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The Importance of Job Characteristics to Women's Fertility Intentions and Behavior in Russia

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The Importance of Job Characteristics to Women's Fertility Intentions and Behavior in Russia*

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Abstract: We assess whether a relationship between employment conditions and fertility exists in the low-fertility context of Russia. Using multiple data sources, we study both intentions and transitions to the first and second birth. Occupational characteristics appear more related to the timing of entering parenthood than to having a second birth. Differences by occupational branch were few, but we find evidence that family-friendly job characteristics influence first and second intentions and conceptions. Attitudes toward work and family roles do not mediate this relationship. Women who change occupational branches after entering parenthood are less likely to continue childbearing.

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I. Background

Increasing women's employment and fertility rates are both primary political goals of ageing European states, including Russia. As women have increasingly taken on the dual roles of earner and carer in the household, a central theme in discussions surrounding women's fertility and employment is how easily these dual roles can be combined. The extent to which employment security, parental leave and child care are provided or regulated is decided at the national level and comparative international research has demonstrated links between national family policies and fertility indicators (Billingsley & Ferrarini *in press*; Castles 2003; Kalwij 2010). However, Dulk and Peper (2007) identified a "gap between policy and practice" and suggest that organizations and sectors differ in terms of work-life policies, particularly those related to childbearing and childrearing. Research on employment industries/branches and fertility has long considered certain branches to be more "family-friendly" than others in the degree to which work conditions allow women to more easily meet work and family demands. In this paper we observe how fertility intentions and outcomes vary across women working in different occupational branches or with different job characteristics.

We locate this study in the context of Russia, where low fertility is a pressing issue and work has been a central part of women's lives for many years. The labor market in Russia dramatically changed after 1991; a shift from heavy manufacturing, construction and agriculture toward more personal services, trade and high skilled work (Gerber 2012) also entailed a shift in the share of public vs. private employers, flexibility of work schedules, and the loss of employment security and firm-provided social benefits in many industries, such as child care (Fajth 1999). We explore how employment characteristics vary across branches and assess whether job-specific benefits and conditions are related to childbearing decision-making in Russia.

We analyze two stages of fertility decision-making: fertility intentions and actual childbearing. The behaviors that lead to having or not having a child result from a sequence of

states (Miller 2011). Fertility desires, intentions and proceptive or contraceptive behavior are distinct stages in which norms and personal preferences are antecedents in the process; both stable and new perceived constraints can create temporary or permanent dissonance between desires, intentions and behaviors (Ajzen 1991; Miller 1994). Although fertility intentions are a strong predictor of childbearing (Schoen et al. 1999; Testa and Toulemon 2006), the gap between average intended family size and fertility rates indicates that intentions are not always realized and disparities at the individual-level indicate that intentions are not reliable predictors (Morgan 2001; Morgan and Rackin 2010). We study both outcomes to better understand the demand for children and the determinants of having children.

II. Occupational branches, job characteristics and fertility

Research on fertility in wealthy Western countries has increasingly focused on how women's employment over the life course is related to fertility. One branch of research has focused on labor market tenure and generally shows that women are more likely to enter parenthood once they have a few years of work experience (Nicoletti and Tanturri 2008; Kravdal 1994; Hoem 2000; Santow and Bracher 2001; Billingsley et al. 2012). Another branch of research seeks to identify how work conditions or characteristics are related to fertility decisions, measured through specific industries/sectors (Barakat & Durham 2012), firm ownership (public vs. private) (Adsera 2011; Billari et al. 2009), occupational sex-composition (Desai & Waite 1991; Kaufman & Bernhardt 2012), occupational class (Billingsley 2011; Ekert-Jaffé et al. 2002), and work schedule (part-time vs. full-time) (Del Boca 2002; Francesconi 2002; Desai & Waite 1991; Budig 2003). Theoretical links have been made between childbearing and family-friendly work cultures, career prospects, earnings, social status, penalties related to leave-taking, and non-pecuniary benefits. At the heart of many of these discussions is the "reconciliation" issue: the ease with which women can reconcile the demands of work and family is relevant to their employment and fertility choices.

Reconciliation of work and family demands can be facilitated at three levels: the institutional level, the firm level and the family level. In this study, we explore the firm level because the conflict between family and work demands may vary for women depending on their employment situation. Work culture and work conditions may alter the uptake or supply of statutory family-related benefits. Dulk and Peper (2007: 56) propose two dimensions of organizational work-life culture that can influence whether employees make use of work-life provisions: First, managers, co-workers and the organization offer varying degrees of support for making use of the policies. The second dimension refers to the barriers workers face such as the demands of one's career. A high concentration of women in a work place has often been interpreted as indication of a family-friendly workplace culture. However, Glass and Camarigg (1992) pointed out that gender segregation and the concentration of women in certain jobs do not necessarily mean more opportunities for women to combine work and family life in the US; female-dominated jobs are characterized by less compatibility, such as schedule flexibility. Likewise, the findings by Desai and Waite (1991) and Budig (2003) do not support the idea that women who are interested in beginning a family choose employment in predominantly female occupations.

Research on employment characteristics and fertility has often relied upon indirect measures such as occupational branch, female-dominated workplaces or whether employment is in the public or private sector. A related field of research is how educational fields or study disciplines influence childbearing. Many of these studies found a positive association between fertility and studying to work in health and education (Hoem et al. 2006; Neyer and Hoem 2008; Lappegård and Ronsen 2005) as well as actually working in these branches (Lappegård 2002; Spielauer 2005; Martín García 2010). These branches have been characterized as having flexible schedules and more possibilities for taking time off to be at home with a child (Desai and Waite 1991). On the other hand, Barakat and Durham (2013) found little variation among women working in different industry groups in terms of number of children ever born or the share of

women who remain childless. Notably, the post-socialist countries that were included (Hungary, Romania and Slovenia) appeared to have even less variation in fertility patterns by industry group.

Public sector employment in general is thought to provide flexible work conditions, including part-time opportunities, flexible work schedules and absence allowance (McDonald 2005). The importance of public sector employment for women willing to combine motherhood with employment has been argued to be particularly evident in Scandinavian countries (Esping-Andersen et al. 2002). Large public sector employment and the availability of part-time or flexible schedules appear to be positively related to fertility decisions more widely across European countries as well (Ariza, et al. 2003; Adsera 2011; Conti and Sette 2013).

Type of contract is another indirect measure of job protection and potential access to employment-related social benefits. It can be interpreted in terms of insecurity or uncertainty (Bernardi, Klärner, and Von der Lippe 2008). Job insecurity may suppress fertility, because workers will delay childbearing until finding a stable job with a permanent contract, while uncertainty may have a neutral or even positive effect on fertility if childbearing is associated with a reduction of uncertainty (Friedman, Hechter, and Kanazawa 1994; Kohler and Kohler 2002). Empirical studies have found a positive association between permanent contracts and entering parenthood in Italy, Spain and France (de la Rica and Iza 2006; A Pailhé and Solaz 2011; Vignoli, Drefahl, and De Santis 2012) and the transition to a second birth in Europe (Adsera 2011).

More direct measures of job characteristics have also been studied. Having the flexibility to manage one's own schedule as well as to work part-time may allow women to combine employment and parenthood with less conflict. However, Ariza (2003) found that part-time employment is conducive to work-family conciliation only in some contexts across Europe (notably Belgium, Ireland and the Netherlands). Research based on US data did not confirm a

difference between full-time and part-time jobs in their effect on fertility (Budig 2003). Similar findings exist for Spain (Martín García 2010).

Publically available childcare plays an important role in facilitating mothers' return to the labor market after childbearing. The accessibility of childcare can be influenced by employment conditions, such as whether employers arrange childcare facilities (Dulk & Peper 2007) and the type/flexibility of the work schedule.

Interdependence of employment and fertility choices

Women's employment situation and childbearing decisions are the outcome of a series of decisions and considerations we assume women undertake, as well as external constraints. Women have long been expected to have fixed preferences toward work and having children (Heckman and Willis 1977) as well as preferences about when they enter parenthood. Therefore, evidence that job characteristics are related to childbearing decisions may indicate that women sort themselves into jobs based on their childbearing plans or preferences. Budig (2003) shows that job characteristics are more important to how fertility influences employment than how employment influences fertility. On the other hand, it may also be that preferences change over the life course; in particular, new mothers may experience a decline in work commitment that is temporary (Evertsson 2013). Women may also adjust their preferences as a result of the learning experience of entering parenthood (Billingsley & Ferrarini *in press*; Brewster & Rindfuss, 2000; Stolzenberg & Waite, 1977; Neyer et al., 2011). But even before having a child, women may become more able to assess or imagine how family and work aspirations may conflict as they build their career. Changing preferences may partially explain the dissonance we observe at different moments in the life course between intended family size, fertility desires, parity-specific intentions, and fertility behavior/ outcomes. More importantly, they emphasize what emerged in the findings of Budig (2003): employment and fertility processes are interdependent and their influence shifts over time.

Besides choosing employment that reflects preferences toward career and childbearing, interdependence may be behaviorally demonstrated in two ways: Women may 1) choose a job in which breaks in employment are not penalized, allowing easy exit and re-entrance to the labor market to accommodate fertility plans (Desai & Waite 1991); 2) change employment circumstances to accommodate future fertility plans based on adjusted knowledge or preferences. Attitudes toward work and employment may also offer insight into this interdependence at different moments in a woman's life course (Desai & Waite 1991; Budig 2003).

