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Impact of Child Subsidies on Child Health, Well-being and Parental Investment in Human Capital: Evidence from Russian Longitudinal Monitoring Survey 2011-2017

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JEL Codes: C52, I11, I31, I38, J18

Keywords: child subsidy, child outcomes, Maternity Capital, regression discontinuity



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Impact of Child Subsidies on Child Health, Well-being and Parental Investment in Human Capital: Evidence from Russian Longitudinal Monitoring Survey 2011-2017

Alex Proshin

May 29, 2020

Abstract

This study evaluates the impact of introducing Maternity Capital (MC) program child subsidy of 250,000 Rub (7,150 euros or 10,000 USD, in 2007) for giving birth to /adopting 2nd and subsequent children since January 2007. The reform made it possible for eligible Russian families to allocate these funds to improve family housing conditions, to sponsor children education, or to invest them in mother's retirement fund. The objective of this study is to evaluate the impact of the MC claim eligibility on various child outcomes and household-level consumption patterns. Using data from representative Russian Longitudinal Monitoring Survey 2011-2017, I test regression discontinuity models and find no significant difference in health, educational and well-being outcomes between children raised in MC claim eligible and ineligible families. In addition, no such differences were found in terms of household-level dietary habits and preferences. The results are robust to different and functional, semi- and non-parametric RDD specifications.

Keywords: child subsidy, child outcomes, Maternity Capital, regression discontinuity

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1 Introduction and literature review

In the face of aging population and a global trend of decreasing fertility, the topic of pro-natalist policies and their impact on parents and children has become a primary concern of several governments. Most developed and developing countries have put in place welfare systems supporting fertility, which vary greatly in terms of incentive size, implementation mechanism, and their perceived success. However, despite the growing popularity of pro-natalist programs, little is known about their medium- and long-term consequences on child health, development and well-being, in particular in countries apart from USA, Canada and the EU.

At the beginning of 2007, Russian government announced a reform whereby second and subsequent childbirths/child adoptions would be incentivized by a government-sponsored subsidy of around 10,000 \$ US. Although this program, called Maternity Capital (MC), did not allow for direct monetary transfers, the sum stipulated in it, indexed in most years in pace with inflation rates, could be spent on improving housing conditions, providing education to household children or deposited in mother's pension fund account. The objective of this study is to evaluate how this pro-natalist measure affected multiple measures of child health (both subjective and reported clinical indicators), educational and developmental outcomes, household dietary patterns, and the willingness to invest in child human capital by Russian families.

These outcomes were likely affected by MC eligibility through several channels. First, in purely financial terms, MC subsidy provides a very sizable income supplement which is capable of dynamically relaxing household budget constraint. As a result, affected families can respond by investing the newly available funds into their children's human capital, as well as in other members of the household. The latter case could have the potential to positively impact children's well-being through wealth and human capital spill-over effects within the household. Second, the MC reform was accompanied by a broad public campaign aimed at encouraging Russian families to consider child well-being and development as a personal responsibility and their major priority. Apart from the promoted child-oriented values, it might have also raised general public awareness of issues related to child well-being. Lastly, for a lot families MC subsidy in itself likely

resulted in improved housing conditions and, arguably to a lesser extent, better access to child education and childcare. (see Section 2 for MC reform context). However, it is important to stress that, similar to previous studies on MC, due to data limitations this paper concentrates on the impact of MC claim eligibility and not that of the actual use of the subsidy, which could be spent to benefit several household members, toward several eligible uses and over a considerable time span.

The results of this study do not support the hypothesis that any tested child and household level outcome was significantly impacted by MC claim eligibility, suggesting that MC wealth redistribution effects between household members are likely minimal. The contribution of this study is threefold. First, it studies a broad set of child well-being outcomes, some of which, to the best of my knowledge, were never investigated in economic literature. In particular, no earlier study looked into the impact of child subsidies on leisure time spending patterns by children. Some of these metrics, such as time spent on extracurricular study and arts, serve as very likely proxies of parental willingness to invest into child human capital. Second, this paper is the first to study the link between child subsidies and family dietary patterns, which are known to have long-lasting and profound effects on children's health and development. Lastly, it fills a relative lack of research on the impact of pro-natalist reforms on child outcomes in middle-income transitioning countries, whose distinct features (e.g. weaker social security support, higher degree of uncertainty with respect to income) may create a set of incentives different from that commonly observed in developed countries.

As for related research on Maternity Capital, an earlier study by *Slonimczyk and Yurko (2014)* concentrated on the impact of MC on fertility and labour market participation using Russian Longitudinal Monitoring Survey (RLMS) data from 1994 to 2011. Their before-and-after analysis, complemented with difference-in-difference estimates and nearest-neighbor matching models, suggests that financial incentives provided by MC program could lead to 1.4-2.4% increase in the probability of childbirth (i.e. an estimated 0.47 - 0.81 increase of the number of children born per woman). However, after authors tested a dynamic stochastic model of fertility, wherein women simultaneously make decisions as to whether to have a childbirth and with regards to their participation in the labor market, they concluded that women were more likely to combine work and having

children rather than being unemployed and having children by around 10%. In addition, *Slonimczyk and Yurko (2014)* provide evidence that MC reform affected more strongly married as well less educated women. However, the authors did not find sufficient evidence for a differential impact of MC on fertility based on women's current employment status or urban/rural residence.

A closely related study by *Gonzalez (2013)* evaluated the impact of a largely similar reform, whereby Spanish government introduced a 2500 euro (based on the exchange rate of 2007) subsidy upon the birth of a child after 1st July 2007, universally on all its territory. The presence of this exact cut-off date made the author focus on models using regression discontinuity design applied to time series for fertility, employment and household spending outcomes aggregated on national level. The estimates obtained from parametric models with high-order polynomial approximations suggest that, while reform led to a reduction in the number of abortions and a considerable jump in the number of conceptions around the cut-off date, which subsequently translated into a 6% increase in the observed number of births, it did not significantly affect either total or child-related household expenditures. In addition, the intervention likely reduced women's labor supply by an estimated 0.2 months of work during the first year after childbirth. *Gonzalez (2013)* suggests that this time was likely spent on providing informal care for the newborn, which was reflected by the fact both the fraction of families using private day care services and the monetary amount of these expenditures decreased by 4-12 % and 200-400 euros respectively in families with children born immediately after the cut-off date and a decrease on private childcare expenditures.

However, it is worthwhile to note that several studies have found evidence of heterogeneity in responsiveness to pro-natalist incentives, in particular with respect to age, ethnicity and religious affiliations. (*Cohen et al., 2013; Baughman and Dickert-Conlin, 2003*). As far as income is concerned, the evidence has been somewhat inconclusive, with no consensus even as to the sign of its impact. Several authors point out that income levels are likely endogenous to fertility choices and, thus, conclusions about the heterogeneity of reform impact with respect to mother's and household income should be interpreted with caution (*Cohen et al., 2013; Milligan, 2005*).

Theoretically, in economic literature women's choices with respect to childbirth and

investment tend to be modelled in a dynamic context due to long-term and interconnected character of the effects they engender for mother, her children and household in general. A series of papers, including *Kalemli-Ozcan(2003)* and *Tamura(2006)*, predict that higher child mortality and uncertainty as to the survival of offspring can discourage parental investment into child human capital.

A large body of research across various disciplines points to the fact that the first years of children lives have a crucial, and perhaps irreversible, impact on their subsequent physical and cognitive development. In the context of public policy, creating conditions favorable to children development and well-being has been considered, or at least declared, as one of the main priorities of most current governments, including that of Russia.

So far, various metrics have been proposed by both governmental bodies and scholars to measure child well-being, which, in line with *Conti and Heckman(2012)*, can be classified into indicators of (with several examples cited in parentheses):

1. material well-being (experience of absolute and relative poverty or reported deprivation, availability of basic durable goods and services, such as mobile phone and Internet)
2. health and safety (mortality, chronic somatic and psychological illness, presence of health risk-factors, such as body weight abnormalities and low physical activity, psychological and emotional stress, immunizations)
3. educational well-being (school attendance, scores in tests on reading skills and numeracy, school grades, extracurricular activities)
4. family and peer relationships (raised in a single parent household, time spent on activities shared by family, violence and child abuse in family, number and intensity of peer relationships, exposure to peer violence and abuse)
5. housing and environment (livable space available to a child, presence amenities, degree of contamination of ingested water and inhaled air)
6. risk behaviors (smoking, alcohol and drug consumption, early unprotected sex, teenage pregnancies, juvenile felony)

7. subjective well-being (e.g.s self-reported life satisfaction measures, as well as those reported by parents)

There is a prevailing consensus that none of these metrics can by themselves serve as ultimate and solely correct units of measurement of child development, but rather should be considered in a comprehensive and holistic manner while making conclusions on the quality of environments in which children are raised and to which they are exposed on a day-to-day basis. In this study, I intend to follow this approach as much as possible while analyzing the impact MC policy on child well-being.

Despite their likely good intent and purpose, reforms such as Maternity Capital oftentimes have unexpected distributional consequences. Although child subsidies in many cases have attained the goal of a moderately higher fertility in a given time period, it does not imply an increase in overall child and family welfare. Available evidence on the effectiveness of such programs on a broader set of family health and well-being outcomes seems even less strong.

As for child health indicators, empirical research tends to support the idea that family's financial wealth and material investments made in early childhood could generate benefits in terms of health outcomes (*Baughman and Duchovny, 2016; Case, Lubotsky, and Paxson, 2002; Currie, 2009*). Similar effects are observed with respect to child cognitive development and educational attainment, as evidenced, for example, by *Dahl and Lochner (2012)*, who find that introduction of tax benefits in USA between 1993 and 1997 helped raise scores in reading and math tests taken by children living in affected households. Using parental income variation instrumented by trade tariffs that exogenously changed after trade liberalization across multiple sectors in India in 1991, *Ajefu(2018)* finds that higher levels of household income translated into better school attendance by children rates and lower child labor, which could overall contribute to a long-term child human capital formation. *Attanasio (2015)* evaluated the impact of a policy intervention whereby as a treatment a group of young children residing in multiple Colombian villages received micronutrient supplementation, cognitive development training or combination of both. It was found that, in comparison to children who did not receive any treatment, only children who were underwent cognitive training sessions experienced significant improvements in cognition abilities, whereas such an effect was not observed in those children

who received only micro-nutrient supplementation.

There are few studies concentrating specifically on the effects of child subsidies on child well-being. The impact of a one-time 3000\$ cash transfer introduced in Australia in was studied by *Gaitz and Schurer (2017)* and *Deutscher and Breunig (2018)*. Both studies, using similar difference-in-difference designs and data sources, come to the conclusion the reform had little effect on various educational, physiological and physical health outcomes of pre-school children. In the meantime, *Deutscher and Breunig (2018)* suggest that this impact may be positive for children living in families where parents have a weaker educational background in terms of the highest completed level of education.

Lebihan & Takongmo (2018) analyzed the universal child benefit program introduced in 2006 in all Canadian provinces outside Quebec, and also found no significant impact of the reform on child or mother well-being. Mirroring the argument by *Gaitz Schurer (2017)* and *Deutscher and Breunig (2018)*, the authors suggest that the universal and, thus, untargeted character of the reform, and not the size of the program – 1200\$ CAD annually or 100\$ CAD monthly as of 2006 – was likely the primary explanation for the absence of observable statistical effects. In a closely related Canadian study, using the share of plausibly exogenous variation in both provincial tax credit and supplemental child benefit programs in Canada, *Milligan and Stabile (2011)* conclude that more generous child benefits can positively impact educational achievement, psychological traits and well-being measures of the child. In addition, the results suggest in boys improvements are more likely to be observed with regards to education and learning, whereas for girls the effect was more strong regarding their mental and emotional well-being.

A multidisciplinary literature review by *McEwen and Stewart (2014)* draws a conclusion that higher income improves a range of child outcomes (cognitive, behavioural, social and emotional) but that the improvement is small in magnitude. Much of the correlation between lower income and worse child outcomes is explained by other factors that are often associated with having a low income, while income itself has a relatively small influence on child outcomes when researchers account for other factors. The evidence thus suggests that the causal effect of income on child outcomes is, in and of itself, quite small. From a policy perspective, this finding suggests that one cannot expect income transfers to low-income families to vastly improve child outcomes, and that focusing exclusively

on income to close the gap between children from low- and higher-income families, via transfers or otherwise, is unlikely to be effective. In terms of public policy, these studies also suggest that income transfers could be more effective if they were targeted. Finally, they provide evidence that income effect on child outcomes displays diminishing marginal returns, each dollar spent having a bigger impact in the early years of life. However, *Cooper and Stewart (2018)* argue that estimation results can be sensitive to the type of data and statistical methods used to make inference, the biggest effect sizes being typically reported in experimental studies.

The remaining parts of this paper are organized as follows. Section 2 describes Maternity Capital conditions and provides Russian institutional context, Section 3 describes RLMS data used in this study, Section 4 explains the empirical design of the study and provides main estimation results. Robustness check are conducted in Section 5. Section 6 discusses contribution, limitations and external validity of this study, and Section 7 concludes.

2 Maternity Capital institutional context

Since the collapse of the Soviet Union in the early 1990s and until the turn of 20th century, Russia had underwent a series of profound economic transformations aimed at increased privatization and liberalization of economic activity. Despite their partial success, one of major and long-standing consequences of these changes was a progressive loss of public social welfare systems.

In particular, child care facilities have experienced a decline in funding and accessibility. In 2016, only 57.4 % of Russian children had access to public pre-school daycare and education (*Abankina and Filatova, 2018*), compared to an anecdotally almost universal coverage in Soviet era. In addition, child benefits in the form of monthly payments, tax refunds and child care subsidies are virtually non-existent in modern Russia. After childbirth, maternity leave lasts for up to 86 days for the majority of childbirths, and unlike in a number of European states, cannot be shared between parents¹. In a broader context, in contemporary Russian welfare system provides a relatively weak protection against

¹The 86 day leave can be extended by an additional 26 days for complicated child deliveries

unemployment, the maximum amount of monthly unemployment benefit in 2011 set at 4900 Rubles (163 USD in 2011 prices), representing less than 1/4 of the average salary of 23369 Rubles (725 USD in 2011 prices). Similar problems are pervasive in other areas of social security, in particular, healthcare system which has difficulty ensuring universal access.

However, despite an overall trend towards privatization and a less broad access to free leisure and extracurricular services on the 2000s and 2010s, free or affordable options continued to exist in many Russian regions. Available choices vary from sports clubs to Sunday schools and are extremely heterogeneous depending on the region, residents of larger and richer cities enjoying a lot more accessibility and diversity.

Considered altogether, this institutional instability could render the decision to raise a child a financially risky one, which could be particularly the case for low to average income families and single-parent families, given the relative lack of robust and institutionalized social security nets nationwide.

In the 2000s Russia's economic situation revived, in part thanks to booming oil and gas prices and to structural market reforms implemented in the preceding decade, which was accompanied by a steady growth in disposable income and an improved living standard. In an attempt to boost falling fertility rates, and, plausibly, to insure an increased public support, in 2007 the Russian government announced the introduction of a subsidy targeted for mothers with multiple children, called Maternity Capital.

Eligibility conditions for Maternity Capital certificates are stipulated in the federal law 26.12.2006 N 256 "On complementary measures of state support for families with children". It defines as potential beneficiaries of Maternity Capital any individual holding Russian citizenship and falling into one of the three categories :

1. woman who gave birth to or adopted a second child after the 1st January 2007
2. woman who gave birth to or adopted a third or consecutive child after 1st January 2007, on the condition that the claimant earlier did not exercise her right to Maternity Capital
3. man who from 1 January 2007 onward is recognized as the sole adopter of a second, third or subsequent children and who did not earlier exercise his right to Maternity

Capital²

These eligibility criteria imply that, first, a family must give birth to/adopt at last 2 children to be able to benefit from the policy. Second, MC can only be claimed once. Third, child adoptions are considered to be an equally valid circumstance on par with births entitling to MC.³

During the time period analyzed in this study, MC funds were allowed to be used towards:

1. improving housing conditions (through co-funding purchase of real estate, paying part of mortgage and investing in repairs of existing lodgings)
2. paying for education expenses of (any) child in the family
3. investing in mother's pension fund⁴

MC is awarded to a family member (for the sake of simplicity, I will further refer to potential MC beneficiaries as mother, leaving male population outside the scope of the analysis). There is a 3-year delay before MC subsidy can be issued. However, it does not apply to cases where funds are used to make a downpayment, or fund part of real estate mortgage, in which case MC subsidy can be used almost immediately after the eligibility criteria are met.

