CAN MATERNITY BENEFITS HAVE LONG-TERM EFFECTS ON CHILDBEARING?

EVIDENCE FROM SOVIET RUSSIA

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This paper quantifies effects of a maternity benefit program in Russia on childbearing. The program provided one year of partially paid parental leave and a small cash benefit upon child's birth and was implemented in waves around the country starting in 1981. I exploit the program's two-stage implementation across regions in an event-study framework and find evidence that women had more children as a result of the program. Fertility rates rose immediately by approximately ten percent over twelve months. The increase in fertility rates not only persisted for the ten-year duration of the program, but it reflected large increases in higher parity births to older women.

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Introduction:

Low fertility rates accompanied by a rising elderly population are a concern for many developed countries because the increasing dependency ratio threatens the ability to finance Social Security benefits. [2] In response, 84 percent of developed countries offer subsidies or parental leave benefits to raise or sustain replacement fertility rates at an average cost of 2.6 percent of GDP (United Nations, 2013). For instance Germany spends nearly 100 billion dollars on family benefits per year.[3] Yet, the long-run effectiveness of these programs in increasing fertility rates remains an open question.

Existing literature provides convincing evidence of *short-run* positive effects of parental leave (Lalive and Zweimuller, 2009; Austria) and cash transfer programs (Cohen et al 2013 (Israel); Gonzalez 2012 (Spain); Milligan 2005 (Canada)) on fertility rates in developed countries. But the limited time-horizon of available data limits inferences about long-term effects.[4] This paper will focus on Soviet Russia, which is a valuable context to study because of its high female labor force participation, and widely provided and very affordable preschool education. Women's expectations that a government benefits program will stay in place for a long time, as well as early family formation and childbearing at young ages makes Russia a

[2] According to the 2013 CIA Factbook, the total fertility rate is below the replacement level of 2.1 in 113 countries. Population ageing is a major concern for 92 percent of developed countries, where 22 percent of the population was aged 60 years and over, and this population is already larger than the number of children under age 15 (United Nations, 2013).

[3] The average duration of parental leave was about 13 months in the countries that offered it, where the average replacement rate of full-time earnings was 42 percent if the woman took the full duration of leave (OECD 2011). In 2008, parental leave was unpaid in eight countries (Austria, Greece, Ireland, New Zealand, Portugal, Spain, Turkey, and the United Kingdom). The average duration of maternity leave is 4.5 months, where the earnings replacement rate is 70 percent.

[4] Milligan (2005) finds suggestive evidence that their short-term effect of a subsidy program on fertility rates is not purely due to a change in timing. But they are limited by comparing the number of children age 1 to 6 present in census years 1991 and 1996. Also, Lalive and Zweimuller (2009) find no longer-term effects on the probability of second birth when a future birth is randomly eligible for paid parental leave benefits, which is the relevant context from a policy perspective. However, they find suggestive evidence of longer-term effects when women who already have one child are more likely to progress to a second child if they randomly receive extra paid parental leave.

unique context to study the long-term effects of a benefit program.[5] Women may decide to have children sooner, where an increase in childbearing would reflect a transitory shift, if they receive a benefit that they believe is temporary, or if they were delaying childbearing due to liquidity constraints.

I exploit the two-stage introduction of a maternity benefit program (MBP) in Russia starting in 1981 to provide novel evidence of its effects on fertility rates in the short and long term. Similar to goals of programs in developed countries today, the maternity benefit program intended to increase fertility rates by providing "good conditions for population growth", to "ease the status of working mothers", and to "decrease the differences in standard of living depending on having children" (TSK KPSS, 1981). The program provided three types of new benefits for mothers: partially paid parental leave until a child turns one (20 percent of the average national monthly salary), unpaid parental leave until a child turns a year and a half, and birth credits at the birth of the first (30 percent of the average national monthly salary), second and third child (60 percent of the average national monthly salary).

The mother's benefit program first went into effect in 37 oblasts (states) and then in the remaining 51 oblasts a year later, which allows me to provide causal estimates of its effect on fertility rates. The similar evolution of fertility rates between the early and late adopters of the policy is documented using a flexible event-study specification (Jacobson, LaLonde, and Sullivan, 1993), which allows me to evaluate the dynamic effects of the policy over its duration. The fertility rate rises *immediately* after the program starts, and increases by approximately ten percent in the first twelve months. This increase in short-run fertility rates likely resulted from an

[5] The Soviet government never repealed a benefit program for mothers, and instead had a tendency to make the benefits more generous with time.

increase in completed childbearing. The increase in fertility rates persisted for the ten-year duration of the program – fertility rates were on average 20 percent higher. Children born after the maternity benefit program were more likely to have older siblings and older mothers. As a result of near-universal eligibility across Russia, I am able to study the long-run heterogeneity of responses to the program across the population, and find evidence that fertility rates increase by more in more rural and less educated areas.

This study finds one of the largest effects on short-run fertility rates – the elasticity of fertility rates with respect to a change in cost of a child is -3.5 – and is the first to find a large effect of a maternity benefit program on long-term fertility rates.[6] This is at odds with some authors who have argued that public policies have small or no effects on raising short and long-term fertility rates (Demeny 1986; Gauthier 2007; Cohen 2013). Papers on the United States focus on low income women to study effects of welfare policies on fertility rates, and find inconclusive evidence due to a large variation in results (Hoynes, 1997; Moffitt, 1998). The quasi-experimental literature finds great variation in its estimates of short-term elasticities of fertility rates with respect to costs and benefits.[7] I extend the Becker and Lewis (1973) model and find that these results are consistent with an ambiguous effect of an increase in subsidy on childbearing.[8] The large long-term effect on fertility rates of this study are different from findings from the most closely related study on parental leave expansion from one to two years in Austria (Lalive and Zweimueller, 2009). This is potentially because in Russia benefits were

[6] For my study I calculate the price elasticity of fertility rates with respect to changes in the cost (direct and opportunity) of having a child for the first 18 years after birth.
[7] Insert a list of elasticities by study measured in similar units.
[8] The observed income elasticity of fertility may be negative if the true income elasticity of quality is larger by enough than the true income elasticity of fertility. Moreover, the income elasticity of fertility may vary with income (Becker & Tomes, 1976) and the level of development (Galor & Weil, 1999).

expanded from a much lower level and program effects may differ depending on the previous level of benefits.

The paper provides strong evidence that labor market interventions and transfers can have a profound effect on both short-run and long-run childbearing behavior. Evidence on the behavioral responses to family benefits is important for the optimal design of fertility policy and sheds light on how institutions can influence fertility rates. Changes in childbearing can affect employment and children's outcomes in the short run and economic growth in the long run.

I. Russian Family Benefits

The Soviet government provided monetary incentives to encourage childbearing for many years. Before 1981, the major beneficiaries of family subsidies were families with many children or low income families. From 1947, women received a one-time payment beginning with their third child and monthly supplements until a child's fifth birthday beginning with their fourth child (PVS, 1947). From 1974, families with monthly per capita income below a threshold received monthly supplements for each child under the age of eight (PVS, 1974). These early benefits mostly benefited families that were already large. However, they did not provide incentives to an "average" family to have a second child.

The government also provided some benefits that applied to all working mothers. The most generous benefit was a fully-paid maternity leave of 56 days before and 56 days after birth Moreover, women could take an unpaid job-protected parental leave until a child turned one (Goskomtrud, 1970). Job protected leave was an important feature in the Soviet Union where women's labor force participation was high. In 1980, 51 percent of all workers were women.

However, these benefits did not provide financial support for women who wanted to stay home with their child for a longer period of time.

Maternity Benefit Program Introduction in 1981

In response to lower than desired birth rates and population aging, the government introduced an aggressive mother's benefit program in 1981 that provided benefits for most families. One of the new benefits that the program introduced was partially paid parental leave. Women received a flat amount of benefits which represented roughly 20 percent of the average national monthly salary.[9] Moreover, women could keep their job while staying home until their child turned a year and a half. The program also introduced a one-time birth credit which was about 30 percent of the average national monthly salary for first births, and 60 percent of the average national monthly salary for all higher parity births. The goal of the program was to subsidize lower parity births, because it left all previous benefits for high parity births unchanged.

Women who have worked for at least a year, as well as students regardless of work experience were eligible for the benefit.[10] Given the high female labor force participation and college going rates, the majority of women were eligible for the mother's benefit program.

Women probably expected these benefits to stay in place permanently, because the government never cancelled previous benefits and instead usually expanded them. In fact, in 1990 the government further expanded partially paid parental leave until the child turned 18

[9] Women received 50 rubles per month until the child turned one in Siberia, Far East and the Northern regions of Russia, and 35 rubles in the rest of Russia. Wages were higher in the regions with higher pay, so it was probably roughly the same for them in terms of the share of their salary. The benefit at the birth of the first child was 50 rubles, while the benefit at the birth of the second and third child was 100 rubles.

