

# Going Beyond the First Child

## Analysis of Russian Mothers' Desired and Actual Fertility Patterns

*Victoria Levin*

*Elena Besedina*

*Tami Aritomi*



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## Abstract

The Russian Federation's population has been declining since 1992, but recently the decline appears to be over. Although fertility has risen since the 2007 introduction of the family policy package, which focused on stimulating second and higher-order births, total fertility rates still remain significantly below replacement rate. Unlike some Western European countries, low overall fertility in Russia can be explained predominantly by a high prevalence of one-child families, despite the two-child ideal family size reported by the majority of Russians. This paper examines the correlates of Russian first-time mothers' desire and decision to have a second child. Using the 2004–12 waves of the Russia Longitudinal Monitoring Survey, the study focuses on the motherhood-career trade-off as a potential obstacle to higher fertility in Russia. The preliminary results

indicate that among Russian first-time mothers, being in stable employment is positively associated with the likelihood of having a second child. Moreover, the desire to have a second child is positively associated with the first child attending formal childcare, which suggests that the availability, affordability, and quality of such childcare can be important for promoting fertility. These results are broadly consistent with previous studies in other European countries that indicate that the ability of mothers to combine work and family has important implications for fertility, and that pro-natalist policies focusing on childcare accessibility can offer the greatest payoffs. In addition to these factors, better housing conditions, being married, having an older child, and having a first-born boy are also positively associated with having a second child.

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**Going Beyond the First Child: Analysis of Russian Mothers' Desired and Actual Fertility Patterns**

Victoria Levin  
World Bank

Elena Besedina  
Kyiv School of Economics

Tami Aritomi  
World Bank

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## 1. INTRODUCTION

Over the period from 1992 to 2012, the population of the Russian Federation decreased by around 5.2 million people, due to a combination of falling fertility and decreasing life expectancy, especially for men. The nadir of births was reached in 1999 (with 1.22 million children born), and the peak of deaths was recorded in 2003 (with 2.37 million people dying that year). According to the United Nations Population Division, the rate of Russia's natural increase in population during the 1990-2005 period was among the lowest in the world (higher only than that of Bulgaria, Latvia, and Ukraine). However, since the mid-2000s, birth rates have rebounded and life expectancy has risen. Indeed, in 2013, for the first time since 1991, Russia recorded a natural increase in its population, albeit a small one (22,900 people).

Despite these positive developments, population aging is set to accelerate in Russia in the coming decades, partly due to increased longevity and partly due to the small birth cohorts from the 1990s moving through the age pyramid. Although population aging reflects, in part, the significant achievement of higher life expectancy, aging and shrinking working-age population could pose significant concerns, necessitating adaptation of the labor market as well as strains on the "pay-as-you-go" social protection and health care systems that rely on workers' social security contributions.

Policy makers in many countries, including Russia, aim to slow down the pace of population aging via pro-natalist and family policies to stimulate fertility. Internationally, the most widely-used measures are related to the parameters of maternity leave (extensions of its length or increases in replacement rate for foregone wages), birth-related cash transfers (paid either as a lump sum or at regular intervals), child-related tax deductions, and housing allowances for families with children. Unfortunately, there still is no consensus regarding the effectiveness of pro-natalist or family policies in stimulating fertility in the medium or long term. As opposed to specific single measures, what seems to matter for reproductive behavior is a more comprehensive combination of family-friendly policy measures, with the most promising ones aimed at increasing the compatibility of motherhood with participation in the formal labor force (Kohler et al., 2006, Greulich et al. 2014).

Unlike some Western European countries (e.g., Italy), where an increase in childlessness was a factor in fertility declines, low overall fertility in Russia can be explained predominantly by a high prevalence of one-child families (Frejka and Zakharov, 2012). However, for the majority of

Russians, the desired family still includes two children. This implies considerable space for policy to play an important role in enabling Russian families to fulfill their fertility aspirations.

As increasing second-order births is critical for raising overall fertility levels in Russia, it is crucial to understand the factors associated with the desire for and the decision to have a second child. The present paper examines the correlates of Russian first-time mothers' desire and decision to have a second child, using the 2004-2012 waves of the Russia Longitudinal Monitoring Survey (RLMS). This study's main focus and contribution to the literature is on whether the motherhood-career trade-off is a potential obstacle to higher fertility in Russia. Several existing papers have studied fertility decisions of Russian women using the same data source as we do but for earlier periods. While some papers look at the actual realizations of childbearing (e.g. Kohler and Kohler, 2002; Roshchina and Boykov, 2005; Brainerd, 2007), others look at the intentions to have a child (e.g. Grogan, 2003), but prior studies rarely combined the analysis of fertility intentions and decisions. These studies find that demographic factors (age, number of children) and financial well-being (income) rather than labor market status and education help to explain fertility decisions (actual and intended) of Russian women. Several related studies focus on the effect of Russia's pro-natalist policies on childbearing decisions (Frejka and Zakharov, 2012; Zakharov, 2012; Slonimczyk and Yurko, 2013). In a closely related paper, Chirkova (2013) examines the association between financial benefits provided by the state and likelihood of having a second child, finding a positive association. Differently from our paper, Chirkova concentrates only on the sample of employed women, thus bypassing the central question of this study, which is whether a mother's experience of stable employment after the birth of her first child can be correlated with her desire for and decision to have a second child.

