Do pro-natalist policies reverse depopulation in Russia?

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October, 2013

Working Paper

Abstract

In this paper, I focus on fertility decisions of Russian women to analyse the reasons underlying the low birth rates. In particular, I study the 2007 Russian family policy reform, designed at supporting a woman's decision to have her second and subsequent children. The main changes in family support system included introduction of the concept of maternity capital and significant increase of parental-leave benefits for mothers with higher birth orders. Using the Russia Longitudinal Monitoring Survey for the period 2001-2011, I analyse the impact of the reform on the decision to have a second child. I estimate a binary choice model of fertility exploiting the variation in the financial incentives. The findings show that the introduced incentives increased the probability to have a second child. Moreover, the impact of the effect depends on gender of the first-born.

JEL classification: J11, J13, J22, C35
Keywords: Depopulation, Family policies, Fertility, Financial incentives

*I am indebted to Sonia Oreffice for her advice and support. I would like to thank Pedro Albarran, Iñigo Iturbe-Ormaetxe, Joan Llull, Pedro Mira, Fabian Slonimczyk and the participants of 1st International RLMS of HSE User Conference for their helpful comments.

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1 Introduction

Many countries in Western Europe, along with all post-communist and a few Asian countries, have reported low fertility rates for several decades now. There are various reasons behind these trends. While in the case of developed countries, research agrees on the major influence of female's career plans and, thus, delay the first childbirth, the evidence is mixed regarding the situation in transition countries. Some researchers explain the recent drop in fertility as a consequence of the decline in personal income due to the transition economic shocks and uncertainty. Others state the importance of labour market security, provision of child-care services, and condition of the health care system[1].

Russian population dynamics follows the pattern of developed countries facing the problem of low fertility rates. Figure 1 shows that Russian total fertility rate (TFR) is below the reproductive level of 2.1 births per women (the United Nations definition) as in most developed countries. There are some specific child-rearing characteristics. In general, the Russian median age at childbirth is around 27 years old which is below the average of 30 years for developed countries. The recent increase in the median age of Russian mothers has been accompanied by the postponement of transition to motherhood. According to the United Nations evaluation [2] the age of women at first childbirth has shifted from the $23,8$ in 2002 to $24,6$ in 2009. Therefore, the positive dynamics in reproductive behaviour, starting in 2006, is characterized by the advanced maternal age effect[3].

Despite the widely-announced policy measures in place to increase Russian's population, the population growth rate remains negative. To analyse the reasons underlying the low birth rates, I focus on the 2007 Russian family policy reform, designed at supporting a woman's decision to have her second and subsequent children. First, the concept of maternity capital was introduced. Second, parental-leave benefits significantly increased for mothers with higher birth orders. To identify the impact of this pro-natalist policy on fertility incentives, I exploit the heterogeneity in family incomes, parental-leave benefits and housing conditions. Using the Russia Longitudinal Monitoring Survey for the period 2001-2011, I focus on the impact of the reform on the decision to have a second child. The estimation results show that the introduced financial incentives have positive impact on the probability of second birth. The effect is mainly driven by the low-educated women. Moreover, the response depends on the first child's gender. The reform has a significant impact on the fertility decision of families where the first-born is a girl.

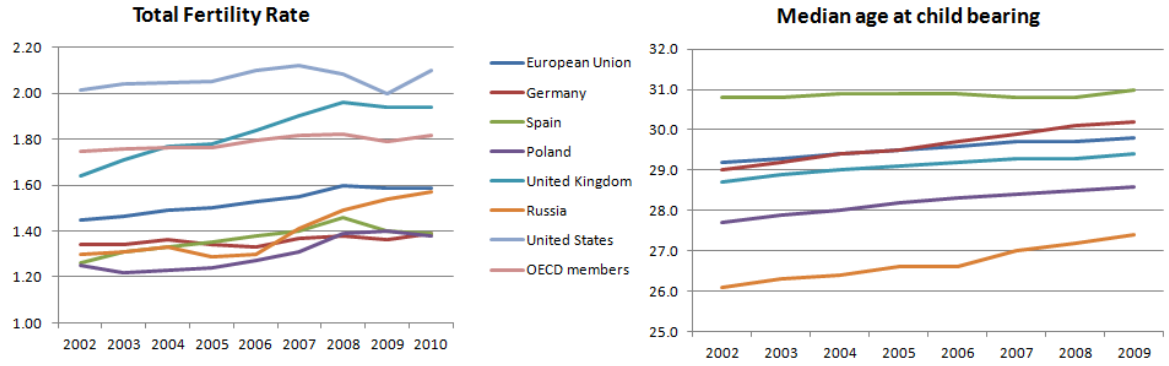
Russian birth rates started to steadily decline at the end of 1950s. The decline was driven by the rural population migrating to urban areas and changes in behavioural pattern (Avdeev (2003)). At the end of 1960s, the Russian population became homogeneous on average in terms of the "one-or-two children" family model. At the beginning of 1980s, the Soviet government introduced a number of reforms to overcome negative trends. In particular, it increased the period of job-protected parental leave from $1,5$ to 3 years, and introduced the possibility of flexible working hours for mothers with children. Zakharov (2006) shows that such policy measures stimulated fertility decisions and shifted the age at birth of a first and subsequent children. The

[1] For a detailed literature review see Billingsley (2010).

[2] `http://w3.unece.org/pxweb/database/STAT/30-GE/02-Families_households/?lang=1`

[3] Note the ratio of the adolescent fertility has decreased in the period 2002-2011.

Figure 1: Reproductive behaviour



Source: WDI, Eurostat, The Demographic Yearbook of Russia.

policy increased total fertility rates by compensation effect and thus allowed Russian families to complete their reproduction plans. However, the effect ceased to be seen at the beginning of 1990s when the first-birth TFR started to decline.

The rapid fall of fertility began in the late 1980s, when the Russian economy embarked on the transition towards market system, and bottomed at $1,17$ at 1999. Avdeev (2003) points out that the observed transition to motherhood has been increasingly postponed as a consequence of the deep economic crisis during the 1990s. The other consequence of the economic decline was switching from a "two children" towards "one child" reproduction-behaviour model.

The persistence of negative trends in fertility during the first half of the 2000s (TFR was around $1,3$) led to discussion at government level. In May 2006, during the annual speech to the Russian Federal Assembly, the President stressed the importance depopulation problems and the need to stimulate fertility[4]. The concept of "maternity capital" was introduced as a possible solution to support a female's decision to have the second and subsequent children. The maternity capital certificate is an 8800-euro voucher that the family can allocate to pre-specified uses: improving of housing conditions, paying for the child's education or as a contribution to the mother's pension scheme. The important characteristic is that the parents can only use the money after the child's third birthday. Therefore the reform creates incentives to have the second and subsequent children in order to create a guaranteed flow of future consumption.

Other important changes were introduced in the parental leave benefits. Prior to 2007, the standard parental leave payment of 15 euros (500 rubles[5]) did not depend on either a mother's working status or child birth order. Under the new system, the parental allowance accounts for 40% of the rearing-parent monthly gross earnings per child. The law established a minimum payment, depending on the birth order, and a maximum payment. A minimum benefit for the second and subsequent children became twice as much as the payment for the first child (in 2007, the guaranteed benefit was 40 euros (1500 rubles) compared to 85 euros (3000 rubles) for the second child). The new legislation came into effect on 1 January 2007. To sum up, such reforms

[4]Source: "The State of the Nation to the Federal Assembly", 2006. `http://www.rg.ru/2006/05/11/poslanie-dok.html`

[5]Hereinafter I provide information in euro equivalent, using the exchange rate for the relevant year.

in family policy has been mainly aimed at directly financially stimulating a woman's decision to embark on higher order birth.

The introduced maternity capital is mostly equivalent to the postponed lump-sum child transfer with a pre-specified usage. In general, research into the lump-sum benefits - "baby bonuses" - confirms the positive impact on fertility decisions. Boccuzzo *et al.* (2008) analyse the impact of a birth bonus system in the Italian region of Friuli-Venezia Giulia. A lump-sum transfer, paid at birth, varies across marital status and birth order. Their findings confirm that the payment introduced decreases the probability of abortion and increases birth rates among females with low income and low education. The response increases with higher birth order. Milligan (2005) studies the effect of a pronatalist child transfer policy, introduced in Quebec, on fertility decisions. The child allowance is a lump-sum transfer paid for a family with a new-born, depending on the parity (birth rank). He finds a significant increase in fertility rates (up to 25%) for families eligible for the full amount. Drago *et al.* (2011) show the positive effect of the Australian Baby Bonus program on fertility intentions and birth rates. Notice that these types of bonuses do not have any restrictions regarding the spending of the payment. It is implicitly assumed that financial benefits enable child welfare to be improved, which is not necessary the case. Using the family allowance data for the United Kingdom, Blow *et al.* (2012) provide the empirical evidence that child benefits are disproportionally spent on adult-assignable goods. Their findings suggest that the result is driven by unanticipated changes in the amount of benefits.

Fewer studies focus on the effect of parental-leave policies on fertility decisions. The empirical evidence regarding the successful outcome of changes in parental-leave allowance to stimulate fertility is mixed. Gauthier (2008) emphasizes that the introduced financial support in parental-leave policies might have a restricted impact depending on income threshold or a certain amount of allowance. Thvenon (2009) documents the polarization of labour supply behaviour: full-time employment is strongly associated with women without children while part-time employment is more linked to having children.

