29.835	28.845	0.034*	29.744	30.435	0.044*
First child is a boy	0.530	0.573	0.406	0.527	0.450	0.050
Birth interval	6.966	7.511	0.209	7.012	7.410	0.203
Income (in log)	9.879	9.025	0.000*	9.870	9.633	0.004*
<i>Education level</i>						
Unfinished secondary education	0.015	0.023	0.558	0.015	0.009	0.478
Unfinished secondary education and extra courses	0.088	0.062	0.353	0.086	0.089	0.890
Secondary school diploma	0.265	0.418	0.001*	0.268	0.206	0.065
Vocational secondary education diploma	0.268	0.271	0.948	0.271	0.293	0.542
Higher education diploma and more	0.362	0.224	0.004*	0.358	0.401	0.258
Housing expenditures, two years after the birth of the 2 nd child						
Age of mother	29.703	28.741	0.035*	29.583	30.367	0.019*
First child is a boy	0.547	0.525	0.675	0.543	0.486	0.165
Birth interval	7.028	7.296	0.517	7.056	7.473	0.183
Income (in log)	9.872	9.024	0.000*	9.865	9.679	0.010*
<i>Education level</i>						
Unfinished secondary education	0.009	0.022	0.281	0.010	0.003	0.316
Unfinished secondary education and extra courses	0.104	0.051	0.072	0.076	0.116	0.098
Secondary school diploma	0.268	0.385	0.014*	0.280	0.216	0.073
Vocational secondary education diploma	0.287	0.296	0.859	0.300	0.253	0.202
Higher education diploma and more	0.329	0.410	0.074	0.333	0.410	0.052
Housing expenditures, three years after the birth of the 2 nd child						
Age of mother	29.620	28.767	0.058	29.561	29.768	0.538
First child is a boy	0.551	0.601	0.335	0.550	0.494	0.183
Birth interval	6.900	7.526	0.131	6.941	7.321	0.254
Income (in log)	9.844	9.067	0.000*	9.837	9.809	0.735
<i>Education level</i>						
Unfinished secondary education	0.003	0.007	0.568	0.003	0.000	0.318
Unfinished secondary education and extra courses	0.109	0.067	0.175	0.103	0.103	1.000
Secondary school diploma	0.263	0.375	0.019*	0.266	0.242	0.505
Vocational secondary education diploma	0.294	0.330	0.453	0.297	0.283	0.715
Higher education diploma and more	0.328	0.218	0.020*	0.328	0.370	0.296

p* < 0.05

Table 7: Pre- and post-matching *t*-tests
(Education expenditures)

