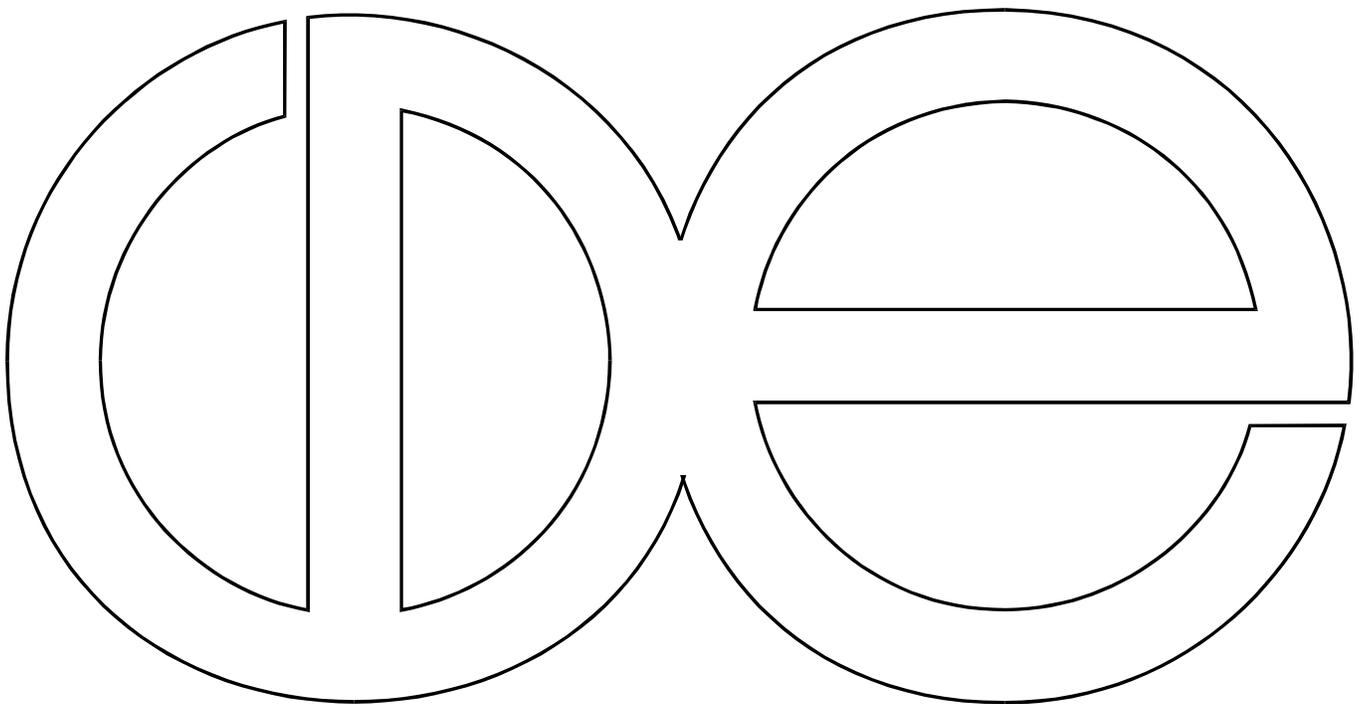


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Differences in Unintended First Births: Insights from Japan**

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# **Gender Equity, Opportunity Costs of Parenthood, and Educational Differences in Unintended First Births: Insights from Japan**

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## **Abstract**

We examine educational differences in the intendedness of first births in Japan using data from a nationally representative survey of married women ( $N = 2,406$ ). We begin by describing plausible scenarios for a negative, null, and positive educational gradient in unintended first births. In contrast to well-established results from the U.S., we find evidence of a positive educational gradient in Japan. Net of basic demographic controls, we find higher reporting of unintended first births among university graduates relative to less-educated women. This pattern is consistent with a scenario emphasizing the high opportunity costs of motherhood in countries like Japan where growing opportunities for women in employment and other domains of public life have not been accompanied by changes in the highly asymmetric roles of men and women within the family. We discuss potential implications of this suggestive finding for other low-fertility settings.

**Keywords:** low fertility; unintended fertility; gender and family roles; Japan

## **Gender Equity, Opportunity Costs of Parenthood, and Educational Differences in Unintended First Births: Insights from Japan**

Unintended fertility is a topic of much concern in the U.S., where levels are high and potential social costs have been well documented (e.g., Brown and Eisenberg 1995). Half of all pregnancies and over a third of all births in the U.S. are unintended, occurring either too soon or when no (additional) children are desired – “mistimed” and “unwanted” births, respectively (Finer and Henshaw 2006; Mosher, Jones, and Abma 2012). Unintended births are associated with less favorable outcomes for both parents and children, including more limited family resources, lower-quality parenting, declines in maternal well-being, and poorer child health (Barber, Axinn, and Thornton 1999; Barber and East 2009; Baydar 1995; Crissey 2005; Su 2012; but see Joyce, Kaestner, and Korenman 2000). In the U.S., unintended childbearing is also concentrated among the least educated women (Musick et al. 2009), with implications for patterns of stratification and the intergenerational transmission of disadvantage.

Little attention has been paid to unintended childbearing in industrialized countries other than the U.S., and thus we have little or no basis for understanding the ways in which differences in policy, family, and normative contexts may influence levels of unintended childbearing and socioeconomic differentials therein. This paper focuses on unintended first births in Japan—a low-fertility context where theoretical arguments can be made in support of a negative educational gradient, no educational gradient, or a positive educational gradient. For example, growing educational differences in family behavior and the “diverging destinies” of children suggest that, like early childbearing and nonmarital fertility, unintended fertility may be concentrated at the lower end of the economic spectrum (McLanahan 2004), as in the U.S. At the same time, widely-observed trends toward higher educational attainment for women and later

age at childbearing suggest declines in unintended births across all segments of the population and small (or shrinking) socioeconomic differences in unintended fertility. Finally, it is possible that the educational gradient in unintended childbearing may be positive in settings where a combination of growing economic opportunities for women and strong barriers to balancing parenthood and career employment result in high opportunity costs of childbearing for the most highly-educated women (McDonald 2000). In particular, the difficulty of balancing family responsibilities combined with rigid expectations of gendered family roles may result in greater regret or disillusionment when the reality of marriage and parenthood does not correspond to life course ideals.