III. Women's Employment and Fertility in Russia

Labor force participation has declined since the Soviet era, with more women leaving paid employment than men. However, female labor force participation remains high relative to other economies in transition (Linz and Semykina 2008). In 2010, 76% of women of active ages (16-54 years old) were either employed or unemployed. The activity rate for women aged 20-24 years old was 57%; and for women aged 25 to 44 – more than 80% (91% for those aged 40-44) (Rosstat 2011).

Unlike other transition economies, Russia demonstrates a peculiar model of labor market adaptation to macroeconomic shocks through keeping employment relatively high, but with greater flexibility of working hours and high elasticity of wages (Gimpelson and Kapeliushnikov 2011; Linz and Semykina 2008; Boeri and Terrell 2002). This entails high levels of labor turnover, of which voluntary exits constitute a significant part of all separations (Boeri and Terrell 2002; Gimpelson and Kapeliushnikov 2011). Due to a lack of "return" to job tenure in terms of earnings, workers are not rewarded for developing job-specific human capital and quit jobs easily. Moreover, in the 1990s workers that were young and female were often inclined to take private sector jobs that did not involve their previous skills (Clarke and Kabalina 2000).

Economic transformation has also caused serious structural changes in the Russian labor market (Gerber 2012). A clear shift from employment in industry, construction and agriculture to

the service sector occurred; the proportion of workers employed in the private sector has risen from 9.6% in 1980 to 46.1% in 2000 and 58.8% in 2011 (Rosstat 2004; Rosstat 2012). Not surprisingly, employment continually shifted from large and medium enterprises to small firms and self-employment, which caused a growth in informal jobs and nonstandard employment (Gimpelson and Kapeliushnikov 2011; Brown et al. 2006).

Large societal and economic transformation, however, did not change gender stereotypes about typical 'male' and 'female' jobs or gender segmentation in the labor market (Ogloblin 1999; Ogloblin 2005; Gerber and Mayorova 2006). As in Soviet times, education and health care workers are predominantly female; women also prevail in different services and trade, whereas they constitute only a small fraction of workers employed in construction, transport and heavy industries. Women are often unskilled workers, low- or medium-level white collar workers (clerks) and professionals, particularly in low paid 'budgetary' (public) sector. Greater prevalence of women in low-level, lower paid jobs typical of the Soviet economy has even increased during the transition (Ogloblin 2005; Gerber and Mayorova 2006).

The socialist economy produced mainly standardized, full-time jobs (Drobnič 1997; Buckley 1981) and so does the Russian economy. Most women, even those with several children, work on a full-time basis (Pailhé and Sinyavskaya 2010). However, women on average work less than men for two reasons. First, some so called full-time jobs officially provide shorter than average working hours (e.g. in education, in health care, etc.). Second, women tend to work fewer hours than men during economic crises (perhaps involuntarily). Nevertheless, the share of women employed less than 31 hours per week has never exceeded 10% of all working women, which is rather low by international standards. Combined with an unequal gender distribution of household chores and childcare (Blum et al. 2009), working full-time creates a 'double burden' for Russian women, which might negatively impact fertility behavior.

With women employed mostly full-time, availability of other reconciliation instruments assumed even greater importance. Since late in the Soviet era, two main reconciliation policies

were public childcare and maternity/parental leaves, which allow women to care for their children for a certain period of time without losing their jobs (see Teplova 2007; Gerber and Perelli-Harris 2012). Although family policies were introduced by governments, availability of many family-related benefits and variation in the quality of formal childcare was strongly related to employment status and firm characteristics in the USSR (Teplova 2007). In the 1990s, most kindergartens were either closed or provision shifted from employers to municipalities. However, firm and job characteristics can still produce some variation in the access to different reconciliation instruments. While childcare may not be provided in or near the workplace, industry-specific provision continues in the form of childcare subsidies or preferential treatment through short-listing women who are in the queue for childcare (e.g., civil servants, military personnel, police, teachers).

In addition, although all employed women should have a statutory right to paid leave when their children are less than 18 months, Russian employers may violate this legislation by firing pregnant women or forcing them to return to their jobs earlier. Much research has confirmed a deterioration of job rights during the development of the private sector in Russia, including reimbursement of sick leave or maternity/parental leaves (Clarke and Kabalina 2000; Liborakina 2001; Linz and Semykina 2008)[1]. According to Linz and Semykina (2008), the perception of job insecurity is lower among teachers, nurses, social workers, managers and professionals.

Russia experienced a sharp decline in fertility following the beginning of the economic transition (Zakharov 2008): the total fertility rate (TFR) has fallen from 2.2 children per woman in 1987 to 1.37 in 1993 and 1.16 in 1999. By 2011 it had increased to 1.6[2], which is still substantially below the population replacement rate. Completed cohort fertility does not fluctuate as dramatically, although most Russian demographers agree that it is steadily declining, and for

[1] At the same time, Gerber and Perelli-Harris (2012) did not confirm lower compliance of employers with maternity leave regulation.
[2] http://demoscope.ru/weekly/app/app4007e.php

the cohorts born in 1970-1980s it will be no more than 1.6 children per women (Zakharov 2008). Most women eventually have at least one child, and the proportion of childless women remains low compared to some developed countries (Frejka 2008; Zakharov 2008). Even though the two-child family has become much less prevalent (Philipov and Jasilioniene 2007; Billingsley 2011; Frejka, 2008; Frejka and Sobotka, 2008), the two-child ideal family model is still dominant in Russia and women with three or more children are increasingly fewer. The calendar of young adult life course events is condensed for Russians, particularly women, with many events happening at almost the same age – completing education, finding the first job, forming a partnership and entering parenthood (Blum, Sebille, and Zakharov 2009). However, Russia has not escaped the widespread postponement of parenthood visible across Europe in recent decades, even if at a slower speed than in Central and Eastern Europe (CEE) (Zakharov 2008).

Research on the relationship between reconciliation issues related to women's employment and fertility in Russia is sparse. Gerber and Perelli-Harris (2012) found that the probability of taking a long maternity leave varied across branches, with fewer women taking longer leaves in health care and social protection, communication, public administration, finance and insurance. They conclude that maternity leave helps reconcile women's employment with fertility since it supports women's attachment to the labor force after the first birth and increases probabilities of second conceptions.

IV. Empirical strategy and expectations

We analyze two theoretically distinct outcomes in this study, intentions and actual childbearing, which allows for variation in the influence of occupational branches or job characteristics. Both the Theory of Planned Behavior (TPB) (Ajzen 1991) and the Traits-Desires-Intentions-Behavior (T-D-I-B) framework (Miller 1994) have been widely used in social-psychological and demographic literature to explain fertility intentions and behavior; a key point from the two

theoretical perspectives is that fertility intentions and behavior[3] are discrete states in a multi-step process of childbearing decision-making and a host of factors influence these states, including norms, preferences, and constraints.

All fertility intentions and outcomes studied in this paper are parity-specific. When we observe childless women's fertility intentions and behavior, we are mostly observing the determinants of the timing of first births because having at least one child remains mostly universal in Russia (Zakharov 2008); if employment circumstances are related to the timing of first childbearing, we argue that 1) women foresee the need for work that facilitates combining parenthood and employment, or 2) they have chosen work that is easy to leave and re-enter. When we examine how the work situation influences second birth intentions or behavior, we are observing the influence on both the timing and occurrence of the second birth. After entering parenthood and returning to work, new mothers have learned more about how easy it is to combine work and parenting, which may influence whether a second child is planned. For this reason, we expect family-friendly job characteristics to influence mothers' childbearing intentions or behavior more than childless women's. Given the findings in other contexts that studying for/working in education or health is positively related to fertility, we expect to find similar relationships for first and second intentions and parity transitions. We also expect women who have a flexible work arrangement—work part-time, have a flexible schedule, or are able to work at home—to be more likely to plan and experience childbearing.

Our empirical strategy draws on the unique strengths of our data. We use these complementary strengths to learn more about the ways in which employment and fertility processes are interdependent. Fertility intentions are measured at one moment in time and the analysis is cross-sectional. This allows us to include rich information about that moment in the respondent's life, such as attitudes. Desai and Waite (1991) find that attitudes influence the

[3] We use the words "behavior" and "outcome" in this paper to indicate the event of a birth, but acknowledge that proceptive/contraceptive behavior may not lead to the desired outcome and that a birth may not be a result of proceptive behavior.

relationship between fertility and employment and that the likelihood of employment for strongly work-committed women is not influenced by how convenient it is to combine the demands of work and family. Budig (2003) observed the relationship between work and fertility net of the influence of attitudes and found that attitudes toward work, children and gender equality influenced both the fertility and employment outcomes. We build on these studies by adopting both approaches; when we study fertility intentions we control for attitudes as well as interact attitudes with the work situation.