[10] Students from a wide variety of institutions could receive the benefit – universities, secondary special, professional-technical schools, clinical, and improvement of qualifications.

months, and unpaid leave until the child turned 3 years old. However, by 1990 the benefits that stayed the same in amount were quickly losing their value due to rising inflation and wages. Appendix figure 1, shows the value of the benefit in 1981 rubles from 1980 until 1992. In 1992, the benefit was worth almost nothing due to hyperinflation although I do not plot that year in the figure because of no consistent official statistics. Moreover, the government collapsed in 1992 which ended the benefit. Thus, the policy lasted about 10 years.

Roll-Out of Mother's Benefit Program

An important feature of the program is that it was implemented in waves around the country. On January 22, 1981 the government made the first announcement about its intention to introduce the mother's benefit program (TSK KPSS, January 1981). The program was to be implemented in waves around the Soviet Union where the Far East, Siberia and the Northern regions of Russia would receive the benefits first. The announcement stated that the first wave of regions would start receiving benefits in 1981, but did not provide information on the exact date of the start of benefit eligibility in the first or the subsequent waves. Figure 1 shows a map of the roll-out of benefits, and shows the population density of areas. About 10 percent of the population lives in the first wave of regions.

The introduction of these benefits was widely publicized in Russian newspapers, suggesting that women were aware of the details of this program. The first mention of the program was on December 2nd, 1980 in both major Russian newspapers, but it was buried among many other plans of the communist party for the next year (*Pravda*, 1980; *Izvestija*, 1980). There are several other articles that discuss these plans in more detail before and after the official announcement and mentions that they will be introduced in waves starting in 1981 (*Pravda*, 1981a; *Izvestija*, 1981a).[11] The newspapers also mention that they have received a lot of mail with positive reviews of the program, and one woman says that every house in her town is talking about the new project (*Pravda*, 1981b; *Izvestija*, 1981b).

A second announcement about policy implementation was published on September 2, 1981 (TSK KPSS, 1981 Sept), and appeared in a major newspaper shortly afterwards (*Izvestija*, 1981d). This time it stated that the first wave of regions would receive benefits starting on November 1, 1981. The second wave of regions consisting of the rest of Russia and Ukraine, Estonia, Latvia, Lithuania, Moldavia, and Belorussia would receive benefits on November 1, 1982. The third and final wave of regions consisting of Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan, Kirgizstan, Armenia, Azerbaijan, and Georgia would receive benefits beginning November 1, 1983.[12]

II. Expected Effects of Mother's Benefit Program

Introducing paid parental leave and birth transfers reduces directly the cost of having a child for working women. This can encourage the woman to have a child she would not have otherwise had leading to a long run increase in fertility. Or, women may decide to have a child earlier than planned because they don't need to accumulate savings for as long. This will result in a short-run increase in fertility. However, even if mothers simply give birth to intended

[11] The most detailed description of the law appears on March 31st in 1981 as front page news in both major Russian newspapers (*Izvestija*, 1981c; *Pravda*, 1981c).

[12] The timing of a woman's benefit eligibility depends on her location of permanent work or study and not on the place of birth of the child or residence. Only women who give birth after policy implementation are eligible to receive the one time birth transfer, while women can receive the monthly paid parental leave for the remaining months after implementation until the child turns one. For example, a woman who gives birth to her first child in November, 1981 in the early adopter regions receives 50 rubles as the birth transfer and twelve 50 ruble payments until her child turns one. But, a woman who gives birth to her first child in October, 1981 in the early adopter regions only receives eleven 50 ruble payments until her child turns one (TSK KPSS, 1982)

children earlier this may still increase completed childbearing. Women may not have the opportunity to have a desired child later if they experience an unexpected event such as a divorce, health problems, or an economic downturn.

The classical consumer model where parents maximize preferences $U(n, z)$ to choose between the number of children, n, and another consumption good, z, predicts that an increase in benefits (reduction in the price of a child) will increase the number of children. This is due to the combination of a positive substitution and a positive income effect. However, the quantity of children need not increase when their price declines once the model allows parents to choose both quantity *and quality* (Becker and Lewis 1973, Willis 1973) or endogenously choose mothers' time off of work. The next sections demonstrate these two simple extensions of the model.

Paid Leave with Endogenous Choice of Child Quantity and Quality

In fact, the new benefit may lead women to have fewer children or to delay childbearing due to the interaction of quantity and quality. Intuitively, if women invest more into their children because of the benefit (and thus produce children of a higher quality), then it may become optimal for them to have fewer children. I incorporate quality into the analysis similar to Becker and Lewis (1973), while modeling the cost of the number of children as the opportunity cost of the mother's time. Parents maximize the following utility function:

$$U = U(n, q, z)$$

where n is the number of children, q is their quality and z is parents' consumption of all other goods. Parents face a simple lifetime budget constraint:

$$\pi q n + t(w_f - a)n + \pi_z z = T(w_f + w_m)$$

where both the husband and wife can work for units of time T, while the wife receives w_f for her work and the husband receives w_m for his work. Parents pay π for a quality unit of a child, and pay π_z for a unit of the consumption good. I assume that only women take time off, *t*, to take care of the children, for which they receive a benefit, a, thus making the benefit-adjusted opportunity cost of childrearing $t(w_f - a)$. This model does not limit the length of time a mother can receive the benefit, but it is less than one year in the context I study.

This model predicts that the effect of the benefit on the number of children is ambiguous. This is due to the fact that the sign of the income effect on the number of children has an ambiguous sign once quality is incorporated. The income effect is negative if the true income elasticity with respect to quality is a lot larger than with respect to quantity.

Paid Leave with Endogenous Choice of Time Off

Interestingly, modeling the amount of time off from work mothers take, *t*, also results in an ambiguous effect of the benefit on childbearing. If the benefit allows women to take more time off from work to look after their children, then the increase in the opportunity cost of each child may lead women to have fewer children. In this case, households within a modified classical framework maximize preferences $U(n, t, z)$ subject to the budget constraint:

$$\pi n + t(w_f - a)n + \pi_z z = T(w_f + w_m).$$

This model predicts that the effect of the benefit on the number of children is ambiguous. This is due to the fact that the sign of the income effect on the number of children has an ambiguous sign once quality is incorporated. The income effect is negative if the true income elasticity with respect to time off from work is a lot larger than with respect to quantity.

Incorporating either the choice of quality or the choice of time off from work in the household's decision for the optimal number of children results in a theoretically ambiguous effect of the benefit on the number of children. This is due to the opposing income and substitution effects. This is important when explaining the magnitudes of the effects of these programs in different countries and contexts, because the magnitude of the income effect depends on the costs of quality and taking time off. For example, variation in the cost of education and the female wage profile across ages may explain the differences in the income effects and the elasticity of fertility rates to benefits across countries.

Heterogeneous Responses by Number of Children Before Program Start

Moreover, the income effect may play a larger role in determining the sign of the elasticity of fertility rates to benefits for women with no children compared to women with children before the policy. Women who have already reached their optimum number of children before the policy must have a non-negative elasticity, because they may not get rid of their previous children in order to have higher quality children. They may either stop childbearing, or have another child due to the increased incentives. On the other hand, women who have no children before the policy have the most room to negatively adjust their optimal number of children and to positively adjust their optimal child quality. Thus, this group of women may have the most negative income effect which may result in a negative elasticity manifested in a delay in having children and in lower completed childbearing. These conclusions are different from the classical model that does not include quality, where women with no children before the policy may have the greatest elasticity because they can receive benefits for all children.

To test whether the policy led to a change in timing of birth or a change in completed fertility, I examine birth rates by parity, the interval between births, as well as mother's age at birth. The one-time subsidy for the second child is fifty percent higher than for the first child, which may encourage women to have a second or third child. If first parity fertility rates do not change, while higher order fertility increases as a result of the policy, this provides evidence of an increase in completed fertility. This result may indicate that women did not simply have first births sooner, but had higher parity births they otherwise would not have had. If mothers give birth at older ages after the policy, this points to a permanent increase in childbearing.

Heterogeneous Responses by Education and Urban/Rural Status

I expect that some women may respond by more to the policy based on their income, the opportunity cost of their time, the length of leave they would have taken before the benefit, and the quality of a child they want to have. Women who would have taken a full year of leave when they had a child benefit the most financially from the provision of paid leave. Thus, it is reasonable to expect that these women are more likely to choose to have a child as a result of the policy. Women with a lower opportunity cost of having a child due to the nature of their work may adjust their childbearing by more than women with a higher opportunity cost. Women who prefer to have a lower quality child who requires less financial investments may also adjust their childbearing by more. Finally, I expect that low income women will respond more to the policy compared to high income women because the flat amount of the benefits results in a higher earnings replacement ratio for them.

To test these predictions, I compare fertility rates in areas with a larger share of rural women to areas with a larger share of urban women; I also compare fertility rates in areas with a larger share of less educated individuals to areas with a larger share of more educated individuals.