Existing empirical evidence on educational gradients in unintended childbearing is consistent with a strong negative educational gradient, but is based almost exclusively on research from the U.S. (see Hewitt et al. 2010 for similar evidence from Australia), highlighting the importance of comparative research as a source of insight into the ways in which these relationships may be shaped by context. Do we see similar concentrations of unintended childbearing among less-educated women in other countries, as suggested by emphases on diverging destinies and a pattern of disadvantage in the context of broader family changes (McLanahan 2004)? Alternatively, do we observe no gradient, or perhaps a positive gradient, in societies where the socio-normative, political, and economic environments differ from the U.S? If so, what do those differences suggest about the underlying mechanisms that shape socioeconomic gradients in unintended childbearing?

Japan is a potentially rich source of comparative insight given that the factors thought to underlie observed educational disparities in unintended fertility are similar in some ways to those in the U.S. and other Western countries but markedly different in other ways. As in the U.S.,

educational differences in family life have been widening in Japan. For example, Japanese women with lower levels of education have experienced relatively sharp increases in nonmarital conceptions (Raymo and Iwasawa 2008), which may contribute to an increasing concentration of unintended fertility among these women. However, the continued strength of the relationship between marriage and childbearing across the socioeconomic spectrum, the rarity of teen childbearing, and the small proportion of women who do not complete high school all point to lower unintended birth ratios and smaller educational differences in comparison with the U.S. At the same time, there are also compelling theoretical reasons to expect that, in contrast to the U.S. and other relatively gender egalitarian settings, the educational gradient in unintended childbearing may actually be positive in Japan. As we discuss in greater detail below, the well-documented difficulties that Japanese women face in balancing motherhood and full-time employment is a potential source of retrospective regret or ambivalence about the timing of first births among mothers for whom the opportunity costs of career interruption are highest. In this scenario, the proportion of births retrospectively reported as unintended could be positively associated with mother's educational attainment. We evaluate this novel hypothesis in the Japanese context, but recognize its potential relevance in other low-fertility settings characterized by strong normative support of intensive mothering and major barriers to balancing work and motherhood (e.g., Italy, Korea, Spain).

In addition to focusing on the distinctive Japanese context in order to examine educational differences in unintended childbearing, we contribute to the literature by explicitly considering births that are neither intended nor unintended. Much of the extant survey research on unintended fertility (and educational differences therein) implicitly relies on the assumption that intended and unintended pregnancies are distinct phenomena, despite evidence that intendedness

is better conceived as a continuum involving multiple dimensions (Bachrach and Newcomer 1999, Philipov 2011). The middle ground might reflect weak desires, a mix of positive and negative feelings, a perceived lack of control over birth timing, or the influence of partners and family members (Augustine, Nelson, and Edin 2009; Edin, England, Shafer, and Reed 2007; Edin and Kefalas 2005; Moos, Petersen, Meadows, Melvin, and Spitz 1997; Stanford, Hobbs, Jameson, DeWitt, and Fischer 2000; Zabin, Astone, and Emerson 1993). These factors may play a particularly important role in generating mixed feelings in societies like Japan where childbearing continues to be widely viewed as an essential component of married women's lives. A binary distinction between intended and unintended births precludes an understanding of how women with ambivalent or uncertain attitudes fit their responses into these categories. It is also potentially problematic for understanding educational differences in unintended childbearing if the way in which women dichotomize their feelings about birth timing is related to educational attainment. For example, the relative prevalence of unintended childbearing at the lower end of the educational spectrum would be overstated if less-educated women with ambivalent or uncertain attitudes are more likely than their more highly-educated counterparts to put themselves in the unintended category.

Our study examines educational differences in the intendedness of first births in Japan using data from a large, national fertility survey that captures greater nuance in attitudes about childbearing. The fertility history module in this survey augments standard questions about the desired timing and wantedness of each pregnancy with the response option "was not really thinking about it." We focus on first births so that we can assess the link between intendedness and nonmarital conceptions, which in the Japanese context are very rare after the first birth.

## **Background**

### The Case for a Negative Educational Gradient in Unintended Childbearing

A common theme in recent research on family change in wealthy countries is the expansion of socioeconomic differentials, or family bifurcation. Family behaviors with potentially negative implications for the well-being of women and children (e.g., nonmarital childbearing, early childbearing, divorce) are increasingly concentrated at the lower end of the socioeconomic spectrum, whereas behaviors linked to better life outcomes (e.g., marital childbearing, later childbearing, stable marriages) are increasingly concentrated among those with greater socioeconomic resources (McLanahan 2004; Perelli-Harris et al. 2010). Although not commonly referenced in research on family bifurcation, unintended childbearing is another family experience that is both correlated with less favorable outcomes and increasingly concentrated at the lower end of the educational spectrum in the U.S. In 2001, the proportion of unintended births was four times higher among American women with a high school degree (40%) than among college graduates (10%) (Finer and Henshaw 2006). These relationships are not surprising considering that nonmarital childbearing and early (especially teenage) childbearing are strong predictors of reporting a birth as mistimed or unwanted. Importantly, however, the concentration of unintended childbearing among the least-educated women remains pronounced even after accounting for educational differences in age and marital status at birth (Musick et al. 2009).

Efforts to explain this negative educational gradient in unintended births have emphasized differential access to contraception and abortion services (Boonstra et al. 2006; Joyce 2011; Morgan and Parnell 2002; Silverman et al. 1987), greater ambivalence toward childbirth among women with more uncertain economic circumstances, and lower levels of efficacy among the

less educated (Musick et al. 2009). These explanations are all plausible in light of related research on marriage and childbearing in “fragile families” (Carlson, McLanahan, and England 2004; Edin and Kefalas 2005; Gibson-Davis, Edin, and McLanahan 2005), but challenging to evaluate empirically given the difficulty of adequately measuring concepts such as contraceptive access, perceptions of stability, ambivalence toward childbearing, and self-efficacy. The generality of findings from the U.S. is hard to assess given that little attention has been paid to educational differences in unintended fertility in other countries (but see Hewitt et al. 2010). Furthermore, the broader focus on growing socioeconomic differences in family behavior has paid little attention to the experiences of non-Western, low-fertility countries. One exception is Japan, where recent work shows that divorce, premarital conceptions, and intermittent labor force participation are all more common among women with a high school education or less (Raymo and Iwasawa 2008; Raymo, Fukuda, and Iwasawa 2013; Raymo and Lim 2011).