Fertility outcomes, on the other hand, are studied longitudinally and alongside covariates that have the potential to change over time. This restricts our use of covariates, but in these analyses we can observe *changes* in work situations in conjunction with births. How quickly women return to work after having a child is influenced by policies regulating maternity and parental leave as well as opportunity costs related to lost wages, skill depreciation and child care availability. Desai and Waite (1991) discuss these important factors related to time away from work and point out that they may encourage women to work in jobs that are easy to exit and re-enter later. If this is the case, women who work in jobs such as these may be participating less in the labor market during critical years in their fertility career. This means that certain types of jobs may be under-represented in the analysis by virtue of being easy to exit and re-enter for childbearing reasons. Although we study women both in and out of the labor market, when we compare how work characteristics are related to our fertility outcomes, we are comparing differences among employed women, which is a more selected group of women after entering parenthood. For this reason, we conduct additional analyses in which we hold constant the occupational branch while women who have entered parenthood step out of the labour market. Desai and Waite (1991) also discuss the strategy of choosing a job that makes it more convenient to have children and continue working—such as jobs with flexibility regarding where and when the job is done as well as the physical ease with which tasks can be carried out. Women who change jobs to work in a different occupational branch may be signalling incompatibility

between past job characteristics and their new role as a mother. On the other hand, shifting employment to another occupational branch after returning to work may also indicate that a woman has no plans to have another child and is shifting her focus to long-term career plans. The latter direction of causality may also indicate difficulties combining work and parenting because it implies that women wait to make changes in their employment situation until finishing childbearing.

V. Fertility intentions

Data and methods

We analyze fertility intentions using the Russian Generations and Gender Surveys (GGS), a part of the international Generations and Gender Program (GGP), which is "a panel survey of a nationally representative sample of 18-79 year-old resident population in each participating country with at least three panel waves and an interval of three years between each wave"[4]. Three waves of the Russian GGS were conducted in 2004, 2007 and 2011 using a multistage probability sample representing the whole population of Russian Federation. In the first wave (11,261 respondents aged 18-79 years old), the response rate was particularly low in the urban areas of St. Petersburg and Moscow (around 15%), but was 57% in all other areas (Kosolapov and Zakharov 2005). The total samples of the second and third waves are respectively 11,117 (18-82 years) and 11,184 respondents (18-86 years), which include both panel and new respondents. The total sample attrition for seven years is 50% (balanced panel sample – 5622 obs.) and it is unequally distributed across different settlements and regions[5]. Due to the small number of panel cases and the unequal distribution of the sample attrition, we pool the waves into a cross-sectional sample and take into account correlation between repeated observations of

[4] http://www.unece.org/pau/ggp/welcome.html. See more in (Vikat et al. 2008)

[5] The models will include a dummy variable to capture whether the survey took place in either St. Petersburg or Moscow, or Primorskyi krai, which should account for any bias introduced by this low response rate.

the individual by computing standard errors that are adjusted for clustering at the individual level.

Two working analytical samples are derived from the total pooled GGS sample: one for first birth intentions and another for second birth intentions. To study the first birth intentions, we restrict our sample to childless female respondents under 40 (born in 1964 – 1993). The second birth intention analyses are based on a sample of female respondents under 40 with only one biological child under 14. The corresponding working samples include 2160 and 1862 respondents, respectively. We have two dependent variables in this section: (1) intention to have a 1st child, (2) intention to have a 2nd child. The dependent variable is based on respondents' replies to the following GGS question: "Do you intend to have a/another child during the next three years?" with responses coded from 1 "definitely no", 2 "no", 3 "yes", 4 "definitely yes". We use ordinal logistic regression to estimate the correlates of intentions to have a (another) child, which allows the outcome to vary along a continuum of certainty (Thomson and Brandreth 1995; Thomson 1997).

Measures

Our main explanatory variables include women's activity status and job characteristics. Based on respondent's replies about the main activity at the time of interview, women are categorized as employed (employees, self-employed, working students, and working pensioners), unemployed, on leave (for women with 1 child) or those with no labour force participation (NLFP) (housewives, non-employed students, non-employed pensioners, or those inactive due to serious illness or disability).

For employed women the *main indirect measure* used in this analysis is the occupational branch in which a respondent worked. Our data sources have slightly different approaches to coding branches and we combine them into seven large groups: agriculture, industry/construction, transport/ communication, services/retail, education/science/culture,

health/social protection[6], and other (see Appendix A-1). Of these, services, education, and health are female-dominated branches, whereas agriculture, industry, and transport are male-dominated (Rosstat 2012). Education and health consist of mostly public institutions, industry and transport are largely private, and the service sector is not only private but also has the largest number of non-standard and informal jobs.

Another indirect measure is firm ownership (see Appendix A-2). Firms are grouped into three categories: private firms, which also covers self-employed respondents; public firms; and those with mixed ownership. We assume that public sector jobs offer more security, while private sector jobs can be (but are not necessarily) better paid.

` GGS also contains information about the contract type, including permanent labor contract, fixed-term labor contract, contractor's agreements, and verbal agreements (no contract). In Russia, employers pay social insurance contributions (including pension and mandatory health insurance contributions) for workers with any contract (including contractor's agreements). However, only people employed on the basis of labor contracts (permanent or fixed-term) are entitled to sick leaves, maternity or parental leaves, or annual paid vacation. Given a small number of female respondents in our working samples employed by fixed-term labor contracts or contractor's agreements, we merged them into a single category.

Multiple *direct measures* are available as well in GGS. First, we include the type of work schedule: day-time on weekdays, shift work, timetable, or other (including evenings and weekends and irregular work) (see Appendix A-4 for more information on the categories). GGS also provides other direct information about job characteristics such as whether respondents are entitled to childcare services or child-related leave benefits provided by the firm, allowed flexible time arrangements for personal reasons, work partly at home, work full-time or part-time. The number of hours normally worked is also provided and we construct a part-time measure as a combination of answers "part-time employment" and works less than 31 hour per

[6] We refer to only the first occupational group in the text for simplicity.

week (the normal duration of a working week in Russia is 40 hours for most jobs, and 36 hours for some occupations, such as teachers).

Because prestige and career ambitions may influence how occupational branch and fertility are related (Edwards 2002), the impact of industry must be estimated net of occupational class status (Bakarat and Durham 2012). Following Billingsley's (2011) study on Russia, we control for occupational class with a measure modeled after the European Socioeconomic Classification (SeC), which is based on the Erikson-Goldthorpe-Portocarero (EGP) schema (See Appendix A-3).

We introduce two attitudinal variables related to combining paid employment and motherhood. They measure the extent to which respondents agree with certain statements. The first measures the personal importance of paid employment versus homemaking: "*Looking after the home or family is just as fulfilling as working for pay*". The second captures the subjective consequences of the work-family conflict: "*A pre-school child is likely to suffer if his/her mother works*". Replies to both statements are coded with a 5-grade scale from "strongly agree" to "strongly disagree". In the final specifications of our models we use them recoded into binary variables ("agree" and "strongly agree" vs. other replies). To assess the moderating effect of attitudes on relationship between employment characteristics and fertility intentions, we introduce interactions between attitudes and our indirect/direct work measures.

In regression analyses of fertility intentions we control for the effects of the following variables: age (and age squared), women's educational enrollment and level (low, middle or high[7]), number of siblings, urban/rural residence, whether the respondent was surveyed in St. Petersburg, Moscow, or Primorsky krai, and year of survey. For second birth intentions, we also control for child's age and partnership status.

[7] Respondents have low education if they completed primary vocational education or less and don't have full secondary school; they have high education when they graduated from the university.

V.I Descriptive analyses

We first assess how family-friendly different occupational branches appear to be in contemporary Russia (Tables 1 and 2). Because regulation of dismissals and layoffs as well as coverage by social insurance programs depends strongly on the type of contract, the most secure jobs are those based on permanent labor contracts. The highest proportion of women employed on the basis of permanent labor contracts is in health care and social services, transport and communication (Table 1). In contrast, women employed in services are much more often employed on the basis of verbal agreements, temporary labor contracts or contractor's agreements.

Table 1: Distribution of types of contract across occupational branches in Russia, GGS 2004-2011, row %

	Labor contract		contractor's agreement	No contract / verbal agreement
	permanent	temporary		
Agriculture	87.2	6.6	1.7	4.5
Industry, construction	86.0	7.8	1.3	5.0
Transport, communication	91.9	5.9	0.6	1.6
Service, retail	67.8	12.6	2.6	16.9
Education, science, culture	89.7	8.0	0.4	1.9
Health care & social services	92.8	5.3	0.4	1.5
Other	82.1	12.6	0.8	4.5
Total	83.7	9.0	1.2	6.2

Note: Sample includes all women in paid employment at the time of the survey

Table 2 shows that the majority of female employees have access to either sick leave or paid maternal and parental leave when necessary. The variation across branches in availability of these leaves is minor, except in services and retail. The low coverage of statutory arrangements in services reflects the high prevalence of informal jobs (verbal agreement – Table 1). However, some respondents may not know if they have a right to paid leaves (Liborakina 2001), as coverage does not reach 100% even for public sector jobs and permanent labor contracts in which legislated rights are the most likely upheld. Indeed, coverage of legal arrangements

appears higher among women who have already entered parenthood. In whole, coverage by permanent labor contracts and availability of different leaves are strongly correlated, which indicates high compliance of employers with current regulation of leaves.

On average, only about 7% of female employees reported that their employers could provide free or subsidized childcare when necessary. Privileged access to formal childcare is higher among women employed in education and transport, whereas employment in services offers the lowest access.

