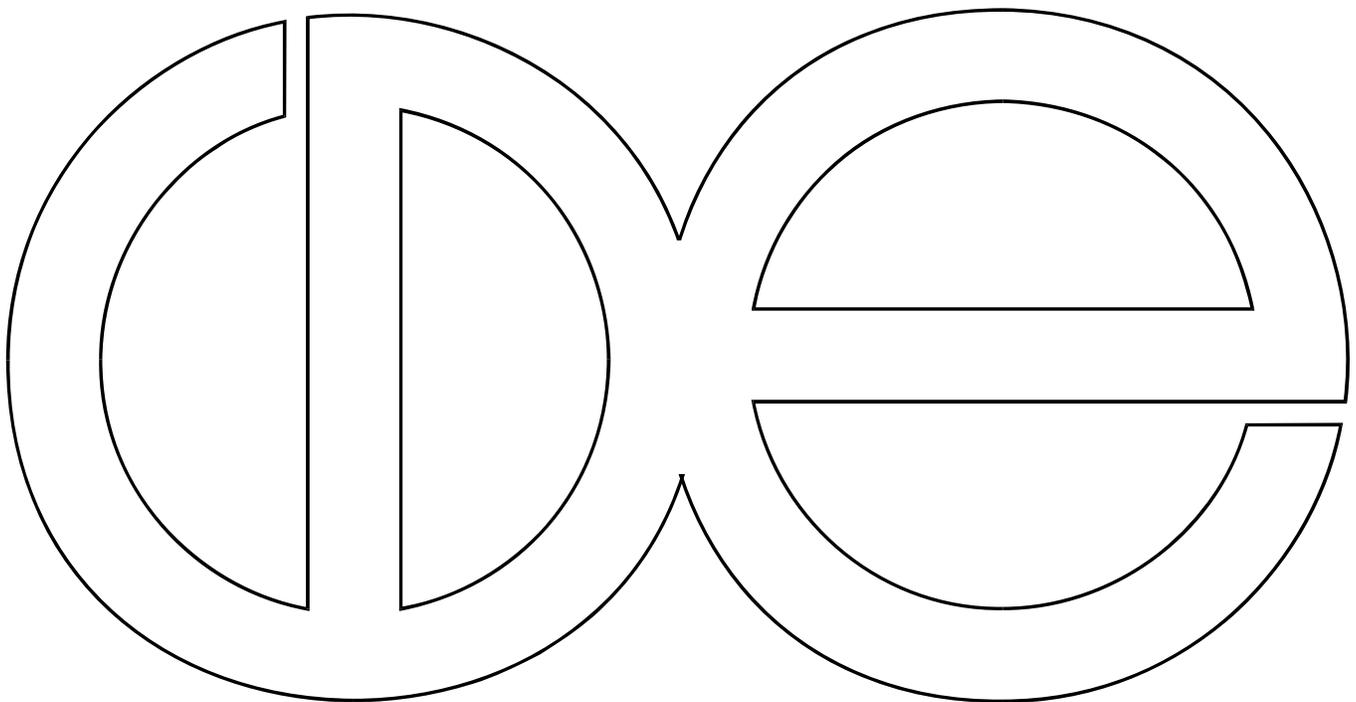# Center for Demography and Ecology

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ABSTRACT

Very low levels of nonmarital childbearing in Japan obscure important changes in the relationship between marriage and fertility. In this paper, we first describe trends in marriages preceded by pregnancy (bridal pregnancy) and examine educational differentials in this pattern of family formation. We then evaluate the extent to which bridal pregnancy is associated with less desirable spouse pairings. Using data on over 26,500 marriages between 1970 and 2002, we estimate multinomial logistic regression models to evaluate change over time in the association between bridal pregnancy and the relative odds of marrying up, down, or homogamously with respect to educational attainment. Results indicate that, for women with at least a high school education, bridal pregnancy is associated with a significantly higher likelihood of a "less desirable" pairing and that this relationship has become more pronounced over time. This is particularly true for marriages taking place in the 1990s and for marriages involving relatively young brides. We conclude by discussing potential implications of increasing bridal pregnancy and associated patterns of spouse pairing for subsequent variation in marital stability and well-being.

In most low-fertility industrialized countries childbearing increasingly occurs outside of marriage (Heuveline, Timberlake, and Furstenberg 2003; Kiernan 2001; Ventura and Bachrach 2000). The proportion of children born to unmarried mothers increased several-fold over the past three decades and now ranges from under 10% in Southern Europe to over 40% in Northern European countries (Kiernan 2001). Japan is a notable exception to this trend. Despite significant recent increases in sexual activity at young ages (Japanese Association for Sex Education 2000), premarital cohabitation (Iwasawa 2005; Raymo, Iwasawa, and Bumpass 2006; Tsuya 2006), age at marriage (Raymo 2003), and divorce (Raymo, Iwasawa, and Bumpass 2004), only two percent of all births in 2004 were registered to unmarried women (National Institute of Population and Social Security Research – NIPSSR, hereafter – 2006).

The rarity of nonmarital childbearing in Japan obscures important changes in the relationship between marriage and fertility. Of particular importance is a marked increase in the proportion of marriages that are preceded by pregnancy (i.e., bridal pregnancy or *dekichattakon*). Vital statistics data indicate that the proportion of first births due to nonmarital conceptions (which we define as nonmarital births and births occurring within eight months of marriage) increased from .06 in 1975 to .21 in 2000 (Iwasawa and Raymo 2005). Japan thus resembles the U.S., and other late-marriage, low-fertility societies in that premarital pregnancy is common but differs in that almost all premarital pregnancies that result in a live birth are "legitimated" via marriage. This distinctive pattern of family formation is a potentially valuable source of insight into relationships between fertility, marriage, and well-being in Japan as well as in societies such as the U.S. where the link between marriage and childbearing has weakened.

Much of the social, academic, and policy focus on the decoupling of marriage and fertility in the U.S. emphasizes implications for income inequality and the well-being of children.

Recent policy efforts to promote marriage and discourage nonmarital childbearing in the U.S. are motivated by evidence that the rise in single-parent families (Ellwood and Jencks 2004; Sigle-Rushton and McLanahan 2002) has contributed to increasing family income inequality (Burtless 1999; Martin 2006) and a growing scientific consensus that men, women, and especially children fare better, on average, in married families than in other arrangements (Amato and Booth 1997; Cherlin 1999; McLanahan and Sandefur 1994; Waite and Gallagher 2000). Related research documents the lower likelihood of marriage among single mothers (Lichter and Graefe 2001), the instability of nonmarital unions (Manning, Smock, and Majumdar 2004), the increasing concentration of single motherhood among those with the most limited socioeconomic resources (Ellwood and Jencks 2004; McLanahan 2004), and the high rates of poverty for single mother families (Cancian and Reed 2001). An implicit, but important, assumption underlying discussions of nonmarital childbearing, well-being, and inequality in the U.S. is that the implications of family formation behavior for processes of social and economic stratification should be less pronounced in societies such as Japan where nonmarital childbearing remains uncommon.