These educational differences suggest that unintended childbearing may also be more common at the lower end of the educational spectrum in Japan. Of particular relevance is the substantial increase in premarital conceptions, concentrated among women with a high school education or less (Raymo and Iwasawa 2008). Reflecting a combination of changing patterns of sexual activity at young ages and the continued strength of economic and social disincentives to give birth prior to marriage, births conceived prior to marriage may be more likely to be reported as unintended. Evidence of a negative educational gradient in the share of all births reported as mistimed or unwanted in Japan would provide further empirical support for the general relevance of family bifurcation in low-fertility societies posited by the theory of “diverging destinies” (McLanahan 2004).

## The Case for No Educational Gradient in Unintended Childbearing

Evidence of a negative educational gradient in Japan would be particularly compelling in light of several reasons to expect not only that overall levels of unintended childbearing should be relatively low, but also that educational differences in the proportion of births reported as unintended should be minimal. Of particular importance is the strong link between marriage and childbearing. In contrast to most low-fertility countries in the West, non-marital childbearing remains rare in Japan. Indeed, only 2% of all births registered in 2010 were to unmarried women (National Institute of Population and Social Security Research 2012a). Nonmarital births in the U.S. are more likely to be reported as unintended and their concentration among less-educated women explains part of the observed negative educational gradient (Musick et al. 2009). Early childbearing, another important contributor to the negative educational gradient in unintended fertility in the U.S., is also far less common in Japan. Just 1% of all births registered in 2010 were to teenage mothers and only 10% were registered to women age 20-24 (National Institute of Population and Social Security Research 2012a). Even though these early births are more common among women with lower levels of education (Raymo and Iwasawa 2008), the fact that they are so small in number suggests that early childbearing is unlikely to contribute to a pronounced negative educational gradient in the proportion of births reported as unintended.

The distribution of educational attainment in Japan also differs from that in the U.S., with smaller proportions of Japanese women (and men) failing to complete high school. Data from the 2010 census show that only 4% of 25-29 year-old women in Japan had not completed high school (compared to 10% in the U.S.; U.S. Census Bureau 2012, Table 1). If women with limited education are more likely to have unintended births as a result of low efficacy or learned skills and habits of follow-through (e.g., less consistency in contraceptive use) (Edin et al. 2007;

Musick et al. 2009), the higher levels of high school completion in Japan suggest that the overall share of births reported as unintended should be relatively low. Furthermore, because women with less than a high school degree are so small in number, the educational contrast of primary substantive interest in Japan is that between high school graduates and women with post-secondary education. If patterns in the U.S. are a guide, these differentials should be relatively small (Musick et al. 2009).

Finally, differences in the contraceptive environment also suggest that educational differences in unintended fertility should be limited in Japan. Unlike the U.S., the range of contraceptives used in Japan is limited primarily to condoms, rhythm, and withdrawal (Sato and Iwasawa 2006). All of these are cheap (or free), but all have high failure rates relative to the irreversible and hormonal methods more commonly practiced in the U.S. and most other low-fertility countries (Kost et al. 2008). At the same time, abortion is widely available and not so expensive as to limit access among women with lower levels of education and more limited economic resources. Recent qualitative research shows that parents often persuade their unmarried daughters to abort unplanned pregnancies (Hertog and Iwasawa 2011), and survey data show that 20-25% of women in all education groups (except those who did not complete high school) said that they would abort a pregnancy resulting from contraceptive failure (authors' tabulation of data from the 1<sup>st</sup> Survey of Population, Family, and Generations conducted in 2004). Educational differences are somewhat more noticeable in self-reports of contraceptive use and abortion, with lower-educated women less likely than women with tertiary education to use contraception at last intercourse and more likely to report having had an abortion (authors' tabulation of data from the 13<sup>th</sup> National Fertility Survey). Easy access to abortion, combined with weak religious or cultural sanctions against abortion, suggest that the

proportion of births reported as unintended should be relatively low and educational differences limited in Japan.

#### The Case for a Positive Educational Gradient in Unintended Childbearing

A third possibility, inconsistent with observed patterns in the U.S. and other Western countries, is that unintended childbearing in Japan is actually more prevalent at higher levels of education.

We motivate this hypothesis by drawing on research that seeks to understand why fertility rates have fallen fastest and farthest in countries characterized by relatively inegalitarian gender relations within the family. The very low levels of fertility in East Asian and Southern European countries have received a good deal of attention because they are not consistent with standard theoretical expectations that fertility should be relatively high in settings where women's labor force opportunities and participation are lower (Becker 1991). One compelling explanation for this relationship argues that the opportunity costs of marriage and childbearing are particularly high in countries where improvements in women's educational and employment opportunities have not been accompanied by changes in their responsibility for the large majority of childcare and other domestic work (e.g., McDonald 2000).

Building upon these ideas, we suggest that the difficulty of balancing family responsibilities with work and other individual pursuits may result in higher reports of unintended births among more highly-educated women for whom such opportunities are greater. These women may abide by expectations around limited birth control within marriage yet nonetheless prefer to delay or avoid childbearing; they may also experience greater regret or disillusionment when the reality of marriage and parenthood does not correspond to ideals or expectations prior to family formation. This is a straightforward, but novel, extension of theories about low fertility in gender-inegalitarian countries (McDonald 2000), especially among the highly educated (Kye

2011). Perelli-Harris and colleagues (2010) provide some suggestive evidence for the notion that, in such contexts, educational gradients in family behaviors might not conform to the “pattern of disadvantage” documented elsewhere. They showed a negative education gradient in the risk of childbearing within cohabiting unions relative to marital unions in 7 of the 8 European countries they examined. The one exception was Italy, arguably the most gender-inegalitarian society included in the analysis.