Our results indicate that among Russian first-time mothers, being in stable employment is associated with a 1.1-1.8 percent higher likelihood of having a second child. These results are consistent with previous studies that indicate that mothers' stable employment is an important correlate of fertility in other European countries (Köppen, 2006; Greulich, et al., 2014). Analysis of fertility aspirations for a second child demonstrates a positive association between Russian first-time mothers' desire to have a second child and the intensity of the first child's attendance of formal childcare, which suggests that the availability, affordability, and quality of such childcare can be important for facilitating the motherhood-career balance and promoting fertility. In addition, larger living space, being married, and having a child aged 3 or older are also positively associated with having a second child. Similarly to Chirkova (2013), we find a gender

bias in second-child fertility decisions: having a boy as a first-born is significantly correlated with a higher likelihood of both desiring and having a second child.

The paper has the following structure. Next section outlines the recent demographic trends and government pro-natalist policies in Russia as well as international evidence on the effectiveness of such policies in promoting fertility. Section 3 describes the data used in the empirical analysis, while the empirical strategy is presented in Section 4. The results of the analysis and policy recommendations are discussed in Section 5. Section 6 concludes the paper.

## **2. RUSSIA'S FERTILITY TRENDS AND PRO-NATALIST POLICIES**

Fertility in Russia has risen significantly since the 2007 introduction of the family policy package, focused on stimulating second and higher-order births, with several pre-existing child-related transfers to mothers or other caregivers becoming differentiated by the child's birth order. Moreover, the 2007 policy package introduced the generous "maternity capital" program, which is a lump-sum (albeit tied) cash transfer for the birth of the second or higher-order child. Five years after the new policy measures had been introduced, the number of births rose from less than 1.5 million in 2006 to more than 1.9 million in 2012. During the same period, total fertility rate increased from 1.31 to 1.69, or by more than 30 percent. Yet, fertility remains below that of some Western and Eastern European countries, such as Poland, France, Slovak Republic, Sweden, and Norway, all of which have total fertility rates around the replacement level. Moreover, it is widely expected that the effect of the pro-natalist policy measures would fade out in the upcoming years, as happened to the previous family policy package in the 1980s.

According to Frejka and Zakharov (2012), the main factor that contributed to the decline in fertility rates for women born in the 1960s and 1970s was the significant decrease in the number of second and subsequent births. By 2010, more than two-thirds of Russian families had only one child (67.5 percent of all families, up from 50.8 percent in 2002). At the same time, the share of larger families declined, and two-child families represented slightly above a quarter of all families in 2010. Comparing achieved fertility of the 1965 cohort across countries reveals that Russia has the highest share of one-child families (37 percent of all families) and its prevalence of multi-child families is second-lowest (55 percent), above only Italy (Figure A1, in Appendix).

Unlike countries like Italy, England, and the Netherlands, where childlessness and delayed childbearing are significant factors in explaining low fertility, in Russia this is not the case.

According to the 2010 Census, only around 6 percent of women who completed their years of fertility had no biological children, down from 6.4 percent based on the 2002 Census. Moreover, the average age at first birth remains lower than in many European countries: according to UNECE, the average age at first birth in Russia was 24.6 years in 2009 while in the majority of Western European countries it exceeded 28 years. Hence, Russia's low fertility rate is driven almost exclusively by the low prevalence of multi-child families.

Even though many families have stopped at one child, for most Russians, the ideal family size includes two children. According to the survey conducted in 2012,<sup>1</sup> around 12 percent of women and men want to have only one child. Slightly more than half of women (51.7 percent) and 47.8 percent of men would like to have two children, provided they have adequate conditions (housing, financial resources, time), while around a quarter (24.9 percent and 23.3 percent, respectively) want to have three children. However, when asked about the *expected* number of children, only 13.3 percent of women and 14.6 percent of men expect to have three children and more than one-fifth of respondents (24.2 percent of women and 21.8 percent of men) think that they will have only one child.

The difference between the average number of desired and expected children—2.29 and 1.92, respectively—defines the gap between the actual and potential fertility in Russia. This gap can be thought of as the actionable space for pro-natalist and family policies aimed at increasing fertility. In general, governments use a relatively wide range of policy tools that aim to affect fertility decisions, including parameters of maternity leave (such as its length and replacement rate), birth-related cash transfers (given either as a lump-sum payment or at regular intervals during the child's first months or years), child-related tax deductions, and housing allowances for families with children. Although pro-natalist policies that focus on financial transfers tend to be effective in the short term, their effect generally vanishes in the medium to long term (Gauthier 2007). The example of Germany in this regard is very instructive: there, generous financial transfers created incentives for mothers to stay at home taking care of children, leading to additional struggles with a very low fertility rate, despite the high investment in lump-sum grants and tax incentives for married couples (Greulich et al. 2014).

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<sup>1</sup> Reproductive assessment survey conducted by the Federal Statistics Service in September-October 2012. The results of the survey are presented in "Analytical report on sample survey on reproductive plans of population", Rosstat. 2013, [http://www.gks.ru/wps/wcm/connect/rosstat\\_main/rosstat/ru/statistics/population/demography](http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/demography).

However, recent empirical studies for the EU countries indicate that pro-natalist and family policies that support flexible work arrangements and childcare accessibility appear to be more important than cash transfers and maternity leave length for stimulating second-order births (Greulich et al. 2014). In addition, a study using data from the Western Germany and France indicates that for individuals living in countries with family policies that impose greater restrictions on maternal return to the labor market (such as Germany), the decision to have a second child largely depends on the partner's employment and earnings (Köppen 2006). On the other hand, for individuals living in countries with family policies that facilitate compatibility between work and family life, the decision to have a second child is associated with mother's education (i.e. higher-educated women are more likely to have a second child, compared to their less educated peers).