Drawing upon research on nonmarital childbearing, we evaluate this assumption by addressing two questions about the increasing prevalence of bridal pregnancy in Japan. First, is bridal pregnancy in Japan increasingly concentrated among women with more limited socioeconomic resources? Second, is bridal pregnancy associated with less favorable family outcomes? We address the second question by contrasting patterns of educational pairing in marriages preceded by pregnancy to those in marriages not preceded by pregnancy and by examining how differences in spouse pairing by pregnancy status at marriage have changed over time. This focus is motivated by recent research on nonmarital fertility and spouse pairing

patterns in the U.S. demonstrating that single mothers who do marry are less likely to "marry well" relative to their counterparts who married prior to parenthood (Qian, Lichter, and Mellott 2005). Less favorable matches for single mothers reflect both the characteristics of women who have nonmarital births and the subsequent marriage market disadvantages they face (Qian, Lichter, and Mellott 2005). Because marital instability is associated not only with premarital birth and premarital conception, but also with husband's educational attainment and female status hypogamy (Teachman 2002), Qian et al.'s (2005) findings suggest that promoting marriage among unmarried mothers may not be an effective strategy for reducing the disadvantages associated with nonmarital childbearing and single parenthood. They also suggest a potentially important, although largely unrecognized, pathway through which changes in family formation behavior may contribute to growing variation in the well-being of women and children in societies like Japan where almost all premarital pregnancies that are not aborted result in marriage. What are the implications for marital stability and family well-being if changes in sexual behavior, combined with strong normative and economic incentives to "legitimate" premarital pregnancies, contribute to an increase in marriages that might not have taken place otherwise?

In the absence of data on marital stability and other life outcomes of women who married subsequent to pregnancy, we follow Qian et al. (2005) by examining patterns of spouse pairing. We focus on pairing with respect to educational attainment, a powerful indicator of men's earnings potential (Ishida 1998) and an important spouse selection criterion in Japan (Raymo and Iwasawa 2005; Yamada 1996). As we discuss below, theoretical expectations regarding differentials in bridal pregnancy and relationships between bridal pregnancy and spouse pairing and their change over time are ambiguous. Empirical evaluation of these relationships allows us

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to shed light on (a) the generality of widely-discussed linkages between the rise in nonmarital fertility and increasing variation in family well-being in the U.S. and elsewhere, (b) the potential effectiveness of efforts to promote marriage in order to limit the disadvantages associated with single parenthood, and (c) a potentially important, but largely undocumented, mechanism of subsequent variation in family and socioeconomic outcomes in Japan and other low-fertility societies where the link between marriage and childbearing remains strong.

Background

Family formation in Japan

Until very recently, the Japanese family life course was distinguished by its homogeneity. Marriage was nearly universal and took place within a narrow band of normatively appropriate ages commonly referred to as *tekireiki* (Brinton 1992). Nonmarital childbearing was rare, nearly all couples had children soon after marriage (Morgan, Rindfuss, and Parnell 1984), and relatively few marriages ended in divorce (Kaneko and Mita 1988). Major changes in family behavior, including rapid fertility decline in the late 1950s and early 1960s and more recent decline in marriage rates, occurred across the socioeconomic spectrum (Hodge and Ogawa 1990; Raymo 2003). The family life course experiences of Japanese men and women remain more homogeneous than those of their counterparts in the U.S., but are increasingly diverse. Marriage is taking place at later ages (Raymo 2003), variation in age at marriage has increased (Raymo and Iwasawa forthcoming), the proportion projected to never marry is rising (NIPSSR 2002; Retherford, Ogawa, and Matsukura 2001), the duration from marriage to childbirth is longer (NIPSSR 2003), divorce is common (Raymo, Iwasawa, and Bumpass 2004), and more couples are cohabiting prior to marriage (Iwasawa 2005; Raymo, Iwasawa, and Bumpass 2006; Tsuya 2006). At the same time, levels of nonmarital childbearing remain at negligibly low levels.

The rarity of nonmarital childbearing in contemporary Japan likely reflects both discrimination against "illegitimate" children (Yoshizumi 1995) and the significant economic difficulties associated with single parenthood (Peng 1997). In addition to social discrimination, illegitimate children (*hichakushutsushi*) have also been subject to important forms of legal discrimination in Japan. For example, children born to unmarried parents are legally entitled to only one-half of the inheritance to which legitimate children are entitled. Until recently, legitimacy status was also recorded on both the family registry (*koseki*) and residence registration (*juminhyō*) forms that are used for many official purposes such as job applications (Yoshizumi 1995).

The unfavorable economic circumstances of single mother families highlight other strong disincentives to nonmarital childbearing. In addition to gender discrimination in the labor market (Brinton 2001), single mothers are further hampered by a shortage of convenient childcare options and the fact that better paying jobs typically do not allow for flexible work scheduling. Although the large majority of single mothers work (Ministry of Health, Labor, and Welfare 2005), they are typically employed in relatively unstable low-paying jobs, often on a part-time basis (Japan Institute for Labor Policy and Training 2001). Furthermore, unwed mothers lose eligibility for dependent exemptions and public child support if the biological father recognizes the child (Kongaishi Sabetsu to Tatakau Kai 2004) and relatively few single mothers receive any child support from the father (Ministry of Health, Labour, and Welfare 2005). For these reasons, single mother households have much lower incomes than other types of household (Ministry of Health, Labour, and Welfare 2004a).

While these strong social, economic, and legal forces combine to keep nonmarital childbearing at very low levels, the growth in bridal pregnancy suggests that important changes

in the relationship between marriage and fertility may be underway. With one in five recent first births occurring within eight months of marriage, pregnancy is clearly an increasingly important reason for marriage. The fact that bridal pregnancy has increased concurrently with an increase in the mean duration between marriage and first birth (Sasai 2004) also points to growing heterogeneity in the pathways to family formation in Japan.

One obvious explanation for the increase in bridal pregnancy is that the concurrent trends toward later marriage and earlier initiation of sex have increased exposure to the risk of nonmarital pregnancy. The proportion of 20-24 year-old women never married increased from .69 in 1970 to .88 in 2000 (NIPSSR 2006) while the proportion of never married 20-24 year-old women with sexual experience nearly doubled from .32 in 1987 to .56 in 2002 (NIPSSR 2004). The potential relevance of this explanation is also suggested by relatively low use of contraception at young ages and high reliance upon relatively ineffective methods such as condoms and withdrawal (Sato and Iwasawa 2001). The pill was not available in Japan until 1999 and only 1% of sexually active, contracepting women currently use it (Japan Association for Sex Education 2005).

Increases in bridal pregnancy might also reflect decline in contraceptive efficacy or perhaps an increasing reluctance to abort unplanned pregnancies, a readily available solution to contraceptive failure in Japan (Goto et al. 2000). The latter speculation is not consistent with observed trends in abortion rates, however. During the 1990s, the ratio of abortions to live births reported in the Japanese vital statistics declined or remained stable above age 25 while increasing below age 25. The increase in abortion among teenage women has been particularly rapid (Ministry of Health, Labour, and Welfare 2004b). It is in this context of later marriage, increasing sexual activity at young ages, reliance on relatively ineffective methods of

contraception, and easy access to abortion that we develop expectations regarding educational

differentials in bridal pregnancy and linkages between bridal pregnancy and spouse pairing

patterns.

Differentials in bridal pregnancy

Is bridal pregnancy in Japan, like nonmarital childbearing in the U.S. and elsewhere, increasingly

concentrated among women with more limited socioeconomic resources? The homogeneity of

family behavior in Japan and the limited socioeconomic differentials observed in earlier changes

in fertility and marriage suggest that educational differences in bridal pregnancy may be small.

However, the answer to this question depends upon the extent to which exposure to the risk of

premarital pregnancy, contraceptive efficacy, and the likelihood of aborting unplanned

pregnancies differ by educational attainment. Educational similarity in levels of sexual

experience and experience of abortion also suggest that differentials in bridal pregnancy should

be limited. There is some evidence that educational attainment is inversely associated with

sexual activity at young ages (Kurokawa 2007) but data from the 12th National Fertility Survey

(conducted in 2002) indicate that age-specific proportions of unmarried women with sexual

experience and the proportions of married women under age 30 who report having had an

abortion are very similar across educational categories (authors' tabulations). Data on

educational differentials in contraceptive practices for sexually active unmarried women are

limited but available information suggests that there is relatively little difference by education in

either contraceptive use or contraceptive choice (Japan Association for Sex Education 2000).