	Unmatched sample			Matched sample		
	PA	NPA	<i>p</i>	PA	NPA	<i>p</i>
Education expenditures, at the year of birth of the 2 nd child						
Age of mother	29.796	29.107	0.128	29.796	30.119	0.308
First child is a boy	0.517	0.565	0.364	0.517	0.448	0.082
Birth interval	7.326	7.737	0.310	7.326	7.620	0.321
Income (in log)	9.880	9.014	0.000*	9.880	9.835	0.539
<i>Education level</i>						
Unfinished secondary education	0.012	0.032	0.155	0.012	0.015	0.738
Unfinished secondary education and extra courses	0.100	0.065	0.257	0.100	0.059	0.058
Secondary school diploma	0.253	0.393	0.004*	0.253	0.188	0.045*
Vocational secondary education diploma	0.288	0.270	0.710	0.288	0.322	0.345
Higher education diploma and more	0.344	0.413	0.030*	0.344	0.413	0.073
Education expenditures, one year after the birth of the 2 nd child						
Age of mother	29.634	29.112	0.261	29.634	30.013	0.255
First child is a boy	0.511	0.551	0.459	0.511	0.346	0.000*
Birth interval	6.961	7.655	0.094	6.961	7.647	0.018*
Income (in log)	9.836	9.039	0.000*	9.836	9.616	0.014*
<i>Education level</i>						
Unfinished secondary education	0.009	0.043	0.024*	0.009	0.000	0.083
Unfinished secondary education and extra courses	0.110	0.060	0.123	0.110	0.129	0.458
Secondary school diploma	0.262	0.379	0.018*	0.262	0.213	0.157
Vocational secondary education diploma	0.268	0.293	0.616	0.268	0.226	0.226
Higher education diploma and more	0.349	0.224	0.013*	0.349	0.430	0.039*
Education expenditures, two years after the birth of the 2 nd child						
Age of mother	29.584	29.197	0.397	29.576	29.583	0.983
First child is a boy	0.523	0.565	0.436	0.522	0.386	0.001*
Birth interval	7.027	7.598	0.162	7.040	6.864	0.534
Income (in log)	9.814	8.931	0.000*	9.809	9.579	0.012*
<i>Education level</i>						
Unfinished secondary education	0.006	0.024	0.128	0.006	0.000	0.157
Unfinished secondary education and extra courses	0.118	0.057	0.060	0.115	0.128	0.616
Secondary school diploma	0.253	0.393	0.004*	0.254	0.162	0.006*
Vocational secondary education diploma	0.280	0.295	0.763	0.281	0.349	0.077
Higher education diploma and more	0.341	0.229	0.025*	0.342	0.359	0.667
Education expenditures, three years after the birth of the 2 nd child						
Age of mother	29.806	29.483	0.496	29.806	30.032	0.506
First child is a boy	0.523	0.620	0.077	0.523	0.437	0.042*
Birth interval	7.132	8.000	0.046*	7.132	7.039	0.778
Income (in log)	9.832	9.009	0.000*	9.832	9.767	0.414
<i>Education level</i>						
Unfinished secondary education	0.007	0.034	0.043*	0.007	0.000	0.157
Unfinished secondary education and extra courses	0.118	0.060	0.083	0.118	0.064	0.028*
Secondary school diploma	0.243	0.370	0.010*	0.243	0.304	0.107
Vocational secondary education diploma	0.301	0.310	0.856	0.301	0.232	0.069
Higher education diploma and more	0.329	0.224	0.037*	0.329	0.397	0.095

p* < 0.05

Table 8: Sample size in original and matched samples (Housing expenditures)

Sample Type	Sample Size	Number of PA	Number of NPA
Period: at the year of birth of the 2 nd child			
Non-matched sample	484	350	134
Matched sample	700	350	350
Period: one year after the birth of the 2 nd child			
Non-matched sample	457	328	129
Matched sample	648	324	324
Period: two years after the birth of the 2 nd child			
Non-matched sample	451	316	135
Matched sample	600	300	300
Period: three years after the birth of the 2 nd child			
Non-matched sample	425	292	133
Matched sample	578	289	289

Table 9: Sample size in original and matched samples (Education expenditures)

Sample Type	Sample Size	Number of PA	Number of NPA
Category: expenditures on education			
Period: at the year of birth of the 2 nd child			
Non-matched sample	441	319	122
Matched sample	638	319	319
Period: one year after the birth of the 2 nd child			
Non-matched sample	425	309	116
Matched sample	618	309	309
Period: two years after the birth of the 2 nd child			
Non-matched sample	418	296	122
Matched sample	590	295	295
Period: three years after the birth of the 2 nd child			
Non-matched sample	395	279	116
Matched sample	558	279	279

Table 10: Regression results of subsidies on housing expenditures (in log) using Diff-in-Diff method

	Instantaneous	A year after	Two years after	Three years after
Treatment	0.257*** (0.089)	0.096 (0.084)	0.293** (0.115)	0.345*** (0.127)
Policy×Treatment	-0.405*** (0.115)	-0.159 (0.102)	-0.286** (0.132)	-0.264* (0.147)
Constant	6.449*** (0.147)	6.623*** (0.130)	6.623*** (0.172)	6.875*** (0.140)
Time	Yes	Yes	Yes	Yes
Observations	1,117	1,435	1,165	854
R-squared	0.149	0.137	0.083	0.085

