Birth Spacing in the Presence of Son Preference and Sex-Selective Abortions: India's Experience over Four Decades*

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Abstract

Strong son preference is typically associated with shorter birth spacing in the absence of sons, but access to sex selection has the potential to reverse this pattern because each abortion extends spacing by six to twelve months. I introduce an empirical method that simultaneously accounts for how sex selection increases both birth spacing and the likelihood of a son. Using the four rounds of India's National Family and Health Surveys, I show that birth intervals increased substantially over the last four decades, with the most significant increases among women most likely to use sex selection. Specifically, well-educated women with no boys now have significantly longer birth intervals, and more male-biased sex ratios, than similar women with boys. Women with no education still follow the standard pattern of short average spacing when they have girls and little evidence of sex selection, with medium-educated women showing mixed results. Furthermore, the traditional pattern of longer average spacing with sons appears to arise not from fewer very short birth intervals, but rather from the upper end of the distribution. Finally, northern and western India are responsible for most of the spacing pattern reversal, although even the south experienced substantially increased intervals from sex selection.
JEL: J1, O12, I1 Keywords: India, prenatal sex determination, censoring, competing risk, non-proportional hazard

1 Introduction

Birth spacing has long served as a measure of son preference, with strong son preference associated with shorter birth intervals the fewer sons a family has (Ben-Porath and Welch, 1976; Leung, 1988). However, the introduction of prenatal sex determination potentially changed the relationship between son preference and birth spacing. The stronger the son preference, the more likely couples are to resort to sex-selective abortions, and each abortion increases the interval between births by six to twelve months.[1] Hence, longer birth intervals in the absence of sons, which previously would be taken as an indicator of lower son preference, may now instead arise because couples with a strong son preference use sex selection.

Here, I examine how birth spacing in India has changed over time and across groups with the introduction of sex selection. I introduce an empirical method that directly incorporates the effects of sex-selective abortions on birth intervals *and* the likelihood of a son. The method can be used to analyze both situations with and without prenatal sex selection. I apply the method to birth histories of Hindu women, using data from the four India's National Family and Health Surveys (NFHS), covering the period 1972 to 2016.

India is a particularly compelling case with its long history of male preference, especially in the northern states (Kishor, 1993; Murthi, Guio and Dreze, 1995; Arnold, Choe and Roy, 1998). Mortality risk is higher for females than males for most ages groups, resulting in an almost continuous increase in India's overall ratio of males to females over the last century (Dyson, 2001; Navaneetham and Dharmalingam, 2011; Bongaarts and Guilmoto, 2015). Differential stopping behavior is widespread, with an additional child more likely the fewer sons a family has (Repetto, 1972; Das, 1987; Arnold, 1997; Arnold et al.,

[1] The increase consists of three parts. First, starting from the abortion, the uterus needs at least two menstrual cycles to recover; otherwise, the likelihood of spontaneous abortion increases substantially (Zhou, Olsen, Nielsen and Sabroe, 2000). The second part is the waiting time to conception, which is between one and six months (Wang, Chen, Wang, Chen, Guang and French, 2003). Finally, sex determination tests are reliable only from three months of gestation onwards.

1998; Clark, 2000; Basu and De Jong, 2010; Barcellos, Carvalho and Lleras-Muney, 2014).[2] Furthermore, fertility has declined substantially, to the point where it is now at, or even below, replacement in some areas (Guilmoto and Rajan, 2013; Dharmalingam, Rajan and Morgan, 2014; International Institute for Population Sciences (IIPS) and ICF, 2017). The combination of falling fertility, strong son preference, and expanding access to prenatal sex determination has lead to dramatic increases in the males-to-females ratio at birth over the last three decades (Das Gupta and Bhat, 1997; Sudha and Rajan, 1999; Arnold, Kishor and Roy, 2002; Retherford and Roy, 2003; Jha, Kumar, Vasa, Dhingra, Thiruchelvam and Moineddin, 2006; Guilmoto, 2009, 2012; Bongaarts, 2013; Pörtner, 2015; Jayachandran, 2017).

There are four main reasons for examining birth spacing and how it changes with access to sex selection. First, researchers have made extensive use of birth spacing as a measure of son preference, and it is critical to understand to what extent spacing is still a useful measure of son preference. For example, in Bangladesh, India, and Vietnam, having more boys, and particularly having a boy as the last-born child, significantly increase the duration to next birth, (Haughton and Haughton, 1995, 1996; Rahman and DaVanzo, 1993; Bhalotra and van Soest, 2008; Kumar, 2016; van Soest and Saha, 2018).[3] Outside Asia, the evidence is more mixed, with North Africa showing shorter spacing in the absence of sons, while a similar pattern does not exist in Sub-Saharan Africa (Rossi and Rouanet, 2015).

Second, birth spacing can affect children's short and long-term outcomes. Most of the research finds a negative impact of short spacing on child health, especially for very short intervals of 18 months or less (Conde-Agudelo, Rosas-Bermúdez and Kafury-Goeta, 2006; Conde-Agudelo, Rosas-Bermudez, Castaño and Norton, 2012). There is evidence in countries as diverse as Bangladesh, Brazil, El Salvadore, India, and Pakistan of worse health outcomes and a higher mortality risk the shorter the birth interval (Cleland and

[2]Other countries show a similar pattern (see, for example, Larsen, Chung and Das Gupta, 1998; Filmer, Friedman and Schady, 2009; Altindag, 2016).

[3]Ethnic Indians in South Africa also show a longer duration after the birth of a son than after a daughter (Gangadharan and Maitra, 2003).

Sathar, 1984; Curtis, Diamond and McDonald, 1993; Whitworth and Stephenson, 2002; Bhargava, 2003; Rutstein, 2005; Bhalotra and van Soest, 2008; Davanzo, Hale, Razzaque and Rahman, 2008; Maitra and Pal, 2008; Makepeace and Pal, 2008; Gribble, Murray and Menotti, 2009; Jayachandran and Kuziemko, 2011; Saha and van Soest, 2013; Jayachandran and Pande, 2017; Ghosh and Kochar, 2018). Most of the evidence on longer-term outcomes come from Western countries. In the US, for example, a longer interval between births increases the older, but not the younger, sibling's test scores (Buckles and Munnich, 2012). Furthermore, close spacing appears to increase the risk of dropping out of high school and lower the probability of attending a post-secondary school in both the US and Sweden (Powell and Steelman, 1993; Pettersson-Lidbom and Thoursie, 2009).[4]

Third, the mother may also be affected by the length of the birth intervals, although reviews of the literature show mixed results on mother's anthropometric status (Dewey and Cohen, 2007; Conde-Agudelo et al., 2012). For India, there is, however, evidence that women with first-born girls are more likely to have anemia, possibly because short birth spacing can resulting in maternal depletion (Milazzo, 2018). In Western countries, a longer interval between births has positive effects on long-term labor market outcomes, such as participation and income (Gough, 2017; Karimi, 2014).

Finally, we know less about what determines spacing behavior in developing countries than in developed countries, and with declining fertility and increasing numbers of women entering the labor force, understanding how couples make timing decisions is necessary for the design of suitable policies (Pörtner, 2018).[5] Even the effects of access to contraceptive and declining fertility on spacing are unclear. On the one hand, access to contraceptives allows women to avoid too short spacing between birth. On the other hand, increased reliability of access and effectiveness of contraceptives can lead to

[4]However, recent results from Sweden show no relationship between birth spacing, even if very short, and outcomes such as years of education completed, earnings, and unemployment (Barclay and Kolk, 2017).

[5]It is clear that birth spacing does respond to policies in both developed and developing countries (Pettersson-Lidbom and Thoursie, 2009; Todd, Winters and Stecklov, 2012; Meckel, 2015; Ghosh and Kochar, 2018).

shorter intervals between births if women used to have longer spacing to avoid having too many children by accident (Keyfitz, 1971; Heckman and Willis, 1976). These two counteracting effects may explain why better-educated women have shorter spacing than less educated women in some instances but not in others and why finding statistically significant effects of contraception use on birth spacing is difficult (Tulasidhar, 1993; Whitworth and Stephenson, 2002; Bhalotra and van Soest, 2008; Yeakey, Muntifering, Ramachandran, Myint, Creanga and Tsui, 2009; Kim, 2010; van Soest and Saha, 2018).[6]

Despite the increasing use of sex selection, the critical impacts of spacing on outcomes for both mother and children, and the extensive use of spacing to measure son preference, there has so far been no systematic examination of what effect access to sex selection have on spacing. I address three questions to remedy this shortcoming in the literature.

First, how did average birth intervals change over time for different groups and how do these changes relate to the use of sex selection? The hypothesis is that in the absence of sex selection son preference leads to shorter spacing the fewer boys a family has, whereas son preference increases spacing the fewer boys a family has when prenatal sex selection is available, possibly to the point where we observe a reversal of the standard spacing pattern. Families with son preference who—for one reason or another—do not use prenatal sex selection likely continue to have shorter birth spacing. Based on the prior literature on sex selection, I focus on how birth intervals have changed for different education levels, urban or rural, and the sex composition of prior children.

Second, have the shapes of the survival curves changed? Although examining average birth intervals helps us understand the overall changes in spacing behavior, it tells us little about how these changes came about. For example, the motivations that lead to an increase in average spacing are different if the increase comes mainly from parents trying to avoid very short birth intervals or from continued use of sex selection to ensure a son.

[6] In Matlab, the effect of son preference on birth spacing is stronger in areas with better access to family planning (Rahman and DaVanzo, 1993). Other evidence, however, points to families ability to time births, even in the absence of modern contraceptives (Jayachandran and Kuziemko, 2011; Alam and Pörtner, 2018).

Finally, how are the changes in birth intervals distributed geographically? Given the cultural differences within India, it is unlikely that the increasing access to sex selection will have had the same effects throughout (Retherford and Roy, 2003). I, therefore, examine how birth intervals have changed across four regions.

There are four main results. First, the intervals between births have increased for all education groups over the four decades. These increases are larger the higher the parity and the higher the education level. Second, those women who are most likely to use sex selection—well-educated women with no sons—have seen the largest increases in birth intervals. As a result, well-educated women now show a reversal of the traditional spacing pattern, with the longest birth intervals for women with no sons. Third, women who are least likely to use sex selection, those with no education in rural areas, still follow the standard pattern of short spacing when they have girls and little evidence of the use of sex selection. Finally, the traditional pattern of longer average spacing with sons appear to arise from more very long intervals, rather than from fewer very short birth intervals; across education groups, there appears to be little difference in the likelihood of having a very short birth interval across sex compositions, especially for lower parities.

2 Estimation Strategy

The standard approach in the birth spacing literature is to use proportional hazard models with a single exit, the birth of a child. There are two problems with the standard approach in this setting. First, and most importantly, the introduction of sex selection means that the sex of the next child is no longer necessarily random and that parents' choices will impact the spacing to the birth of a girl or a boy differently. I, therefore, use a competing risk set-up, which can capture both the non-randomness of the birth outcome and the differential spacing. To my knowledge, this is the first application of competing risk models to birth spacing.[7]

Second, it is unlikely—even in the absence of prenatal sex determination—that characteristics, such as the sex composition of previous births, have the same effects throughout the entire spell as is assumed by the proportional hazard model. The proportionality assumption is especially problematic for higher-order spells where there are substantial differences across groups both in the likelihood of progressing to the next birth and how soon couples want their next child if they are going to have one. The introduction of prenatal sex determination exacerbates any bias from the proportionality assumption since sex-selective abortion use varies across groups, which affects birth spacing, and because a household's use of sex selection may vary within a spell, which means that the effects of covariates vary within the spell as well. I, therefore, use a non-proportional hazard specification, which allows the shape of the hazard functions to vary across groups. The use of a non-proportional specification also mitigates any potential effects of unobserved heterogeneity when used in conjunction with a flexible baseline hazard (Dolton and von der Klaauw, 1995).

The model is a discrete time, non-proportional, competing risk hazard model with two exit states: either a boy or a girl is born. The unit of analysis is a spell, the period from nine months after one birth to the next. For each woman, $i = 1, \ldots, n$, the starting point for a spell is time $t = 1$, and the spell continues until time t_i, when either a birth occurs or the spell is censored.[8] There are two exit states: the birth of a boy, $j = 1$, or the birth of a girl, $j = 2$, and J_i is a random variable indicating which event took place. The discrete time hazard rate h_{ijt} is

$$h_{ijt} = \frac{\exp(D_j(t) + \alpha'_{jt}\mathbf{Z}_{it} + \beta'_j\mathbf{X}_i)}{1 + \sum_{l=1}^{2} \exp(D_j(t) + \alpha'_{lt}\mathbf{Z}_{it} + \beta'_l\mathbf{X}_i)} \quad j = 1, 2 \tag{1}$$

[7]Merli and Raftery (2000) used a discrete hazard model to examine whether there were under-reporting of births in rural China, although they estimated separate waiting time regressions for boys and girls.

[8]The time of censoring is assumed independent of the hazard rate, as is standard in the literature.

where the explanatory variable vectors, $\mathbf{Z}_{it}$ and $\mathbf{X}_i$, capture individual, household, and community characteristics discussed below, and $D_j(t)$ is the piece-wise linear baseline hazard for outcome j, captured by dummies and the associated coefficients,

$$D_j(t) = \gamma_{j1}D_1 + \gamma_{j2}D_2 + \ldots + \gamma_{jT}D_T, \tag{2}$$

with $D_m = 1$ if $t = m$ and zero otherwise. This approach to modeling the baseline hazard is flexible and does not place overly strong restrictions on the baseline hazard.

The explanatory variables in $\mathbf{Z}$, and the interactions between them, constitute the non-proportional part of the model, which means that they are interacted with the baseline hazard:

$$\mathbf{Z}_{it} = D_j(t) \times (\mathbf{Z}_1 + Z_2 + \mathbf{Z}_1 \times Z_2), \tag{3}$$

where $D_j(t)$ is the piece-wise linear baseline hazard, $\mathbf{Z}_1$ captures sex composition of previous children, if any, and Z_2 captures area of residence. The remaining explanatory variables, $\mathbf{X}$, enter proportionally, but to further minimize any potential bias from assuming proportionality, estimations are done separately for different levels of mothers' education and different periods.[9]

Equation (1) is equivalent to the logistic hazard model and has the same likelihood function as the multinomial logit model (Allison, 1982; Jenkins, 1995). Hence, transforming the data, so each observation is an interval—here equal to three months—the model can be estimated using a standard multinomial logit model. In the reorganized data the outcome variable is 0 if the woman does not have a child in a given interval (the base outcome), 1 if she gives birth to a son in that interval, and 2 if she gives birth to a daughter in that interval.

The distribution of spacing is captured by the survival curve, which shows the probability of not having had a birth yet by spell duration, for a given set of explanatory vari-

[9] I discuss the choice of which variables to use for non-proportionality in more detail in the "Explanatory Variables" section.

ables. The survival curve at time t is

$$S_t = \prod_{d=1}^{t} \left(\frac{1}{1 + \sum_{l=2}^{2} \exp(D_j(t) + \alpha'_{ld}\mathbf{Z}_{kd} + \beta'_l \mathbf{X}_k)} \right). \tag{4}$$

Because the probability of ever having a next birth varies across groups, a direct comparison of standard survival curves tells us little about how the spread of sex selection affects birth spacing across groups. I, therefore, condition on the predicted likelihood of parity progression when examining birth spacing measures, such as the average duration to a birth. The reliability of this approach depends on whether the spell length covered is sufficiently long that few women are likely to give birth after the spell cut-off. I discuss the choice of spell length below.[10] In addition, I present graphs of survival curves conditional on parity progression, which therefore begin at 100% and end at 0%.

Interpretation of the model coefficients is challenging (Thomas, 1996). It is, however, possible to calculate the predicted probabilities of having a boy, b, and of having a girl, g, in period t, conditional on a set of explanatory variables and not having had a child before that period, as

$$P(b_t|\mathbf{X}_k, \mathbf{Z}_{kt}, t) = \frac{\exp(D_j(t) + \alpha'_{1t}\mathbf{Z}_{kt} + \beta'_1 \mathbf{X}_k)}{1 + \sum_{l=1}^{2} \exp(D_j(t) + \alpha'_{lt}\mathbf{Z}_{kt} + \beta'_l \mathbf{X}_k)} \tag{5}$$

$$P(g_t|\mathbf{X}_k, \mathbf{Z}_{kt}, t) = \frac{\exp(D_j(t) + \alpha'_{2t}\mathbf{Z}_{kt} + \beta'_2 \mathbf{X}_k)}{1 + \sum_{l=2}^{2} \exp(D_j(t) + \alpha'_{lt}\mathbf{Z}_{kt} + \beta'_l \mathbf{X}_k)} \tag{6}$$

It is then straightforward to calculate the estimated percentage of children born that are boys, $\hat{Y}$, at each t:

$$\hat{Y}_t = \frac{P(b_t|\mathbf{X}_k, \mathbf{Z}_{kt}, t)}{P(b_t|\mathbf{X}_k, \mathbf{Z}_{kt}, t) + P(g_t|\mathbf{X}_k, \mathbf{Z}_{kt}, t)} \times 100. \tag{7}$$

Combining the percentage boys and the likelihood of exiting the spell across all t gives the

[10] It is important to note that the approach is not the same as merely calculating the birth spacing measures for women who already have a given parity child in the survey because that number does not take into account the censoring of spells that will eventually lead to a birth.

predicted percent boys born over the entire spell.

3 Data

The data come from the four rounds of the National Family Health Survey collected in 1992–1993, 1998–1999, 2005–2006, and 2015–2016.[11] The surveys are large: NFHS-1 covered 89,777 ever-married women aged 13–49 from 88,562 households; NFHS-2 covered 90,303 ever-married women aged 15–49 from 92,486 households; NFHS-3 covered 124,385 never-married and ever-married women aged 15–49 from 109,041 households; and NFHS-4 covered 699,686 never-married and ever-married women aged 15–49 from 601,509 households surveyed.

I exclude visitors to the household, as well as women who fall into any of the following categories: never married; no gauna yet; married more than once; divorced; not living with husband; inconsistent age at marriage; or education information missing. The same goes for women who had at least one multiple births, reported having a birth before age 12, had a birth before marriage, or an interval between births of less than nine months. Finally, I restrict the sample to Hindus, who constitute about 80% of India's population.[12]

In addition to the large number of women surveyed and the long period covered, one of the benefits of the NFHS is that surveys enumerators pay careful attention to spacing between births and probe for "missed" births. Nevertheless, systematic recall error, where the likelihood of reporting a deceased child depends on the sex of the child, is still a potentially substantial problem and will bias both spacing and sex ratios. As I show in the online Appendix, recall error is heavily dependent on how long ago a woman was married, and I, therefore, drop women married 22 years or more. The final sample consists of

[11] A delay in the survey for Tripura means that NFHS-2 has some observation collected in 2000.

[12] If the use of sex selection differ between Hindu and other groups assuming that the baseline hazard is the same would lead to bias. The other groups are each so small that it is not possible to estimate different baseline hazards for each group, and are so different that combining them into one group would not make sense.

395,695 women, with 815,360 parity one through four births.

Direct information on the use of sex selection is not available, so I compare different periods as a proxy, based on the changes in access and legality of prenatal sex determination in India. Abortion has been legal in India since 1971. Reports of sex determination appeared around 1982–83, and the number of clinics quickly increased (Sudha and Rajan, 1999; Bhat, 2006; Grover and Vijayvergiya, 2006). In 1994, the Prenatal Diagnostic Techniques (PNDT) Act made determining and communicating the sex of a fetus illegal.[13] Although the use of sex selection increased even after 1994, some researchers argue that we have passed a turning point in its use (Das Gupta, Chung and Shuzhuo, 2009; Diamond-Smith and Bishai, 2015). I, therefore, use four periods: 1972–1984, 1985–1994, 1995–2004, and 2005–2016. The allocation of spells into periods is determined by when conception, and therefore decisions on sex selection, can begin, even if we do not observe any births until nine months later. This allocation mechanism means that some spells cover two periods, which may bias downward the differences between the periods.

I focus here on the second through fourth spells, that is, on the intervals from the first birth until at most the fourth birth. I exclude the spell from marriage to the first birth because of data issues. In NFHS-1 and NFHS-2 the only information on marriage is the age at marriage, and all first spell durations are therefore imputed. In NFHS-3 about a third of respondent did not provide complete information on the timing of marriage and had the length of their first spell imputed using the age at marriage. The imputation results in large numbers of women with spells that are either negative or less than nine months and makes a comparison of spell duration over time subject to an excessive amount of noise.

The spells all begin nine months after the previous birth, which is the earliest we should expect to observe a new birth. A spell continues until either a child is born or censoring occurs. Censoring can happen for three reasons: the survey takes place; sterilization of the woman or her husband; or too few births are observed for the method to work. For

[13] Details about the act are at http://pndt.gov.in/. There is little evidence that the ban significantly affected sex ratios (Das Gupta, 2016).

all spells censoring is set at 96 months (eight years) after a birth can occur. With these cut-offs, less than one percent of observed births occur after the spell cut-off.[14]

3.1 Explanatory Variables

I divide the explanatory variables into two groups. The first group consists of characteristics that the prior literature finds affect spacing choice and the use of sex selection: mother's education, sex composition of previous children, and area of residence. The second group of variables consists of those expected to have an approximately proportional effect on the hazard. These include the age of the mother at the beginning of the spell, whether the household owns any land, and whether the household belongs to a scheduled tribe or caste.

Women with different education levels have different hazard profiles, although the size and direction of the effect vary across areas and time (Tulasidhar, 1993; Whitworth and Stephenson, 2002; Bhalotra and van Soest, 2008; Kim, 2010; van Soest and Saha, 2018). Furthermore, the use of sex selection increases with education, either because of the associated lower fertility or because higher income enables them to access and afford prenatal sex determination (Das Gupta and Bhat, 1997; Retherford and Roy, 2003; Jha et al., 2006; Guilmoto, 2009; Bongaarts, 2013; Pörtner, 2015; Jayachandran, 2017).[15] I divide women into three groups based on education attainment: no education, one to seven years of education, and eight and more years of education. The models are estimated separately for each education level to reduce the potential problem of including other variables as proportional.

[14] The cut-offs are determined not by the total number of births, but by how many that occur in each three months period. If there are too few births, the multinomial logit estimations will not converge. For spell 2, 0.84%, or 2,240 births, of a total of 266,104 births are observed after 105 months from the first birth, with the highest observed duration 235 months. For spell 3, 0.64%, or 884 births, of a total of 138,615 births are observed after 105 months from the second birth, with the highest observed duration 200 months. For spell 4, 0.41%, or 262 births, of a total of 63,431 births are observed after 105 months from the third birth, with the highest observed duration 184 months.

[15] It is also possible that the effect is driven by a stronger son preference, although higher education women have shown declining son preference (Bhat and Zavier, 2003; Pande and Astone, 2007).

The sex composition of previous children affects both the timing of births and the use of sex-selective abortions (Retherford and Roy, 2003; Jha et al., 2006; Bhalotra and van Soest, 2008; Abrevaya, 2009; Pörtner, 2015; Kumar, 2016; van Soest and Saha, 2018). I capture sex composition with dummy variables for the possible combinations for the specific spell, ignoring the ordering of births. Finally, urban women have both lower fertility and, presumably, better access to sex selection, both of which lead to higher use of sex-selective abortions than in rural areas (Retherford and Roy, 2003; Jha et al., 2006; Pörtner, 2015). Area of residence is a dummy variable for the household living in an urban area.

3.2 Descriptive Statistics

Appendix Table B.1 presents descriptive statistics for the spells by education level and period. The level of censoring increases with parity and time, as we should expect with later childbearing, falling fertility, and the hypothesized increases in birth intervals from sex-selective abortions.

The share of urban women in the sample has fallen slightly over the periods, even though India's population has become more urbanized, presumably because the age of marriage has increased faster in urban than in rural areas. Hence, there are relatively more urban women, but fewer show up in the sample because they are not yet married.

Finally, the population has become substantially better educated over time. In the first period, almost 60% of women had no education, and only twenty percent had eight or more years, while in the last period the reverse was the case. These changes underestimate the increase in education because many of the younger women with more education are not yet married and therefore not in the sample.[16]

[16] Women with eight or more years of education accounted for 65.9% of unmarried women in NFHS-3 and 82.8% of unmarried women in NFHS-4 (International Institute for Population Sciences (IIPS) and Macro International, 2007; International Institute for Population Sciences (IIPS) and ICF, 2017).

4 Results

I estimate the model for each spell/education/period subsample, the results of which I use to predict average birth spacing, sex ratio, and the probability of having a birth in that spell. Figures 1, 2, and 3 show these predicted outcomes for the three education levels separated by the area of residence.[17] The predicted probability of having a birth by the end of the spell (parity progression probability) is $1 - S_T$, that is the likelihood of having had a birth by 96 months after the beginning of the spell. To find the expected average duration I first calculate for each woman the probability of giving birth in each time t, which I use as weights to calculated her expected duration. I then average the individual expected durations across women using the parity progression probabilities as weights.

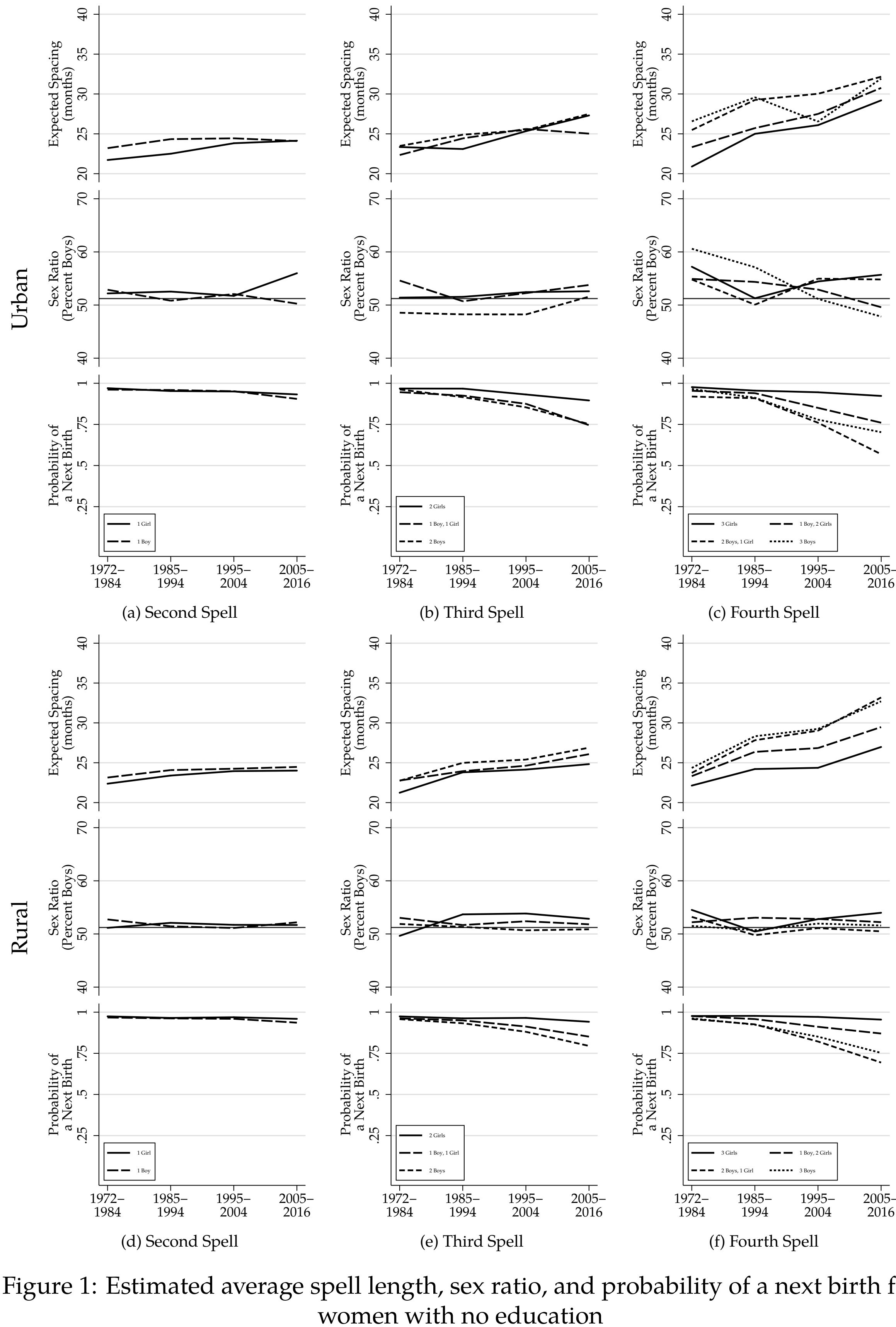
The predicted sex ratio captures the percent boys that will have been born to women in the sample when childbearing for that spell is over. A woman's predicted sex ratio is the weighted average of the predicted percentage boys over each t in the spell, calculated using equation (7), using the probability of giving birth at time t as weights.[18] The predicted sex ratio shown is the weighted average of the individual predicted sex ratios, using the parity progression probabilities as weights. For comparison, the graphs also show the natural sex ratio, approximately 51.2% (Ben-Porath and Welch, 1976; Jacobsen, Moller and Mouritsen, 1999; Pörtner, 2015).