Overall, differences in sexual experience, contraceptive practices, and abortion provide relatively

little reason to expect large educational differentials in the prevalence of bridal pregnancy.

At the same time, there are other reasons to expect that differentials in bridal pregnancy may be growing. Research on macroeconomic circumstances and changing family behavior in the U.S. (e.g., Oppenheimer, Kalmijn, and Lim 1997) suggests that Japan's prolonged economic downturn during the 1990s, combined with evidence of increasing economic inequality at young ages (Ohtake 2005), may have contributed to growing socioeconomic variation in family behavior, including bridal pregnancy. To the extent that some young men and women increasingly view higher education and higher status career paths as unrealistic outcomes, incentives to avoid jeopardizing those opportunities may be significantly weaker than in the past. More specifically, evidence of growing educational differentials in unemployment and contingent employment at young ages (Kosugi 2001) suggests a potential decline in the opportunity costs associated with risky behaviors and their consequences among men and women at the lower end of the educational spectrum. Among less advantaged youth, reduced concern about the implications of pregnancy and early marriage for subsequent educational and occupational opportunities may be manifested in less selective choice of sexual partners and less vigilant contraception. Growing socioeconomic differentials in the likelihood of bridal pregnancy among Japanese women would constitute powerfully suggestive evidence for the generality of the social, economic, and political forces thought to underlie differential change in the relationship between marriage and childbearing in the U.S. and other low-fertility societies (e.g., Lesthaeghe 1995; McLanahan 2004).

Bridal pregnancy and spouse pairing

Is bridal pregnancy in Japan, like nonmarital childbearing in the U.S., associated with less favorable educational pairings? The answer to this question presumably depends upon the extent to which premarital pregnancies are planned and the motivations that underlie couples' decision

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to marry in response to pregnancy. On the one hand, differences in spouse pairing patterns should be limited if unplanned, but not necessarily unexpected, pregnancies provide an immediate incentive for marriage among couples intending to eventually marry. If intentions to marry are associated with less vigilant contraception and a lower likelihood of aborting unplanned pregnancies, increases in bridal pregnancy may simply reflect longer exposure to the risk of pregnancy. On the other hand, differences in educational assortative mating would be more likely if sex-partner selection criteria differ significantly from spouse selection criteria and if bridal pregnancies are motivated primarily by normative pressures to legitimate unexpected pregnancies among couples unlikely to marry in the absence of pregnancy.

Weakening social and economic incentives to marry (NIPSRR 2003) suggest that premarital pregnancy may increasingly function as an impetus to marriage among couples who would have married later or perhaps remained in a nonmarital romantic relationship. A large proportion of single men and women appear to be postponing marriage to pursue individual goals (NIPSSR 2004) and hold relatively negative perceptions of married life (Tsuya, Mason, and Bumpass 2004). For example, over 75% of unmarried men and women age 20-27 in the 2000 National Survey on Family and Economic Conditions felt that they would be worse off in terms of personal freedom and approximately half thought that their standard of living would be lower if married (Larry Bumpass, personal communication). In the absence of other strong incentives to marry, pregnancy may be an increasingly important step in the transition to marriage. If this is indeed the case, there is little reason to expect that the spouse pairing patterns of those who marry subsequent to pregnancy would differ significantly from those who marry prior to pregnancy.

Alternatively, if premarital pregnancies are increasingly the result of contraceptive failure or non-use among couples without intentions to marry, the stigma and economic hardships associated with nonmarital childbearing may be the primary motivation for marriage following pregnancy. Assuming that the criteria for selecting a sexual partner are, on average, less discriminating than those for selecting a spouse, this scenario would suggest a higher likelihood of less favorable pairings among women who were pregnant at the time of marriage. The increasing prevalence of "mistakes" suggested by this scenario may also have implications for variation in subsequent well-being to the extent that marriages prompted by pregnancy are less stable than those resulting from careful spouse search.

The increase in bridal pregnancy is widely recognized in Japan, but discussion of socioeconomic differentials and the potential implications for subsequent well-being and stratification processes has been limited. It is possible, however, that change in the relationship between marriage and fertility may contribute to growing heterogeneity in family outcomes if bridal pregnancies in Japan, like marriages to unmarried mothers in the U.S. (Qian et al. 2005), are associated with less favorable spouse pairings. Documenting relationships between bridal pregnancy and spouse pairing will not only shed light on a potentially important but understudied mechanism of stratification in Japan but will also provide important comparative insights into the implications of changing relationships between marriage and fertility.

Data and Methods

Data

To address our questions, we examine data from the Japanese National Fertility Surveys (JNFS) conducted in 1987, 1992, 1997, and 2002. Each of these surveys provides information on age, educational attainment, year and month of first marriage, year and month of first birth, and

husband's age and educational attainment for nationally representative samples of 18-49 year old married women. Response rates are very high, ranging from 88% in 2002 to 93% in 1987. Pooling data from the four surveys and limiting our focus to first marriages taking place between 1970 and 2002 provides us with a sample of 28,811 marriages. After dropping observations with missing data on any of the variables used in the analysis, our analytic sample consists of 26,745 marriages.

Variables

Premarital pregnancy: Because we wish to use a conservative criterion for distinguishing pregnancy status at marriage and because we are interested in marriages preceded by a known pregnancy, we define cases in which the first child was born within eight months of marriage as bridal pregnancies. This is obviously an approximation of bridal pregnancy in that we cannot identify premature births conceived subsequent to marriage and must assume that respondents do not systematically misreport the months in which they married and gave birth to their first child. The use of more conservative definitions (e.g., births occurring within seven months of marriage) does not alter our conclusions. Using our preferred criterion, 15% of respondents in our sample were pregnant at the time of marriage. Bridal pregnancy increased from 12% in the 1970s to 17% in the 1990s, a level similar to the proportion of "shotgun weddings" in the U.S. in the 1950s (Furstenberg 1988).

Spouse Pairing: Our measure of spouse pairing is a trichotomous categorization of spouses' relative educational attainment. More "desirable" pairings are those in which the wife has less education than the husband (female hypergamy). Less "desirable" pairings are those in which the wife has more education than the husband (female hypogamy). The third, intermediate, category is marriages in which husband and wife are of the same educational attainment

(homogamy). Educational pairing is based on a standard four-category ordinal measure of educational attainment - junior high school, high school, junior college or vocational school, and university. Educational hypogamy (hypergamy) is obviously not possible for women in the lowest (highest) educational categories. Because the relative likelihood of different educational pairings is determined to a large extent by the relative size of the pool of eligible mates with higher or lower levels of education, we estimate models of spouse pairing separately for women at each level of educational attainment.

Marriage cohort: To examine the extent to which relationships between bridal pregnancy and spouse pairing have changed over time, we construct a categorical representation of marriage cohort with marriages classified according to the decade in which they occurred (1970-1979, 1980-1989, 1990-2002).