I expect women in rural areas to benefit the most from the policy and consequently adjust their childbearing the most. Rural areas in Russia had a shortage of preschool facilities compared to urban areas, which may lead women in rural areas to have to take longer leaves from work. Women in rural areas were mostly employed as manual laborers and were heavily underrepresented in the prestigious occupations of machine operators which required special training and skill (Bridger 1987). As a result, the nature of women's work was seasonal, which gave them greater flexibility in caring for a child compared to women in urban areas. In general, individuals in rural areas earned less than individuals in urban areas, which especially applied to women due to their prevalence in the most low-paying occupations.[13] Thus, the flat benefit represents a larger share of income for women in rural areas than for women in urban areas.

I expect less educated women to also benefit more from the policy. It may be less costly for less educated women to take long leaves, because they do not lose their skills while they are away from work. Also, the lower earnings of less educated women results in a higher replacement rate of the leave amount. On the other hand, the new benefit now provides job protection until a child turns 18 months. This protection may be more valuable to mothers with firm specific human capital (such as more educated mothers), because it is more costly for them to lose their job.

[13] According to reports in the yearbook "Narodnoe Hozjajstvo" in 1980 individuals in rural areas earned 10 percent less than individuals in urban areas.

III. Empirical Strategy – Effect of MBP on Fertility Rates

Data

The ideal data would include the number of births by month and by region. However, such vital statistics data are not published for Russia. I only have access to non-public data on the number of births by region and year for my time period of interest maintained by Russian Federal State Statistics Service (Rosstat). To construct month and region level estimates of fertility rates overall and by parity, I combine data from the 1989, 2002 and 2010 Russian censuses.[14] The details for fertility rate estimation using this procedure are in Appendix A. I will also use the 1979 Russian census data and the Generations and Gender Survey conducted in 2004 to analyze what types of regions and women gave birth before and after the mother's benefit program introduction. Appendix B provides a description of all the data-sets used in this analysis.

My estimate for the number of births using census data will provide an under estimate of the true number of births due to mortality and mobility. In the census, I do not observe children born in Russia, but who emigrated from Russia or died by the time of the census. However, I will be able to judge whether this misclassification error biases the estimates up or down, because I have official data by region as well. Using the 2002 Russian census data is valuable because it allows estimation of the monthly number of births. Moreover, using the 2010 Russian census data allows the estimation of the number of births by parity.

Expected Timing of Responses to Program Based on Roll-Out

[14] The census data is not micro-level, but table-level data which allows me to create counts of people with certain characteristics (e.g. counts within each region and a birth year).

I expect women to respond to the policy after the announcement in January, if the policy was effective at encouraging births. Women in the early adopter regions had advance notice about the benefit, so I expect them to change their childbearing decisions immediately. Thus, I expect the fertility rate in these regions to jump starting at the earliest from mid-October. Women knew that benefits will start in 1981 but did not know the exact date of start, so it is likely that they adjusted their childbearing decisions after the announcement in January, 1981. However, the adjustment will not be immediate if it takes women a period of time to get pregnant.

The behavior of women in the late adopter regions is less clear. They also had advance notice of the policy, but they did not know when their regions will start receiving benefits until September, 1981. They may have decided to postpone having children right after the announcement to collect the new benefits once they are established in their place of residence. This will result in a reduction of fertility in these regions from mid-October, 1981 through October, 1982. Alternatively, they may not have changed their childbearing decisions until the second announcement in September, 1981. Women may have decided to postpone having a child in September, which will result in a reduction in fertility from May, 1982 through October, 1982. However, the incentive to postpone was not as strong because they would still receive some benefits even if they gave birth before their region became eligible.

Descriptive Evidence on Fertility Responses using Regional Census Data

Figures 2 and 3 provide preliminary evidence about differential responses to benefit announcement by the early and late adopter regions. Figure 2 plots GFR using Vital Statistics data separately for early and late adopter regions. Early adopter and late adopter regions had similar trends in fertility rates before program start. However, the GFR in the early adopter regions jumps in 1981, while the GFR in the late adopter regions stays on the same trend and does not jump at that time. This indicates that women in the late adopting regions did not delay childbearing after benefits announcement. GFR in the late adopter regions only jumps after November, 1982. Figure 3 plots the difference in GFR between the early and late adopters for monthly data, and shows an immediate increase in the difference in November, 1981. In fact, this difference stays constant before policy implementation, jumps up during twelve months after implementation, and then goes back to its original level once the late adopter regions receive the benefits.

Difference-in-Difference Regressions in an Event-Study Framework (Short-Run Effect)

I exploit the staggered introduction of parental leave and child subsidy benefits to estimate the effect of the maternity benefit program on fertility. I use a difference in difference framework, where I compare the difference in fertility rates in regions that received the benefits first (early adopters) before and after the policy introduction (first difference) to the difference in fertility rates in regions that received the benefits second (late adopters) before and after the policy introduction (second difference). I conduct the analysis using both my yearly and monthly measures of GFR from Vital Statistics and Census data respectively. I also use monthly estimates of GFR by parity as outcome variables. Moreover, I use the event study framework (Jacobson, LaLonde, and Sullivan, 1993) which is a generalized difference-in-difference model where the early adopters are the treatment group, the late adopters are the control group and the post treatment period starts in the month the early adopters become eligible for benefits. Equation (1) models yearly data, while equation (2) models monthly data.

$$GFR_{o,y} = \alpha + \gamma_y + \sum_{t=1974}^{t=1979} \theta_y * T_o * 1(y=t) + \sum_{t=1981}^{t=1988} \pi_y * T_o * 1(y=t) + \delta_o + \varepsilon_{o,y} \qquad (1)$$

$$GFR_{o,y,m} = \alpha + \gamma_y + \gamma_m + + \sum_{t=1981, k=11}^{t=1982,\, k=10} \pi_{y(m)} * T_o * 1(y=t, m=k) + \delta_o + \varepsilon_{o,y,m} \qquad (2)$$

In equation (1), $GFR_{o,y}$ is the General Fertility Rate in oblast *o* and year *y*, γ_y are year fixed effects that capture changes in policy common to all regions within Russia , T_o equals one if an oblast was an early adopter (eligible to receive paid parental leave in November, 1981), and δ_o are oblast fixed effects that capture time-invariant oblast level differences. The definitions in equation (2) are similar to those in equation (1) with some exceptions. In equation (2), $GFR_{o,y,m}$ is measured in oblast *o*, year *y* and month *m*, γ_m are month fixed effects that capture systematic differences in fertility rates by month (seasonality effects). Equation (2) allows me to define the post treatment period for the early adopter regions more precisely, because 1() is a dummy for every month observation. This lets me estimate the treatment effect during the first year of program implementation more precisely. Additionally, the flexible evolution of fertility rates at the monthly frequency allows me to better identify the timing of fertility response.

The coefficients of interest are θ_y or $\theta_{y(m)}$ and π_y or $\pi_{y(m)}$ which capture the covariate-adjusted differences in GFR between the early and late adopter oblasts six years before and eight years after the first oblasts were treated. In equation (1), I omit the dummy for the year before benefit establishment, $1(y = 1980)$, which normalizes the estimates for θ_y and π_y to zero in 1980. In equation (2), I omit the whole period before benefit establishment.

The coefficients on θ_y test for differences between the early adopters and late adopters before the early adopters received benefits. If these coefficients do not change over time before program implementation, it indicates parallel trends in GFR in the two groups of locations. The coefficients on π_{1981} and π_{1982} capture the treatment effect of the policy on the early adopter regions when they were treated for two months, and when they were treated for a year. The coefficients $\pi_{1981(11)}$ through $\pi_{1982(10)}$ capture the treatment effect of the policy for each of the twelve months after policy implementation. The coefficients π_{1983} to π_{1988} capture the differences in GFR between both groups of locations once everyone is treated. If the late adopters also adjust their fertility rates, these coefficients will be muted compared to the coefficients π_{1982}.

Threats to Identification

If women in the late adopter regions delayed childbearing in response to policy announcement, it will introduce bias in the second difference and lead to an over estimate of the true effect of the policy. Thus, I test whether GFR in the late adopter regions falls in response to the announcement in January, 1981. I perform the following regressions for the sample of late adopter regions:

$$GFR_{o,y,m} = \alpha + \gamma_1 y(m) + \beta_3 post + \delta_o + \delta_m + \varepsilon_{o,y,m} \qquad (3)$$

The linear term in *y(m)* – time in months – accounts for any smooth fertility trends.[15] I also include month fixed effects, δ_m, to account for seasonality in births, *post* is an indicator that equals one during the period from November, 1981 to October, 1982. The coefficient of interest is β_3 which tests for a discontinuous change in GFR in the late adopter regions during the year when they are not eligible for benefits but the early adopter regions are. If this coefficient is zero

[15] The inclusion of higher order polynomials in y does not change my results.

or positive, then there is no evidence that the late adopter regions lowered their fertility in response to policy announcement.