One policy that has demonstrated its effectiveness in facilitating work-family balance for women and, through this, in promoting fertility is the availability and affordability of quality childcare. There is robust evidence that improved childcare coverage can have a positive effect on the probability of first and higher-order births (e.g. Baizán 2009 for Spain, Del Boca et al. 2003 for Denmark, Italy, Netherlands and Spain; Bauernschuster et al. 2013 for Germany). For example, Bauernschuster et al.'s (2013) results indicate that a 10 percent increase in German public childcare coverage is associated with a 3.2 percent increase in fertility rate. Moreover, using a multi-level model for 24 European countries, Greulich et al. (2014) find that childcare coverage is the most important policy instrument for promoting second births.

Similar to the majority of the studies discussed above, our analysis uses household survey data, which is described in more detail in the next section.

### **3. DATA DESCRIPTION**

For our analysis we use several waves of the Russia Longitudinal Monitoring Survey (RLMS), which contains information on a representative sample of Russian households over the period of 2004-2012. Since we intend to analyze the determinants of the desire and decision to have a second child, we restrict our sample to 3,292 women of reproductive age (15-44 years) who have one child when they enter the sample. For the analysis of desire for a second child, our sample is a pooled cross-section; since information on fertility aspirations is available only for 2006-2010

rounds,<sup>2</sup> the initial sample for this analysis is 5,088 observations of 1,194 first-time mothers; in 45 percent of these observations, first-time mothers reported wanting to have a second child (with 59 percent of first-time mothers reporting wanting a second child in at least one of the waves). For the analysis of decisions to have a second child, we utilize the panel aspect of the data and check to see if any of the first-time mothers had a second child by the next wave of the survey. Our initial sample for this analysis includes 4,846 observations of 1,844 first-time mothers, 221 observations (4.5 percent of all observations, or 12 percent of all first-time mothers) had a second child at some point between 2005 and 2012. Notably, of first-time mothers who reported wanting a second child at any point between 2005 and 2012, only 11 percent realized this desire in the study period. The gap between intentions and realizations varies a lot across age groups, reaching its maximum for the 20 to 24 age group (Figure A2 in Appendix).

Before proceeding with the econometric analysis, we examine whether there are any significant differences between first-time mothers based on their fertility aspirations and realizations. The results are presented in Tables A1 and A2 in the Appendix. Results indicate that there are significant differences between first-time mothers who do and do not want a second child. Compared to Russian mothers who want a second child, women who do not want a second child are more likely to be employed and have higher wage income, but on average, they live in poorer households, perhaps due to significantly lower wage incomes of their partners or a different household structure. Women who want a second child are better educated (40% have university or higher education) than those who would prefer to stop at one child (only 28% have higher education). As one would expect, women who do not want a second child are less likely to have a (married) partner and, when he is present, he seems to have lower labor market attachment than partners of women who want a second child. Women who want a second child are likely to be younger (under 35) and to have first-born children who are boys under 7 years of age, compared to women who do not want a second child. Notably, women who want to have a second child are more likely to utilize childcare arrangements outside the home for their first-born children, specifically either non-co-resident relatives or formal childcare centers, and to have the child spend more days in formal childcare, compared to first-time mothers who do not want a second child.

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<sup>2</sup> We used the following question to analyze the desire for an additional child: “Do you want to have (one more) baby?”

Similarly, there are significant differences between Russian first-time mothers who had a second child by the next survey wave (in the 2004-2012 period under study) and those who still had only one child by that time. Russian women who did not have a second child are more likely to be employed and working full-time and have higher wage income compared to women who had a second child. Importantly, however, the propensity to work in stable employment, as defined by working in the same job for three years or more, is similar for women with and without arrival of the second child by the next survey wave. There are no clear educational differences between women who decided to have a second child and those who did not, except around the post-secondary vocational education. Women who gave birth to the second child are more likely to be married or live together with a partner who is working and earning more, relative to women who did not give birth to a second child. First-time mothers who had a second child are more likely to be in the 25-34 age group and less likely to be older than 35, compared to women who did not have a second child. Second births were more common for women whose first-borns were boys aged 3-6 years. Finally, first-time mothers with second-child arrival by the subsequent survey wave were more likely to have the first child in formal daycare, relative to women who did not experience a second birth.

As our bivariate analysis demonstrates, the profile of first-time mothers who desired / had a second child in Russia between 2004 and 2012 is different from those who did not want / did not have additional children. However, bivariate correlations provide a very incomplete picture of the true relationships between demographic and socio-economic characteristics and fertility aspirations and decisions. In the next section, we outline a multivariate econometric model, which will be used in the analysis of the correlates of having/wanting a second child.

#### **4. EMPIRICAL STRATEGY**

Economic theory provides an analytical framework that can explain observed fertility behavior as the result of economic decision-making (see Arroyo III 1993 and Schulz 1993 for overview). The fertility analysis is based on Gary Becker's seminal work, which views children as home-produced goods (Becker 1981). In this framework, a household's demand for children depends on income, on the price of children (opportunity cost), and on parents' tastes or preferences for children (Easterlin 1975). Parents' (and specifically, mother's) time spent on childcare, which can instead be spent on other activities, such as paid work, is thus a major factor in the 'price' of children. In contexts, where mothers can combine work and children, the opportunity cost of

children should be lower, and thus, *ceteris paribus*, fertility should be higher than in environments, where women must choose either motherhood or career.

In our analysis we explore whether the above theoretical relationship can be observed empirically in the case of Russia's first-time mothers. Specifically, we test whether the trade-off between motherhood and work (i.e. opportunity cost of children) affects women's decision to have a second child. Desire for a professional career and/or a need to contribute to the household income can raise the opportunity cost of children, especially in environments where work and family are difficult to reconcile. As women with one child have objective information on the time costs involved in childcare in their specific context, their ability to combine work and family and the extent of motherhood penalty can figure prominently in their desire and decision to have a second child.