Other variables: We control for several other characteristics that are potentially related with both the likelihood of premarital pregnancy and patterns of spouse pairing. We include age at marriage based on evidence that bridal pregnancy is much more common among young brides (Sasai 2004) and strong theoretical reasons to expect that educational homogamy is inversely related to age at marriage (e.g., Mare 1991; Lewis and Oppenheimer 2000). Premarital coresidence with parents is a dichotomous variable distinguishing women who lived with parents prior to marriage from those who did not. Assuming that women living away from home are subject to less parental monitoring and influence (Sasai 2007), we expect that these women may be more likely to be pregnant at marriage and to marry hypogamously. A three-category measure of sibship position distinguishes only children and eldest daughters with no brothers from other women. The first two groups may be less likely to be pregnant at marriage and less likely to marry down to the extent that they face greater responsibility for maintaining the family

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name or business and/or greater expectations of providing care to aging parents in the future. We also include an indicator of where the respondent met her spouse. The categories are school, work or other activities, via friends or siblings, arranged marriage, and chance meeting. We expect that those who met via arranged marriages are less likely to be pregnant at marriage or to marry hypogamously and that those who met by chance (e.g., at parties or on vacation) are more likely to do both. Those who met their husband at school are presumably much more likely than others to marry homogamously with respect to education. Finally, we control for husband's marital history on the assumption that non-normative pairings with respect to marital history are more likely to be non-normative in other ways – e.g., preceded by pregnancy and educationally hypogamous. Ideally, models would also include other potentially relevant characteristics such as premarital region of residence, respondents' premarital occupation, and father's occupation, but this information was not collected consistently across the four surveys.

Methods

To address our first question, we examine tabulations of bridal pregnancy by educational attainment and marriage cohort. To address our second question, we estimate the following two logistic regression models for educational pairing:

$$\text{Model 1: } \ln[p_{ij}/p_{i0}] = \alpha_j + \beta_{1j}BP_i + \beta_{2j}COHORT_i + \beta_{3j}Z_i, \tag{1}$$

$$\text{Model 2: } \ln[p_{ij}/p_{i0}] = \alpha_j + \beta_{1j}BP_i + \beta_{2j}COHORT_i + \beta_{3j}Z_i + \beta_{4j}(BP_i \times COHORT_i). \tag{2}$$

Here p_{ij} represents the probability that woman i is in marriage type j (j=hypogamy, homogamy, hypergamy) and p_{0j} is the probability that woman i is in the modal marriage type. The modal (reference) educational pairing is homogamy for all women except junior college graduates who are most likely to marry hypergamously. BP is the dichotomous indicator of pregnancy status at

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marriage, COHORT is the three-category measure of marriage cohort, and Z is a vector

comprised of the other variables described above, including age at marriage.

Model 1 allows us to assess the average association between bridal pregnancy and the

relative odds of different pairings, net of other characteristics. In Model 2, we examine the

extent to which marriages preceded by pregnancy have become more (or less) like other

marriages by allowing the relationship between premarital pregnancy and educational pairing

patterns to vary by marriage cohort. Evidence of change over time is evaluated in two steps. We

first conduct likelihood ratio tests comparing the fit of model 2 with that of model 1 in order to

determine whether or not the relationship between bridal pregnancy and spouse pairing changed

across marriage cohorts. If comparisons of model fit indicate a change in the relationship

between bridal pregnancy and spouse pairing, we proceed to examine the direction, magnitude,

and statistical significance of individual interaction coefficients (i.e., β_4). We estimate a total of

eight models (2 models x 4 categories of wives' educational attainment).

Results

Table 1 provides bivariate evidence relevant to (a) change over time in educational differentials

in bridal pregnancy and (b) the relationship between bridal pregnancy and educational assortative

mating. The upper panel presents the prevalence of bridal pregnancy by educational attainment

and marriage cohort. Reading across the rows, it is clear that the increase in bridal pregnancy

has been concentrated among marriages involving women without a college degree. The

proportion pregnant at marriage increased roughly two-fold across the three marriage cohorts

among women with a high school education (from .12 to .22) or less (from .17 to .40). In

contrast, the prevalence of bridal pregnancy increased only slightly among junior college

graduates (from .11 to .14) and remained constant at .08-.09 for university graduates. These

changes in the prevalence of bridal pregnancy among women with post-secondary education are not statistically significant. Tabulations by age (not shown) indicate that bridal pregnancy is also increasingly concentrated among women who marry young.

[Table 1 about here]

The lower panel of Table 1 presents the distribution of educational pairings by pregnancy status at marriage, educational attainment, and marriage cohort. These figures show that educational pairing patterns associated with bridal pregnancies have become progressively distinct from those of other marriages at all levels of education. In particular, it is clear that bridal pregnancy is increasingly associated with a lower likelihood of "marrying well." Relative to their counterparts who married before pregnancy, junior high school graduates pregnant at marriage are increasingly likely to marry another junior high school graduate rather than a man with more education. Among women with at least a high school degree, the relative likelihood of marrying a man with less education has increased sharply among bridal pregnancies. Change was particularly pronounced for marriages taking place in the 1990s. For example, among high school graduates marrying while pregnant in the 1990s, 16% married a man who had not completed high school. This is nearly three times higher than the prevalence of educational hypogamy among those not pregnant at marriage. For junior college/vocational school graduates, over half (55%) of those who were pregnant at marriage married someone with less education than themselves. This is 60% higher than the proportion of hypogamous marriages among women who were not pregnant at marriage (34%). Among recently married university graduates, 33% of marriages preceded by pregnancy were educationally hypogamous whereas only 16% of those not pregnant at marriage married a man with less education than themselves. In sum, the patterns of cohort change described in Table 1 indicate that bridal pregnancy is

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increasingly concentrated among women without college education and is increasingly associated with less favorable educational pairings for women at all levels of education. To assess the statistical significance of relationships between premarital pregnancy and spouse pairing, we now turn to results of the multivariate models.

Table 2 describes characteristics of the analytic sample by marriage cohort. The first three rows indicate that the proportions of women marrying men with more and less education than themselves both increased slightly across marriage cohorts. The next two rows depict the increase in bridal pregnancy from 12% to 17%. Cohort trends in other variables reflect rapid social and demographic change in Japan over the past several decades. The mean age at marriage increased by over two years and the standard deviation in age at marriage increased from 2.6 years to 3.8 years. The increase in educational attainment has been dramatic – three-fourths of women in the 1970s marriage cohort had a high school education or less whereas over half of those marrying in the 1990s had completed a post-secondary degree. Women without a high school degree have become a very small, and presumably more select, group. Rapid fertility decline is reflected in declining sibship size – the proportion of only children increased by 50% while the proportion of eldest daughters with no brothers nearly doubled from 8% to 15%. Premarital living arrangements remained very stable, with roughly two-thirds of women in all cohorts coresiding with parents prior to marriage. Spouses in more recent cohorts were far less likely than their predecessors to meet their husband via arranged marriage (*miai*) and are more likely to meet at school, work, or via friends and siblings. Finally, the increase in divorce is apparent from increases in the proportions of women paired with previously married men.

[Table 2 about here]

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Table 3 presents results of models 1 and 2 separately for women at each level of educational attainment. We consider the results of model 1 first. For junior high school graduates, pregnancy status at marriage is unrelated, on average, to the odds of marrying a man with more education rather than one with the same level of education. Among women with a high school degree, however, those who married while pregnant are significantly more likely to marry men with less education and significantly less likely to marry men with more education than themselves relative to marrying homogamously (odds ratios are 1.43 and 0.71, respectively).

[Table 3 about here]

Results are similar for women with post-secondary education. Relative to their counterparts not pregnant at marriage, junior college graduates pregnant at marriage were 43% more likely to marry homogamously and 80% more likely to marry a man with a high school education or less rather than marrying a university graduate. Among university graduates, the odds of marrying hypogamously rather than marrying another university graduate were 76% higher if the marriage was preceded by pregnancy. These results suggest that for all women except those who did not complete high school, premarital pregnancy is associated with less favorable educational pairings. This pattern is consistent with a scenario in which many unplanned or unexpected premarital pregnancies result in marriages to couples who might not have married otherwise, with potential implications for subsequent marital stability.