For my estimates to capture the effect of the new family policy, nothing else should be changing discontinuously around the time of policy introduction. In particular, other things may not change discontinuously starting in November, 1981 in the early adopter regions, and they may not change discontinuously in November, 1982 in the late adopter regions. Given that to be a threat to the identification strategy, a policy, economic indicators or the composition of women must be changing in a particular order and in particular dates in the two sets of regions, it is unlikely that another change in policy or other factors are generating the treatment effects that I am observing.[16]

Before and After Analysis in an Event-Study Framework (Long-Run Effect)

To evaluate the long run consequences of the policy, it is important to examine whether fertility rates remained higher for the duration of the policy. I exploit the differential timing of the introduction of the policy in the early adopter and the late adopter regions within an event-study framework (Bailey, 2012). I estimate the following equations using Vital statistics data at the year level.

$$GFR_{o,y} = \alpha + \gamma_y + \delta_o + \sum_{t=-6}^{t=-1} \theta_t 1(t=y-y^*) + \sum_{t=1}^{t=6} \pi_t 1(t=y-y^*) + \varepsilon_{o,y} \qquad (4)$$

In this specification y^* is the year before people in a region were eligible to receive paid parental leave. y^* is 1980 for the early adopters or 1981 for the late adopters in equation 4. 1() is an

[16] I compare the evolution of several economic indicators in half of the oblasts (data available only on a subset of oblasts) in the first wave to the evolution of those variables in the rest of Russia. I find that all indicators visually stay on the same trend after implementation in the first wave of regions as well as nationally. These results provide evidence against specific changes in economic conditions in the early adopter regions at the time of policy implementation. The indicators I focus on are: growth of industrial product, production of oil, production of natural gas, and number of employed individuals.

indicator function and represents time (in 12 month intervals) relative to the introduction of paid parental leave, where t=0 is omitted.

The coefficients of interest are π_t which show the effect of the introduction of partially paid parental leave on fertility t years after implementation. The coefficient π_t when t=1 should be the smallest in equation 4, because in 1981 the early adopter regions while in 1982 the late adopter regions only received the benefit for two months. The flexible specification allows me to quantify changes in the policy effect for its duration and helps determine whether the policy induced short-term adjustments in fertility timing or long-term changes in completed fertility. Moreover, estimates of θ represent the evolution of fertility rates before the benefit start. These coefficients document whether pre-existing trends bias estimates of π, and whether the "effects" preceded the program.

For this analysis to measure the causal effect of the policy on fertility rates, the timing of the benefits in the early and late adopter regions has to be independent of previous fertility trends in those locations. The results will not be biased, if the government did not decide the order of benefits based on previous trends in fertility. My short-run analysis that compares the trends in fertility rates between the early adopter and late adopter regions tests this assumption. The government chose the order of treatment geographically, most likely based on fixed characteristics of regions, which makes the early adopter regions to differ from the late adopter regions. Thus, the inclusion of oblast fixed effects is crucial to account for any fixed differences across areas.

IV. Results – Estimates of Effect of MBP on Fertility Rates

Panels A and B in figure 4 present event-study estimates from specifications 1 and 2 for annual GFR using vital statistics and monthly fertility rates estimated using 2002 census. The results are weighted by the population of women aged 15 to 44 in 1980 in each oblast. The standard errors are clustered at the oblast-level to allow for an arbitrary correlation structure within oblast.

These covariate-adjusted results support the findings from and are directly comparable to the unadjusted series from figures 2 and 3 respectively. The results indicate that there is no difference in trend in the early adopter and late adopter regions six years before program implementation, where the point estimates for these years are individually not distinguishable from zero and follow a flat trend in panel A. Thus, potential bias is not due to variables correlated with long-run trends in fertility, but may only be due to factors that change at the same time as the policy.

Estimates in panel A imply that GFR, calculated using in the early adopter regions jumps by 6.7 births per 1,000 women of childbearing age in the first full year (1982) of benefits which is a 9.7 percent increase over a mean of 69.4 in the years before benefit introduction in the early adopter regions. Once the late adopter regions are eligible for treatment in November, 1982, the difference between the fertility rates of the early and late adopter regions shrinks. This indicates that the late adopter regions respond to the policy once they become eligible for it. Estimates of π in panel B using month-level data of figure 4 demonstrate an immediate response in fertility rates – during each of the twelve months after the policy introduction, GFR in the early adopter regions is generally higher than in the late adopter regions especially compared to the differences before policy start.

I also test whether the fertility rate in the late adopter regions changes discontinuously between November, 1981 and October, 1982. I find no evidence of this, because the coefficient on β_3 in equation 3 is positive and not statistically different from zero. This result is robust to the inclusion of flexible polynomials in time. This result suggests that women in the late adopter regions did not delay childbearing in response to the policy announcement, and thus are a good control group for women in the early adopter regions.

This short-term increase in fertility rates may be a result of two channels – women have desired children sooner, or women have children they would not otherwise have had. One test is to perform the analysis by parity of birth.

Effect of Policy on Fertility Rates by Parity

To further test whether the policy led to a permanent decline in childbearing, I perform the analysis separately for first and higher parity fertility rates. Figure 5 presents the results from specifications (1) and (2). Higher parity fertility rates in the early adopter and late adopter regions follow a parallel trend six years before program implementation, where the point estimates for these years are individually not distinguishable from zero and follow a flat trend in panel A. The higher parity fertility rate in the early adopter regions increases by 18.6 percent in the first year of benefit receipt. The late adopter regions respond to the policy after they become eligible for it; the difference between the fertility rates of early and late adopter regions shrinks and is positive yet not statistically significant once everyone is eligible for benefits. Estimates of π in panel B of figure 5 demonstrate an immediate response in higher order fertility rates – during each of the twelve months after the policy introduction fertility rate in the early adopter regions is higher than in the late adopter regions especially compared to the differences before policy start. However, first birth fertility rates do not appear to change after the policy (result not shown here).

Long-Run Estimates of Effect of MBP on GFR

Women likely had more children as a result of the policy if fertility rates stayed consistently higher for the duration of the policy. If women simply had intended children sooner, fertility rates should rise temporarily, but then fall below their previous levels. I test for the presence of long-run effects of the policy by estimating changes of fertility rates for the ten-year duration of the policy. My short-run analysis established that there was no difference in trend in fertility rates between the early and the late adopter regions. Thus, it does not appear that the government chose the order of benefits based on pre-existing trends in fertility rates. This supports the causal interpretation of the effect of the introduction of the policy on fertility rates for the duration of the benefits.

Figure 6 presents results from specification 4, where estimates of θ show the evolution of fertility rates conditional on covariates before new family benefits and show whether a preexisting trend may confound the estimates. Moreover, they also show whether effects preceded the treatment. Estimates of θ are individually statistically indistinguishable from zero in the six years leading up to the policy introduction. Thus, there is no evidence that differential pre-existing trends may bias this analysis. Panel A shows that the introduction of new family benefits is associated with a sustained increase in GFR for the duration of the policy. Panel B shows that the introduction of new family benefits is associated with a sustained increase in higher parity fertility rates for the duration of the policy, along with no change in first birth fertility rates. There is no evidence that differential pre-existing trends may bias this analysis, because estimates of θ display a flat trend in the six years before policy introduction. However, fertility rates for first births do not change as a result of the policy, evidenced by an absence of a jump in θ after policy introduction. These results suggest that women had more children as a result of the policy.

Composition of Mothers before and after MBP

Changes in demographic characteristics of mothers as a result of the program provide further evidence of a permanent effect of the family policy on women's childbearing decisions. Figure 7 presents the results from specification 4, where I use age of mother at birth, years since last birth and number of previous children at the time of birth as dependent variables.[17] Women who give birth 1 to 3 years after the policy are 2.3 percent older, have 30 percent more previous children, and waited 33 percent more years to give birth to their current child since their last birth than women who gave birth before the policy. Moreover, estimates of θ in figure 7 for six years leading up to the policy start indicate no difference in trend in women's characteristics before the policy. However, estimates of π increase sharply after the policy, which indicates that this policy is associated with the change in composition of mothers. These results rule out that fertility rates increased merely due to women having desired children sooner, and suggest that older women respond by deciding to have another child they may not have had before.

V. Empirical Strategy: Heterogeneous Responses to MBP

The family policy may result in heterogeneous responses in fertility for different subgroups of women. Women with a lower income and a lower opportunity cost of work may have more incentives to respond to the policy. To establish whether the effects of the family

[17] Time relative to treatment is 0 if birth year is 1981 for early adopters and if birth year is 1982 for late adopters.

policy are heterogeneous across women, I analyze whether more rural or less educated areas appear to respond more to the policy. My empirical strategy compares changes in fertility rates in areas where I expect women to benefit from the policy more to areas where the policy is less important following the methodology in Finkelstein (2007). My empirical specification is

$$GFR_{o,y}=\alpha+\gamma_{y}+\sum_{t=-7}^{t=-1}\theta_{t}*Z_{o}*1\big(t=y-y^{*}(m)\big)+\sum_{t=1}^{t=6}\pi_{t}*Z_{o}*1\big(t=y-y^{*}\big)+\delta_{o}+\varepsilon_{o,y} \quad (5)$$

where $GFR_{o,y}$ is GFR in oblast o and year y, γ_y are year fixed effects, and δ_o are oblast fixed effects. Z_o represents several variables at the oblast level measured in 1979 to be included in separate regressions: share of women age 15 to 44 in an oblast who are living in a rural area in 1979, share of individuals age 10 and older who have completed elementary education, and share of individuals age 10 and older who have not completed high school but have more than elementary education as of 1979. In these specifications y^* is the year before people in a region were eligible to receive paid parental leave. In equation 5, y^* is 1981 for the early adopter regions and 1982 for the late adopter regions.