Apart from work-family balance, many other factors may be correlated with the propensity of a woman to have a second child and hence should be accounted for in econometric analysis. The first group of correlates is mother's characteristics: age, labor market status, education level, age and sex of the first-born child, etc. Late onset of motherhood is found to reduce the propensity of having second child in European countries (Köppen 2006 for Western Germany and France). However, mother's age at first birth does not appear to affect the decision to have a second child in Russia (Chirkova 2013). Women's labor market status, and particularly, being in *stable* employment, seems to be important correlate of the second and higher-order births (Adsera 2011; Greulich et al. 2014). European women and men who completed tertiary education are more likely to have a second child (especially if their partner also has university degree) (Adsera 2011; Köppen 2006, Greulich et al. 2014). However, in Russia, prior studies found that additional schooling does not seem to contribute positively to the likelihood of having a second child for employed married women (Chirkova 2013). While for European women, higher labor income is associated with the lower probability of having another child (Adsera 2011), for Russian women the effect is the opposite: better-paid women are more likely to have a second child (Chirkova 2013).

The second group of variables covers partner's characteristics, in particular, presence of the partner, his labor market status, and education. Partner's employment and income are always positively correlated with the probability of having a second child (Adsera 2011).

The third group of covariates includes the so called well-being characteristics of the households, e.g. monthly income, wealth, housing conditions (own or rented housing, size of living space). Chirkova (2013) finds that the household's housing size is important in explaining second births in Russia: the larger the available apartment or house, the more likely the household to have a second child. Also, in theory, higher household wealth should be positively correlated with fertility, if children are assumed to be "normal goods."

The fourth group of factors correlated with fertility is system-wide policy measures aimed at supporting families with children, including the length of maternity leave, child-related transfers, and childcare coverage. Studies from different countries find mixed evidence on the effectiveness of family policies in increasing birth rates. While childcare coverage and family-friendly workplace arrangements are usually found to be conducive to fertility, the length of the maternity leave does not seem to have an effect on the probability of having a second child (McDonald 2006; Greulich et al. 2014). According to existing studies, the 2007 package of family policies in Russia seems not to have had an effect on people's intentions to have more children (Zakharov 2014), there is evidence that it contributed to the recently-observed higher birth rates (Chirkova 2013), perhaps by allowing women to complete their fertility plans and to shift birth timing.

Finally, the last group can be referred to as social and economic environment and it includes, *inter alia*, local unemployment rate and poverty level. High unemployment rate seems to contribute to postponement and eventually to reduction in the second-order births (Adsera 2011). In Russia, a similar finding was observed, where lower regional unemployment was associated with higher birth rates (Roschchina and Boykov 2005, Brainerd 2007), while subjective assessment of macroeconomic uncertainty and future prospects is found to have only secondary effect on the decision to give birth (Brainerd 2007).

For our empirical analysis, we focus on first-time mothers and estimate a binary response (probit) model for two dependent variables: 1) the contemporaneous probability of *aspiring* to have a second child, and 2) the probability of second-child arrival by the next wave of the survey. We hypothesize that the set of correlates of fertility aspirations and actual realizations is similar. Specifically, we estimate the following model:

$$Y_i = \alpha + X\beta + Z\delta + H\theta + W\lambda + Round_t + Region_j + u_i \quad (1)$$

where

- Y* Binary variable (=1 if Yes):
- Probability of desiring a second child
  - Probability of having second child by the next survey wave
- X* Woman's and her first-born child's characteristics.
- Z* Partner's characteristics.
- H* Household characteristics.
- W* Family policy variables.

Specifically, *X* includes mother's labor market status, education, age, and the first-born child's age and sex. Although we start by examining the relationship between fertility and mother's employment (current in the case of fertility aspirations and in the survey year prior to the potential birth of second child in the case of fertility realizations), we follow Greulich et al. (2014) and Adsera (2011) in testing whether fertility is instead related to mothers' *stable* employment, which, due to data availability in RLMS, we define in terms of job tenure (working at the same job for the last 3 years or more). Given the endogeneity of mother's wages (Schultz 1993), we proxy for wages (and more generally, human capital of the mother) by including mother's years of education. To allow for non-linearities in the function of fertility with respect to age, we specify mother's and first-born child's age as a set of dummy variables.<sup>3</sup>

In model (1), partner's characteristics (*Z*) include the couple's marital status (indicator for whether the couple is married), partner's years of education and his labor market status (i.e. whether he is currently working). For all the above variables, the value is coded as zero if the partner is absent.

Household characteristics (*H*) include log of housing living space, following the findings of Brainerd (2007) and Chirkova (2013) on the significant relationship between housing and fertility in Russia. Moreover, log of total household expenditures are included to test the hypothesis that more well-off households are more likely to desire and have second children.

The one variable related to family policy (*W*) that is included in our analysis because it varies on the individual level is childcare arrangements for the first-born child. In particular, we include the number of days the first-born child attends a formal childcare center. Given the significant

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<sup>3</sup> As a robustness check we also used continuous age variables, and the main results did not change.

queuing for kindergarten space in Russia, we assume that this variable is related to the availability of formal childcare to the mother, and it could potentially affect the possibility for the mother to combine motherhood and paid employment.

Importantly, the model includes the settlement type (urban, urban-type settlement, and rural) and round and region fixed effects ( $Round_i$  and  $Region_j$ ) to control for any regional or period-specific changes, such as the potential relationship between fertility and local unemployment rate (in the case of regions) and the potential impact of the 2007 family policy package on the dynamics of fertility.<sup>4</sup> Given the unbalanced nature of the RLMS panel, the standard errors are clustered by individual.

## 5. RESULTS AND DISCUSSION

Tables A3 and A4 present the estimates of marginal effects for fertility aspirations for and realizations of a second-order birth, respectively.