Ideas linking gender norms and fertility may be particularly relevant in Japan. The mean duration of the interval between marriage and first birth ranges from only 16 months for women who did not complete high school to 24 months for college graduates (authors’ tabulation of data from the 13<sup>th</sup> National Fertility Survey), reflecting the strong normative link between childbearing and marriage and the relatively limited use of (male-centered) contraception (or abortion) within the early years of marriage. At the same time, it is clear that labor market and family dynamics make it extremely difficult for women to balance full-time employment with motherhood. Only about one quarter of women who married in 2005-09 were in the labor force following the birth of their first child (National Institute of Population and Social Security Research 2012b), a figure that has remained stable for the past several decades despite significant increases in women’s educational attainment and consistently high levels of employment among unmarried women. Barriers to mothers’ ability to remain in full-time employment include inflexible job schedules, long commutes, a shortage of convenient daycare options, tax policy disincentives to work, and strong normative expectations of intensive maternal investment in children (Boling 2007; Hirao 2007; Tsuya and Mason 1995; Yamaguchi 2005). The highly asymmetric division of household labor may be particularly important, with recent data indicating that weekly hours of housework are five times higher for wives than for

husbands (Japan Statistics Bureau 2003) and that 30% of husbands do no housework at all (Tsuya, Bumpass, Choe, and Rindfuss 2005).

In this context, it is important to understand the extent to which the economic and psychological opportunity costs of childbearing differ by women's educational attainment. They are arguably higher for well-educated women who tend to enjoy more rewarding jobs, higher pay, higher consumption, and greater opportunities for self-realization outside of family. To the extent that the costs of labor force exit are positively correlated with educational attainment, retrospective regret or ambivalence about the timing of first births may be expressed in a higher propensity to report births as mistimed or unwanted among women with access to the opportunities that higher education brings. We are not able to directly measure opportunity costs and associated feelings about pregnancy, but we attempt to shed some light on these questions by conducting additional analyses (presented below) to evaluate educational differences in the extent to which married women feel their life would be different if not married and in the gap between unmarried women's ideal and expected life course. These analyses provide some indirect empirical evidence with which to consider the plausibility of emphases on regret or ambivalence among women for whom the opportunity costs of parenthood are likely to be relatively high.

#### Neither Intended nor Unintended

The standard approach to measuring fertility intentions in surveys is to define births as "intended" when respondents report that a pregnancy came at the right time (or later) and as "unintended" when a pregnancy occurred too soon ("mistimed") or when no (additional) children were desired ("unwanted"). This retrospective assessment of intended, mistimed, and unwanted births has long been a part of major demographic surveys such as the National Survey of Family

Growth (NSFG) in the U.S. and the Demographic Health Surveys (DHS) in less-developed countries. The NSFG relies on multiple items to assess intentions, whereas the DHS uses a single item: “At the time you became pregnant with <child’s name,> did you want to become pregnant *then*, did you want to wait until *later*, or did you not want (*more*) children at all?” (for discussion of this measure, see Casterline and El-Zeini 2007; Kaufman, Morris, and Spitz 1997). The fact that similar retrospective assessments of birth intentions are typically not included in other developed country surveys limits our ability to compare levels and differentials in unintended childbearing cross-nationally.

The quality of retrospective reports of fertility intentions has been debated (Ryder 1973; Trussell, Vaughan and Stanford 1999; Westoff and Bankole 1996; Williams, Abma and Piccinino 1999). Of particular concern is the possibility that women may be more likely to overreport intended births as the duration since conception increases (Miller 1994; Williams and Abma 2000), either because assessments become more positive with time or because pregnancies characterized by ambivalent or uncertain feelings are more likely reported as intended once a baby arrives. However, a comparison of prospective and retrospective reports from the National Longitudinal Survey of Youth found little evidence of retrospection bias (Joyce, Kaestner, and Korenman 2002). More generally, associations between intentions and subsequent parental behaviors and child well-being point to the usefulness of birth intention measures. For example, a significant proportion of couples who report wanting no more children choose sterilization soon after their last wanted birth (Bumpass 1987), and mothers who report having an unintended birth experience steeper declines in well-being and family resources following the transition to motherhood (Barber and East 2009; Su 2012).

Evidence that pregnancy intentions are best described as lying on a continuum between

intended and unintended (e.g., Augustine et al. 2009; Bachrach and Newcomer 1999; Edin et al. 2007; Edin and Kefalas 2005) suggests that the standard practice of classifying intentions into a small number of presumably clear and distinct categories may compromise our understanding of unintended childbearing (e.g., Bachrach and Newcomer 1999). The simple “intended” versus “unintended” dichotomy may further misrepresent feelings among women for whom pregnancy planning lacks meaning or for those influenced by the desires of partners or family members (Moos et al. 1997; Stanford et al. 2000). This may be a particularly important barrier to our understanding of educational differences in unintended childbearing if ambivalence or uncertainty regarding childbearing differs by women’s own education or other correlated indicators of socioeconomic status.

The importance of including information on uncertainty in the intendedness of births in Japan is suggested by studies of prospective fertility intentions. Tsuya et al. (2013) found that 20% of Japanese women ages 20-39 in 2000 reported being uncertain of wanting a(nother) child. It is possible that this simply reflects the well-documented tendency for Japanese (and East Asians more generally) to select intermediate categories on questions with ordered response options (e.g., Hamamura, Heine, and Paulhus 2008). However, Schoen et al. found similar results for U.S. women in 1987-88 (Schoen et al. 1999). In the Japanese context, this reasonably high degree of uncertainty could also reflect a passive approach to fertility planning within marriages characterized by beliefs that fertility timing should not be planned (i.e., that it should be determined “naturally”). This would be consistent with strong social norms regarding the link between marriage and childbearing, social and familial pressure to produce a child, or ambivalence about life plans in the face of the strong barriers to work-family balance mentioned above (Bumpass et al. 2009).

In sum, to the extent that passivity, uncertainty, or ambivalence in fertility intentions differ by educational attainment, accounting for these feelings in the measurement of fertility intentions will be important in any effort to evaluate educational differences in unintended childbearing. We accomplish this by examining survey data in which responses to retrospective fertility intention questions included the option “was not really thinking about it.” In contrast to “intended” and “unintended,” we expect “not thinking” to be an intermediate category for most women. We thus expect our above arguments regarding educational differences to apply similarly to this classification as to unintended childbearing, although we would expect the education gradients to be more muted.