The share of women in rural areas and the share of educated individuals are not randomly distributed across regions. Areas that differ in composition of residents may also differ in their level or growth of fertility rates. Thus, the empirical strategy tests for a break in any pre-existing differences in the level or trend of the fertility rate around the time of policy start. The identifying assumption is that without the policy change the differences before the policy change would continue on the same trends.

The coefficients of interest θ_t and π_t show the pattern over time in GFR in regions where the policy may have had a greater impact on fertility relative to areas where it may have had a smaller impact. Thus, the change in the trend or level of these coefficients after the policy start provides an estimate of the heterogeneous effects of the policy across different types of areas.

Figure 8 presents estimates of θ and π from equation 5 using estimates of GFR using vital statistics data. I perform separate regressions using two independent variables measured in 1979: share of women who are ages 15 to 44 living in rural areas, and share of individuals older than 10 with less than high school education. The time pattern of π presents changes in fertility rates after policy introduction in areas where I expect the benefits to have a larger effect on childbearing behavior relative to areas where I expect the benefits to have a smaller effect. The dashed lines indicate a 95 percent confidence interval for each coefficient.

Panel A of figure 8 demonstrates that the policy is associated with a greater response in fertility rates among rural areas compared to urban areas. The coefficients on θ are individually statistically indistinguishable from zero and follow a slight downward trend in the years leading up to benefit introduction. This indicates that before benefit establishment fertility rates evolve similarly or even increase by less over time in areas with a high share of rural women relative to areas with a high share of urban women. However, after program establishment the coefficients on π jump discontinuously, which indicates a larger increase in GFR in more rural areas compared to more urban areas. This discontinuous jump together with similar trends in fertility rates in more rural and more urban areas before policy start provide strong evidence that the new policy is associated with a larger response in fertility rates in more rural areas. After the initial jump, the GFR in more rural areas evolves similarly to the GFR in more urban areas for the first six years after program start. Seven to ten years after program start fertility rates in more rural areas compared to more urban areas remain higher than before the policy but they increase by less over time. This is consistent with benefits losing their value over time due to increasing inflation.

I provide evidence in panels B of figure 8 that areas with a higher share of less educated individuals have responded more to the policy. There is a similar evolution of fertility rates between areas with more educated and less educated individuals. However, after program start the coefficient on π jumps discontinuously which indicates a larger increase in GFR in less educated areas compared to more educated areas. The differential responses to the policy among more and less educated areas dissipate ten years after policy start when the policy ends.

Paid parental leave results in a reduction in the price of having a child, which may affect the number of children a woman has through income and substitution effects. Thus, an increase in fertility rates as a result of the policy reflects a positive substitution towards more children when they become cheaper and either a positive or negative income effect. Women in rural or less educated areas may experience both a larger substitution, and a larger income effect as a result of the policy. Thus, women in rural or less educated areas may adjust their childbearing by more due to either a positive substitution effect or a positive income effect. My findings probably result from a combination of these two effects, and provide novel empirical evidence about the relationship between income, the opportunity cost of a child and fertility.

VI. Conclusion

It is striking that women responded to the new family benefits so soon after the announcement. This indicates that women were constrained in having children by the difficulty of combining work with family, particularly right after having a child. Moreover, the typical contraception used can likely explain women's fertility responses. In the 1980s, women in Russia had limited access to and education on contraception. The most widely used method of fertility regulation was abortion (Popov, 1991). Thus, such immediate responses to the policy could arise from women deciding not to have abortions they would have had in the absence of the policy. One would expect that if women were using a contraceptive method that required medical help to remove or a waiting period until full fecundity, the adjustment of fertility rates would not be so immediate.

Low fertility rates are a concern for many OECD countries, who have implemented various family friendly policies. I find an immediate response in fertility rates after the introduction of paid parental leave and birth credits in Russia. Moreover, I find that effects on fertility persist in the long run. These results indicate that the policy affected both the timing and the number of children women had. This study provides an important contribution to a hotly debated topic about whether family policy can affect fertility. This paper provides credible evidence that a policy aiming to improve the work-life balance for working women was effective at providing incentives for women to have more children.

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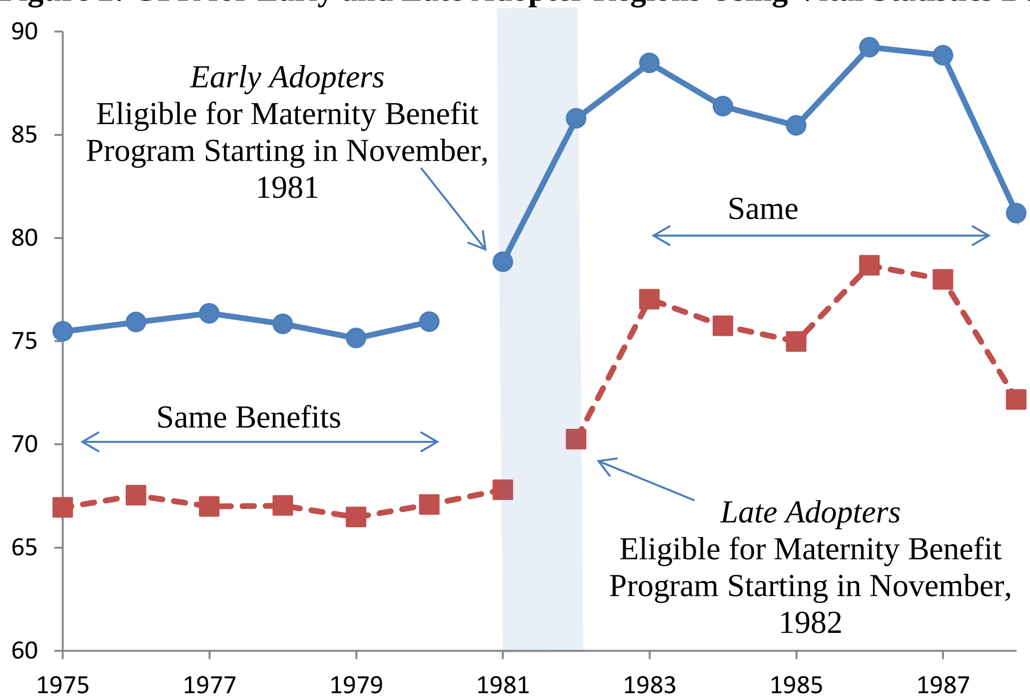
Figure 1: Map of Benefit Roll-Out Across Russia

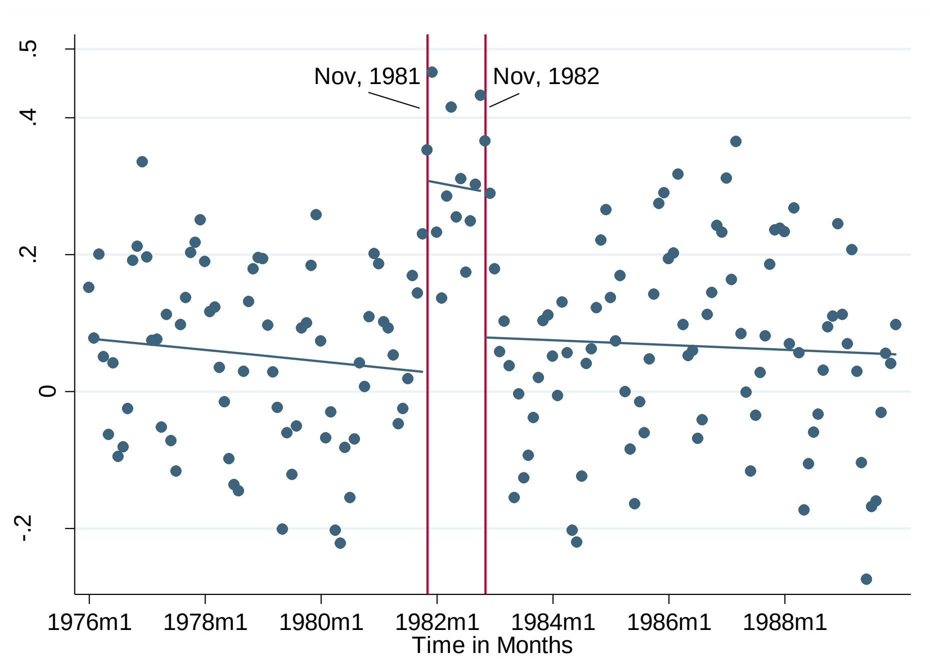
Notes: The regions in the shaded area (Northern, Siberia and Far East regions) received the benefits in November, 1981. The regions in the white area received the benefits in November, 1982.