The first and second column of Table A3 report results for mother's characteristics, with the only difference being the definition of labor market status, which is defined as current employment in column (1) and current stable employment in column (2). Strikingly, in Russia, mother's employment, however defined, does not appear to be linked to aspirations for a second child. On the other hand, education matters: each additional year of schooling is correlated with about 2 percent higher likelihood of desiring a second child. First-time mothers over 30 years of age and those whose first-born child is already 7 years or above are significantly less likely to want a second child. We also find evidence for a "daughter preference": mothers whose first-born child is a boy are 5-7 percent more likely to desire another child compared to mothers who already have a daughter.

We add marital status and partner's characteristics (education and working status) in column (3), but find that only education is significantly associated with Russian women's desire for a second child. Both variables of household well-being added in column (4) appear to matter in fertility aspirations: mothers with larger housing size and those with higher household expenditures are significantly more likely to want a second child, which provides evidence to the hypothesis that

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<sup>4</sup> Moreover, as we include all the variables that explain the variation in weights (region, urban/rural, age, and sex), we can omit using weights in our regression. This is particularly useful, as many individual weights in our sample take on the value of zero to maintain cross-sectional national representativeness, whereas our analysis of fertility realizations utilizes the panel aspect of the survey. The guidance followed on this procedure comes from Heeringa (1997).

second children are “normal goods,” so when income (or expenditures) increase, demand for children increases as well.

Finally, column (5) adds a policy-related variable on childcare arrangements – the number of days the first-born child attends a formal childcare center. We observe that this variable is positively associated with fertility aspirations. Each additional day of formal childcare is associated with about 1.4 percent increase in probability of wanting a second child, controlling for other factors. Overall, women whose first child is not in formal childcare are 17 percentage points less likely to want a second child as compared to women whose children are in formal care during the entire working week (5 days) controlling for other factors that influence fertility aspirations. The important policy implication from the analysis is that availability of formal childcare can support women’s desire to have a second child.

In the same spirit, we now examine fertility realizations for second children in Russia, with the results reported in Table A4. Column (1) reveals that mother’s current employment status does not matter for the probability of second-child arrival by the next survey wave. However, when current employment is substituted with a proxy for stable employment (i.e. being employed in the same job for 3 years or more), the coefficient becomes positive and significant, implying that first-time mothers in stable employment are almost 2 percent more likely to have a second birth between two survey waves, relative to similar mothers whose job tenure is short or who are not in employment. As Greulich et al. (2014) states that stable employment “is most likely to create a secure economic environment, which seems to be a crucial condition for women for deciding in favour of a second child.” Education appears to be positively correlated with the arrival of the second child, although the coefficient is not economically significant, with each year adding a mere 0.2 percent to the probability of a second birth by the next survey wave. Women over 35 are less likely to have a second child, as are women whose first-born child is under a year old. On the other hand, a first-born child above 3 years is about 4.5 percent more likely to get a new sibling, compared to first-borns aged 1 to 2. As with fertility aspirations and similarly to Chirkova (2013), we observe a gender bias in the arrival of second child: women whose first child is male are more likely to have a second child.

The addition of partner’s characteristics in column (3) demonstrates that married couples are almost 3 percent more likely to have a second birth, compared to non-married couples and single mothers. Neither partner’s education nor employment status matters for the arrival of a second child. Moreover, the small but significant coefficient on mother’s education in column (2)

becomes statistically insignificant when partner's characteristics are added. However, the coefficient on mother's stable employment remains statistically significant and close to its initial magnitude.

The specification reported in column (4) takes into account household characteristics, one of which turns out to be statistically significant at 5 percent level and has an expected sign: each additional one percent increase in the family housing is associated with a 1.7 percent increase in the second-order births. At the same time, richer households are as likely to have a second child as poorer households. The effect of other important factors is preserved, with the exception of marital status, which loses significance. The coefficient on stable employment is significant at only 10 percent significance level and is smaller by 0.3 percentage points as compared to the base specification in column (2).

And finally, the last column in Table A4 reports results when policy variable (formal childcare) is also included. Unlike in fertility aspirations, childcare arrangements do not appear to have a significant relationship with second-child arrival; so, the potential effect of expanding childcare on second-order births could be at the first stage of the fertility decision (i.e. ideation) rather than at the second stage (i.e. realization). All other results from the previous specification are preserved, including the positive and significant relationship between second-child arrival and stable employment; although the coefficient does become smaller in magnitude and loses some statistical significance, probably due to a smaller sample size, it is still significant at 10 percent level. In addition, level of household welfare (i.e. log household expenditures) is now positively associated with the probability of having a second child.

Our results indicate that the relationship between second-child arrival and stable employment persists, controlling for multiple other factors. Although our model cannot prove a causal relationship, we can estimate the magnitude of the change in fertility one could expect to see if the share of first-time mothers in stable employment increases by 10 percentage points from its current value. We use two sets of estimates: from column (4) and (5) to provide a range. Using the estimates of the last specification (column (5)), which can be viewed as the lower end of the estimated association, we compute predicted probabilities for two groups of women. The predicted probability of having a second child controlling for other factors is 1.92 percent higher for women who are in stable employment. Similar exercise for the marital status gives an estimated difference of around 4.5 percent. Even though the effect of being in stable employment is less than half of the latter effect we believe this effect is important from the policy making

perspective. While the state had a rather limited power over getting people married, labor market policies may be effective in stimulating second-order births in Russia.

## **6. CONCLUDING REMARKS**

According to Frejka and Zakharov (2012), the main factor that contributed to the decline in fertility rates for women born in the 1960s and 1970s was the significant decrease in the number of second and subsequent births. The good news is that most Russians still hold the two-child family size as ideal. A deeper understanding of the correlates of fertility aspirations and realizations could enable policy makers to help families attain their desired fertility. Overall, the results of our study suggest that among first-time mothers in Russia, public policies related to facilitating motherhood-work balance can play an important role in closing the gap in women's fertility preferences and their actual fertility rates.