In the pooled GGS sample, the proportion of women working part-time varies from 14% in industry/construction to 50% in education/science/culture. Relatively long working hours and mostly full-time employment in Russia seem to be compensated by the possibility to have a flexible working schedule, which is reported by 23% of all working women. Flexibility is a bit higher in services and more women in this branch can work at home all the time or at least some of the time.

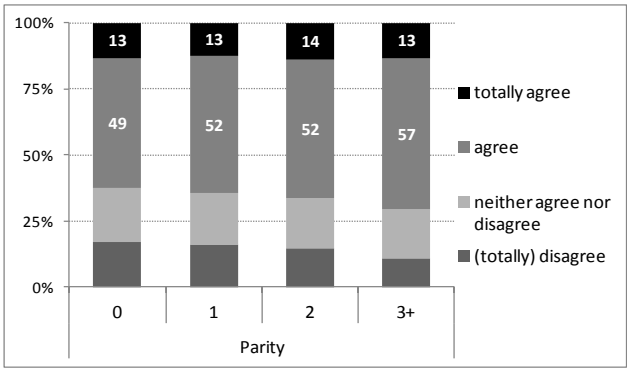
Table 2: Job characteristics across occupational branches in Russia, GGS 2004-2011*, %

Sector	Statutory arrangements				Beyond statutory arrangements	Part-time (including shorter hours)	Possibility to work at home or have flexible working hours	
	maternity leave	parental leave	both	sick leaves	subsidized / free childcare		flexible working hours	(at least some) work at home
Agriculture	87.1	84.9	84.5	90.9	5.7	28.7	13.6	2.8
Industry, construction	84.2	81.5	81.2	89.4	7.2	13.5	21.3	2.6
Transport, communication	89.9	89.0	88.6	92.9	10.1	25.6	19.9	2.1
Service, retail	52.4	48.0	47.6	55.1	1.5	20.2	29.9	5.6
Education, science, culture	93.7	91.6	91.5	97.3	12.6	49.7	22.9	2.4
Health care & social services	95.3	93.6	93.5	97.7	7.2	28.7	22.1	1.9
Other	90.0	88.9	88.5	92.8	8.3	22.2	20.8	2.7
Total	81.5	79.0	78.8	85.0	7.2	26.8	23.2	3.1

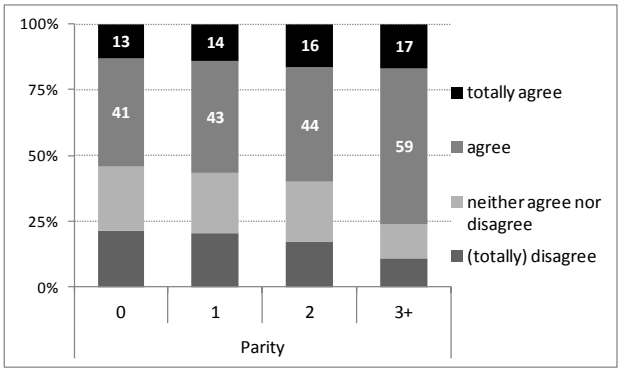
Note: Sample includes all women in paid employment at the time of the survey. * 2007-2011 for the maternity & parental leaves

We also present women's attitudes toward employment and motherhood. Despite the long tradition of women's high labor force participation, the majority of Russian women believe that looking after the home or family is just as fulfilling as working for pay (Figure 1). The proportion of women that agrees with this statement increases with parity. In addition, more than half of the respondents believe that preschool children suffer when their mothers work. The proportion of women who believe mothers' employment entails negative consequences for children increases with parity. Even among childless women and women with one child, most of whom are employed, the proportion of those who believe there is a conflict remains high. This may be a manifestation of traditional attitudes toward childcare, such as the belief that mother should play a more crucial role in childrearing[8], or it may reflect frustration and consequences related to the limited availability of high-quality formal childcare.

Figure 1: Attitudes of women toward family and employment in Russia, by parity, GGS 2004-2011



a. Looking after the home or family is just as fulfilling as working for pay



b. A pre-school child is likely to suffer if his/her mother works

[8] The deep inner conflict between work and family orientations is confirmed by Soviet researches as well. In the Soviet Union, family was a major source of life satisfaction and family values dominated attitudes of married women in the 1970s (Golofast 2006). A survey on possible (projected) time use of young workers conducted in the 1960s showed that almost 42% of them aimed at spending time with the family and 23% on education, compared to only 8% on the main job and 6% on an additional job (Zdravomyslov and Yadov 2003).

V.II Regression analyses

Selected results of the ordinal regressions of intentions to have a first and a second child are presented in Tables 3 and 4, respectively. We present nine models for each parity. All models are built on the baseline model (Model 1), which includes the basic control variables related to the respondent and the occupational branch in which she works (or her employment status if she does not). The reference category is the industry/construction branch. The following models introduce one new job characteristic at a time to observe whether the relationship between occupational branch and the outcome is modified when controlling for that specific aspect of the work situation. Model 9 includes all job characteristics. Model 10 is similar to Model 9, but covers only women interviewed in 2007 and 2011 in order to include information about the availability of paid maternity/parental leave in the analysis.

For the most part, employment variables that were correlated with 1st birth intentions also correlated with 2nd birth intentions. Among indirect measures—including occupational branch and firm ownership—only employment in education/science/culture was statistically related to fertility intentions within 3 years. Employment in education was associated with 36% lower odds of positive first birth intentions compared to those employed in industry/construction, but increased the odds of planning to have a 2nd child by 35%. The latter result, however, is only weakly significant. Direct measures more strongly correlated with fertility. The most important factor for intentions to become a mother in the next three years or to have a 2nd child is the possibility to work at home at least some time, which gives women more flexibility in arranging childcare. This factor was associated with 154% higher odds of positive first birth intentions and 362% higher odds of positive second birth intentions. The availability of free/subsidized childcare was positively, but weakly, associated with the intention to have a 1st child (odds increased by 51%), while schedule flexibility was positively associated with the intention to have a 2nd child (odds increased by 31%). Odds ratios for part-time employment did not significantly differ from 1 for 1st birth intentions, and insignificantly reduced intentions related to the 2nd birth.

An additive index of the four family-friendly characteristics was positively associated with both intentions to have a 1st and a 2nd child, although weakly for first birth intentions. For each additional family-friendly characteristic, positive intentions increased by 16% for first births and 21% for second births.

The attitudes we were able to measure were also associated with fertility intentions as expected. Women who believe they can feel as fulfilled taking care of children and the home as they do in paid employment tend to have higher odds of positive fertility intentions, particularly related to first births. The belief in a potentially negative effect of mother's employment on children is associated with lower odds (18%) of positive second birth intentions. Introducing attitudes into the model hardly changed the correlation between branch and fertility intentions. The effects of the interactions between attitudes and indirect/direct measures were insignificant, which may be due to the small number of observations, and we do not present these results.

Table 3. Probability of first birth intentions in Russia: the effect of employment characteristics, women below 40 without children; ordinal logistic regression odds ratio

	M1: Industry / branch	M2: Firm ownership	M3: Occupation	M4: Job characteristics	M5: Type of schedule	M6: Family-friendly index	M7: Type of contract	M8: Attitudes	M9: All job characteristics + other important	M10: All job characteristics + other sig. for 2007-2011
Labor market status / sector										
NLFP	0.53*	0.50*	0.51*	0.56*	0.54*	0.66	0.51*	0.53*	0.48*	0.43*
Unemployed	1.02	0.96	0.99	1.08	1.03	1.27	0.99	1.02	0.95	1.10
Agriculture	0.99	0.98	1.03	1.03	1.00	1.03	0.98	0.97	1.07	1.26
Industry, construction	1	1	1	1	1	1	1	1	1	1
Transport, communication	0.80	0.80	0.80	0.81	0.80	0.80	0.80	0.79	0.79	0.71
Service, retail	1.03	1.02	1.00	1.03	1.05	1.02	1.03	1.02	1.00	0.98
Education, science, culture	0.64**	0.65*	0.60**	0.63**	0.64**	0.61**	0.64**	0.63**	0.61**	0.56**
Health care, social services	1.09	1.12	1.07	1.11	1.08	1.10	1.09	1.09	1.12	0.95
Other sector	0.81	0.82	0.79	0.79	0.81	0.81	0.81	0.80	0.80	0.78
Firm ownership										
Private firm		1							1	1
Public firm		0.91							0.88	0.95
Other firm		0.78							0.80	0.81
Occupation										
Manual worker			0.65						0.62#	0.51*
Low mid-grade employee			1						1	1
Interm.employee			0.98						0.95	0.97
Professional/salariat/self-employed			1.09						1.07	1.02
Job characteristics										
Employed part-time				0.94					1.00	1.09
Work sometimes at home, sometimes at the office				2.54**					2.49*	1.85
Flexible schedule for family reasons				1.10					1.12	1.12
Free / subsidized childcare				1.51#					1.51#	1.28
Paid maternity and parental leaves										1.27
Schedule										
weekday schedule					1				1	1
shift work					0.97				1.00	1.09
timetable					1.44				1.61#	1.75
other					0.85				0.90	0.96
Family-friendly index						1.16#				
Type of contract										
Permanent labor contract							0.97		0.98	1.01
Temporary labor contract / subcontract							0.86		0.83	0.80
Verbal agreement (no contract)							1		1	1
Attitudes										
Agrees that a preschool child is likely to suffer if her/his mother works								0.98	1.00	1.01
Agrees that looking after the home / family is just as fulfilling as working for pay								1.22*	1.21*	1.34**
Statistics										
N	2160	2160	2160	2160	2160	2160	2160	2160	2160	1498
ll	-2682.76	-2681.95	-2680.43	-2678.48	-2681.43	-2681.34	-2682.49	-2679.89	-2670.55	-1832.73
chi2	471.4	473.1	484.5	487.6	472.2	477.1	472.3	471.5	503.7	383.4
r2_p	8.9%	8.9%	8.9%	9.0%	8.9%	8.9%	8.9%	8.9%	9.3%	9.9%

Note: Model controls for being surveyed in St. Petersburg, Moscow or Primorsky krai, number of siblings, urban/rural location, educational attainment, age, and year of survey. Statistical significance: # = 10%, * =5%, ** =1%, *** =0.1%.