Figure 2: GFR for Early and Late Adopter Regions Using Vital Statistics Data



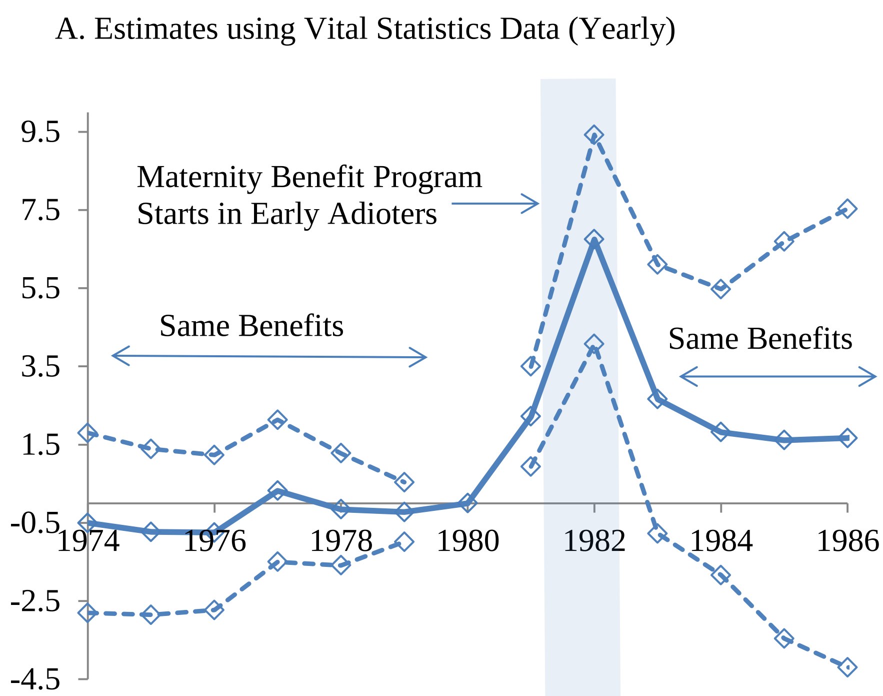
Source: Russian Statistical Agency (Rosstat).

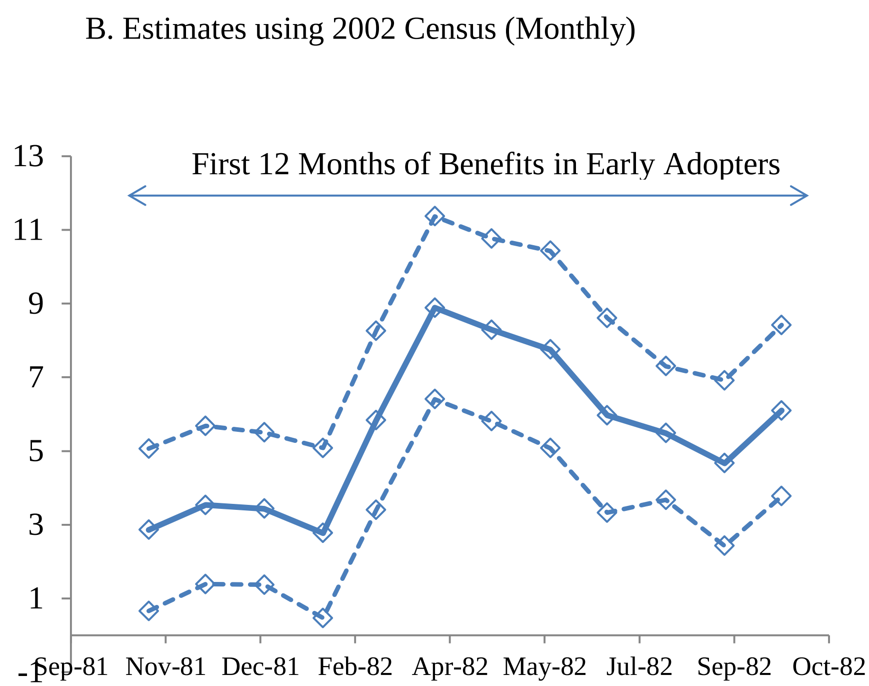
Figure 3: Difference in GFR between the Early and Late Adopter Regions Using 2002 Census Data



Notes: GFR early adopters – GFR late adopters. Month-level estimates of GFR are smaller than the year-level ones so are not comparable in magnitude. Source: 2002 and 1989 Russian Census.

Figure 4: Estimates of Effect of Parental Leave and Birth Credits on Short-Run GFR

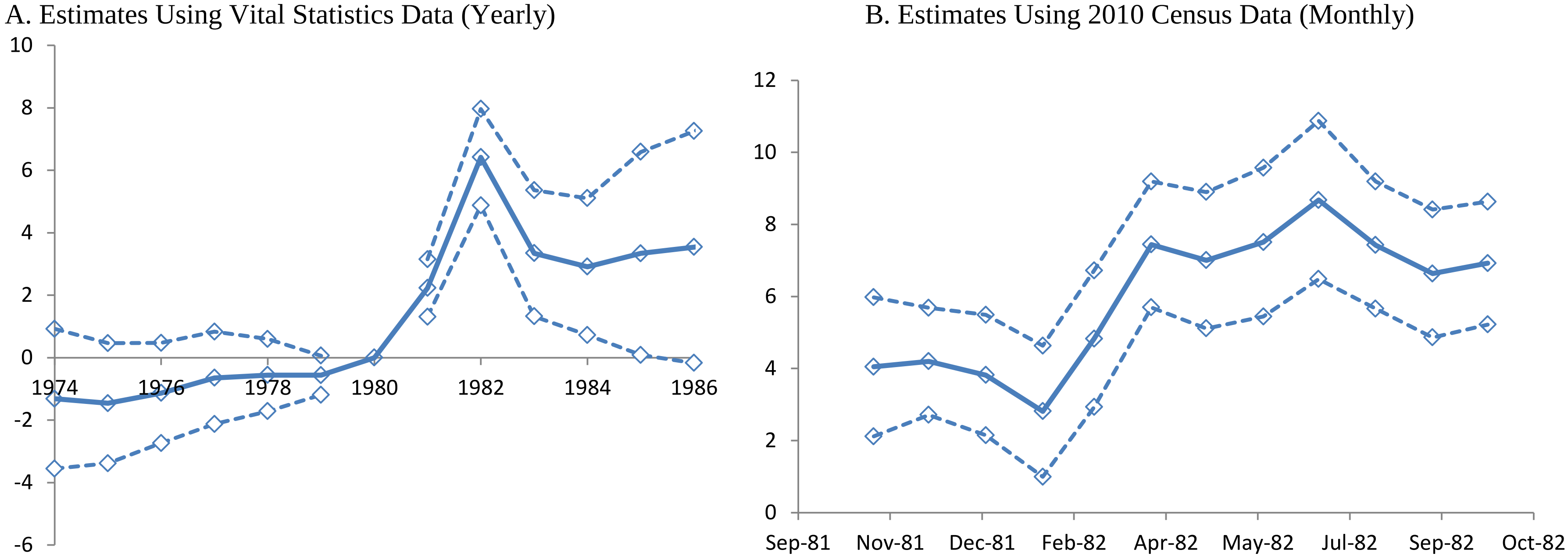




Notes: Panel A. I present θ and π from equation 1 using GFR (number of births per 1,000 women age 15 to 44) as a dependent variable. These coefficients represent the difference in GFR between the early adopters compared to the late adopters in each year relative to the difference in 1980. The coefficient on year 1981 presents the effect of the policy when the early adopters received benefits for 2 months, while the coefficient on year 1982 presents the effect of the policy when the early adopters received benefits for the whole year. The model includes year and oblast fixed effects. Weights are the number of women who are ages 15 to 44 living in an oblast in 1980. Heteroskedasticity-robust standard errors clustered by oblast construct 95-percent, point-wise confidence intervals (dashed lines). Source: Rosstat

Panel B. I present θ and π from equation 2 using GFR as a dependent variable. I use monthly GFR constructed using 2002 Census data to estimate the number of births, and multiply it by 12 to match the scale of annual GFR in panel A. These coefficients represent the difference in GFR between the early adopters and the late adopters in each month (November, 1981 to October, 1982) relative to the difference in the years beforehand, which is 0 by construction. The model includes year, oblast, and month fixed effects. The vertical dashed lines are drawn at November, 1981 and October, 1980. Weights are the number of women who are ages 15 to 44 living in an oblast in 1980. I use heteroskedasticity-robust standard errors clustered by oblast. Sources: 1989 and 2002 Russian Census