Scandinavian countries are usually refereed as a successful example of the positive impact of parental leave reforms on total fertility rates. The specific characteristic of Nordic policies is that they support women's employment and men's involvement in childcare. In general, the empirical finding confirms that the increase in the leave allowance and the period of payment decrease the birth spacing. Björklund (2006) examines completed fertility patterns for Swedish women born between 1925 and 1958. He applies difference-in-difference strategy using various European countries with less developed family policies as a control group. The findings suggest that the extension of maternal support produced a positive shift in the fertility dynamics of Sweden. The study by Neyer and Andersson (2008) confirms the positive impact of parental leave allowance on the subsequent births. Using Swedish data they document the reduction in birth spacing in 1980s. The introduced incentives also minimized the differences in fertility behaviour across education groups. Ronsen (2004) considers the effect of parental leave expansion on fertility comparing Norway and Finland. Using micro-data on the Family and Fertility Surveys she estimates the probability of conception for different parities. In Finland, parental-leave policy has a positive significant impact on the probability of second birth, while there is no significant effect in the case of Norway.

Austria and Germany is another important example of countries with negative fertility trends

that implement different policy changes in the parental-leave system. During 1990s, the Austrian parental-leave system passed through two important reforms: the 1990 reform extended the paid parental-leave period up to two years, while the 1996 reform reduced it by deducting the last six months. Using Austrian social security data, Lalive and Zweimller (2009) estimate the effect on the probability of return-to-work and a higher-order birth. The difference-in-difference estimation results confirm a strong effect of parental-leave rules on mothers' subsequent fertility behaviour. The fertility increases by 5 percentage points not only in the short run (within three years), but the effect persists in the long run. Buttner and Lutz (1990) considers the introduction of paid leave up to the child's first birthday for a working mother with two and more children in the German Democratic Republic during the 1970s. The authors find significant positive effect on the second and third birth that remains in the long-run. Hofmann and Hohmeyer (2013) show that perceived economic uncertainty in the early 2000s creates a postponement effect in fertility among German couples. Haan and Wrohlich (2011) introduce a structural model of female employment and fertility to estimate the effect of financial incentives. The model calibration is based on the German Socio-Economic Panel data for the period 2000-2006. Their findings confirm that the employment-related financial incentives for working women create small changes in fertility incentives. On the contrary, the child-related financial incentives provide positive and significant fertility effect. In addition, women without children exhibit a higher probability of giving birth.

Few studies analyse whether the recent positive dynamics in birth rates can be attributed to the 2007 reforms. Frejka and Zakharov (2012) show that the fertility rates of second and higher order births were increasing during the post-reformed period while the ratio of transition to motherhood declined. The authors emphasize that the reforms allow women to complete their fertility plans but they did not reshape mothers' preferences for a desired number of children. Zakharov (2012) confirms these findings and emphasises that the current increase in the observed birth rates is due to shifts in the timing of second and subsequent births. The recent study by Slonimczyk and Yurko (2013) focus on the effect of the maternity capital reform on the fertility and labour force participation decision. The authors estimate a structural dynamic model using the Russian household panel data (RLMS). In their empirical justification the authors provide an estimation of the fertility decisions across different parities using difference-in-difference and before-after estimation approach. Their empirical findings confirm the positive effect of the policy on fertility dynamics after the reform implementation, which is mainly driven by women with two and more children.

In my paper, I study the effect of the introduced financial incentives both in maternity capital and parental leave on the female decision to have a second child. The reform has a potentially positive impact on the fertility decisions for higher birth-orders through different channels. First, it decreases household income losses during the parental leave through increased parental-leave allowance. Second, maternity capital can be used as a system of future payments to increase life-quality by improving household conditions and /or decrease child costs using the capital to pay for education. Therefore, it decreases the marginal price of child quality. Summing up the effect should have a positive impact on second births ((Milligan (2005), Neyer and Andersson (2008), Lalive and Zweimller (2009)). Given the peculiar characteristics of the Russian policy design, the response might vary across the income categories.

Using the Russia Longitudinal Monitoring Survey (RLMS-HSE) for the period 2001-2011, I

analyse the impact of the reform on the mother's decision to have a second child. I consider the sample of employed women, assuming that the employment/career decision has been made prior to the fertility decision concerning the second child. It allows to estimate more precisely the effect on fertility decision, partially avoiding the endogeneity problem of employment decision. I focus on married couples, since the single (cohabiting) parent faces different financial constraints and higher labour market insecurity. I estimate a binary choice model of fertility exploiting the variation in income, which mainly comes from the variation in parental-leave benefits under the introduced payment scheme. The results confirm that the reform has a positive association with shift in the probability of having a second child by $2,2$ percentage points. Moreover, there is an asymmetric response in the magnitude depending on the gender of the first-born. The probability to have a second child has increased by $3,3$ percentage points in families with a first girl after the reforms' implementation. The findings of the paper also confirm that the effect is mainly driven by women in the low-educated category. The reform has no additional impact for the families in poor housing conditions, even though housing remains one of the important factors determining fertility decisions.

The study contributes to the empirical literature on the effectiveness of financial incentives in stimulating fertility intentions to have a second child. I find that in the short-run the changes in Russian family policy had a significant positive effect on the second birth, the probability to have a second child increases by $2,2$ percentage points on average. However, it is hard to disentangle the effect of maternity capital and parental-leave benefits. The results are consistent with findings of Slonimczyk and Yurko (2013) showing that the impact of the maternity capital reform on the fertility decision of a second and subsequent births is $2,4$ percentage points for difference-in-difference estimation ($1,6$ percentage points for before-after estimation). Although the point estimates are similar, the authors make the strong assumption that there were no other significant changes in family policy except for the maternity capital reform during the observation period. They claim that the rise in the amount of parental leave benefits was not significant. In this study, I provide empirical evidence that the variation in parental allowance was instead significant to have an impact on the female fertility decisions.

The paper also contributes to the empirical literature discussing parental preferences of children gender composition. In general, the probability to have a second child is higher in the families where the first-born is a boy. The introduced changes have produced asymmetric response depending on the gender of the first-born. The probability to have a second child during the post-reformed period has increased by $3,3$ percentage points in the families with a first-born girl. Therefore, the reforms in Russian family policy seems to support the decision to have a second child relieving economic constraints in spite of the parental preference bias towards girls.

The paper is organized as follows. I provide details on the Russian system of maternity support in Section 2. Section 3 discusses empirical specification and data set. In Section 4, the main findings and robustness check are presented. Section 5 concludes.

2 Institutional background

The following section provides an institutional background of the Russian family policy system and discusses the 2007 pro-natalist reforms.

2.1 Family policy in Russia

The current Russian system of family policy inherits the main components of the Soviet Union system reformed in the 1980s, when the negative trends in depopulation forced the government to create additional incentives for future mothers. In the same way as France, Germany and North European countries, Russia proclaims family support at a national level. The major issues relating to family institution are regulated by the "Russian Federation Family Code" enacted in 1995 and a number of federal laws [6]. During 2005-2006, the government initiated the reforms in family policies to overcome the negative trends in fertility rates, observed during the 1990s and the early 2000s. The main characteristics of the system and policy changes introduced in the period in question are discussed below.

According to the current system, women have access to maternity leave and parental leave irrespective of their working status. The financial support of a mother with a new-born consists of the benefits and transfers guaranteed by the social security system. It includes maternity leave and parental-leave benefits, child-birth grants and maternity-capital certificates. Child benefits are almost universal in Russia, but the eligibility and amount of payments significantly varies among the working status of women.

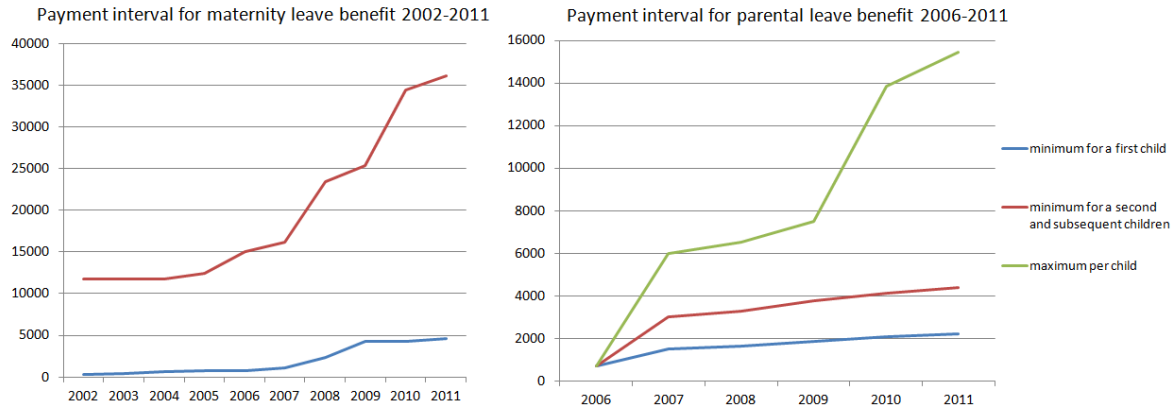
The maternity leave system consists of 20 paid weeks, which are typically divided into 10 weeks before childbirth and 10 weeks afterwards. During maternity leave, a woman is insured against dismissal. If a woman in employment is eligible for social insurance, she receives maternal benefits during the whole period of leave. The monthly coverage is equal to the average gross earnings, the maximum amount is legally regulated and the minimum benefit is a guaranteed minimum legal wage. Additionally, specific categories of women - working in the army, continuing their education or those made redundant due to company liquidation - are also eligible for a leave payment, but the amount significantly decreases. The unemployed and uninsured self-employed women do not receive any maternal benefits. The minimum and maximum payments vary significantly during the period 2002-2011 considered as Figure 2 shows.