Estimates indicate that, once mother's demographics, partner's characteristics, household welfare, and childcare arrangement are controlled for, there is a significant positive association between stable employment and second-order births. These results support the initial hypotheses of the importance of work and family balance on the decision to have a second child, among Russian women. Given the two-child ideal family size, these results suggest that providing an enabling environment for second-order births can raise overall fertility without requiring a major change in reproductive norms.

The greatest impact on fertility can be achieved with a comprehensive approach, focusing on enabling families to attain their desired family size without exposing themselves to immediate or future economic vulnerability. Experience of other countries suggests that the more effective policies aim not only to increase the fertility rate, but also to ensure that high fertility rates are maintained via a broad-based approach (Frejka and Zakharov, 2012). Besides supporting families with financial transfers, fertility can be stimulated by measures promoting greater gender equity within families and in workplaces, aiming to improve women's balance between work and motherhood (Billari, 2008).

There are many policy instruments that can help to support mothers' stable employment and more equal work conditions for both mothers and fathers. Providing sufficient opportunities for skills updating and re-training can improve both parents' employability and earnings, relaxing the immediate financial constraint on having additional children, but also reducing the family's

future vulnerability to shocks. Potential policies could also include provision of parental leaves to fathers in order to encourage their greater involvement in childcare. These policies are also likely to help reduce the gender pay gap by enhancing women's work-related skills, removing legal and normative obstacles for women to enter occupations traditionally reserved for men, introducing quotas to help women break through the glass ceiling, and sponsoring public awareness campaigns to reduce gender stereotypes existing in the society (World Bank, 2014).

Additionally, policies that target increasing availability and affordability of quality childcare are likely to support Russian women's desire for motherhood and work balance. Indeed, long waiting lists for public kindergartens in Russia and lack of private options for child care create difficult obstacles for mothers with young children who prefer to return to work. As a result, public policies aimed at improving access to pre-school facilities are critical to support mothers and, as shown in our analysis, could be related to fertility aspirations for additional children.

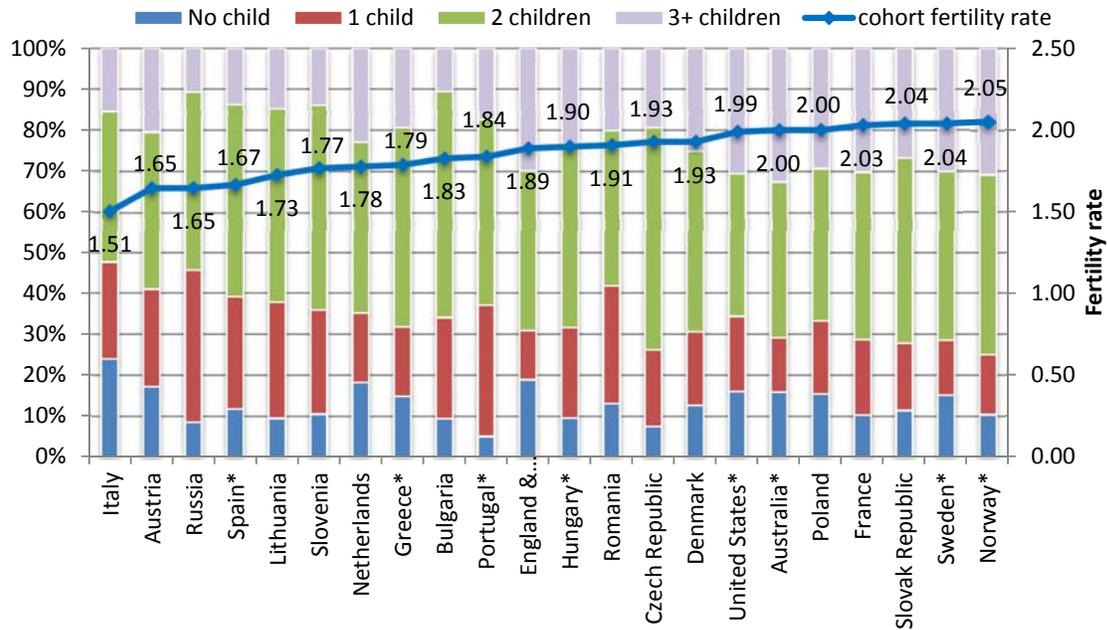
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## APPENDIX

Figure A1. Parity distribution and fertility rates in selected Central & Eastern European Countries for 1965 cohort of women



**Note:** Cohort fertility rate refers to the number of children actually born per woman in a cohort of women by the end of their childbearing years.

\* Other than 1965 cohorts data: Australia (1962-66); England and Wales, Sweden (1960); Greece, Portugal and Spain (1963); Hungary (1964); Norway (1953) and United States (1953).