MC funds may be used partially, with multiple motives, and allocated between several users. It is important to stress that MC certificates are not tied to the child whose birth/adoption was at the origin of MC rights eligibility. In other words, any child in a given family can benefit from MC certificate funds (for example, MC can be used to fund education of a previously born child), or, if used for improving housing conditions, the

²The law also describes statistically unlikely but yet possible situations in which the right to MC can be lost by, or transferred to, one of the two parents or to the child himself/herself. These cases include death of one or all of the custodians, loss of child custody rights, etc. This study does not take into account these changes due to lack of available information and/or practical difficulty to establish the occurrence of these events

³Although individuals falling into the category of child adopters would be an extraordinarily interesting case to investigate, their very limited sample size in the data does not allow me to make valid inference

⁴Starting from 1st January 2016, MC it was permitted to use MC to purchase goods and services for a child suffering from disabilities. From 1st January 2018, it also became possible for families to spend MC funds in the form of monthly monetary benefits

whole family will then benefit from it. I use this feature of MC to perform robustness checks in Section [5](#).

Although MC subsidy amounted to 250 000 roubles in 2007 (equivalent to around 9800\$ US in 2007), due to instability of the exchange rate of Russian currency, the size of MC subsidy converted into main foreign currencies - euro and US dollar - fluctuated considerably since its implementation in January 2007. Although terms and conditions of MC did not allow for using it to purchase foreign real estate or to subsidize child's education outside Russian educational system, those mothers who eventually opted for investing the funds into their pension plans could nevertheless have been impacted by such fluctuations. It appears plausible that relatively financially well-off families in Russia who can afford savings may base their expectation of the worth of MC in part on the value of Russian rouble. Historically, after the collapse of the Soviet Union, even ordinary Russians regarded investments into foreign currencies as one of the few - if not the only - accessible ways to safeguard their savings in the face of economic instability, relying on the exchange rate it as general indicator of Russia's economic performance.

In general, Russian political institutions are considered to be lacking in accountability and rule of law. Partially as a result of this, a relatively small fraction Russian population claims to have trust in public institutions, be them federal or local, executive, legislative or judicial, with one major exception from this rule being the Russian president (*Levada Center, 2014*).

Mothers' preferences to use MC subsidy may have been affected by this broader institutional context. Both economic theory and existing empirical evidence suggest that in the presence of distrust in public institutions individuals will likely have high discount rates for their future. As a result, it will affect households' decisions in a way that will make them favor behavioral strategies providing a certain and safe reward in the present, rather than immediately less profitable but more attractive strategies in the longer term. In the specific case of MC, this implies that the use of MC certificate to buy real estate may be regarded as a more attractive option relative to the other two, since it can be benefited from almost immediately, with no need to wait for retirement age or the moment where the newborn reaches childhood or adolescence. Since Soviet times a considerable number of families have been able to benefit from free or highly subsidized real estate

purchase. Although this housing is usually provided in low-cost houses and entails a wait period of several years or even decades, it anecdotally helped to address housing shortage in many regions.

Among the most prominent characteristics of modern Russia have been a massive heterogeneity in terms of peoples' cultural norms, accompanied by a considerable inequality in income, living standards, levels of economic development. Overall, members of religious confessions tend to have different stances towards such issues as fertility, abortion and child rearing. The onset of a recent trend towards state promotion of religiosity, dating from the beginning of 2010, could plausibly have had an impact on fertility and upbringing preferences of Russian families, although its exact magnitude is unclear and is arguably modest due to Russia's relatively high percentage of atheists and non-religious populations and an overall lack of trust in state institutions⁵(*Levada Center, 2017*).

3 Data and descriptive statistics

The main source of data for this study is Russian Longitudinal Monitoring Survey (RLMS). It is a panel survey conducted on a yearly basis since 1994 using a representative sample of Russian households. RLMS features three core modules: adult, children and for households. The resulting datasets contain an extremely rich set of variables that cover virtually all areas of respondents' lives. In particular, adults provide current and past information on their employment, income, health, education, attitudes towards social issues and family relationships. Overall, more than 800 and 1500 variables are available in the most recent RLMS waves at the individual and household level, respectively.

Each module has a separate questionnaire to which only adult members are eligible to answer. Thus, the information on child questionnaire is provided by an adult member present at home during the interview. The sample size in one RLMS wave (i.e. year of study) contains around 6500 households and 18000 individuals. Households that did not participate in a given RMLS wave can return to the sample in the following year. RLMS interviews take place every year at respondent's home, normally from October to December, as long as participating families continue to live at the same address and are

⁵Only 35% of population considered themselves at least somewhat religious in 2014, although this figure rose to 53 % in 2017 (*Levada Center, 2017*)

willing to participate in the study.

In total, 17 child outcomes related to health and development, educational achievement, and material conditions and the degree of parental involvement in child upbringing were analyzed to evaluate the impact of MC on child well-being. In addition, this analysis is complemented with household-level study of the MC impact on dietary habits, which are likely to affect all family members. This impact is susceptible of being particularly strong on young children who are likely to heavily depend on parental choices for their diets (see Section 4 and Appendix 1 for variable description).

The analytical sample is restricted to respondents surveyed in RLMS waves from 2011-2017, living in households with 2 children, whose children were born between 2004 and 2010 (i.e. 3 years before and after the introduction of Maternity capital in 2007) and at the time of survey were aged from 6 to 8 years old. The year of birth of the second child determines whether the family is eligible to receive MC subsidy (if the second child is born on and after the 1st January of 2007) or ineligible for this type of support. In the analytical dataset information on each child included in the sample is merged with corresponding mother and household characteristics, which allows me to take into account changes occurring at the household level that could have an impact on the analysed child outcomes. Descriptive statistics on the sample of second children, and on the two subgroups are provided in Table 13.

The analytical sample contains information on 2015 children, 50.3% of whom were born after MC was introduced in January 2007. Overall, children born before and after January 1st, 2007 had very similar characteristics for the majority of health, educational and developmental outcomes. In particular, participating respondents considered that their children were in good/excellent health and had good/excellent GPA at school in a similar in around 77% and 67% of cases. The majority of children included in the sample had a personal cell phone and nearly half had a PC. Overall, besides spending considerable time preparing homework, children were physically active outside school (on average, around 215 and 394 minutes per week, respectively), despite quite a significant variation in the amount of time spent on these and other categories.

As for mothers, the average age was around 33.6 years for both groups, with around 13.5% of families comprised of a single parent. Although on average mothers also shared

Table 1: Descriptive statistics for whole analytical sample (RLMS 2011-2017 respondents with children born between 2004 and 2010 and aged 6-8 years, in households with two children), by period of birth

| Variable | All sample | | | | Born after Jan 1st 2007 | | Born before Jan 1st 2007 | |
|--|------------|---------|-------|---------|-------------------------|---------|--------------------------|---------|
| | Mean | SD | Min | Max | Mean | SD | Mean | SD |
| <i>Child characteristics and outcomes:</i> | | | | | | | | |
| Age | 7.037 | 0.804 | 6 | 8 | 6.975 | 0.81 | 7.099 | 0.794 |
| Sex (male) | 0.528 | 0.499 | 0 | 1 | 0.561 | 0.496 | 0.494 | 0.5 |
| Second child | 0.521 | 0.5 | 0 | 1 | 0.558 | 0.497 | 0.484 | 0.5 |
| Urban | 0.643 | 0.479 | 0 | 1 | 0.676 | 0.468 | 0.61 | 0.488 |
| In good/excellent health | 0.774 | 0.418 | 0 | 1 | 0.776 | 0.417 | 0.772 | 0.42 |
| Health score (1-best, 5-worst) | 2.188 | 0.498 | 1 | 4 | 2.183 | 0.509 | 2.193 | 0.488 |
| Health problem in last 30d | 0.359 | 0.48 | 0 | 1 | 0.384 | 0.487 | 0.335 | 0.472 |
| Num. of chronic conditions | 0.105 | 0.376 | 0 | 3 | 0.076 | 0.306 | 0.135 | 0.433 |
| z-BMI | -0.095 | 1.964 | -5.89 | 5.98 | -0.085 | 1.981 | -0.106 | 1.948 |
| Good/Excellent GPA | 0.669 | 0.471 | 0 | 1 | 0.645 | 0.479 | 0.685 | 0.465 |
| Bad/Satisfactory GPA | 0.141 | 0.348 | 0 | 1 | 0.17 | 0.376 | 0.12 | 0.325 |
| Went to excursion/gallery | 0.819 | 0.385 | 0 | 1 | 0.831 | 0.375 | 0.807 | 0.395 |
| Sees friends > 2 times per week | 0.699 | 0.459 | 0 | 1 | 0.684 | 0.465 | 0.714 | 0.452 |
| Has cell phone | 0.667 | 0.471 | 0 | 1 | 0.632 | 0.482 | 0.698 | 0.459 |
| Has personal computer | 0.467 | 0.499 | 0 | 1 | 0.477 | 0.5 | 0.461 | 0.499 |
| Vacation with parent in 1yr | 0.747 | 0.435 | 0 | 1 | 0.76 | 0.427 | 0.734 | 0.442 |
| School homework/assignments | 215.807 | 242.748 | 0 | 1500 | 227.839 | 242.453 | 205.267 | 242.677 |
| Extracurricular study | 21.534 | 74.674 | 0 | 1200 | 18.161 | 55.937 | 24.579 | 88.165 |
| Extracurricular arts | 133.032 | 206.198 | 0 | 1861 | 137.712 | 220.426 | 128.84 | 192.606 |
| Extracurricular sports | 394.462 | 396.839 | 0 | 2880 | 423.294 | 442.612 | 369.381 | 350.82 |
| Watching TV/on Internet | 122.193 | 75.945 | 0 | 720 | 121.458 | 75.021 | 122.833 | 76.785 |
| <i>Mother characteristics:</i> | | | | | | | | |
| Age | 33.667 | 5.111 | 20 | 49 | 33.898 | 5.108 | 33.432 | 5.105 |
| Single parent | 0.135 | 0.342 | 0 | 1 | 0.127 | 0.333 | 0.143 | 0.35 |
| In good/excellent health m | 0.535 | 0.499 | 0 | 1 | 0.522 | 0.5 | 0.548 | 0.498 |
| Higher education diploma | 0.392 | 0.488 | 0 | 1 | 0.423 | 0.494 | 0.36 | 0.48 |
| Ethnically other than Russian | 0.101 | 0.302 | 0 | 1 | 0.092 | 0.289 | 0.11 | 0.313 |
| Household income, in 2011 prices | 35.778 | 27.244 | 1.295 | 281.479 | 35.013 | 25.34 | 36.563 | 29.061 |
| Alcohol cons. > 1 time per week | 0.035 | 0.184 | 0 | 1 | 0.031 | 0.172 | 0.04 | 0.196 |
| <i>Household consumption:</i> | | | | | | | | |
| Vegetables/legumes | 2.331 | 4.997 | 0 | 80 | 2.152 | 4.17 | 2.512 | 5.708 |
| Fruit (fresh and canned) | 3.351 | 4.047 | 0 | 80 | 3.072 | 3.276 | 3.626 | 4.669 |
| Meat and poultry | 3.107 | 3.746 | 0 | 54 | 3.11 | 3.458 | 3.104 | 4.015 |
| Dairy | 5.956 | 4.5 | 0 | 31.5 | 6.024 | 4.422 | 5.888 | 4.577 |
| Vodka and liquors (in liters) | 0.18 | 0.657 | 0 | 10 | 0.143 | 0.557 | 0.218 | 0.743 |
| Refined sugar | 1.739 | 5.555 | 0 | 50 | 1.528 | 4.657 | 1.952 | 6.331 |
| Candy and high-sugar treats | 1.548 | 1.304 | 0 | 12 | 1.507 | 1.197 | 1.589 | 1.399 |
| Starches | 8.462 | 8.222 | 0 | 89 | 7.723 | 7.238 | 9.212 | 9.054 |
| Number of observations | 2015 | | | | 1014 | | 1001 | |

similar characteristics with regards their ethnicity, income, urban/rural residency and self-reported alcohol consumption, MC claim eligible mothers appear to have a higher level of graduation from a higher education institution. This likely results from the fact that higher education graduation rates have been rapidly increasing in Russia in the 2010s and the fact that 2007-2009 birth cohort is observed on average later in the analytical 2011-2017 period (i.e. children born in 2007-2009 are observed in RLMS waves from 2013 to 2017, depending on the date of interview)⁶. Finally, as far as household dietary choices are concerned, overall the most highly consumed food group were starches, which include popular crops and staples, such as bread, potato, rice, etc. (see Appendix 1 for details). Healthy food groups whose consumption is supported by dietary guidelines, such as vegetables and fruits, accounted for a fairly decent (around 5.5 kg) amount of food intake. In the meantime, foods high in refined sugars also comprised a significant part of household consumption (on average, around 1.5 kg of high-sugar treats, such as candy, chocolate and cakes, and a comparable amount of refined sugar).

4 Empirical strategy and main results

The empirical strategy to evaluate the impact of MC relies on the fact that MC claim eligibility dependent on a clear cut-off date of the 1st January 2007. After this date, any family giving birth to a second or subsequent child was automatically given MC claim rights. For the sake of comparability, I concentrate solely on households having 2 children, who constitute by far the most common case among MC claim eligible families.

The reform was announced unexpectedly for the vast majority of Russian population. This circumstance effectively rules out any anticipatory effect at the cut-off date since Russians could not adapt their behaviors prior to the introduction of MC.

The focus of this study consists in comparing outcomes of children in the immediate neighborhood of the intervention cut-off date, where theoretically any observed difference in outcome variables must be solely attributable to the policy intervention due to a near complete treatment randomization. To this end, I select children who were born 3 years

⁶However, it is worthwhile to note that a significant part of this growth in numbers was at least in part due to the pervasive problem of 'diploma mills', 25% of higher education credentials in Russia being counterfeit, according to expert unofficial estimates (*Kommersant journal*, 2015).

around the cut-off date (i.e. between the 1st January 2004 and 31 December 2009). Subsequently, I analyze different outcomes of these children when they reach the age of 6-8 and start attending primary school. This cohort is followed along RMLS surveys 2011-2017, until they reach the age of 9 and start going to middle school⁷.

In order to ensure that similar incentives are being compared, in main specifications I only concentrate on 2nd children (effects on 1st children who did not directly cause the acquisition of MC claim rights but who could still benefit from it are presented in subsection ^{5.2} on robustness checks).

Similarly to Gonzalez (2013), to estimate the effect of MC on child outcomes, I am testing regression discontinuity models of the functional form:

$$\begin{aligned} Outcome_{ip} = & \alpha + \gamma_1 trend_t + \gamma_2 trend_t^2 + \gamma_3 trend_t^3 + \gamma_4 trend_t \cdot post_t \\ & + \beta post_t + \lambda' X_{ip} + \theta' Z_{ip} + \nu_p + \epsilon_{ip}, \end{aligned}$$

where for a child i born in year-month t and observed in RLMS survey wave p , $Outcome_{ip}$ is analyzed outcome of interest, $trend_t$ is linear trend for the month of birth relative to January 2007, $trend_t^2$ and $trend_t^3$ are its quadratic and cubic terms, respectively; $post_t$ is an indicator for births occurring after the 1st January 2007, X_{ip} is a vector of child-specific controls including child's age, sex and urban(i.e. city or regional center)/rural residence⁸; Z_{ip} is a vector of mother and household-specific controls, including mother's age and a set of dummies on higher education status, health status, household income, non-Russian ethnicity, frequent alcohol consumption and the indicator that she raises a child as a single parent; ν_p are RLMS wave dummies; ϵ_{ip} is a random error term. In all tested models error terms are clustered on regional level.