There is a system of lump-sum transfers aimed at maintaining the quality of health of a mother and a child. Firstly, a woman gets a small lump-sum transfer if she reports her pregnancy to the medical health centre during the first trimester. During the pregnancy, she is eligible for free medical treatment, free-of-charge birth delivery in the hospital, and clinical check-ups during the first year of motherhood. Before 2006, a woman was assigned to the health centre and the hospital according to a local address. From 2006, a new birth voucher system was implemented. The birth voucher with a nominal value of 283 euros (10000 rubles[7]) consists of a coupon for

[6] "Governmental child allowances" Federal Law from 19 May 1995; "Allowances for temporary disability, pregnancy and delivery of citizens under compulsory social insurance" Federal Law from 29 December 2006

[7] The certificate nominal value is not adjusted to inflation

Figure 2: Financial support



Note: The minimal legal wage is adjusted to the beginning of the applicable year since it is not necessarily defined as the beginning of the calendar year. I do not account for the regional adjustment, which might provide additional variations in financial incentives.

Source: Russian federal laws, various years.

payments of the prenatal visits at the health centre (nominal value 85 euros (3000 rubles)), a coupon for payments of the delivery in hospital (nominal value 170 euros (6000 rubles)), and a coupon for payments of the child clinical check-ups during the first year of life[8](nominal value 28 euros (1000 rubles)).

A woman gets the voucher certificate after the 30th week of her pregnancy. The new system allows the women to decide which prenatal facilities and hospital to use without any location restriction. The only requirement is to have had 12 weeks of continuous prenatal visits in the health centre. When the child is born, a woman gets an additional lump-sum payment per child. In 2002, the amount was 135 euros (4500 rubles), it was then fixed at 235 euros (8000 rubles) in 2006, and the amount was increased to 275 euros (10889 rubles) in 2011.

Russian families are eligible for a number of tax allowances. All the child-related benefits are excluded from taxation. In addition, the child tax allowance can be deducted from taxable income of both parents for each child under the age of 18 years, to the tune of 400 Euro (14000 rubles) per year. The family also receive financial aid - child benefit, food and clothes stamps, medication and housing benefits - from the regional government. The amount and the form of support vary significantly at territorial level.

2.2 2007 pro-natalist reforms

In 2006 the pro-natalist reforms were widely announced to reverse Russian's negative dynamics in birth rates. In particular, the parental-leave payments were increased and the concept of maternity capital was introduced.

The principal characteristics of Russian parental leave remained unchanged during the 2000s.

[8]The third birth voucher component was introduced on 1 of January 2007

Parental leave starts immediately after maternity leave and lasts until the child's third birthday. The mother, father or other relatives could share job-protected parental leave. The parental allowance is paid to the caregiver until the child is 18 months old. There is no work requirement to be eligible for the allowance. The amount of the parental-leave benefit became one of the important reform changes relating to the financial component. Prior to 2007, the amount of the allowance was a uniform month transfer of 15 EUR (500 RUR)[9] per child irrespective of salary and birth order. Under the new system, the parental allowance accounts for 40% of the rearing-parent monthly gross earnings per child. The legislation determined the minimum payment, depending on the birth order, and maximum payment. For instance, in 2007 the minimum benefit was 40 euros (1500 rubles) for the first child and 85 euros (3000 rubles) for the second and subsequent births, and the maximum payment per child could not exceed 170 euros (6000 rubles). The limits are adjusted to the inflation. Figure 2 shows the dynamics of parental leave allowance limits. The important characteristic of the reform became an inflation adjustment of the payments relating to child support. The new system was established at the end of 2006 and started to be applicable for children born after 1 January of 2007.

Under the new system unemployed mothers are eligible for the minimum payment. In addition, a women should choose between unemployment and parental-leave benefits. To sum up, the new system of parental leave became more generous as it introduced the significant variation in the financial incentives of the fertility decision. The differentiation in payments for the first new-born and the second (subsequent) child might create additional incentives for the high order births.

The important novelty of the 2007 family policy reforms was the introduction of the "maternity capital" concept. A woman, who gives birth[10] to a second or a subsequent child, becomes entitled to the maternity capital certificate. It is a voucher with a fixed nominal value that a family could allocate to pre-specified uses: improvement of housing conditions, payment for the child's education, or contribution to the mother's pension scheme. If twins are born, the voucher certificate is only allocated to one of the children. Mothers can apply for a certificate only once after the child's third birthday. The initial value was about 7000 euros (250000 rubles), which has been inflation adjusted each year. In 2011 the nominal value was around 8800 euros (365278 rubles). Note that the mother gets the value in the year of usage, even if the nominal value in the issued year was smaller. Therefore the family can decide to receive funds later or use them in parts.

The official statistics do not provide any information on the number of applications and forms of usage of maternity capital[11]. During the period 2007-2011, the Russian Pension Fund issued around 3300 thousands certificates (339 thousands in 2007, 700 thousands in 2011). Only 26% of entitled parents claimed the money. The total amount spent by the budget is 6.7 billion euros (270.953 billion rubles), around $98,1\%$ of expenditure went on improving housing conditions[12]. The programme costs for the government were around $0,72\%$ of total government expenditure

[9] In 2006, the payment was raised slightly up to 20 euros (700 rubles)

[10] The law guarantees the same financial assistance to adopted children, which are beyond the scope of this study.

[11] The only available sources are press-releases of the Russian Pension Fund and the Ministry of Healthcare.

[12] Source: Ministry of Healthcare `http://www.rosminzdrav.ru/health/child/154`; `http://www.rosminzdrav.ru/docs/mzsr/analytics/2`

for the period 2010-2011 [13]. Given the take-up ratio of the certificates, I should expect significant increase in public expenditure on the maternity capital.

The maternity capital concept underwent a quick legislative process. In May 2006, during the annual speech to the Russian Federation Federal Assembly, the President emphasized the importance of the demographic problems and pointed out that "we must stimulate the birth of at least a second child". The maternity capital concept was introduced together with the conditions of use, the initial amount of financial support, "at least 250 thousands rubles", and the implementation date - 1st January 2007[14]. The consecutive legislative process was simply a technical issue. The government introduced the project to the Russian Parliament in October 2006 and the law was approved in December 2006. Given the timing of the reform, only a relatively small group of couples did not anticipate that the new regulation would be in force at the time of birth[15]. Since the discussion of maternity capital started in the media around June 2006, it is hard to justify the absence of anticipation effects for females subsequently conceiving. In addition, women were informed about the changes in parental leave allowance, thus stimulating the birth of second and subsequent children.

Overall, the 2007 reforms in Russian family support system offered two distinct type of benefits: heterogeneous parental allowance and flat maternity capital certificate. Given the policies' design the 2007 reforms created variation in the conception decisions of first and second children, increasing the incentives for the second and subsequent births. The introduced parental-leave benefits vary highly across different income, employment and birth parity categories. I therefore expect the variation in conception decisions of mothers with high earnings prior to birth and mothers with low prebirth earnings. The maternity capital eligibility creates additional incentives in the conception decision of the second and subsequent children. Given the timing of the reform, a woman was likely to anticipate the changes in government's financial support by making fertility decision.

3 Empirical strategy and data

3.1 Data and descriptive evidence

The empirical analysis is based on the Russia Longitudinal Monitoring Survey (RLMS-HSE)[16]. It is a set of national surveys that collect information on health and economic welfare from the representative sample of Russian private households; region-specific prices and community infrastructure.[17]. It currently covers around 6.000 households, 22.000 adult respondents and

[13]Source: Government expenditure reported by the Federal State Statistics Service `http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1138717651859`

[14]Source: "The State of the Nation to the Federal Assembly", 2006. `http://www.rg.ru/2006/05/11/poslanie-dok.html`

[15]Children born in January, February and March 2007

[16]It is conducted by the National Research University Higher School of Economics and ZAO "Demoscope" together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology RAS.

[17]For more detailed information see `http://www.hse.ru/en/rlms/about`.

5.000 children living in the surveyed households. The surveyed households represent 32 federal subjects out of total 83 subjects of the Russian Federation. To analyse the effects of the maternity capital reform on the fertility decisions of women, the RLMS-HSE provides detailed information on family composition, child-birth timing and various personal and economic characteristics of the household members[18]. The family composition history allows to determine precisely the absolute parity of births if the child lived in the household in the survey period 1994-2011.

In this study, I focus on women making their decision to have a second child. The constructed dataset covers the decisions to conceive the second child during the period 2001-2010. The sample consists of women who were employed around their conception decision. As discussed in Sections 2.2 and 3.2, the unemployed category faces different costs making their birth decisions.

In addition, I focus on households consisting of married couples to avoid the potential problem of the systematic difference with cohabiting couples. A cohabiting woman is eligible for additional child payments as single mother, even if she might get a financial support from her partner. I assume that there was no significant variability in the household decisions to have children through other policy measures. From the waves 2001-2010 I observe employment, earnings, education, partners' characteristics, age at first birth, second-child births, children's gender, housing conditions and other characteristics. I focus on mothers who are in parity two - women at reproductive age between 20 and 40[19].

Since the main focus of the analysis is a fertility decision, I follow each mother up to the birth of a second child. Females, who do not have a second birth between 2002-2011, are observed for the whole period in question. A woman leaves the sample after her 40th birthday. The targeted sample represents two groups. The first group is women who have their second birth within the period in question. I follow each woman up to the moment of birth, thus after a transition into motherhood a woman leaves the sample[20]. I only consider women observed at least before and at the year of birth. The second group consists of married women who remained with one child within the period in question [21]. Using the birth date and interview date information, I identify their socio-economic characteristics around the period of conception. Their characteristics at $t-1$ defines the birth or its' absence at t.

An eligibility indicator allocates a woman into the treated group if she had a first child before 2007, but not the second. Additionally, I include women who entered motherhood in 2007-2008 and became eligible after the date of policy implementation. Monthly information on employment, periods of maternity leave and month of the birth of the child allows us to identify the explanatory variables around the conception decision. I do not consider women on parental leave, because they neither worked nor looked for a job. It could have influenced the timing of a second birth by accelerating the second birth to complete fertility, to extend total parental-leave period and to get additional benefits.

[18]The questionnaire covers such issues as time of pregnancy, mother health status, including the information on the support of a partner.