4.1 No Education Women

Based on the literature, I expect women with no education to follow a traditional approach to son preference with high fertility, shorter birth intervals with fewer son, and minimal use of sex selection. This pattern is supported by Figure 1, but with crucial differences across spells. Since only between ten and twenty percent of women without education

[17]For legibility, none of the graphs show standard errors, which, together with the graphed values, are shown in Appendix Tables C.1, C.2, and C.3.

[18]If T=2 with the estimated percent boys 54% and 66% and the likelihoods of giving birth 20% and 40%, the percent boys is $\frac{54*0.2+66*0.4}{0.2+0.4} = 62$.



(a) Second Spell (b) Third Spell (c) Fourth Spell

(d) Second Spell (e) Third Spell (f) Fourth Spell

Figure 1: Estimated average spell length, sex ratio, and probability of a next birth for women with no education

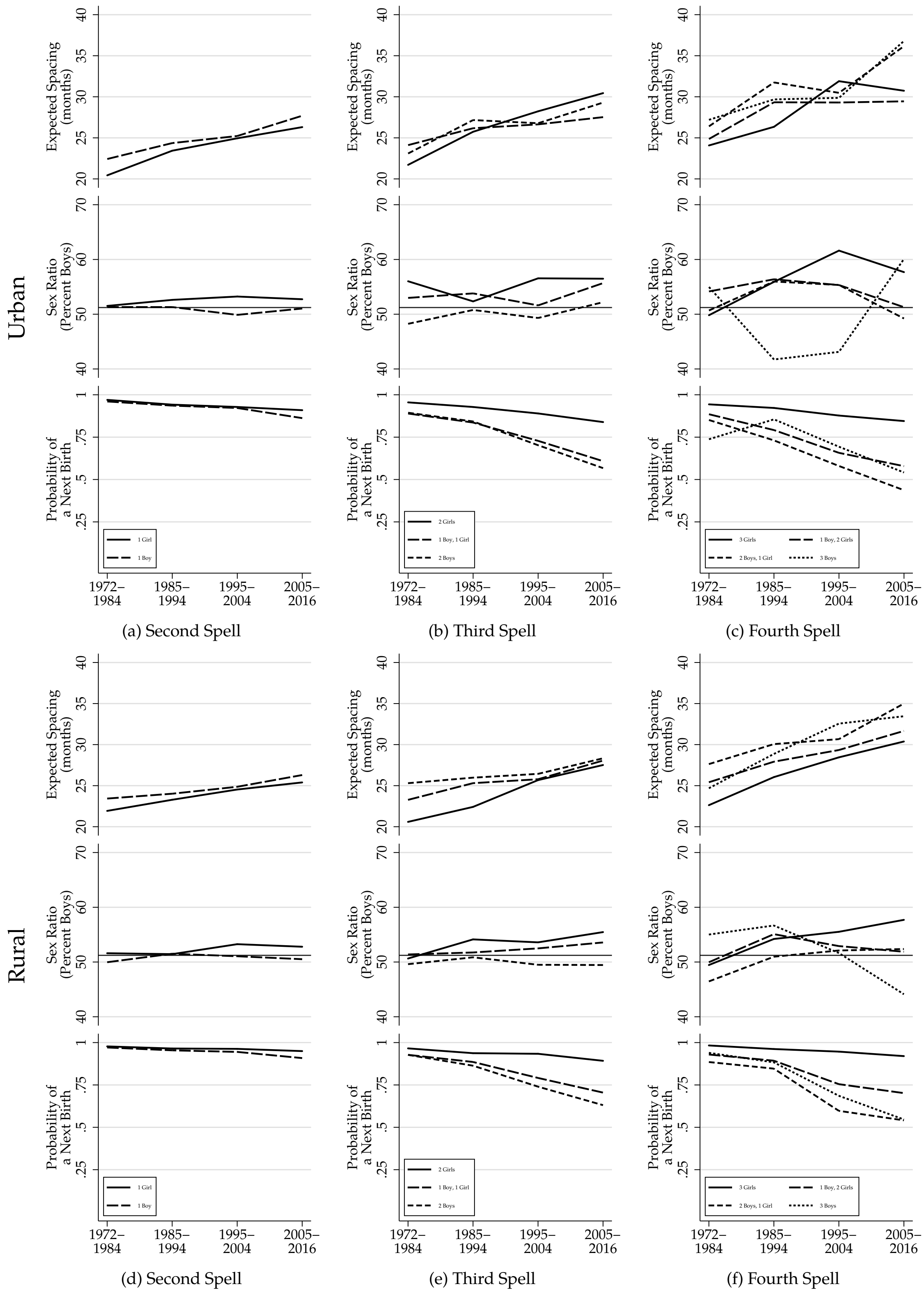
live in urban areas, I focus on rural women.

Birth intervals have increased in length over time and are longer the higher the spell. The smallest increases in birth intervals have been for the second spell, with most increases only between one and two months. Interestingly, son preference has little effect on spacing for the second spell, with very small, albeit statistically significant, differences in birth intervals depending on the sex of the first child and virtually all women still have a second birth.

Son preference in birth intervals shows up more clearly for the third, and, particularly, the fourth spell. For the fourth spell, the difference across sex compositions are more pronounced over time, and the likelihood of having a child has decreased for women with at least one son. Women with only girls, show almost no reduction in the probability of having a birth across time and spells. Despite the expectation that this group of women does not use sex selection, the predicted sex ratios for those with only girls are statistically significantly higher than the natural ratio for the third and fourth spell. Hence, it is possible that at least part of the increased birth intervals for those with only girls comes from the use of sex selection and that the differences in birth spacing across sex compositions would be even more substantial in the absence of sex selection.

4.2 Low to Medium Education Women

Figure 2 shows that for women with one to seven years of education birth intervals have increased over the four decades, and the increases are larger than for women without any education. Contrary to women without education, however, there has not been an increased divergence in birth intervals across sex compositions for the third and fourth spells. Instead, for the third spell, the most substantial increases in birth intervals are for women with two daughters and no sons, with an increase of about seven months. The result is that the standard spacing pattern reversed for urban women, so the longest predicted spacing is now for those with only girls, while rural women's predicted average



(a) Second Spell (b) Third Spell (c) Fourth Spell

(d) Second Spell (e) Third Spell (f) Fourth Spell

Figure 2: Estimated average spell length, sex ratio, and probability of a next birth for women with one to seven years of education

birth intervals are now almost identical across sex compositions of prior children. For the fourth spell, the increases in spacing for women with only girls have kept pace with the other sex compositions in rural areas.[19]

The substantial increases in spacing for women with only girls is not evidence of lower son preference as shown by the changes in the predicted sex ratios and the parity progression behavior. For both the third and fourth spell the predicted sex ratios in urban and rural areas are statistically significantly above the natural sex ratio at between 55.5% and 57.7% boys. The elevated sex ratios strongly suggest that sex selection, possibly precipitated by declining fertility, drove the increases in birth intervals for women with only girls and that without sex selection we would instead have observed a diverging pattern in birth intervals across sex composition similar to what we saw for women without education.

4.3 High Education Women

Women with eight or more years of education are expected to have the lowest fertility and the highest use of sex selection, and we should, therefore, see the most substantial effects on spacing. At first blush, it appears from Figure 3 that the second spell spacing pattern looks remarkably similar to the two other education groups with little difference in average birth spacing across sex composition. This similarity hides, however, a much faster decline in the likelihood of having a second birth, substantial increases in spacing, and predicted sex ratios for women with a first-born daughter above 55 percent for both urban and rural areas for the last two periods. Hence, where it not for a substantial amount of sex selection brought on by falling fertility we would now have seen a standard son preference spacing pattern with significantly shorter spacing after a first-born girl than after a first-born boy.

The tremendous impact that sex selection can have on birth spacing is illustrated particularly vividly by the changes for the third spell, where we see a complete reversal of the standard spacing pattern. In the 1972-1984 period, the predicted average birth intervals

[19] The pattern for the urban fourth spell is noisier because a low number of observations.

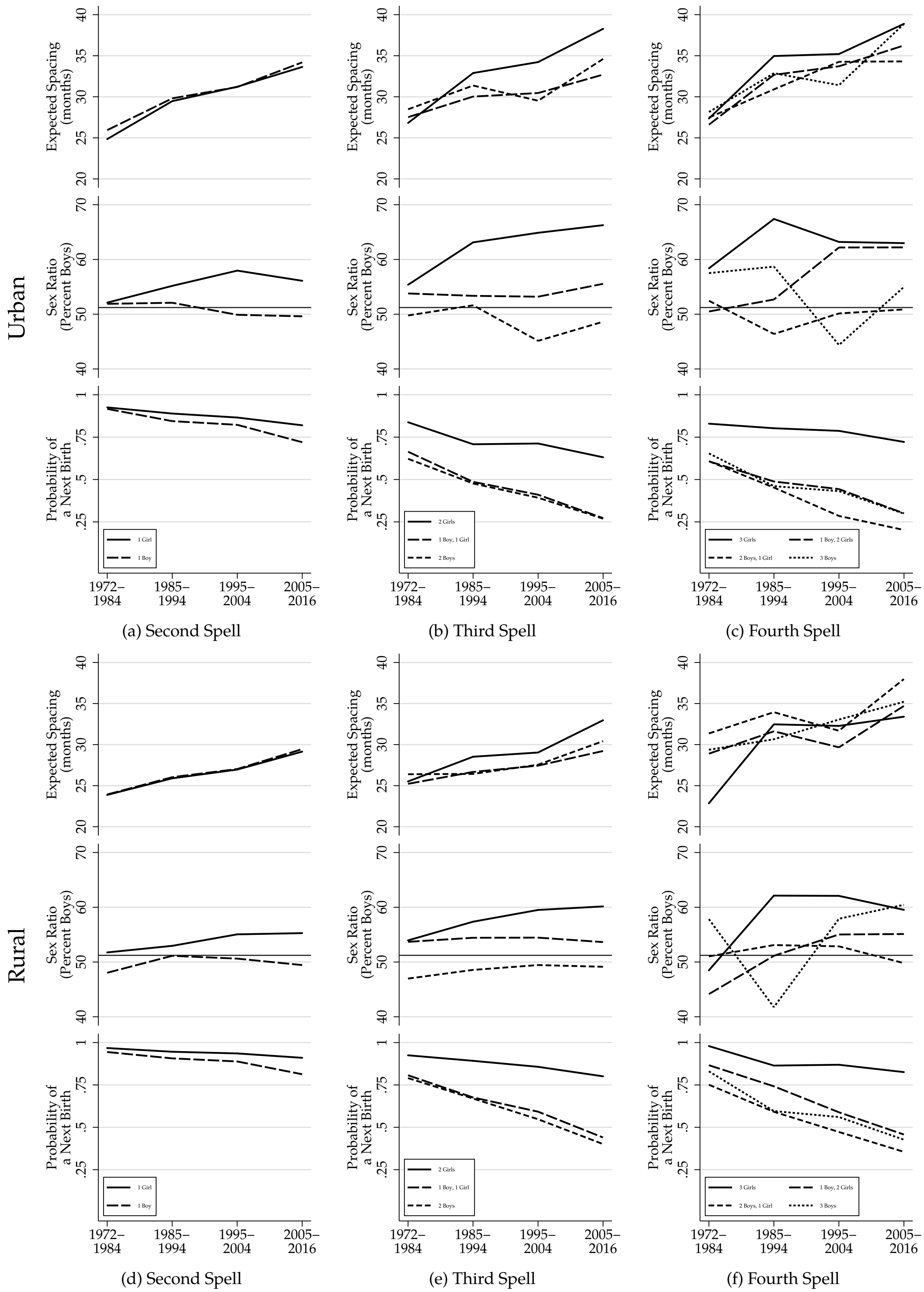


Figure 3: Estimated average spell length, sex ratio, and probability of a next birth for women with eight or more years of education

for the three possible sex compositions were less than two months apart. For the later periods, however, the highest predicted average spacing was for women *with only daughters*, with most of the differences to the other sex compositions statistically significant. In urban areas, the predicted average birth interval for a woman with only daughters increased by almost a full year from 26.8 to 38.3 months, while it "only" increased by around six months with only sons. Consistent with the rapidly falling fertility leading to increased use of sex selection, women with no sons have around 65% and 60% boys in urban and rural areas, respectively.

The reversal pattern also shows up for the fourth spell for urban women, but not for rural women. An important caveat is that the falling fertility means that few women make it to the fourth spell, and even if they do, we are unlikely to observe a birth by the survey making the estimates noisy. Son preference, however, still shows clearly in the parity progression probabilities for women without a son, with the declines for the third and fourth spells substantially slower for both urban and rural women without a son than for those with at least one son.

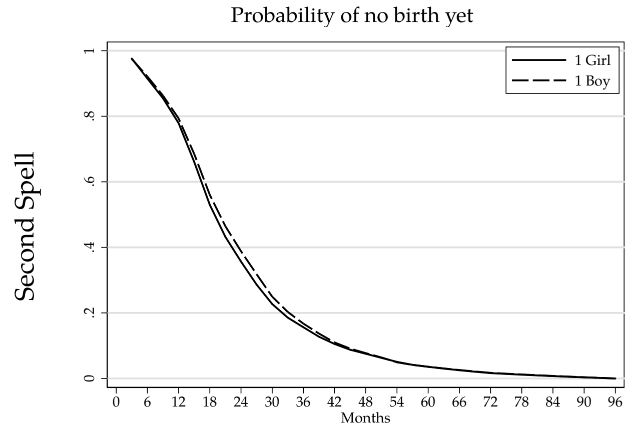
4.4 Distribution of Birth Spacing Within Spells

Average spacing is a convenient way to understand the overall changes in behavior but may hide crucial differences in the distribution of spacing. Specifically, whether increases in average spacing come from fewer births after very short intervals, from an even longer spacing of births with already long spacing, or from a general increase in spacing have important implications for what effects the increases in average spacing are likely to have and how to interpret the motivation for the changes. This section, therefore, examines the distribution of spacing within spells. I show survival curves conditional on predicted parity progression, which allows direct comparisons of the distribution of spacing across groups independent of differences in parity progression probabilities, rather than standard survival curves.

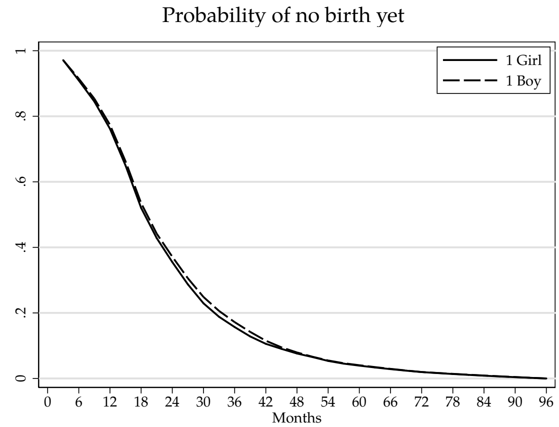
Instead of averaging across the entire sample, for each spell/education combination I calculate the conditional survival curves using average values and the majority of categories, which means no ownership of land and not in a scheduled caste or tribe. The characteristics used do not change across the four decades to ensure that composition effects do not drive the changes. In the interest of brevity, I discuss only two subsamples. Figures 4 and 5 show spacing across sex compositions for the second, third, and fourth spells for the first period, 1972–1984, and the last period, 2005–2016, for rural women with no education and urban women with eight or more years of education. The Appendix shows conditional survival curves for all groups and decades and to complement this approach, Appendix Tables C.4, C.5, and C.6 show 25th, 50th, and 75th percentiles durations with bootstrapped standard errors based on averages across all women.

The most striking results for women with no education are that, in both periods, close to 50% had their second child by 18 months and that there are minimal differences in the probability of very short intervals whether the first-born was a boy or a girl. Hence, almost 50% of second-borns are born within an interval associated with a higher risk of adverse outcomes, and, surprisingly, there do not appear to be any particular disadvantage for the child born after a girl than after a boy. There is more evidence of son-preference driven short spacing for the third and fourth spells, but a large number of women still have very short intervals whether they have boys or girls already. For both spells, the difference in average spacing mainly come from the upper end of the distribution; for example, the 75th percentile show a twelve months difference between families with three girls and families with two or more boys.

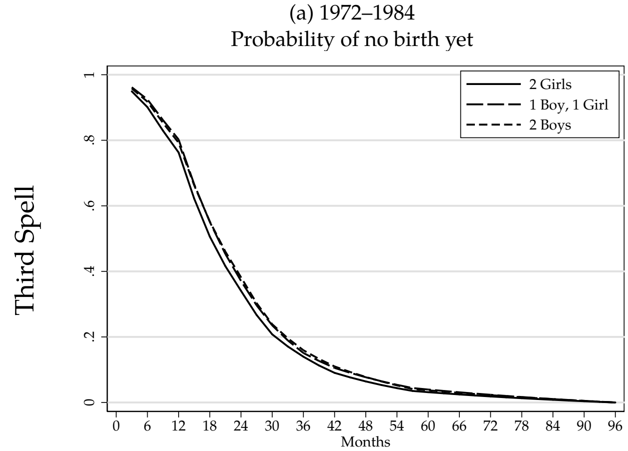
Another remarkable result is the similarity in the lower end of the distribution of spacing for the second spell between urban women with eight or more years of education and rural women with no education for the 1972–1984 period with little difference across sex composition and close to 50% with very short birth intervals. However, the high education women show an upward shift over time and spacing patterns that are close to identical



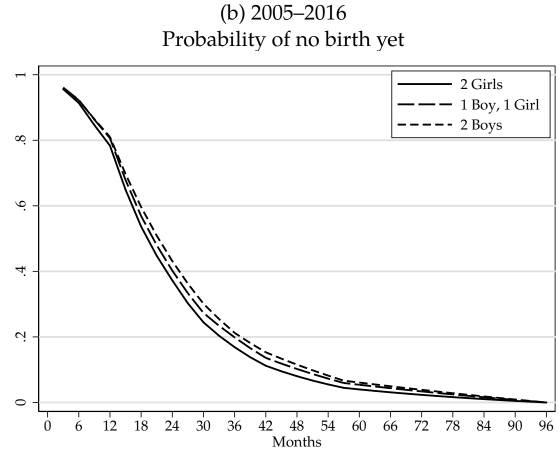
(a) 1972–1984



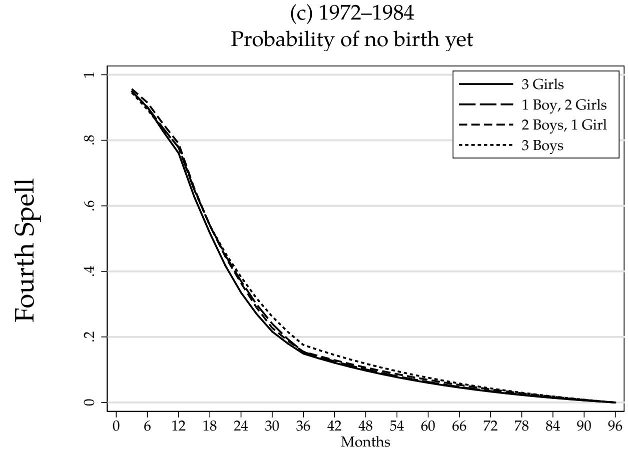
(b) 2005–2016



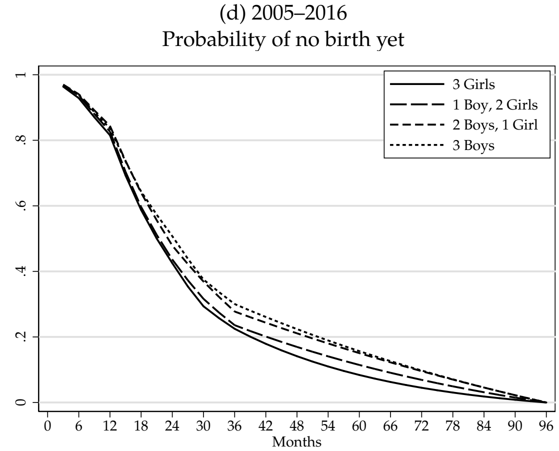
(c) 1972–1984



(d) 2005–2016



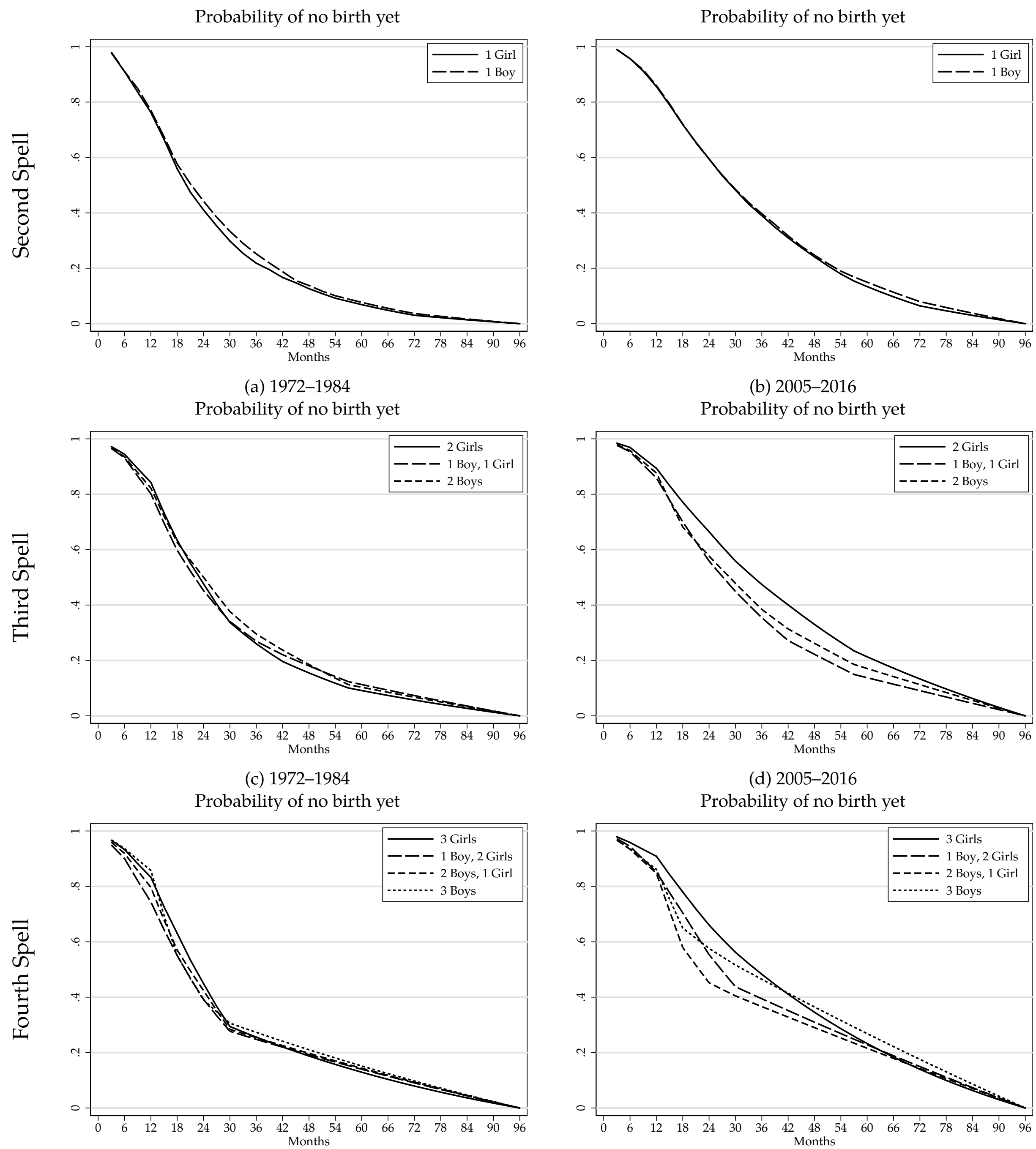
(e) 1972–1984



(f) 2005–2016

Figure 4: Survival curves conditional on progression to next birth for rural women without education; start point for each spell is nine months after prior birth

after first-born girls and after first-born boys until after approximately 80 percent have had their second child, driven by the significant use of sex selection among women with a first-born girl.



(a) 1972–1984 (b) 2005–2016

(c) 1972–1984 (d) 2005–2016

(e) 1972–1984 (f) 2005–2016

Figure 5: Survival curves conditional on progression to next birth for urban women with eight or more years of education; start point is nine months after prior birth

The sex selection induced reversal of the standard spacing pattern shows up clearly in the 2005–2016 period for the third and fourth spells, with spacing to the next child consistently longer with only girls than with the other sex compositions. This pattern is most consistent with early and continued use of sex selection, rather than a general reduction in the likelihood of very short birth intervals. It also means that the previously born girls can expect more time without a younger sibling, which may reduce the sibling competition for resources.

4.5 Regional Differences

To understand how regional differences in son preference, fertility, and use of sex selection affect birth spacing, I divide India into four regions, shown in Table 1, based on the degree of son preference and initial fertility levels (Retherford and Roy, 2003).[20] The "West" contains states with a high degree of son preference and use of sex selection. The "North" consists of states that also have a strong son preference, but initially had higher fertility and, therefore, lower likelihood of using sex selection. The "East" states generally have only a moderate level of son preference. Finally, the "South" contains states with traditionally low son preference and lower fertility than the rest of India.

Table 1: Definition of Regions

Region	States
West	Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu, Maharashtra, Punjab, Rajasthan
North	Bihar, Madhya Pradesh, Uttar Pradesh
East	Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Sikkim, Tripura, West Bengal
South	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu

Note. The state names reflect those in existence at the time of the NFHS-1 data collection in 1992/1993. States created later are allocated as close as possible to their original state.

I focus on the most educated women as the primary users of sex selection. Figures 6, 7, 8, and 9 show the predicted average birth intervals, sex ratios, and parity progression probabilities for the "West," "North," "East," and "South," respectively. The "East"

[20] The state names are those used in NFHS-1, with states formed later allocated as close as possible to the original state.

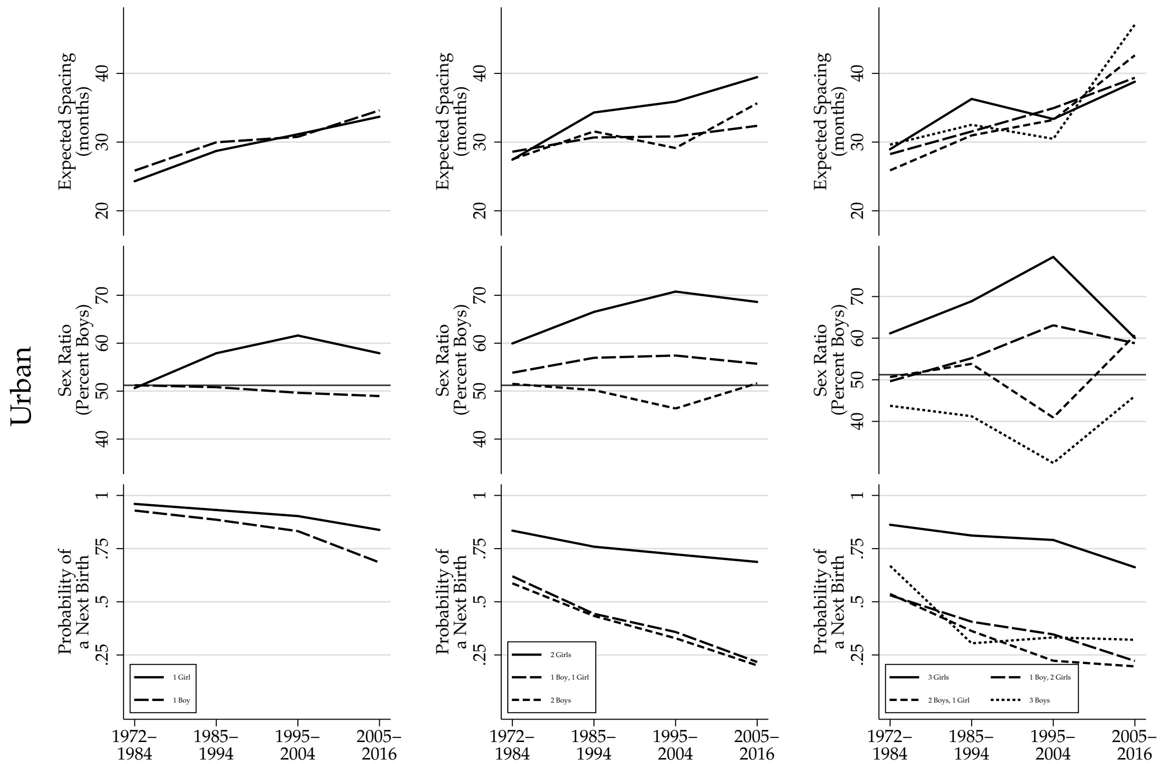
and "South" do not include the fourth spell because of small sample sizes and very noisy results.

Despite the idea that the "West" and "North" differ in fertility and likelihood of using sex selection, the differences are surprisingly small, at least for urban areas. Furthermore, both are close to the national averages presented above, with the main difference that the very high sex ratios reflect a higher use of sex selection, presumably as a result of fertility falling faster than the national trend. The predicted sex ratios in urban areas are around 60% for the second spell and around 70% for the third spell. This higher use of sex selection, in turn, translates into the reversal of standard spacing pattern.