The main coefficient of interest β stands for the impact of MC on analyzed outcome variables. The advantage of regression discontinuity design (RDD) specifications consists in the fact theoretically they emulate a complete randomization at the immediate neighborhood of intervention cut-off level, thus providing unbiased estimates of local average treatment effects (LATE). However, it is worth noting that RDD models critically de-

⁷See Appendix 2 for descriptive statistics on different sub-samples of the analytical sample

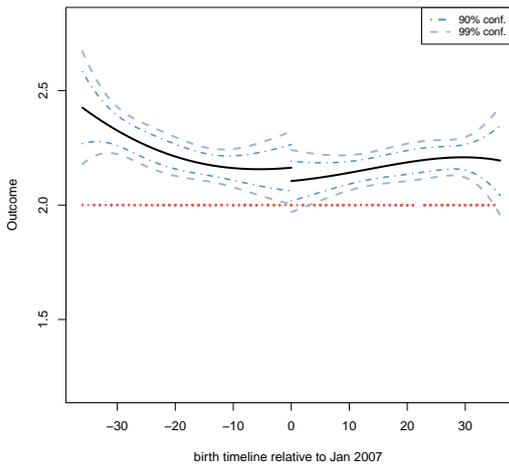
⁸Urban is defined as living in a city or a regional center, in accordance with RLMS statistical classification

pend on functional specifications. This consideration leads me to test for each analyzed outcome a set of models that vary in terms of functional form of the trend (ranging from linear and to 3rd degree of polynomial), birth timeline window around the cut-off period of January 2007 (models with 36, 24, 12 months' window width are tested). In addition, to allow for more flexibility in, semi- and non-parametric local polynomial regressions (LOESS) are tested as robustness checks in Section 5

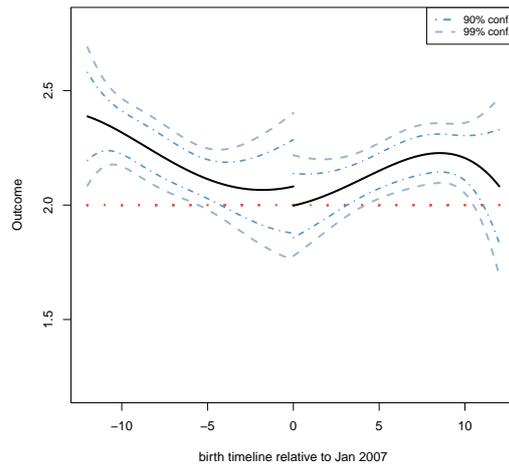
4.1 Child health outcomes

First, I evaluate the impact of MC a range of reported child health indicators. The most straightforward of them are provided by parents when in RLMS they were explicitly asked to assess the state health of all their children on a score from 1 (best) to 5 (worst). Children who received scores of 1 and 2 were deemed to have good/excellent health. Both of these measures are subjective and are liable to be affected by a host of factors, such as parental education, social background and parents' own perception of what stands for good and bad health. To partially overcome this issue, these variables are complemented with more objective health metrics that include the number of known child chronic conditions, occurrence of a health problem in last 30 day, and child's body mass index z-score (z-BMI), calculated based on parent's responses regarding child's weight and height and normalized to standard normal distribution against BMI distribution of child's peers of same age and sex. However, it worthwhile to note that since RLMS survey is based entirely on answers provided by adult household members, one can still expect a higher rate inaccuracies and inconsistencies in respondents' answers compared to measurement/records obtained in a clinical setting.

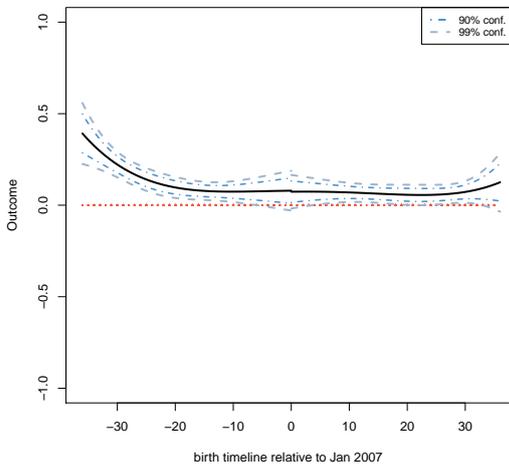
Estimation results are presented in Tables 2 and 3. Table 2 contains RDD estimates of MC impact on 2nd children with 36 months' window on both sides of the cut-off birth date of the 1 January 2007. For each outcome two models are tested, one containing only linear, quadratic and cubic birth timeline trends, and the other being complemented with child- and household level characteristics. Although these covariates do not affect the MC reform estimates in terms of bias and consistency, they can increase efficiency of estimates. Overall, estimation results indicate that none of the five tested outcomes was affected by MC. It concerns all subjective health measures (good/excellent health and



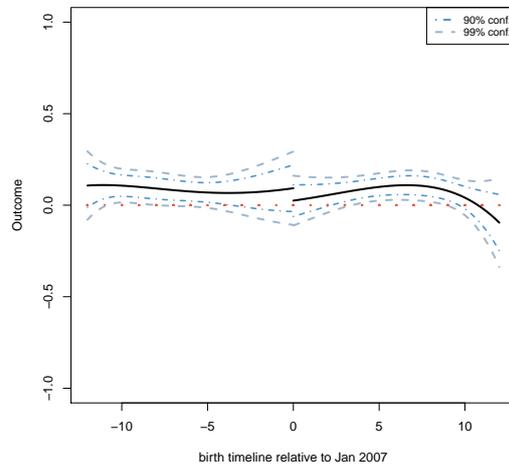
(a) Health score (36 months width)



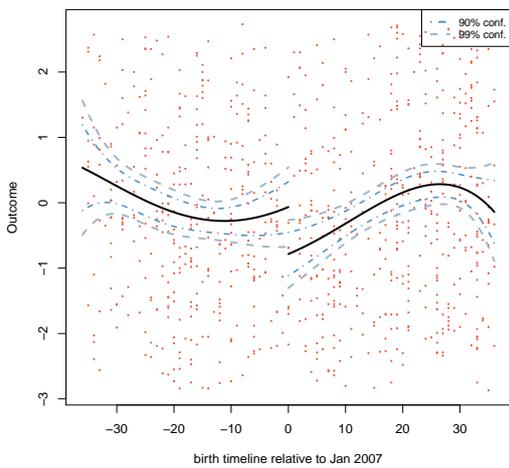
(b) Health score (12 months width)



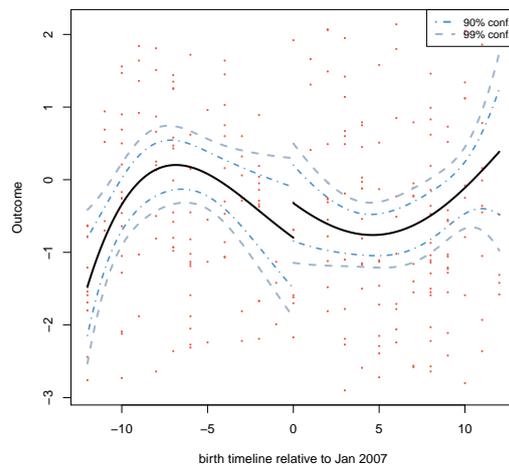
(c) Number of chronic conditions (36 months width)



(d) Number of chronic conditions (12 months width)



(e) z-BMI (36 months width)



(f) z-BMI (12 months width)

Figure 1: Regression discontinuity (3rd order polynomial) estimates for Maternity Capital effect on 2nd child health outcomes

Table 2: Regression discontinuity models on 2nd child health outcomes (36 months' window at 1st January 2007 cut-off birth date)

| | Good/excellent health (self-reported) | Health score (1-best 4-worst) | N. of chronic cond. | Health problem in 30d | z-BMI |
|-----------------------------------|--|----------------------------------|----------------------|-----------------------|---------------------|
| post | 0.024 (0.071) | -0.065 (0.083) | -0.054 (0.087) | 0.007 (0.063) | -0.135 (0.547) |
| Child's sex (male) | -0.051 (0.026)** | 0.05 (0.03)* | 0.04 (0.02)** | 0.042 (0.031) | 1.3 (0.25)*** |
| <i>Mother's characteristics:</i> | | | | | |
| Age | 0.073 (0.04) | 0.003 (0.006) | 0.003 (0.003) | 0.006 (0.0038)* | 0.014 (0.026) |
| Higher education | -0.07 (0.028)*** | 0.045 (0.036) | 0.009 (0.02) | 0.066 (0.032)** | -0.451 (0.021)** |
| Ethnicity other than Russian | 0.028 (0.037) | -0.069 (0.051) | 0.006 (0.04) | 0.015 (0.052) | -0.263 (0.036) |
| In good excellent health | 0.25 (0.002)*** | -0.031 (0.003)*** | -0.074 (0.021)*** | -0.099 (0.031)*** | 0.491 (0.211)** |
| <i>Household characteristics:</i> | | | | | |
| Single parent | -0.004 (0.038) | 0.001 (0.004) | 0.086 (0.041)** | 0.036 (0.049) | -0.013 (0.025) |
| Household income | -0.051 (0.027)* | 0.044 (0.032) | 0.005 (0.023) | 0.041 (0.032) | 0.026 (0.0823) |
| Urban | -0.027 (0.021) | 0.025 (0.037) | 0.067 (0.028)** | 0.005 (0.03) | -0.008 (0.215) |
| Intercept | 0.81 (0.04)*** | 2.16 (0.05)*** | 2.21 (3.16)*** | 0.049 (0.037) | 17.1 (3.35)*** |
| <i>Other controls</i> | | | | | |
| Linear trend | NO | NO | YES | NO | NO |
| Quadratic trend | YES | YES | YES | YES | YES |
| Cubic trend | YES | YES | YES | YES | YES |
| RLMS year controls | NO | NO | NO | NO | NO |
| N. observations | 1029 | 1029 | 1021 | 1020 | 924 |
| R-squared | 0.018 | 0.13 | 0.064 | 0.006 | 0.104 |
| R-squared adjusted | 0.014 | 0.01 | 0.023 | 0.002 | 0.016 |

Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors *s* are given in parentheses under the coefficient. Error terms are clustered at regional level

health score) and objective clinical measures reported by survey respondents.

Table 3: Regression discontinuity estimates of impact of MC on 2nd child health outcomes (12, 24 and 36 months' window at 1st January 2007 cut-off birth date)

| Variable | RDD 36m (1) | RDD 36m (2) | RDD 36m (3) | RDD 24m (4) | RDD 24m (5) | RDD 24m (6) | RDD 12m (7) |
|--------------------------------|---------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|
| In good/excellent health | -0.0345 (0.0547) | 0.0151 (0.0761) | 0.0214 (0.0735) | 0.0121 (0.0649) | -0.0198 (0.0903) | -0.0264 (0.0875) | -0.0744 (0.0985) |
| Health score (1-best, 4-worst) | 0.0197 (0.0652) | -0.047 (0.0906) | -0.0544 (0.0877) | -0.04 (0.0759) | -0.0227 (0.1053) | -0.0216 (0.1019) | 0.0622 (0.1129) |
| Num. of chronic conditions | 0.0677 (0.0478) | -0.0249 (0.075) | -0.0127 (0.069) | 0.0276 (0.0542) | -0.066 (0.0913) | -0.05 (0.086) | 0.0208 (0.0973) |
| Health problem in last 30d | 0.0261 (0.0655) | -0.1153 (0.0936) | -0.0995 (0.0919) | -0.0777 (0.0806) | -0.1311 (0.1201) | -0.1133 (0.1182) | -0.086 (0.1314) |
| z-BMI | -0.159 (0.246) | -0.656 (0.334)** | -0.763 (0.331)** | -0.765 (0.291)*** | -0.298 (0.422) | -0.381 (0.415) | 0.501 (0.61) |
| <i>Other controls</i> | NO | NO | YES | NO | NO | YES | NO |
| <i>Linear trend</i> | YES | YES | YES | YES | YES | YES | YES |
| <i>Quadratic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>Cubic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>RLMS year controls</i> | NO | YES | YES | NO | YES | YES | NO |
| Num. obs. | 1029 | 1029 | 1010 | 725 | 725 | 714 | 236 |

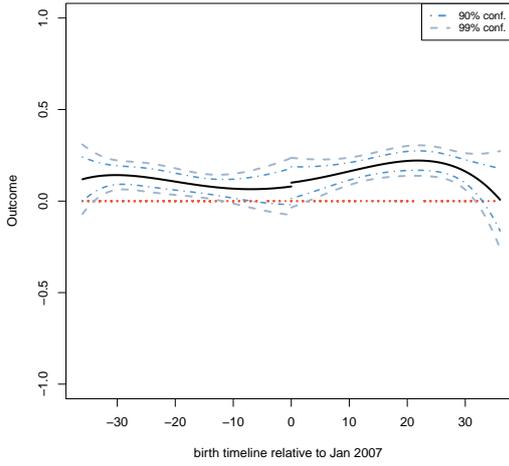
Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors are given in parentheses under the coefficient. Error terms are clustered at regional level

Estimates of RDD models with varying window width around cut-off are provided in Table 2. Overall, results do not significantly change along the window width parameter and are similar to those provided in Table 2 for all tested health outcomes. Although estimates in models (2)-(4) show a reduction of z-BMI between 0.656 and 0.765 significant at 5 and 10%, the introduction of child- and household level covariates in model (5), as well as varying the window width at cut-off make the statistical significance of this result vanish.

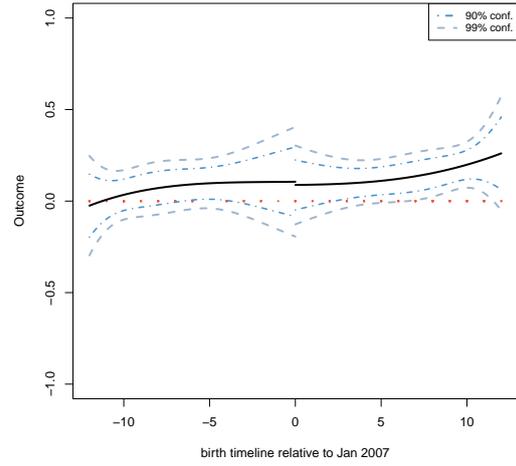
4.2 Child's education and development outcomes

In this subsection I evaluate the impact of the MC reform on educational and developmental outcomes. The standard and currently most common approach to measure educational achievement in education research is using students' school GPA ⁹. Although RLMS questionnaire does not ask patents to provide exact school performance records, it enquires about patent's perceptions of the most common grades received by their children at school. In this study, children receiving mostly grades 5 and occasionally 4, are

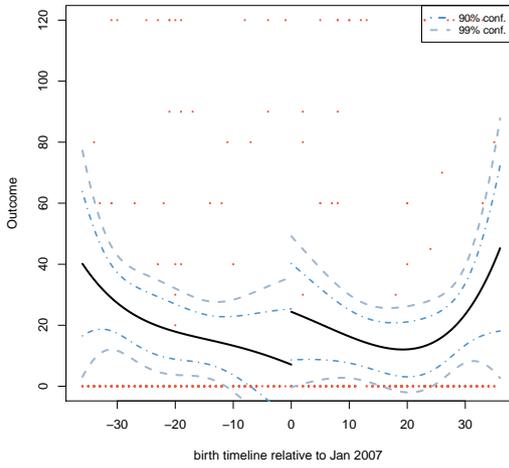
⁹In Russian schools students are graded by 5 (excellent), 4 (good), 3 (satisfactory), and 2 (unsatisfactory). Grade 1 (unsatisfactory), while theoretically possible, is extremely rare and is usually given if rules or discipline were broken in class. As a result, it also oftentimes entails a disciplinary sanction