[19]I exclude women who became pregnant with a first child when were a minor.

[20]I exclude mothers with twins at the first birth as they consider second pregnancy as a decision to have a third child. Women who gave birth to twins at their second pregnancy are treated as a single unit.

[21]Note that women who had the first birth in the period 2002-2009 enter in the sample

As discussed in Section2, the maternity capital is mostly likely used for mortgage payments. To account for an effect of the improving housing conditions, I construct the variables of total area and living area per family member measured in square metres per person[22].

The final sample consists of 928 women, among them 194 women who gave birth to their second offspring within the period considered [23]. The income variables are adjusted to the 2001 base using regional consumer price indexes. The main summary statistics of the variables are presented in Table 1. The explanatory variables are measured at the last employment spell prior to the birth.

Table 1 shows that there is almost no difference in the socio-economic characteristics of mothers who had a second birth in the period 2002-2011. The average age at conception decision is around 29 years. The age at first birth are higher for the post-reform group, 23 against 22, but the birth interval between children does not vary significantly. Labour income significantly increases in real terms for both partners which is related to economic expansion during the 2000s. The number of family members per household has increased by almost 12%. However, there have been no significant changes in housing conditions.

Women, who remains with one child, report significant differences in income. For the post-reform group their husbands are slightly less educated and work more. Comparing to the females with two children, on average, this category is older, more likely to live in the city rather than rural areas and have poorer housing conditions. Summing-up, the preliminary analysis does not provide any evidence of the systematic differences between pre- and post-reform groups.

The identification of the discrete choice model relies on the variation in financial incentives induced by changes in parental-leave benefits system (see Figure 2), and variation in housing conditions during the observation period 2001-2010. RLMS-HSE includes the detailed information about an individual's employment status and average salary in the year prior to the interview date, but it does not provide accurate data on the type and amount of received benefits. Therefore, I can identify the working behaviour of a mother at a period before she has given birth, but not the exact amount of parental allowance. Using individual's employment status and average salary variables from the RLMS-HSE, I construct the expected parental-leave benefits based on the reformed rule. For the employed category parental-leave benefits are equal to 40% of the average monthly salary. I apply the minimum-maximum payment rule if a computed benefit lies outside the interval specified by law. Figure 3 shows the distribution of constructed benefits for the pre- and post-reform periods. As expected, for all wage categories the expected payment shifted on the right. In addition, there is a substantial variation in the introduced benefits for eligible mothers.

In contrast to parental-leave benefits, both groups appear to be similar with respect to prebirth housing conditions (see Figure 4 in Appendix).

[22] I do not include property type in the analysis because only 14% of the sample is in rented accommodation

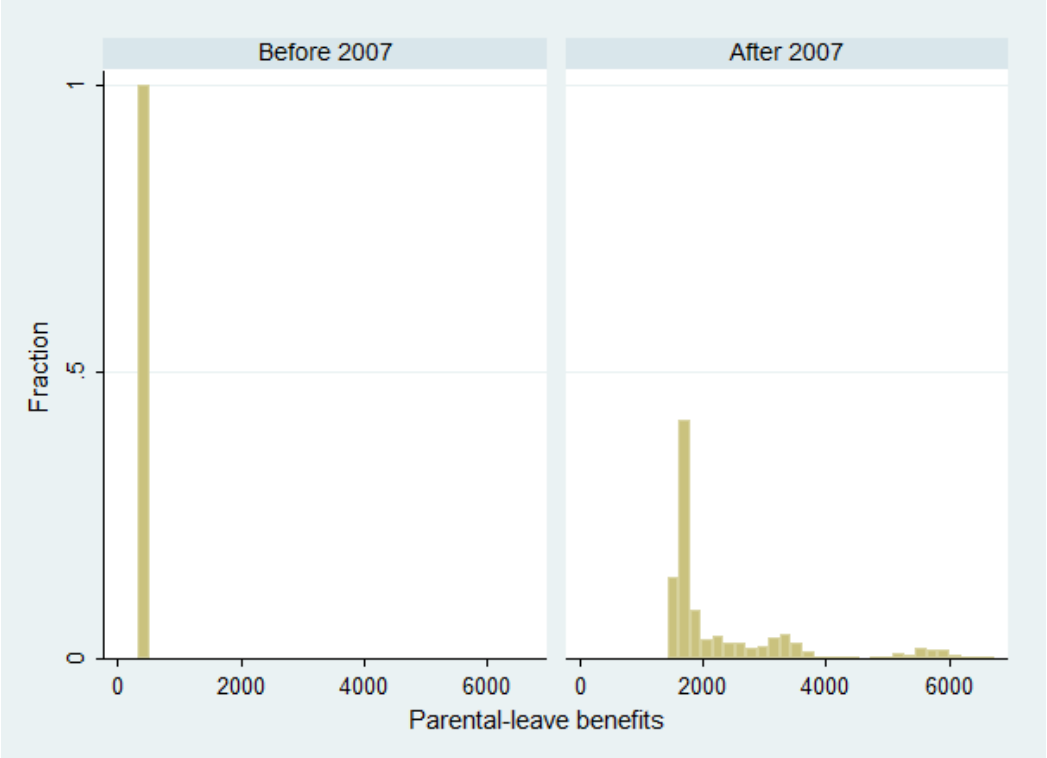
[23] I exclude women who gave birth during December 2006 and February 2007 as they might not be aware of the reform at the time of the decision to conceive, but they were treated.

Table 1: Descriptive statistics

	Women with a second child		Mean test	Women with one child		Mean test	Within period comparison	
	Before 2007	After 2007		Before 2007	After 2007			
Personal characteristics	(1)	(2)	(2)-(1)	(3)	(4)	(4)-(3)	(1)-(3)	(2)-(4)
age	28.66	29.75	1.098*	32.26	32.41	0.158	-3.599***	-2.660***
	(3.591)	(3.910)	(0.582)	(5.077)	(4.932)	(0.206)	(0.646)	(0.444)
education	18.14	17.98	-0.156	17.77	17.91	0.143	0.370	0.071
	(2.916)	(3.299)	(0.485)	(3.077)	(3.265)	(0.132)	(0.396)	(0.298)
salary	1.926	3.211	1.285***	2.272	3.848	1.577***	-0.345	-0.637**
	(1.809)	(1.974)	(0.293)	(2.441)	(3.364)	(0.126)	(0.311)	(0.299)
boy1	0.578	0.508	-0.070	0.467	0.477	0.010	0.112*	0.031
	(0.498)	(0.502)	(0.076)	(0.499)	(0.500)	(0.021)	(0.064)	(0.046)
age at first birth	22.11	23.16	1.052**	23.26	23.41	0.150	-1.148***	-0.246
	(2.549)	(2.927)	(0.429)	(3.182)	(3.229)	(0.133)	(0.407)	(0.293)
boy2	0.469	0.508	0.039					
	(0.503)	(0.502)	(0.077)					
birth interval	7.579	7.594	0.015					
	(3.116)	(3.800)	(0.548)					
city	0.625	0.677	0.052	0.778	0.733	-0.045**	-0.153***	-0.056
	(0.488)	(0.469)	(0.073)	(0.416)	(0.442)	(0.018)	(0.054)	(0.041)
Housing conditions								
family members	3.203	3.608	0.405**	3.376	3.433	0.057	-0.173	0.175*
	(0.647)	(1.254)	(0.167)	(0.864)	(0.987)	(0.039)	(0.110)	(0.092)
property type	0.844	0.885	0.041	0.898	0.871	-0.026**	-0.054	0.013
	(0.366)	(0.321)	(0.051)	(0.303)	(0.335)	(0.013)	(0.040)	(0.030)
sqmetre per person	18.48	17.47	-1.010	15.55	15.50	-0.050	2.927***	1.967***
	(7.667)	(7.805)	(1.216)	(6.198)	(6.523)	(0.270)	(0.840)	(0.612)
living sqmetre per person	11.96	10.99	-0.974	9.957	9.973	0.016	2.003***	1.013**
	(5.277)	(4.612)	(0.763)	(4.075)	(4.762)	(0.191)	(0.555)	(0.447)
Partner characteristics								
age	30.79	31.69	0.897	34.89	35.28	0.388	-4.104***	-3.596***
	(4.415)	(4.612)	(0.708)	(5.728)	(6.078)	(0.254)	(0.743)	(0.561)
education	16.98	16.94	-0.041	16.90	16.59	-0.308**	0.087	0.355
	(3.191)	(3.340)	(0.513)	(3.154)	(3.534)	(0.145)	(0.415)	(0.330)
employment	0.859	0.854	-0.006	0.802	0.852	0.050***	0.058	0.002
	(0.350)	(0.355)	(0.054)	(0.399)	(0.355)	(0.015)	(0.051)	(0.032)
salary	3.516	5.053	1.537**	3.163	4.610	1.448***	0.354	0.443
	(3.901)	(4.264)	(0.634)	(4.655)	(4.519)	(0.189)	(0.596)	(0.410)

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Figure 3: Parental-leave allowance for pre- and post-reform period



Note:The amount of benefits is adjusted to the 2001 base using regional consumer price indexes.

3.2 Empirical model

The purpose of the paper is to identify whether the 2007 reform has an impact on female's fertility in the short run. I examine a decision to have a second child within the static Becker *et al.* (1960) framework. Children are considered as a durable consumption good - a source of income and satisfaction. The utility associated with children can be defined through a system of parental preferences. Parents maximize utility from their consumption, leisure and number of children according to a set of time and money constraints. There are two group of costs associated with children: direct costs (spending on rearing, education etc.) and opportunity costs (income losses during the leave period, human capital depreciation and missed career opportunities). The important dimension of the optimization problem is the children quality. "Family must determine not only how many children it has but also the amount spent on them whether it should provide separate bedrooms, send them to nursery school and private colleges, give them dance or music lessons, and so forth."(Becker *et al.* (1960)). A "high quality" child is associated with an amount of parents' investment. The higher prices of "quality" might generate a decrease in the number of children. Within this framework, the Russian family policy reforms, discussed in Section 2.2, might positively affect a woman's fertility decision given her preferences for motherhood. The maternity capital provides financial support for the direct costs of children "quality", while the increase in parental leave benefits reduces both direct and indirect costs through mothers' income.