Coefficients for marriage cohort indicate that educational hypogamy has become less prevalent among women with a high school education and more prevalent among women with a college degree. These cohort differences reflect (a) a decline in the proportion of men who do not finish high school, (b) large relative improvements in women's educational attainment that

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have increased the numerical difficultly for highly educated women to marry university educated men (Raymo and Iwasawa 2005), and perhaps (c) changes in spouse pairing preferences (Raymo and Xie 2000).

Estimated coefficients for the background variables indicate that the likelihood of marrying a "less desirable" partner is generally higher among women who did not coreside with their parents prior to marriage, those who met their spouse via friends or siblings, and those whose husband was previously married. Not surprisingly, marriages are much more likely to be educationally homogamous if the couple met at school. Interestingly, less educated women who met their spouse via *miai* are more likely than women who met their husbands at work to marry hypogamously with respect to education whereas university graduates are significantly less likely to marry down when meeting via *miai*. Sibship position is largely unrelated to patterns of educational pairing.

Likelihood ratio tests comparing model 2 to model 1 indicate that the relationship between premarital pregnancy and educational pairing has changed among high school graduates and junior college graduates, but not among junior high school graduates or university graduates. Among women in the lowest educational category, neither of the interaction coefficients in model 2 approaches statistical significance. Bridal pregnancy is unrelated to educational pairing in all three marriage cohorts. Among high school graduates, however, the association between bridal pregnancy and less favorable pairings is significantly stronger in more recent marriage cohorts. The odds of marrying a man with less education rather than a man with similar education were 65% higher for pregnant high school graduates marrying in the 1990s relative to their counterparts marrying in the 1970s. Similarly, the odds of marrying a man with more education (relative to a man with the same education) were roughly 30% lower in the 1980s and

1990s than in the 1970s. A similar pattern is observed among junior college graduates. Relative to their counterparts marrying in the 1970s, women who married subsequent to pregnancy in the 1990s were more likely to marry a man with similar or lower education rather than a university graduate. Only the latter coefficient is statistically significant at p < .10, however. For university graduates, the pattern is similar but the coefficient associated with the odds ratio of 2.49 for hypogamous marriages preceded by pregnancy in the 1990s is statistically significant only at p < .10. In sum, it is clear that bridal pregnancy is associated with less desirable educational pairings for women in all but the lowest educational category and it appears that this relationship has become stronger over time.

Discussion and Conclusion

As the only industrialized society in which almost all childbearing takes place within marriage, Japan is a largely untapped and potentially very rich source of insight into contextual influences on the pace, nature, and implications of family change in low-fertility societies. In this paper, we have focused on recent increases in bridal pregnancy in Japan to evaluate the generality of two widely discussed aspects of the rise in nonmarital childbearing in the US – the increasing concentration of non-normative patterns of family formation among women with fewer socioeconomic resources and the potentially negative implications of these non-normative outcomes for the well-being of women and children. Discussion of marriage promotion in the U.S. suggests, at least implicitly, that differentials in the well-being of women and children be less pronounced in societies where the link between childbearing and marriage remains strong.

Borrowing insights from a recent study by Qian, Lichter, and Mellott (2005), we evaluate this premise indirectly by comparing patterns of spouse pairing in bridal pregnancies and marriages prior to pregnancy. The results of our analyses are very clear. Like nonmarital

childbearing in the U.S., bridal pregnancy in Japan is increasingly concentrated among women with lower levels of educational attainment and is increasingly associated with a lower likelihood of marrying "well" with respect to education. These changes were particularly pronounced for marriages taking place in the 1990s. Subsequent extensions of our analyses should evaluate the extent to which this evidence of change in the 1990s reflects the impact of short-term economic influences on marriage behavior rather than longer-term changes in the underlying relationships between sexual behavior, pregnancy, and marriage.

The increasing association between bridal pregnancy and less-desirable spouse pairings is important to the extent that such pairings have implications for other family outcomes such as divorce. Currently, one-third of Japanese marriages are projected to end in divorce and there is some evidence that, like bridal pregnancy, divorce is increasingly concentrated among the less educated (Raymo, Iwasawa, and Bumpass 2004). Unfortunately, currently available data do not allow for analysis of direct indicators of subsequent well-being such as marital quality, divorce, and children's educational and behavioral outcomes. This is an important shortcoming of our study given that we are ultimately interested not in spouse pairing patterns per se but rather in the implications of differentials in spouse pairing patterns for differentials in the subsequent well-being of women and children. Nevertheless, our indirect evidence provides an important basis for speculation given the strong link between men's educational attainment and subsequent earnings potential in Japan (Ishida 1998) and the large body of existing research establishing the positive implications of economic resources for both marital stability and children's outcomes (McLanahan and Sandefur 1994; Oppenheimer 1994). Our findings provide initial and provocative indications that continued strength of the link between marriage and childbearing in

societies such as Japan may not mitigate the differential implications of rapid family change for the well-being of women and children (McLanahan 2004).

We conclude by emphasizing the need for further research designed to empirically establish relationships between bridal pregnancy and indicators of subsequent well-being in Japan. Understanding these relationships is important to the extent that such information influences people's perceptions of the desirability of marriage in response to pregnancy. Our results suggest that the proportion of marriages preceded by pregnancy is rising because sexual behavior is changing faster than attitudes regarding the importance of marriage for childbirth. In contrast, the rapid increase in nonmarital fertility in the U.S. has been associated with substantial changes in perceptions about the value of early marriage in response to pregnancy (Furstenberg 1988). It is worth noting, however, that one recent study shows that only 56% of Japanese women (age 15-79) agreed that single women who become pregnant should marry (Cabinet Office 2005). The fact that 35% were undecided and another 9% disagreed suggests that social acceptance of nonmarital childbearing may already be greater than is typically believed.

If subsequent studies show bridal pregnancies to be associated with less stable marriages and less favorable child outcomes, and if knowledge of these relationships became widespread, we would expect a decline in the propensity to marry in response to unplanned pregnancy. The implications of such change for fertility, for women's life course trajectories, and perhaps for the well-being of children in Japan depend on the relative importance of emerging alternatives to "shotgun marriages." We suggest two possible scenarios.

If decline in the propensity to marry in response to unplanned pregnancy is manifested primarily in an increased willingness on the part of women to raise children on their own (presumably with parental support), then we might expect an increase in the prevalence of

nonmarital childbearing. Changing norms, increasing economic independence for women, and policy efforts designed to facilitate women's ability to balance work and family all suggest the possibility of this scenario. This pattern of change would be consistent with trends observed in the U.S. and many other low fertility countries but would represent a dramatic break from recent Japanese family patterns. However, if a decline in couples' willingness to marry in response to pregnancy is manifested primarily in an increased propensity to abort unplanned pregnancies or to practice more effective contraception, we might expect further decline in fertility in Japan. The fact that one in five first births is currently due to premarital pregnancy points to the importance of unplanned pregnancy in preventing further decline in Japan's period fertility rate.

Empirically establishing the relevance of these alternative scenarios is important for evaluating the generality of patterns of family change observed in the west and for speculating about subsequent patterns of family change in other low-fertility societies in Asia. Documenting and comparing subsequent changes in Japan and other geographically proximate settings such as Korea, Taiwan, and Singapore where fertility is low, marriage is late, nonmarital childbearing is uncommon, and social support for single mothers is perhaps even weaker than in Japan would provide valuable insights into the generality of patterns of family change documented in studies of low-fertility western industrialized countries. On the one hand, evidence of increasing levels of nonmarital fertility, concentrated among those with more limited resources, would provide powerful evidence of the generality of patterns of change observed in the West and of the universal influence of purported social, economic, and ideational forces of change (Lesthaeghe 1995, 1998). On the other hand, evidence that the spread of nonmarital fertility is limited, that socioeconomic differentials are minor, and that implications for the well-being of women and children are less pronounced than in the west would provide important insights into contextual

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conditions that moderate the influence of social and economic forces thought to underlie the

dramatic family transformations observed in the U.S. and Europe.