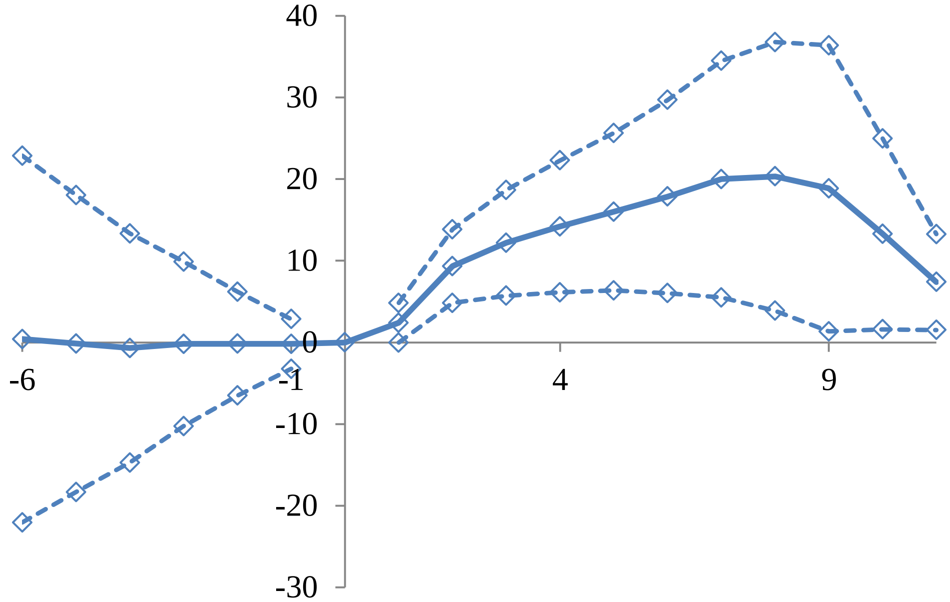
Figure 5: Estimates of Effect of Parental Leave on Short-Run Higher Parity Fertility Rates Using 2010 Census Data



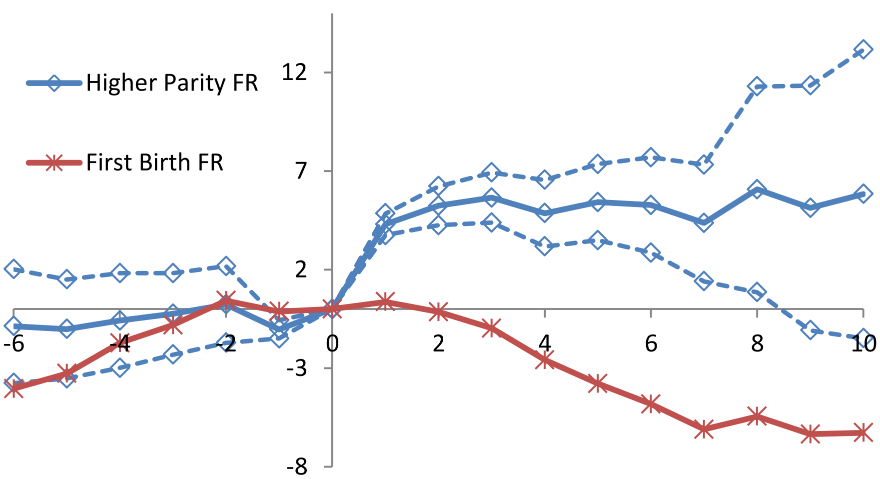
Notes: For panels A and B, see notes for panel A in Figure 5. Fertility Rates for higher order births are calculated as the difference between all births and first-births in the census per thousand women age 15-44. Sources: 2010 Census, 1989 Census.

Figure 6: Estimates of the Effect of Family Policy on Long-Run Fertility Rates

A. GFR



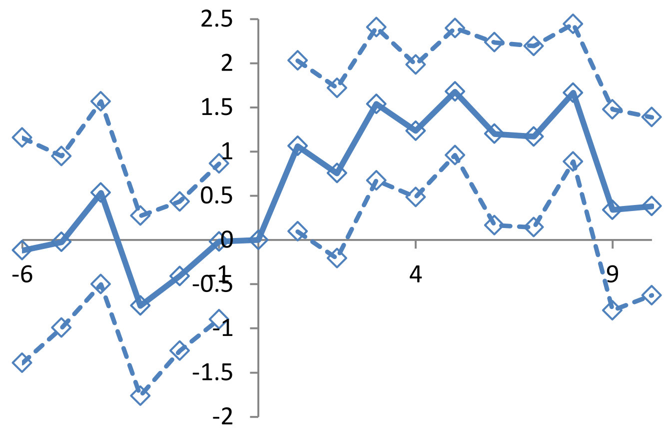
B. Fertility Rates by Parity (using 2010 Census)



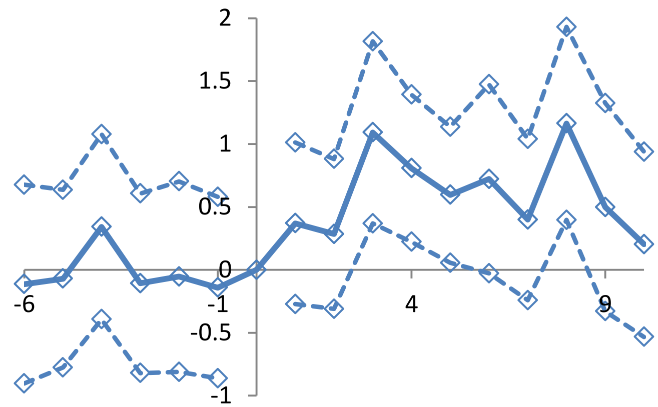
Notes: I present θ and π from equation 4 using GFR (number of births per 1,000 women age 15 to 44) as a dependent variable in panel A, and parity-specific fertility rates in panel B. These coefficients show the evolution of fertility rates conditional on covariates before and after the introduction of family benefits. Weights are the number of women who are ages 15 to 44 living in an oblast in 1980. Heteroskedasticity-robust standard errors clustered by oblast construct 95-percent, point-wise confidence intervals (dashed lines). Source: 1989 Russian Census, 2010 Russian Census, Rosstat

Figure 7. Estimates of Effect of Family Policy on Demographic Composition of Mothers

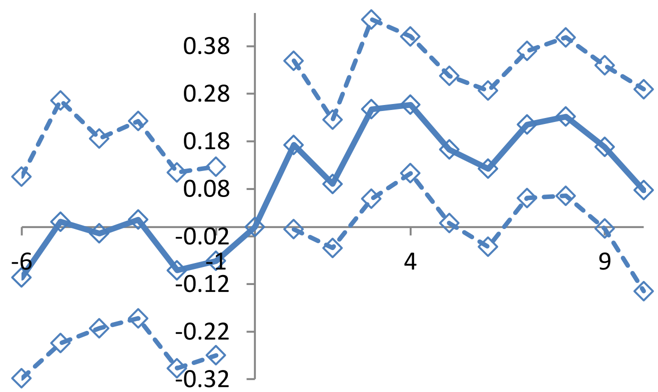
A. Mean Mother's Age at Birth



B. Mean Interval From Previous Birth



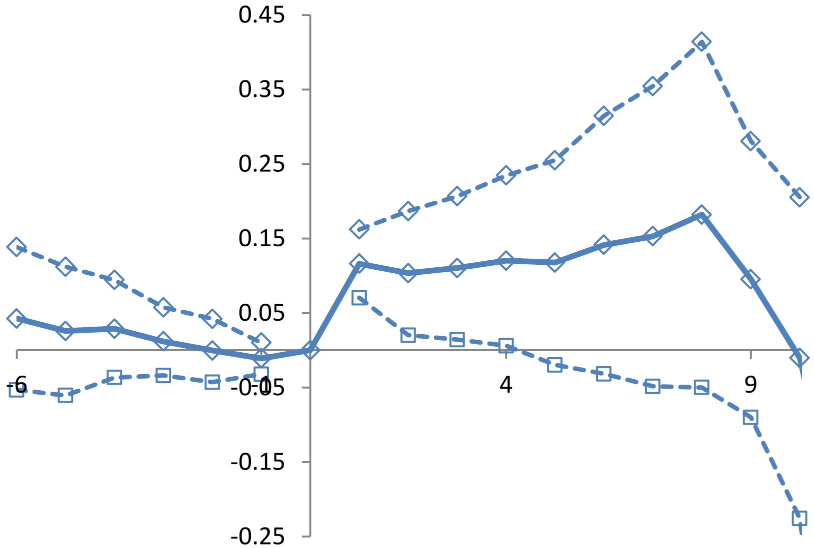
C. Mean Number of Older Siblings of Child