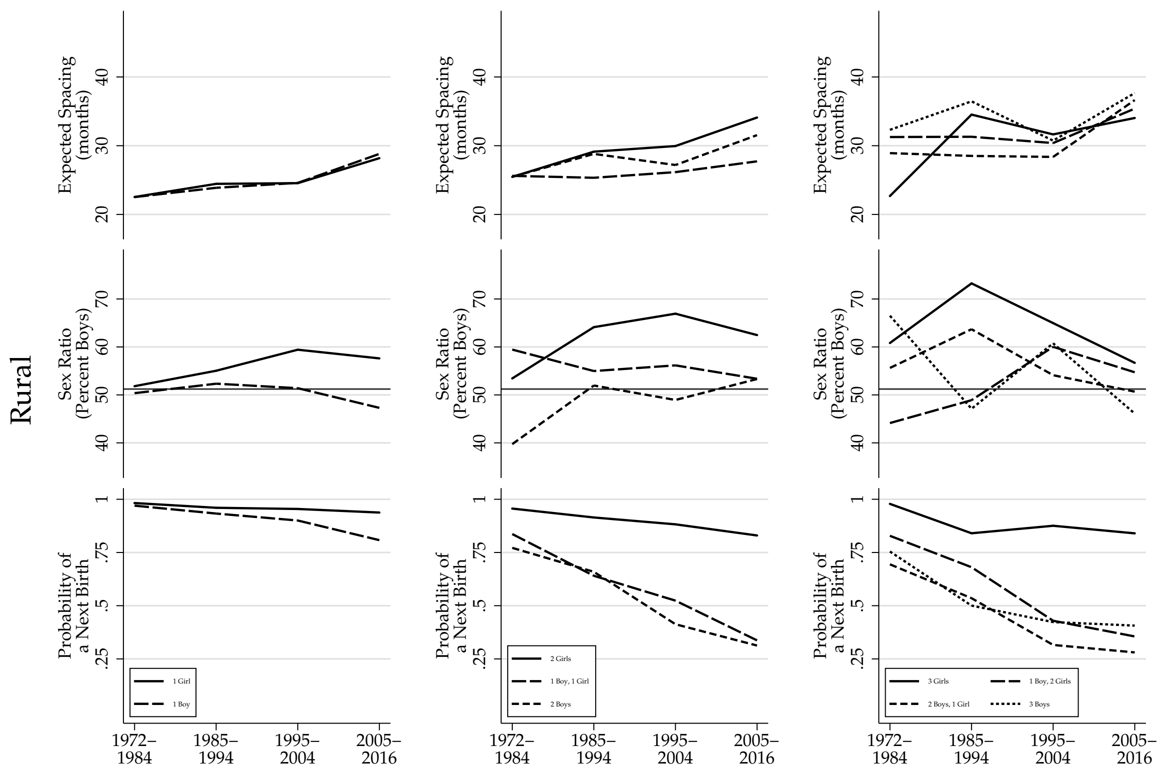
The two regions are further apart for the rural areas. In the "West" the rural areas show only slightly lower use of sex selection and therefore a less pronounced reversal in spacing patterns than in the urban areas. In the rural "North," fertility is substantially higher, and the use of sex selection subsequently lower, but the sex ratio is still substantially above normal at close to 60 percent for the latest decade.

What stands out for the "East" is the rapid increase in the lengths of birth intervals, especially for the second spell, where the increases have been more than a year, independently of whether the first-born was a boy or a girl. The increases in birth intervals are slightly smaller for the third spell but still substantial. Although the spacing pattern is consistent with some son preference, there is little evidence of sex-selective abortions. Furthermore, despite the "South" generally considered the low fertility region, the reduction in fertility has been even faster in the "East." For example, only half of the urban women with a first-born son are now predicted to have a second child by the end of the spell.

The "South" is historically thought to have the lowest degree of son preference, which has initial support from the second spell's progression rates, spacing pattern, and sex ratios. However, for the third spell in urban areas, the average birth interval has increased substantially, and the predicted sex ratio is close to 60% for those with only girls. The signs

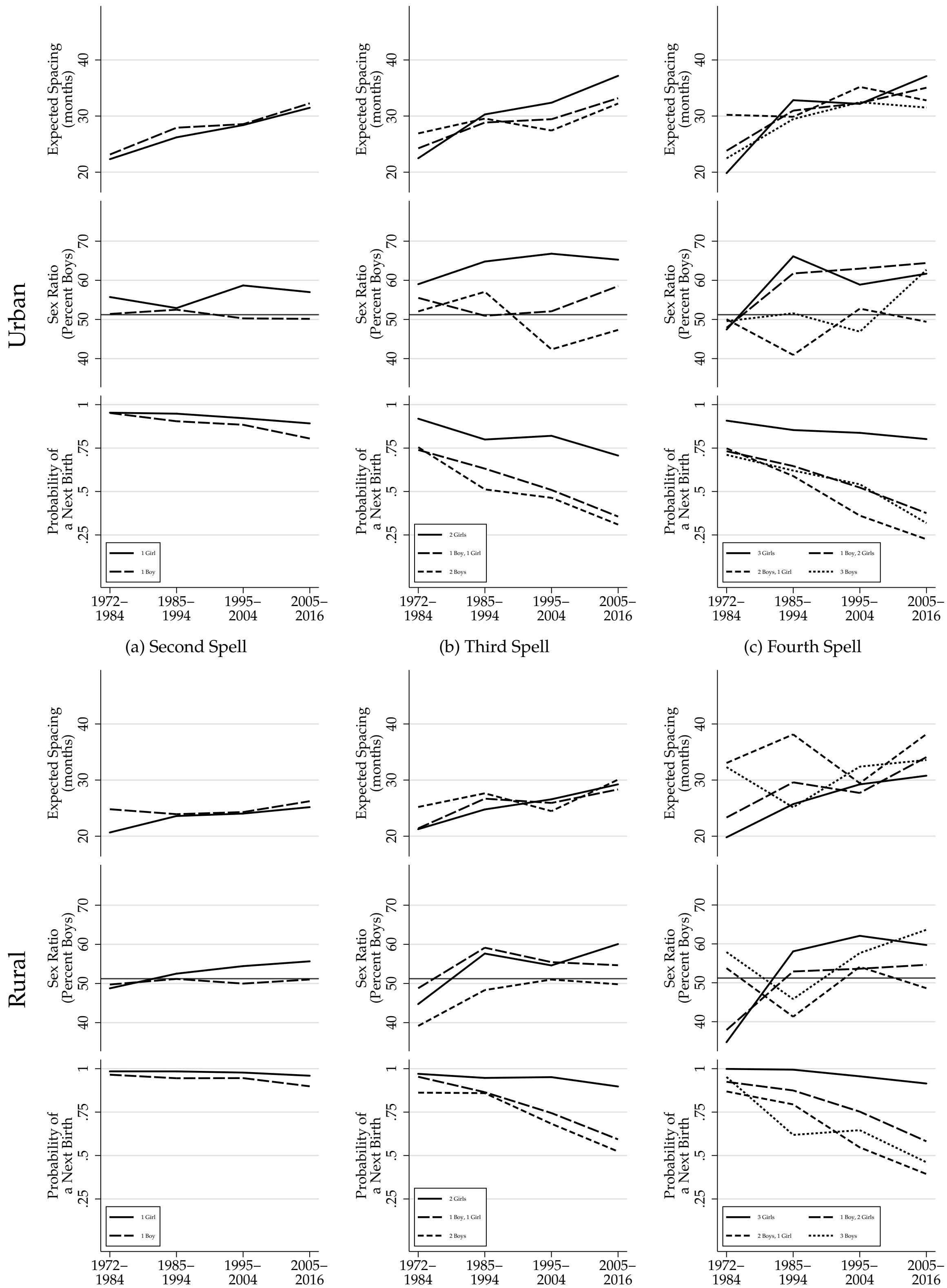


(a) Second Spell (b) Third Spell (c) Fourth Spell



(d) Second Spell (e) Third Spell (f) Fourth Spell

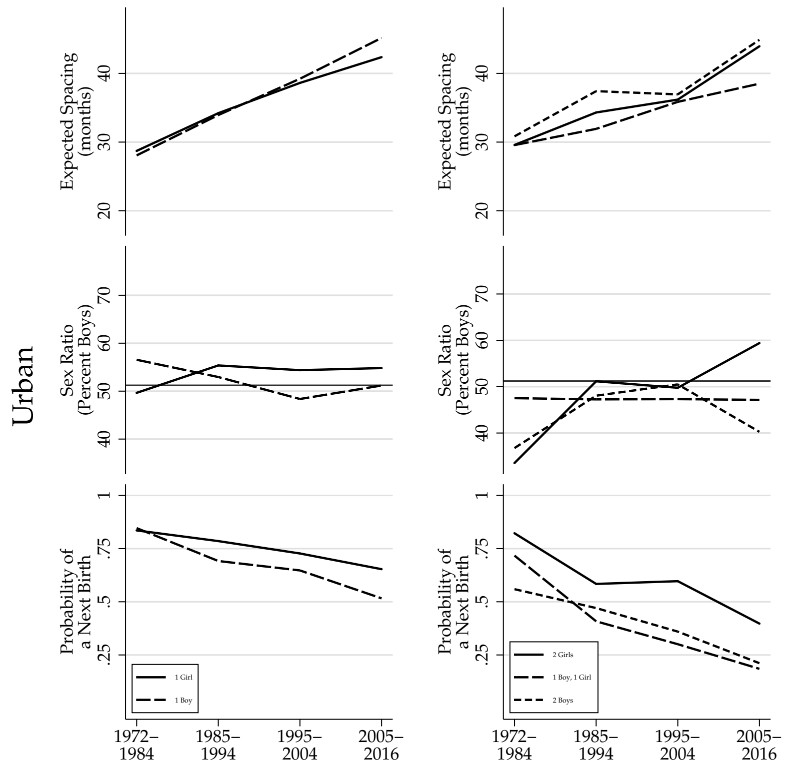
Figure 6: Estimated average spell length, sex ratio, and probability of a next birth for women with eight or more years of education in the "West"



(a) Second Spell (b) Third Spell (c) Fourth Spell

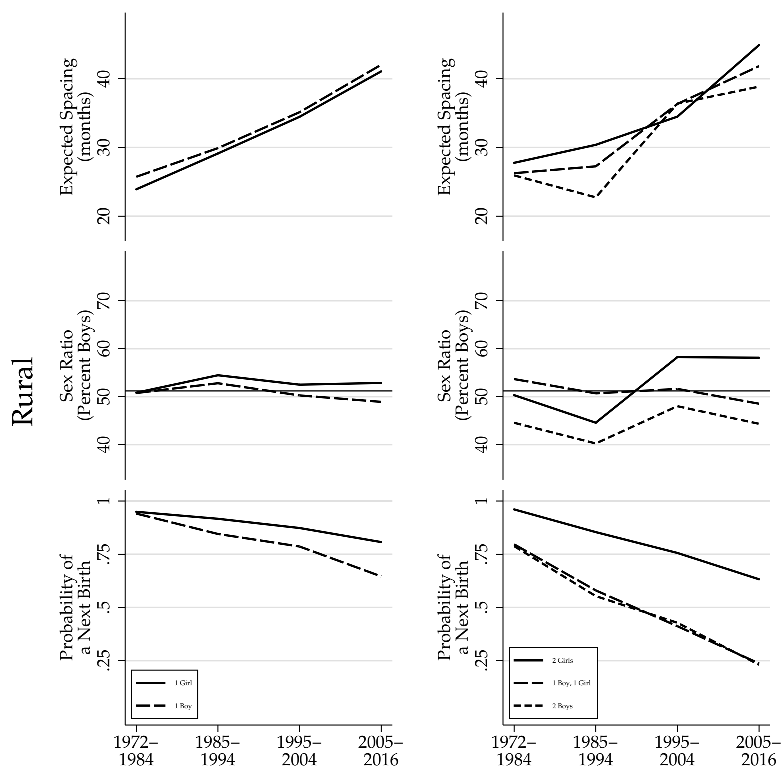
(d) Second Spell (e) Third Spell (f) Fourth Spell

Figure 7: Estimated average spell length, sex ratio, and probability of a next birth for women with eight or more years of education in the "North"



(a) Second Spell

(b) Third Spell



(c) Second Spell

(d) Third Spell

Figure 8: Estimated average spell length, sex ratio, and probability of a next birth for women with eight or more years of education in the “East”

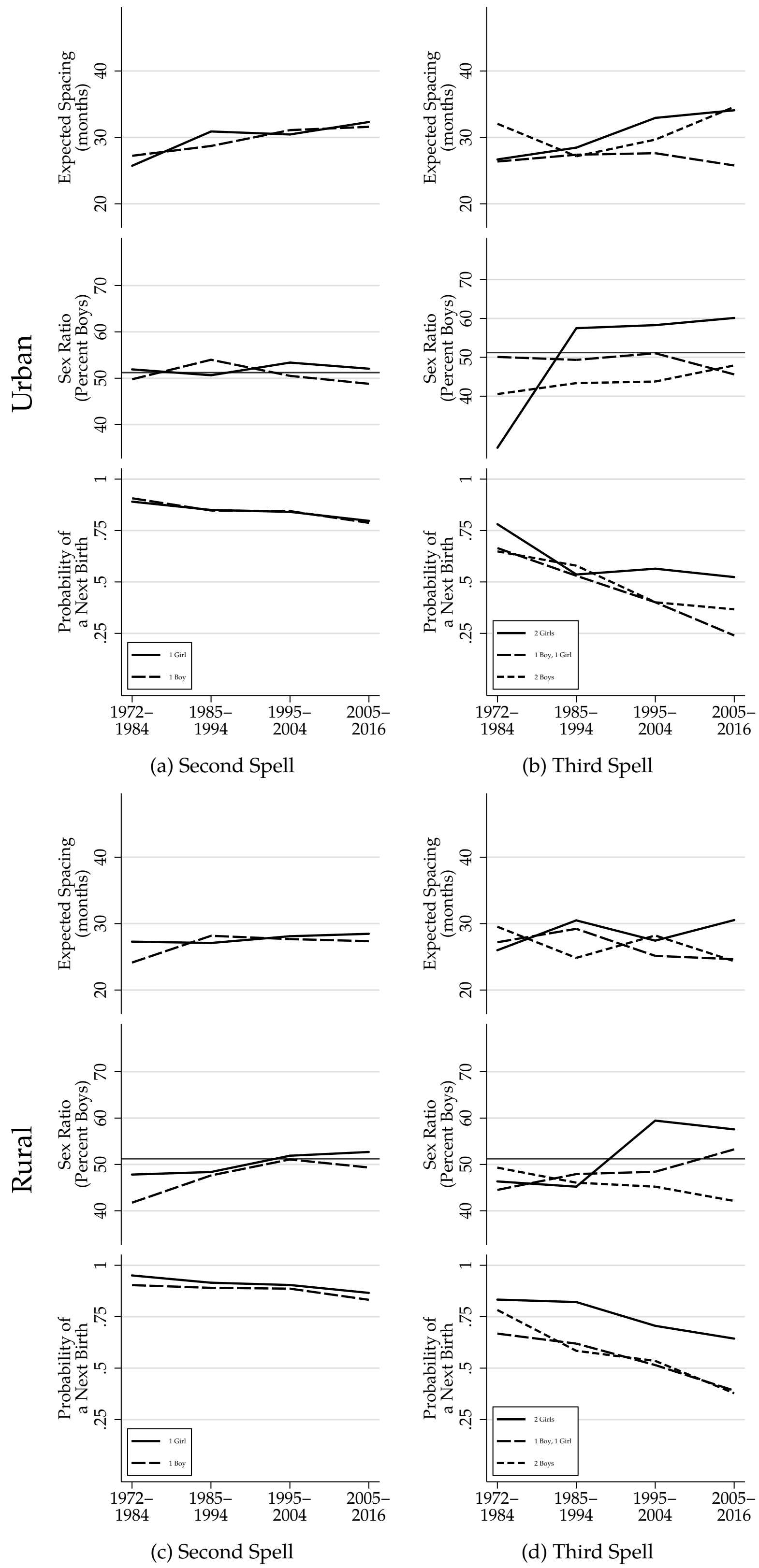


Figure 9: Estimated average spell length, sex ratio, and probability of a next birth for women with eight or more years of education in the "South"

of the use of sex selection also show up for rural women with no sons. Furthermore, the likelihood of having a third birth has decreased much less with no sons than the other sex compositions.[21] Hence, the "South" now also shows the longer average spacing in the absence of sons and the higher sex ratio associated with the use of sex selection.

5 Conclusion

The central question addressed here is the extent to which spacing patterns significantly changed as prenatal sex determination became available. The underlying idea is that in the absence of sex selection son preference leads to shorter spacing after the birth of a girl than after the birth of a boy, whereas when prenatal sex selection is available son preference increases the spacing after the birth of a girl relative to after the birth of a boy. I introduce an empirical method that simultaneously accounts for spacing between births and the potential use of sex selection, and apply the method to four decades of data from India's NFHS.

Three major, interrelated trends emerge. First, the length of average birth intervals have increased for all education groups, and the increases are larger the higher the spell and the higher the education group. Second, fertility has declined for all groups with larger declines the more educated the woman. Across all groups, the likelihood of having an additional child depends strongly on the number of sons, with women with none or only one son having the highest probabilities. Finally, as shown by the increasing sex ratios for women with no or only one son, there has been a substantial increase in the use of sex selection. As for fertility and birth intervals, the increases are larger the higher the spell and with higher education.

The results show two very different spacing patterns in response to son preference.

[21] The relatively high parity progression for women without son runs counter to what we should expect if "daughter avoidance" is behind the fertility behavior as suggested by Diamond-Smith, Luke and McGarvey (2008).

At one extreme, rural women without education mostly follow the standard pattern of shorter spacing in the absence of sons. The strength of this pattern does, however, depend critically on spell number. For the second spell, although the average interval after a first-born girl is shorter than after a first-born boy, the difference is small. The differences in spacing are larger for the third spell and largest for the fourth. For the fourth spell, the divergence in intervals has increased over time; the largest increases are for women with two or three boys, but there has also been an increase for women with only girls, likely because of an emerging use of sex selection.

At the other extreme, urban women with eight or more years of education have experienced an almost complete reversal of the traditional spacing patterns as the result of falling fertility and the associated extensive use of sex selection. Women with either no or one son now have substantially longer spacing than if they have two or more sons. As shown by the increasingly significant deviations in the sex ratio from the natural sex ratio, these changes are due to increased use of sex selection rather than a sudden reversal in son preference. Only the second spell has not seen a reversal despite a substantially increased use of sex selection, mainly because the average spacing with a first-born boy has increased independently by more than nine months.

The picture of how son preference affects spacing is, however, more complicated than excepted. First, the differences in birth intervals for the first 50 percent of second births are negligible across sex compositions, despite these births clearly within the durations most likely to generate adverse outcomes. Hence, most of the divergence in spacing patterns arise from longer spells. Second, a side-effect of the extensive use of sex selection for third and fourth spells is that only-girls families are much less likely to have a very short birth interval, which may reduce the sibling competition for resources.

With a country as large as India, it is natural to expect variation in both fertility behavior, spacing patterns, and the degree of son preference. Although the regional results confirm this, the differences are less apparent than one would expect given the prior research. The "North" and the "West" regions have relatively similar spacing patterns, both the result of rapidly falling fertility and substantial use of sex selection. The exception is that the rural "North" still have higher fertility and consequently less use of sex selection. Even the "South," otherwise considered to have the least son preference, has seen a substantial increase in the use of sex selection and associated changes in the spacing patterns. Finally, fertility has declined fastest in the "East" region, but this has not translated into the use of sex selection.

The results here lead to three questions that future research should address. First, what is behind the substantial increases in spacing even for women unlikely to use sex selection, and, related, why does spacing appear to increase with declining parity progression probabilities? The distributional results suggest that most of the increases in average birth intervals come from the upper end rather than from a general increase across the distribution. The longer average spacing and the relatively higher number of very long birth intervals seem to run counter to a general reduction in the length of women's reproductive spans found in earlier research (Padmadas, Hutter and Willekens, 2004). Understanding whether the longer average spacing is by choice, because of unplanned pregnancies, or because of changes in economic circumstances that allow families to have an additional child later has important implications for both policy design and outcomes for mother and children.

Second, to what extent are the improvements in health for girls relative to boys the result of selection, the longer spacing between births, or changing son preference? We know that health outcomes for girls appear to improve in the presence of sex selection (Lin, Liu and Qian, 2014; Hu and Schlosser, 2015). Furthermore, sample selection can make it appear that girls are healthier, even though the underlying cause is a combination of sex selection and higher mortality together with recall error (Pörtner and Su, 2018). Understanding what role these factors play in better health for girls is especially important when evaluating policies that aim to directly limit the use of sex selection rather than changing preferences or incentives. If the better health outcomes for girls are, for example, an unintended side-effect of the longer spacing that arises from sex-selective abortions, rather than because the smaller number of girls makes them more valued as is often assumed, then an effective ban on sex selection may, at least temporarily, worsen health outcomes for girls.

Finally, we need to understand how female labor force participation interacts with the use of sex selection. Increased autonomy for women, arising, for example, from better opportunities for working outside the home, has been suggested as a way to increase women's status and thereby lower the use of sex selection (Das Gupta, 2016). This approach may, however, be a double-edged sword. On the one hand, it is a clear benefit to the women who gain bargaining power, and it increases the cost of repeated sex-selective abortions because the increased duration between births would cause a stronger disruption in labor market participation. On the other hand, it may further lower desired fertility, which, everything else equal, may lead to higher use of sex selection. Understanding the trade-off between long-term benefits from improvements in women's labor force participation and short-term costs from potential increases in sex selection is of paramount importance.

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Appendices for Online Publication

These appendices are intended for online publication. They provide the descriptive statistics, additional estimated duration tables, and graphs for all education groups and spells.

A Recall Error and the Sex Ratio

The reliability of the results depends on the correctness of the birth histories provided by the respondents. A significant concern here is underreporting of child mortality, especially a systematic recall error where respondents' likelihood of reporting a deceased child depends on the sex of that child. This Appendix section assesses the degree of recall error across the surveys and discusses methods to address it.

NFHS enumerators probe for any missed births, although the method depends on the survey. NFHS-1 probe for each calendar birth interval that is four or more years. NFHS-2 asked for stillbirths, spontaneous and induced abortions and also probed for each calendar birth interval four or more years. NFHS-3 and NFHS-4 did not directly use birth intervals, but asked whether there were any other live births between (name of previous birth) and (name), including any children who died after birth, and asked for births before the birth listed as first birth and after the last birth listed as the last birth.

Probing catches many initially missed births, but systematic recall error based on son preference may still be a problem. First, son preference leads to significantly higher mortality for girls than boys. Secondly, son preference makes it more likely that parents will remember deceased boys than deceased girls. Finally, in the absence of sex-selective abortions, parents with a preference for sons may have the next birth sooner if the last child was a girl than if it was a boy. If this girl subsequently dies, she is more likely to be missed if probing for missed births is only done for long intervals as in NFHS-1 and NFHS-2.

I use two approaches to examine the degree of recall error. The first approach is to test whether the observed sex ratio is significantly different from the natural sex ratio. The natural sex ratio is approximately 105 boys to 100 girls or 51.2% (Ben-Porath and Welch, 1976; Jacobsen et al., 1999; Pörtner, 2015). Prenatal sex determination techniques did not become widely available until the mid-1980s, so any significant deviation from the natural sex ratio before that time is likely the result of recall error. The second approach is to compare births that took place during the same period but where captured in different surveys. Recall error is likely to increase with time, so births and deaths that took place earlier are more likely to be subject to recall error than more recent events.

Table A.1 shows the sex ratios of children recorded as first-born by year of birth, together with tests for whether the observed sex ratio is significantly higher than the natural sex ratio and whether more recent surveys have a higher sex ratio for the cohort than earlier surveys for the same period births. Births are combined into five-year cohorts to achieve sufficient power.

The "first-born" sex ratios illustrate the systematic recall error problem well. In all four

Table A.1: Observed Ratio of Boys for Children Listed as First-born by Year of Birth in Five-Year Cohorts

	NFHS-1 1992–1993	NFHS-2 1998–1999	NFHS-3 2005–2006	NFHS-4 2015–2016	Diff. test[a]
1960–1964	0.5430***	.	.	.	
	(0.0007)	(.)	(.)	(.)	
	[2,744]	[.]	[.]	[.]	
1965–1969	0.5295***	0.5500***	.	.	A
	(0.0052)	(0.0004)	(.)	(.)	
	[5,551]	[2,011]	[.]	[.]	
1970–1974	0.5365***	0.5329***	0.5432*	.	
	(0.0000)	(0.0011)	(0.0851)	(.)	
	[7,898]	[5,543]	[521]	[.]	
1975–1979	0.5206*	0.5151	0.5257*	.	
	(0.0577)	(0.3126)	(0.0512)	(.)	
	[8,913]	[7,455]	[3,738]	[.]	
1980–1984	0.5213**	0.5240**	0.5271***	0.5567***	CEF
	(0.0272)	(0.0104)	(0.0048)	(0.0000)	
	[11,241]	[9,618]	[7,646]	[4,135]	
1985–1989	0.5180	0.5134	0.5121	0.5562***	CEF
	(0.1095)	(0.4060)	(0.5080)	(0.0000)	
	[11,293]	[10,912]	[9,345]	[22,243]	
1990–1994	0.5197	0.5193*	0.5176	0.5481***	CEF
	(0.1150)	(0.0643)	(0.1357)	(0.0000)	
	[6,523]	[11,457]	[10,475]	[41,624]	
1995–1999	.	0.5237**	0.4980	0.5322***	EF
	(.)	(0.0171)	(0.9986)	(0.0000)	
	[.]	[8,514]	[10,996]	[50,480]	
2000–2004	.	.	0.5123	0.5214***	F
	(.)	(.)	(0.4924)	(0.0000)	
	[.]	[.]	[10,743]	[56,853]	
2005–2009	.	.	0.5171	0.5182***	
	(.)	(.)	(0.3160)	(0.0017)	
	[.]	[.]	[2,537]	[59,383]	
2010–2016	.	.	.	0.5197***	
	(.)	(.)	(.)	(0.0000)	
	[.]	[.]	[.]	[73,474]	

Note. Sample consists of Hindu women only. First number in cell is ratio of boys to children. Second number, in parentheses, is p-value for the hypothesis that observed sex ratio is greater than 105/205 using a binomial probability test (bitest in Stata 13) with significance levels: * sign. at 10%; ** sign. at 5%; *** sign. at 1%. Third number, in square brackets, is number of observations.

[a] Test (prtest in Stata 13) whether recall error increases with time passed, which would manifest itself in a higher sex ratio for a more recent survey than an earlier for the same cohort. A: Cohort sex ratio significantly larger in NFHS-2 than NFHS-1 at the 10 percent level. B: Cohort sex ratio significantly larger in NFHS-3 than NFHS-1 at the 10 percent level. C: Cohort sex ratio significantly larger in NFHS-4 than NFHS-1 at the 10 percent level. D: Cohort sex ratio significantly larger in NFHS-3 than NFHS-2 at the 10 percent level. E: Cohort sex ratio significantly larger in NFHS-4 than NFHS-2 at the 10 percent level. F: Cohort sex ratio significantly larger in NFHS-4 than NFHS-3 at the 10 percent level.

surveys around 55 percent of children reported as first-born are boys for the first cohort of births observed. Given that these cohorts cover from 1960-1964 to 1980-1984, which is before sex selection techniques became available in India, the most likely explanation for the skewed sex ratio is that some children listed as first-borns were not, in fact, the first children born in their families. Instead, for a substantial proportion of families, their first-born was a girl who died and went unreported when enumerators asked about birth history.

As expected, the difference between the observed sex ratio and the natural sex ratio is less pronounced the closer to the survey date the cohort is. The observed sex ratio for children born just before the NFHS-1 survey and listed as first-born is 0.517, which is not statistically significantly different from the natural sex ratio. The same general pattern holds for the other three surveys, with cohorts further away from the survey date more likely to have a sex ratio skewed male.

Finally, across surveys, the same cohort tends to show a higher sex ratio the more recent the survey (births in the cohort took place earlier relative to the survey date). Despite this, few cohorts show significantly different sex ratios across surveys, most likely because of a lack of power. The exception is that comparisons involving NFHS-4 are mostly statistically significant since the number of surveyed households in NFHS-4 were much larger than in prior surveys.

The problem with the above approach is that the year of birth is affected by recall error; a second born child listed as first-born is born later than the real first born child. Year of marriage should, however, be affected neither by parental recall error nor the use of sex-selective abortions. Tables A.2 and A.3, therefore, shows sex ratios of children recorded as first-born and second-born by year of parents' marriage, together with tests for whether the observed sex ratio is significantly higher than the natural sex ratio and whether more recent surveys show a higher sex ratio for the cohort than earlier surveys. The basic recall error pattern remains, with women married longer ago more likely to report that their first-born is a boy. Similarly, comparing women married in the same five-year period across surveys shows that women married longer ago are more likely to report having a son.