References

Amato, P. R. & Booth, A. (1997). *A Generation at Risk: Growing Up in an Era of Family Upheaval*. Cambridge, MA: Harvard University Press.

Brinton, M. C. (1992). Christmas Cakes and Wedding Cakes: The Social Organization of Japanese Women's Life Course. In T. S. Lebra (Ed.), *Japanese Social Organization* (pp. 79-107). Honolulu, HI: University of Hawaii Press.

Brinton, M. C. (2001). Married Women's Labor in East Asian Economies. In M. C. Brinton (Ed.), *Women's Working Lives in East Asia* (pp. 1-37). Stanford, CA: Stanford University Press.

Burtless, G. (1999). Effects of Growing Wage Disparities and Changing Family Composition on the US Income Distribution. *European Economic Review 43*, 853-865.

Cabinet Office. (2005). *Heisei 16nendo Kokumin Seikatsu Senkōdo Chōsa* [*2004 National Survey on Lifestyle Preferences*]. Tokyo: Cabinet Office, Government of Japan.

Cancian, M. & Reed, D. (2001). Changes in Family Structure: Implications for Poverty and Related Policy. In S. H. Danziger & R. H. Haveman (Eds.), *Understanding Poverty* (pp. 69-96). New York: Russell Sage Foundation.

Cherlin, A. J. (1999). Going to Extremes: Family Structure, Children's Well-Being, and Social Science. *Demography 36*, 421-428.

Ellwood, D .T. & Jencks, C. (2004). The Uneven Spread of Single-Parent Families: What do We Know? Where Do We Look for Answers? In K. M. Neckerman (Ed.), *Social Inequality* (pp. 3-77). New York: Russell Sage Foundation.

Furstenberg, F. F. (1988). Bringing Back the Shotgun Wedding. *Public Interest 90*, 121-127.

Goto, A., Fujiyama-Koriyama, C. & Reich, M.R. (2000). Abortion Trends in Japan, 1975-95. *Studies in Family Planning 31*, 301-308.

Heuveline, P.,Timberlake, J. M., & Furstenberg Jr., F. F. (2003). Shifting Childrearing to Single Mothers: Results from 17 Western Countries. *Population and Development Review 29*, 47-71.

Hodge, R. W. & Ogawa, N. (1991). *Fertility Change in Contemporary Japan*. Chicago: University of Chicago Press.

Ishida, H. (1998). Educational Credentials and Labour-Market Entry Outcomes in Japan. In Y. Shavit & W. Muller (Eds.), *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations* (pp. 287-310). Oxford, England: Clarendon Press.

Iwasawa, M. (2005). Nihon ni okeru Dōsei no Genjō [Unmarried Cohabitation in Japan]. In Mainichi Newspaper Population Research Council (Ed.), *Chōshōshika Jidai no Kazoku Ishiki* [*Family Attitudes in an Era of Lowest-Low Fertility*] (pp. 71-106). Tokyo: Mainichi Shimbunsha.

Iwasawa, M. & Raymo, J. M. (2005). Invisible Nonmarital Fertility: Increase in Marriages Preceded by Pregnancy in Japan. In S. Takahashi (Ed.), *Shōshika no Shinkyokumen to Kazoku-Rōdō Seisaku no Taiō ni Kansuru Kenkyū* [*Research on Work and Family Policies in the Context of Low Fertility*] (pp. 159-168). Tokyo: National Institute of Population and Social Security Research.

Japan Association for Sex Education. (2000). *Seishōnen no Seikōdō: Wagakuni no Chūgakusei, Kōkōsei, Daigakusei ni kansuru Dai5kai Chōsa Hōkoku* [*Sexual Behavior among the Youth: The Fifth Survey of Junior High School, High School, and University Students in Japan*]. Tokyo: Japan Association for Sex Education.

Japan Association for Sex Education. (2005) *Dai2kai Danjo no Seikatsu to Ishiki ni kansuru Chōsa Hōkokusho* [*Report on the Second Survey of Men's and Women's Lifestyles and Attitudes*]. Tokyo: Japan Association for Sex Education.

Japan Institute for Labor Policy and Training. (2001). *Boshi Setai no Haha he no Shūgyō Shien ni kansuru Chōsa Kekka no Gaiyō* [*Summary of Results from the Survey on Employment Support for Single Mothers*]. Tokyo: Japan Institute for Labor Policy and Training. http://www.jil.go.jp/mm/siryo/20011010b.html.

Kaneko, R. & Mita, F. (1988). Kekkon no Seimeihyō: Shōwa 50nen, 55nen, 60nen [Marital Status Life Tables: 1975, 1980, 1985] *Journal of Population Problems No.187*, 57-66.

Kiernan, K. (2001). European Perspectives on Union Formation. In L. J. Waite (Ed.) *The Ties That Bind: Perspectives on Marriage and Cohabitation* (pp. 40-58). New York: Aldine de Gruyter.

Kurokawa, K. (2007) Jūdai Josei no Seikōdō to Kankyō Yōin ni Kansuru Zenkokuchosa [National Survey on the Sexual Behavior of Teenage Girls] In K. Kurokawa (Ed.), *Sukoyaka Oyako 21 wo Suishin suru tame no Takikan Kyōdo ni yoru Mondai Kaiketsugata Apuro-chi to Hyōka ni kansuru Kenkyū* [*Multigroup Research on Problem Solving and Evaluation for the Promotion of Healthy Parent-Child Relations*], Tokyo: Kodomo Katei Sōgō Kenkyūjyo.

Kongaishi Sabetsu to Tatakau Kai (Association for the Opposition to Discrimination against Children Born Outside of Marriage) ed. (2004). *Hikon no Oya to Kongaishi:Sabetsu naki Asu ni Mukatte* [*Toward a Future without Discrimination Against Unmarried Parents and their Children*]. Tokyo: Aoki Shoten.

Kosugi, R. (2001). The Transition from School to Work in Japan: Understanding the Increase in *Freeter* and Jobless Youth. *Japan Labor Review 1*, 52-67.

Lesthaeghe, R. (1995). The Second Demographic Transition—An Interpretation. In K. O. Mason & A.-M. Jensen (Eds.), *Gender and Family Change in Industrial Countries* (pp. 17-62). Oxford, U.K.: Clarendon Press.

Lesthaeghe, R. (1998). On Theory Development and Applications to the Study of Family Formation. *Population and Development Review 24*, 1-14.

Lewis, S. K. & Oppenheimer, V. K. (2000). Educational Assortative Mating Across Marriage Markets: Non-Hispanic Whites in the United States. *Demography 37*, 29-40.

Lichter, D.T. & Graefe, D.R. (2001). Finding a Mate? The Marital and Cohabitation Histories of Unwed Mothers. In L. L. Wu & B. Wolfe (Eds.), *Out of Wedlock: Causes and Consequences of Nonmarital Fertility* (pp. 317-343). New York: Russell Sage Foundation.

Manning, W. D., Smock, P. J. & Majumdar, D. (2004). The Relative Stability of Cohabiting and Marital Unions for Children. *Population Research and Policy Review 23*, 135-159.

Mare, R. D. (1991). Five Decades of Assortative Mating. *American Sociological Review 56*, 15-32.

Martin, M. A. (2006). Family structure and income inequality in families with children, 1976 to 2000. *Demography 43*, 421-445.

McLanahan, S. (2004). Diverging Destinies: How Children Fare Under the Second Demographic Transition. *Demography 41*, 607-627.