In the literature, the decisions to have children and to work are considered as joint decision (for instance, see (Francesconi, 2002), (Laroque and Salanie, 2008), (Haan and Wrohlich, 2011), etc.). The employment participation has an impact on fertility decision through the future costs of human capital accumulation, labour income flows and carrier path, while fertility decision affects the future return-to-work behaviour given that child-rearing is time consuming and a mother is a main child-care provider. Since a woman anticipates these changes, the problem of endogeneity of the fertility decisions appears.

In this study, I focus on the fertility response in the short run for second children, assuming that a woman has not changed her employment/career decisions due to the introduced policy changes. To identify the effect of the 2007 reforms I consider a woman who optimally decides about the number of children at each period of time, conditioning on her labour force participation and her partner's behaviour[24]. At given date t for the household i the female choice set is F_{it}, where $F_{it} = 1$, if time point t is optimal to give a birth. Let d_t indicate a mother's treatment status, where $d_t = 0$ if she was making her conception decision under the old regime, and $d_t = 1$ under the new ones. The estimation equation is characterized as follows:

$$Pr(F_{it} = 1|controls) = \beta_0 + \beta_1 d_t + \beta_2 f(age_{it-1}) + \beta_3 income_{it-1} + + \beta_4 housing_{it-1} + \sum_{i=5}^{k} \beta_i X_{it-1} \quad (1)$$

where F_{it} is the birth delivery of a woman at period t; d_t is a policy indicator, equal to 1 after 2007; $f(age_{it-1})$ is a function of age at the conception; $income_{it-1}$ and $house_{it-1}$ are labour income and housing conditions in the preceding year; X_{it-1} is a set of control variables.

The estimation is aimed at capturing the changes in maternity incentives in response to the financial incentives introduced. The birth probability is defined by the socio-economic characteristics at individual, household and regional levels. There is a natural time interval between pregnancy and delivery, the characteristics of previous period would define the birth outcome in the current period. I account for a potential effect of future flow of parental benefits through labour income, as the amount of the allowance depends significantly on the labour income of the preceding year under the new system. I also account for current family housing conditions, given the evidence of usage of maternity capital to improve the household conditions. Other controls include education, gender of first child, age at first birth, the urban or rural area of household residence, different partner's characteristics.

The identification relies on the variation in the financial incentives induced by the 2007 reforms, variation in the partner's labour income and housing conditions. The variation in financial incentives results mainly from the non-linearities in the parental-leave benefits. I assume that during the observation period there were no other important policy changes which might affect the fertility decisions. I estimate the model 1 from various functional specifications: linear probability and probit models. The control group consists of females making their conception decision prior to 2007 and the treated group - mothers with conception decisions after 2007. The estimation identifies whether the reform has an impact on the birth timing controlling for other socio-economic characteristics. I use information on mothers' characteristics only in the period before birth $(t-1)$ exploiting the variation of individual decisions in cross-sectional dimension and controlling for age and time effects.

[24]To avoid the problem of household bargaining.

There is no clear empirical evidence whether the 2007 reforms was anticipated by the household. The media discussion of maternity capital reform started in June 2007 after the President speech. In January 2007, the list of families to get first certificates was widely announced. Using the additional poll of the RLMS-HSE survey on 2008 wave, Slonimczyk and Yurko (2013) show that around 60% of eligible women were aware of maternity capital, but only $5,6\%$ claimed the influence of maternity capital on their decision to have more children. A content analysis of the major Russian newspapers and internet media does not confirm the significant public discussion, even though the social security fund provided the detailed analysis of new system after approval in December 2006. Although anticipation of the 2007 reforms is unlikely, I exclude women with a child born in December 2006, because they might have shifted their birth towards January 2007 when the 2007 reforms came into force.

4 Results

4.1 Estimation results

The model 1 presented in Section 3.2 is estimated using the linear probability and probit specifications. The baseline estimation includes the main socio-economic characteristics of a mother at the time of deciding to conceive: her age, education and average reported salary. I control for the dwelling location: urban or rural area[25]. I consider an additional specification including the determinants that might have an impact on the second birth decision. I use total living area per person as a proxy for housing conditions. Since the literature (see Blackburn *et al.* (1993)) establishes that age at birth follows a bell-shaped curve, I consider a quadratic specification of age function. Following Bratti and Tatsiramos (2011) I include an age at first birth to control for the effect of delaying motherhood on the transition into second birth. To account for a possible bias in parental preferences of children sex composition[26] I include gender of a first child. Table 2 summarizes average marginal effects, and Table 5 in Appendix reports the estimation results for the full specification. Standard errors are robust and clustered at the regional level.

The baseline estimation results show that there is a positive association between policy introduction and the decision to have a second child. On average, the second birth probability increases on $2,9$ percentage points in the baseline specification. The effect persists after controlling for partner's characteristics, non-linearities in age, and regional dummies. The magnitude slightly changes across the specifications, and linear probability models tend to overestimate the impact. Notice, that the estimation results confirm an inverse U-shaped association between fertility and age.

The estimation is made under the assumption that unobservable time-trend variables have the same impact on the pre- and post-reform groups. However, the policy variable can capture the effects of shifts in these variables. An additional concern is economic crisis of 2008-2009 (Russia reported negative GDP growth rates in the second half of 2009). According to empirical evidence,

[25]Boykov and Roshchina (2005), Roshchina and Cherkasova (2009) show the differences in the fertility decision between rural and urban areas.

[26]For a detailed analysis see Hank (2007).

women might shift closer or postpone their fertility decision under increasing uncertainty. To account for such effects, I control for female unemployment rate on regional level in the year, preceding the conception decision. I also restrict sample, considering women who made their conception decisions before 2009. Table 2 shows that the policy effect is robust to such controls (the full estimation results are presented in Table 5 in Appendix). The magnitude is smaller: the probability to have a second child increases to $2,2$ percentage points.

In all the specifications the average monthly labour income has significant negative impact on the probability to have children, but the magnitude is small. After controlling for female unemployment cycles the effect vanishes. The housing conditions have positive significant impact on the probability of having a second child, which is consistent with previous findings[27]. It is interesting to note that in the baseline specification the probability of a second birth increases if the first child was a boy, which potentially indicates asymmetry in gender preferences of parents. The partner's characteristics do not have any influence on the observed fertility decisions. The only significant impact that the husband provides on the family decision is age, as the older partner decrease the probability of having a second child. I do not find any shift in birth probability conditioning on the labour income and housing condition and gender of the first child.

The parental preferences on child's gender may be an important factor on their fertility decision. The results above suggest that if the first child is a boy the probability of having a second child increases, which can be related either to the intention to complete the family size[28] or to have a girl. Given the gender asymmetry in the fertility decision of having a second child, I expect that the reform might produce an additional effect for families, where the first child is a girl. First, I interact the policy variable with a gender of a first child to see whether the reform produced any non-linear response for the gender. Second, I estimate the specified model 1 for two family types: a first child is a girl and a first child is a boy. Notice, that the gender of a first child is an exogenous variable, which has a significant impact on the subsequent fertility decision.

The results of estimation, presented in Table 3[29], provide empirical evidence that the reform has produced an asymmetric response in fertility decisions. The probability of having a second child has increased to $3,3$ percentage points for a family with a first-born girl while a family with first-born boy does not show any additional respond to the introduced incentives. Notice that overall the male gender of a first child increases the probability to have a second child by $2,8$ percentage points.

The main goal of the study has been to evaluate whether the introduced financial incentives affect the probability of having a second child. The estimation results show that there is a positive association between the probability to have a second child and policy implementation. For employed married women the probability of a second child has increased by $2,2$ percentage points. The results also show that improved housing conditions influence fertility decisions, increasing probability by $3,4$ percentage points. Having a first-born girl is an amplifying factor on the policy effect. In families with a girl, the probability of having a second child after the reform increases by $3,3$ percentage points.

[27] Curtis and Waldfogel (2009) show that the housing conditions partially explain the variation in fertility decision among married couples in the US.

[28] Frejka and Zakharov (2012) report that the desired parity is equal to two.

[29] The full estimation see Table 5 in the Appendix.