The relationship between the length of marriage and recall error can also be seen in Figures A.1 and A.2, which show the observed sex ratio for children reported as first born as a function of the duration of marriage at the time of the survey. The solid line is the sex ratio of children reported as first-born by the number of years between the survey and marriage, while the dashed lines indicate the 95 percent confidence interval and the horizontal line the natural sex ratio (approximately 0.512). To ensure sufficient cell sizes I group years into twos. In line with the results from Tables A.2 and A.3, the observed ratio

Table A.2: Observed Ratio of Boys for Children Listed as First-born by Year of Parents' Marriage in Five-Year Cohorts

	NFHS-1 1992–1993	NFHS-2 1998–1999	NFHS-3 2005–2006	NFHS-4 2015–2016	Diff. test[a]
1960–1964	0.5364***	.	.	.	
	(0.0001)	(.)	(.)	(.)	
	[6,298]	[.]	[.]	[.]	
1965–1969	0.5357***	0.5431***	.	.	
	(0.0001)	(0.0000)	(.)	(.)	
	[6,801]	[4,279]	[.]	[.]	
1970–1974	0.5242**	0.5223*	0.5269	.	
	(0.0150)	(0.0526)	(0.1010)	(.)	
	[8,274]	[6,527]	[1,953]	[.]	
1975–1979	0.5269***	0.5203*	0.5314***	0.5617***	CDEF
	(0.0017)	(0.0666)	(0.0019)	(0.0005)	
	[9,956]	[8,602]	[5,749]	[1,127]	
1980–1984	0.5152	0.5133	0.5192	0.5512***	CEF
	(0.2658)	(0.4166)	(0.1023)	(0.0000)	
	[10,894]	[9,805]	[8,237]	[12,033]	
1985–1989	0.5176	0.5210**	0.5094	0.5530***	CEF
	(0.1409)	(0.0339)	(0.7148)	(0.0000)	
	[10,017]	[10,825]	[9,620]	[33,241]	
1990–1994	0.5237	0.5196*	0.5119	0.5405***	CEF
	(0.1460)	(0.0663)	(0.5315)	(0.0000)	
	[2,198]	[10,464]	[10,458]	[45,940]	
1995–1999	.	0.5257**	0.5019	0.5254***	F
	(.)	(0.0292)	(0.9846)	(0.0000)	
	[.]	[5,007]	[10,863]	[52,679]	
2000–2004	.	.	0.5166	0.5207***	
	(.)	(.)	(0.2022)	(0.0000)	
	[.]	[.]	[9,119]	[56,143]	
2005–2009	.	.	.	0.5204***	
	(.)	(.)	(.)	(0.0000)	
	[.]	[.]	[.]	[58,511]	
2010–2016	.	.	.	0.5176***	
	(.)	(.)	(.)	(0.0091)	
	[.]	[.]	[.]	[48,481]	

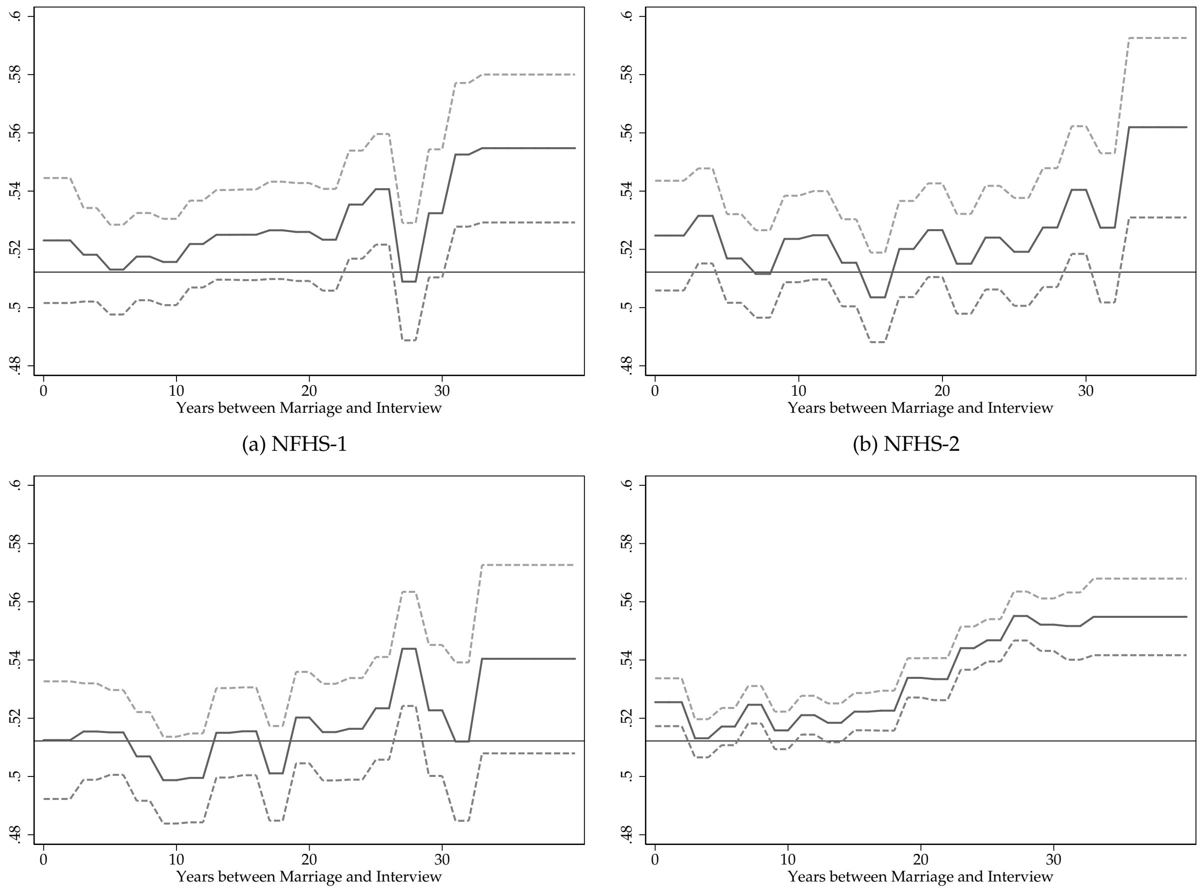
Note. Sample consists of Hindu women only. First number in cell is ratio of boys to children. Second number, in parentheses, is p-value for the hypothesis that observed sex ratio is greater than 105/205 using a binomial probability test (bitest in Stata 13) with significance levels: * sign. at 10%; ** sign. at 5%; *** sign. at 1%. Third number, in square brackets, is number of observations. [a] Test (prtest in Stata 13) whether recall error increases with time passed, which would manifest itself in a higher sex ratio for a more recent survey than an earlier for the same cohort. A: Cohort sex ratio significantly larger in NFHS-2 than NFHS-1 at the 10 percent level. B: Cohort sex ratio significantly larger in NFHS-3 than NFHS-1 at the 10 percent level. C: Cohort sex ratio significantly larger in NFHS-4 than NFHS-1 at the 10 percent level. D: Cohort sex ratio significantly larger in NFHS-3 than NFHS-2 at the 10 percent level. E: Cohort sex ratio significantly larger in NFHS-4 than NFHS-2 at the 10 percent level. F: Cohort sex ratio significantly larger in NFHS-4 than NFHS-3 at the 10 percent level.

Table A.3: Observed Ratio of Boys for Children Listed as Second-born by Year of Parents' Marriage' in Five-Year Cohorts

	NFHS-1 1992–1993	NFHS-2 1998–1999	NFHS-3 2005–2006	NFHS-4 2015–2016	Diff. test[a]
1960–1964	0.5264**	.	.	.	
	(0.0135)	(.)	(.)	(.)	
	[6,113]	[.]	[.]	[.]	
1965–1969	0.5269***	0.5378***	.	.	
	(0.0090)	(0.0005)	(.)	(.)	
	[6,571]	[4,163]	[.]	[.]	
1970–1974	0.5192	0.5220*	0.5374**	.	B
	(0.1085)	(0.0619)	(0.0148)	(.)	
	[7,984]	[6,307]	[1,898]	[.]	
1975–1979	0.5147	0.5198*	0.5287***	0.5453**	BCE
	(0.3143)	(0.0850)	(0.0072)	(0.0172)	
	[9,469]	[8,288]	[5,582]	[1,049]	
1980–1984	0.5213**	0.5173	0.5170	0.5346***	CEF
	(0.0348)	(0.1650)	(0.1984)	(0.0000)	
	[9,932]	[9,343]	[7,866]	[11,513]	
1985–1989	0.5133	0.5178	0.5251***	0.5301***	BCE
	(0.4376)	(0.1312)	(0.0074)	(0.0000)	
	[5,901]	[10,036]	[9,035]	[31,639]	
1990–1994	0.4362	0.5197*	0.5256***	0.5274***	ABC
	(0.9737)	(0.0926)	(0.0045)	(0.0000)	
	[149]	[7,918]	[9,555]	[43,344]	
1995–1999	.	0.5630***	0.5312***	0.5230***	
	(.)	(0.0007)	(0.0002)	(0.0000)	
	[.]	[1,016]	[8,940]	[49,053]	
2000–2004	.	.	0.5252*	0.5199***	
	(.)	(.)	(0.0688)	(0.0003)	
	[.]	[.]	[3,307]	[50,804]	
2005–2009	.	.	.	0.5231***	
	(.)	(.)	(.)	(0.0000)	
	[.]	[.]	[.]	[46,164]	
2010–2016	.	.	.	0.5218**	
	(.)	(.)	(.)	(0.0110)	
	[.]	[.]	[.]	[14,370]	

Note. Sample consists of Hindu women only. First number in cell is ratio of boys to children. Second number, in parentheses, is p-value for the hypothesis that observed sex ratio is greater than 105/205 using a binomial probability test (bitest in Stata 13) with significance levels: * sign. at 10%; ** sign. at 5%; *** sign. at 1%. Third number, in square brackets, is number of observations.

[a] Test (prtest in Stata 13) whether recall error increases with time passed, which would manifest itself in a higher sex ratio for a more recent survey than an earlier for the same cohort. A: Cohort sex ratio significantly larger in NFHS-2 than NFHS-1 at the 10 percent level. B: Cohort sex ratio significantly larger in NFHS-3 than NFHS-1 at the 10 percent level. C: Cohort sex ratio significantly larger in NFHS-4 than NFHS-1 at the 10 percent level. D: Cohort sex ratio significantly larger in NFHS-3 than NFHS-2 at the 10 percent level. E: Cohort sex ratio significantly larger in NFHS-4 than NFHS-2 at the 10 percent level. F: Cohort sex ratio significantly larger in NFHS-4 than NFHS-3 at the 10 percent level.



(a) NFHS-1

(b) NFHS-2

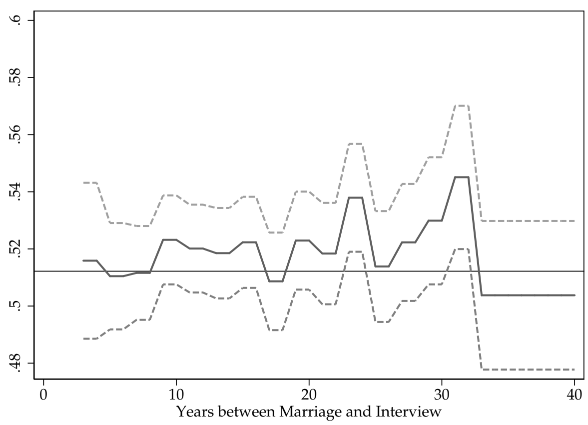
(c) NFHS-3

(d) NFHS-3

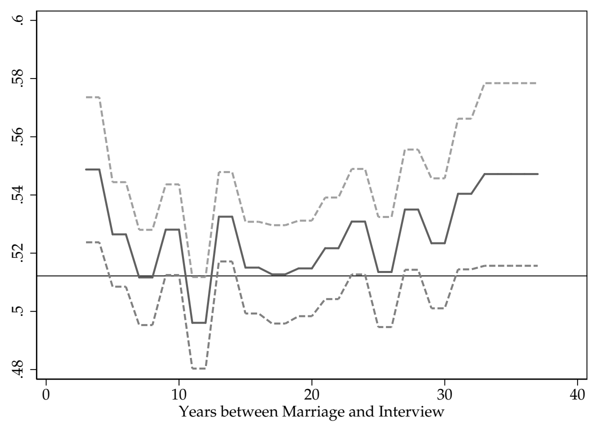
Figure A.1: Ratio of Boys for “First” Births by Survey Round

of boys is increasingly above the expected value the longer ago the parents were married.

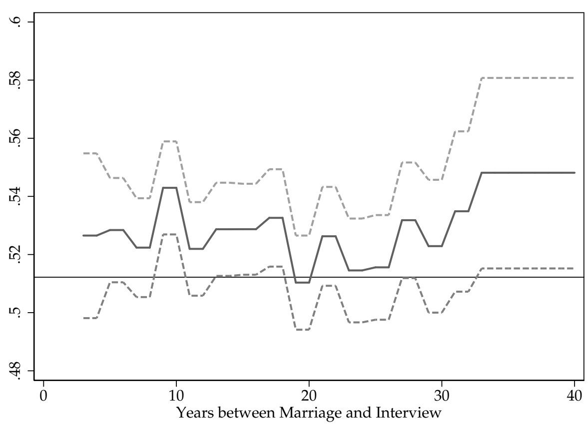
The increasingly unequal sex ratio with increasing marriage duration suggests that a solution to the recall error problem is to drop observations for women who were married “too far” from the survey year. The main problem is establishing what the best cut-off point should be, with the trade-off between retaining enough observations and the correctness of the information. As Tables A.2 and A.3 show, there are differences in recall error across the three surveys and between the two birth orders, although this may be the result of differences in the number of observations across surveys. Furthermore, the recall error pattern is not entirely consistent across observed birth orders. Since most of the surveys start showing significantly biased sex ratio from around 22 years of marriage on, I drop all observations where the marriage took place 22 years or more.



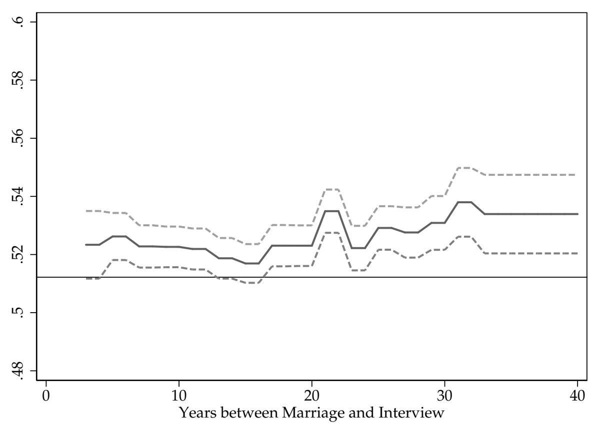
(a) NFHS-1



(b) NFHS-2



(c) NFHS-3



(d) NFHS-3

Figure A.2: Ratio of Boys for "Second" Births by Survey Round

B Descriptive Statistics

Table B.1: Descriptive Statistics by Education Level and Beginning of Spell

		No Education				1–7 Years of Education				8+ Years of Education			
		1972–1984	1985–1994	1995–2004	2005–2016	1972–1984	1985–1994	1995–2004	2005–2016	1972–1984	1985–1994	1995–2004	2005–2016
Second Spell	Boy born	0.504	0.452	0.468	0.413	0.493	0.450	0.460	0.380	0.476	0.419	0.426	0.301
		(0.500)	(0.498)	(0.499)	(0.492)	(0.500)	(0.498)	(0.498)	(0.485)	(0.499)	(0.493)	(0.495)	(0.459)
	Girl born	0.464	0.421	0.440	0.380	0.474	0.423	0.426	0.353	0.452	0.370	0.374	0.271
		(0.499)	(0.494)	(0.496)	(0.485)	(0.499)	(0.494)	(0.494)	(0.478)	(0.498)	(0.483)	(0.484)	(0.444)
	Censored	0.032	0.127	0.092	0.207	0.032	0.127	0.114	0.266	0.072	0.211	0.200	0.428
		(0.175)	(0.333)	(0.289)	(0.405)	(0.177)	(0.333)	(0.317)	(0.442)	(0.259)	(0.408)	(0.400)	(0.495)
	1 boy	0.523	0.515	0.518	0.516	0.521	0.514	0.522	0.519	0.518	0.520	0.522	0.519
		(0.499)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)
	1 girl	0.477	0.485	0.482	0.484	0.479	0.486	0.478	0.481	0.482	0.480	0.478	0.481
		(0.499)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)
	Urban	0.169	0.175	0.155	0.122	0.350	0.341	0.259	0.192	0.684	0.622	0.482	0.350
		(0.375)	(0.380)	(0.362)	(0.327)	(0.477)	(0.474)	(0.438)	(0.394)	(0.465)	(0.485)	(0.500)	(0.477)
	Age	17.773	18.274	19.432	20.740	18.637	19.141	19.485	20.527	21.068	21.545	21.440	21.963
		(2.739)	(3.005)	(3.410)	(3.520)	(2.889)	(3.176)	(3.284)	(3.271)	(3.430)	(3.612)	(3.726)	(3.643)
	Owns land	0.602	0.573	0.510	0.482	0.506	0.493	0.474	0.468	0.321	0.371	0.418	0.478
		(0.509)	(0.503)	(0.500)	(0.500)	(0.500)	(0.500)	(0.499)	(0.499)	(0.467)	(0.483)	(0.493)	(0.500)
	Sched. caste/tribe	0.347	0.391	0.444	0.486	0.154	0.219	0.337	0.416	0.063	0.113	0.193	0.262
		(0.476)	(0.488)	(0.497)	(0.500)	(0.361)	(0.414)	(0.473)	(0.493)	(0.243)	(0.317)	(0.395)	(0.440)
	3 months periods	163,580	232,552	392,924	244,364	59,182	106,165	255,925	229,242	71,133	177,898	564,921	670,849
	Women	18,650	27,563	43,952	29,527	6,889	12,191	27,225	26,446	6,884	16,428	48,826	68,402
Third Spell	Boy born	0.492	0.428	0.421	0.341	0.464	0.397	0.356	0.273	0.374	0.272	0.262	0.169
		(0.500)	(0.495)	(0.494)	(0.474)	(0.499)	(0.489)	(0.479)	(0.445)	(0.484)	(0.445)	(0.440)	(0.375)
	Girl born	0.455	0.398	0.386	0.314	0.437	0.360	0.325	0.236	0.332	0.222	0.211	0.133
		(0.498)	(0.489)	(0.487)	(0.464)	(0.496)	(0.480)	(0.469)	(0.424)	(0.471)	(0.416)	(0.408)	(0.340)
	Censored	0.053	0.174	0.193	0.345	0.100	0.243	0.319	0.492	0.293	0.506	0.527	0.697
		(0.224)	(0.379)	(0.395)	(0.475)	(0.300)	(0.429)	(0.466)	(0.500)	(0.455)	(0.500)	(0.499)	(0.459)
	2 boys	0.275	0.256	0.251	0.249	0.251	0.246	0.241	0.239	0.270	0.244	0.242	0.226
		(0.447)	(0.436)	(0.434)	(0.432)	(0.434)	(0.431)	(0.427)	(0.426)	(0.444)	(0.430)	(0.428)	(0.418)
	1 boy, 1 girl	0.489	0.502	0.504	0.499	0.506	0.502	0.509	0.505	0.486	0.510	0.523	0.522
		(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.500)	(0.499)	(0.500)
	2 girls	0.235	0.243	0.245	0.252	0.243	0.252	0.251	0.256	0.244	0.246	0.235	0.252
		(0.424)	(0.429)	(0.430)	(0.434)	(0.429)	(0.434)	(0.434)	(0.436)	(0.430)	(0.431)	(0.424)	(0.434)
	Urban	0.173	0.171	0.159	0.121	0.365	0.341	0.263	0.192	0.687	0.634	0.469	0.350
		(0.379)	(0.376)	(0.365)	(0.326)	(0.482)	(0.474)	(0.440)	(0.394)	(0.464)	(0.482)	(0.499)	(0.477)
	Age	19.987	20.593	21.641	23.055	20.839	21.367	21.735	22.821	23.017	23.792	23.624	24.391
		(2.896)	(3.150)	(3.490)	(3.665)	(2.954)	(3.228)	(3.372)	(3.441)	(3.430)	(3.756)	(3.822)	(3.949)
	Owns land	0.607	0.581	0.523	0.489	0.507	0.509	0.493	0.475	0.325	0.377	0.447	0.486
		(0.506)	(0.497)	(0.499)	(0.500)	(0.500)	(0.500)	(0.500)	(0.499)	(0.468)	(0.485)	(0.497)	(0.500)
	Sched. caste/tribe	0.339	0.392	0.444	0.479	0.154	0.218	0.334	0.410	0.064	0.109	0.200	0.254
		(0.473)	(0.488)	(0.497)	(0.500)	(0.361)	(0.413)	(0.472)	(0.492)	(0.244)	(0.312)	(0.400)	(0.435)
	3 months periods	105,997	194,166	295,808	267,436	42,088	84,124	182,266	209,481	55,416	132,218	357,899	481,638
	Women	12,119	22,858	31,218	29,446	4,384	8,785	16,346	20,850	3,870	9,632	23,808	39,102
Fourth Spell	Boy born	0.483	0.390	0.357	0.286	0.414	0.358	0.293	0.222	0.325	0.239	0.236	0.155
		(0.500)	(0.488)	(0.479)	(0.452)	(0.493)	(0.479)	(0.455)	(0.416)	(0.469)	(0.427)	(0.424)	(0.361)
	Girl born	0.424	0.367	0.327	0.266	0.405	0.305	0.254	0.199	0.308	0.204	0.176	0.119
		(0.494)	(0.482)	(0.469)	(0.442)	(0.491)	(0.461)	(0.435)	(0.400)	(0.462)	(0.403)	(0.381)	(0.324)
	Censored	0.093	0.243	0.316	0.448	0.180	0.337	0.453	0.578	0.367	0.557	0.588	0.726
		(0.290)	(0.429)	(0.465)	(0.497)	(0.385)	(0.473)	(0.498)	(0.494)	(0.482)	(0.497)	(0.492)	(0.446)
	3 boys	0.136	0.123	0.115	0.105	0.110	0.107	0.099	0.087	0.108	0.100	0.087	0.073
		(0.343)	(0.329)	(0.319)	(0.307)	(0.312)	(0.310)	(0.299)	(0.281)	(0.310)	(0.300)	(0.282)	(0.260)
	2 boys, 1 girl	0.372	0.355	0.352	0.335	0.343	0.329	0.327	0.314	0.359	0.307	0.320	0.289
		(0.483)	(0.478)	(0.478)	(0.472)	(0.475)	(0.470)	(0.469)	(0.464)	(0.480)	(0.461)	(0.466)	(0.453)
	1 boys, 2 girls	0.362	0.392	0.397	0.407	0.400	0.407	0.413	0.423	0.392	0.437	0.441	0.459
		(0.481)	(0.488)	(0.489)	(0.491)	(0.490)	(0.491)	(0.492)	(0.494)	(0.488)	(0.496)	(0.497)	(0.498)
	3 girls	0.130	0.130	0.137	0.153	0.147	0.157	0.162	0.176	0.141	0.156	0.152	0.179
		(0.337)	(0.336)	(0.343)	(0.360)	(0.354)	(0.363)	(0.368)	(0.381)	(0.348)	(0.363)	(0.359)	(0.384)
	Urban	0.168	0.168	0.159	0.114	0.358	0.330	0.258	0.189	0.668	0.583	0.404	0.286
		(0.374)	(0.374)	(0.365)	(0.318)	(0.479)	(0.470)	(0.438)	(0.392)	(0.471)	(0.493)	(0.491)	(0.452)
	Age	21.948	22.777	23.583	25.284	22.644	23.444	23.821	24.893	24.280	25.411	25.038	25.979
		(3.019)	(3.296)	(3.497)	(3.799)	(2.910)	(3.385)	(3.455)	(3.523)	(3.179)	(3.712)	(3.776)	(3.909)
	Owns land	0.615	0.594	0.542	0.497	0.522	0.537	0.508	0.480	0.340	0.422	0.492	0.520
		(0.509)	(0.496)	(0.498)	(0.500)	(0.500)	(0.499)	(0.500)	(0.500)	(0.474)	(0.494)	(0.500)	(0.500)
	Sched. caste/tribe	0.333	0.402	0.451	0.481	0.148	0.219	0.339	0.414	0.082	0.112	0.228	0.285
		(0.471)	(0.490)	(0.498)	(0.500)	(0.355)	(0.413)	(0.473)	(0.493)	(0.275)	(0.315)	(0.419)	(0.451)
	3 months periods	55,942	140,909	162,841	217,023	20,121	46,646	75,858	110,944	17,311	43,997	89,486	145,548
	Women	6,421	16,278	17,105	22,496	2,008	4,771	6,496	10,620	1,242	3,363	6,140	11,886

Note. Means without parentheses and standard deviation in parentheses. Interactions between variables, baseline hazard dummies and squares not shown.

C Duration Results Tables

The first set of tables, Tables C.1, C.2, and C.3, show predicted average birth intervals, sex ratios, and probabilities of having a birth by decade, spell, and sex composition for the three education levels separated by the area of residence, together with standard errors for all three outcomes. The standard errors are based on bootstrapping for all three measures, where the model is repeatedly estimated using resampling with replacement.

I also show whether durations for sex composition other than only girls are statistically significantly different from the duration with only girls based on bootstrapped differences. The cleanest test is comparing durations after only boys with durations after only girls, but the number of births to women with only sons becomes small in the later periods. Hence, it is possible to have substantial differences in spacing that are not statistically significant because of low power, especially for the third and fourth spell.

Each predicted percent of boys is tested against the natural percentage of boys using the bootstrapped standard errors. The natural sex ratio is approximately 105 boys to 100 girls or 51.2% (Ben-Porath and Welch, 1976; Jacobsen et al., 1999; Pörtner, 2015). The predicted percentage boys may differ from the natural rate because of natural variation, any remaining recall error not corrected for, or sex selection.