McLanahan, S. & Sandefur, G. (1994). *Growing Up With a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press.

Ministry of Health Labour and Welfare. (2004a). *Boshi Katei no Haha Shūgyō Shien Shisaku no Jisshi Jōkyō* [*Implementation of Employment Support Policies for Single Mothers*]. Tokyo: Ministry of Health, Labour and Welfare. http://www.mhlw.go.jp/wp/hakusyo/boshi/05/index.html.

Ministry of Health Labour and Welfare. (2004b). *Hoken Eisei Gyōsei Gyōmu Hōkoku* [*Report on Public Health Administration and Services*]. Tokyo: Ministry of Health, Labour and Welfare.

Ministry of Health Labour and Welfare. (2005). *Zenkoku Boshi Setai Chōsa* [*National Survey of Single-mother Households*]. Tokyo: Ministry of Health, Labour and Welfare. http://wwwdbtk.mhlw.go.jp/toukei/kouhyo/indexkk_26_2.html.

Morgan, S. P., Rindfuss, R. R. & Parnell, A. (1984). Modern Fertility Patterns: Contrasts Between the United States and Japan. *Population and Development Review 10*, 19-40.

National Institute of Population and Social Security Research. (2002). *Nihon No Shōrai Suikei Jinkō: 2001-2050* [*Population Projections for Japan: 2001-2050*]. Tokyo: National Institute of Population and Social Security Research.

National Institute of Population and Social Security Research. (2003). *Wagakuni Fūfu no Kekkon Katei to Shusshōryoku* [*Marriage Process and Fertility of Japanese Married Couples*]. Tokyo: National Institute of Population and Social Security Research.

National Institute of Population and Social Security Research. (2004). *Wagakuni Dokushinsō No Kekkonkan to Kodomokan* [*Attitudes toward Marriage and the Family among Japanese Singles*]. Tokyo: National Institute of Population and Social Security Research.

National Institute of Population and Social Security Research. (2006). *Jinkō Tōkei Shiryoshū* [*Latest Demographic Statistics*]. Tokyo: National Institute of Population and Social Security Research.

Ohtake, F. (2005). *Nihon no Fubyōdō: Kakusa Shakai no Gensō to Mirai* [*Inequality in Japan: The Illusion and the Future of Unequal Society*]. Tokyo: Nihon Keizai Shimbunsha.

Oppenheimer, V. K. (1994). Women's Rising Employment and the Future of the Family in Industrial Societies. *Population and Development Review 20*, 293-342.

Oppenheimer, V. K., Kalmijn, M. & Nelson Lim, N. (1997). Men's Career Development and Marriage Timing During a Period of Rising Inequality. *Demography 34*, 311-330.

Peng, I. (1997). Single Mothers in Japan: Unsupported Mothers Who Work. In S. Duncan & R. Edwards (Eds.), *Single Mothers in an International Context: Mothers or Workers?* (pp. 115-148). London: UCL Press.

Qian, Z., Lichter, D. T. & Mellott, L. M. (2005). Out-of-Wedlock Childbearing, Marital Prospects and Mate Selection. *Social Forces 84*, 473-491.

Raymo, J. M. (2003). Educational Attainment and the Transition to First Marriage among Japanese Women. *Demography 40*, 83-103.

Raymo, J. M. & Iwasawa, M. (2005). Marriage Market Mismatches in Japan: an Alternative View of the Relationship Between Women's Education and Marriage. *American Sociological Review 70*, 801-822.

Raymo, J. M. & Iwasawa, M. (forthcoming). Changing Family Life Cycle and Partnership Transition – Gender Roles and Marriage Patterns. In The German Institute of Japanese Studies (Ed.) *The Demographic Challenge: A Handbook about Japan*. Leiden, Netherlands: Brill Academic Publishers.

Raymo, J. M., Iwasawa, M. & Bumpass, L. (2004). Marital Dissolution in Japan: Recent Trends and Patterns. *Demographic Research 11*, 395-419.

Raymo, J. M., Iwasawa, M. & Bumpass, L. (2006). Unmarried Cohabitation and Family Formation in Japan. Paper presented at the annual meeting of the Population Association of America. Los Angeles, CA (March 30-April 1).

Raymo, J. M. & Xie, Y. (2000). Temporal and Regional Variation in the Strength of Educational Homogamy (Comment on Smits, Ultee, and Lammers, ASR 1998). *American Sociological Review 65*, 773-781.

Retherford, R. D., Ogawa, N. & Matsukura, R. (2001). Late Marriage and Less Marriage in Japan. *Population and Development Review 27*, 65-102.

Sasai, T. (2004). Kinnen no Fūfu Shusshōryoku Teika no Dōkō to sono Haikei [Fertility Decline among Married Couples and its Context in Contemporary Japan]. *Journal of Population Problems 60(1),* 36-49.

Sasai, T. (2007). Oya tono Dōbekkyo [Coresidence with Parents] In National Institute of Population and Social Security Research (Ed.), *Wagakuni Dokushinsō No Kekkonkan to Kodomokan* [*Attitudes toward Marriage and the Family among Japanese Singles*] (pp. 76-80). Tokyo: National Institute of Population and Social Security Research.

Sato, R. & Iwasawa, M. (2001). Contraceptive Use in Japan: 1987-1997. Paper resented at the annual meeting of the Population Association of America. Washington, D.C. (March 29-31).

Sigle-Rushton, W. & McLanahan, S. (2002). Richer or Poorer? Marriage as an Anti-Poverty Strategy in the United States. *Population* 57, 519-538.

Teachman, J. D. (2002). Stability Across Cohorts in Divorce Risk Factors. *Demography 39*, 331-351.

Tsuya, N. (2006). Wagakuni ni okeru Kazoku Keisei no Pataan to Henyō [Patterns and Covariates of Partnership Formation]. *Journal of Population Problems 62(1-2)*, 1-19.

Tsuya, N. O., Mason, K.O. & Bumpass, L. L. (2004). Views of Marriage Among Never-Married Young Adults. In N. O. Tsuya & L. L. Bumpass (Eds.), *Marrriage, Work, and Family Life in Comparative Perspective: Japan, South Korea, and the United States* (pp. 39-53). Honolulu, HI: East-West Center.

Ventura, S. J. & Bachrach, C.A. (2000). Nonmarital Childbearing in the United States, 1940-99. *National Vital Statistics Reports* 48(16). Washington, D.C.: National Center for Health Statistics.

Waite, L. J. & Gallagher, M. (2000). *The Case for Marriage: Why Married People are Happier, Healthier, and Better Off Financially*. New York: Doubleday.

Yamada, M. (1996). *Kekkon No Shakaigaku* [*The Sociology of Marriage*]. Tokyo: Maruzen.

Yoshizumi, K. (1995). Marriage and Family: Past and Present. In K. Fujimura-Fanselow & A. Kameda (Eds.) *Japanese Women: New Feminist Perspectives on the Past, Present, and Future* (pp. 183-197). New York: The Feminist Press at the City University of New York.