### **Data and Method**

To evaluate these three alternative scenarios, we use data from the 13<sup>th</sup> round of the Japanese National Fertility Survey (JNFS) conducted in 2005. The JNFS is a large, nationally representative survey of 18-49 year-old married women that includes information on the retrospective intendedness of each birth, marital history, and educational attainment. The JNFS also includes a survey of 18-49 year-old unmarried women and men, but we cannot use information on unmarried women because they were not asked to provide complete fertility histories, only to indicate whether they had any children. This is not a problem for never married women given the rarity of non-marital childbearing in Japan (National Institute of Population and Social Security Research 2012a), but it does mean that we do not have data for formerly married women. While unfortunate, we suspect that small numbers minimize the impact of this data limitation. For example, 419 unmarried women in the 2005 JNFS reported at least one child from a previous marriage, a number that is dwarfed by the number of currently married women with children. The number of married respondents was 6,836, with a response rate of 88%. We

focus on first births so that we can assess the link between intendedness and nonmarital conceptions, which in the Japanese context are very rare after the first birth. To limit problems of recall bias, we limit our sample to the 2,406 first births occurring within 10 years of the interview.

## Measures

*Fertility intentions.* Childbearing intentions were ascertained retrospectively in the fertility history module. JNFS respondents were asked to report how each of their pregnancies ended (i.e., in a live birth, abortion, miscarriage, or currently pregnant), the month and year of the birth, and whether the pregnancy was intended, mistimed, or unwanted. The specific question is “What were your intentions prior this pregnancy” with response options of “I wanted a child right away,” “I was not intending to get pregnant yet,” “I did not intend to ever become pregnant again,” and “I wasn’t really thinking about it.” We define unintended childbearing to include both mistimed and unwanted births. As we show below, a sizable proportion of respondents selected the response option “I wasn’t really thinking about it” (*toku ni kangaete inakatta*). This offers a potentially valuable source of insight into pregnancy intentions that fall somewhere between the extremes of intended and unintended commonly used in U.S. research.

*Educational attainment.* We use a five-category measure of mother’s educational attainment: less than high school, high school, vocational school, junior college (two-year degree), and university (four-year degree). This measure refers to the highest educational level at the time of the survey, rather than at conception. This is not ideal in light of evidence that relationships between education and fertility are complex and potentially reciprocal (Joyce, Kaestner, and Korenman 2000). However, because educational upgrading among women following the birth of the first child is uncommon in Japan, the timing of educational

measurement is of far less concern than would be the case in a study of U.S. fertility.

*Marital status at conception and birth.* Marital histories, used in conjunction with the fertility histories, allow us to determine women's marital status at the time of conception and birth. We distinguish between marital and nonmarital conceptions, with births occurring prior to the eighth month of marriage defined as premarital conceptions. Nearly all such conceptions result in births within marriage (i.e., "bridal pregnancies"), but we also include a separate category for the small number of premarital births.

### Models

Because our unit of analysis is first births and our measure of intendedness has three categories (intended, mistimed/unintended, and wasn't thinking about it), we estimate multinomial logistic regression models. We begin with a simple model that includes only educational attainment, along with a linear term for year of pregnancy to account for possible trends over time in birth intentions. This model allows us to assess the overall relationship between educational attainment and first birth intentions in Japan. This estimate provides a preliminary test of the three alternative hypotheses elaborated above. Is the educational gradient in unintended births negative, zero, or positive?

This baseline model also allows for a first evaluation of educational differences in unclear attitudes toward childbearing ("not really thinking about it"). To ascertain the degree to which educational differences reflect key compositional differences in first births, we sequentially add mother's age at birth and her marital status at conception. Based on previous research on family formation in Japan, we know that both early births and births due to premarital conceptions are more common at lower levels of education (e.g., Raymo and Iwasawa 2008), so inclusion of these variables is expected to decrease (increase) the magnitude of a negative (positive)

educational gradient in unintended births.

## **Results**

Table 1 summarizes childbearing intentions, age at first birth, and marital status at conception and birth, by mother's educational attainment. The final column in the first set of rows shows that the overall proportion of mistimed and unwanted births in Japan (.16) is substantially lower than in the U.S. (Finer and Henshaw 2006). However, it is also clear that the comparison of fertility intentions in Japan and the U.S. depends fundamentally on the treatment of intermediate or unclear responses in Japan. If the substantial proportion of women who selected the response category "I wasn't really thinking about it" (.21) were included in the unintended fertility group, then the prevalence of unintended births would actually be similar in the two countries (authors' tabulations of data from the 2006-08 NSFG show that 42% of first births were unintended). However, tabulations of fertility intentions with age at marriage, marital status at conception, and subsequent fertility suggest that births in the "I wasn't really thinking about it" category are more similar to intended births than to unintended births, i.e., they tend to be to older women and conceived within marriage (results not shown). The high proportion who responded "I wasn't really thinking about it" could reflect the tendency for Japanese survey respondents to select intermediate categories, but is also consistent with scenarios in which strong social norms and/or tensions between social expectations and personal desires contribute to passivity in pregnancy planning among Japanese women.

As in the U.S., the prevalence of unintended childbearing is highest among women in the lowest educational group (.30), a small and increasingly select group in Japan (Raymo and Iwasawa 2008). Among women who have attained at least a high school degree (97% of our sample), there is little evidence of an educational gradient. Treatment of the ambivalent

responses does little to alter the pattern of educational differences, with 18-23% of births falling into this category for all five educational groups.

Age at first birth and marital status at conception are strongly related to education in expected ways. Higher educational attainment is associated with later age at first birth and being married at conception. For example, only 6% of university graduates had their first birth prior to age 25, compared with 41% of junior high school graduates and 26% of high school graduates. Similarly, only 17% of university or junior college graduates conceived their first birth prior to marriage, compared with 54% of junior high school graduates and 31% of high school graduates.

Table 2 presents results of three multinomial logistic regression models in the form of odds ratios. The upper panel shows results for the unintended versus intended contrast, and the lower panel for the “not thinking about it” versus intended contrast. The baseline model (Model 1), which includes only educational attainment and year of pregnancy, replicates the pattern observed in Table 1, with unintended first births relatively high among women in the lowest educational category (OR = 2.33) and little difference among the other groups (none of the groups with at least a high school education are significantly different from each other in the log odds of unintended vs. intended childbearing). The relative likelihood of reporting “I wasn’t really thinking about it” is significantly lower for junior college graduates relative to high school graduates (OR = 0.76) and to junior high school graduates (OR = .54, i.e., 0.76/1.42), but there are no statistical differences among the other educational groups.