Table C.1: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with No Education

		1972–1984			1985–1994			1995–2004			2005–2016		
Spell	Composition of prior Children	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]
							Urban						
2	1 girl	21.7	52.2	0.970	22.5	52.5	0.953	23.8	51.7	0.950	24.1	56.0***	0.932
		(0.4)	(1.3)	(0.004)	(0.3)	(1.0)	(0.005)	(0.3)	(0.9)	(0.005)	(0.5)	(1.2)	(0.009)
	1 boy	23.2***	52.9	0.961	24.3***	50.8	0.959	24.4	52.1	0.951	24.1	50.3	0.905
		(0.4)	(1.3)	(0.005)	(0.4)	(1.2)	(0.004)	(0.3)	(0.9)	(0.004)	(0.5)	(1.2)	(0.008)
3	2 girls	23.3	51.4	0.968	23.1	51.5	0.967	25.3	52.4	0.932	27.3	52.6	0.895
		(0.7)	(2.2)	(0.009)	(0.6)	(1.6)	(0.007)	(0.5)	(1.5)	(0.008)	(0.9)	(2.0)	(0.014)
	1 boy, 2 girl	22.3	54.6**	0.946	24.4*	50.7	0.925	25.6	52.2	0.875	25.0**	53.8*	0.745
		(0.5)	(1.5)	(0.007)	(0.4)	(1.3)	(0.007)	(0.4)	(1.2)	(0.008)	(0.7)	(1.5)	(0.014)
	2 boys	23.5	48.6	0.962	24.9*	48.3	0.916	25.5	48.2*	0.854	27.5	51.6	0.752
		(0.7)	(2.1)	(0.008)	(0.7)	(1.9)	(0.013)	(0.6)	(1.6)	(0.011)	(1.1)	(2.2)	(0.020)
4	3 girls	20.9	57.2	0.977	25.0	51.3	0.955	26.1	54.4	0.945	29.2	55.7	0.923
		(1.3)	(4.1)	(0.016)	(0.9)	(2.5)	(0.013)	(1.0)	(2.9)	(0.016)	(1.0)	(3.1)	(0.016)
	1 boy, 2 girls	23.3	54.9	0.954	25.7	54.4*	0.940	27.5	52.9	0.850	30.8	49.6	0.760
		(0.8)	(2.4)	(0.011)	(0.6)	(1.9)	(0.009)	(0.8)	(1.8)	(0.016)	(0.9)	(2.1)	(0.018)
	2 boys, 1 girl	25.5***	54.8	0.919	29.3***	50.1	0.909	30.0***	55.0*	0.760	32.2*	54.8	0.569
		(0.9)	(2.6)	(0.017)	(0.7)	(2.0)	(0.012)	(0.9)	(2.2)	(0.018)	(1.3)	(2.8)	(0.023)
	3 boys	26.6***	60.6**	0.965	29.6***	57.1*	0.912	26.5	51.2	0.779	31.9	47.8	0.703
		(1.6)	(3.7)	(0.018)	(1.1)	(3.5)	(0.019)	(1.5)	(3.5)	(0.031)	(2.1)	(4.1)	(0.037)
							Rural						
2	1 girl	22.4	51.2	0.974	23.4	52.1**	0.965	24.0	51.7	0.969	24.0	51.7	0.959
		(0.2)	(0.6)	(0.002)	(0.2)	(0.4)	(0.002)	(0.1)	(0.4)	(0.001)	(0.2)	(0.5)	(0.003)
	1 boy	23.1***	52.7**	0.968	24.1***	51.4	0.962	24.3*	51.1	0.960	24.5**	52.2*	0.936
		(0.2)	(0.6)	(0.002)	(0.2)	(0.5)	(0.002)	(0.1)	(0.4)	(0.002)	(0.2)	(0.5)	(0.003)
3	2 girls	21.2	49.6	0.974	23.8	53.7***	0.962	24.1	53.9***	0.965	24.8	52.9**	0.942
		(0.3)	(1.1)	(0.003)	(0.3)	(0.7)	(0.004)	(0.2)	(0.7)	(0.002)	(0.2)	(0.7)	(0.005)
	1 boy, 2 girl	22.8***	53.0**	0.962	23.9	51.7	0.950	24.6*	52.4**	0.913	26.1***	51.8	0.851
		(0.2)	(0.7)	(0.003)	(0.2)	(0.6)	(0.003)	(0.2)	(0.5)	(0.003)	(0.2)	(0.6)	(0.004)
	2 boys	22.7***	51.9	0.957	25.0***	51.3	0.933	25.4***	50.7	0.881	26.9***	50.9	0.795
		(0.3)	(1.0)	(0.004)	(0.3)	(0.9)	(0.005)	(0.2)	(0.7)	(0.005)	(0.3)	(0.7)	(0.008)
4	3 girls	22.1	54.5	0.977	24.2	50.5	0.977	24.4	52.8	0.971	27.0	54.0***	0.955
		(0.6)	(2.0)	(0.006)	(0.4)	(1.2)	(0.004)	(0.4)	(1.2)	(0.004)	(0.3)	(1.0)	(0.005)
	1 boy, 2 girls	23.3*	52.2	0.976	26.4***	53.1**	0.958	26.8***	52.8*	0.911	29.5***	52.2	0.870
		(0.4)	(1.1)	(0.004)	(0.3)	(0.9)	(0.003)	(0.2)	(0.8)	(0.005)	(0.3)	(0.8)	(0.005)
	2 boys, 1 girl	23.7**	53.2*	0.958	27.8***	49.8	0.926	29.0***	51.1	0.822	33.2***	50.5	0.694
		(0.4)	(1.2)	(0.006)	(0.3)	(0.9)	(0.005)	(0.3)	(0.9)	(0.007)	(0.4)	(0.9)	(0.009)
	3 boys	24.3**	51.5	0.962	28.3***	50.7	0.924	29.2***	52.0	0.851	32.7***	51.6	0.753
		(0.6)	(2.1)	(0.009)	(0.5)	(1.3)	(0.010)	(0.6)	(1.8)	(0.012)	(0.7)	(1.7)	(0.015)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table C.2: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with One to Seven Years of Education

		1972–1984			1985–1994			1995–2004			2005–2016		
Spell	Composition of prior Children	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]
							Urban						
	1 girl	20.4	51.5	0.970	23.4	52.6	0.942	24.9	53.2**	0.928	26.3	52.7	0.909
2		(0.4)	(1.5)	(0.005)	(0.4)	(1.2)	(0.007)	(0.3)	(0.9)	(0.005)	(0.5)	(1.3)	(0.009)
	1 boy	22.4***	51.3	0.961	24.4	51.3	0.936	25.2	49.9	0.922	27.7**	51.0	0.862
		(0.5)	(1.6)	(0.006)	(0.4)	(1.1)	(0.006)	(0.3)	(1.0)	(0.006)	(0.6)	(1.2)	(0.009)
	2 girls	21.7	56.0	0.955	25.7	52.3	0.928	28.2	56.6***	0.890	30.4	56.5**	0.839
		(0.8)	(3.1)	(0.012)	(0.9)	(2.2)	(0.012)	(0.8)	(1.7)	(0.013)	(0.8)	(2.2)	(0.017)
3	1 boy, 2 girl	24.1**	53.0	0.889	26.2	53.8*	0.836	26.6	51.6	0.728	27.5**	55.7***	0.608
		(0.6)	(1.7)	(0.011)	(0.6)	(1.5)	(0.013)	(0.6)	(1.2)	(0.012)	(0.9)	(1.7)	(0.017)
	2 boys	23.1	48.2	0.894	27.2	50.8	0.843	26.8	49.3	0.702	29.3	52.2	0.567
		(0.8)	(2.3)	(0.016)	(0.8)	(2.2)	(0.017)	(0.8)	(2.4)	(0.017)	(1.3)	(2.4)	(0.020)
	3 girls	24.1	49.8	0.944	26.3	55.9	0.922	31.9	61.6***	0.877	30.7	57.7*	0.845
		(1.8)	(5.1)	(0.030)	(1.3)	(3.5)	(0.021)	(1.3)	(3.5)	(0.027)	(1.3)	(3.6)	(0.029)
	1 boy, 2 girls	24.9	54.2	0.885	29.3*	56.4**	0.792	29.3	55.3*	0.657	29.4	51.3	0.579
4		(1.1)	(3.0)	(0.021)	(0.9)	(2.6)	(0.021)	(1.0)	(2.4)	(0.026)	(1.1)	(2.7)	(0.023)
	2 boys, 1 girl	26.4	50.7	0.851	31.7***	56.0	0.731	30.5	55.3	0.580	36.2**	49.2	0.437
		(1.4)	(3.6)	(0.031)	(1.2)	(3.2)	(0.026)	(1.4)	(3.0)	(0.027)	(1.8)	(4.1)	(0.027)
	3 boys	27.2	55.0	0.738	29.7*	41.7**	0.855	29.9	43.1*	0.693	36.8*	60.1	0.542
		(3.5)	(6.7)	(0.068)	(1.6)	(4.5)	(0.030)	(2.3)	(4.5)	(0.043)	(3.2)	(6.7)	(0.053)
							Rural						
	1 girl	21.9	51.6	0.977	23.3	51.4	0.965	24.5	53.3***	0.963	25.4	52.8**	0.950
2		(0.3)	(1.1)	(0.003)	(0.3)	(0.9)	(0.003)	(0.2)	(0.5)	(0.002)	(0.3)	(0.7)	(0.004)
	1 boy	23.4***	50.0	0.971	24.0*	51.5	0.954	24.9	51.1	0.945	26.3***	50.5	0.908
		(0.3)	(0.9)	(0.004)	(0.3)	(0.9)	(0.004)	(0.2)	(0.5)	(0.002)	(0.2)	(0.6)	(0.004)
	2 girls	20.6	50.6	0.966	22.4	54.1**	0.937	25.7	53.6**	0.934	27.5	55.5***	0.892
		(0.5)	(1.9)	(0.007)	(0.4)	(1.5)	(0.008)	(0.4)	(1.0)	(0.005)	(0.4)	(1.0)	(0.007)
3	1 boy, 2 girl	23.3***	51.4	0.928	25.3***	51.7	0.886	25.8	52.5	0.791	28.1	53.6**	0.705
		(0.5)	(1.3)	(0.008)	(0.4)	(1.3)	(0.007)	(0.3)	(0.8)	(0.006)	(0.4)	(1.0)	(0.008)
	2 boys	25.3***	49.6	0.928	26.0***	50.9	0.864	26.4	49.5	0.740	28.3	49.5	0.631
		(0.8)	(1.9)	(0.011)	(0.7)	(1.6)	(0.012)	(0.5)	(1.1)	(0.010)	(0.6)	(1.4)	(0.011)
	3 girls	22.6	49.5	0.983	26.0	54.2	0.962	28.5	55.5**	0.947	30.4	57.7***	0.920
		(1.1)	(3.7)	(0.011)	(0.7)	(2.7)	(0.009)	(0.7)	(1.8)	(0.009)	(0.5)	(1.5)	(0.011)
	1 boy, 2 girls	25.4**	50.0	0.930	27.9**	55.1**	0.893	29.3	52.9	0.755	31.7*	51.9	0.702
4		(0.8)	(2.4)	(0.014)	(0.6)	(1.6)	(0.011)	(0.7)	(1.4)	(0.014)	(0.5)	(1.4)	(0.013)
	2 boys, 1 girl	27.6***	46.5*	0.885	30.1***	51.0	0.846	30.7**	52.1	0.597	35.0***	52.4	0.541
		(0.9)	(2.7)	(0.020)	(0.8)	(2.0)	(0.016)	(0.8)	(1.8)	(0.016)	(0.7)	(1.8)	(0.014)
	3 boys	24.7	55.0	0.939	28.9**	56.7	0.883	32.6***	51.6	0.686	33.5**	44.1*	0.546
		(1.4)	(4.5)	(0.022)	(1.2)	(3.4)	(0.024)	(1.3)	(3.8)	(0.027)	(1.4)	(3.7)	(0.027)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table C.3: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with Eight or More Years of Education

		1972–1984			1985–1994			1995–2004			2005–2016		
Spell	Composition of prior Children	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]
							Urban						
	1 girl	24.9	52.1	0.925	29.5	55.2***	0.889	31.2	58.0***	0.866	33.6	56.1***	0.820
2		(0.4)	(1.1)	(0.005)	(0.3)	(0.8)	(0.005)	(0.2)	(0.5)	(0.003)	(0.3)	(0.7)	(0.005)
	1 boy	25.9*	51.9	0.917	29.8	52.1	0.844	31.2	49.9**	0.823	34.2	49.6**	0.720
		(0.4)	(1.2)	(0.005)	(0.3)	(0.9)	(0.005)	(0.2)	(0.5)	(0.003)	(0.4)	(0.8)	(0.006)
	2 girls	26.8	55.4*	0.838	32.9	63.1***	0.708	34.2	64.9***	0.712	38.3	66.3***	0.631
		(0.8)	(2.1)	(0.014)	(0.7)	(1.6)	(0.013)	(0.6)	(1.4)	(0.009)	(0.7)	(1.3)	(0.012)
3	1 boy, 2 girl	27.5	53.8*	0.664	30.0***	53.4*	0.486	30.5***	53.2*	0.410	32.7***	55.6***	0.272
		(0.8)	(1.5)	(0.013)	(0.6)	(1.2)	(0.011)	(0.5)	(1.2)	(0.008)	(0.8)	(1.3)	(0.007)
	2 boys	28.5	49.8	0.622	31.4	51.6	0.476	29.5***	45.1***	0.393	34.6**	48.6	0.269
		(1.0)	(2.5)	(0.018)	(1.1)	(2.4)	(0.015)	(0.8)	(1.6)	(0.011)	(1.2)	(2.4)	(0.010)
	3 girls	27.4	58.4	0.829	35.0	67.4***	0.803	35.2	63.2***	0.787	38.9	63.0***	0.722
		(1.8)	(5.4)	(0.037)	(1.3)	(3.4)	(0.025)	(1.1)	(3.5)	(0.025)	(1.1)	(3.1)	(0.027)
	1 boy, 2 girls	26.6	50.5	0.607	32.7	52.7	0.488	33.7	62.2***	0.443	36.3	62.2***	0.301
4		(1.6)	(3.6)	(0.028)	(1.2)	(3.0)	(0.021)	(1.2)	(2.9)	(0.017)	(1.5)	(2.8)	(0.014)
	2 boys, 1 girl	27.5	52.5	0.608	30.9**	46.4	0.452	34.3	50.1	0.285	34.3*	50.9	0.202
		(1.5)	(4.2)	(0.032)	(1.7)	(3.6)	(0.024)	(1.8)	(4.2)	(0.018)	(2.4)	(4.5)	(0.015)
	3 boys	28.1	57.5	0.654	32.9	58.7	0.461	31.4	44.4	0.432	38.9	55.0	0.299
		(3.0)	(7.3)	(0.064)	(2.9)	(6.1)	(0.047)	(2.5)	(6.6)	(0.034)	(3.7)	(8.5)	(0.037)
							Rural						
	1 girl	23.9	51.8	0.968	25.9	53.0*	0.946	27.0	55.1***	0.936	29.1	55.3***	0.910
2		(0.5)	(1.5)	(0.006)	(0.4)	(1.1)	(0.005)	(0.2)	(0.5)	(0.003)	(0.2)	(0.5)	(0.003)
	1 boy	23.9	48.0**	0.944	26.0	51.1	0.907	27.0	50.6	0.889	29.4	49.4***	0.813
		(0.5)	(1.5)	(0.007)	(0.4)	(1.0)	(0.006)	(0.2)	(0.5)	(0.003)	(0.2)	(0.5)	(0.004)
	2 girls	25.5	54.0	0.925	28.5	57.4***	0.892	29.0	59.5***	0.857	33.0	60.2***	0.801
		(1.1)	(2.9)	(0.016)	(0.9)	(1.9)	(0.015)	(0.5)	(1.0)	(0.006)	(0.4)	(0.8)	(0.006)
3	1 boy, 2 girl	25.2	53.7	0.807	26.7	54.4**	0.676	27.4**	54.5***	0.592	29.2***	53.6***	0.440
		(0.9)	(2.1)	(0.018)	(0.7)	(1.5)	(0.013)	(0.4)	(0.9)	(0.007)	(0.5)	(0.9)	(0.005)
	2 boys	26.4	47.0	0.790	26.4	48.6	0.670	27.5**	49.4	0.548	30.4***	49.1	0.401
		(1.3)	(3.1)	(0.020)	(1.1)	(2.4)	(0.020)	(0.5)	(1.4)	(0.011)	(0.8)	(1.4)	(0.010)
	3 girls	22.8	48.5	0.979	32.5	62.1**	0.864	32.3	62.1***	0.869	33.4	59.5***	0.826
		(2.2)	(7.3)	(0.025)	(1.3)	(4.6)	(0.026)	(0.9)	(2.1)	(0.017)	(0.5)	(1.8)	(0.014)
	1 boy, 2 girls	28.9**	44.1	0.866	31.6	51.1	0.742	29.7**	55.0**	0.589	34.7	55.1**	0.458
4		(1.7)	(4.4)	(0.034)	(1.0)	(2.7)	(0.023)	(0.7)	(1.9)	(0.017)	(0.7)	(1.7)	(0.013)
	2 boys, 1 girl	31.4***	51.0	0.751	33.9	53.1	0.592	31.7	52.9	0.473	38.0***	49.8	0.355
		(2.1)	(5.4)	(0.043)	(1.5)	(4.0)	(0.035)	(1.2)	(2.5)	(0.019)	(1.2)	(2.3)	(0.015)
	3 boys	29.4*	57.8	0.830	30.7	41.7	0.596	33.1	57.9	0.561	35.2	60.5**	0.427
		(3.3)	(8.4)	(0.067)	(2.8)	(7.5)	(0.057)	(2.2)	(4.7)	(0.034)	(1.8)	(4.6)	(0.026)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table C.4: Estimated 25th, 50th, and 75th Percentile Durations for Women with No Education

Spell	Composition of Prior Children	1972–1984 Duration (Months)[a] Percentile 25th	50th	75th	1985–1994 Duration (Months)[a] Percentile 25th	50th	75th	1995–2004 Duration (Months)[a] Percentile 25th	50th	75th	2005–2016 Duration (Months)[a] Percentile 25th	50th	75th
							Urban						
	1 girl	11.8	17.6	28.5	11.7	18.4	29.2	12.1	19.0	30.8	12.4	19.7	31.7
2		(0.4)	(0.3)	(0.6)	(0.3)	(0.3)	(0.5)	(0.2)	(0.3)	(0.5)	(0.4)	(0.5)	(0.8)
	1 boy	12.6*	18.9***	29.2	12.5**	20.1***	32.1***	12.3	19.6	32.3**	12.6	20.1	31.5
		(0.3)	(0.4)	(0.5)	(0.3)	(0.3)	(0.6)	(0.2)	(0.3)	(0.5)	(0.3)	(0.5)	(0.8)
	2 girls	11.8	19.1	30.9	11.9	18.5	30.0	12.6	20.1	32.8	13.6	22.0	36.4
		(0.7)	(0.7)	(1.2)	(0.5)	(0.5)	(1.0)	(0.4)	(0.5)	(1.0)	(0.5)	(0.8)	(1.8)
3	1 boy, 1 girl	12.5	18.3	28.2*	13.3***	19.8**	30.8	13.3	20.4	32.4	12.9	20.1**	32.9
		(0.3)	(0.4)	(0.7)	(0.3)	(0.4)	(0.7)	(0.2)	(0.4)	(0.7)	(0.4)	(0.5)	(1.2)
	2 boys	12.9	19.0	30.6	13.4**	21.3***	32.0	13.3	21.0	33.3	13.8	22.8	35.1
		(0.4)	(0.7)	(1.2)	(0.4)	(0.8)	(1.0)	(0.4)	(0.7)	(0.9)	(0.5)	(1.0)	(1.8)
	3 girls	9.5	17.8	25.4	12.0	20.2	31.9	11.7	20.7	34.1	14.2	23.2	40.2
		(1.2)	(0.8)	(1.7)	(0.9)	(0.7)	(1.8)	(1.2)	(0.8)	(2.2)	(0.9)	(1.0)	(2.1)
	1 boy, 2 girls	10.6	18.9	28.1	11.1	20.3	33.7	12.4	21.1	35.1	14.0	23.2	43.6
4		(0.9)	(0.6)	(1.3)	(0.6)	(0.5)	(1.4)	(0.8)	(0.6)	(2.3)	(0.8)	(0.7)	(2.4)
	2 boys, 1 girl	11.4	20.0**	31.4**	13.7	23.0***	40.5***	13.5	22.6*	41.8**	15.1	24.0	46.7
		(1.1)	(0.7)	(2.0)	(0.7)	(0.6)	(1.4)	(0.9)	(0.7)	(2.4)	(0.9)	(0.9)	(3.5)
	3 boys	12.4	21.5**	35.8***	14.4	23.4**	40.9***	11.0	20.2	31.8	15.9	24.0	45.0
		(1.8)	(1.5)	(2.9)	(1.1)	(1.1)	(2.2)	(1.2)	(0.9)	(3.9)	(1.3)	(1.5)	(5.8)
							Rural						
	1 girl	12.6	18.6	28.4	12.8	19.4	30.0	13.0	19.7	30.7	12.9	19.7	30.6
2		(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.3)	(0.1)	(0.1)	(0.2)	(0.1)	(0.1)	(0.2)
	1 boy	13.0**	19.6***	29.6***	13.1**	20.1***	30.9***	13.0	19.8	31.3**	13.2*	20.1*	31.7***
		(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.3)
	2 girls	11.9	17.8	27.3	13.1	19.9	30.5	13.3	19.9	31.2	13.5	20.3	31.9
		(0.3)	(0.3)	(0.4)	(0.2)	(0.3)	(0.4)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.3)
3	1 boy, 1 girl	13.0***	19.0***	28.6**	13.1	19.8	30.7	13.4	20.0	31.7	14.0**	21.1**	33.4***
		(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.4)
	2 boys	12.9***	19.0***	28.8**	13.5	20.8**	32.2***	13.8**	20.9***	32.1*	14.3***	21.9***	34.5***
		(0.2)	(0.3)	(0.4)	(0.2)	(0.3)	(0.5)	(0.1)	(0.2)	(0.4)	(0.2)	(0.3)	(0.5)
	3 girls	9.9	18.4	27.4	11.4	20.1	31.7	11.3	19.9	31.2	13.6	21.8	35.6
		(0.7)	(0.4)	(0.8)	(0.4)	(0.3)	(0.7)	(0.4)	(0.3)	(0.7)	(0.4)	(0.2)	(0.6)
	1 boy, 2 girls	10.7	19.2*	29.4*	13.1***	21.3***	34.6***	12.6**	21.0***	34.2***	14.3	22.8***	40.2***
4		(0.3)	(0.3)	(0.7)	(0.3)	(0.2)	(0.5)	(0.3)	(0.2)	(0.7)	(0.3)	(0.2)	(0.7)
	2 boys, 1 girl	11.2*	19.3*	28.8	13.2***	22.0***	37.3***	13.1***	22.1***	39.2***	16.0***	25.0***	48.5***
		(0.4)	(0.2)	(0.6)	(0.3)	(0.3)	(0.6)	(0.3)	(0.2)	(0.9)	(0.2)	(0.3)	(0.8)
	3 boys	10.6	19.6*	31.0**	14.1***	22.4***	37.9***	13.5***	22.4***	40.0***	15.5***	24.9***	47.7***
		(0.6)	(0.5)	(1.3)	(0.5)	(0.4)	(1.1)	(0.6)	(0.5)	(1.6)	(0.5)	(0.6)	(1.4)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] Percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a given percent chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 40% mark on her survival curve. The reported statistics is the average of a given percentile duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

Table C.5: Estimated 25th, 50th, and 75th Percentile Durations for Women with One to Seven Years of Education

		1972–1984			1985–1994			1995–2004			2005–2016		
		Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile		
Spell	Composition of Prior Children	25th	50th	75th	25th	50th	75th	25th	50th	75th	25th	50th	75th
							Urban						
2	1 girl	10.9	17.4	26.2	11.9	18.6	30.0	12.2	19.9	33.1	13.2	21.4	34.5
		(0.4)	(0.3)	(0.6)	(0.3)	(0.4)	(0.7)	(0.2)	(0.4)	(0.6)	(0.3)	(0.4)	(0.8)
	1 boy	12.1**	18.3	28.6***	12.3	20.2***	31.2	12.9**	20.5	33.4	13.5	22.3	37.3**
		(0.3)	(0.5)	(0.7)	(0.3)	(0.4)	(0.6)	(0.3)	(0.4)	(0.5)	(0.3)	(0.5)	(1.0)
3	2 girls	11.4	17.6	27.8	13.2	20.6	33.2	14.3	22.9	37.4	15.4	23.7	40.0
		(0.6)	(0.7)	(1.3)	(0.5)	(0.7)	(1.2)	(0.5)	(0.8)	(1.6)	(0.4)	(0.7)	(1.9)
	1 boy, 1 girl	13.1***	19.8***	29.9	13.6	20.4	33.8	13.9	21.0**	34.6	14.3*	22.1	35.2*
		(0.3)	(0.5)	(0.8)	(0.3)	(0.6)	(1.0)	(0.3)	(0.5)	(1.0)	(0.4)	(0.8)	(1.6)
	2 boys	13.3**	19.3	29.4	14.0	21.2	35.3	14.4	21.7	35.0	14.9	23.5	39.4
		(0.6)	(0.9)	(1.2)	(0.4)	(0.8)	(1.7)	(0.5)	(0.7)	(1.6)	(0.6)	(1.1)	(2.0)
4	3 girls	9.7	19.0	30.5	11.6	20.7	34.6	15.2	25.6	45.6	14.5	23.8	43.3
		(1.5)	(1.4)	(3.3)	(1.2)	(1.0)	(2.9)	(1.1)	(1.8)	(2.5)	(1.1)	(1.3)	(3.2)
	1 boy, 2 girls	11.0	19.5	29.2	12.7	22.2	40.5	11.8**	21.8**	40.6	13.5	22.2	38.5
		(1.1)	(0.7)	(2.1)	(0.9)	(0.8)	(2.5)	(1.0)	(0.8)	(3.2)	(1.1)	(0.7)	(3.8)
	2 boys, 1 girl	11.7	20.3	32.2	14.3*	24.0**	46.1***	13.8	22.8	42.3	17.4**	26.9	54.8**
		(1.3)	(0.9)	(3.5)	(1.0)	(1.1)	(2.8)	(1.2)	(1.0)	(4.2)	(0.9)	(1.8)	(3.6)
	3 boys	11.0	20.5	33.7	14.4	22.9	40.5	14.1	22.5	40.1	16.3	28.3	56.8**
		(2.4)	(2.5)	(7.7)	(1.3)	(1.4)	(4.0)	(1.7)	(1.6)	(6.2)	(2.3)	(4.5)	(5.4)
							Rural						
2	1 girl	12.4	18.0	28.0	12.3	19.1	30.2	13.1	20.1	31.7	13.3	20.5	32.6
		(0.2)	(0.3)	(0.5)	(0.2)	(0.3)	(0.4)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.4)
	1 boy	13.2***	19.6***	30.0***	13.0**	19.8*	30.8	13.2	20.5	32.3	13.7**	21.3**	34.4***
		(0.2)	(0.3)	(0.4)	(0.2)	(0.3)	(0.4)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.4)
3	2 girls	12.1	18.0	27.0	12.3	19.3	28.6	13.8	21.4	33.5	14.6	22.3	35.7
		(0.5)	(0.4)	(0.6)	(0.3)	(0.4)	(0.6)	(0.2)	(0.4)	(0.6)	(0.2)	(0.4)	(0.7)
	1 boy, 1 girl	13.2*	19.1*	29.0**	13.6***	20.5**	32.6***	14.0	21.0	32.7	14.5	22.2	35.9
		(0.3)	(0.4)	(0.6)	(0.2)	(0.3)	(0.6)	(0.2)	(0.2)	(0.5)	(0.2)	(0.3)	(0.7)
	2 boys	14.3***	21.0***	31.9***	14.0***	20.9**	33.0***	14.0	21.3	33.8	14.7	23.2	36.8
		(0.5)	(0.7)	(0.9)	(0.4)	(0.6)	(1.2)	(0.3)	(0.5)	(0.8)	(0.3)	(0.5)	(1.1)
4	3 girls	12.0	19.2	27.9	13.3	21.3	34.0	14.5	23.2	38.6	16.0	24.3	41.4
		(1.3)	(0.7)	(1.6)	(0.7)	(0.6)	(1.5)	(0.6)	(0.6)	(1.2)	(0.4)	(0.4)	(1.0)
	1 boy, 2 girls	12.3	20.2	31.1	13.4	21.8	36.8	13.8	22.2	39.1	15.3	23.8	44.9**
		(1.0)	(0.6)	(1.6)	(0.6)	(0.5)	(1.3)	(0.6)	(0.5)	(1.9)	(0.3)	(0.4)	(1.4)
	2 boys, 1 girl	14.1	21.5**	34.8**	14.5	23.1**	41.5***	14.2	22.9	42.5	16.0	26.3**	53.2***
		(0.9)	(0.7)	(2.4)	(0.6)	(0.7)	(1.9)	(0.8)	(0.6)	(2.6)	(0.5)	(0.6)	(1.3)
	3 boys	11.4	19.7	30.3	13.5	22.4	39.3*	13.8	24.5	48.7***	15.9	24.9	49.4**
		(1.3)	(0.9)	(2.8)	(1.1)	(1.1)	(2.7)	(1.2)	(1.3)	(3.0)	(0.8)	(1.1)	(3.5)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] Percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a given percent chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 40% mark on her survival curve. The reported statistics is the average of a given percentile duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

Table C.6: Estimated 25th, 50th, and 75th Percentile Durations for Women with Eight or More Years of Education