Table 4. Probability of second birth intentions in Russia: the effect of employment characteristics, women below 40 with 1 biological child below 14; ordinal logistic regression odds ratios

	M1: Industry / branch	M2: Firm ownership	M3: Occupation	M4: Job characteristics	M5: Type of schedule	M6: Family-friendly index	M7: Type of contract	M8: Attitudes	M9.1: All variables	M9.2: All variables	M10: All variables for 2007-2011
Labor market status / sector											
NLFP	1.13	1.11	1.11	1.23	1.16	1.48#	1.08	1.16	1.32	1.44	1.38
Unemployed	1.22	1.21	1.20	1.33	1.25	1.60#	1.17	1.25	1.42	1.55	2.41#
On leave	0.93	0.92	0.93	1.02	0.95	1.02	0.89	0.95	1.10	1.01	1.14
Agriculture	0.99	1.00	0.99	1.01	1.00	0.99	0.99	1.01	1.06	1.05	1.16
Industry, construction	1	1	1	1	1	1	1	1	1	1	1
Transport, communication	0.99	1.00	0.98	0.97	0.99	0.98	1.00	1.01	0.98	0.99	0.85
Service, retail	1.17	1.16	1.15	1.14	1.17	1.16	1.14	1.17	1.11	1.12	1.06
Education, science, culture	1.35#	1.34	1.34#	1.36#	1.37#	1.27	1.38#	1.34#	1.37	1.30	1.43
Health care, social services	1.07	1.06	1.01	1.08	1.06	1.06	1.08	1.07	1.03	1.02	0.99
Other sector	1.36#	1.36#	1.33#	1.37#	1.37#	1.38*	1.36#	1.37#	1.33#	1.35#	1.63*
Firm ownership											
Private firm		1							1	1	1
Public firm		1.00							1.00	0.98	1.14
Other firm		0.90							0.90	0.91	0.81
Occupation											
Manual worker			0.75						0.75	0.74	0.87
Low mid-grade employee			1						1	1	1
Interm.employee			1.19						1.18	1.19	1.18
Professional/salariat/self-employed			0.99						0.98	0.99	0.95
Job characteristics											
Employed part-time				0.91					0.94		0.76
Work sometimes at home, sometimes at the office				4.62***					4.84***		6.49***
Flexible schedule for family reasons				1.31*					1.29*		1.27
Free / subsidized childcare				1.16					1.09		1.62
Paid maternity and parental leave											0.83
Schedule											
weekday schedule					1				1	1	1
shift work					1.08				1.10	1.14	0.96
timetable					1.16				1.23	1.25	1.04
other					1.11				1.02	1.07	0.80
Family-friendly index						1.21*				1.20*	
Type of contract											
Permanent labor contract							0.93		1.02	0.93	1.12
Temporary labor contract / subcontract							1.23		1.38	1.23	1.22
Verbal agreement (no contract)							1		1	1	1
Attitudes											
Agrees that a preschool child is likely to suffer if her/his mother works								0.82*	0.83*	0.83*	0.84
Agrees that looking after the home / family is just as fulfilling as working for pay								1.10	1.11	1.11	1.04
Statistics											
N	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1187
ll	-2355.59	-2355.45	-2352.73	-2347.44	-2355.28	-2352.98	-2354.39	-2352.60	-2340.02	-2345.52	-1489.75
chi2	150.68	150.90	152.79	170.98	153.38	157.96	154.21	156.19	182.96	170.36	142.37
r2_p	3.4%	3.4%	3.5%	3.8%	3.4%	3.5%	3.5%	3.5%	4.1%	3.8%	4.6%

Note: Model controls for being surveyed in St. Petersburg, Moscow or Primorsky krai, urban/rural location, educational attainment, age, age of the youngest child, number of siblings, partnership status, and year of survey.
Statistical significance: # = 10%, * =5%, ** =1%, *** =0.1%.

VI. Conception leading to a birth

Data and methods

The Employment and Education Survey (EES)[9] was used to study fertility behavior and employment histories. It was administered in 2005 to 18-55 year old men and women who were a sub-sample of the 2004 Russian GGS sample. It covers all childbearing, employment and educational activity over the life of the respondent since January of the year he or she turned 17. The response rate for this survey was 86%.[10] We include only women born in 1970 or later, which means we observe women from age 17 up to age 35 in this sample. We exclude women born before 1970 to focus on birth cohorts that came of age when the transition from communism had already begun.

We have two dependent variables in this section as well: (1) the hazard of having a 1st child and (2) the hazard of having a 2nd child. Because we are interested in circumstances at the time of conception and the decision to continue a pregnancy, we focus on the 8th month before a live birth, rather than the actual birth. We refer to this moment of time as first conception or second conception, regardless of whether the respondent had other conceptions that did not lead to live births. We use piecewise constant event history models to estimate the relative risks of a first or second birth, which allows the baseline hazard to vary according to pre-determined time segments. In the analysis of the first birth, respondents are observed from January of the year they turn 17[11] until 8 months before the first birth occurs or before the interview. Age is the process time used in the first birth hazard analysis. The window of observation for the second birth analysis begins the month of the first birth and continues until 8 months before the second

[9] The Education and Employment Survey for Russia was conducted by the Max Planck Institute for Demographic Research (Rostock), the Independent Institute of Social Policy (Moscow), and the Demoscope Independent Research Center (Moscow) (Bühler et al. 2007).

[10] For information about the technical aspects of this survey and its sample, see: (Independent Institute for Social Policy 2005).

[11] Since EES data only record histories from January of the year in which the respondent turns 17, all information recorded in the months before that January are censored. Eliminating respondents who had their first child before the explanatory variables can be introduced excludes 118 men and women, 81 of which conceived in their 16th year. 17 more respondents were excluded because they did not know the year of their first birth.

birth occurs or before the interview. Age of the first child is the process time used in the second birth analysis.

Measures

Our independent variables related to work and education are all time-varying. Occupational branch was divided into the same seven groups described in the previous analysis. We also differentiated firm ownership as public and private. Fewer direct measures of job characteristics are available in EES than GGS. We are able to observe whether the respondent worked part-time (less than 31 hours per week) or full-time. The other direct measure of job characteristics is respondents' work schedule: day-time on weekdays, shift work, timetable or other (including evenings and weekends).

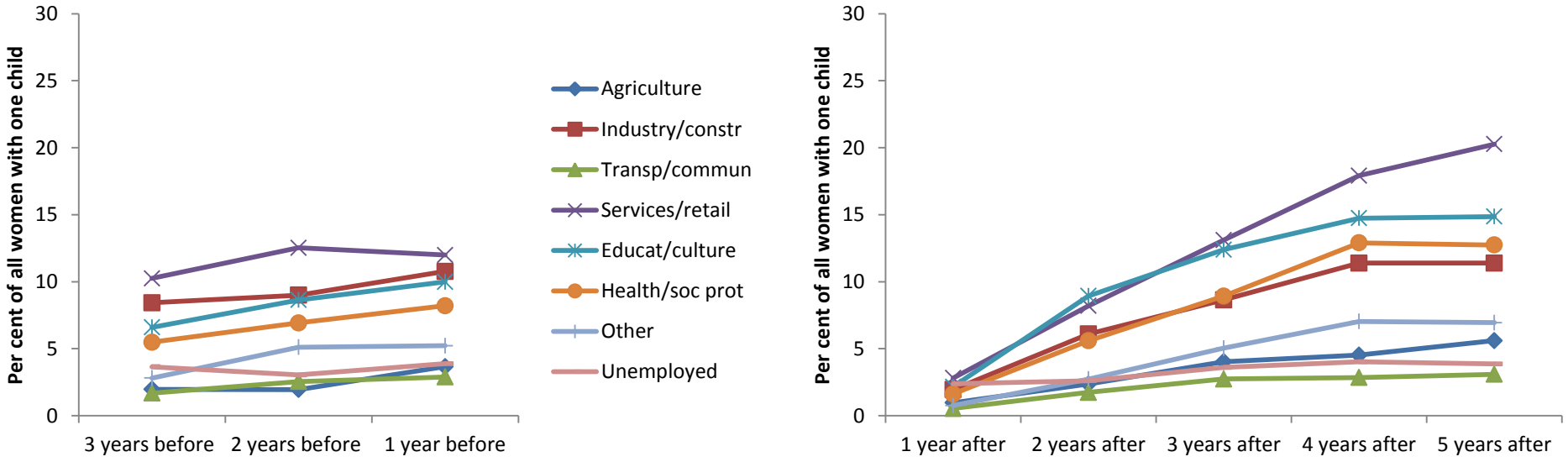
We also control for occupational class in analyses of conceptions in order to observe job characteristics and work culture net of characteristics that are related to status, income and autonomy. We include the following control variables: urban/rural residence, whether the respondent was surveyed in St. Petersburg or Moscow, number of siblings, and educational enrolment and level. For the second conception analysis, age at first birth and partnership status are also included.