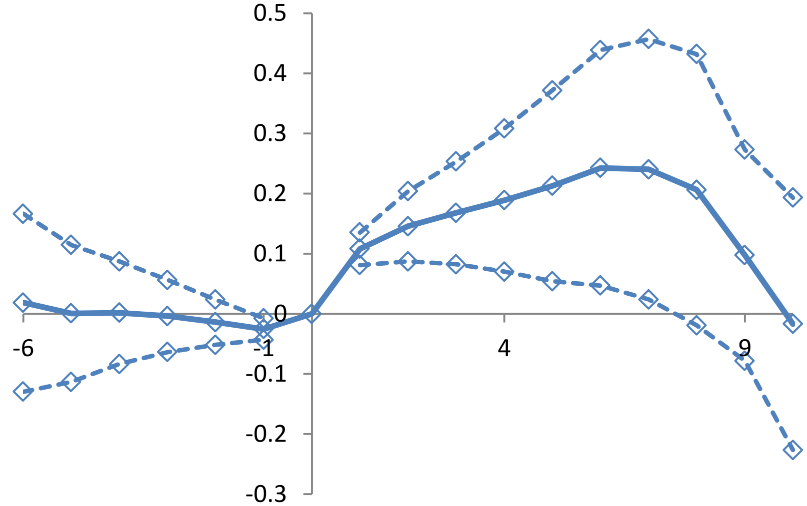
Notes: I present θ and π from equation 4 using mother's demographic characteristics as dependent variables. These coefficients show the evolution of demographic composition of mothers conditional on covariates before and after the introduction of family benefits. Years since treatment = 0 if birth year = 1981 in early adopters, and if birth year = 1982 for late adopters. The coefficient on years since treatment = 0 is normalized to zero. Source: Generations and Gender Survey

Figure 8: Heterogeneous Responses of GFR to the Family Policy for Different Types of Areas

A. Share of Women Age 15 to 44 Living in Rural Areas



B. Share of Individuals with Less than High School Education



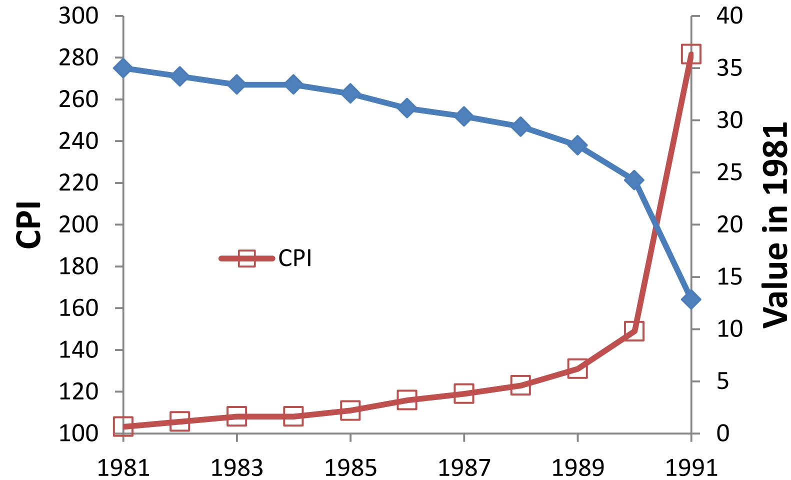
Notes: I present θ and π from equations 5 using GFR as a dependent variable and interacting event study dummies with an oblast level characteristic (share of women age 15 to 44 living in rural areas; share of individuals with less than high school education) as reported in the 1979 census. The coefficients show the pattern over time in GFR in regions where the policy may have had a greater impact on fertility relative to areas where it may have had a smaller impact. Sources: 1979 Census, 1989 Census, 2002 Census

Table 1. Effect of Paid Parental Leave on Characteristics of Mothers

	Age at Birth	Number of Children Before Birth	Interval From Previous Birth
Years 1 to 3	1.585	0.231	0.899
	[0.322]	[0.0615]	[0.207]
Years 4 to 6	2.089	0.219	1.191
	[0.432]	[0.101]	[0.272]
Years 7 to 10	1.799	0.23	1.368
	[0.578]	[0.146]	[0.438]
R-squared	0.041	0.04	0.036
Oblasts	69	69	69
Observations	4,457	4,457	3,327
Mean Dep Var	24.85	0.782	2.723

Notes: This table summarizes the magnitudes of event-study estimates using equation 4 and their joint significance in a difference in difference model. However, the unit of observation is an individual (it was oblast in previous analysis). Years 1 to 3 is a dummy for up to three years after policy start; Years 4 to 6 is a dummy for 3 to 6 years after policy start; Years 7 to 10 is a dummy for 7 to 10 years after policy start. The omitted category is 7 to 0 years before policy start. Source: Generations and Gender Survey

Appendix Figure 1: CPI and Value of the 35 Ruble Benefit in 1981 Rubles



Notes: I plot estimates of the Consumer Price Index, and the value of the 35 ruble benefit (which did not change) in 1981 rubles using inflation rates estimated from the CPI. CPI could no longer be estimated consistently in 1992 due to hyperinflation. The value of the benefit can safely be assumed as 0 in 1992.
Sources: Handbook of Economic Statistics 1986, 1990, 1991, 1992 (published by the CIA)

APPENDIX A

Estimation of Fertility Rates Using Census Data

To estimate fertility rates, it is important to have information on the number of women of childbearing age. Information on the age structure of the population by region is only published in the decennial censuses. The 1989 census data is the closest to policy start, compared to 2002 and 2010 census data, and should be the least affected by misclassification error due to mortality and mobility. Only individuals who have not died or moved out of the country appear in the census, thus the number of women of childbearing age calculated using 2002 census data will underestimate the true number of such women. The 1989 census data provide counts of men and women in one year age groups by region of residence as of January, 1989. I estimate birth year using age in 1989 as 1989-age-1, because the census took place between January 12 and January 19 in 1989. This calculation will only understate the birth year of people born between January 1st and January 11th. I use these data to backward-estimate the number of women each year (from 1976 until 1988) who are of childbearing age – ages 15 to 44. For instance, the number of women who are age 15 to 44 in 1979 is the same as the number of women who are age 25 to 54 in 1989.

My main outcome of interest is the General Fertility Rate (GFR) which is the number of births per thousand women of childbearing age. I estimate GFR in year *y* and region *o* as the number of children born in year *y* (except those who were born dead), in oblast *o* as recorded in Rosstat data per thousand women aged from 15 to 44 in year *y*, and living in oblast *o* in 1989 as recorded in the 1989 Census.

$$(a)\ GFR_{y,o}^{1989} = \frac{Number\ of\ Births_{y,o} * 1000}{Number\ of\ Women\ Age\ 15\ to\ 44_{y,o}\ from\ 1989\ Census}$$

I estimate the GFR in month *m*, year *y* and region *o* as the number of children born in month *m*, year *y* and oblast *o* and present in Russia in the 2002 Census per thousand women aged from 15 to 44 in year *y*, and living in oblast *o* in 1989 as recorded in the 1989 Census.

$$(b)\ GFR_{m,y,o}^{2002} = \frac{Number\ of\ Births_{m,y,o}\ from\ 2002\ Census * 1000}{Number\ of\ Women\ Age\ 15\ to\ 44_{y,o}\ from\ 1989\ Census}$$

In my analysis comparing the effect of the program on first and higher parity births I will construct fertility rates (FR) by parity. I estimate fertility rates for first births in month *m*, year *y*, and region *o* as the number mothers born in oblast *o* and present in Russia during the 2010 Census who report that their first child was born in month *m*, and year *y* per thousand women aged from 15 to 44 in year *y*, and living in oblast *o* in 1989 as recorded in the 1989 Census.

$$(c)\ FR(1^{st}\ Birth)_{m,y,o}^{2010} = \frac{Number\ of\ First\ Births_{m,y,o}\ from\ 2010\ Census * 1000}{Number\ of\ Women\ Age\ 15\ to\ 44_{y,o}\ from\ 1989\ Census}$$

Second, I estimate fertility rates for all higher parity births in month *m*, year *y*, and region *o* as the total number of births in month *m*, year *y*, and region *o* minus the number of first births estimate used in (c) per thousand women aged from 15 to 44 in year *y*, and living in oblast *o* in 1989 as recorded in the 1989 Census.

$$(d)\ FR(Higher\ Parity\ Birth)_{m,y,o}^{2010} = \frac{(Number\ of\ Births - Number\ of\ First\ Births)_{m,y,o}\ from\ 2010\ Census * 1000}{Number\ of\ Women\ Age\ 15\ to\ 44_{y,o}\ from\ 1989\ Census}$$

APPENDIX B

Data Description

Data Source	Type	Description
1989 Census	count data	counts of persons living in Russia in 1989 by age, sex, and oblast of residence
2002 Census	count data	counts of persons living in Russia in 2002 by birth year, birth month and oblast at birth
2010 Census	count data	counts of persons living in Russia in 2010 by birth year, birth month and oblast at birth; counts of women present in Russia in 2010 by birth year and birth month of their first child, and by oblast at birth.
1979 Census	count data	counts of persons living in Russia in January, 1979 by age, sex, oblast of residence, and by urban/rural status of the oblast; counts of persons living in Russia in January, 1979 who are older than 10 by education categories (only elementary, incomplete high school, complete high school, incomplete college, complete college).
2004 Generations and Gender Survey	micro-level data	The sample of roughly 11,000 individuals aged 18 to 79 which is representative of Russia. These data contain information on age, sex, birth year of every child, start and end date of marriages, and the total number of children.