Table 2: Estimation results: marginal effects

	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.031***	0.029***	0.032***	0.027***	0.028**	0.024**	0.028**	0.023***
	(0.011)	(0.009)	(0.011)	(0.009)	(0.012)	(0.010)	(0.011)	(0.009)
Other characteristics:								
Average monthly salary	-0.003***	-0.004**	-0.003***	-0.004**	-0.003**	-0.003**	-0.003***	-0.003**
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Area per person	0.005***	0.003***	0.005***	0.003***	0.004***	0.003***	0.005***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Controls:								
Age	Linear	Linear	Linear	Linear	Quadratic	Quadratic	Quadratic	Quadratic
Partners characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Regional dummies	No	No	Yes	Yes	No	No	Yes	Yes
N	2179	2179	2179	2179	2179	2179	2179	2179
Policy	0.029**	0.026***	0.029**	0.024***	0.029**	0.025**	0.028**	0.022**
	(0.012)	(0.010)	(0.011)	(0.009)	(0.013)	(0.010)	(0.013)	(0.009)
Other characteristics:								
Average monthly salary	-0.003**	-0.003*	-0.003**	-0.003*	-0.003	-0.002	-0.003	-0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Area per person	0.004***	0.003***	0.005***	0.003***	0.005***	0.003***	0.005***	0.003***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Controls:								
Age	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic
Partners characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Regional dummies	No	No	Yes	Yes	No	No	Yes	Yes
Time	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Before crisis	No	No	No	No	Yes	Yes	Yes	Yes
N	2179	2179	2179	2179	1776	1776	1776	1776

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 3: Estimation results: gender of a first child

	Whole sample		First child is a boy		First child is a girl	
	LP	Probit	LP	Probit	LP	Probit
Policy	0.041***	0.035***	0.012	0.009	0.044**	0.033***
	(0.015)	(0.012)	(0.017)	(0.012)	(0.016)	(0.012)
First child is a boy	0.032*	0.028**				
	(0.016)	(0.014)				
Policy*First child is a boy	-0.025	-0.023*				
	(0.022)	(0.014)				
Controls:						
Age	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic	Quadratic
Partner's characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes
Time	Yes	Yes	Yes	Yes	Yes	Yes
Before crisis	No	No	No	No	No	No
N	2179	2179	1058	1058	1121	1121

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

4.2 Robustness check

Given that the probability of having a second child is a quadratic function of age, the conception probability is likely to vary with age. I consider the age brackets 20-30 and 30-40[30]. The results presented in Table 7 in the Appendix are robust to age specification, but the magnitude of the effect varies slightly. Note that the probability of having a second child increases in age for a younger group and then start to decrease. The negative impact of husbands' age on the probability of a second child might capture the age differences of spouses. Using age difference (age of the wife - age of the husband) instead of age still confirms the impact of the policy. In addition the probability of having children becomes higher if the differences in ages increase (Table8 in Appendix).

Regarding the employment status and income variables, I use various definitions of income: constructed wages per hour and total income, reported income for a last month. I also control whether the work is part-time or full-time and use working hours instead of labour income. Controlling for the different categories, I find the same pattern in terms of policy effect on the probability of second child. Other factors do not change significantly their sign and magnitude. The estimation results are reported in Tables 9 and 10 in Appendix.

The empirical findings in the literature on the estimation of policy effects on maternity suggest that the magnitude of the response might highly vary across educational categories. I consider the alternative specifications using educational levels instead of number of years. I reestimate the model for the following groups: high school education, technical school education and university degree, using the highest level of education obtained. The estimation results are presented in Tables 11 and 12 in Appendix. The observed policy effect is still positive across all groups. However, it remains significant only for females with the highest obtained level - high school certificate. It implies that the reform produced incentives for a low-educated group of women that might be characterized by lower career incentives and lower salaries.

[30]The sample size do not allow the lower intervals.

5 Conclusion

This paper presents new evidence on the financial incentives and fertility. It shows that the 2007 family reforms create non-linear response in fertility decisions of various female groups. For the whole sample I find a positive significant impact on the decision to have a second child, which is consistent with findings by Slonimczyk and Yurko (2013). The probability of the second birth has increased after the implementation by $2,2$ percentage points. These findings confirm the empirical results of the parental leave and child bonuses literature (Milligan (2005), Neyer and Andersson (2008), Lalive and Zweimller (2009)). However, I also show that the effect is driven by the low-educated group of women who potentially belong to low-income group. In addition, there is a heterogeneous response across the gender of a first child: mothers with a first girl have a higher probability of giving birth after the reform was implemented. The possible interpretation of this result is a gender bias in maternal preferences of Russian couples towards boys. Therefore, the reform might stimulate the parents intentions to have a boy relieving economic constraints. These findings on the child gender preferences in European countries are novel (see Andersson *et al.* (2006)). The reform has no additional impact for the families with restricted housing conditions, even though housing conditions remain the important factor determining fertility decision.

Overall, I interpret it as results confirming the positive impact of the reform on the fertility decision. The results provide some insights into the socio-economic characteristics of the responding women heterogeneity. The magnitude of the results should be interpreted with caution because of the possible selection bias. The other important restriction is that I cannot distinguish the effects of maternity capital and changes in parental leave allowance on the reproductive behaviour. The observed shift in the fertility might also be a tempo effect when families just complete their desired fertility by shifting the time of their decision to conceive. Further research would be to analyse whether the reform has a significant effect on birth spacing.

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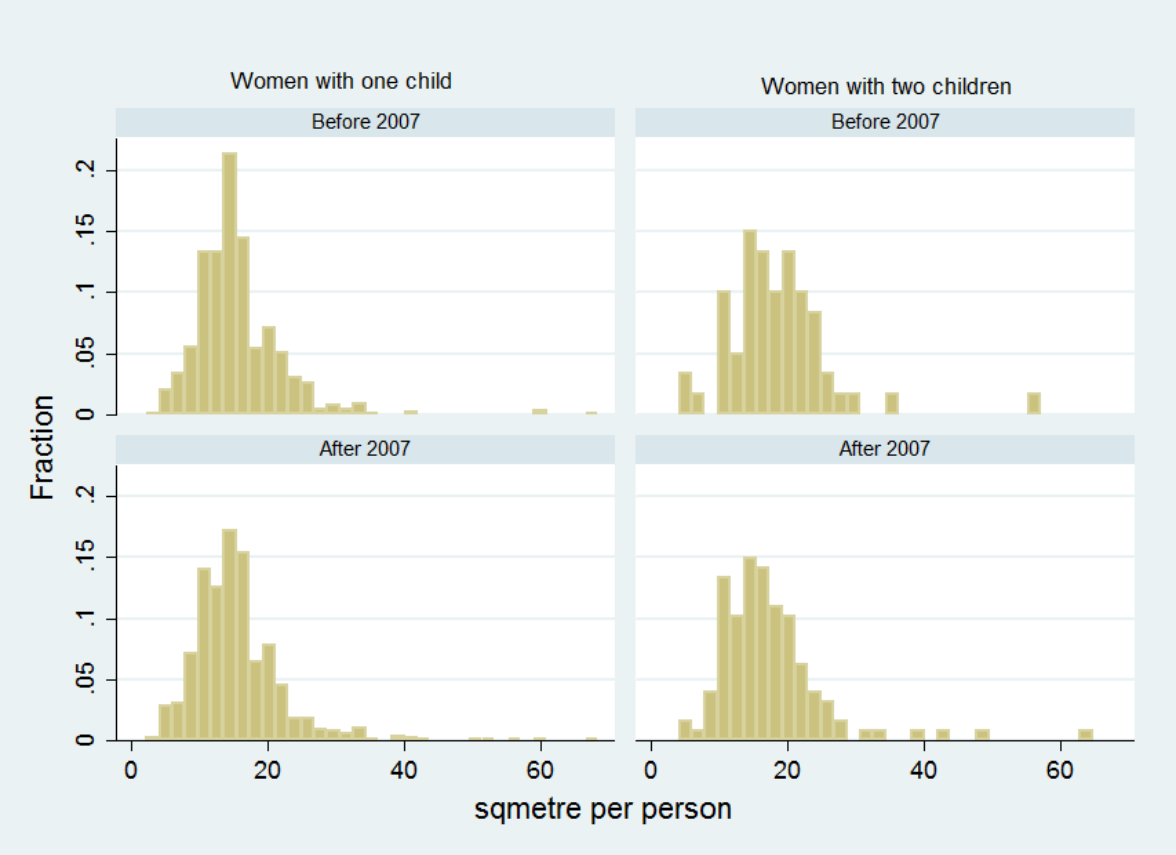
Appendix

Figure 4: Housing conditions for pre- and post-reform period



Source: RLMS-HSE, own computations.

Table 4: Estimation results: baseline specification

	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.031***	0.276***	0.032***	0.291***	0.028**	0.243**	0.028**	0.256**
	(0.011)	(0.095)	(0.011)	(0.096)	(0.012)	(0.102)	(0.011)	(0.101)
Age	-0.009***	-0.072***	0.027**	0.494***	-0.004**	-0.029*	0.030*	0.528***
	(0.001)	(0.009)	(0.013)	(0.136)	(0.002)	(0.016)	(0.017)	(0.166)
Education	0.002	0.018	0.002	0.015	0.001	0.014	0.001	0.010
	(0.002)	(0.015)	(0.002)	(0.014)	(0.002)	(0.016)	(0.002)	(0.016)
Average monthly salary	-0.003***	-0.033**	-0.003***	-0.036**	-0.003**	-0.031**	-0.003***	-0.035**
	(0.001)	(0.014)	(0.001)	(0.015)	(0.001)	(0.015)	(0.001)	(0.016)
City	-0.005	-0.034	-0.004	-0.042	-0.011	-0.070	-0.011	-0.085
	(0.013)	(0.093)	(0.013)	(0.094)	(0.016)	(0.110)	(0.016)	(0.114)
Area per person	0.005***	0.028***	0.005***	0.029***	0.004***	0.029***	0.005***	0.030***
	(0.001)	(0.005)	(0.001)	(0.005)	(0.002)	(0.009)	(0.002)	(0.010)
Age at first birth	0.001	0.013	0.000	-0.000	-0.000	0.001	-0.001	-0.010
	(0.002)	(0.015)	(0.002)	(0.017)	(0.002)	(0.015)	(0.002)	(0.018)
First child is a boy	0.021*	0.147*	0.022**	0.163*	0.015	0.098	0.016	0.114
	(0.011)	(0.085)	(0.011)	(0.086)	(0.014)	(0.113)	(0.014)	(0.112)
Partner characteristics:								
Age					-0.005***	-0.051***	-0.004***	-0.049***
					(0.001)	(0.015)	(0.001)	(0.015)
Education					0.002	0.013	0.002	0.013
					(0.002)	(0.013)	(0.002)	(0.013)
Average monthly salary					0.002**	0.015**	0.003**	0.016**
					(0.001)	(0.007)	(0.001)	(0.008)
Controls:								
Age2			-0.001***	-0.009***			-0.001**	-0.009***
			(0.000)	(0.002)			(0.000)	(0.003)
Constant	0.203***	-0.449	-0.333	-8.695***	0.243***	-0.000	-0.278	-8.156***
	(0.051)	(0.388)	(0.207)	(1.999)	(0.059)	(0.439)	(0.265)	(2.406)
Regional dummies	No	No	No	No	Yes	Yes	Yes	Yes
N	2179	2179	2179	2179	2179	2179	2179	2179