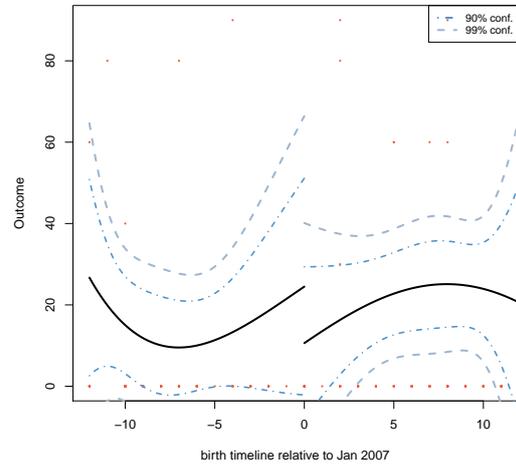
(a) GPA bad or satisfactory (36 months window)



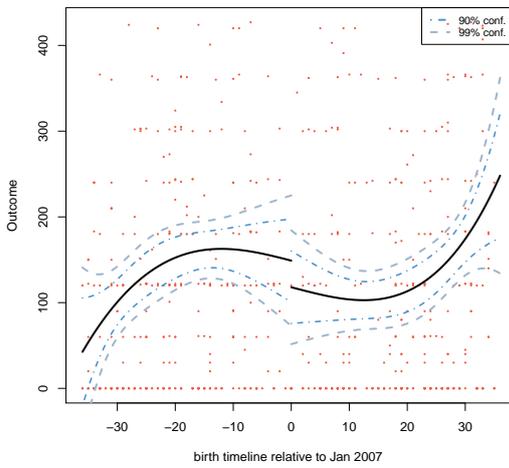
(b) GPA bad or satisfactory (12 months window)



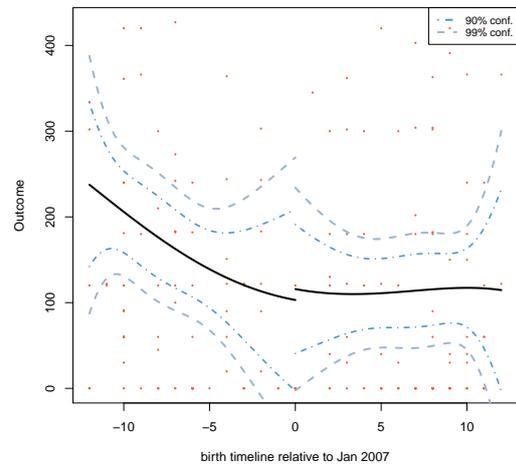
(c) Extracurricular study (36 months window)



(d) Extracurricular study (12 months window)



(e) Extracurricular arts (36 months window)



(f) Extracurricular arts (12 months window)

Figure 2: Regression discontinuity (3rd order polynomial) estimates for Maternity Capital effect on 2nd child education and development outcomes

Table 4: Regression discontinuity estimates of impact of MC on 2nd child education and development outcomes (12, 24 and 36 months' window at 1st January 2007 cut-off birth date)

| Variable | RDD 36m (1) | RDD 36m (2) | RDD 36m (3) | RDD 24m (4) | RDD 24m (5) | RDD 24m (6) | RDD 12m (7) |
|--|-------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|------------------------|
| Good/Excellent GPA | -0.0137 (0.084) | -0.0356 (0.1268)* | -0.0241 (0.1224) | -0.0107 (0.1045) | -0.0145 (0.1575) | -0.0165 (0.1562) | -0.0017 (0.1668) |
| Bad/Satisfactory GPA | 0.1026 (0.061)* | 0.0279 (0.0958) | 0.0343 (0.0909) | -0.0011 (0.077) | -0.0037 (0.1238) | 0.0161 (0.1206) | -0.0972 (0.1298) |
| <i>Time spent on (in mins per week):</i> | | | | | | | |
| School homework/assignments | 19.2828 (34.8) | 39.8468 (49.6462) | 32.496 (46.8631) | 2.2194 (42.3338) | 11.9547 (7.9803) | 11.677 (5.861)** | 18.565 (6.595)*** |
| Extracurricular study | 9.9837 (9.8018) | 15.7544 (14.3314) | 15.9607 (14.8234) | 8.8173 (9.0384) | 7.6334 (12.5478) | 10.7477 (12.2747) | 4.9737 (13.8193) |
| Extracurricular arts | -11.3991 (3.2325)*** | -16.3598 (41.8925) | -29.7815 (44.0794) | -38.2454 (39.0114) | 16.8872 (50.255) | 5.367 (52.1418) | 33.244 (54.7196) |
| Watching TV/on Internet | 22.3782 (13.1116)* | 12.7944 (18.1961) | 8.2699 (16.8475) | 17.4857 (15.3999) | 17.5877 (19.9132) | 7.5877 (19.9132) | 41.6813 (19.1605)** |
| <i>Other controls</i> | NO | NO | YES | NO | NO | YES | NO |
| <i>Linear trend</i> | YES | YES | YES | YES | YES | YES | YES |
| <i>Quadratic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>Cubic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>RLMS year controls</i> | NO | YES | YES | NO | YES | YES | NO |
| Num. obs. | 1029 | 1029 | 1010 | 725 | 725 | 714 | 236 |

*Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors s are given in parentheses under the coefficient. Error terms are clustered at regional level*

classified into good/excellent category, while those who receive mostly 2-3 and at times 4, are considered to be in bad/satisfactory GPA category (see Appendix 1 for a more detailed description). However, it is worth noting that in Russian schools there exists a high degree of heterogeneity in grading accuracy and practices among different schools. Therefore, this analysis is further complemented with additional variables reflecting parental responses on the amount of time spent by children on different out-of-school activities, measured in minutes per week. These activities can be directly related to study through preparing school assignments, or reflect parental investments in child educational capital through providing opportunities for extracurricular classes (most often in the form of private tutoring for a foreign language and other school subjects, or attending an evening specialized school) or for extracurricular arts (including evening arts school, dance classes, etc.). In addition, I included a variable on the reported amount of time a child spends on watching TV/using computer for non-educational purposes (such as gaming and browsing non-educational websites). This outcome serves as a proxy of time devoted to unproductive leisure activities.

Estimation results for RDD models with a varying sets of covariates and window

widths are provided in Table 4. Overall, both measures on student GPA show insignificant results. The marginally significant coefficients in models (1) and (2) for Bad/Satisfactory and Good/Excellent GPA, respectively, fall below the minimal 10% significance level when window width is changed in models (4)-(7) and additional covariates are included in the model.

As for variables reflecting the time spent by children, there is no robust evidence that patterns differed between MC claim eligible and ineligible families. Although models (1) and (7) provide weak evidence that children raised in MC claim eligible families spent on non-productive leisure (watching TV/on Internet) 22-44 mins per week more than their MC claim ineligible counterparts, this result is sensitive with respect to functional specifications. Albeit mostly insignificant, β for Watching TV/on Internet variable is of a consistently positive sign.

4.3 Child well-being outcomes

A third set of child outcomes analyzed in this study relates to child's physical/emotional well-being and parental effort to ensure favorable material conditions. To measure factors that are known to influence the level of children life satisfaction include (such as regular physical activity, interaction with parents and peers), I included in the set of studied outcome variables the amount of time spend on out-of-school physical activity (in minutes per week), the indicator variable for attending a cultural event (exhibitions, museums, galleries, cinema theaters, etc.)/going on a trip in the past 12 months, an indicator variable for a child seeing her/his friends on a regular basis at least 3 times a week, and an indicator variable that at least one parent spent child's school vacation with them. As proxies for material conditions, I use child's possession of a personal cell phone and a personal computer (PC).

RDD estimates of MC subsidy claim eligibility on the described well-being outcomes are provided in Table 5. In line with previous findings, estimates for β are not robustly significant for any of the tested outcome, the occasional significant coefficients in models (1) and (4) likely being a simple artefact of statistical testing.

Table 5: Regression discontinuity estimates of impact of MC on 2nd child well-being outcomes (12, 24 and 36 months' window at 1st January 2007 cut-off birth date)

| Variable | RDD 36m (1) | RDD 36m (2) | RDD 36m (3) | RDD 24m (4) | RDD 24m (5) | RDD 24m (6) | RDD 12m (7) |
|---------------------------------------|-----------------------|-------------------------|------------------------|-----------------------|------------------------|----------------------|----------------------|
| Extracurricular sports(mins per week) | -5.9521 (94.979) | -128.0285 (130.9391) | -68.6524 (133.8009) | -56.6317 (119.188) | 113.4761 (146.7122) | 14.4056 (15.0121) | 24.6132 (15.3208) |
| Has cell phone | -0.1407 (0.073)* | -0.093 (0.1036) | -0.0964 (0.1019) | -0.1408 (0.0892) | -0.1386 (0.1377) | -0.1172 (0.1345) | 0.0156 (0.1438) |
| Has personal computer | 0.1217 (0.0961) | 0.0668 (0.1333) | 0.1556 (0.1348) | 0.22 (0.1194)* | -0.1267 (0.1664) | -0.0584 (0.1736) | 0.0466 (0.1892) |
| Vacation with parent in 1yr | -0.1359 (0.0581)** | -0.0287 (0.0849) | -0.036 (0.0831) | -0.0431 (0.0712) | 0.0505 (0.1103) | 0.0635 (0.1079) | 0.1214 (0.1175) |
| Went to excursion/gallery | -0.0203 (0.0515) | -0.0331 (0.0748) | -0.0082 (0.0722) | -0.0207 (0.0636) | -0.1096 (0.0948) | -0.0781 (0.093) | -0.0351 (0.1012) |
| Sees friends > 2 times per week | 0.0293 (0.0679) | 0.0151 (0.0955) | 0.0163 (0.0934) | 0.0123 (0.082) | 0.0353 (0.1218) | 0.0483 (0.1204) | 0.1785 (0.131) |
| <i>Other controls</i> | NO | NO | YES | NO | NO | YES | NO |
| <i>Linear trend</i> | YES | YES | YES | YES | YES | YES | YES |
| <i>Quadratic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>Cubic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>RLMS year controls</i> | NO | YES | YES | NO | YES | YES | NO |
| Num. obs. | 1029 | 1029 | 1010 | 725 | 725 | 714 | 236 |

Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors s are given in parentheses under the coefficient. Error terms are clustered at regional level

4.4 Household dietary outcomes

The last set of analyzed outcomes concentrates on diet and consumption of different food categories, which, to the best of my knowledge, had not been examined in any previous study on child benefits/subsidies. The impact of MC on household dietary choices can be multifaceted. First, since MC relaxed budget constraint for eligible families, the latter would be able to purchase higher quality nutrition. On the other hand, relaxation of budget constraints in some cases may exacerbate the already existing unhealthy food habits. Although nutritional guidelines are particularly notorious for being prone to change, there is a general consensus that consuming certain nutritional groups (notably, vegetables and fruit) is associated with better health outcomes, while others lead to the opposite (refined sugar, high-sugar treats, processed foods high in saturated fat, and alcohol). In addition, government state support and the accompanying public campaigning could have raised parental awareness with regards to child well-being, its constituent elements, and child-specific nutritional needs, in particular.

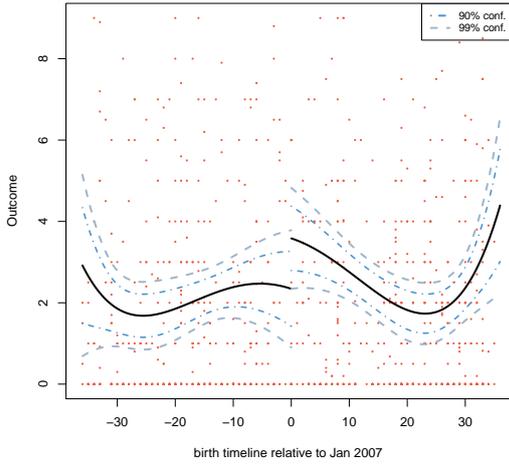
Since children are dependent on their parents for their diets and development of food habits, the impact of parental good nutritional choices, or a lack thereof, can have a considerable and long-lasting impact on a host of health and well-being outcomes. In nutrition

research, it has been shown that good dietary choices in childhood affect, among others, the probability of developing chronic disease (including early development of metabolic syndrome), child's life satisfaction and self-esteem, and even longevity (*Grao-Cruces et al. 2014; Uauy et al. 2008; Vaiserman, 2014*).

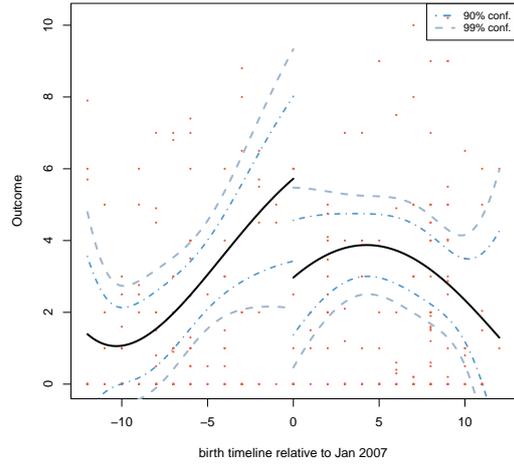
RLMS survey provides an extraordinarily detailed information on self-reported household consumption of more than product and food categories. I aggregated these variables in 9 major consumption groups: vegetables/legumes (both fresh and canned), fruit (both fresh and canned), meat and poultry, dairy (including milk, butter, cheese, etc.), refined sugar, high-sugar treats (tarts, candies, caramels, chocolate, etc.), starches (i.e. high-glycemic crops and foods, such as bread, potatoes, pasta, buckwheat). The last included group - consumption of high-alcohol beverages (e.g. vodka, rum, etc.) - was assumed to be destined only for adult consumption reflects the expenses made by heads of household for their own recreation/sustaining their habits. A more detailed description is provided in Appendix 1.

It is worth noting that while RLMS provided information on food consumption of the entire household, no information is available how much was consumed by the child herself/himself. Thus, this analysis relies on the assumption that dietary habits of the household have an impact on the types of food consumed by children, although the precise magnitude of such influence is difficult to evaluate for each participating family.

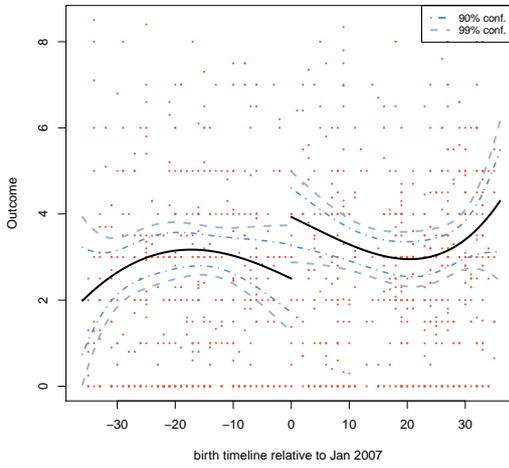
RDD estimates of MC impact on these household dietary outcomes are presented in Table 6. Overall, results indicate no robustly significant difference between MC claim eligible and ineligible families. Even though in model (1) with only linear trend the variables on spending a vacation with parent in 1yr and possessing a cell phone are marginally or moderately significant, the introduction of 2nd and 3rd order polynomial terms in models (2) and (3) is sufficient to eliminate even the minimal 10% significance. The remaining measures also show little evidence of significant change.