VI.I Descriptive analyses

Because we have women's work and childbearing histories, we can observe how the distribution of women in the seven occupational branches shifts around the time when women enter parenthood. The information presented in Figure 2 is based on women born 1970 or later that have at least one child by the time they are surveyed. Three years before entering parenthood, 56% of these women are not participating in the labor force, many of whom are still studying. This share declines over the next few years. Of those working, a clear ranking emerges and is mostly consistent across the three years before conception occurs. In the final year before

conception, 12% are working in services, 11% in industry, 10% in education, 8% in health, 5% in “other”, and less than 5% are unemployed or work in agriculture or transport. Five years after the birth of the first child, 21% of women are not participating in the labor market. For some occupational branches, the share of women working changed very little once the new mothers had mostly returned to the labor market: industry, transport, and unemployed. The branch that experienced the largest growth over the five years since entering parenthood (in terms of the share of working women with one child) was services (69% increase), followed by health (55%), agriculture (53%) and education (49%).

Figure 2. Industry/branch tracking before and after the first birth in Russia, women born 1970 or later



VI.II Regression analyses

Tables 5 and 6 present relative risks related to first and second conceptions, respectively. Model 1 includes the control variables and the branch in which the respondent worked. The reference category is the industry sector. Not participating in the labor market is associated with a 36% higher conception risk for first births than the reference group. Conversely, working in services was associated with a 25% lower conception risk than women in industry. No other relative risk was statistically different from 1. Women working in a publicly-owned firm had a 37% higher first conception risk than women in privately owned firms. The difference between the risks for women working in services and industry was no longer statistically significant once we controlled for firm ownership. No other job characteristics were statistically related to first conception hazards, nor did controlling for occupational class, part-time work or work schedule change these associations in a meaningful way.

Second conception risks were less associated with indirect and direct characteristics of women's work that we are able to assess. Relative to working in industry, women working in the "other sectors" have a particularly low risk of having a second child. By disaggregating the categories as much as possible (results not shown here), the lowest relative risk of the "other" group appears at least partially driven by the share of women working in "banking, insurance, marketing and other financial activities, real-estate, legal, leasing services, information technologies, etc." None of the other smaller occupational categories yielded statistically significant associations.

In Model 7 of Table 6, we held constant the industry in which a woman worked before taking leave, becoming inactive or unemployed until she regained employment. This strategy addresses the possibility that women may choose their work situation before entering parenthood based on plans to exit and re-enter the labor force due to childbearing aspirations. If this is the case, Models 1-7 may miss important information that allows us to identify branches that women choose because they can more freely come and go. The results offer no evidence that women

choose specific sectors based on this plan; no statistically significant differences emerge between these sector-specific relative risks, although a few relative risks change (in particular, agriculture and education).

Table 5. Event history analysis of first conception in Russia, women born 1970 or later

	M1: Industry/ branch	M2: Firm ownership	M3: Occup. class	M4: Part-time work	M5: Type of schedule	M6: All job characteristics
NLFP	1.36 *	1.66 **	1.38 *	1.48 **	1.5 **	1.89 ***
unemployed	0.84	1.03	0.85	0.91	0.93	1.17
agriculture	1.18	1.15	1.17	1.22	1.25	1.21
industry, construction	1	1	1	1	1	1
transport, communication	1.13	1.04	1.13	1.14	1.16	1.06
service, retail	0.75 *	0.82	0.76 +	0.73 *	0.75 *	0.82
education, science, culture	1.08	0.96	1.09	1.13	1.12	0.99
health care, social services	1.14	1.02	1.13	1.18	1.19	1.04
other sector	1.01	0.94	1.01	1.02	1.04	0.95
Private firm		1				1
Public firm		1.37 *				1.43 **
Other firm		1.60 *				1.67 *
Occupation/Position						
SeC1: manual worker			1.02			0.98
SeC2: low-mid grade employee			1			1
SeC3: interm. employee/manager			1.03			1.05
SeC4: professional/salariat			0.98			1.02
Employed part-time				0.90		0.91
Schedule						
weekday schedule					1	1
shift work					1.09	1.09
timetable					0.89	0.89
other					0.95	0.96
No. of subjects = 1483						
No. of failures = 920						
Time at risk = 106706						
Number of obs = 18864						

Note: Model controls for being surveyed in St. Petersburg or Moscow, number of siblings, urban/rural location, educational attainment and age. Statistical significance: + = 10%, * =5%, ** =1%, *** =0.1%.

Table 6. Event history analysis of second conception in Russia, women born 1970 or later

	M1: Industry/ branch	M2: Firm ownership	M3: Occup. class	M4: Part-time work	M5: Type of schedule	M6: All job characteristics	M7: Constant industry
NLFP	1.02	1.15	1.01	1.11	1.11	1.33	
unemployed	1.26	1.42	1.24	1.37	1.37	1.63	
agriculture	0.82	0.77	0.90	0.85	0.88	0.95	1.34
industry, construction	1	1	1	1	1	1	1
transport, communication	1.32	1.27	1.31	1.40	1.41	1.34	1.46
service, retail	0.74	0.75	0.72	0.71	0.70	0.74	0.96
education, science, culture	0.98	0.93	0.87	0.99	0.95	0.88	1.23
health care, social services	0.83	0.80	0.80	0.82	0.93	0.75	1.02
other sector	0.36 *	0.35 *	0.35 *	0.35 *	0.35 *	0.33 *	0.50 *
Private firm		1				1	
Public firm		1.17				1.26	
Other firm		1.48				1.50	
Occupation/Position							
SeC1: manual worker			0.81			0.82	
SeC2: low-mid grade employee			1			1	
SeC3: interm. employee/manager			1.02			1.03	
SeC4: professional/salariat			1.34			1.37	
Employed part-time				0.82		0.68	
Schedule							
weekday schedule					1	1	
shift work					1.03	1.10	
timetable					0.88	0.85	
other					1.58	2.08	
No. of subjects = 944							
No. of failures = 301							
Time at risk = 64188							
Number of obs = 12770							

Note: Model controls for being surveyed in St. Petersburg or Moscow, number of siblings, urban/rural location, educational attainment, partnership status, age of first child and mother's age. Statistical significance: + = 10%, * =5%, ** =1%, *** =0.1%.

Finally, Table 7 presents truncated results from a model in which we introduced a dummy variable to indicate the respondent has changed branches relative to one year before conception. We found that women who changed branches after the first child was born were less likely to have a second child. To further explore this finding, we interacted the dummy variable with the sector in which the respondent worked one year prior to conception as well as with the current sector. Neither of these interactions were statistically significant or improved the fit of the model and we do not present these results. The lack of significant results may be due to small cell sizes in this model.

Table 7. Second birth risks for women in Russia according to changes in industry/branch before and after first birth

Respondent changed industries/branches	
No change	1
Changed branches before first birth	1.10
No change	1
Changed branches after first birth	0.67 *
Interaction: change and previous sector	Not statistically significant
Interaction: change and current sector	Not statistically significant
No. of subjects =	944
No. of failures =	301
Time at risk =	64188
Number of obs =	12770

Note: Model controls for being surveyed in St. Petersburg or Moscow, number of siblings, urban/rural location, educational attainment, partnership status, age of first child and mother's age. Statistical significance: + = 10%, * =5%, ** =1%, *** =0.1%.

VII Discussion and Conclusions

This study assessed how occupational branches and job characteristics were related to fertility intentions and outcomes in Russia in recent years. Work conditions influence the degree to which women face reconciliation issues in their family and career roles. Russia is a case in which women remain firmly committed to employment and parenthood. Our analyses revealed little variation in how fertility and employment conditions are related when measured by occupational branches. This finding confirms the lack of strong variation found in other analyses of post-socialist contexts such as Hungary, Romania and Slovenia (Barakat and Durham 2013). It may be that the commitment to work or the financial pressure to work, as well as strong norms regarding universal childbearing at a relatively young age, may render differences across types of employment insignificant to childbearing. But we know from *anonymous reference* that women's future fertility decisions are made on the basis of work considerations and childbearing

is believed to worsen employment opportunities for the majority of Russian respondents. It may also be that there is less variation in reconciliation issues across occupational branches in these contexts or that our measures represent distinctions among jobs inadequately. Our descriptive analyses revealed some differences in job characteristics by occupational branches, but a full disaggregation of occupational branches (rather than the combined groups in which the answers were given) combined with larger sample sizes would undoubtedly improve the analysis.