Controlling for mother’s age at first birth in Model 2 results in some attenuation of the relatively high prevalence of unintended births among junior high school graduates, although these women remain significantly more likely than high school graduates to report that their first birth was mistimed or unwanted (OR = 2.10). More interesting though is evidence that university

graduates are also relatively more likely (than their high school graduate counterparts) to report that their first birth was unintended (OR = 1.42), a relationship that was suppressed by the relatively low likelihood of young childbearing among university graduates. Educational differences in the relative likelihood of an intermediate or unclear response are largely insensitive to age at first birth (although the difference between junior college and high school graduates is no longer statistically significant at  $p < .05$ ).

After controlling for the high prevalence of premarital conceptions among junior high school graduates in Model 3, the relative likelihood of unintended first births among this group is no longer significantly different from that of high school graduates. Furthermore, the relatively high likelihood of unintended births among university graduates increases (OR = 1.88), and the coefficient for junior college graduates is now also positive and approaches statistical significance (OR = 1.38,  $p = .06$ ). Premarital conceptions are also associated with a substantially higher likelihood of reporting “I wasn’t really thinking about it,” and net of this relationship, the lower odds of intermediate or unclear intentions among junior college graduates (relative to high school graduates) is no longer statistically significant. Indeed, there are no differences between any of the educational categories in the relative likelihood of reporting that they weren’t “really thinking about it.”

So, in contrast to the U.S., where a negative educational gradient in unintended childbearing is well established, the most highly-educated Japanese women have a relatively high likelihood of reporting mistimed or unwanted births (after accounting for differences in age at birth and marital status at conception). This pattern is consistent with hypotheses emphasizing the high opportunity costs of childbearing for well-educated women in Japan. In particular, we speculated that the opportunity costs of childbearing would be higher for well-educated women who tend to

enjoy more rewarding jobs, higher pay, higher consumption, and greater opportunities for self-realization outside of family, and that these costs might translate into stronger feelings of ambivalence, uncertainty, or regret around childbearing. In an effort to shed further light on the relevance of relatively high opportunity costs of parenthood for highly-educated Japanese women, we used data from two surveys to examine educational differences on items related to family and work life.

### **Supplemental Analyses**

Tabulations of the 2009 Japanese Survey on Family and Economic Conditions, presented in the first five rows of Table 3, show married women's reports on how life would be different *if not married now* in terms of standard of living, respect from others, freedom, emotional security, and overall happiness. Response options range from 1 (much worse) to 5 (much better), indexing well-being outside of marriage. Relative to high school graduates, university graduates are not different on assessment of their standard of living, average significantly higher on assessment of their respect from others (2.97 vs. 2.81), and significantly lower on assessments of emotional security (2.18 vs. 2.53) and happiness (2.36 vs. 2.58). Whereas assessments of other dimensions range in the middle ground between being much worse and much better off if not married, scores on freedom average above 4 for women in all educational groups, indicating that Japanese women generally see marriage as impinging on freedom. A key argument in McLanahan's (2004) account of diverging destinies is the differential impact of the second demographic transition on women's well-being by education, with more-educated women securing a better bargain from marriage. Evidence that university graduates in Japan perceive greater gains from marriage in terms of respect from others is consistent with this scenario, but their lower perceived benefit in terms of emotional security and happiness and the absence of differences in

implications of marriage for standard of living and freedom does not support this general argument.

We also examined data from the 2005 JNFS to assess educational differences in unmarried women's ideal and expected life course. Table 3 shows that never married university graduates are significantly more likely than women with less education to say that their ideal life course is to marry/have children/continue to work; this is the modal response for university graduates, whereas the mode for women in all other educational groups is to marry/have children/stop work until children are older. The magnitude of differences in responses regarding ideal life course are large. For example, 45% of university graduates versus 26% of high school graduates would like to continue working after childbirth, and 13% of university graduates versus 23% of high school graduates indicate that they would like to stop working permanently after childbirth. The magnitude of educational differences in unmarried women's responses regarding expected life course are much smaller (next set of rows). The modal expected life course for women in all educational categories is to marry/have children/stop work until children are older, for example, 36% of university graduates and 34% of high school graduates expect to stop work until children are older. For all but university graduates, the modal *expected* life course matches the modal *ideal* life course. University graduates thus experience the greatest gap between ideals and expectations, with 45% saying that continuing to work after marriage and childbirth would be ideal versus only 24% expecting to do so.

Similarity across education groups in expectations about working after marriage and childbirth reflects reality: Women at all education levels are unlikely to work full-time after having children. University graduates return to work at a somewhat higher rate than high school graduates, yet only 22% are in regular employment one year after their first birth (authors'

tabulations of data from the 2005 JNFS). This mismatch in ideals and expectations among university graduates may contribute to feelings of regret or disappointment in accepting an expected, but not fully desired, life script. Norms around childbearing soon after marriage may contribute to some women being open to, but not altogether happy about, getting pregnant. These descriptive tabulations thus provide some support for the notion that asymmetric gender roles inside and outside of the home may be important in shaping family outcomes in low fertility societies, here, contributing to a higher unintended fertility ratio among Japanese university graduates.

## **Discussion**

As in the U.S., educational attainment is inversely associated with early childbearing and nonmarital conceptions in Japan. This evidence is consistent with theoretical emphases on family bifurcation, diverging destinies, and a pattern of disadvantage. Unlike in the U.S., however, these educational differences in pathways to family formation do not result in a pronounced negative educational gradient in unintended childbearing. This reflects the fact that educational differences in these correlates of unintended childbearing are not as pronounced as in the U.S. Furthermore, the relatively low overall level of unintended childbearing in Japan reflects the much lower levels of early childbearing and nonmarital conceptions in comparison with the U.S.

However, the most striking contrast with previous findings from the U.S. is our evidence that, net of the observed differences in early childbearing and nonmarital conceptions, highly-educated women in Japan are the most likely to report their first births as mistimed or unwanted. This pattern is consistent with hypotheses emphasizing the high opportunity costs of motherhood in countries like Japan where growing opportunities for women in employment and other domains of public life have not been accompanied by changes in the household division of labor,

public and private policy support for work-family balance, and normative expectations about women's roles as wives and mothers. In this context, highly-educated women presumably have stronger incentives to delay childbearing and may also experience greater disparities between the expectations and reality of parenthood that are reflected in their reports of childbearing intentions. This interpretation suggests that the positive gradient in unintended births should be most relevant to the first birth and results of supplementary analyses for second births (not shown) indicate that this is indeed the case. Educational differences in the intendedness of second births are small and the most highly-educated women are somewhat less likely than high school graduates to report these births as mistimed or unwanted.