Table 1: Distributions of Pregnancy Status at Marriage and Spouse Pairing, by Educational Attainment and Marriage Cohort

Tabulation of Pregnancy Status at Marriage, by Educational Attainment and Marriage Cohort

Marriage Cohort	1970-1979		1980-1989		1990-2002		Total	
Pregnancy Status at Marriage	Pregnant	Not Pregnant	Pregnant	Not Pregnant	Pregnant	Not Pregnant	Pregnant	Not Pregnant
Educational Attainment								
Junior High School	0.17	0.83	0.25	0.75	0.40	0.60	0.21	0.79
High School	0.12	0.88	0.19	0.81	0.22	0.78	0.17	0.83
Junior College/Vocational	0.11	0.89	0.13	0.87	0.14	0.86	0.12	0.88
University	0.09	0.91	0.09	0.91	0.08	0.92	0.09	0.91

Tabulation of Educational Pairing, by Educational Attainment, Pregnancy Status at Marriage, and Marriage Cohort

Spouse Pairing								
Junior High School								
Homogamous	0.53	0.59	0.44	0.45	0.41	0.35	0.48	0.54
Female Hypergamous	0.47	0.41	0.56	0.55	0.59	0.65	0.52	0.46
High School								
Female Hypogamous	0.18	0.14	0.12	0.08	0.16	0.06	0.15	0.10
Homogamous	0.60	0.61	0.65	0.59	0.64	0.60	0.63	0.60
Female Hypergamous	0.22	0.25	0.22	0.33	0.19	0.34	0.22	0.30
Junior College/Vocational								
Female Hypogamous	0.50	0.37	0.44	0.35	0.55	0.34	0.33	0.35
Homogamous	0.15	0.14	0.17	0.15	0.20	0.19	0.18	0.16
Female Hypergamous	0.35	0.49	0.39	0.50	0.25	0.47	0.49	0.49
University								
Female Hypogamous	0.11	0.11	0.22	0.12	0.33	0.16	0.23	0.13
Homogamous	0.89	0.89	0.78	0.88	0.67	0.84	0.77	0.87

Table 2: Sample Characteristics, by Marriage Cohort

	Marriage Cohort			
Variable	1970-1979	1980-1989	1990-2002	Total
Educational Pairing				
Female hypogamous	16.8	18.1	20.5	18.2
Homogamous	52.8	47.5	46.8	49.3
Female hypergamous	30.5	34.4	32.7	32.5
Pregnancy Status at Marriage				
Not pregnant	88.0	83.8	82.6	85.1
Pregnant	12.1	16.2	17.4	14.9
Age at Marriage				
Mean	23.5	24.8	25.9	24.6
s.d.	2.6	3.3	3.8	3.3
Educational Attainnment				
Junior High School	14.6	5.2	3.5	8.4
High School	59.3	50.1	43.5	52.0
Junior College/Vocational School	19.9	33.2	38.8	29.5
University	6.1	11.5	14.2	10.1
Sibship Position				
Only Child	3.9	5.9	6.0	5.2
Eldest daughter - no brothers	7.9	13.7	15.4	11.9
Other	88.3	80.4	78.6	83.0
Premarital Living Arrangements				
Coresiding with parents	68.0	68.9	66.3	67.9
Not coresiding with parents	32.0	31.1	33.7	32.1
Place of Meeting				
School	4.8	7.9	9.2	7.1
Work	41.0	41.1	47.9	42.7
Via friends or siblings	19.1	22.7	26.8	22.3
Arranged marriage	31.0	22.8	10.8	23.1
Chance meeting	4.2	5.4	5.3	4.9
Husband's marital history				
First marriage	97.6	96.4	94.3	96.3
Not first marriage	2.5	3.6	5.7	3.7
N	10,142	10,270	6,333	26,745

Table 3: Odds Ratios from Multinomial Logistic Models of Educational Pairing

Educational Attainment	**Junior High School**		**High School**			
Educational Pairing (vs. Homogamy)	Hypergamy		Hypogamy		Hypergamy	
Model	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Pregnancy Status at Marriage						
Not pregnant (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Pregnant	1.08	1.13	1.43 **	1.32 *	0.71 **	0.91
Marriage Cohort						
1970-79 (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
1980-89	1.56 **	1.56 **	0.64 **	0.65 **	1.21 **	1.26 **
1990-97	2.03 **	2.24 **	0.61 **	0.51 **	1.09	1.14 *
Pregnancy Status x Marriage Cohort						
1970-79 x Pregnant (omitted)		1.00		1.00		1.00
1980-89 x Pregnant		0.98		0.95		0.71 **
1990-97 x Pregnant		0.77		1.65 **		0.67 **
Age at Marriage	1.20 *	1.19 *	0.64 **	0.64 **	1.25 **	1.24 **
Age at Marriage squared	1.00	1.00	1.01 **	1.01 **	1.00 **	1.00 **
Sibship Position						
Only Child	1.00	0.99	0.88	0.88	0.94	0.94
Eldest daughter - no brothers	1.27	1.27	1.07	1.08	0.97	0.97
Other (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Premarital Living Arrangements						
Coresiding with parents (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Not coresiding with parents	0.76 **	0.76 **	1.23 **	1.23 **	0.87 **	0.87 **
Place of Meeting						
School	0.63	0.63	0.47 **	0.47 **	0.69 **	0.69 **
Work (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Via friends or siblings	0.53 **	0.53 **	1.57 **	1.57 **	0.76 **	0.76 **
Arranged marriage	0.40 **	0.40 **	1.82 **	1.81 **	0.65 **	0.65 **
Chance meeting	0.88	0.88	1.83 **	1.83 **	0.85 *	0.86 *
Husband Previously Married						
No (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Yes	0.94	0.94	2.53 **	2.52 **	0.66 **	0.66 **
N	2,180	2,180	13,719	13,719		
df	13	15	26	30		
chi-square	133.84	134.49	751.50	772.46		
LR test (p)		0.72		0.00		

**p<.01, *p<.05, +p <.10

Table 3 (continued): Odds Ratios from Multinomial Logistic Models of Educational Pairing

Educational Attainment	**Junior College/Vocational School**				**University**	
Educational Pairing (vs. Homogamy)	Hypogamy[a]		Homogamy[a]		Hypogamy	
Model	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Pregnancy Status at Marriage						
Not pregnant (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Pregnant	1.80 **	1.77 **	1.43 **	1.35	1.76 **	0.89
Marriage Cohort						
1970-79 (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
1980-89	1.00	1.03	1.12	1.12	1.37 +	1.26
1990-97	1.16 *	1.10	1.53 **	1.48 **	1.77 **	1.59 *
Pregnancy Status x Marriage Cohort						
1970-79 x Pregnant (omitted)		1.00		1.00		1.00
1980-89 x Pregnant		0.80		0.94		2.12
1990-97 x Pregnant		1.45 +		1.34		2.49 +
Age at Marriage	0.50 **	0.50 **	0.51 **	0.51 **	0.57 **	0.57 **
Age at Marriage squared	1.01 **	1.01 **	1.01 **	1.01 **	1.01 **	0.91 **
Sibship Position						
Only Child	1.22 +	1.22 +	0.90	0.90	0.78	0.78
Eldest daughter - no brothers	1.07	1.07	0.93	0.93	0.91	0.91
Other (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Premarital Living Arrangements						
Coresiding with parents (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Not coresiding with parents	1.35 **	1.35 **	1.40 **	1.39 **	1.06	1.07
Place of Meeting						
School	0.95	0.95	1.82 **	1.82 **	0.19 **	0.19 **
Work (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Via friends or siblings	1.64 **	1.64 **	1.29 **	1.29 **	1.08	1.08
Arranged marriage	0.98	0.98	0.77 **	0.77 **	0.49 **	0.49 **
Chance meeting	1.65 **	1.65 **	0.80	0.80	1.18	1.18
Husband Previously Married						
No (omitted)	1.00	1.00	1.00	1.00	1.00	1.00
Yes	1.93 **	1.92 **	0.91	0.91	2.52 **	2.55 **
N	7,801	7,801			2,673	2,673
df	26	30			13	15
chi-square	497.24	507.79			158.72	161.84
LR test (p)		0.03				0.21

**p<.01, *p<.05, +p <.10

a: reference pairing for junior college/vocational school graduates is hypergamy