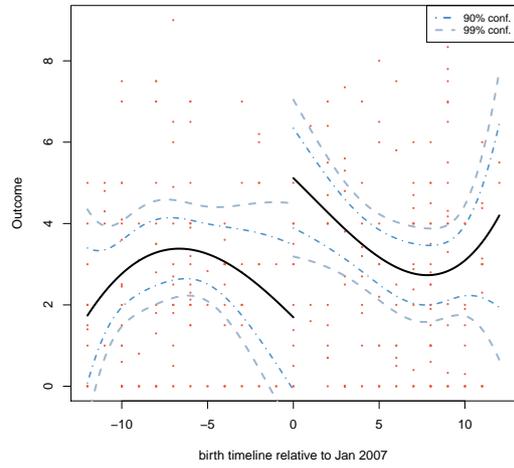
(a) Vegetables, fresh and canned (36 month width)



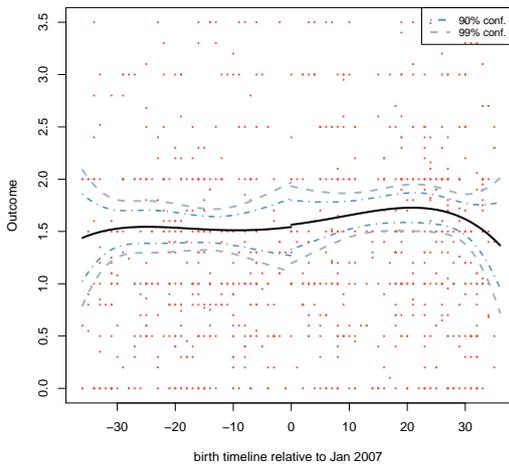
(b) Vegetables, fresh and canned (12 month width)



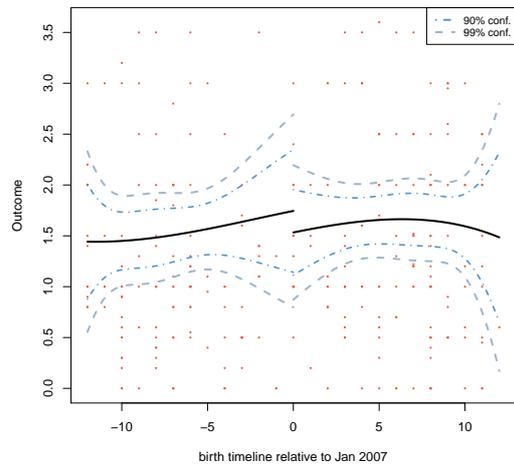
(c) Meat and poultry (36 month width)



(d) Meat and poultry (12 month width)



(e) High-sugar treats (36 month width)



(f) High-sugar treats (12 month width)

Figure 3: Regression discontinuity (3rd order polynomial) estimates for Maternity Capital effect on household food consumption (in kilograms per week), by food categories

Table 6: Regression discontinuity estimates of impact of MC household-level dietary outcomes (12, 24 and 36 months' window at 1st January 2007 cut-off birth date)

| Variable: | RDD 36m (1) | RDD 36m (2) | RDD 36m (3) | RDD 24m (4) | RDD 24m (5) | RDD 24m (6) | RDD 12m (7) |
|-------------------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Vegetables/legumes | 0.5579 (0.7581) | 1.061 (1.1886) | 0.9185 (1.178) | 0.6409 (0.9742) | 0.44 (1.5759) | 0.3933 (1.5493) | -1.1273 (1.7373) |
| Fruit | -0.4223 (0.6103) | 1.079 (0.7057) | 0.4619 (0.7305) | -0.0888 (0.6729) | 0.8489 (0.9877) | 0.2777 (0.8942) | 0.4802 (1.8724) |
| Meat and poultry | 0.2627 (0.5937) | 1.4942 (0.8812)* | 1.3208 (0.9071) | 0.957 (0.8084) | 1.3715 (1.1755) | 1.1326 (1.2319) | 1.0854 (1.4772) |
| Dairy | 0.6277 (0.6516) | 0.4463 (0.9337) | 0.353 (0.9097) | -0.1256 (0.8038) | -0.1693 (1.1351) | -0.1305 (1.1201) | -1.3789 (1.2045) |
| Vodka and spirits (in liters) | -0.1385 (0.0725)* | -0.1142 (0.099) | -0.1116 (0.0983) | -0.1175 (0.0805) | -0.056 (0.1367) | -0.0712 (0.14) | -0.2135 (0.1548) |
| Refined sugar | -0.1275 (0.4202) | 0.2675 (0.5514) | 0.1032 (0.5103) | -0.1749 (0.4591) | 0.7721 (0.7993) | 0.6119 (0.7944) | 0.1403 (0.4187) |
| Candy and high-sugar treats | 0.1286 (0.1971) | 0.0848 (0.2975) | 0.0306 (0.3027) | -0.0001 (0.2577) | 0.0385 (0.3935) | -0.1001 (0.402) | -0.0952 (0.4431) |
| Starches | 3.2142 (2.058) | 5.7851 (3.0654)* | 4.4865 (2.8487) | 4.1551 (2.363)* | 3.1524 (4.8014) | 3.5838 (3.6049) | 0.561 (2.3923) |
| <i>Other controls</i> | NO | NO | YES | NO | NO | YES | NO |
| <i>Linear trend</i> | YES | YES | YES | YES | YES | YES | YES |
| <i>Quadratic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>Cubic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>RLMS year controls</i> | NO | YES | YES | NO | YES | YES | NO |
| Num. obs. | 1029 | 1029 | 1010 | 725 | 725 | 714 | 236 |

Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors are given in parentheses under the coefficient. Error terms are clustered at regional level

5 Robustness checks

5.1 Non-parametric and semi-parametric estimation

As mentioned in Section 4, despite the fact that RDD model produce unbiased treatment effect estimates due to a near-complete randomization around the cut-off level, this property depends on the correctness of functional specification of the trend before and after the intervention. While 3rd degree polynomials with a jump at the cut-off level are a very widespread approximation used in applied research, it is genially advised to apply semi- and non-parametric method to allow for more in flexibility fitting data. However, it is worth noting that even in this case semi- and non-parametric models (such as LOESS and kernel regression) cannot completely overcome this issue since their point estimates also rely on functional assumptions. In addition, despite this moderate advantage of increased flexibility, it generally comes at the cost of having to deal with curse of dimensionality, which manifests itself in the fact that for an increasingly high share of data/prediction points it becomes increasingly difficult to find close matches among available observations

for most kernel weighing functions. As a result, it severely restricts the number of covariates that can be included in models. Thus, it is generally recommended to view semi- and non-parametric estimation as a complement rather than substitute for functional RDD. (*Lee and Lemieux, 2010*)

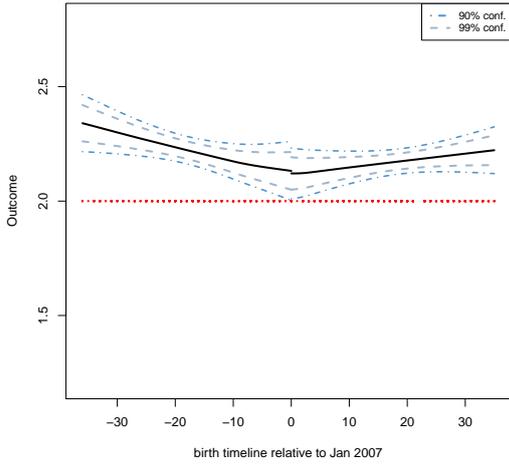
In this subsection, I test local linear regression models LOESS with linear trend and post January 2007 birth indicator estimated at each data point. In semi-parametric models, the post January 2007 birth indicator is estimated globally instead of locally.

Table 7: Semi- and non-parametric regression discontinuity estimates of impact of MC 2nd child outcomes and household dietary habits (12, 24 and 36 months' window at 1st January 2007 cut-off birth date)

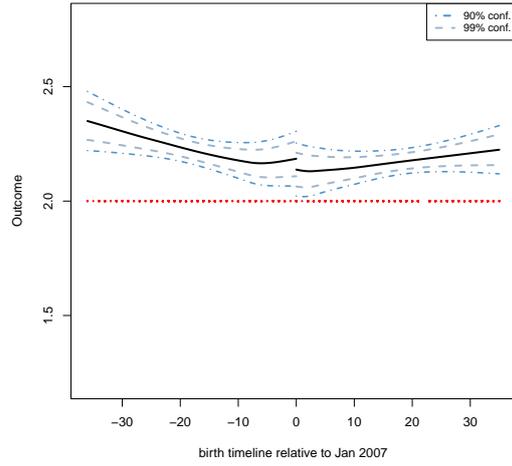
| Variable | RDD 12m nonpar (1) | RDD 12m semipar (2) | RDD 24m nonpar (3) | RDD 24m semipar (4) | RDD 36m nonpar (5) | RDD 36m semipar (6) |
|---|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|---------------------------|
| <i>Child health outcomes:</i> | | | | | | |
| In good/excellent health | -0.0204 | 0.0864 | 0.009 | 0.0146 | -0.011 | 0.0213 |
| Health score (1-best, 4-worst) | -0.0077 | -0.1253 | -0.0419 | -0.0554 | -0.0109 | -0.0491 |
| Num. of chronic conditions | -0.0071 | -0.0331 | 0.0091 | -0.0013 | 0.037 | 0.0201 |
| Health problem in last 30d | -0.135 | -0.1302 | -0.0855 | -0.0933 | -0.0129 | -0.0375 |
| z-BMI | -0.77 | -0.178 | -0.226* | -0.11 | -0.457 | -0.547* |
| <i>Education & development outcomes</i> | | | | | | |
| Good/Excellent GPA | -0.0194 | 0.0071 | -0.011 | -0.0117 | -0.0145 | -0.0155 |
| Bad/Satisfactory GPA | -0.0875 | -0.0693 | 5e-04 | 0.0014 | 0.0593 | 0.0739 |
| School homework/assignments | 15.5366 | 12.2198 | 2.7102 | 9.4988 | 21.0654 | 21.1229 |
| Extracurricular study | -0.3559 | -6.1399 | 9.233 | 11.0502 | 11.3362 | 12.1686 |
| Extracurricular arts | 27.9579 | 2.2618 | -29.6273 | -22.6312 | -9.518 | -6.8308 |
| Watching TV/on Internet | 57.5203 | 45.7874 | 21.2029 | 40.0554* | 18.3457 | 17.106 |
| <i>Well-being</i> | | | | | | |
| Extracurricular sports | 29.1077 | 33.7861 | -14.5728 | 84.8295 | -21.7518 | -23.5942 |
| Has cell phone | 0.0902 | 0.1433 | -0.1317 | -0.053 | -0.1251 | -0.0906 |
| Has personal computer | 0.0421 | 0.0309 | 0.1419* | 0.0815 | 0.1343 | 0.1487 |
| Vacation with parent in 1yr | 0.0798 | 0.011 | -0.0203 | 0.0299 | -0.0103 | -0.0094 |
| Went to excursion/gallery | -0.0828 | -0.134 | -0.0337 | -0.033 | -0.0204 | -0.0069 |
| Sees friends > 2 times per week | 0.1766 | 0.1806 | 0.1114 | 0.0992 | 0.0715 | 0.0799 |
| <i>Household dietary habits:</i> | | | | | | |
| Vegetables/legumes | -1.3307 | -1.1486 | 0.761 | 0.8378 | 0.6543 | 1.0383 |
| Fruit (fresh and canned) | -0.9121 | -0.7956 | -6e-04 | 0.0966 | -0.1392 | -0.1871 |
| Meat and poultry | 1.8161 | 2.4097* | 1.016 | 1.0964 | 0.6081 | 0.7893 |
| Dairy | -2.1411 | -3.0258* | -0.0674 | -0.0612 | 0.5333 | 0.6865 |
| Vodka and spirits (in liters) | -0.296* | -0.2858** | -0.1035 | -0.1117 | -0.1322 | -0.122 |
| Refined sugar | 0.3947 | 0.3235 | -0.0199 | -0.1496 | -0.03 | -0.2353 |
| Candy and high-sugar treats | -0.1234 | -0.1062 | -0.016 | -0.028 | 0.1031 | 0.0754 |
| Starches | 0.3112 | 0.1825 | 3.9885 | 2.2764 | 3.7144 | 3.4048 |
| Num. of observations | 236 | 236 | 725 | 725 | 1029 | 1029 |

Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors are given in parentheses under the coefficient

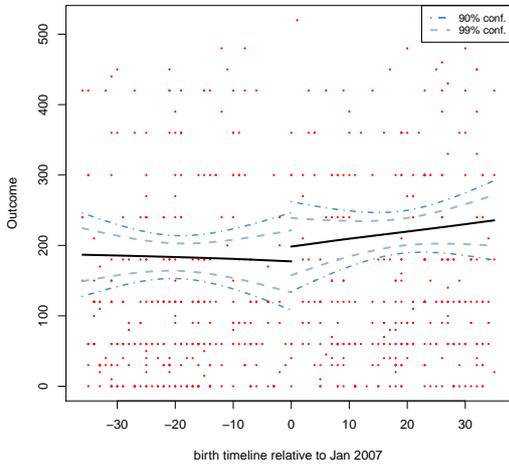
The results for non-parametric and semi-parametric estimation of MC eligibility effect on various child and household outcomes are presented in Table 7. Overall, they go in line



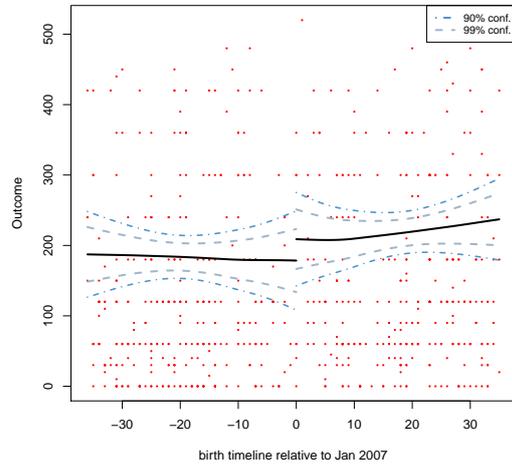
(a) Health score (36 month window)



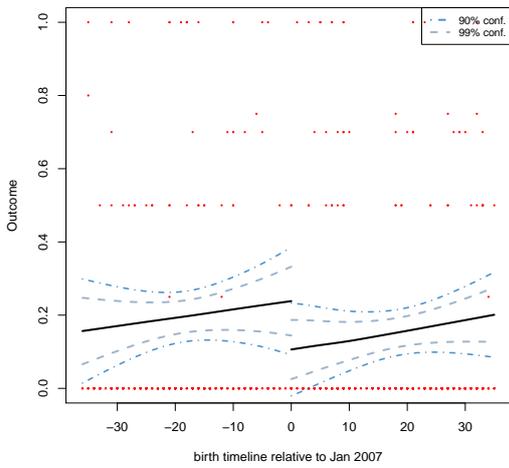
(b) Health score (12 month window)



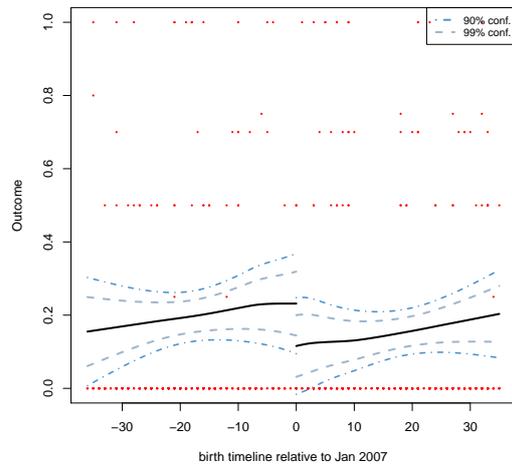
(c) Homework in mins (36 month window)



(d) Homework in mins (12 month window)



(e) Vodka and liquor (36 month window)



(f) Vodka and liquor (12 month window)

Figure 4: Non-parametric and semi-parametric regression discontinuity estimates for Maternity Capital effect on child and household-level outcomes

with parametric RDD and indicate no robustly significant change in all analyzed outcome variables. In particular, none of semi- and non-parametric estimates was significant in health-related child outcomes. Although MC estimates are sporadically significant in some models for (watching TV/on Internet) and household consumption of dairy, meat/poultry and strong alcoholic beverages, there appears to be no clear and robust pattern. Coupled together the main results described in Section 4, overall estimates for the analyzed child and household-level outcomes do not stand the test of robustness with regards to functional specifications, the choice of model type, and the choice of window width around the cut-off birth date.

5.2 Effects on the first child

As mentioned in Section 2 on reform context, MC subsidy was not tied to the 2nd child born on the 1st January 2007 onward, but rather to his/her mother who could discretionarily decide how MC subsidy would be spent after 3 years' wait period and, if she were to choose to use MC to ensure better education for her children, who among them would benefit from it. This feature of the MC reform provides me with the opportunity to test the impact of MC on 1st children, who did not directly create MC claim eligibility rights for the household, but who could still benefit from it either directly (though paid education and child care) or indirectly (through improved housing conditions or various penitential spill-over effects from other family members) when a second child is born.