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 5: Estimation results: baseline specification (continue)

	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.029**	0.259**	0.029**	0.270***	0.029**	0.253**	0.028**	0.261**
	(0.012)	(0.102)	(0.011)	(0.102)	(0.013)	(0.112)	(0.013)	(0.112)
Age	-0.004**	-0.028*	0.029*	0.526***	-0.005***	-0.033**	0.035*	0.652***
	(0.002)	(0.015)	(0.017)	(0.168)	(0.002)	(0.015)	(0.017)	(0.191)
Education	0.001	0.013	0.001	0.009	0.002	0.022	0.002	0.018
	(0.002)	(0.015)	(0.002)	(0.015)	(0.002)	(0.015)	(0.002)	(0.015)
Average monthly salary	-0.003**	-0.029*	-0.003**	-0.033**	-0.003	-0.021	-0.003	-0.024
	(0.001)	(0.015)	(0.001)	(0.016)	(0.002)	(0.017)	(0.002)	(0.019)
City	-0.010	-0.064	-0.010	-0.081	-0.012	-0.080	-0.013	-0.108
	(0.016)	(0.112)	(0.016)	(0.117)	(0.016)	(0.116)	(0.017)	(0.124)
Area per person	0.004***	0.029***	0.005***	0.029***	0.005***	0.033***	0.005***	0.034***
	(0.002)	(0.009)	(0.002)	(0.010)	(0.002)	(0.010)	(0.002)	(0.011)
Age at first birth	-0.000	0.001	-0.001	-0.010	0.001	0.008	0.000	-0.006
	(0.002)	(0.015)	(0.002)	(0.018)	(0.002)	(0.016)	(0.002)	(0.018)
First child is a boy	0.015	0.098	0.016	0.114	0.019	0.122	0.019	0.134
	(0.014)	(0.114)	(0.014)	(0.113)	(0.014)	(0.120)	(0.014)	(0.121)
Partner characteristics:								
Age	-0.005***	-0.051***	-0.004***	-0.049***	-0.004***	-0.052***	-0.004***	-0.048***
	(0.001)	(0.015)	(0.001)	(0.015)	(0.001)	(0.012)	(0.001)	(0.013)
Education	0.002	0.014	0.002	0.014	0.001	0.011	0.001	0.009
	(0.002)	(0.013)	(0.002)	(0.013)	(0.002)	(0.015)	(0.002)	(0.016)
Average monthly salary	0.002**	0.016**	0.003**	0.016**	0.002	0.013	0.002	0.013
	(0.001)	(0.008)	(0.001)	(0.008)	(0.001)	(0.008)	(0.001)	(0.009)
Controls:								
Age2			-0.001**	-0.009***			-0.001**	-0.011***
			(0.000)	(0.003)			(0.000)	(0.003)
Female unemployment	0.101	1.134	0.074	0.901	0.061	0.922	0.023	0.727
	(0.157)	(1.198)	(0.162)	(1.237)	(0.148)	(1.198)	(0.154)	(1.229)
Constant	0.233***	-0.077	-0.279	-8.181***	0.202***	-0.235	-0.401	-10.214***
	(0.062)	(0.454)	(0.264)	(2.402)	(0.055)	(0.421)	(0.271)	(2.785)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Before crisis	No	No	No	No	Yes	Yes	Yes	Yes
N	2179	2179	2179	2179	1776	1776	1776	1776

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 6: Estimation results: gender of a first child

	Whole sample		First child is a boy		First child is a girl	
	LP	Probit	LP	Probit	LP	Probit
Policy	0.041***	0.410***	0.012	0.104	0.044**	0.421***
	(0.015)	(0.151)	(0.017)	(0.135)	(0.016)	(0.157)
First child is a boy	0.032*	0.299*				
	(0.016)	(0.156)				
Policy*First child is a boy	-0.025	-0.266*				
	(0.022)	(0.181)				
Age	0.029*	0.527***	0.035	0.477*	0.029	0.559**
	(0.017)	(0.168)	(0.028)	(0.255)	(0.022)	(0.242)
Age2	-0.001**	-0.009***	-0.001	-0.008**	-0.001	-0.009**
	(0.000)	(0.003)	(0.000)	(0.004)	(0.000)	(0.004)
Education	0.001	0.009	-0.004	-0.030	0.006***	0.058***
	(0.002)	(0.015)	(0.003)	(0.022)	(0.002)	(0.021)
Average monthly salary	-0.003**	-0.033**	-0.003	-0.029	-0.004**	-0.050
	(0.001)	(0.016)	(0.002)	(0.021)	(0.002)	(0.031)
City	-0.010	-0.079	-0.005	-0.007	-0.008	-0.082
	(0.016)	(0.116)	(0.021)	(0.147)	(0.026)	(0.200)
Area per person	0.005***	0.030***	0.010***	0.057***	0.002	0.013
	(0.002)	(0.010)	(0.002)	(0.010)	(0.001)	(0.010)
Age at first birth	-0.001	-0.010	0.002	0.022	-0.004*	-0.043*
	(0.002)	(0.018)	(0.003)	(0.025)	(0.002)	(0.025)
Partner characteristics:						
Age	-0.004***	-0.050***	-0.007**	-0.065***	-0.003*	-0.037*
	(0.001)	(0.015)	(0.003)	(0.023)	(0.002)	(0.019)
Education	0.002	0.014	-0.002	-0.010	0.002	0.019
	(0.002)	(0.013)	(0.003)	(0.020)	(0.003)	(0.024)
Average monthly salary	0.003**	0.017**	0.007***	0.049***	-0.000	0.000
	(0.001)	(0.008)	(0.002)	(0.014)	(0.001)	(0.011)
Female unemployment	0.071	0.890	0.148	2.263	-0.015	0.455
	(0.163)	(1.240)	(0.256)	(1.997)	(0.269)	(2.416)
Constant	-0.282	-8.318***	-0.305	-7.052**	-0.299	-9.009**
	(0.262)	(2.420)	(0.398)	(3.464)	(0.343)	(3.623)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes
Before crisis	No	No	No	No	Yes	Yes
N	2179	2179	1058	1058	1121	1121

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 7: Estimation results: age interval

	Age of mother 20-29				Age of mother 30-39			
	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.04787*	0.04679**	0.04520*	0.04514**	0.02740**	0.02260***	0.02392**	0.01848**
	(0.0247)	(0.0227)	(0.0254)	(0.0230)	(0.0109)	(0.0086)	(0.0116)	(0.0084)
Age	0.00854	0.00809	0.01575**	0.01467**	-0.01086***	-0.00917***	-0.00668***	-0.00470**
	(0.0054)	(0.0052)	(0.0066)	(0.0064)	(0.0016)	(0.0013)	(0.0022)	(0.0019)
Education	0.00429	0.00453	0.00440	0.00467	0.00139	0.00136	0.00127	0.00130
	(0.0035)	(0.0036)	(0.0037)	(0.0038)	(0.0019)	(0.0016)	(0.0019)	(0.0015)
Average monthly salary	-0.00001*	-0.00001	-0.00001	-0.00000	-0.00000***	-0.00000**	-0.00000**	-0.00000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
City	-0.04573*	-0.04321*	-0.05553**	-0.05201*	0.01606	0.01009	0.01461	0.01054
	(0.0269)	(0.0257)	(0.0279)	(0.0271)	(0.0131)	(0.0090)	(0.0136)	(0.0087)
Area per person	0.00636***	0.00514***	0.00692***	0.00553***	0.00441***	0.00242***	0.00404***	0.00227***
	(0.0019)	(0.0014)	(0.0021)	(0.0014)	(0.0012)	(0.0006)	(0.0012)	(0.0005)
Age at first birth	-0.01022*	-0.00989*	-0.01541**	-0.01408**	0.00127	0.00090	0.00099	0.00054
	(0.0059)	(0.0056)	(0.0065)	(0.0061)	(0.0015)	(0.0014)	(0.0016)	(0.0014)
First child is a boy	0.02408	0.02629	0.01757	0.02046	0.02616**	0.01719*	0.02167*	0.01289
	(0.0222)	(0.0216)	(0.0227)	(0.0218)	(0.0115)	(0.0090)	(0.0121)	(0.0083)
Partner characteristics:								
Age			-0.00625**	-0.00666*			-0.00456***	-0.00443***
			(0.0029)	(0.0035)			(0.0016)	(0.0014)
Average monthly salary			0.00001	0.00000			0.00000	0.00000
			(0.0000)	(0.0000)			(0.0000)	(0.0000)
N	807	807	758	758	1650	1650	1557	1557

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 8: Estimation results: age interval (continue)

	Age differences			
	LP	Probit	LP	Probit
Policy	0.02782**	0.02706**	0.02546**	0.02558**
	(0.0115)	(0.0107)	(0.0115)	(0.0107)
Age difference	0.00353**	0.00389**	0.00348**	0.00385**
	(0.0014)	(0.0016)	(0.0014)	(0.0015)
Education	0.00196	0.00232	0.00193	0.00225
	(0.0018)	(0.0019)	(0.0018)	(0.0018)
Average monthly salary	-0.00000***	-0.00000**	-0.00000***	-0.00001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
City	-0.00788	-0.00566	-0.01365	-0.01048
	(0.0132)	(0.0120)	(0.0136)	(0.0125)
Area per person	0.00375***	0.00293***	0.00369***	0.00287***
	(0.0010)	(0.0007)	(0.0010)	(0.0007)
Age at first birth	-0.00349**	-0.00386**	-0.00379**	-0.00399**
	(0.0016)	(0.0017)	(0.0016)	(0.0017)
First child is a boy	0.01351	0.01271	0.01397	0.01275
	(0.0114)	(0.0107)	(0.0114)	(0.0106)
Partner characteristics:				
Average monthly salary			0.00000**	0.00000**
			(0.0000)	(0.0000)
N	2179	2179	2179	2179