**Source:** Frejka (2008) and Greulich et al. (2014).

Figure A2. Differences between first-time mothers' fertility aspirations and realizations, by age

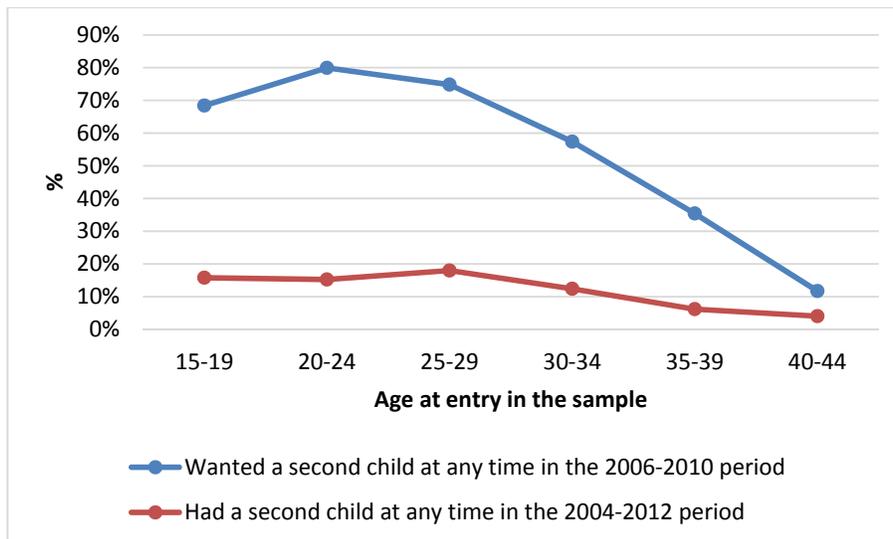


Table A1. Descriptive statistics of first-time mothers aged 15-44, by fertility aspirations for additional children

	Does not want second child	Wants second child	Sig. diff?
<b>Stability on the Labor Market</b>			
Currently Working	0.815	0.757	**
Currently Working in Stable Job (more than 3 years)	0.626	0.515	***
Working Full-Time	0.609	0.593	
(Log) Wage Income (last 30 days)	6.598	5.878	***
<b>Education Attainment</b>			
No Schooling to General schooling 1-9	0.067	0.065	
Incomplete secondary	0.036	0.025	
Secondary diploma	0.123	0.106	
Secondary plus vocational or 2+yrs of teckhnikum	0.192	0.164	
Tekhnikum Diploma	0.298	0.237	**
Higher Education or Advanced	0.284	0.402	
<b>Partner Information</b>			
Partner present	0.598	0.749	***
Married partner	0.579	0.736	***
Partner Currently Working	0.512	0.664	***
Partner Working Full-Time	0.458	0.613	***
Partner (Log) Wage Income (last 30 days)	4.864	6.151	***
<b>Household Well-being</b>			
(Log of) Housing size	3.473	3.452	
(Log of) Total Household Expenditure	9.270	9.600	***
<b>Age</b>			
15-19	0.013	0.021	*
20-24	0.073	0.189	***
25-29	0.135	0.316	***
30-34	0.179	0.274	***
35-39	0.303	0.157	***
40-44	0.298	0.043	***
<b>Age of First Child</b>			
0 years old	0.042	0.089	***
1-2 years old	0.079	0.197	***
3-6 years old	0.145	0.304	***
7 or more years old	0.735	0.409	***
<b>First Child Sex: Male</b>			
	0.453	0.543	***
<b>Child Care Arrangement of First Child</b>			
Non-parental outside house (relatives and centers)	0.171	0.377	***
Relative living outside house	0.092	0.242	***
Child Care Center or Formal Center	0.108	0.229	***
Number of days in child care center or formal center	1.124	1.466	***

Source: Russia Longitudinal Monitoring Survey (RLMS), 2004-2012 waves.

Notes: The following question to analyze the desire for a second child: "Do you want to have (one more) baby?"

Differences in group means: \* p<0.1, \*\* p<0.05, \*\*\* p<0.01

Table A2. Descriptive statistics of first-time mothers aged 15-44, by fertility realizations in the next wave

	No 2nd Child Arrival	2nd Child Arrival	Sig. diff?
<b>Stability on the Labor Market</b>			
Currently Working	0.800	0.716	*
Currently Working in Stable Job (more than 3 years)	0.582	0.540	
Working Full-Time	0.601	0.502	*
(Log) Wage Income (last 30 days)	6.132	5.196	**
<b>Education Attainment</b>			
No Schooling to General schooling 1-9	0.059	0.094	
Incomplete secondary	0.031	0.037	
Secondary diploma	0.110	0.109	
Secondary plus vocational or 2+yrs of teckhnikum	0.196	0.250	**
Tekhnikum Diploma	0.283	0.204	**
Higher Education or Advanced	0.322	0.306	
<b>Partner Information</b>			
Partner present	0.656	0.820	***
Married partner	0.648	0.802	***
Partner Currently Working	0.570	0.687	***
Partner Working Full-Time	0.512	0.588	*
Partner (Log) Wage Income (last 30 days)	5.247	6.320	***
<b>Household Well-being</b>			
(Log of) Housing size	3.453	3.575	***
(Log of) Total Household Expenditure	9.250	9.254	
<b>Age</b>			
15-19	0.016	0.025	
20-24	0.118	0.152	
25-29	0.222	0.346	***
30-34	0.231	0.318	*
35-39	0.232	0.093	***
40-44	0.181	0.065	***
<b>Age of First Child</b>			
0 years old	0.059	0.039	
1-2 years old	0.126	0.131	
3-6 years old	0.202	0.329	***
7 or more years old	0.614	0.501	***
<b>First Child Sex: Male</b>			
	0.489	0.600	**
<b>Child Care Arrangement of First Child</b>			
Non-parental outside house (relatives and centers)	0.263	0.294	
Relative living outside house	0.160	0.157	
Child Care Center or Formal Center	0.150	0.229	**
Number of days in child care center or formal center	1.252	1.309	

Source: Russia Longitudinal Monitoring Survey (RLMS), 2004-2012 waves.