		1972–1984			1985–1994			1995–2004			2005–2016		
		Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile		
Spell	Composition of Prior Children	25th	50th	75th	25th	50th	75th	25th	50th	75th	25th	50th	75th
								Urban					
	1 girl	12.1	19.7	32.6	13.6	24.4	40.8	15.2	26.2	43.4	16.7	29.0	47.0
2		(0.3)	(0.4)	(0.7)	(0.2)	(0.4)	(0.6)	(0.2)	(0.3)	(0.4)	(0.2)	(0.3)	(0.5)
	1 boy	12.3	20.7*	35.1**	14.4**	25.0	40.9	15.2	25.8	43.0	16.7	29.0	47.5
		(0.3)	(0.4)	(0.8)	(0.2)	(0.3)	(0.5)	(0.2)	(0.3)	(0.4)	(0.2)	(0.4)	(0.6)
	2 girls	13.8	21.7	34.4	15.7	27.0	45.5	17.1	28.8	46.9	18.8	33.3	54.2
		(0.5)	(0.7)	(1.4)	(0.5)	(0.8)	(1.4)	(0.4)	(0.7)	(1.1)	(0.5)	(0.9)	(1.4)
3	1 boy, 1 girl	12.9	21.0	35.8	14.0***	24.3***	40.6***	14.8***	24.1***	41.1***	16.0***	26.7***	43.8***
		(0.4)	(0.7)	(1.6)	(0.3)	(0.6)	(1.0)	(0.4)	(0.5)	(0.9)	(0.4)	(0.8)	(1.6)
	2 boys	14.0	22.3	37.9	14.7	25.5	41.9	15.4***	23.5***	38.6***	15.7***	28.2***	48.5*
		(0.6)	(1.2)	(2.0)	(0.6)	(1.1)	(2.1)	(0.3)	(0.7)	(1.1)	(0.5)	(1.3)	(2.8)
	3 girls	13.7	21.3	34.6	16.8	29.8	50.6	17.1	29.2	51.2	19.7	34.0	56.4
		(1.4)	(1.3)	(4.2)	(1.2)	(1.9)	(1.8)	(0.9)	(1.6)	(1.7)	(1.0)	(1.8)	(1.3)
	1 boy, 2 girls	10.3*	20.0	32.8	15.0	24.4***	47.9	14.8*	25.1**	51.2	16.7**	27.0***	55.9
4		(1.2)	(1.1)	(3.8)	(0.8)	(0.9)	(3.0)	(0.9)	(1.0)	(2.8)	(0.9)	(1.5)	(2.7)
	2 boys, 1 girl	11.4	20.7	34.0	12.7**	22.9***	44.7	13.9*	25.3	53.5	14.1***	25.3***	53.6
		(1.3)	(1.0)	(4.3)	(1.4)	(1.3)	(4.8)	(1.5)	(1.7)	(3.8)	(1.7)	(2.0)	(5.3)
	3 boys	12.1	21.2	36.2	13.3	24.4	50.0	13.8	23.3**	45.2	17.3	30.4	60.7
		(2.3)	(2.2)	(7.2)	(2.3)	(2.8)	(6.8)	(1.9)	(1.8)	(7.2)	(2.9)	(5.5)	(6.4)
								Rural					
	1 girl	12.1	20.3	30.6	13.3	21.3	34.2	13.9	22.2	35.7	14.6	23.9	39.2
2		(0.4)	(0.6)	(0.7)	(0.2)	(0.3)	(0.7)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.3)
	1 boy	12.4	19.7	31.2	13.3	21.2	34.1	13.9	22.0	35.8	14.6	24.1	39.8
		(0.4)	(0.5)	(1.0)	(0.2)	(0.4)	(0.7)	(0.1)	(0.2)	(0.3)	(0.1)	(0.2)	(0.4)
	2 girls	14.4	20.9	31.8	15.0	23.6	37.6	14.8	23.8	38.1	16.9	27.4	44.5
		(0.6)	(0.9)	(1.6)	(0.5)	(0.8)	(1.6)	(0.2)	(0.5)	(0.8)	(0.2)	(0.4)	(0.8)
3	1 boy, 1 girl	13.8	20.3	30.9	14.2	22.4	34.9	14.2**	21.9***	35.6**	14.6***	23.2***	38.2***
		(0.4)	(0.7)	(1.1)	(0.4)	(0.6)	(1.0)	(0.2)	(0.4)	(0.7)	(0.2)	(0.3)	(0.8)
	2 boys	14.1	21.9	32.3	13.8	22.0	33.8	14.2	21.7***	35.4**	15.3***	24.1***	39.8***
		(0.9)	(1.3)	(1.5)	(0.6)	(0.8)	(1.8)	(0.3)	(0.5)	(0.9)	(0.3)	(0.7)	(1.3)
	3 girls	10.6	19.5	30.6	15.6	27.3	46.3	16.8	26.0	44.9	16.7	27.1	47.6
		(2.1)	(1.9)	(3.3)	(1.3)	(1.8)	(2.1)	(0.5)	(1.0)	(1.6)	(0.4)	(0.8)	(0.9)
	1 boy, 2 girls	15.1*	22.6	38.2	14.0	24.2	46.0	13.8***	22.3***	39.4*	15.9	25.9	52.6***
4		(1.4)	(1.5)	(3.8)	(0.8)	(1.1)	(2.2)	(0.7)	(0.5)	(2.4)	(0.5)	(0.7)	(1.5)
	2 boys, 1 girl	15.5*	23.8	43.8**	15.5	25.6	50.7	15.3*	23.7*	44.6	17.0	29.0	59.1***
		(1.6)	(1.9)	(4.9)	(1.1)	(1.6)	(3.2)	(0.7)	(0.8)	(3.5)	(0.7)	(1.9)	(1.9)
	3 boys	13.7	22.7	40.5	12.7	22.9	44.1	16.3	24.7	47.5	16.6	26.2	53.2
		(2.7)	(3.3)	(6.8)	(2.1)	(2.3)	(6.9)	(1.3)	(1.7)	(5.4)	(1.0)	(1.6)	(4.0)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] Percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a given percent chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 40% mark on her survival curve. The reported statistics is the average of a given percentile duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

D Results by Region

Table D.1: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with Eight or More Years of Education in the "West"

		1972–1984			1985–1994			1995–2004			2005–2016		
Spell	Composition of prior Children	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]
							Urban						
	1 girl	24.3	50.6	0.960	28.7	57.9***	0.932	31.1	61.6***	0.903	33.7	57.9***	0.838
2		(0.6)	(1.6)	(0.005)	(0.5)	(1.0)	(0.007)	(0.4)	(0.9)	(0.006)	(0.6)	(1.0)	(0.009)
	1 boy	25.8**	51.2	0.929	30.0*	50.8	0.886	30.8	49.7*	0.832	34.6	49.0*	0.685
		(0.6)	(1.4)	(0.007)	(0.6)	(1.2)	(0.008)	(0.4)	(0.8)	(0.006)	(0.6)	(1.3)	(0.011)
	2 girls	27.4	59.9***	0.835	34.3	66.5***	0.759	35.9	70.8***	0.723	39.5	68.6***	0.687
		(1.0)	(3.1)	(0.019)	(1.1)	(2.3)	(0.018)	(0.9)	(2.0)	(0.021)	(1.0)	(2.2)	(0.021)
3	1 boy, 2 girl	28.6	53.8	0.620	30.7**	57.0***	0.443	30.8***	57.4***	0.358	32.4***	55.7*	0.217
		(1.1)	(2.5)	(0.018)	(1.0)	(1.9)	(0.015)	(0.9)	(1.7)	(0.011)	(1.3)	(2.7)	(0.011)
	2 boys	27.5	51.5	0.587	31.6	50.2	0.434	29.1***	46.4	0.329	35.7	51.6	0.201
		(1.3)	(3.7)	(0.026)	(1.7)	(3.0)	(0.024)	(1.4)	(3.4)	(0.017)	(2.5)	(4.5)	(0.019)
	3 girls	29.0	61.1	0.862	36.3	68.9***	0.811	33.4	79.5***	0.791	38.8	60.0	0.662
		(2.4)	(7.3)	(0.041)	(1.8)	(4.8)	(0.035)	(1.9)	(5.3)	(0.042)	(2.0)	(6.7)	(0.044)
	1 boy, 2 girls	28.3	49.6	0.531	31.6*	55.2	0.406	34.9	63.1**	0.347	39.4	58.8	0.222
4		(2.1)	(5.8)	(0.042)	(1.9)	(4.6)	(0.033)	(2.3)	(5.1)	(0.030)	(2.7)	(5.7)	(0.023)
	2 boys, 1 girl	25.9	50.7	0.537	31.0	53.8	0.363	33.2	40.9	0.223	42.6	60.7	0.197
		(2.6)	(7.0)	(0.051)	(2.9)	(5.6)	(0.031)	(3.5)	(7.8)	(0.031)	(4.5)	(15.2)	(0.033)
	3 boys	29.6	43.8	0.669	32.5	41.3	0.305	30.5	30.0*	0.333	47.1	46.1	0.321
		(3.8)	(8.5)	(0.082)	(6.1)	(13.7)	(0.073)	(6.2)	(12.4)	(0.076)	(5.9)	(17.5)	(0.089)
							Rural						
	1 girl	22.5	51.8	0.982	24.5	55.0**	0.960	24.6	59.4***	0.954	28.2	57.6***	0.938
2		(0.9)	(2.7)	(0.007)	(0.6)	(1.7)	(0.008)	(0.3)	(0.9)	(0.004)	(0.4)	(0.9)	(0.006)
	1 boy	22.5	50.4	0.970	23.9	52.3	0.933	24.6	51.4	0.900	28.8	47.3***	0.808
		(0.8)	(2.3)	(0.009)	(0.6)	(1.9)	(0.010)	(0.3)	(0.9)	(0.006)	(0.5)	(0.9)	(0.008)
	2 girls	25.5	53.4	0.956	29.1	64.1***	0.915	30.0	66.9***	0.882	34.1	62.5***	0.830
		(1.6)	(5.4)	(0.016)	(1.1)	(3.9)	(0.019)	(0.7)	(1.7)	(0.012)	(0.7)	(1.7)	(0.012)
3	1 boy, 2 girl	25.6	59.5*	0.837	25.3**	55.0	0.641	26.2***	56.2***	0.524	27.7***	53.4	0.337
		(1.4)	(4.6)	(0.025)	(1.3)	(3.0)	(0.022)	(0.7)	(1.9)	(0.012)	(1.0)	(1.8)	(0.011)
	2 boys	25.5	39.7**	0.772	28.8	52.0	0.659	27.2*	48.9	0.413	31.5	53.3	0.313
		(2.2)	(5.5)	(0.041)	(2.0)	(4.4)	(0.035)	(1.5)	(3.1)	(0.026)	(2.1)	(3.8)	(0.019)
	3 girls	22.7	60.8	0.978	34.5	73.3***	0.840	31.6	65.0***	0.876	34.0	56.7*	0.840
		(3.1)	(12.9)	(0.034)	(2.3)	(8.0)	(0.047)	(1.8)	(4.4)	(0.031)	(1.0)	(3.2)	(0.028)
	1 boy, 2 girls	31.3**	44.1	0.828	31.3	48.9	0.681	30.4	60.0**	0.429	35.4	54.7	0.356
4		(3.0)	(8.1)	(0.062)	(1.8)	(5.4)	(0.038)	(1.9)	(4.3)	(0.030)	(1.8)	(3.7)	(0.025)
	2 boys, 1 girl	28.9	55.6	0.694	28.5	63.7	0.535	28.4	54.1	0.316	36.6	50.7	0.281
		(4.0)	(8.2)	(0.075)	(3.1)	(7.8)	(0.061)	(2.8)	(7.6)	(0.035)	(3.8)	(6.3)	(0.037)
	3 boys	32.3	66.5	0.755	36.5	47.1	0.500	30.7	60.8	0.423	37.7	46.1	0.406
		(6.9)	(20.6)	(0.129)	(5.7)	(17.7)	(0.104)	(5.5)	(15.4)	(0.082)	(4.6)	(12.7)	(0.082)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table D.2: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with Eight or More Years of Education in the "North"

Spell	Composition of prior Children	1972–1984 Duration[a] (Mos)	1972–1984 Percent[b] boys	1972–1984 Probability birth[c]	1985–1994 Duration[a] (Mos)	1985–1994 Percent[b] boys	1985–1994 Probability birth[c]	1995–2004 Duration[a] (Mos)	1995–2004 Percent[b] boys	1995–2004 Probability birth[c]	2005–2016 Duration[a] (Mos)	2005–2016 Percent[b] boys	2005–2016 Probability birth[c]
							Urban						
	1 girl	22.3	55.7	0.954	26.2	52.9	0.948	28.4	58.7***	0.922	31.5	57.0***	0.892
2		(0.9)	(2.9)	(0.012)	(0.7)	(1.9)	(0.007)	(0.3)	(0.9)	(0.006)	(0.5)	(0.9)	(0.008)
	1 boy	23.2	51.4	0.952	27.9*	52.5	0.904	28.6	50.3	0.884	32.3	50.2	0.805
		(0.9)	(2.7)	(0.011)	(0.8)	(1.8)	(0.010)	(0.4)	(0.9)	(0.006)	(0.5)	(1.1)	(0.010)
	2 girls	22.5	59.0	0.919	30.3	64.8**	0.799	32.4	66.8***	0.821	37.2	65.3***	0.707
		(1.7)	(5.8)	(0.027)	(1.9)	(5.8)	(0.031)	(0.9)	(1.8)	(0.014)	(1.0)	(2.0)	(0.019)
3	1 boy, 2 girl	24.3	55.5	0.739	28.8	50.9	0.632	29.4**	52.1	0.509	33.2***	58.5***	0.356
		(1.6)	(4.8)	(0.023)	(1.2)	(2.4)	(0.024)	(0.8)	(1.9)	(0.012)	(1.0)	(2.1)	(0.012)
	2 boys	26.9	52.1	0.755	29.5	57.1	0.512	27.4***	42.4***	0.464	32.2***	47.3	0.310
		(1.8)	(5.9)	(0.032)	(2.3)	(5.6)	(0.034)	(0.9)	(2.5)	(0.017)	(1.6)	(3.2)	(0.016)
	3 girls	19.8	47.4	0.908	32.8	66.1	0.854	32.2	58.9	0.838	37.1	61.7**	0.802
		(4.3)	(12.6)	(0.072)	(2.4)	(10.9)	(0.043)	(1.7)	(5.1)	(0.031)	(1.4)	(4.2)	(0.030)
	1 boy, 2 girls	23.8	47.9	0.732	31.0	61.8**	0.647	32.3	63.0***	0.523	35.1	64.4***	0.376
4		(2.4)	(6.9)	(0.056)	(1.9)	(4.7)	(0.043)	(1.7)	(3.3)	(0.025)	(1.6)	(3.7)	(0.026)
	2 boys, 1 girl	30.2**	50.0	0.748	29.9	40.9*	0.589	35.2	52.8	0.361	32.8	49.4	0.225
		(2.7)	(7.6)	(0.049)	(2.8)	(5.6)	(0.051)	(2.5)	(4.9)	(0.033)	(3.2)	(6.0)	(0.024)
	3 boys	22.5	49.6	0.711	29.5	51.6	0.621	32.5	46.9	0.542	31.5	62.7	0.318
		(5.0)	(25.9)	(0.134)	(4.3)	(10.6)	(0.081)	(3.4)	(8.5)	(0.059)	(4.6)	(14.2)	(0.052)
							Rural						
	1 girl	20.7	48.8	0.984	23.6	52.5	0.984	24.0	54.4***	0.977	25.2	55.7***	0.959
2		(1.0)	(3.9)	(0.009)	(0.7)	(2.1)	(0.007)	(0.2)	(0.8)	(0.003)	(0.3)	(0.6)	(0.004)
	1 boy	24.8***	49.7	0.965	23.9	51.2	0.945	24.3	50.0	0.946	26.2**	51.0	0.899
		(1.4)	(4.3)	(0.013)	(0.7)	(1.9)	(0.010)	(0.3)	(0.9)	(0.004)	(0.4)	(0.8)	(0.005)
	2 girls	21.2	44.7	0.970	24.8	57.6	0.947	26.6	54.6**	0.951	29.2	60.1***	0.897
		(2.5)	(7.6)	(0.024)	(1.5)	(4.8)	(0.025)	(0.6)	(1.5)	(0.007)	(0.6)	(1.2)	(0.010)
3	1 boy, 2 girl	21.4	48.8	0.953	26.7	59.1**	0.865	25.9	55.4***	0.745	28.3	54.7***	0.593
		(1.2)	(4.5)	(0.019)	(1.1)	(3.1)	(0.018)	(0.4)	(1.2)	(0.009)	(0.5)	(1.0)	(0.008)
	2 boys	25.2	39.2	0.862	27.6	48.3	0.859	24.5**	51.0	0.683	30.1	49.8	0.523
		(2.8)	(8.6)	(0.047)	(1.6)	(4.0)	(0.030)	(0.7)	(1.8)	(0.015)	(1.0)	(2.1)	(0.016)
	3 girls	19.8	34.7	0.999	25.7	58.1	0.994	29.2	62.1***	0.956	30.8	59.7***	0.915
		(3.8)	(15.3)	(0.005)	(2.5)	(9.0)	(0.015)	(1.1)	(2.8)	(0.013)	(0.6)	(2.2)	(0.012)
	1 boy, 2 girls	23.3	37.9**	0.924	29.6	52.9	0.875	27.7	53.6	0.753	34.1***	54.6*	0.582
4		(2.6)	(6.7)	(0.053)	(1.5)	(5.1)	(0.035)	(0.9)	(2.3)	(0.019)	(0.8)	(2.1)	(0.018)
	2 boys, 1 girl	33.0***	53.8	0.869	38.1***	41.3	0.794	29.4	54.1	0.547	38.2***	48.6	0.394
		(2.9)	(10.2)	(0.063)	(2.2)	(6.3)	(0.051)	(1.4)	(3.0)	(0.021)	(1.2)	(3.0)	(0.018)
	3 boys	32.3**	57.9	0.952	25.1	45.8	0.619	32.4	57.6	0.646	33.6	63.6**	0.461
		(4.3)	(22.1)	(0.086)	(5.5)	(12.1)	(0.112)	(2.1)	(5.3)	(0.041)	(2.3)	(5.1)	(0.042)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table D.3: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with Eight or More Years of Education in the "East"

		1972–1984			1985–1994			1995–2004			2005–2016		
Spell	Composition of prior Children	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]	Duration[a] (Mos)	Percent[b] boys	Probability birth[c]
							Urban						
	1 girl	28.7	49.6	0.836	34.2	55.4*	0.785	38.6	54.4**	0.727	42.4	54.8*	0.653
2		(1.0)	(2.9)	(0.017)	(1.0)	(2.4)	(0.015)	(0.7)	(1.5)	(0.012)	(1.0)	(1.9)	(0.017)
	1 boy	28.1	56.5	0.846	33.9	52.9	0.692	39.2	48.4*	0.647	45.2*	51.2	0.516
		(1.3)	(3.5)	(0.018)	(0.9)	(2.2)	(0.017)	(0.8)	(1.6)	(0.012)	(1.2)	(2.2)	(0.019)
	2 girls	29.6	33.5***	0.822	34.3	51.2	0.584	36.2	49.8	0.597	43.9	59.4	0.398
		(2.5)	(6.0)	(0.046)	(2.4)	(4.7)	(0.035)	(1.6)	(4.2)	(0.033)	(2.4)	(5.1)	(0.030)
3	1 boy, 2 girl	29.6	47.5	0.717	31.9	47.3	0.408	35.9	47.3	0.301	38.5	47.2	0.185
		(2.2)	(4.6)	(0.035)	(1.7)	(4.0)	(0.026)	(1.5)	(3.6)	(0.019)	(2.5)	(5.8)	(0.018)
	2 boys	30.8	36.8**	0.559	37.4	48.1	0.471	36.9	50.5	0.360	44.9	40.3	0.211
		(2.5)	(6.4)	(0.049)	(2.4)	(5.3)	(0.036)	(2.4)	(5.2)	(0.029)	(3.7)	(8.2)	(0.030)
	3 girls	30.1	63.7	0.822	32.8	57.4	0.734	43.6	40.9	0.777	44.3	70.0	0.525
		(4.9)	(14.9)	(0.073)	(3.6)	(8.4)	(0.071)	(2.6)	(7.5)	(0.075)	(3.4)	(18.3)	(0.078)
	1 boy, 2 girls	24.5	36.8	0.636	39.9	36.8**	0.494	41.6	60.7	0.363	37.2	66.7	0.215
4		(4.4)	(11.1)	(0.081)	(2.7)	(6.6)	(0.059)	(3.7)	(10.8)	(0.054)	(4.6)	(12.1)	(0.034)
	2 boys, 1 girl	23.9	50.2	0.531	31.3	42.7	0.482	44.8	47.4	0.159	24.4**	36.5	0.128
		(3.3)	(11.3)	(0.078)	(3.5)	(8.7)	(0.061)	(7.4)	(16.4)	(0.042)	(7.2)	(15.2)	(0.041)
	3 boys	34.3	23.3	0.708	43.5	46.7	0.403	34.3	55.6	0.340	54.9	43.6	0.232
		(12.6)	(19.3)	(0.222)	(7.5)	(20.1)	(0.103)	(9.2)	(22.5)	(0.103)	(9.1)	(23.2)	(0.107)
							Rural						
	1 girl	23.9	50.8	0.949	29.1	54.5*	0.917	34.5	52.5	0.873	41.1	52.9	0.807
2		(1.2)	(4.0)	(0.015)	(1.0)	(1.9)	(0.013)	(0.4)	(1.1)	(0.008)	(0.5)	(1.3)	(0.009)
	1 boy	25.7	50.8	0.941	29.9	52.8	0.845	35.1	50.3	0.786	42.0	48.9	0.646
		(1.3)	(3.4)	(0.018)	(0.9)	(2.4)	(0.017)	(0.5)	(1.0)	(0.008)	(0.7)	(1.4)	(0.013)
	2 girls	27.8	50.3	0.961	30.4	44.6	0.854	34.5	58.3***	0.756	44.9	58.1***	0.632
		(2.9)	(8.8)	(0.026)	(1.9)	(4.9)	(0.031)	(1.1)	(2.6)	(0.017)	(1.1)	(2.6)	(0.018)
3	1 boy, 2 girl	26.3	53.7	0.796	27.3	50.7	0.580	36.3	51.6	0.412	41.8	48.5	0.237
		(2.3)	(5.6)	(0.041)	(1.5)	(4.0)	(0.025)	(1.1)	(2.7)	(0.014)	(1.6)	(3.0)	(0.013)
	2 boys	25.9	44.6	0.788	22.7***	40.2**	0.553	36.4	48.0	0.428	38.9**	44.3	0.231
		(2.6)	(6.4)	(0.052)	(2.3)	(5.5)	(0.045)	(1.5)	(3.7)	(0.021)	(2.3)	(4.3)	(0.019)
	3 girls	18.2	10.6***	0.916	31.9	62.5	0.858	43.3	55.5	0.648	43.0	62.9*	0.512
		(4.8)	(11.2)	(0.102)	(3.4)	(15.0)	(0.066)	(2.5)	(8.6)	(0.062)	(2.2)	(6.2)	(0.052)
	1 boy, 2 girls	32.7**	56.0	0.947	35.6	52.7	0.644	37.1*	55.8	0.402	42.0	58.2	0.215
4		(4.0)	(9.5)	(0.057)	(2.6)	(6.5)	(0.058)	(2.5)	(5.7)	(0.040)	(2.7)	(6.2)	(0.028)
	2 boys, 1 girl	25.5	46.3	0.704	31.8	66.3	0.420	44.1	49.7	0.400	42.6	55.0	0.294
		(4.7)	(13.0)	(0.084)	(3.3)	(10.9)	(0.050)	(2.9)	(8.2)	(0.050)	(3.0)	(6.7)	(0.035)
	3 boys	19.5	45.2	0.791	31.2	36.3	0.682	37.5	53.0	0.481	42.7	42.4	0.288
		(5.2)	(18.1)	(0.129)	(4.8)	(14.9)	(0.120)	(4.8)	(10.9)	(0.095)	(5.3)	(14.6)	(0.064)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table D.4: Estimated Expected Duration in Months, Sex Ratio, and Probability of Parity Progression for Women with Eight or More Years of Education in the "South"

Spell	Composition of prior Children	1972–1984 Duration[a] (Mos)	1972–1984 Percent[b] boys	1972–1984 Probability birth[c]	1985–1994 Duration[a] (Mos)	1985–1994 Percent[b] boys	1985–1994 Probability birth[c]	1995–2004 Duration[a] (Mos)	1995–2004 Percent[b] boys	1995–2004 Probability birth[c]	2005–2016 Duration[a] (Mos)	2005–2016 Percent[b] boys	2005–2016 Probability birth[c]
							Urban						
	1 girl	25.7	51.9	0.890	30.9	50.6	0.850	30.4	53.4**	0.841	32.3	52.1	0.797
2		(1.0)	(2.4)	(0.013)	(0.8)	(2.2)	(0.013)	(0.5)	(1.0)	(0.007)	(0.7)	(1.5)	(0.014)
	1 boy	27.2	49.8	0.907	28.7*	54.0	0.847	31.1	50.5	0.845	31.6	48.8*	0.787
		(1.0)	(2.7)	(0.014)	(0.8)	(1.9)	(0.013)	(0.4)	(1.2)	(0.008)	(0.7)	(1.4)	(0.011)
	2 girls	26.7	26.7***	0.781	28.5	57.5	0.536	32.9	58.3*	0.564	34.1	60.1*	0.524
		(2.3)	(4.7)	(0.043)	(2.1)	(5.5)	(0.036)	(1.5)	(4.2)	(0.030)	(2.0)	(5.1)	(0.031)
3	1 boy, 2 girl	26.4	50.1	0.665	27.4	49.3	0.530	27.6**	51.0	0.401	25.8***	45.6	0.240
		(1.8)	(5.2)	(0.038)	(1.9)	(4.3)	(0.037)	(1.6)	(3.6)	(0.023)	(2.1)	(5.4)	(0.020)
	2 boys	32.1*	40.5	0.649	27.2	43.4	0.579	29.7	43.8	0.401	34.6	47.9	0.367
		(2.8)	(6.8)	(0.064)	(2.1)	(5.2)	(0.037)	(1.5)	(5.8)	(0.024)	(3.3)	(5.4)	(0.034)
	3 girls	27.9	45.6	0.505	36.2	76.6	0.738	42.0	64.8	0.519	43.2	66.2	0.809
		(7.0)	(26.6)	(0.145)	(4.5)	(21.7)	(0.093)	(7.3)	(23.2)	(0.163)	(4.3)	(19.4)	(0.111)
	1 boy, 2 girls	29.1	56.8	0.722	27.3	36.6	0.536	27.1*	55.8	0.510	35.2	41.9	0.296
4		(5.6)	(14.1)	(0.106)	(5.7)	(9.5)	(0.087)	(3.8)	(8.4)	(0.065)	(6.8)	(11.9)	(0.067)
	2 boys, 1 girl	28.2	63.9	0.659	36.1	39.7	0.458	20.9**	54.9	0.341	16.1***	28.9	0.125
		(4.8)	(15.6)	(0.087)	(6.9)	(18.8)	(0.109)	(4.5)	(13.9)	(0.068)	(5.0)	(20.5)	(0.065)
	3 boys	7.3	0.0***	0.158	27.7	51.1	0.579	14.1***	17.8**	0.314	15.5*	0.0***	0.130
		(20.1)	(0.0)	(0.119)	(6.5)	(16.7)	(0.136)	(5.2)	(14.1)	(0.124)	(13.2)	(0.0)	(0.089)
							Rural						
	1 girl	27.3	47.8	0.951	27.1	48.4	0.915	28.1	51.9	0.904	28.5	52.7	0.866
2		(1.1)	(2.8)	(0.014)	(0.8)	(2.0)	(0.015)	(0.5)	(1.1)	(0.007)	(0.5)	(1.2)	(0.008)
	1 boy	24.1**	41.7***	0.904	28.2	47.6	0.890	27.7	51.1	0.886	27.4	49.3	0.832
		(0.9)	(3.0)	(0.017)	(0.9)	(2.3)	(0.014)	(0.4)	(1.3)	(0.007)	(0.5)	(1.2)	(0.009)
	2 girls	26.0	46.3	0.833	30.5	45.2	0.821	27.4	59.5**	0.706	30.5	57.6**	0.644
		(1.8)	(5.9)	(0.049)	(1.8)	(5.2)	(0.042)	(1.2)	(3.3)	(0.022)	(1.3)	(2.9)	(0.023)
3	1 boy, 2 girl	27.2	44.5	0.668	29.2	47.9	0.619	25.1	48.4	0.515	24.6***	53.2	0.391
		(2.1)	(5.2)	(0.041)	(2.2)	(5.4)	(0.035)	(1.1)	(3.1)	(0.023)	(1.4)	(3.1)	(0.018)
	2 boys	29.5	49.3	0.783	24.8**	46.1	0.584	28.2	45.2	0.535	24.3***	42.1*	0.378
		(2.7)	(9.5)	(0.047)	(2.1)	(8.2)	(0.051)	(1.6)	(4.7)	(0.027)	(2.0)	(5.2)	(0.030)
	3 girls	27.5	45.2	0.998	33.4	40.8	0.741	25.8	67.6	0.782	33.7	63.3*	0.703
		(5.0)	(20.6)	(0.015)	(3.8)	(11.3)	(0.077)	(3.5)	(11.8)	(0.077)	(2.5)	(6.8)	(0.064)
	1 boy, 2 girls	26.1	34.8	0.759	31.0	50.2	0.753	29.3	50.8	0.447	32.7	58.7	0.310
4		(4.0)	(11.6)	(0.093)	(3.7)	(9.2)	(0.080)	(4.1)	(9.4)	(0.059)	(4.7)	(10.3)	(0.049)
	2 boys, 1 girl	41.7	26.3	0.650	30.7	40.2	0.667	28.2	45.7	0.394	21.1**	38.9	0.245
		(7.2)	(15.5)	(0.145)	(4.5)	(14.0)	(0.094)	(5.8)	(14.6)	(0.076)	(4.6)	(15.0)	(0.059)
	3 boys	33.3	50.0	0.913	25.3	21.1*	0.590	35.6	0.0	0.241	36.6	61.6	0.488
		(7.6)	(20.3)	(0.096)	(9.2)	(17.1)	(0.189)	(21.7)	(0.0)	(0.168)	(7.6)	(19.2)	(0.105)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] The expected duration is calculated as follows. For each woman in a given spell/period combination sample, I calculate the probability of that she will give birth for each period, conditional on the likelihood that she will eventually give birth in that spell, and use these probabilities as weights to calculated the expected or average duration. The reported statistics is the average of this expected duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at 9 months after the birth of the prior child. Durations for sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

[b] Percent boys is calculated as follows. For each woman in a given spell/period combination sample, I calculate the predicted percent boys for each month and sum this across the length of the spell using the likelihood of having a child in each month as the weight. The percent boys is then averaged across all women in the given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. The result is the predicted percent boys that will be born to women in the sample once child bearing for that spell is over. The predicted percent boys is tested against the natural percentage boys, 105 boys per 100 girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at 10% level.

[c] Probability of giving birth by the end of the spell period.