As in Section 4, widow widths around the 2nd child birth date cut-offs are set to 36, 24 and 12 months to provide more robustness to the analysis. I concentrate on the same child outcomes as in Section 4. Estimates of MC impact using parametric RDD are presented in Table 8.

Overall, the results confirm the previously drawn conclusion about the absence of effect of MC claim eligible on a wide array of health, educational, developmental and well-being child outcomes. Even though estimated MC impacts are significant for models (2)-(4) for the number of chronic conditions, and marginally significant for Watching TV/on Internet in models (5)-(7), the variation of the functional form and/or window widths at birth date cut-off lead to a loss of results' statistical significance.

Table 8: Regression discontinuity estimates of impact of MC on 1st child outcomes (12, 24 and 36 months' window at 1st January 2007 cut-off birth date)

| Variable | RDD36m1 (1) | RDD36m2 (2) | RDD36m3 (3) | RDD24m1 (4) | RDD24m2 (5) | RDD24m3 (6) | RDD12m1 (7) |
|---|------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|------------------------|
| <i>Child health outcomes:</i> | | | | | | | |
| In good/excellent health | 0.0183 (0.1488) | -0.0157 (0.1836) | -0.0217 (0.2037) | -0.0177 (0.1741) | 0.0176 (0.1785) | 0.0144 (0.1962) | 0.0729 (0.1879) |
| Health score (1-best, 4-worst) | -0.1181 (0.1757) | 0.2059 (0.1996) | 0.3258 (0.2342) | 0.1511 (0.2071) | -0.2392 (0.1971) | -0.1716 (0.2004) | -0.0457 (0.1899) |
| Num. of chronic conditions | 0.15 (0.1435) | 0.5438 (0.2498)** | 0.5046 (0.2253)** | 0.2567 (0.1552)* | -0.0187 (0.1192) | -0.0716 (0.1002) | -0.1105 (0.0781) |
| Health problem in last 30d | 0.0928 (0.1949) | 0.0419 (0.2612) | 0.0545 (0.2617) | 0.0391 (0.2267) | 0.0319 (0.3164) | 0.041 (0.3182) | 0.0596 (0.3262) |
| z-BMI | -0.3028 (1.1026) | -0.5131 (0.9677) | -0.4951 (1.0368) | -0.3542 (1.1562) | -0.5787 (1.1805) | -0.5769 (1.3036) | -0.4077 (1.2059) |
| <i>Education & development outcomes</i> | | | | | | | |
| Good/Excellent GPA | 0.018 (0.2263) | 0.02649 (0.2652) | 0.0927 (0.2546) | -0.0946 (0.2655) | 0.0382 (0.2539) | 0.0319 (0.2674) | 0.0467 (0.2907) |
| Bad/Satisfactory GPA | -0.055 (0.174) | -0.0234 (0.1986) | -0.01946 (0.1394) | -0.0086 (0.1752) | -0.0256 (0.2236) | -0.0249 (0.1692) | -0.0292 (0.2076) |
| School homework/assignments | 172.7832 (170.5803) | 70.5778 (141.0918) | -16.5321 (145.9348) | 66.8893 (184.679) | 9.1494 (113.956) | -48.9428 (119.3631) | -221.08 (129.675)* |
| Extracurricular study | 73.146 (87.6198) | 105.0656 (126.4313) | 139.663 (145.0118) | 128.778 (117.3267) | 118.9417 (152.6494) | 156.0974 (172.9865) | 142.9573 (166.9117) |
| Extracurricular arts | -27.1292 (58.6233) | 21.7523 (78.6884) | 27.832 (81.2304) | -11.799 (70.7734) | 71.0345 (78.2661) | 71.3917 (79.986) | 53.2292 (64.7641) |
| Watching TV/on Internet | 21.1873 (57.931) | -14.8781 (56.9382) | -12.1974 (45.5714) | -50.3979 (40.9458) | -175.2074 (92.0604)* | -155.4011 (85.9209)* | -44.4531 (24.1834)* |
| <i>Well-being:</i> | | | | | | | |
| Extracurricular sports | -39.037 (132.837) | -26.9118 (81.4377) | -29.4058 (112.4897) | -38.8977 (102.2805) | -20.3097 (103.5206) | -27.9703 (129.2387) | -12.8742 (127.8285) |
| Has cell phone | 0.0251 (0.179) | 0.0183 (0.2078) | 0.0442 (0.1761) | 0.025 (0.2047) | 0.0915 (0.1891) | 0.0296 (0.1686) | 0.0548 (0.1907) |
| Has personal computer | 0.0315 (0.2672) | 0.0347 (0.4153) | 0.0564 (0.414) | 0.0468 (0.3585) | -0.0108 (-0.3871) | -0.068 (0.4199) | -0.0361 (0.5944) |
| Vacation with parent in 1yr | 0.0565 (0.1066) | 0.0758 (0.1679) | 0.0729 (0.1446) | 0.0677 (0.1286) | 0.0414 (0.1439) | 0.0398 (0.1324) | 0.0461 (0.1315) |
| Went to excursion/gallery | 0.0244 (0.1305) | 0.0331 (0.1426) | 0.0367 (0.1265) | 0.0249 (0.1534) | 0.025 (0.1461) | 0.0263 (0.123) | 0.0592 (0.1575) |
| Sees friends > 2 times per week | -0.0554 (0.1709) | -0.0149 (0.2063) | -0.0809 (0.2124) | -0.0987 (0.2037) | 0.0332 (0.2017) | 0.0257 (0.2101) | 0.0411 (0.2151) |
| <i>Other controls</i> | NO | NO | YES | NO | NO | YES | NO |
| <i>Linear trend</i> | YES | YES | YES | YES | YES | YES | YES |
| <i>Quadratic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>Cubic trend</i> | NO | YES | YES | NO | YES | YES | YES |
| <i>RLMS year controls</i> | NO | YES | YES | NO | YES | YES | NO |
| Num. of observations | 965 | 965 | 965 | 676 | 676 | 676 | 337 |

Legend: ***- 1 % sign., **-5% sign., *- 10% sign. Coefficient std. errors are given in parentheses under the coefficient. Error terms are clustered at regional level

6 Discussion

Regression discontinuity relies a set of restrictive assumptions, including the inability of participants to manipulate the assignment of MC near the cut-off date and the correctness of functional specification of timeline trend variables. Thanks to the fact that announcement of the reform was completely unexpected for the vast majority of Russians, the risk of strategic self-selection into Maternity Capital assignment near the cut-off date is negligible. To address the concerns over the correctness of functional specification, I tested RDD models linear and polynomial trends, as well as semi- and non-parametric LOESS models. Overall, results produced by different specifications point to an absence of any impact of MC on all analyzed child health, educational and well-being outcomes, as well as on household-level food consumption patterns.

It is important to stress that, similarly to previous studies on MC relying on RLMS data (*Slonimczyk and Yurko (2014)*), model estimates reflect the impact of MC claim eligibility and not that of the actual use of MC subsidy by eligible households. Notably, the fact that MC subsidy could be split between many potential uses over several years and among multiple beneficiaries (i.e. children, mother herself, or household in general) makes it difficult to track the actual use of MC subsidy. In addition, the question of MC use was only present in a few RLMS waves, making it even more problematic to employ in policy evaluation analysis.

Since RLMS data is of survey type, wherein respondents provide their personal evaluations with regard to requested information, they are likely to be influenced by various factors related to their personality traits, past experiences and current socio-economic status. While not affecting the biasedness of RDD estimates, it likely brings additional and, plausibly, significant noise terms to outcome and covariate variables. This has the consequence of decreased efficiency of obtained estimates.

The conclusions of this study provide additional insight into the impact of fertility incentivizing reforms on an array of longer-term child outcomes. In particular, the fears that families may massively use MC subsidies to improve their financial standing with no regard to future well-being of their children seem not to be supported by data. In addition, little evidence is found that household-level diet is in any way affected by MC eligibility,

suggesting that both public advertisement/campaigning accompanying the reform and dynamically relaxed household budget constraint are unlikely to lead to either unwanted deterioration of diet or any significant improvement thereof. Thus, this type of policy interventions appears to be neutral with respect to overall child welfare.

The results of this study could be generalized to institutionally, demographically and economically close countries, most notably Belarus. Arguably to a lesser extent, these conclusions can be used while developing policy recommendations in other largely similar countries, which, however, may differ from Russia in terms of type of state institutions (most Eastern European members of EU with governments largely perceived as more democratic, such as Poland, Hungary, Bulgaria), prevalent societal norms with regards to family and religion (for instance, predominantly Muslim but economically similar Kazakhstan, Turkey and Malaysia), and in terms of the level of economic development and standards of living (for example, culturally close but, arguably, economically more challenged Ukraine). The topic of becomes even more relevant in the light of increased popularity of pro-natalist reform introduced in several EU members, most recently in Hungary, whose government announced in 2019 that, along with other measures of family support, it would introduce tax-waivers of up to \$36000 for household with multiple children.

7 Conclusion

This study evaluates the impact of Maternity capital (MC) program child subsidy of 250.000 Rub (7.150 euros or 10.000 USD, in 2007) that was introduced on 1st January 2007 - unexpectedly to the vast majority of Russians - for giving birth to /adopting 2nd and subsequent children. Since 2007 the reform made it possible for eligible Russian families to allocate these additional funds to improve family housing conditions, to sponsor children education, or to invest them in mother's retirement fund. The objective of this study is to evaluate the impact of the MC reform on various child outcomes and household-level consumption patterns. Using RLMS individual and household representative panel surveys from 2011 to 2017, I find through regression discontinuity models no significant difference in health, educational and well-being outcomes between children raised in MC claim eligible and ineligible families. In addition, no such differences were found in terms

of household-level dietary habits and preferences.

The results are robust to various polynomial functional forms, inclusion of child, mother and household-specific covariates and. In addition, to relax the assumption on the functional form of the trend variable I tested semi- and non-parametric local linear estimator models (LOESS), which produce results largely mirroring functional RDD estimation. Identical conclusions are reached with respect to 1st children, who were not at the origin of MC claim eligibility for their families, but who, according to MC conditions, could still benefit from the subsidy both directly (through paid education) or indirectly (through improved housing conditions, spill-over effects from 2nd children and other affected household members).

The contribution of this paper is threefold. First, it concentrates on a middle-income transitioning country, for which very limited research with regards to pro-natalist policies is currently available. Second, it features a number of child-level outcome variables that, to the best of my knowledge, no other study had attempted to investigate. Lastly, the structure of RLMS survey allowed me to incorporate household-level variables on the consumption of various food categories, which was never studied in the context of child subsidies.

This study can be complemented in a number of ways. First, additional outcomes related to family relationships can be investigated in more depth. For example, since MC subsidy is tied to a mother, additional funds brought by this subsidy can provide a higher degree of mother's financial independence. Thus, such outcomes as the probability of divorce, spending on personal items and the patterns of spending leisure time by mothers can potentially be affected by MC stimuli. Other members of household can also be affected by these changes through, for example, the channel of a relaxed budget constraint or through spill-over effects.

Second, the analysis of household-level reaction to MC stimuli can be deepened by looking into various aspects of its financial behavior after MC claim rights were acquired. In particular, since MC subsidy is likely to dynamically affect future income flows, as well as such household financial decisions as borrowing, lending, investing and reliance on insurance. The advantage of RMLS data consists in providing a lot of information on the source/recipients of borrowed/lent funds (e.g. from/to a friend, family member, financial

institution), as well as on the type of insurance contracts signed by survey respondents.

Third, after additional RLMS waves become available, this study may be extended by examining various outcomes of MC on adolescents and even adults. Since the structure of RLMS surveys makes it possible to retrospectively reconstitute a range of biographical information, including birth dates, birth order and the fact of living in MC claim eligible households.

Finally, conditional on RLMS surveys consistently collecting the information of MC subsidy use, it would be possible to investigate the share of households using their MC over time and the share of MC subsidy spent on eligible uses. In particular, one may enquire about the share of MC that directly benefited children versus other uses that were aimed at improving household conditions in general.

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Appendix 1

Table 9: RLMS survey question on child and household outcomes

| Outcome variable: | RLMS survey question: | Values |
|---|---|--|
| Child health outcomes: Health score | How would you evaluate health of your child? Is it : | 1 - Very good 2- Good 3-Average, neither bad nor good 4- Bad 5- Very bad |
| In good/excellent health Number of chronic conditions | Idem. Note: value 1 if answers '1' or '2', 0 - otherwise Does your child have any chronic illness related to : heart, lungs, liver, kidneys, GI, spine, otorhinolaryngology; neurology; eyes, allergies or other chronic conditions In last 30 days, did your child have any problems with health? <i>Note: computed used R statistical package 'anthro'; based on reported child weight, height and sex</i> | Sum of condition groups with answer 'yes' 1- Yes, 2- No |
| Health problems in last 30d z-BMI | How would you evaluate you child's academic achievements (grades)? Note: value 1 if answers '1' or '2', 0 - otherwise | 1 - almost all fives 2- mostly fives and fours 3- mostly fours 4-mostly fours and threes 5- mostly threes 6- mostly threes and often twos |
| Educational achievement: Good excellent GPA | Idem. Note: value 1 if answers '4', '5' or '6', 0 - otherwise | |
| Bad/Satisfactory GPA Child's time spending patterns: School homework/assignments | How much time does your child spent on doing school homework under parents' or adult relatives' supervision? Before or after school, does your child study - programming and computer technology, such as learning to work with programs, programming languages and web technology -foreign language -other subjects, chosen by parent or child, to get additional knowledge in, for example, math, biology, history Before or after school, does your child -practice music or drawing/painting -practice dancing, photography, theater and drama, other types of arts? -go to a young scientist club (in Russian: 'junyj tekhnik'), technical modelling club, naturalist club, practice handicraft, pottery, clay sculpting, or other type of technical and applied art activity? Before or after school, does your child - watch TV, video, play video or computer games - browse Internet or a local web network | time spent by parents or adult relatives, in minutes per week time spent by child, in minutes per week |
| Extracurricular study | | |
| Extracurricular arts | | Idem. |
| Watching TV/on Internet | | Idem. |

| | | |
|-------------------------------|--|--|
| Child well-being : | | |
| Extracurricular sports | Before or after school, does your child : - practice karate, sambo, wrestling, boxing, gymnastics - play active games such as badminton, tennis, football, basketball, volleyball, hockey, or swimming - practice athletics, skiing, ice skating, rolling Does your child have a personal cell phone? In the last 12 months, did your child use a personal computer for study? In the last 12 months, did anyone among child's parents spend a vacation with him/her? In the last 12 months, did your child go to a theater, museum, exhibition, zoo, circus, or other cultural and entertainment events? How often does your child meet his/her peers outside school or childcare facility? (Note: value 1 if answers '4' or '5', 0 - otherwise) | Idem. 1- Yes, 2-No 1- Yes, 2-No 1- Yes, 2-No 1- Yes, 2-No 1: 1 to 3 times per month 2: 1 time per week 3: 2 times per week 4: 3-4 times per week 5: every day |
| Has cell phone | | |
| Has personal computer | | |
| Vacation with parent in 1yr | | |
| Went to excursions/gallery | | |
| Sees friends > 2 times a week | | |
| Household consumption: | How much of the following products did your household buy in the last 7 days? | |
| Vegetables/legumes | Cucumbers (including pickled), tomatoes (including pickled), beets, carrots, zucchini, pumpkin, and other vegetables. Watermelon, melon (including dried and pickled), fruit and berry preserves, fresh berries, fresh fruit, dried fruit and berries, nuts and seeds | in kilograms per week Idem. |
| Fruit (fresh and canned) | | |
| Meat and poultry | Meat preserves, fresh beef and veal, fresh mutton and goat meat, pork, animal sub-products, and poultry | Idem. |
| Dairy | Milk preserves, powdered milk, fresh milk, sour milk products (kefir, yogurt etc.), sour cream and cream, cottage cheese, cheese | Idem. |
| Refined sugar | Refined sugar | Idem. |
| Candy and high-sugar treats | Ice cream, candy, chocolate, honey, jam, cookies, cakes, tarts, waffles, pyraniks, pastries | Idem. |
| Starches | White bread, rye bread, rice, pasta, potatoes, etc. | Idem. |
| Vodka and spirits (liquors) | Vodka, wine and liquors | in liters per week |