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

Table 11: Regression results of subsidies on education expenditures (in log) using Diff-in-Diff method

	Instantaneous	A year after	Two years after	Three years after
Treatment	1.201*** (0.237)	1.026*** (0.195)	0.300* (0.176)	0.318* (0.184)
Policy×Treatment	0.985*** (0.297)	0.489** (0.242)	0.130 (0.209)	0.007 (0.211)
Constant	5.849*** (0.423)	4.658*** (0.377)	6.394*** (0.252)	6.714*** (0.188)
Time	Yes	Yes	Yes	Yes
Observations	838	1,049	1,191	1,101
R-squared	0.276	0.210	0.063	0.064

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

Table 12: Regression results of subsidies on housing expenditures (in log) using Diff-in-Diff method

	Instantaneous	A year after	Two years after	Three years after
Treatment	0.000	0.014	0.189	0.302**
Policy \times Treatment	(0.087)	(0.087)	(0.121)	(0.128)
	-0.184*	-0.071	-0.150	-0.349***
	(0.099)	(0.094)	(0.124)	(0.133)
<i>Current working status (Ref: Working)</i>				
On leave	0.113	-0.023	0.010	-0.271**
	(0.089)	(0.057)	(0.062)	(0.133)
Not working	0.073	-0.015	0.021	-0.095
	(0.099)	(0.064)	(0.063)	(0.062)
<i>Marital status of mother (Ref: Never married)</i>				
In a registered marriage	0.068	0.046	0.070	0.151
	(0.096)	(0.082)	(0.097)	(0.096)
Living together, not registered	-0.129	-0.168*	0.083	-0.083
	(0.112)	(0.095)	(0.116)	(0.117)
Divorced and not remarried	-0.152	0.370**	0.271*	-0.012
	(0.251)	(0.151)	(0.159)	(0.128)
Widower or widow	-0.381	-0.277	-0.747*	-0.041
	(0.343)	(0.380)	(0.423)	(0.439)
Registered, not living together	-0.002	-0.116	0.266	-0.196
	(0.253)	(0.184)	(0.239)	(0.361)
<i>Education level of mother (Ref: Unfinished secondary education)</i>				
Unfinished secondary education and extra courses	-0.052	-0.390*	-0.822**	-0.447
	(0.293)	(0.216)	(0.354)	(0.412)
Secondary school diploma	-0.016	-0.270	-0.890**	-0.592
	(0.290)	(0.211)	(0.347)	(0.401)
Vocational secondary education diploma	0.106	-0.237	-0.709**	-0.637
	(0.290)	(0.210)	(0.346)	(0.404)
Higher education diploma and more	0.043	-0.128	-0.639*	-0.381
	(0.291)	(0.211)	(0.346)	(0.400)
Income _{t-1} (in log)	0.064**	0.125***	0.163***	0.048
	(0.027)	(0.030)	(0.039)	(0.035)
Number of family members	0.127***	0.081***	0.039*	0.170***
	(0.020)	(0.019)	(0.023)	(0.025)
Urban	-0.246	-0.255	0.525***	-0.407
	(0.383)	(0.345)	(0.117)	(0.497)
Property owners	-0.263***	-0.300***	-0.308***	-0.428***
	(0.074)	(0.063)	(0.082)	(0.084)
Age of mother	0.006	-0.002	0.004	-0.002
	(0.006)	(0.005)	(0.006)	(0.006)
Living area (in square meters)	0.003***	0.001	0.006***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	5.569***	6.133***	5.646***	6.474***
	(0.481)	(0.465)	(0.582)	(0.714)
Time	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes
Observations	1,117	1,435	1,165	854
R-squared	0.565	0.475	0.347	0.538

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

Table 13: Regression results of subsidies on education expenditures (in log) using Diff-in-Diff method