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 9: Estimation results: income categories

	Income category: wage				Income category: income reported			
	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.02480**	0.02146**	0.02355**	0.01904**	0.02506**	0.02032**	0.02142*	0.01893**
	(0.0105)	(0.0085)	(0.0111)	(0.0084)	(0.0108)	(0.0083)	(0.0116)	(0.0088)
Age	0.02621**	0.04845***	0.02855**	0.04971***	-0.02591	0.04115	0.02987**	0.04899***
	(0.0125)	(0.0123)	(0.0130)	(0.0122)	(0.0371)	(0.0330)	(0.0131)	(0.0120)
Age2	-0.00054***	-0.00090***	-0.00052***	-0.00085***	0.00022	-0.00073	-0.00053***	-0.00084***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0005)	(0.0005)	(0.0002)	(0.0002)
Education	0.00108	0.00106	0.00099	0.00113	0.00125	0.00120	0.00111	0.00111
	(0.0017)	(0.0014)	(0.0018)	(0.0014)	(0.0019)	(0.0015)	(0.0018)	(0.0014)
Income category	0.00008	0.00004	0.00013	0.00007	-0.00000	-0.00000	-0.00000*	-0.00000
	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
City	-0.00967	-0.00941	-0.00864	-0.00819	0.01425	0.00873	-0.01361	-0.01103
	(0.0129)	(0.0101)	(0.0131)	(0.0101)	(0.0130)	(0.0087)	(0.0133)	(0.0102)
Area per person	0.00463***	0.00288***	0.00460***	0.00288***	0.00439***	0.00237***	0.00453***	0.00279***
	(0.0010)	(0.0006)	(0.0010)	(0.0005)	(0.0012)	(0.0005)	(0.0010)	(0.0005)
Age at first birth	0.00013	-0.00020	-0.00046	-0.00096	0.00120	0.00086	-0.00083	-0.00094
	(0.0016)	(0.0017)	(0.0016)	(0.0017)	(0.0015)	(0.0014)	(0.0017)	(0.0017)
First child is a boy	0.02195**	0.01627*	0.01573	0.01085	0.02597**	0.01751**	0.01529	0.01085
	(0.0108)	(0.0087)	(0.0112)	(0.0086)	(0.0115)	(0.0087)	(0.0112)	(0.0084)
Partner characteristics:								
Age			-0.00448***	-0.00472***			-0.00457***	-0.00475***
			(0.0014)	(0.0015)			(0.0014)	(0.0015)
Income category			0.00002	0.00003			0.00000***	0.00000***
			(0.0001)	(0.0001)			(0.0000)	(0.0000)
N	2312	2312	2179	2179	2312	2312	2179	2179

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 10: Estimation results: income categories (continue)

	Income category: income constructed				Employment status and working hours			
	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.03021***	0.02576***	0.02305**	0.01983**	0.02399**	0.02043**	0.02016*	0.01673**
	(0.0109)	(0.0087)	(0.0116)	(0.0088)	(0.0104)	(0.0085)	(0.0111)	(0.0084)
Age	0.02648**	0.04887***	0.02977**	0.04942***	0.02491**	0.04669***	0.02775**	0.04770***
	(0.0126)	(0.0123)	(0.0130)	(0.0121)	(0.0126)	(0.0123)	(0.0130)	(0.0120)
Age2	-0.00055***	-0.00090***	-0.00053***	-0.00084***	-0.00053***	-0.00087***	-0.00050**	-0.00082***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Education	0.00157	0.00143	0.00125	0.00127	0.00101	0.00103	0.00088	0.00110
	(0.0018)	(0.0014)	(0.0018)	(0.0014)	(0.0018)	(0.0014)	(0.0018)	(0.0014)
Income category	-0.00000**	-0.00000*	-0.00000**	-0.00000*				
	(0.0000)	(0.0000)	(0.0000)	(0.0000)				
Part-time employment					-0.01129	-0.01045	-0.01171	-0.00997
					(0.0150)	(0.0115)	(0.0155)	(0.0113)
Hours per week					0.00002	0.00001	0.00008	0.00008
					(0.0007)	(0.0005)	(0.0007)	(0.0005)
City	-0.00472	-0.00459	-0.01226	-0.01033	-0.00860	-0.00902	-0.01216	-0.01057
	(0.0130)	(0.0098)	(0.0135)	(0.0104)	(0.0131)	(0.0102)	(0.0137)	(0.0105)
Area per person	0.00467***	0.00285***	0.00455***	0.00278***	0.00489***	0.00299***	0.00483***	0.00299***
	(0.0011)	(0.0006)	(0.0010)	(0.0006)	(0.0011)	(0.0006)	(0.0011)	(0.0006)
Age at first birth	0.00037	-0.00001	-0.00074	-0.00095	0.00071	0.00028	-0.00011	-0.00056
	(0.0015)	(0.0017)	(0.0016)	(0.0017)	(0.0016)	(0.0017)	(0.0016)	(0.0017)
First child is a boy	0.02151**	0.01653*	0.01569	0.01164	0.02445**	0.01825**	0.01930*	0.01368
	(0.0109)	(0.0087)	(0.0112)	(0.0085)	(0.0108)	(0.0088)	(0.0113)	(0.0086)
Partner characteristics:								
Age			-0.00450***	-0.00468***			-0.00458***	-0.00485***
			(0.0014)	(0.0015)			(0.0014)	(0.0015)
Income category			0.00000**	0.00000***			0.00000	0.00000
			(0.0000)	(0.0000)			(0.0000)	(0.0000)
N	2312	2312	2179	2179	2273	2273	2144	2144

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 11: Estimation results: type of education

	High school				Technical school			
	LP	Probit	LP	Probit	LP	Probit	LP	Probit
Policy	0.05266***	0.04005***	0.04903**	0.02525**	0.01929	0.01585	0.01106	0.00955
	(0.0191)	(0.0147)	(0.0196)	(0.0122)	(0.0199)	(0.0135)	(0.0204)	(0.0134)
Age	0.00303	0.02401	0.00013	0.02350*	0.04297**	0.06447***	0.04284**	0.06401***
	(0.0195)	(0.0168)	(0.0208)	(0.0134)	(0.0212)	(0.0171)	(0.0209)	(0.0168)
Age2	-0.00018	-0.00051*	-0.00004	-0.00039*	-0.00081**	-0.00115***	-0.00082**	-0.00115***
	(0.0003)	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Average monthly salary	-0.00000	-0.00000	-0.00001*	-0.00001*	-0.00000	-0.00000	0.00000	-0.00000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
City	-0.02133	-0.01804	-0.03233	-0.02434	0.00034	-0.00530	0.00149	-0.00549
	(0.0219)	(0.0169)	(0.0223)	(0.0163)	(0.0232)	(0.0144)	(0.0235)	(0.0144)
Area per person	0.00367**	0.00210***	0.00304**	0.00162***	0.00640***	0.00354***	0.00702***	0.00368***
	(0.0016)	(0.0008)	(0.0014)	(0.0006)	(0.0020)	(0.0010)	(0.0021)	(0.0011)
Age at first birth	0.00309	0.00240	0.00218	0.00197	-0.00020	-0.00050	-0.00009	-0.00029
	(0.0026)	(0.0027)	(0.0028)	(0.0022)	(0.0030)	(0.0030)	(0.0030)	(0.0030)
First child is a boy	0.02827	0.02043	0.03241	0.01565	0.05295***	0.03695**	0.04498**	0.02927**
	(0.0198)	(0.0153)	(0.0206)	(0.0121)	(0.0204)	(0.0147)	(0.0204)	(0.0140)
Partner characteristics:								
Age			-0.00666***	-0.00655***			0.00085	0.00040
			(0.0020)	(0.0017)			(0.0028)	(0.0020)
Average monthly salary			0.00001***	0.00000***			-0.00000	-0.00000
			(0.0000)	(0.0000)			(0.0000)	(0.0000)
N	738	738	691	691	748	748	717	717

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.

Table 12: Estimation results: type of education (continue)

	University degree			
	LP	Probit	LP	Probit
Policy	0.02183	0.02282	0.01734	0.01962
	(0.0191)	(0.0152)	(0.0204)	(0.0150)
Age	0.04491*	0.06790**	0.05632**	0.07306***
	(0.0256)	(0.0277)	(0.0268)	(0.0282)
Age2	-0.00082**	-0.00118***	-0.00089**	-0.00117***
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Average monthly salary	-0.00000***	-0.00001***	-0.00000***	-0.00001**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
City	0.01334	0.01819	0.00962	0.01662
	(0.0223)	(0.0164)	(0.0248)	(0.0169)
Area per person	0.00548***	0.00389***	0.00525***	0.00364***
	(0.0018)	(0.0010)	(0.0019)	(0.0010)
Age at first birth	0.00015	-0.00026	-0.00228	-0.00226
	(0.0024)	(0.0028)	(0.0027)	(0.0028)
First child is a boy	-0.00502	-0.00418	-0.01505	-0.00803
	(0.0181)	(0.0147)	(0.0192)	(0.0144)
Partner characteristics:				
Age			-0.00657**	-0.00622**
			(0.0028)	(0.0027)
Average monthly salary			0.00000	0.00000
			(0.0000)	(0.0000)
N	826	826	771	771

Note: Standard errors in parentheses; $*p < 0.10, **p < 0.05, ***p < 0.01$.