Appendix 2

Table 10: Descriptive statistics for 2nd children, in households with two children (RLMS 2011-2017 respondents, second children born between 2004 and 2010 and aged 6-8 years), by MC claim eligibility

| Variable | All sample | | | | MC claim eligible | | MC claim ineligible | |
|--|------------|---------|-------|---------|-------------------|---------|---------------------|---------|
| | Mean | SD | Min | Max | Mean | SD | Mean | SD |
| <i>Child characteristics and outcomes:</i> | | | | | | | | |
| Age | 6.984 | 0.802 | 6 | 8 | 6.938 | 0.804 | 7.037 | 0.798 |
| Sex (male) | 0.521 | 0.5 | 0 | 1 | 0.578 | 0.494 | 0.455 | 0.498 |
| Urban | 0.647 | 0.478 | 0 | 1 | 0.663 | 0.473 | 0.628 | 0.484 |
| In good/excellent health | 0.764 | 0.425 | 0 | 1 | 0.786 | 0.411 | 0.739 | 0.44 |
| Health score (1-best, 5-worst) | 2.201 | 0.503 | 1 | 4 | 2.177 | 0.499 | 2.23 | 0.506 |
| Health problem in last 30d | 0.355 | 0.479 | 0 | 1 | 0.37 | 0.483 | 0.337 | 0.473 |
| Num. of chronic conditions | 0.095 | 0.35 | 0 | 3 | 0.057 | 0.254 | 0.14 | 0.433 |
| z-BMI | -0.022 | 1.968 | -5.32 | 5.98 | 0.017 | 2.03 | -0.07 | 1.889 |
| Good/Excellent GPA | 0.683 | 0.466 | 0 | 1 | 0.664 | 0.473 | 0.698 | 0.46 |
| Bad/Satisfactory GPA | 0.148 | 0.356 | 0 | 1 | 0.168 | 0.375 | 0.132 | 0.339 |
| Went to excursion/gallery | 0.812 | 0.391 | 0 | 1 | 0.812 | 0.391 | 0.812 | 0.391 |
| Sees friends > 2 times per week | 0.693 | 0.462 | 0 | 1 | 0.685 | 0.465 | 0.701 | 0.458 |
| Has cell phone | 0.664 | 0.473 | 0 | 1 | 0.615 | 0.487 | 0.715 | 0.452 |
| Has personal computer | 0.457 | 0.499 | 0 | 1 | 0.49 | 0.501 | 0.433 | 0.496 |
| Vacation with parent in 1yr | 0.768 | 0.423 | 0 | 1 | 0.762 | 0.426 | 0.774 | 0.419 |
| School homework/assignments | 200.703 | 223.864 | 0 | 1200 | 216.569 | 230.14 | 184.703 | 216.5 |
| Extracurricular study | 19.933 | 75.617 | 0 | 1200 | 19.377 | 57.358 | 20.519 | 91.034 |
| Extracurricular arts | 130.098 | 198.7 | 0 | 1328 | 129.497 | 203.13 | 130.723 | 194.257 |
| Extracurricular sports | 374.308 | 366.221 | 0 | 2520 | 370.485 | 354.704 | 378.005 | 377.825 |
| Watching TV/on Internet | 125.374 | 80.101 | 0 | 720 | 125.74 | 75.203 | 125 | 84.92 |
| <i>Mother characteristics:</i> | | | | | | | | |
| Age | 36.544 | 4.399 | 25 | 49 | 36.599 | 4.522 | 36.479 | 4.254 |
| Single parent | 0.158 | 0.365 | 0 | 1 | 0.157 | 0.364 | 0.159 | 0.366 |
| In good/excellent health | 0.491 | 0.5 | 0 | 1 | 0.504 | 0.5 | 0.477 | 0.5 |
| Higher education diploma | 0.374 | 0.484 | 0 | 1 | 0.428 | 0.495 | 0.312 | 0.464 |
| Ethnically other than Russian | 0.095 | 0.293 | 0 | 1 | 0.092 | 0.29 | 0.097 | 0.297 |
| Household income, in 2011 prices | 37.005 | 29.222 | 1.295 | 281.479 | 36.68 | 27.444 | 37.379 | 31.172 |
| Alcohol cons. > 1 time per week | 0.041 | 0.198 | 0 | 1 | 0.037 | 0.189 | 0.045 | 0.209 |
| <i>Household consumption:</i> | | | | | | | | |
| Vegetables/legumes | 2.28 | 4.776 | 0 | 56 | 2.308 | 4.821 | 2.248 | 4.728 |
| Fruit (fresh and canned) | 3.488 | 4.453 | 0 | 80 | 3.236 | 3.416 | 3.775 | 5.387 |
| Meat and poultry | 3.134 | 3.79 | 0 | 52 | 3.214 | 3.146 | 3.041 | 4.423 |
| Dairy | 5.627 | 4.182 | 0 | 31.5 | 5.887 | 4.233 | 5.329 | 4.107 |
| Vodka and liquors (in liters) | 0.177 | 0.606 | 0 | 7 | 0.146 | 0.522 | 0.213 | 0.69 |
| Refined sugar | 1.699 | 5.399 | 0 | 50 | 1.626 | 5.046 | 1.785 | 5.788 |
| Candy and high-sugar treats | 1.567 | 1.324 | 0 | 12 | 1.591 | 1.22 | 1.539 | 1.435 |
| Starches | 8.35 | 7.601 | 0 | 85 | 7.99 | 7.098 | 8.774 | 8.14 |
| Number of observations | 1050 | | | | 566 | | 484 | |

Table 11: Descriptive statistics for 1st children (RLMS 2011-2017 respondents with second children born between 2004 and 2010 and aged 6-8 years, in households with two children), by MC claim eligibility

| Variable | All sample | | | | Born after Jan 1st 2007 | | Born before Jan 1st 2007 | |
|--|------------|---------|-------|---------|-------------------------|---------|--------------------------|---------|
| | Mean | SD | Min | Max | Mean | SD | Mean | SD |
| <i>Child characteristics and outcomes:</i> | | | | | | | | |
| Age | 7.094 | 0.804 | 6 | 8 | 7.022 | 0.816 | 7.157 | 0.788 |
| Sex (male) | 0.535 | 0.499 | 0 | 1 | 0.54 | 0.499 | 0.53 | 0.5 |
| Urban | 0.639 | 0.48 | 0 | 1 | 0.692 | 0.462 | 0.594 | 0.492 |
| In good/excellent health | 0.785 | 0.411 | 0 | 1 | 0.764 | 0.425 | 0.802 | 0.399 |
| Health score (1-best, 5-worst) | 2.174 | 0.494 | 1 | 4 | 2.191 | 0.522 | 2.159 | 0.468 |
| Health problem in last 30d | 0.365 | 0.482 | 0 | 1 | 0.402 | 0.491 | 0.333 | 0.472 |
| Num. of chronic conditions | 0.116 | 0.401 | 0 | 3 | 0.099 | 0.361 | 0.13 | 0.433 |
| z-BMI | -0.173 | 1.959 | -5.89 | 5.92 | -0.212 | 1.913 | -0.139 | 2 |
| Good/Excellent GPA | 0.656 | 0.476 | 0 | 1 | 0.624 | 0.486 | 0.674 | 0.469 |
| Bad/Satisfactory GPA | 0.133 | 0.34 | 0 | 1 | 0.173 | 0.379 | 0.11 | 0.314 |
| Went to excursion/gallery | 0.827 | 0.378 | 0 | 1 | 0.855 | 0.353 | 0.803 | 0.398 |
| Sees friends > 2 times per week | 0.706 | 0.456 | 0 | 1 | 0.683 | 0.466 | 0.727 | 0.446 |
| Has cell phone | 0.67 | 0.47 | 0 | 1 | 0.653 | 0.477 | 0.683 | 0.466 |
| Has personal computer | 0.478 | 0.5 | 0 | 1 | 0.46 | 0.5 | 0.488 | 0.501 |
| Vacation with parent in 1yr | 0.725 | 0.447 | 0 | 1 | 0.757 | 0.429 | 0.698 | 0.46 |
| School homework/assignments | 231.236 | 259.886 | 0 | 1500 | 241.25 | 256.079 | 223.649 | 262.802 |
| Extracurricular study | 23.16 | 73.719 | 0 | 900 | 16.708 | 54.242 | 28.141 | 85.519 |
| Extracurricular arts | 136.019 | 213.654 | 0 | 1861 | 147.528 | 239.42 | 127.179 | 191.358 |
| Extracurricular sports | 415.572 | 426.003 | 0 | 2880 | 485.457 | 521.939 | 361.218 | 323.826 |
| Watching TV/on Internet | 118.954 | 71.376 | 0 | 480 | 116.279 | 74.594 | 120.934 | 68.922 |
| <i>Mother characteristics:</i> | | | | | | | | |
| Age | 30.536 | 3.832 | 20 | 49 | 30.487 | 3.518 | 30.578 | 4.087 |
| Single parent | 0.11 | 0.313 | 0 | 1 | 0.089 | 0.285 | 0.128 | 0.334 |
| In good/excellent health m | 0.583 | 0.493 | 0 | 1 | 0.546 | 0.498 | 0.615 | 0.487 |
| Higher education diploma | 0.41 | 0.492 | 0 | 1 | 0.417 | 0.494 | 0.404 | 0.491 |
| Ethnically other than Russian | 0.108 | 0.311 | 0 | 1 | 0.092 | 0.289 | 0.122 | 0.328 |
| Household income, in 2011 prices | 34.423 | 24.823 | 1.295 | 206.418 | 32.934 | 22.301 | 35.766 | 26.851 |
| Alcohol cons. > 1 time per week | 0.029 | 0.168 | 0 | 1 | 0.022 | 0.148 | 0.035 | 0.183 |
| <i>Household consumption:</i> | | | | | | | | |
| Vegetables/legumes | 2.386 | 5.231 | 0 | 80 | 1.955 | 3.158 | 2.762 | 6.501 |
| Fruit (fresh and canned) | 3.202 | 3.547 | 0 | 44.05 | 2.862 | 3.079 | 3.487 | 3.876 |
| Meat and poultry | 3.078 | 3.7 | 0 | 54 | 2.976 | 3.821 | 3.164 | 3.595 |
| Dairy | 6.324 | 4.806 | 0 | 31.4 | 6.205 | 4.657 | 6.423 | 4.93 |
| Vodka and liquors (in liters) | 0.184 | 0.708 | 0 | 10 | 0.139 | 0.598 | 0.222 | 0.79 |
| Refined sugar | 1.782 | 5.722 | 0 | 50 | 1.404 | 4.115 | 2.109 | 6.802 |
| Candy and high-sugar treats | 1.528 | 1.281 | 0 | 8 | 1.398 | 1.16 | 1.636 | 1.365 |
| Starches | 8.584 | 8.853 | 0 | 89 | 7.382 | 7.406 | 9.62 | 9.822 |
| Number of observations | 965 | | | | 448 | | 517 | |

Table 12: Descriptive statistics for all sample (RLMS 2011-2017 respondents with second children born between 2004 and 2010 and aged 6-8 years, in households with two children), by mother's higher education status

| Variable | All sample | | | | With higher education | | No higher education | |
|--|------------|---------|-------|---------|-----------------------|---------|---------------------|---------|
| | Mean | SD | Min | Max | Mean | SD | Mean | SD |
| <i>Child characteristics and outcomes:</i> | | | | | | | | |
| Age | 7.037 | 0.804 | 6 | 8 | 7.058 | 0.809 | 7.023 | 0.802 |
| Sex (male) | 0.528 | 0.499 | 0 | 1 | 0.523 | 0.5 | 0.53 | 0.499 |
| Urban | 0.643 | 0.479 | 0 | 1 | 0.771 | 0.421 | 0.561 | 0.496 |
| Second child | 0.521 | 0.5 | 0 | 1 | 0.498 | 0.5 | 0.536 | 0.499 |
| In good/excellent health | 0.774 | 0.418 | 0 | 1 | 0.75 | 0.433 | 0.79 | 0.408 |
| Health score (1-best, 5-worst) | 2.188 | 0.498 | 1 | 4 | 2.212 | 0.519 | 2.173 | 0.485 |
| Health problem in last 30d | 0.359 | 0.48 | 0 | 1 | 0.401 | 0.49 | 0.333 | 0.471 |
| Num. of chronic conditions | 0.105 | 0.376 | 0 | 7 | 0.126 | 0.411 | 0.091 | 0.35 |
| z-BMI | -0.095 | 1.964 | -5.89 | 5.98 | -0.189 | 1.724 | -0.03 | 2.113 |
| Good/Excellent GPA | 0.669 | 0.471 | 0 | 1 | 0.768 | 0.423 | 0.605 | 0.489 |
| Bad/Satisfactory GPA | 0.141 | 0.348 | 0 | 1 | 0.087 | 0.282 | 0.176 | 0.381 |
| Went to excursion/gallery | 0.819 | 0.385 | 0 | 1 | 0.905 | 0.294 | 0.764 | 0.425 |
| Sees friends > 2 times per week | 0.699 | 0.459 | 0 | 1 | 0.643 | 0.479 | 0.736 | 0.441 |
| Has cell phone | 0.667 | 0.471 | 0 | 1 | 0.699 | 0.459 | 0.646 | 0.478 |
| Has personal computer | 0.467 | 0.499 | 0 | 1 | 0.542 | 0.499 | 0.41 | 0.492 |
| Vacation with parent in 1yr | 0.747 | 0.435 | 0 | 1 | 0.88 | 0.325 | 0.662 | 0.473 |
| School homework/assignments | 215.807 | 242.748 | 0 | 1800 | 215.922 | 237.778 | 215.73 | 246.156 |
| Extracurricular study | 21.534 | 74.674 | 0 | 1200 | 28.316 | 73.314 | 17.112 | 75.259 |
| Extracurricular arts | 133.032 | 206.198 | 0 | 1861 | 142.75 | 182.359 | 126.605 | 220.42 |
| Extracurricular sports | 394.462 | 396.839 | 0 | 2880 | 348.805 | 338.264 | 427.526 | 431.699 |
| Watching TV/on Internet | 122.193 | 75.945 | 0 | 720 | 112.839 | 68.394 | 128.379 | 79.99 |
| <i>Mother characteristics:</i> | | | | | | | | |
| Age | 33.667 | 5.111 | 20 | 49 | 34.741 | 4.521 | 32.975 | 5.345 |
| Single parent | 0.135 | 0.342 | 0 | 1 | 0.104 | 0.305 | 0.155 | 0.362 |
| In good/excellent health m | 0.535 | 0.499 | 0 | 1 | 0.532 | 0.499 | 0.537 | 0.499 |
| Higher education diploma | 0.392 | 0.488 | 0 | 1 | 1 | 0 | 0 | 0 |
| Ethnically other than Russian | 0.101 | 0.302 | 0 | 1 | 0.093 | 0.291 | 0.106 | 0.308 |
| Household income, in 2011 prices | 35.778 | 27.244 | 1.295 | 281.479 | 43.132 | 30.843 | 31.124 | 23.552 |
| Alcohol cons. > 1 time per week | 0.035 | 0.184 | 0 | 1 | 0.03 | 0.172 | 0.038 | 0.192 |
| <i>Household consumption:</i> | | | | | | | | |
| Vegetables/legumes | 2.331 | 4.997 | 0 | 110 | 2.579 | 5.133 | 2.172 | 4.904 |
| Fruit (fresh and canned) | 3.351 | 4.047 | 0 | 80 | 3.761 | 3.606 | 3.084 | 4.292 |
| Meat and poultry | 3.107 | 3.746 | 0 | 54 | 3.333 | 2.968 | 2.96 | 4.17 |
| Dairy | 5.956 | 4.5 | 0 | 31.5 | 6.598 | 4.314 | 5.545 | 4.569 |
| Vodka and liquors (in liters) | 0.18 | 0.657 | 0 | 10 | 0.192 | 0.729 | 0.173 | 0.605 |
| Refined sugar | 1.739 | 5.555 | 0 | 50 | 1.116 | 3.294 | 2.14 | 6.585 |
| Candy and high-sugar treats | 1.548 | 1.304 | 0 | 12 | 1.587 | 1.335 | 1.523 | 1.283 |
| Starches | 8.462 | 8.222 | 0 | 89 | 7.432 | 7.123 | 9.13 | 8.8 |
| Number of observations | 2015 | | | | 789 | | 1226 | |