	Instantaneous	A year after	Two years after	Three years after
Treatment	1.818*** (0.278)	1.325*** (0.239)	0.217 (0.190)	0.327* (0.194)
Policy × Treatment	0.630** (0.305)	0.407 (0.261)	0.419** (0.203)	0.012 (0.204)
<i>Current working status (Ref: Working)</i>				
On leave	-0.001 (0.215)	-0.628*** (0.159)	-0.121 (0.109)	-0.536*** (0.198)
Not working	-0.024 (0.243)	-1.007*** (0.185)	-0.605*** (0.115)	-0.481*** (0.105)
<i>Marital status of mother (Ref: Never married)</i>				
In a registered marriage	-0.055 (0.323)	0.086 (0.251)	-0.068 (0.172)	0.453*** (0.155)
Living together, not registered	-0.268 (0.351)	0.586** (0.294)	0.152 (0.207)	0.481*** (0.186)
Divorced and not remarried	-0.095 (0.647)	-0.205 (0.440)	0.251 (0.279)	0.260 (0.206)
Widower or widow	-3.042*** (0.991)	-1.004 (1.287)	-0.736 (1.080)	1.143 (0.939)
Registered, not living together	-0.494 (0.586)	-0.395 (0.677)	0.395 (0.443)	0.559 (0.672)
<i>Education level of mother (Ref: Unfinished secondary education)</i>				
Unfinished secondary education and extra courses	1.589** (0.668)	2.195** (1.032)	0.207 (0.700)	-0.391 (0.670)
Secondary school diploma	1.664** (0.678)	2.172** (1.032)	0.099 (0.692)	-0.736 (0.659)
Vocational secondary education diploma	1.430** (0.673)	2.600** (1.048)	0.175 (0.690)	-0.574 (0.660)
Higher education diploma and more	1.912*** (0.673)	2.677** (1.049)	0.329 (0.690)	-0.317 (0.660)
Income _{t-1} (in log)	-0.171* (0.093)	0.004 (0.279***)	0.381*** (0.075)	0.093* (0.055)
Number of family members	0.279*** (0.052)	0.094* (0.051)	-0.151*** (0.041)	-0.034 (0.039)
Urban	-0.112 (0.809)	1.853** (0.943)	0.092 (0.106)	0.207** (0.097)
Age of mother	-0.035** (0.017)	-0.028* (0.015)	-0.010 (0.012)	-0.014 (0.010)
Constant	4.410*** (1.340)	1.868 (1.513)	3.557*** (1.058)	6.390*** (0.935)
Time	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes
Observations	838	1,049	1,191	1,101
R-squared	0.511	0.381	0.173	0.179

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

Table 14: Amendments in the Law about housing expenditures

The Federal Law N 256-FZ of 29.12.2006 on Supplementary governmental measures to support families having children	The Federal Law N 288-FZ of 25.12.2008 on Supplementary governmental measures to support families having children	The Federal Law N 241-FZ of 28.07.2010 on Supplementary governmental measures to support families having children	The Federal Law N 440-FZ of 29.12.2010 on Supplementary governmental measures to support families having children	The Federal Law N 131-FZ of 23.05.2015 on Supplementary governmental measures to support families having children
Challenging “maternity capital” subsidy to (improve living conditions):				
Purchase or construct a housing after the three years of birth of the second, third or subsequent children.	The same	The same	The same	The same
Pay principal and interest on credit or loans obtained for purposes of acquiring or building a dwelling, including mortgage loans, after the three years of birth of the second, third or subsequent children.	Pay principal and interest on credit or loans obtained for purposes of acquiring or building a dwelling, including mortgage loans, without waiting for three years after the year of birth of the second, third or subsequent children. Expiration date is 31.12.2010.	The same	Pay principal and interest on credit or loans obtained for purposes of acquiring or building a dwelling, including mortgage loans, without waiting for three years after the year of birth of the second, third or subsequent children.	Pay an initial contribution and/or pay principal and interest on credit or loans obtained for purposes of acquiring or building a dwelling, including mortgage loans), without waiting for three years after the year of birth of the second, third or subsequent children.
		Construction or reconstruction of accommodation that is made by the citizens of the Russian Federation without the involvement of organizations that provide construction and reconstruction services.	The same	The same
Note: Purchased accommodation must be allocated in the Russian Federation. “Maternity capital” subsidy is granted only for citizens of the Russian Federation.				