Although the variation in how occupational branches were related to fertility intentions and conceptions was less than expected, some important differences appeared. More employment characteristics were associated with the timing or event of having a first child than with the timing or event of having a second child. Women employed in education/sciences/culture have lower intentions to have a 1st child in the next three years. This indicates that women working in this branch plan to postpone parenthood; the majority of these jobs are likely to be in education, which is a field (and educational discipline) heavily dominated by women and this may delay partnership formation. Women working in education have been shown to have higher fertility (Lappegård 2002; Spielauer 2005; Martín García 2010) and we find higher intentions to have a 2nd child than women employed in industry/construction, but this finding was only weakly significant. Our analyses of conceptions revealed that women working in the services/retail sector postpone the first birth most. Our descriptive analyses may shed light on this finding: the lowest frequencies of stable employment contracts were found for women in this branch (i.e., less job security and no provision of legislated rights). Working in financial services (a main category in our "other" group) was associated with a lower likelihood of having a second child, which may be related to how competitive these jobs are and their rather high income (similar to working in oil and gas industries), which implies higher indirect costs of interrupted employment.

We expected other indirect or direct measures to act as mediators in the occupational branch and fertility relationship, but this was rarely the case. Accounting for the public/private

distinction did appear to significantly account for the lower first conception risk related to working in services as well as the higher second birth intention propensity related to working in education. Beyond their role as mediators, direct and indirect measures were important on their own at times. The possibility to work at home appears to be a powerful predictor of fertility intentions for both the first and second child. As we might expect, having a flexible working schedule is not related to intentions to become a mother but positively related to the intentions to have a second child. Similarly, negative attitudes toward working mothers, which were not significantly related to first birth intentions, became negatively correlated with second birth intentions. The rich set of indicators available in the intention analyses provided the opportunity to construct an additive index of family-friendly job characteristics and this index was positively related to second birth intentions. Finally, working in the public sector is usually argued to entail more family-friendly employment characteristics, and we do find women enter parenthood earlier in the public sector, but it appears that this relationship is not due to the type of schedule women have (although we were not able to account for flexible schedules) or part-time work. Fewer significant correlations between employment characteristics and second birth intentions or decisions may be because the sample of women at risk of having a second birth is substantially smaller than the sample of women at risk of having a first birth.

We make no causal claims in this study as theory and evidence lead us to believe women may choose their jobs based on fertility plans just as much as they may make childbearing plans based on their employment situation. We explored the importance of underlying preferences and found that although attitudes were important to first and second birth intentions, they did not attenuate the relationships between employment conditions and fertility intentions. We also explored whether we missed important information related to occupational branches by women choosing jobs they could more easily exit and re-enter. We did not observe any changes in how work and fertility were related when we kept the branch assigned to women constant when they were inactive. However, we did find that women who change jobs to a different occupational

branch after entering parenthood are significantly less likely to have a second child. After experiencing difficulties reconciling work and family, we might expect women to take an entirely different job and be less enthusiastic about continued childbearing. Alternatively, women who do not plan to have another child may be less concerned about reconciliation issues in the future and pursue career plans regardless of employment characteristics. To assess which explanation is more valid, we need a larger sample to successfully interact job changes and occupational branch.

To summarize our results according to main themes, the entrance into parenthood appears to occur earlier for women working in jobs with flexibility (in terms of work space), family-friendly cultures (public sector) and who feel they can achieve fulfillment through taking care of a child; postponement of parenthood appears to occur for women working in unsecure jobs (service sector) or female-dominated jobs (education). Second child decision-making is also more likely to be positive among women working in jobs with flexible work spaces and jobs with more family-friendly characteristics, but we see lower transition rates for potentially high-earning women in competitive jobs (financial services). Besides the areas for future research already mentioned in this section, we also want to point out that we were not able to study the influence of partners' occupational characteristics, which is an important determinant (Kaufman & Bernhardt 2012).

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References

Adsera, A. 2011. ‘Where Are the Babies? Labor Market Conditions and Fertility in Europe’. *European Journal of Population/Revue Européenne de Démographie* 27 (1): 1–32.

Andersson, G. 2000. "The impact of labor-force participation on childbearing behavior: Pro-cyclical fertility in Sweden during the 1980s and the 1990s." *European Journal of Population* 16: 293-333.

Ajzen, I. 1991. ‘The Theory of Planned Behavior’. *Organizational Behavior and Human Decision Processes* 50 (2) (December): 179–211.

Ariza, A., S. De la Rica Goiricelaya, and A. Ugidos Olazabal. 2003. ‘The Effect of Flexibility in Working Hours on Fertility: A Comparative Analysis of Selected European Countries’. *DFAEII 2003.08*.

Bernardi, Laura, Andreas Klärner, and Holger Von der Lippe. 2008. ‘Job Insecurity and the Timing of Parenthood: A Comparison Between Eastern and Western Germany’. *European Journal of Population/Revue Européenne de Démographie* 24 (3): 287–313.

Blum, Alain, Cécile Lefèvre, Pascal Sebille, Irina Badurashvili, Arnaud Régnier-Loilier, Vlada Stankuniene, and Oxana Sinyavskaya. 2009. ‘Introduction: International Comparisons-France, Georgia, Lithuania and Russia’. *Revue d’Etudes Comparatives Est-Ouest* 40 (3-4): 5–34.

Blum, Alain, Pascal Sebille, and Sergeï Zakharov. 2009. ‘A Divergent Transition to Adulthood in France and Russia: a Cohort Approach’. *Revue d’Etudes Comparatives Est-Ouest* 40 (3-4): 123–152.

Boeri, Tito, and Katherine Terrell. 2002. ‘Institutional Determinants of Labor Reallocation in Transition’. *The Journal of Economic Perspectives* 16 (1): 51–76.

Brown, J David, John S Earle, Vladimir Gimpelson, Rostislav Kapeliushnikov, Hartmut Lehmann, Álmos Telegdy, Irina Vantu, Ruxandra Visan, and Alexandru Voicu. 2006. ‘Nonstandard Forms and Measures of Employment and Unemployment in Transition: a

Comparative Study of Estonia, Romania, and Russia'. *Comparative Economic Studies* 48 (3): 435–457.

Budig, M.J. 2003. 'Are Women's Employment and Fertility Histories Interdependent? An Examination of Causal Order Using Event History Analysis'. *Social Science Research* 32: 376–401.

Bühler, C., V.S. Magun, P.M. Kozyreva, M.S. Kosolapov, O.V. Sinyavskaya, V. Shkolnikov, H. Kulu, A. Vikat, and R. Houle. 2007. 'The Education and Employment Survey for Russia: Survey Instruments'. Max-Planck Institute for Demographic Research. http://www.demogr.mpg.de/cgi-bin/publications/paper.plx?debug=0&listtype=-98&personalid=20&pubid=2756&field1=&field2=&field3=&logic1=&logic2=.

Clarke, Simon, and Veronika Kabalina. 2000. 'The New Private Sector in the Russian Labour Market'. *Europe-Asia Studies* 52 (1): 7–32.

Conti, Maurizio, and Enrico Sette. 2013. 'Type of Employer and Fertility of Working Women: Does Working in the Public Sector or in a Large Private Firm Matter?' *Cambridge Journal of Economics*. doi:10.1093/cje/bes087. http://cje.oxfordjournals.org/content/early/2013/05/10/cje.bes087.abstract.

De la Rica, Sara, and Amaia Iza. 2006. 'Career Planning in Spain: Do Fixed-term Contracts Delay Marriage and Parenthood?' *Education and Postponement of Maternity: Economic Analyses for Industrialized Countries*: 147–174.

Den Dulk, Laura, and Bram Peper. 2007. 'Working Parents' Use of Work-life Policies'. *Sociologia, Problemas e Práticas* 53: 51–70.

Drobnič, S. 1997. 'Part-time Work in Central and Eastern European Countries'. In *Between Equalization and Marginalization: Women Working Part-time in Europe and the United States of America*, edited by H.-P. Blossfeld and C. Hakim, 71–90. Oxford University Press.

Esping-Andersen, G., D. Gallie, A. Hemerijck, and J. Myles. 2002. *Why We Need a New Welfare State?* NY: Oxford University Press.

Frejka, T. 2008. 'Parity Distribution and Completed Family Size in Europe: Incipient Decline of the Two-Child Family Model?' *Demographic Research* 19 (4): 47–72.

Friedman, D., M. Hechter, and S. Kanazawa. 1994. 'A Theory of the Value of Children'. *Demography* 31 (3) (August): 375–401.

Gerber, Theodore P. 2012. 'The Structural Perspective on Postsocialist Inequality: Job Loss in Russia'. *Research in Social Stratification and Mobility* 30 (1): 17–31.

Gerber, Theodore P, and Olga Mayorova. 2006. 'Dynamic Gender Differences in a Post-socialist Labor Market: Russia, 1991–1997'. *Social Forces* 84 (4): 2047–2075.

Gerber, Theodore P, and Brienna Perelli-Harris. 2012. 'Maternity Leave in Turbulent Times: Effects on Labor Market Transitions and Fertility in Russia, 1985-2000'. *Social Forces* 90 (4): 1297–1322.

Gimpelson, Vladimir, and Rostislav Kapeliushnikov. 2011. 'Labor Market Adjustment: Is Russia Different?'

Glass, Jennifer, and Valerie Camarigg. 1992. 'Gender, Parenthood, and Job-Family Compatibility'. *American Journal of Sociology* 98 (1) (July 1): 131–151.

Golofast, V.B. 2006. *Sotsiologia Sem'i. Stat'i Raznyh Let. [Sociology of Family. Diverse Articles]*. St. Petersburg: Aleteya.