Table 13: Descriptive statistics for all sample (RLMS 2011-2017 respondents with second children born between 2004 and 2010 and aged 6-8 years, in households with two children), by urban/rural residence

| Variable | All sample | | | | Urban | | Rural | |
|--|------------|---------|-------|---------|---------|---------|---------|---------|
| | Mean | SD | Min | Max | Mean | SD | Mean | SD |
| <i>Child characteristics and outcomes:</i> | | | | | | | | |
| Age | 7.037 | 0.804 | 6 | 8 | 7.032 | 0.808 | 7.045 | 0.799 |
| Sex (male) | 0.528 | 0.499 | 0 | 1 | 0.502 | 0.5 | 0.574 | 0.495 |
| Second child | 0.521 | 0.5 | 0 | 1 | 0.524 | 0.5 | 0.516 | 0.5 |
| Urban | 0.643 | 0.479 | 0 | 1 | 1 | 0 | 0 | 0 |
| In good/excellent health | 0.774 | 0.418 | 0 | 1 | 0.763 | 0.426 | 0.794 | 0.404 |
| Health score (1-best, 5-worst) | 2.188 | 0.498 | 1 | 4 | 2.203 | 0.499 | 2.161 | 0.497 |
| Health problem in last 30d | 0.359 | 0.48 | 0 | 1 | 0.375 | 0.484 | 0.331 | 0.471 |
| Num. of chronic conditions | 0.105 | 0.376 | 0 | 7 | 0.125 | 0.424 | 0.069 | 0.264 |
| z-BMI | -0.095 | 1.964 | -5.89 | 5.98 | -0.157 | 1.882 | 0.021 | 2.107 |
| Good/Excellent GPA | 0.669 | 0.471 | 0 | 1 | 0.674 | 0.469 | 0.661 | 0.474 |
| Bad/Satisfactory GPA | 0.141 | 0.348 | 0 | 1 | 0.15 | 0.357 | 0.126 | 0.333 |
| Went to excursion/gallery | 0.819 | 0.385 | 0 | 1 | 0.889 | 0.314 | 0.694 | 0.461 |
| Sees friends > 2 times per week | 0.699 | 0.459 | 0 | 1 | 0.658 | 0.474 | 0.771 | 0.42 |
| Has cell phone | 0.667 | 0.471 | 0 | 1 | 0.719 | 0.449 | 0.581 | 0.494 |
| Has personal computer | 0.467 | 0.499 | 0 | 1 | 0.492 | 0.5 | 0.416 | 0.494 |
| Vacation with parent in 1yr | 0.747 | 0.435 | 0 | 1 | 0.804 | 0.397 | 0.645 | 0.479 |
| School homework/assignments | 215.807 | 242.748 | 0 | 1800 | 219.859 | 248.716 | 208.937 | 232.351 |
| Extracurricular study | 21.534 | 74.674 | 0 | 1200 | 26.739 | 80.381 | 12.988 | 63.36 |
| Extracurricular arts | 133.032 | 206.198 | 0 | 1861 | 138.089 | 189.886 | 124.608 | 230.766 |
| Extracurricular sports | 394.462 | 396.839 | 0 | 2880 | 370.936 | 341.27 | 437.148 | 479.296 |
| Watching TV/on Internet | 122.193 | 75.945 | 0 | 720 | 122.699 | 78.958 | 121.343 | 70.66 |
| <i>Mother characteristics:</i> | | | | | | | | |
| Age | 33.667 | 5.111 | 20 | 49 | 34.11 | 5.173 | 32.868 | 4.9 |
| Single parent | 0.135 | 0.342 | 0 | 1 | 0.14 | 0.347 | 0.127 | 0.333 |
| In good/excellent health m | 0.535 | 0.499 | 0 | 1 | 0.514 | 0.5 | 0.573 | 0.495 |
| Higher education diploma | 0.392 | 0.488 | 0 | 1 | 0.469 | 0.499 | 0.252 | 0.434 |
| Ethnically other than Russian | 0.101 | 0.302 | 0 | 1 | 0.103 | 0.304 | 0.097 | 0.297 |
| Household income, in 2011 prices | 35.778 | 27.244 | 1.295 | 281.479 | 40.335 | 29.521 | 27.484 | 20.028 |
| Alcohol cons. > 1 time per week | 0.035 | 0.184 | 0 | 1 | 0.04 | 0.196 | 0.026 | 0.161 |
| <i>Household consumption:</i> | | | | | | | | |
| Vegetables/legumes | 2.331 | 4.997 | 0 | 110 | 2.434 | 3.781 | 2.147 | 6.629 |
| Fruit (fresh and canned) | 3.351 | 4.047 | 0 | 80 | 3.718 | 4.35 | 2.696 | 3.345 |
| Meat and poultry | 3.107 | 3.746 | 0 | 54 | 3.349 | 3.356 | 2.672 | 4.329 |
| Dairy | 5.956 | 4.5 | 0 | 31.5 | 6.839 | 4.449 | 4.39 | 4.152 |
| Vodka and liquors (in liters) | 0.18 | 0.657 | 0 | 10 | 0.191 | 0.624 | 0.161 | 0.712 |
| Refined sugar | 1.739 | 5.555 | 0 | 50 | 1.125 | 3.051 | 2.847 | 8.241 |
| Candy and high-sugar treats | 1.548 | 1.304 | 0 | 12 | 1.502 | 1.217 | 1.63 | 1.44 |
| Starches | 8.462 | 8.222 | 0 | 89 | 7.792 | 7.177 | 9.669 | 9.719 |
| Number of observations | 2015 | | | | 1226 | | 789 | |

Table 14: Correlation matrix for main variables, whole sample

| | | | | | | | | | | | | | | | | | | |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---|
| Age | 1 | 0.025 | -0.074 | 0.045 | -0.004 | -0.032 | -0.076 | 0.057 | -0.183 | 0.167 | 0.05 | 0.031 | 0.026 | -0.017 | 0.004 | 0.046 | -0.01 | |
| Sex (male) | 0.025 | 1 | -0.119 | 0.12 | -0.086 | 0.042 | 0.103 | 0.023 | -0.265 | 0.215 | -0.042 | -0.089 | -0.003 | 0.008 | 0.143 | -0.041 | -0.059 | |
| Second child | -0.074 | -0.119 | 1 | -0.126 | 0.076 | -0.004 | 0.007 | 0.035 | -0.03 | 0.082 | 0.623 | 0.032 | 0.091 | -0.063 | -0.027 | 0.04 | 0.077 | |
| In good/excellent health | 0.045 | 0.12 | -0.126 | 1 | -0.906 | -0.166 | -0.305 | 0.025 | 0.12 | -0.15 | -0.024 | 0.043 | -0.005 | 0.323 | 0.069 | -0.022 | -0.063 | |
| Health score | -0.004 | -0.086 | 0.076 | -0.906 | 1 | 0.166 | 0.285 | -0.009 | -0.133 | 0.117 | 0.029 | -0.042 | 0.004 | -0.314 | 0.009 | 0 | 0.026 | |
| Health problem in last 30d | -0.032 | 0.042 | -0.004 | -0.166 | 0.166 | 1 | 0.176 | -0.089 | -0.034 | 0.078 | 0.005 | -0.042 | 0.062 | -0.07 | 0.119 | 0.014 | -0.079 | |
| Num. of chronic conditions | 0.042 | 0.103 | 0.007 | -0.305 | 0.285 | 0.176 | 1 | 0.012 | -0.011 | 0.052 | -0.025 | 0.008 | 0.065 | -0.108 | 0.121 | -0.118 | -0.043 | |
| z-BMI | 0.057 | 0.023 | 0.035 | 0.025 | -0.009 | -0.089 | 0.012 | 1 | -0.174 | 0.05 | 0.036 | -0.033 | 0.011 | 0.041 | -0.178 | 0.033 | -0.039 | |
| Good/Excellent GPA | -0.183 | -0.265 | -0.03 | 0.12 | -0.133 | -0.034 | -0.011 | -0.174 | 1 | -0.543 | 0.026 | 0.037 | -0.095 | 0.044 | 0.195 | -0.102 | 0.019 | |
| Bad/Satisfactory GPA | 0.167 | 0.215 | 0.082 | -0.15 | 0.117 | 0.078 | 0.052 | 0.05 | -0.543 | 1 | 0.035 | 0.071 | 0.021 | -0.191 | -0.103 | -0.005 | 0.072 | |
| Age mother | 0.05 | -0.042 | 0.623 | 0.043 | 0.029 | 0.005 | 0.008 | 0.036 | 0.026 | 0.035 | 1 | 0.162 | -0.053 | 0.199 | 0.067 | 0.263 | 0.054 | |
| Urban | 0.031 | -0.089 | 0.032 | 0.043 | -0.042 | 0.005 | 0.008 | -0.033 | 0.037 | 0.071 | 0.162 | 1 | 0.039 | 0.157 | -0.027 | 0.263 | 0.075 | |
| Single parent | 0.026 | -0.003 | 0.091 | -0.005 | 0.004 | 0.062 | 0.065 | 0.011 | -0.095 | 0.021 | -0.053 | 0.039 | 1 | -0.039 | -0.066 | -0.065 | -0.048 | |
| In good/excellent health m | -0.017 | 0.088 | -0.1 | 0.323 | -0.314 | -0.07 | -0.108 | 0.041 | 0.044 | -0.191 | -0.127 | -0.006 | 0.04 | 1 | -0.025 | 0.174 | 0.023 | |
| Higher education diploma | -0.017 | 0.008 | -0.063 | -0.057 | 0.009 | 0.119 | 0.121 | -0.178 | 0.195 | -0.103 | 0.199 | 0.157 | -0.039 | -0.025 | 1 | 0.138 | 0.008 | |
| Ethnically other than Russian | 0.004 | 0.143 | -0.027 | 0.069 | -0.047 | -0.006 | 0.13 | 0.033 | -0.102 | 0.068 | -0.067 | -0.027 | -0.066 | 0.174 | -0.121 | 1 | -0.115 | |
| Household income | 0.046 | -0.041 | 0.04 | -0.022 | 0 | 0.014 | -0.118 | 0.027 | -0.027 | -0.005 | 0.027 | 0.263 | -0.065 | 0.023 | 0.138 | -0.115 | 1 | |
| Alcohol cons. > 1 time per week | -0.01 | -0.059 | 0.077 | -0.063 | 0.026 | -0.079 | -0.043 | -0.039 | 0.019 | 0.072 | 0.054 | 0.075 | -0.048 | -0.108 | 0.008 | -0.062 | -0.009 | |
| | | | | | | | | | | | | | | | | | | 1 |

Table 15: Correlation matrix for main variables, whole sample (continued)

| | Age | Sex (male) | Second child | Went to excursion/gallery | Sees friends > 2 times per week | Has cell phone | Has personal computer | Vacation with parent in 1yr | School homework/assignments | Extracurricular study | Extracurricular arts | Extracurricular sports | Watching TV/on Internet | Age m | Urban | Single parent | In good/excellent health m | Higher education diploma | Ethnically other than Russian | Household income | Alcohol cons. > 1 time per week | |
|---------------------------------|--------|------------|--------------|---------------------------|---------------------------------|----------------|-----------------------|-----------------------------|-----------------------------|-----------------------|----------------------|------------------------|-------------------------|--------|--------|---------------|----------------------------|--------------------------|-------------------------------|------------------|---------------------------------|--|
| Age | 1 | | | | | | | | | | | | | | | | | | | | | |
| Sex (male) | 0.025 | 1 | | | | | | | | | | | | | | | | | | | | |
| Second child | -0.074 | -0.119 | 1 | | | | | | | | | | | | | | | | | | | |
| Went to excursion/gallery | 0.112 | -0.009 | -0.05 | 1 | | | | | | | | | | | | | | | | | | |
| Sees friends > 2 times per week | 0.015 | 0.014 | 0.022 | 0.023 | 1 | | | | | | | | | | | | | | | | | |
| Has cell phone | 0.087 | -0.009 | -0.089 | 0.102 | 0.032 | 1 | | | | | | | | | | | | | | | | |
| Has personal computer | 0.258 | -0.081 | 0.011 | 0.097 | 0.002 | -0.006 | 1 | | | | | | | | | | | | | | | |
| Vacation with parent in 1yr | 0.025 | 0.029 | -0.091 | 0.053 | -0.017 | 0.134 | -0.126 | 1 | | | | | | | | | | | | | | |
| School homework/assignments | -0.002 | -0.402 | 0.069 | -0.002 | 0.044 | 0.038 | -0.028 | -0.074 | 1 | | | | | | | | | | | | | |
| Extracurricular study | 0.048 | -0.002 | 0.03 | 0.093 | -0.008 | 0.055 | 0.112 | 0.074 | 0.001 | 1 | | | | | | | | | | | | |
| Extracurricular arts | -0.002 | -0.402 | 0.069 | -0.002 | 0.044 | 0.038 | -0.028 | -0.074 | 0.102 | 0.061 | 1 | | | | | | | | | | | |
| Extracurricular sports | 0.047 | 0.109 | -0.001 | 0.045 | 0.183 | 0.151 | -0.12 | 0.058 | 0.041 | 0.134 | 1 | | | | | | | | | | | |
| Watching TV/on Internet | 0.115 | 0.014 | 0.045 | -0.151 | -0.137 | -0.004 | -0.079 | -0.112 | 0.065 | -0.01 | 0.071 | 1 | | | | | | | | | | |
| Age mother | 0.05 | -0.042 | 0.623 | 0.23 | -0.028 | -0.026 | 0.082 | 0.33 | -0.063 | 0.098 | 0.05 | -0.044 | 1 | | | | | | | | | |
| Urban | 0.031 | -0.089 | 0.032 | 0.145 | -0.108 | -0.055 | 0.018 | 0.075 | -0.006 | 0.086 | 0.001 | -0.053 | 0.162 | 1 | | | | | | | | |
| Single parent | 0.026 | -0.003 | 0.091 | -0.066 | 0.041 | -0.008 | 0.01 | -0.05 | -0.037 | 0.067 | 0.155 | 0.203 | 0.19 | -0.053 | 1 | | | | | | | |
| In good/excellent health m | -0.017 | 0.088 | -0.1 | -0.108 | 0.031 | -0.012 | -0.08 | 0.06 | -0.033 | -0.046 | -0.05 | 0.028 | -0.025 | -0.127 | 0.006 | 1 | | | | | | |
| Higher education diploma | -0.017 | 0.008 | -0.063 | 0.16 | -0.039 | -0.093 | 0.115 | 0.123 | -0.039 | 0.087 | 0.046 | -0.025 | -0.185 | 0.199 | -0.039 | -0.025 | 1 | | | | | |
| Ethnically other than Russian | 0.004 | 0.143 | -0.027 | -0.073 | 0.073 | 0.028 | -0.002 | 0.081 | 0.131 | -0.039 | -0.04 | -0.028 | 0.006 | -0.067 | -0.027 | -0.066 | 0.174 | 1 | | | | |
| Household income | 0.046 | -0.041 | 0.04 | 0.153 | -0.001 | -0.067 | 0.132 | 0.036 | -0.14 | 0.048 | -0.084 | -0.03 | 0.128 | 0.263 | -0.065 | 0.023 | 0.138 | -0.115 | 1 | | | |
| Alcohol cons. > 1 time per week | -0.01 | -0.059 | 0.077 | 0.059 | -0.078 | -0.035 | -0.068 | -0.072 | 0.03 | -0.03 | 0.095 | -0.004 | 0.038 | 0.054 | 0.075 | -0.048 | -0.108 | -0.062 | -0.009 | 1 | | |