Table 15: Amendments in the Law about education expenditures

The Federal Law N 256-FZ of 29.12.2006 on Supplementary governmental measures to support families having children	The Federal Law N 318-FZ of 16.11.2011 on Supplementary governmental measures to support families having children	The Federal Law N 185-FZ of 02.07.2013 on Supplementary governmental measures to support families having children	The Federal Law N 684-FZ of 14.07.2014 on Supplementary governmental measures to support families having children
Challenging “maternity capital” subsidy to (cover educational costs of children):			
Cover education expenditures of the child or children at any educational establishment within the Russian Federation. Also, educational organizations must have a right to provide educational services.	The same	Cover education expenditures of the child or children at any educational organization within the Russian Federation. Also, educational organizations must have a right to provide educational services.	Cover education expenditures of the child or children at any organization within the Russian Federation. Also, educational organizations must have a right to provide educational services.
More precisely:			
1) Pay for educational services provided by governmental and municipal educational establishments.	1) Pay for educational services provided by educational establishments that provide non-free educational services and have appropriate certification and received government accreditation.	1) Pay for educational services that follow the state-accredited educational programs.	1) Pay for non-free educational services
2) Pay for educational services provided by non-governmental establishments, which have appropriate certification and received government accreditation.	Abolished		
3) Pay for other educational services, which established by the Russian Government.	The same	The same	The same
Note: Educational costs can be covered only for children not older than 25 years.			

Appendix 2

Appendix 2 presents the process of matching procedure in more details using the case of the instantaneous change in housing expenditures as an example.

The first step of the PSM is an estimation of propensity scores. Only those households who reported their spending on housing at the year of birth of the second child are used (645 out of 1,159 families) since I work within the complete case analysis framework.

Table 16: Correlates of the Propensity Score

(Housing expenditures, at the year of birth of the 2nd child)

	Probit	Probit
Age of mother	0.077*** (0.017)	0.081*** (0.024)
First child is a boy	-0.074 (0.108)	-0.185 (0.132)
Birth interval	-0.085*** (0.019)	-0.088*** (0.025)
Income _{t-1} (in log)		0.448*** (0.062)
<i>Education level of mother (Ref: Unfinished secondary education)</i>		
Unfinished secondary education (7-8 grades of school) and extra courses		1.051* (0.571)
Secondary school diploma		0.483 (0.537)
Vocational secondary education diploma		0.579 (0.539)
Higher education diploma and more		0.512 (0.546)
Constant	-0.983** (0.429)	-5.877*** (0.960)
Observations	645	484
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		

In the estimation of the propensity score, two types of variables are used. The first type includes variables, such as the age of mother, birth interval, and gender of the first child, that filled for all the households. The second type covers information on mother's education level and the logarithm of household's monthly income, which are both observed in a year before the birth of the second child.

This type of correlates may have missing values, because of the absence of information. Then, the number of households participating in estimation procedure reduces to 484 households. The first column of Table 16 presents estimation results of the probit model using only correlates of the first type. As can be noted, the number of observations is 645. The second column stands for estimation results of the probit model using two types of correlates. Consequently, the number of observations becomes equal to 484 (PA - 134, NPA - 350).

Due to the high importance of correlates of type two they are kept in the estimation of the propensity scores.

The second step is a matching procedure. I use the nearest neighbor matching with replacement with a caliper of 0.05. The matching method applied allows to find one match for each PA and create a sample of 700 observations (350×2), because NPA's can be used as a match to more than one PA.