Independent Institute for Social Policy. 2005. 'Education and Employment Survey on Russia - Technical Report'. Moscow: IISP.

Kohler, H.-P., and I. Kohler. 2002. 'Fertility Decline in Russia in the Early and Mid 1990s: The Role of Economic Uncertainty and Labour Market Crisis'. *European Journal of Population* 18: 233–262.

Kosolapov, M., and S. Zakharov. 2005. 'The Report on Response Rate in Russian GGS'. Rostock: Max Planck Institute for Demographic Research, Rostock, Germany.

Liborakina, Marina. 2001. ‘The Social Consequences of Privatization for Women’. *Problems of Economic Transition* 43 (9): 34–46.

Linz, Susan J, and Anastasia Semykina. 2008. ‘How Do Workers Fare During Transition? Perceptions of Job Insecurity Among Russian Workers, 1995–2004’. *Labour Economics* 15 (3): 442–458.

Morgan, S Philip, and Heather Rackin. 2010. ‘The Correspondence Between Fertility Intentions and Behavior in the United States’. *Population and Development Review* 36 (1): 91–118.

Morgan, S.P. 2001. ‘Should Fertility Intentions Inform Fertility Forecasts?’ In *US Census Bureau Conference: The Direction of Fertility in the United States*, edited by COPAFS, 153–184. Alexandria, Virginia.

Ogloblin, Constantin. 1999. ‘The Gender Earnings Differential in the Russian Transition Economy’. *Industrial and Labor Relations Review*: 602–627.

———. 2005. ‘The Sectoral Distribution of Employment and Job Segregation by Gender in Russia’. *Regional and Sectoral Economic Studies* 5 (2): 5–18.

Pailhé, A, and A Solaz. 2011. ‘Does Job Insecurity Cause Missing Births in a High Fertility European Country? Evidence from France. Document de Travail. INED, 169, 26’. *Letablier & Salles Founder Une Famille. FranceAllemagne*.

Pailhé, Ariane, and Oxana Sinyavskaya. 2010. ‘Le Travail Des Femmes En France et En Russie : L’effet Des Enfants et Des Valeurs de Genre’. *Revue D’études Comparatives Est-Ouest* 40 (3-4) (January 19): 273. doi:10.4074/S033805990900309X.

Philipov, Dimiter. 2009. ‘The Effect of Competing Intentions and Behaviour on Short-term Childbearing Intentions and Subsequent Childbearing’. *European Journal of Population/Revue Européenne de Démographie* 25 (4): 525–548.

Rosstat. 2004. *Rossiiskii Statisticheskii Ezhegodnik [Russian Statistical Yearbook], 2004*. Moscow: Rosstat.

———. 2011. *Trud i Zaniatost v Rossii [Labor and Employment in Russia], 2011*. Moscow: Rosstat.

———. 2012. *Rossiiskii Statisticheskii Ezhegodnik [Russian Statistical Yearbook], 2012*. Moscow: Rosstat.

Schoen, R., N.M. Astone, Y.J. Kim, C.A. Nathanson, and M.F. Jason. 1999. 'Do Fertility Intentions Affect Fertility Behavior?' *Journal of Marriage and Family* 61 (3): 790–799.

Teplova, Tatyana. 2007. 'Welfare State Transformation, Childcare, and Women's Work in Russia'. *Social Politics: International Studies in Gender, State Society* 14 (3) (September 1): 284–322. doi:10.1093/sp/jxm016.

Testa, Maria Rita, and Laurent Toulemon. 2006. 'Family Formation in France: Individual Preferences and Subsequent Outcomes'. *Vienna Yearbook of Population Research*: 41–75.

Thomson, E. 1997. 'Couple Childbearing Desires, Intentions, and Births'. *Demography* 34 (3): 343–354.

Thomson, E., and Y. Brandreth. 1995. 'Measuring Fertility Demand'. *Demography* 32 (1): 81–96.

Vignoli, Daniele, Sven Drefahl, and Gustavo De Santis. 2012. 'Whose Job Instability Affects the Likelihood of Becoming a Parent in Italy? A Tale of Two Partners'. *Demographic Research* 26 (2): 41–62.

Vikat, Andres, Zsolt Spéder, Gijs Beets, Francesco C Billari, Christoph Bühler, Aline Désesquelles, Tineke Fokkema, Jan M Hoem, Alphonse MacDonald, and Gerda Neyer. 2008. 'Generations and Gender Survey (GGS): Towards a Better Understanding of Relationships and Processes in the Life Course'. *Demographic Research* 17: 389–440.

Zakharov, S.V. 2008. 'Russian Federation: From the First to Second Demographic Transition'. *Demographic Research* 19 (24): 907–972.

Zdravomyslov, A.G., and V.A. Yadov. 2003. *Chelovek i Ego Rabota v SSSR i Posle [An Individual and His Work in the USSR and After]*. 2nd ed. Moscow: Aspekt-Press.

APPENDICES

Appendix A. Data sources and information used to construct some employment variables

A-1: Seven-category sector variables

		Categories used to construct 7 groups of sectors	
	7 sectors	**GGS**	**EES**
1	*Agriculture*	**Agriculture, hunting and forestry, fishery and fish-breeding**	**Agriculture, and forestry**
2	*Industry/construction*	**Mining** (including oil, gas, coal-mining, iron ore mining industries)	**Oil-gas industry**
		Construction	**Construction**
		Civil manufacturing	**Manufacturing** (ferrous and non-ferrous metallurgy; chemistry and petrochemistry; machine-building, instrument-making industry and metal-working; building materials, glass, whiteware industries; timber, woodworking, pulp and paper industry; light industry; food industry)
		Military industrial establishment	
		Chemical industry	
		Metallurgy	
		Power industry	**Production and distribution of electric energy, gas, water**
		Light industry	
		Other heavy industry	
3	*Transport/communication*	**Transport, mailing, communication** (including pipe lines; oil, gas and grain storage and warehousing) **and telecommunication services**	**Transport, communication**
4	*Services/retail*	**Wholesale and retail trade, repair services, hotel business and catering**	**Trade, catering**
		Other personal services (recoded from open questions "other")	**Other communal and personal services** (cleaning and technical maintenance; beauty, hear-dresser's services; laundry services; household assistance)
5	*Education/sciences/culture*	**Education, science/academy**	**Education**
		Science/academy, culture, arts	**Culture and arts**
6	*Health/social protection*	**Health and social protection, social assistance** (including Russian political parties and public organizations activities)	**Health care**
		Compulsory social provision (recoded from open questions "other")	**Compulsory social provision** (state pension provision, employment agencies)
7	*Other*	**Administration**	**State administration of the federal, regional, municipal level**
		Housing and communal municipal services	
		Banking, finances, insurance	**Banking, insurance, marketing and other financial activity, real-estate, legal, leasing services, information technologies, etc.**
		National defense, ministry for emergency situations, police and fire departments	**National defense, ministry for emergency situations, police and fire departments**
		Other	**Other**

A-2: Three categories of firm ownership

Categories used to construct firm ownership

		GGS	EES
0	*Private*	Newly established private enterprise	Newly established private enterprise
		Former state, privatized enterprise	Former state, privatized enterprise
		Worked for a private person	Worked for a private person
		Self-employed	
1	*Public*	State or municipal enterprise	State or municipal enterprise
		Non-for-profit, public organization	Non-for-profit, public organization
		International organization, regional office of a foreign company	International organization, regional office of a foreign company
2	*Other*	Mixed property enterprise	Mixed property enterprise
		Other	Other

A-3: Four-level occupational class schema

Categories used to construct occupational class

GGS occupational information	**EES occupational information**
1 Lower technical occupations; Routine occupations; Self-employed occupations in agriculture	1 Unqualified worker; Qualified worker; Agricultural employee; Farmer
2 Lower services, sales and clerical occupations	2 Employee who performs relatively simple tasks (salesperson, typist, clerk, security guard, etc.)
3 Intermediate occupations; Lower supervisory and lower technician occupations; Small employer and self-employed occupations, excluding agriculture	3 Highly qualified worker; Team-leader; Foreman; Employee who performs more complex tasks implying some autonomy (bookkeeper, draftsperson-designer, employee of the personnel department, nurse with basic medical education, librarian, etc.); Self-employed in an industry, trade, service sphere, with or without employees
4 Large employers, higher grade professional, administrative and managerial occupations; Lower grade professional, administrative and managerial occupations and higher grade technician and supervisory occupations	4 Leader with a significant managerial authority with the right to make important decisions (director of an enterprise, organization, executive director, CEOs, etc.); Employee who performs autonomously an important task or has a few subordinates (researcher/scholar, head of department, teacher, doctor, etc.); Self-employed lawyer, doctor, notary, who has a private practice with or without employees

A-4: Four-categories working schedule

Categories used to construct 4 groups of working schedule

		GGS	EES
0	*weekday*	At day-time on weekdays	At day-time on weekdays
1	*shift work*	The working hours change periodically	Work in shifts
2	*timetable*	Timetable (e.g., every fourth day, or pilot's work)	Timetable (e.g., every fourth day, or pilot's work)
		Two or more working periods each working day	Another schedule, timetable
3	*other*	At nights/evenings/early in the mornings	At nights/evenings
		On weekends	On weekends
		Work on call	Short working day/week
		Irregular working times	Administrative (forced) leave
		Some other arrangement of working time	