Table D.5: Estimated 25th, 50th, and 75th Percentile Durations for Women with Eight or More Years of Education in the "West"

Spell	Composition of Prior Children	1972–1984			1985–1994			1995–2004			2005–2016		
		Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile		
		25th	50th	75th	25th	50th	75th	25th	50th	75th	25th	50th	75th
						Urban							
2	1 girl	11.8	19.5	32.3	13.3	23.7	39.8	15.3	26.1	43.5	17.1	29.0	46.8
		(0.4)	(0.5)	(1.0)	(0.3)	(0.6)	(0.9)	(0.3)	(0.4)	(0.7)	(0.4)	(0.7)	(1.0)
	1 boy	12.4	20.7	35.3**	14.6**	25.1**	41.3	15.2	25.5	42.4	17.4	30.2	47.4
		(0.4)	(0.6)	(1.0)	(0.4)	(0.5)	(0.9)	(0.3)	(0.4)	(0.7)	(0.4)	(0.6)	(0.8)
3	2 girls	14.7	23.0	35.0	16.5	29.1	47.7	17.9	30.1	50.4	19.5	35.0	56.4
		(0.7)	(1.0)	(1.7)	(0.8)	(1.3)	(2.2)	(0.7)	(1.3)	(1.6)	(0.8)	(1.5)	(2.1)
	1 boy, 1 girl	12.7**	21.7	38.4	14.2**	24.8**	41.6**	15.2***	24.5***	41.3***	16.7***	26.4***	41.5***
		(0.7)	(1.1)	(2.5)	(0.5)	(1.1)	(1.8)	(0.5)	(0.8)	(1.9)	(0.5)	(1.1)	(3.1)
	2 boys	13.4	20.5	37.7	14.0**	25.3*	44.0	15.6**	23.0***	37.9***	16.4**	29.6*	49.3
		(0.7)	(1.6)	(2.5)	(0.8)	(1.7)	(3.9)	(0.6)	(1.3)	(2.4)	(1.3)	(2.6)	(6.0)
4	3 girls	15.7	22.6	37.3	17.8	32.1	52.3	15.6	26.9	48.6	19.3	33.2	56.9
		(1.7)	(1.9)	(5.0)	(1.8)	(2.6)	(2.4)	(1.7)	(2.5)	(3.3)	(1.7)	(3.3)	(2.8)
	1 boy, 2 girls	11.7*	21.2	36.8	13.8*	23.4***	45.7	15.3	26.0	53.9	16.6	31.7	62.2
		(1.6)	(1.4)	(6.1)	(1.4)	(1.4)	(5.1)	(1.5)	(2.4)	(5.1)	(2.3)	(4.4)	(4.5)
	2 boys, 1 girl	11.6	20.2	28.7	12.6*	22.9**	44.9	14.1	24.5	50.6	19.5	37.9	65.9
		(2.2)	(1.5)	(4.8)	(2.1)	(2.0)	(8.1)	(2.7)	(2.8)	(9.0)	(3.9)	(7.4)	(6.6)
	3 boys	14.4	22.4	39.5	17.0	24.4	43.9	9.2*	21.1	48.2	25.1	45.3	68.7*
		(2.7)	(3.0)	(9.0)	(3.2)	(4.8)	(12.6)	(3.2)	(7.0)	(13.0)	(6.6)	(8.2)	(6.5)
						Rural							
2	1 girl	11.1	19.4	28.3	12.5	19.9	32.3	12.9	20.3	32.2	14.3	23.1	37.3
		(0.7)	(0.8)	(1.2)	(0.3)	(0.5)	(1.0)	(0.2)	(0.3)	(0.4)	(0.2)	(0.3)	(0.6)
	1 boy	12.3	18.6	29.4	12.3	19.1	30.5	12.9	20.0	31.4	14.7	23.9	38.4
		(0.6)	(0.7)	(1.5)	(0.3)	(0.4)	(1.0)	(0.2)	(0.3)	(0.5)	(0.2)	(0.4)	(0.7)
3	2 girls	14.1	21.3	33.1	15.4	24.1	38.9	15.8	24.8	39.3	17.7	28.2	46.5
		(1.2)	(1.7)	(2.6)	(0.7)	(1.1)	(1.9)	(0.5)	(0.8)	(1.3)	(0.4)	(0.8)	(1.3)
	1 boy, 1 girl	14.0	21.2	31.6	13.9	21.4*	33.1**	13.6***	21.1***	33.1***	14.2***	22.1***	35.6***
		(0.7)	(1.3)	(1.8)	(0.6)	(1.0)	(1.8)	(0.4)	(0.5)	(1.2)	(0.4)	(0.8)	(1.6)
	2 boys	14.7	21.0	31.8	14.0	23.2	39.2	13.8***	20.1***	35.4	14.6***	25.4	43.2
		(1.6)	(1.9)	(2.9)	(1.0)	(2.0)	(3.8)	(0.7)	(0.9)	(2.9)	(0.8)	(2.3)	(4.0)
4	3 girls	10.6	19.6	30.7	16.9	29.3	49.6	16.4	26.1	44.0	16.9	28.7	48.6
		(2.9)	(2.8)	(4.4)	(2.1)	(3.2)	(3.7)	(1.5)	(2.2)	(2.9)	(0.9)	(1.6)	(1.6)
	1 boy, 2 girls	15.5	24.4	43.8*	13.7	23.6	45.5	14.1	22.8	41.3	15.3	26.4	55.0
		(2.2)	(3.0)	(6.0)	(1.5)	(1.6)	(4.5)	(1.3)	(1.2)	(6.0)	(1.2)	(1.8)	(3.8)
	2 boys, 1 girl	12.6	21.8	39.1	13.0	21.6**	35.9*	16.9	22.6	29.0**	14.7	27.7	58.2
		(2.6)	(3.3)	(9.1)	(2.1)	(2.0)	(7.7)	(1.0)	(1.1)	(5.6)	(2.6)	(5.1)	(7.2)
	3 boys	13.8	24.8	47.8	14.9	28.8	56.7	14.5	23.0	41.9	18.6	28.2	56.7
		(5.4)	(7.3)	(11.7)	(4.7)	(7.7)	(9.8)	(3.0)	(4.8)	(12.0)	(3.2)	(5.6)	(9.2)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] 25th and 75th percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a 25% or 75% chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 20% or 60% mark on her survival curve. The reported statistics is the average of this median duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at marriage for spell 1 or at 9 months after the birth of the prior child for all other spells. For spells 2 and higher duration sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

Table D.6: Estimated 25th, 50th, and 75th Percentile Durations for Women with Eight or More Years of Education in the "North"

		1972–1984			1985–1994			1995–2004			2005–2016		
		Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile		
Spell	Composition of Prior Children	25th	50th	75th	25th	50th	75th	25th	50th	75th	25th	50th	75th
						Urban							
	1 girl	10.7	18.2	28.1	12.9	21.6	35.7	13.8	23.2	39.0	15.2	26.7	44.0
2		(0.9)	(0.8)	(1.3)	(0.5)	(0.7)	(1.2)	(0.2)	(0.4)	(0.6)	(0.3)	(0.5)	(0.8)
	1 boy	11.8	19.2	31.1	13.6	22.7	37.5	13.8	23.0	38.8	15.8*	27.0	45.1
		(0.9)	(0.9)	(1.2)	(0.6)	(0.9)	(1.4)	(0.2)	(0.4)	(0.7)	(0.3)	(0.6)	(1.0)
	2 girls	12.2	18.0	28.2	13.0	22.2	44.1	16.5	27.6	43.6	17.9	31.7	52.7
		(0.9)	(1.4)	(2.6)	(1.3)	(1.7)	(4.5)	(0.6)	(1.0)	(1.6)	(0.7)	(1.4)	(2.1)
3	1 boy, 1 girl	12.5	17.9	30.1	14.1	22.8	38.4	14.1***	22.9***	39.4**	15.8**	27.0**	45.0***
		(0.7)	(1.1)	(2.6)	(0.6)	(1.1)	(2.3)	(0.5)	(0.8)	(1.5)	(0.6)	(1.1)	(2.1)
	2 boys	14.0	19.5	31.8	14.5	24.5	37.2	14.5**	22.1***	35.3***	14.9***	25.7***	44.0**
		(0.9)	(1.2)	(3.3)	(1.4)	(2.0)	(4.3)	(0.6)	(0.9)	(1.6)	(0.7)	(1.8)	(3.8)
	3 girls	7.7	16.2	24.5	15.3	27.4	47.4	15.2	25.5	46.2	18.7	32.2	53.5
		(2.9)	(3.3)	(5.9)	(2.5)	(3.3)	(3.9)	(1.5)	(2.1)	(3.0)	(1.4)	(2.3)	(1.9)
	1 boy, 2 girls	9.4	18.4	28.0	14.3	23.3	43.6	14.7	24.1	47.2	16.8	26.0**	52.7
4		(1.8)	(1.8)	(4.0)	(1.7)	(1.5)	(4.8)	(1.2)	(1.3)	(4.8)	(0.9)	(1.2)	(4.0)
	2 boys, 1 girl	13.8*	22.9	42.5**	10.5	21.8	44.2	13.7	26.4	55.7	12.9**	24.1**	50.4
		(2.1)	(2.7)	(6.2)	(1.7)	(2.5)	(7.3)	(2.0)	(3.1)	(4.8)	(2.2)	(2.5)	(8.4)
	3 boys	12.7	19.2	25.7	11.3	21.8	41.6	15.8	24.2	46.6	14.3	23.4**	44.9
		(3.5)	(2.7)	(6.1)	(2.9)	(3.6)	(9.4)	(2.1)	(3.1)	(8.7)	(2.7)	(3.4)	(11.1)
						Rural							
	1 girl	11.3	18.8	27.2	12.9	20.0	31.8	13.1	19.9	31.2	13.3	21.0	32.6
2		(0.9)	(1.2)	(1.0)	(0.5)	(0.7)	(1.1)	(0.2)	(0.3)	(0.4)	(0.1)	(0.3)	(0.4)
	1 boy	13.3	20.8	34.0**	12.7	20.0	31.4	13.1	20.0	31.1	13.5	21.6*	34.6***
		(0.9)	(1.3)	(2.8)	(0.5)	(0.7)	(1.0)	(0.2)	(0.3)	(0.5)	(0.1)	(0.2)	(0.5)
	2 girls	12.4	17.5	25.6	13.9	21.5	32.1	13.5	21.8	34.9	15.6	24.7	38.4
		(1.8)	(1.7)	(3.2)	(0.9)	(1.2)	(2.2)	(0.4)	(0.6)	(1.0)	(0.3)	(0.5)	(0.9)
3	1 boy, 1 girl	12.5	17.8	27.6	14.3	22.6	35.1	13.9	20.9	33.6	14.5***	22.8***	36.6
		(0.8)	(1.1)	(1.9)	(0.6)	(1.2)	(1.7)	(0.3)	(0.4)	(0.7)	(0.3)	(0.4)	(0.9)
	2 boys	12.1	22.4	31.9*	14.9	23.7	34.4	13.6	20.0*	30.6***	15.4	23.8	39.5
		(2.4)	(3.5)	(2.3)	(0.9)	(1.1)	(2.7)	(0.4)	(0.7)	(1.0)	(0.4)	(0.8)	(1.7)
	3 girls	10.7	18.4	26.5	13.1	24.7	36.0	16.4	24.4	38.9	16.0	25.3	42.5
		(3.3)	(3.4)	(5.4)	(2.3)	(2.7)	(3.1)	(0.7)	(1.0)	(1.8)	(0.5)	(0.8)	(1.2)
	1 boy, 2 girls	13.0	19.4	27.6	13.4	23.2	41.6	12.5***	21.1***	35.3	15.9	25.6	50.8***
4		(2.2)	(1.7)	(4.0)	(1.5)	(1.6)	(3.2)	(0.8)	(0.6)	(2.6)	(0.5)	(0.8)	(1.8)
	2 boys, 1 girl	17.7*	26.6*	45.4**	18.4*	34.2**	55.7***	13.4**	22.1	38.6	17.4	29.4*	59.2***
		(1.8)	(3.6)	(5.5)	(2.3)	(3.3)	(3.0)	(1.1)	(0.9)	(4.3)	(0.8)	(2.0)	(1.7)
	3 boys	19.6**	25.9	40.0	10.6	19.5	28.6	16.2	24.3	45.7	15.7	25.0	50.0
		(1.9)	(3.9)	(6.9)	(3.4)	(3.5)	(8.9)	(1.4)	(1.6)	(5.3)	(1.3)	(2.0)	(5.6)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] 25th and 75th percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a 25% or 75% chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 20% or 60% mark on her survival curve. The reported statistics is the average of this median duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at marriage for spell 1 or at 9 months after the birth of the prior child for all other spells. For spells 2 and higher duration sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

Table D.7: Estimated 25th, 50th, and 75th Percentile Durations for Women with Eight or More Years of Education in the "East"

		1972–1984			1985–1994			1995–2004			2005–2016		
		Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile		
Spell	Composition of Prior Children	25th	50th	75th	25th	50th	75th	25th	50th	75th	25th	50th	75th
						Urban							
	1 girl	14.1	22.1	38.1	15.7	29.4	49.4	19.9	35.1	54.0	25.3	40.1	57.0
2		(0.7)	(0.9)	(2.4)	(0.9)	(1.1)	(1.7)	(0.7)	(1.0)	(1.1)	(1.0)	(1.5)	(1.7)
	1 boy	12.1*	21.7	38.7	16.0	29.9	47.6	21.2	35.6	53.9	24.7	42.6	64.3**
		(0.8)	(1.5)	(2.3)	(0.7)	(1.3)	(1.7)	(0.7)	(0.9)	(1.5)	(1.0)	(1.4)	(2.4)
	2 girls	14.8	23.6	39.2	18.5	28.4	46.1	18.0	31.3	49.2	26.6	40.8	60.5
		(1.7)	(2.0)	(5.7)	(1.6)	(2.3)	(4.6)	(1.3)	(2.1)	(2.7)	(2.6)	(2.7)	(4.9)
3	1 boy, 1 girl	12.9	22.3	41.0	14.3**	27.7	42.4	17.7	30.0	49.7	20.5*	36.3	51.5
		(1.5)	(2.2)	(5.3)	(0.9)	(2.2)	(3.4)	(1.0)	(1.7)	(2.6)	(2.0)	(2.7)	(3.6)
	2 boys	16.9	26.7	38.4	19.1	33.9	51.3	20.3	32.8	49.9	23.5	43.8	63.2
		(2.1)	(2.6)	(5.1)	(1.7)	(3.3)	(4.5)	(2.0)	(3.0)	(3.9)	(3.5)	(5.2)	(6.6)
	3 girls	13.5	23.1	43.1	14.9	25.5	48.0	25.1	40.7	60.7	23.6	39.8	63.5
		(3.4)	(4.7)	(9.2)	(2.6)	(4.4)	(7.1)	(3.4)	(3.6)	(3.5)	(3.1)	(5.5)	(4.3)
	1 boy, 2 girls	9.3	18.7	28.6	20.4*	31.3	58.8	18.4	37.0	64.4	13.6**	28.5	60.0
4		(3.0)	(3.4)	(7.6)	(1.7)	(4.1)	(4.3)	(3.8)	(6.5)	(4.6)	(3.4)	(6.4)	(9.1)
	2 boys, 1 girl	9.4	18.6	27.5	16.6	23.6	40.9	21.5	41.7	68.2	11.4**	20.0***	27.5***
		(2.6)	(2.4)	(5.0)	(1.9)	(2.2)	(8.9)	(7.7)	(10.8)	(10.5)	(3.9)	(4.5)	(11.8)
	3 boys	7.4	31.6	57.6	21.3	39.9	65.3	17.7	25.4*	48.9	38.6	56.1	75.1
		(8.3)	(14.7)	(18.9)	(8.0)	(10.1)	(10.5)	(5.3)	(8.3)	(15.3)	(11.7)	(9.2)	(9.4)
						Rural							
	1 girl	13.0	20.2	31.6	14.5	23.3	39.3	18.1	30.3	47.3	23.5	38.8	56.5
2		(0.7)	(1.2)	(2.1)	(0.6)	(0.8)	(2.0)	(0.4)	(0.5)	(0.8)	(0.6)	(0.7)	(0.8)
	1 boy	11.7	20.1	34.6	14.8	25.6**	40.6	18.4	31.6*	48.1	23.8	39.4	57.3
		(0.8)	(1.2)	(2.3)	(0.6)	(0.9)	(1.9)	(0.4)	(0.6)	(0.9)	(0.5)	(0.6)	(1.3)
	2 girls	15.6	21.1	32.3	15.1	23.9	41.1	17.5	29.4	47.1	25.2	41.7	63.1
		(1.6)	(2.0)	(6.7)	(1.1)	(1.6)	(3.9)	(0.9)	(1.2)	(1.7)	(1.0)	(1.7)	(2.0)
3	1 boy, 1 girl	13.9	19.2	31.9	14.4	24.1	35.8	17.5	30.0	50.8	21.3***	37.1*	59.6
		(0.8)	(1.8)	(3.8)	(0.8)	(1.4)	(2.4)	(0.8)	(1.3)	(2.2)	(1.2)	(2.2)	(3.6)
	2 boys	14.0	20.2	29.4	11.8**	20.2*	27.2***	18.6	31.2	49.7	21.0***	33.3***	52.7**
		(0.9)	(1.5)	(4.5)	(1.0)	(1.6)	(2.7)	(1.4)	(1.9)	(2.8)	(1.3)	(2.7)	(4.4)
	3 girls	6.0	14.0	22.9	14.6	25.6	45.7	22.6	39.7	62.9	21.9	38.9	63.3
		(2.9)	(4.0)	(6.3)	(3.1)	(4.0)	(6.1)	(2.8)	(4.0)	(2.6)	(2.3)	(3.7)	(2.2)
	1 boy, 2 girls	16.0**	28.7**	46.2**	15.8	27.8	53.9	19.0	27.2***	54.9	19.6	36.2	64.9
4		(4.0)	(4.8)	(6.1)	(2.2)	(3.8)	(4.2)	(1.1)	(2.3)	(5.4)	(2.2)	(5.2)	(3.4)
	2 boys, 1 girl	12.6	20.2	28.7	16.6	23.9	42.0	22.2	39.7	65.6	20.2	37.5	65.0
		(3.3)	(3.1)	(7.6)	(1.8)	(2.1)	(8.5)	(2.5)	(5.3)	(3.2)	(2.7)	(5.4)	(3.7)
	3 boys	8.9	17.0	23.7	14.7	23.9	43.2	19.0	27.8*	55.7	20.9	36.9	64.6
		(3.9)	(3.8)	(6.3)	(3.3)	(4.5)	(9.2)	(2.7)	(5.6)	(10.2)	(5.0)	(7.9)	(7.3)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] 25th and 75th percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a 25% or 75% chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 20% or 60% mark on her survival curve. The reported statistics is the average of this median duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at marriage for spell 1 or at 9 months after the birth of the prior child for all other spells. For spells 2 and higher duration sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

Table D.8: Estimated 25th, 50th, and 75th Percentile Durations for Women with Eight or More Years of Education in the “South”

		1972–1984			1985–1994			1995–2004			2005–2016		
		Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile			Duration (Months)[a] Percentile		
Spell	Composition of Prior Children	25th	50th	75th	25th	50th	75th	25th	50th	75th	25th	50th	75th
						Urban							
	1 girl	12.4	20.8	34.5	14.3	25.8	43.3	15.2	25.8	41.5	16.1	27.2	44.6
2		(0.7)	(1.4)	(1.9)	(0.5)	(1.0)	(1.5)	(0.4)	(0.6)	(0.8)	(0.4)	(0.7)	(1.2)
	1 boy	12.8	21.5	37.1	14.0	24.0	38.5**	15.2	26.0	42.3	15.4	25.9	42.7
		(0.7)	(1.0)	(2.0)	(0.5)	(0.9)	(1.2)	(0.3)	(0.5)	(0.8)	(0.4)	(0.7)	(1.1)
	2 girls	13.1	19.1	35.0	15.2	25.2	37.1	16.7	27.2	44.4	17.7	27.8	46.3
		(0.9)	(2.1)	(4.6)	(1.9)	(2.0)	(2.4)	(0.8)	(1.9)	(2.9)	(1.0)	(2.3)	(3.8)
3	1 boy, 1 girl	13.9	21.6	32.0	12.6	23.5	39.2	13.7***	21.7**	35.5**	12.9***	20.2***	34.9**
		(1.0)	(1.4)	(3.6)	(1.3)	(2.1)	(2.5)	(0.9)	(1.5)	(3.1)	(0.9)	(1.6)	(3.5)
	2 boys	16.0	28.7**	45.0*	14.3	22.5	36.3	15.3	22.2**	39.5	15.2	29.2	48.0
		(3.2)	(3.7)	(3.9)	(1.1)	(2.4)	(2.5)	(0.7)	(1.4)	(2.5)	(1.1)	(4.3)	(6.9)
	3 girls	16.7	22.1	30.0	18.9	30.9	51.3	21.6	35.4	61.6	26.9	41.3	59.0
		(4.3)	(5.4)	(10.6)	(4.2)	(5.9)	(6.7)	(5.8)	(8.9)	(11.3)	(5.5)	(5.2)	(5.4)
	1 boy, 2 girls	8.8	20.9	44.8	9.9*	20.0	36.1	9.0**	19.3*	37.1*	18.6	25.9**	50.0
4		(4.4)	(7.3)	(10.1)	(3.2)	(4.4)	(10.5)	(2.3)	(3.3)	(8.7)	(2.7)	(5.5)	(13.7)
	2 boys, 1 girl	8.7	19.9	41.6	16.7	28.6	54.1	9.9*	18.3*	25.4***	8.9**	17.0***	23.4***
		(3.0)	(5.1)	(10.0)	(5.6)	(8.0)	(11.6)	(3.4)	(2.9)	(4.9)	(4.9)	(5.4)	(6.4)
	3 boys	3.5	7.1	11.0	7.4**	18.0	42.9	6.6*	13.8*	21.4***	8.1*	16.1*	22.9*
		(10.6)	(20.3)	(29.8)	(3.7)	(7.7)	(12.2)	(4.5)	(5.6)	(7.0)	(8.4)	(13.5)	(19.1)
						Rural							
	1 girl	13.1	22.9	36.8	13.8	23.1	35.6	14.3	23.2	37.2	14.3	22.6	37.6
2		(1.1)	(1.2)	(2.0)	(0.6)	(0.9)	(1.3)	(0.3)	(0.5)	(0.9)	(0.3)	(0.4)	(1.0)
	1 boy	12.6	20.4*	30.0**	14.7	23.4	37.2	14.0	22.3	36.9	13.5**	21.9	36.0
		(0.8)	(0.7)	(1.8)	(0.5)	(0.9)	(1.6)	(0.2)	(0.4)	(0.7)	(0.2)	(0.4)	(0.8)
	2 girls	15.4	22.9	33.3	15.3	25.9	40.7	14.6	21.8	34.2	14.7	25.2	40.8
		(1.2)	(1.9)	(1.7)	(1.2)	(2.0)	(2.9)	(0.7)	(1.0)	(1.9)	(0.7)	(1.4)	(2.3)
3	1 boy, 1 girl	14.9	21.7	31.8	14.7	22.0*	39.8	13.8	20.9	32.4	12.0***	18.9***	32.2**
		(1.2)	(1.2)	(3.9)	(1.2)	(1.5)	(4.7)	(0.6)	(0.8)	(2.2)	(0.6)	(0.9)	(2.6)
	2 boys	14.9	26.5	38.1	14.2	20.1**	34.0	14.4	21.4	35.7	13.0	19.7***	31.4***
		(2.5)	(2.3)	(4.6)	(1.5)	(1.8)	(4.6)	(0.8)	(1.5)	(3.0)	(0.8)	(1.4)	(2.4)
	3 girls	19.1	26.8	35.4	17.5	27.9	46.8	11.9	20.1	31.2	16.8	26.0	48.4
		(5.5)	(4.7)	(5.4)	(3.1)	(4.6)	(6.2)	(2.4)	(2.4)	(6.1)	(1.7)	(2.7)	(5.3)
	1 boy, 2 girls	16.5	21.1	27.5	14.4	24.4	44.2	13.4	22.1	37.3	16.4	24.4	46.1
4		(2.2)	(2.0)	(5.8)	(3.1)	(4.2)	(7.0)	(2.8)	(2.9)	(9.8)	(2.6)	(3.1)	(11.1)
	2 boys, 1 girl	21.9	36.5	59.9**	13.0	23.4	45.0	11.7	21.2	34.8	10.1*	18.6*	25.6***
		(6.3)	(8.9)	(10.9)	(3.4)	(4.7)	(8.8)	(3.5)	(4.5)	(12.2)	(3.1)	(2.7)	(5.0)
	3 boys	11.8	31.5	49.5	8.6	18.2	33.0	7.5	29.6	62.4	17.3	27.9	55.3
		(7.7)	(9.0)	(10.3)	(4.5)	(7.9)	(14.3)	(18.1)	(23.3)	(27.3)	(5.1)	(7.9)	(13.1)

Note. The statistics for each spell/period combination are calculated based on the regression model for that combination as described in the main text, using bootstrapping to find the standard errors shown in parentheses. For bootstrapping, the original sample is resampled, the regression model run on the resampled data, and the statistics calculated. This process is repeated 100 times and the standard errors calculated.

[a] 25th and 75th percentile durations calculated as follows. For each woman in a given spell/period combination sample, I calculate the time point at which there is a 25% or 75% chance that she will have given birth, conditional on the probability that she will eventually give birth in that spell. For example, if there is an 80% chance that a woman will give birth by the end of the spell, her median duration is the predicted number of months before she passes the 20% or 60% mark on her survival curve. The reported statistics is the average of this median duration across all women in a given sample using the individual predicted probabilities of having had a birth by the end of the spell as weights. Duration begins at marriage for spell 1 or at 9 months after the birth of the prior child for all other spells. For spells 2 and higher duration sex compositions other than all girls are tested against the duration for all girls, with *** indicating significantly different at the 1% level, ** at the 5% level, and * at the 10% level.

E Graphs for All Education and Spell Groups

E.1 Second Spell

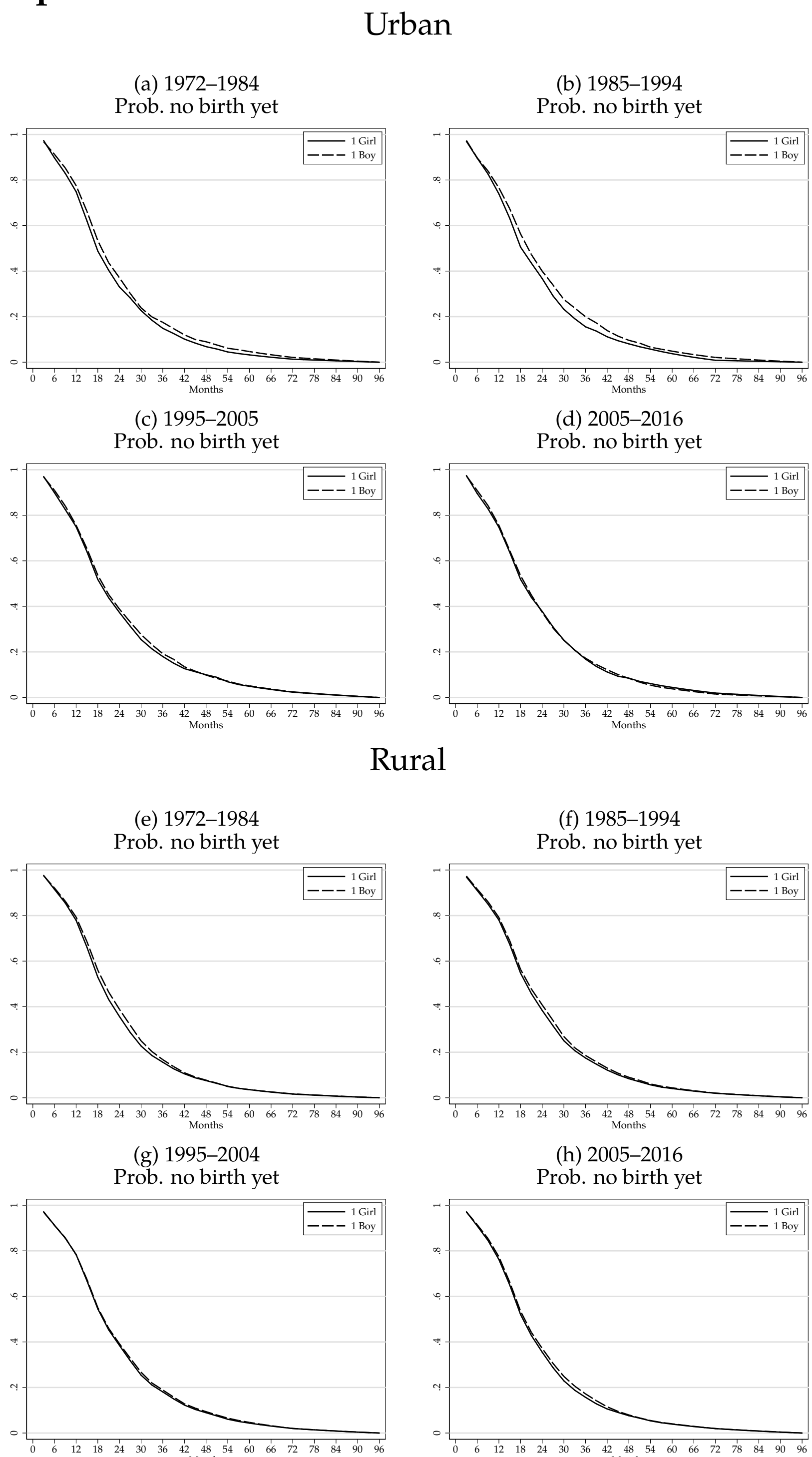
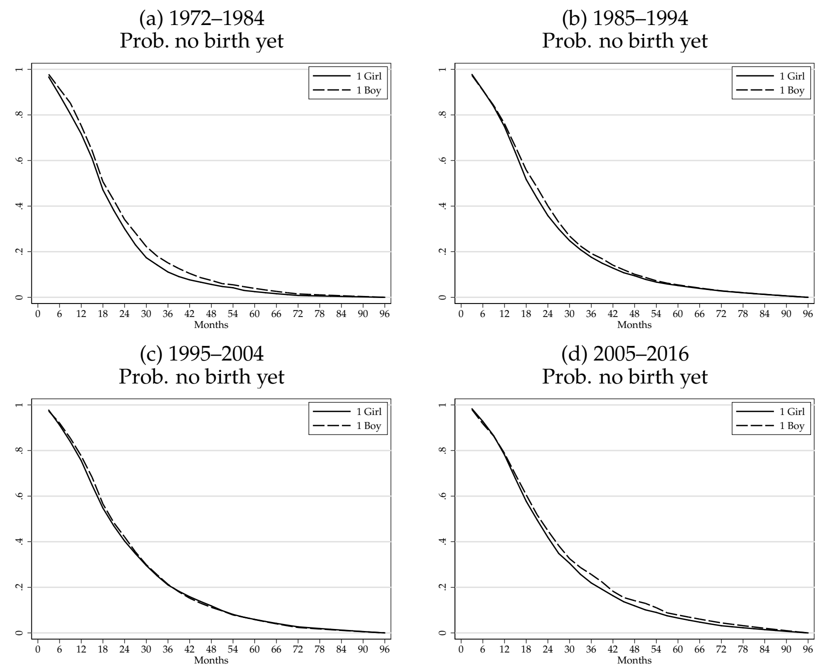


Figure E.1: Survival curves conditional on parity progression for women with no education by month beginning 9 months after prior birth.