Notes: Differences in group means: \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

Table A3. Correlates of the propensity to want a second child

	(1)	(2)	(3)	(4)	(5)
<b>Mother information</b>					
Currently working	-0.015 (0.028)				
Stable employment		-0.013 (0.028)	-0.030 (0.028)	-0.023 (0.029)	-0.046 (0.032)
Years of education	0.024*** (0.005)	0.022*** (0.006)	0.020*** (0.006)	0.018*** (0.006)	0.018*** (0.007)
<b>Age groups (ref. group: 25-29)</b>					
15-19	0.044 (0.074)	-0.132 (0.134)	-0.116 (0.139)	-0.111 (0.143)	-0.110 (0.176)
20-24	0.026 (0.033)	0.012 (0.042)	0.016 (0.042)	0.028 (0.043)	0.004 (0.047)
30-34	-0.084*** (0.030)	-0.082** (0.034)	-0.075** (0.034)	-0.079** (0.036)	-0.065* (0.038)
35-39	-0.222*** (0.041)	-0.228*** (0.044)	-0.198*** (0.045)	-0.201*** (0.047)	-0.186*** (0.051)
40-44	-0.418*** (0.042)	-0.421*** (0.043)	-0.402*** (0.048)	-0.402*** (0.052)	-0.400*** (0.057)
<b>Age of first child (ref. group: 1-2 years old)</b>					
0 years old	-0.043 (0.035)	-0.070 (0.046)	-0.071 (0.047)	-0.062 (0.050)	-0.059 (0.060)
3-6 years old	-0.013 (0.031)	-0.010 (0.038)	0.004 (0.039)	0.001 (0.040)	-0.020 (0.046)
7 or more years old	-0.087** (0.037)	-0.085* (0.044)	-0.067 (0.045)	-0.067 (0.046)	-0.052 (0.052)
<b>Sex of first child (ref group: female)</b>					
First child is male	0.052** (0.026)	0.070** (0.030)	0.068** (0.031)	0.073** (0.031)	0.080** (0.034)
<b>Partner Information</b>					
Married			-0.015 (0.057)	0.029 (0.058)	0.032 (0.064)
Partner's years of education			0.012** (0.005)	0.008 (0.005)	0.009 (0.006)
Partner currently working			0.015 (0.057)	0.005 (0.057)	-0.012 (0.064)
<b>Household Information</b>					
Housing size				0.094*** (0.035)	0.103*** (0.039)
Real Household Expenditure (in log)				0.048** (0.020)	0.052** (0.022)
<b>Child care</b>					
Number of days first child is in formal child care arrangement					0.014* (0.007)
<hr/>					
Rounds fixed effects	Yes	Yes	Yes	Yes	Yes
Settlement type fixed effects	Yes	Yes	Yes	Yes	Yes
Regions fixed effects	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.110	0.118	0.129	0.142	0.146
N	3,041	2,222	2,190	2,055	1,706

Source: Russia Longitudinal Monitoring Survey (RLMS), 2006-2010 waves, wave 19 (2010/2011) not included due to dependent variable asked differently.

**Note:** Marginal effects are reported, standard errors in parentheses; standard errors clustered by individual; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A4. Correlates of the propensity to have a second child

	(1)	(2)	(3)	(4)	(5)
<b>Mother information</b>					
Currently working	-0.008 (0.009)				
Stable employment		0.019** (0.008)	0.017** (0.007)	0.015** (0.008)	0.011* (0.007)
Years of education	0.002* (0.001)	0.002* (0.001)	0.002 (0.001)	0.002 (0.001)	0.001 (0.001)
<b>Age groups (ref. group: 25-29)</b>					
15-19	0.064 (0.040)	0.056 (0.088)	0.084 (0.105)	0.080 (0.098)	0.089 (0.110)
20-24	-0.002 (0.010)	-0.009 (0.011)	-0.005 (0.011)	-0.003 (0.011)	-0.006 (0.009)
30-34	-0.001 (0.009)	0.001 (0.010)	0.005 (0.009)	0.002 (0.009)	0.004 (0.009)
35-39	-0.035*** (0.008)	-0.036*** (0.008)	-0.029*** (0.008)	-0.027*** (0.008)	-0.025*** (0.007)
40-44	-0.025** (0.012)	-0.024** (0.012)	-0.016 (0.014)	-0.009 (0.017)	-0.003 (0.017)
<b>Age of first child (ref. group: 1-2 years old)</b>					
0 years old	-0.020* (0.011)	-0.031*** (0.009)	-0.030*** (0.008)	-0.028*** (0.008)	-0.026*** (0.006)
3-6 years old	0.044*** (0.014)	0.036** (0.015)	0.037** (0.015)	0.039** (0.015)	0.034** (0.014)
7 or more years old	0.045*** (0.015)	0.036** (0.015)	0.036** (0.015)	0.034** (0.015)	0.026* (0.014)
<b>Sex of first child (ref group: female)</b>					
First child is male	0.012* (0.007)	0.018** (0.008)	0.018** (0.007)	0.017** (0.007)	0.016** (0.007)
<b>Partner Information</b>					
Married			0.029** (0.014)	0.023 (0.014)	0.013 (0.014)
Partner's years of education			0.001 (0.001)	0.001 (0.001)	0.002 (0.001)
Partner currently working			-0.011 (0.014)	-0.007 (0.014)	-0.006 (0.013)
<b>Household Information</b>					
Housing size				0.017** (0.009)	0.019** (0.008)
Real Household Expenditure (in log)				0.007 (0.005)	0.009* (0.005)
<b>Child care</b>					
Number of days first child is in formal child care arrangement					-0.001 (0.002)
Rounds fixed effects	Yes	Yes	Yes	Yes	Yes
Settlement type fixed effects	Yes	Yes	Yes	Yes	Yes
Regions fixed effects	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.0851	0.0970	0.116	0.125	0.144
N	3,304	2,408	2,376	2,242	1,810

Source: Russia Longitudinal Monitoring Survey (RLMS), 2004-2012 waves.

**Note:** Marginal effects are reported, standard errors in parentheses; standard errors clustered by individual.

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