A second important contribution of this study is our examination of births that were reported as neither intended nor unintended. We found no educational differences among women who reported that they were "not really thinking about" the timing of their first birth. We suggested that the relatively high prevalence of women in this category may reflect the strong normative expectations regarding childbearing within marriage as well as the male-centered contraceptive environment in Japan. However, the fact that surveys in the U.S. and other countries do not provide a similar response option precludes an assessment of the extent to which this pattern is a distinctive feature of the Japanese context. The frequency with which women at all educational levels selected this response option strongly suggests that the standard intended vs. unintended dichotomy may inappropriately force respondents into categories that do not adequately reflect their evaluations of fertility timing. A better understanding of the high levels of unintended childbearing in the U.S. would benefit from efforts to better capture uncertain or ambivalent views of fertility intentions.

This is the first study to examine educational differences in unintended fertility in Japan and

our descriptive findings shed light on the relationships between education and fertility in a context where gender differences in roles and opportunities in work and family are pronounced and where the relationship between marriage and fertility remains strong. Study results should nonetheless be understood in the context of a few key limitations. First, we draw from a point-in-time study that provides limited leverage for evaluating the mechanisms linking educational attainment and unintended fertility. We are able to account for the role of key demographic correlates, but more detailed, prospective data are needed to fully explore the processes underlying unintended childbearing in the Japanese context. Second, observed patterns may be sensitive to educational differences in how women understand and respond to intendedness questions. For example, if less-educated women feel more bound by social norms that take childbirth after marriage as given, they may be more likely to report a pregnancy as intended or to say they were not really thinking, even if the pregnancy was not intended at the time. University graduates may be more willing to report unintended pregnancies as such, despite norms supporting childbearing in marriage.

Subsequent extensions of this work should seek to more directly explore and identify explanations for the distinctive positive educational gradient in unintended fertility in Japan. For example, prospective studies that ascertain women's education, employment, marriage, and childbearing aspirations at a young age and follow them through the childbearing years would allow for insights regarding our speculative conclusion that failure to realize education and employment aspirations is associated with reports of unintended fertility and contributes to the educational differences we observed. Alternatively, in-depth interviews of mothers regarding the timing of births could shed light on the factors that influence assessments of birth intentions. In addition to evaluating the generality of the high prevalence of uncertain or ambivalent attitudes

toward childbearing in Japan, subsequent analyses should also seek a better understanding of what these responses mean and how that meaning may differ by educational attainment (or other sociodemographic characteristics of interest).

Another important task for subsequent research will be to replicate these analyses in other low-fertility societies where balancing work and motherhood is particularly difficult. Do we observe a similar positive educational gradient in unintended childbearing in Italy, Korea, and other East Asian and Southern European societies? Is this relationship less pronounced in places like Taiwan, where expectations of childbearing within marriage remain strong but women are better able to balance employment and motherhood? These are important questions in light of the research cited earlier indicating that unintended childbearing is associated with less favorable outcomes for both mothers and children. They are also important in light of policy efforts to simultaneously promote family formation and increase women's labor force participation by supporting women's (couples') ability to balance work and family (Nagase 2014).

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Table 1. Sample characteristics, by educational attainment

|   | Junior High School | High School | Vocational School | Junior College | University | All   |
|---|--------------------|-------------|-------------------|----------------|------------|-------|
| <i>Fertility intentions</i>               |                    |             |                   |                |            |       |
| Intended                                  | 0.47               | 0.62        | 0.63              | 0.67           | 0.64       | 0.63  |
| Mistimed/unwanted                         | 0.30               | 0.16        | 0.14              | 0.15           | 0.17       | 0.16  |
| Not thinking about it                     | 0.23               | 0.22        | 0.23              | 0.18           | 0.19       | 0.21  |
| <i>Age at birth</i>                       |                    |             |                   |                |            |       |
| <20                                       | 0.12               | 0.01        | 0.00              | 0.00           | 0.00       | 0.01  |
| 20-24                                     | 0.29               | 0.25        | 0.18              | 0.12           | 0.06       | 0.17  |
| 25-29                                     | 0.27               | 0.42        | 0.46              | 0.53           | 0.49       | 0.46  |
| 30-34                                     | 0.21               | 0.24        | 0.29              | 0.29           | 0.35       | 0.28  |
| 35-39                                     | 0.11               | 0.08        | 0.07              | 0.06           | 0.09       | 0.08  |
| <i>Marital status at conception/birth</i> |                    |             |                   |                |            |       |
| Marital conception                        | 0.42               | 0.66        | 0.69              | 0.81           | 0.82       | 0.72  |
| Premarital conception                     | 0.54               | 0.31        | 0.26              | 0.17           | 0.17       | 0.25  |
| Premarital birth                          | 0.05               | 0.03        | 0.05              | 0.02           | 0.01       | 0.03  |
| <i>N</i>                                  | 84                 | 947         | 346               | 626            | 403        | 2,406 |

*Notes:* Data from the 13th round of the Japanese National Fertility Survey (JNFS) conducted in 2005. Births within 10 years of interview.

Table 2. Odds ratios from multinomial logistic regression models of first birth intentions