Urban



Rural

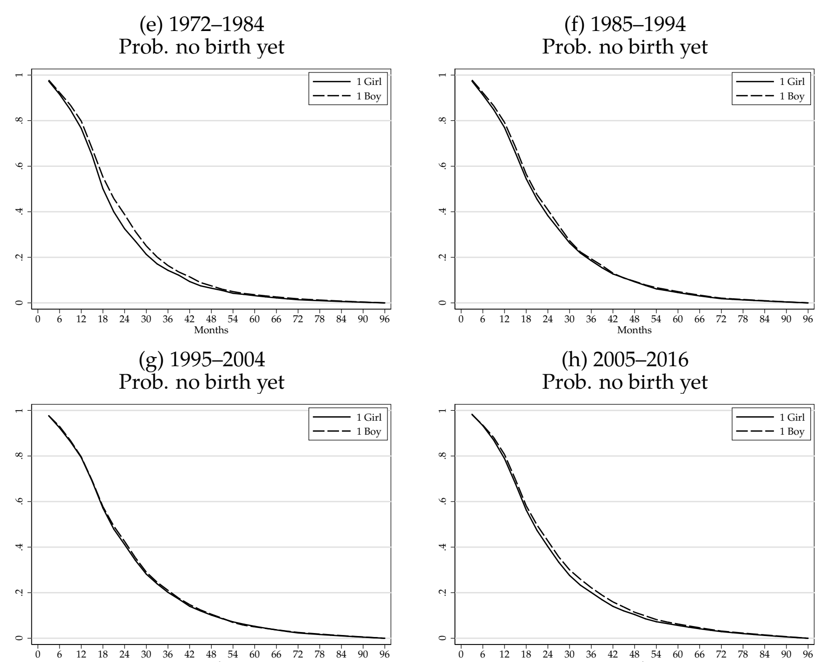


Figure E.2: Survival curves conditional on parity progression for women with 1-7 years of education by month beginning 9 months after prior birth.

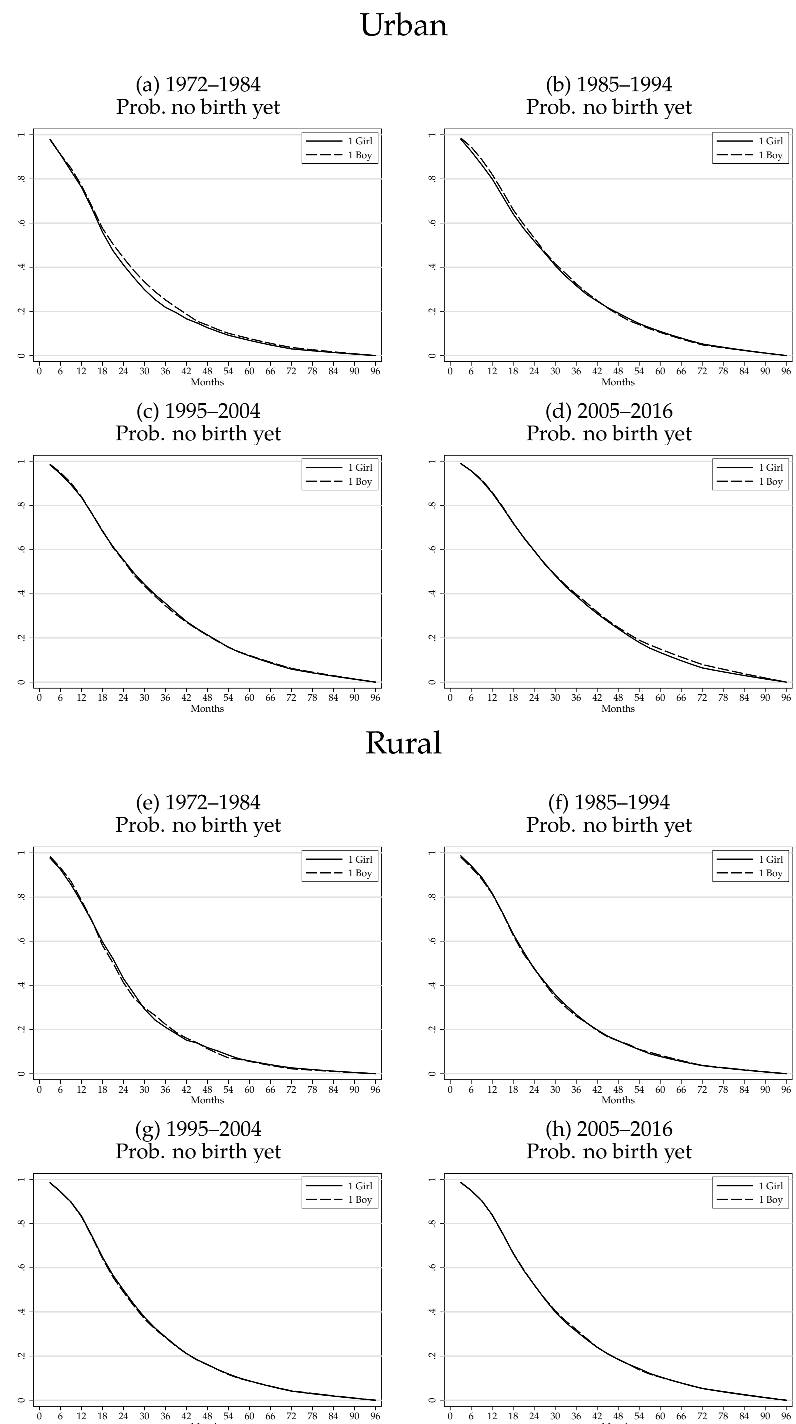


Figure E.3: Survival curves conditional on parity progression for women with 8 or more years of education by month beginning 9 months after prior birth.

E.2 Third Spell

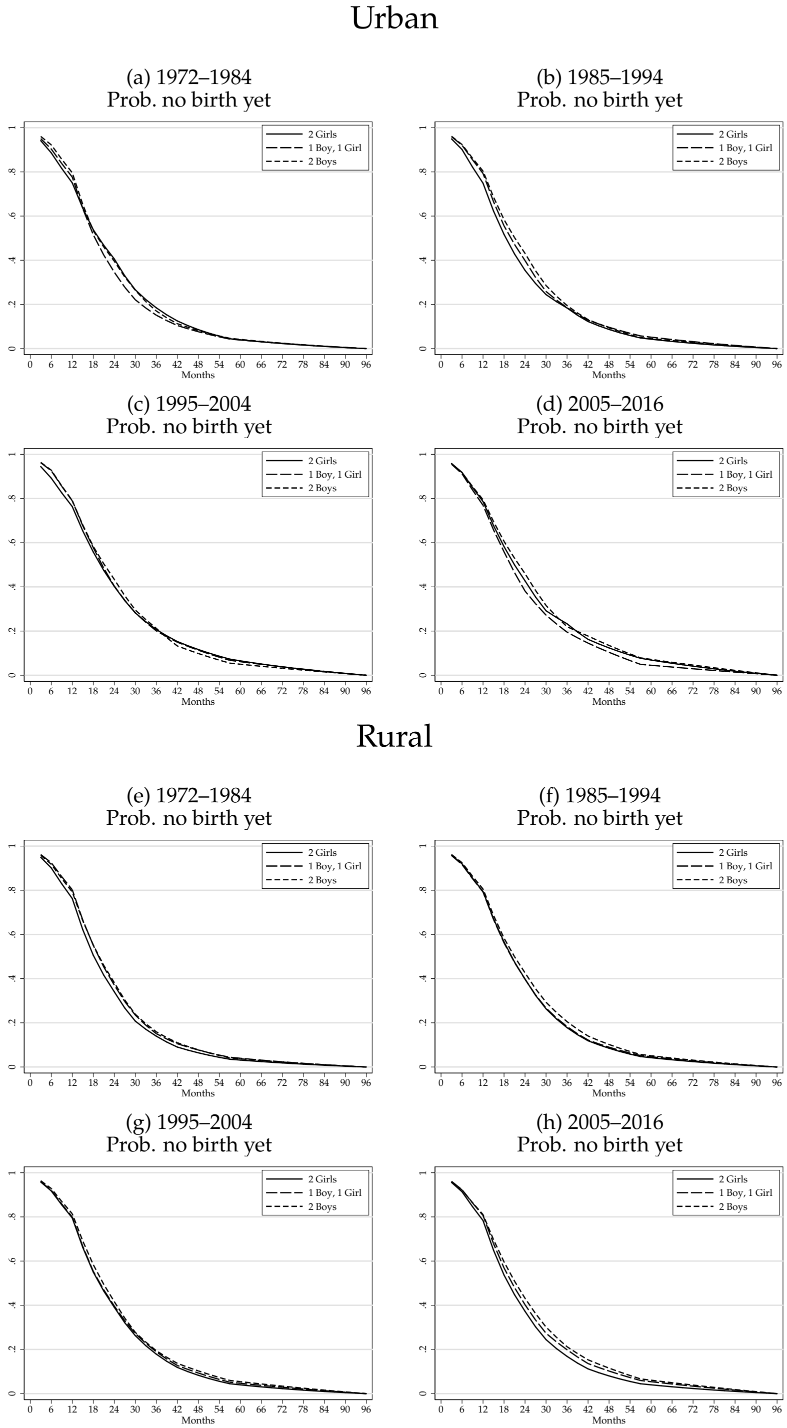
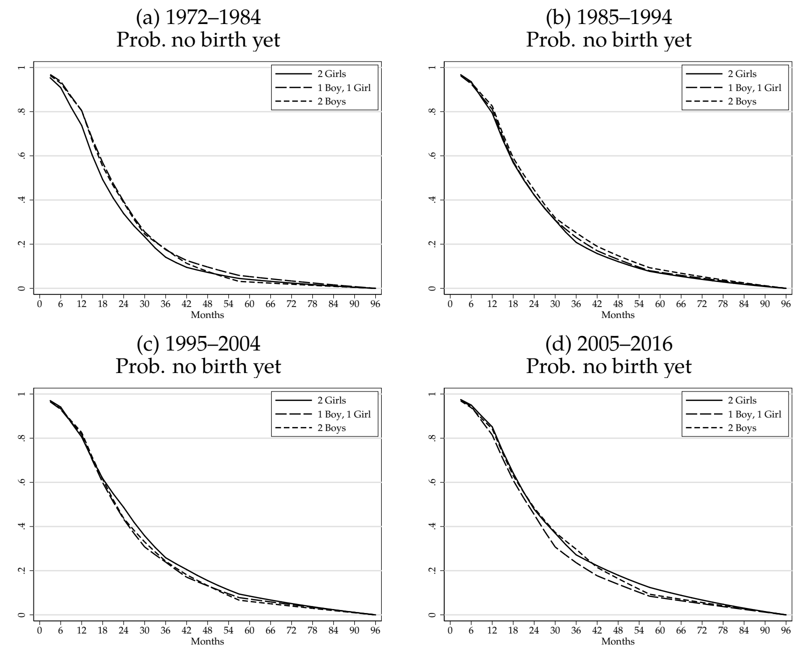


Figure E.4: Survival curves conditional on parity progression for women with no education by month beginning 9 months after prior birth.

Urban



Rural

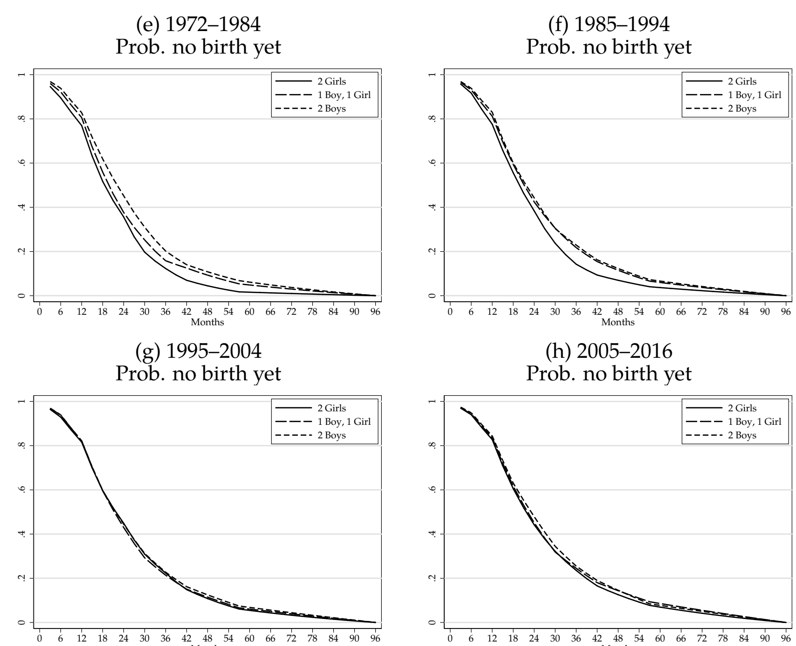


Figure E.5: Survival curves conditional on parity progression for women with 1 to 7 years of education by month beginning 9 months after prior birth.

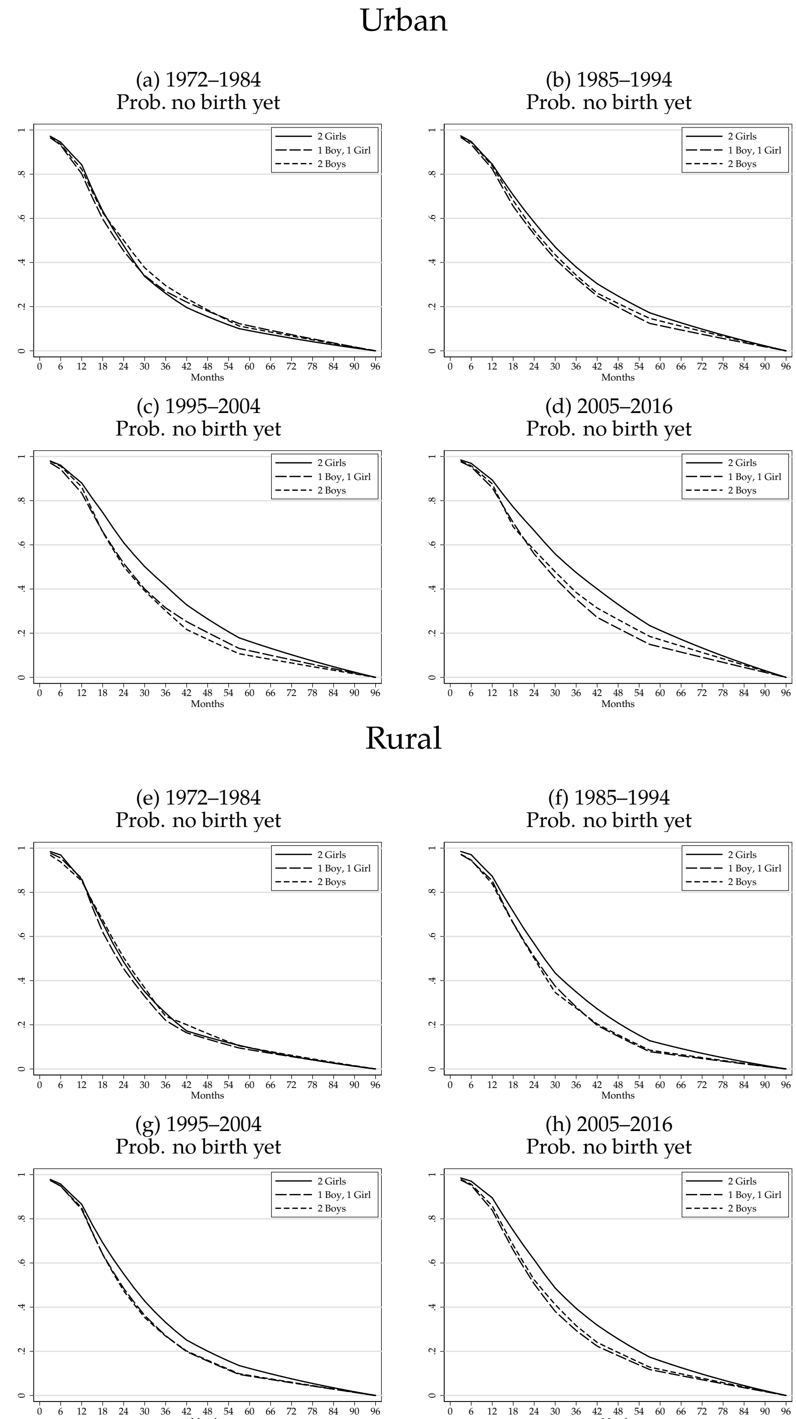


Figure E.6: Survival curves conditional on parity progression for women with 8 or more years of education by month beginning 9 months after prior birth.

E.3 Fourth Spell

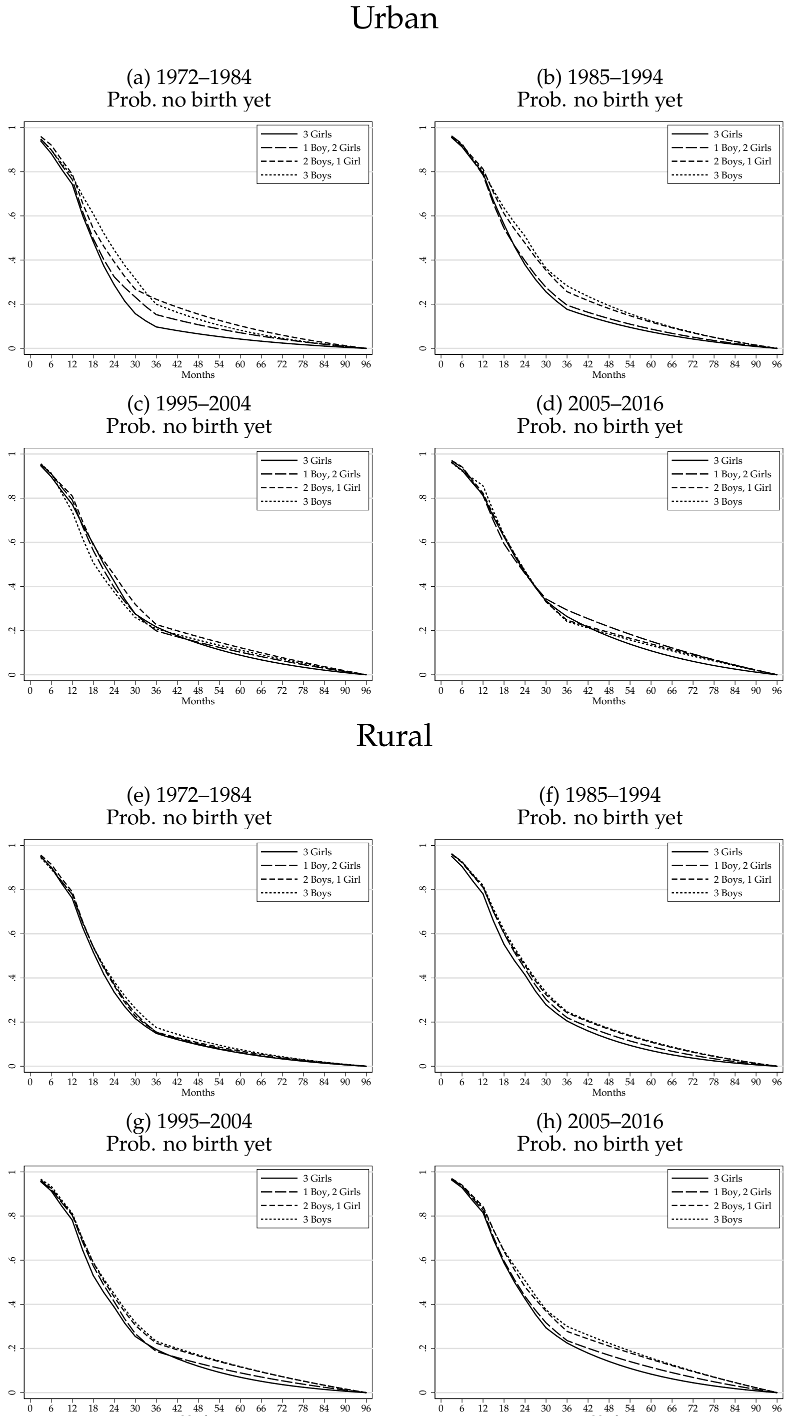


Figure E.7: Survival curves conditional on parity progression for women with no education by month beginning 9 months after prior birth.

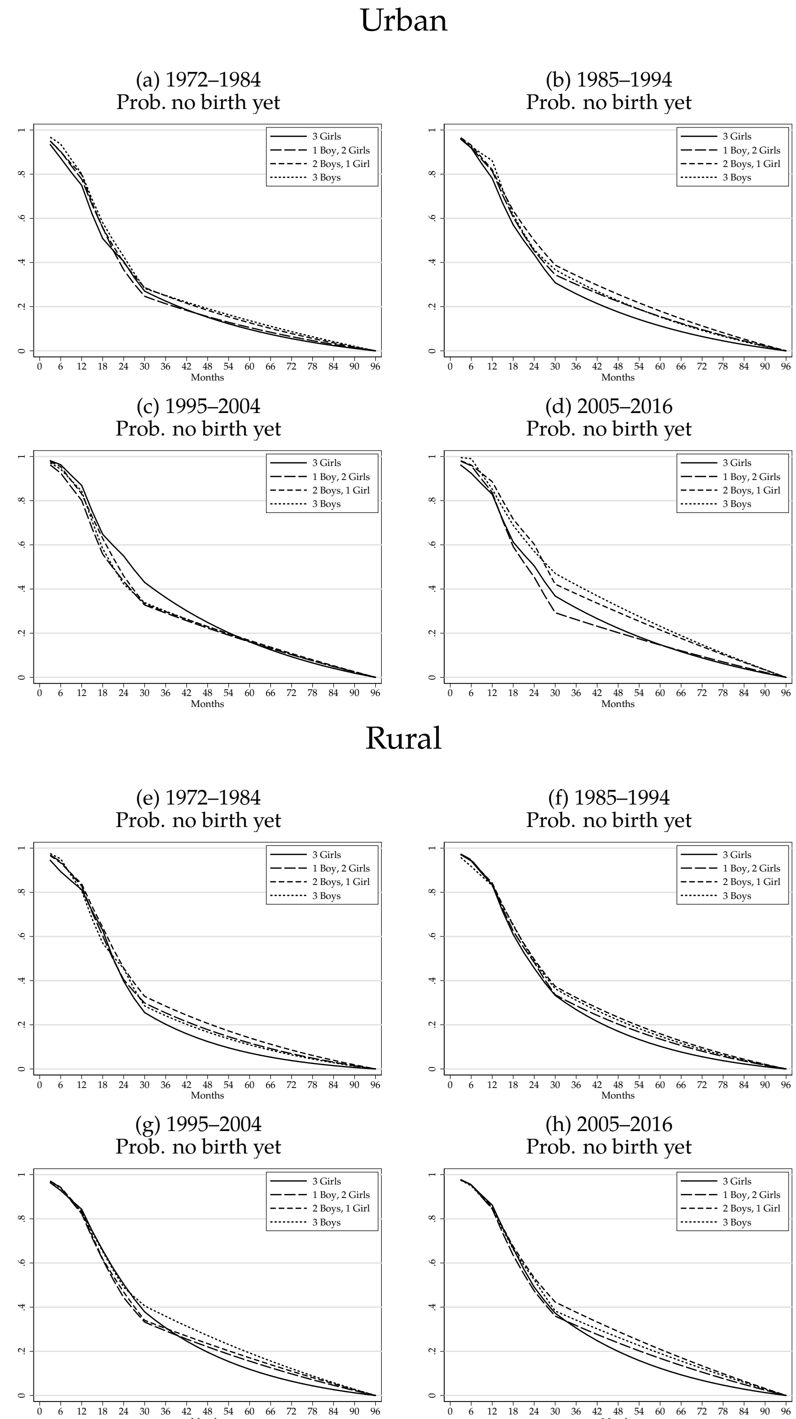


Figure E.8: Survival curves conditional on parity progression for women with 1 to 7 years of education by month beginning 9 months after prior birth.

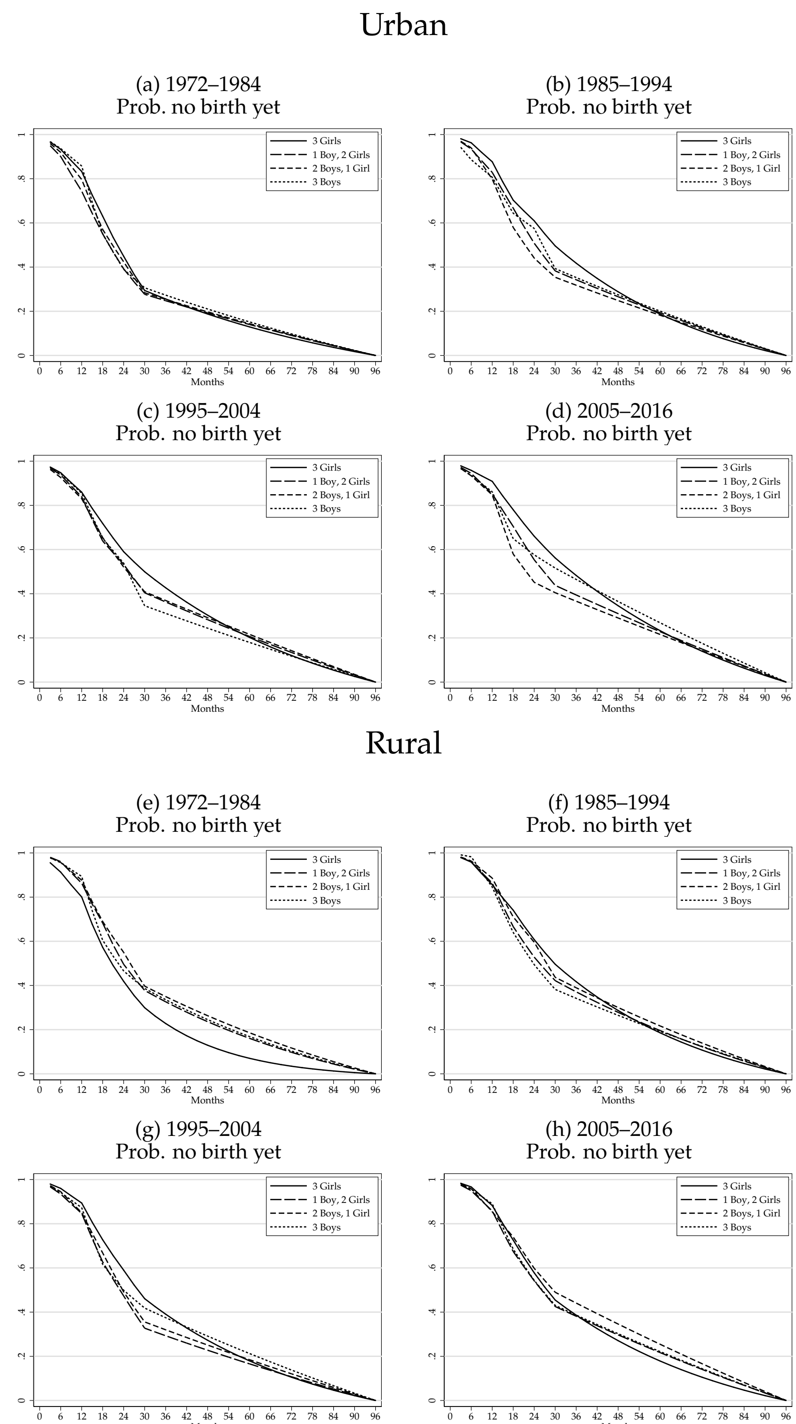


Figure E.9: Survival curves conditional on parity progression for women with 8 or more years of education by month beginning 9 months after prior birth.