| Mistimed/unwanted vs. intended           | Model 1 |      | Model 2 |      | Model 3 |      |
|--|---------|------|---------|------|---------|------|
|  | OR      | p    | OR      | p    | OR      | p    |
| <i>Educational attainment</i>            |         |      |         |      |         |      |
| Junior high school                       | 2.33    | 0.00 | 2.10    | 0.01 | 1.68    | 0.11 |
| High school (omitted)                    | 1.00    |      | 1.00    |      | 1.00    |      |
| Vocational school                        | 0.82    | 0.29 | 0.93    | 0.71 | 0.93    | 0.73 |
| Junior college                           | 0.84    | 0.23 | 1.03    | 0.85 | 1.38    | 0.06 |
| University                               | 1.00    | 0.99 | 1.42    | 0.04 | 1.88    | 0.00 |
| <i>Year since pregnancy</i>              | 0.94    | 0.00 | 0.93    | 0.00 | 0.96    | 0.11 |
| <i>Mother's age at birth</i>             |         |      |         |      |         |      |
| <20                                      |         |      | 2.73    | 0.05 | 0.89    | 0.82 |
| 20-24                                    |         |      | 3.17    | 0.00 | 1.46    | 0.02 |
| 25-29 (omitted)                          |         |      | 1.00    |      | 1.00    |      |
| 30-34                                    |         |      | 0.59    | 0.00 | 0.63    | 0.01 |
| 35-39                                    |         |      | 0.34    | 0.00 | 0.35    | 0.00 |
| <i>Marital status at pregnancy/birth</i> |         |      |         |      |         |      |
| Marital pregnancy (omitted)              |         |      |         |      | 1.00    |      |
| Premarital pregnancy                     |         |      |         |      | 9.49    | 0.00 |
| Premarital birth                         |         |      |         |      | 6.72    | 0.00 |
| <hr/>                                    |         |      |         |      |         |      |
| Wasn't thinking about it vs. intended    | OR      | p    | OR      | p    | OR      | p    |
| <i>Educational attainment</i>            |         |      |         |      |         |      |
| Junior high school                       | 1.42    | 0.23 | 1.36    | 0.31 | 1.21    | 0.54 |
| High school (omitted)                    | 1.00    |      | 1.00    |      | 1.00    |      |
| Vocational school                        | 1.03    | 0.83 | 1.06    | 0.69 | 1.06    | 0.72 |
| Junior college                           | 0.76    | 0.04 | 0.78    | 0.08 | 0.88    | 0.35 |
| University                               | 0.85    | 0.29 | 0.91    | 0.55 | 1.02    | 0.89 |
| <i>Year since pregnancy</i>              | 1.01    | 0.68 | 1.00    | 0.91 | 1.02    | 0.36 |
| <i>Mother's age at birth</i>             |         |      |         |      |         |      |
| <20                                      |         |      | 1.74    | 0.28 | 0.91    | 0.86 |
| 20-24                                    |         |      | 1.28    | 0.11 | 0.88    | 0.42 |
| 25-29 (omitted)                          |         |      | 1.00    |      | 1.00    |      |
| 30-34                                    |         |      | 0.82    | 0.12 | 0.84    | 0.17 |
| 35-39                                    |         |      | 0.68    | 0.07 | 0.68    | 0.08 |
| <i>Marital status at pregnancy/birth</i> |         |      |         |      |         |      |
| Marital pregnancy (omitted)              |         |      |         |      | 1.00    |      |
| Premarital pregnancy                     |         |      |         |      | 2.99    | 0.00 |
| Premarital birth                         |         |      |         |      | 3.14    | 0.00 |
| <hr/>                                    |         |      |         |      |         |      |
| <i>N</i>                                 | 2,354   |      | 2,354   |      | 2,354   |      |
| degrees of freedom                       | 10      |      | 18      |      | 22      |      |
| Log-likelihood                           | -2,125  |      | -2,063  |      | -1,925  |      |
| p value of LR test                       |         |      | 0.00    |      | 0.00    |      |

Notes: Data from the 13th round of the Japanese National Fertility Survey (JNFS) conducted in 2005. Births within 10 years of interview.

Table 3. Work and family attitudes, by educational attainment

| Variable   | Junior High School | High School | Vocational School | Junior College | University | All  |
|--|--------------------|-------------|-------------------|----------------|------------|------|
| <i>How would your life be different if not married now?</i> <sup>a,b</sup> |                    |             |                   |                |            |      |
| Standard of living   | 2.56               | 2.80        | 3.03              | 3.14           | 2.95       | 2.94 |
| Respect from others  | 2.91               | 2.81*       | 2.94              | 2.88           | 2.97       | 2.88 |
| Freedom to do the things you enjoy   | 4.09               | 4.06        | 4.14              | 4.10           | 4.24       | 4.10 |
| Sense of emotional security  | 2.75*              | 2.53*       | 2.47*             | 2.38           | 2.18       | 2.43 |
| Overall happiness  | 2.69               | 2.58*       | 2.70*             | 2.54           | 2.36       | 2.56 |
| <i>Ideal life course</i> <sup>c,d</sup>                                    |                    |             |                   |                |            |      |
| No marriage, continue work   | 0.12*              | 0.08*       | 0.07              | 0.04           | 0.05       | 0.06 |
| Marry, no children, continue work  | 0.08*              | 0.07*       | 0.04              | 0.04           | 0.04       | 0.05 |
| Marry, children, continue work   | 0.14*              | 0.26*       | 0.30*             | 0.24*          | 0.45       | 0.32 |
| Marry, children, stop work temporarily                                     | 0.19*              | 0.33        | 0.39*             | 0.41*          | 0.31       | 0.35 |
| Marry, children, stop work permanently                                     | 0.39*              | 0.23*       | 0.17*             | 0.25*          | 0.13       | 0.20 |
| Other/don't know   | 0.08*              | 0.03        | 0.02              | 0.02           | 0.02       | 0.02 |
| <i>Expected life course</i> <sup>c,d</sup>                                 |                    |             |                   |                |            |      |
| No marriage, continue work   | 0.26               | 0.26*       | 0.23              | 0.20           | 0.20       | 0.22 |
| Marry, no children, continue work  | 0.03               | 0.07*       | 0.03              | 0.03           | 0.04       | 0.05 |
| Marry, children, continue work   | 0.20               | 0.18*       | 0.23              | 0.21           | 0.24       | 0.21 |
| Marry, children, stop work temporarily                                     | 0.24*              | 0.34        | 0.37              | 0.41*          | 0.36       | 0.37 |
| Marry, children, stop work permanently                                     | 0.15               | 0.12        | 0.09              | 0.12           | 0.12       | 0.12 |
| Other/don't know   | 0.13*              | 0.04        | 0.04*             | 0.03           | 0.02       | 0.03 |

Notes: \* Significantly different from university graduates at  $p < .05$ .

(a) Asked of currently married women age 18-49 in the 2009 Japanese Survey on Family and Economic Conditions,  $N = 926$ .

(b) Mean responses to options range from 1 (much worse) to 5 (much better).

(c) Asked of unmarried women age 18-49 in the 2005 Japanese National Fertility Survey (JNFS),  $N = 3,211$ .

(d) Percent distribution across response options.

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