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Women's Age at First Marriage and Marital Instability:  
Further Evidence on the Becker-Landes-Michael Hypothesis

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## **ABSTRACT**

In their pioneering research, Becker, Landes and Michael (1977) found that beyond age 30 there is a positive relationship between women's age at first marriage and marital instability. They interpreted this finding as evidence of a "poor-match" effect emerging as the biological clock begins to tick. In analyses of the 2006-2010 National Surveys of Family Growth (NSFG), we find evidence of the existence of this effect: women who delay marriage disproportionately make unconventional matches, which are generally associated with high marital instability. We also find, however, that their unions are very solid. We develop and test competing hypotheses that can account for these patterns. In addition, noting that women's delayed entry into marriage has been accompanied by higher proportions of women entering marriage with 16 years of schooling or more, we examine changes across the last three NSFG cycles in the education – marital instability association.

Key words: divorce, marital instability, marriage dissolution, union dissolution, age at marriage

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## 1. INTRODUCTION

The steady increase in age at first marriage has been one of the most salient demographic trends in the U.S. landscape in recent decades. The median age rose from 20 and 23 for women and men, respectively, in 1950-1960, to 26 and 28 in 2010 (U.S. Census Bureau 2010). Several factors contributed to this trend, including the development of oral contraception and the legalization of abortion, the growth in cohabitation, changes in household technology, and the decline in the male-female wage gap (Goldin & Katz 2002; Cherlin 2004; Greenwood & Guner 2008; Isen & Stevenson 2011). An important issue concerns the implications that this pattern of delayed entry into first marriage may have for marital stability. The present paper examines this question, focusing on women's age at first marriage.

Becker's (1973) seminal research on the economics of marriage found that in the optimal sorting there is positive assortative mating for traits that are complementary within the context of marriage (e.g., education, religion, ethnicity) and negative assortative mating for those that are substitutes (e.g., productivity characteristics). Subsequent research developed the idea that when such sorting does not occur along important dimensions, so that there is a mismatch and the resulting gains from marriage are low, the outcome is a high probability of divorce (Becker et al. 1977; Becker 1990). Expanding on these insights, Oppenheimer (1988) advanced the notion of a "maturity effect." This effect postulates that marriages contracted at an early age are at higher risk of disruption because they are more likely to be based on mistaken expectations. At young ages individuals have inadequate self knowledge and are uncertain about their own and their partners' potential trajectories. Moreover, some of their adult attributes have not yet emerged,

making assortative mating by such traits impossible. Thus the maturity effect, encompassing a range of factors far broader than purely emotional maturity, postulates a stabilizing influence associated with a later age at marriage.

Studies in the U.S. literature have generally estimated marital dissolution regressions in which age at first marriage is entered in a linear way, finding strong evidence of the negative relationship predicted by the maturity effect.<sup>1</sup> This research has also controlled for confounding factors, because in many respects, women who enter marriage at a later age differ from their counterparts who do so when they are younger, with varying implications for marital stability. For example, they tend to be more educated - a stabilizing influence; they are also more likely to have a child from a previous informal union - a destabilizing influence (Lehrer 2008, Lyngstad & Jalovaara 2010).

Becker et al. (1977) suggested the possibility of non-linearities, with a “poor match” effect emerging at older ages. The authors hypothesized that the ticking of the biological clock would likely lead women who reach their late twenties/thirties in the single state to revise their expectations downward and settle for a partner who is far from the optimal match, with adverse consequences for marital stability. The thinning over time of the potential partner pool is another factor that could lead to a poor match effect. If this influence is strong enough, the “total effect,” i.e., the relationship between age at first marriage and marital instability without controlling for the spouses’ characteristics at the time of marriage, would be U-shaped: after a certain point, age at marriage and the probability of dissolution would be positively related. Using data from the 1960s, Becker et al. (1977) found evidence of such U-shape, and interpreted the positive relationship emerging after age 30 as evidence of a dominant poor match effect at these later ages.

Analyses of two more recent data sets-- cycles 5 and 6 of the National Survey of Family Growth (NSFG) conducted, respectively, in 1995 and 2002-2003, found that women who delay marriage beyond the late twenties do tend to make unconventional matches (e.g., heterogamy in age, religion and education), suggesting that Becker et al.'s (1977) poor match effect is indeed present. However, the association between age at first marriage and marital instability (without controlling for the characteristics of the couple) was found to be strongly negative until the late twenties, with the curve leveling off thereafter, i.e., there is no U-shape (Lehrer 2008).

In the present study, we show that the patterns described above for cycles 5 and 6 of the NSFG are replicated in the most recent NSFG cycle (2006 - 2010), and we go on from there to develop and test competing hypotheses for explaining these findings. In addition, noting that the trend towards delayed entry into marriage has been accompanied by higher proportions of women entering marriage with 16 years of schooling or more, we examine important changes across the NSFG cycles in the female education – marital instability association.

## **2. METHODS**

Conducted by the National Center for Health Statistics, the most recent NSFG questionnaires were addressed to nationally representative samples of men and women ages 15-44 of all marital statuses living in the United States. These data were collected over an extended period 2006-2010 (henceforth referred to as cycle 7, for brevity). The present study uses the female sample (n = 12,279). As in the earlier study based on cycles 5 and 6, only non-Hispanic white women were considered.<sup>2</sup> This restriction led to a sample of n = 6,301 cases. Elimination of respondents who had never been married brought the sample to n = 3,209. After excluding observations with invalid data for the key variables, the final sample size was n = 3,184.

The associations of the wife's age at marriage and other variables with marital instability were assessed using Cox proportional hazards models. Survival time was defined as the interval between the respondent's first marriage and the date of marriage dissolution, measured at the time of separation (or divorce, for cases with missing data on date of separation). First marriages that had not been dissolved were treated as censored as of the interview date; cases of widowhood were treated as censored at date of husband's death. In addition to the coefficients, standard errors and hazard ratios, we report estimated fifth-year dissolution probabilities – the complement of the survival function evaluated at 5 years and at selected values of the explanatory variables.

Table 1 provides descriptive statistics for the variables used in the statistical analyses. The main explanatory variable – the wife's age at first marriage – was specified as a series of dummy variables. Consistent with the pattern of rising age at first marriage in recent decades, 26% of the marriages took place at age 27 or later – compared with 15% in cycle 5 and 23% in cycle 6.

We also included other variables that have been found to be risk factors for divorce in previous studies (see literature reviews by Weiss 1997; Lehrer 2003; Lyngstad & Jalovaara 2010). Among these are two characteristics of the wife's background – whether she lived in a non-intact family at age 14 and whether she was raised with no religious affiliation. Other variables indicate wife's characteristics at the time of first marriage: her education, whether she had had a child in a previous union, and a set of dummy variables indicating whether prior to the marriage she had cohabited with her spouse and/ or other partners. Finally, the analysis also includes characteristics of the husband and couple at the time of marriage: whether he had been married before, and dummy variables for race/ethnicity and age heterogamy.<sup>3</sup>

### 3. RESULTS

Table 2 reports the Cox proportional hazard regressions. Panel I, which controls only for the wife's background characteristics, provides an estimate of the influence of central interest: the total effect associated with the wife's age at first marriage. Panel II adds all the other explanatory factors.<sup>4</sup>

#### *3.1. Wife's age at first marriage*

The estimates in Panel I show that the fifth-year dissolution probability is 0.32 for women who entered first marriage before age 20, and declines steadily to 0.09 for those who did so at age 30-32. The coefficient on the 30-32 age dummy is significantly different from that for the 27-29 age dummy ( $p = 0.06$ ). The probability rises slightly to 0.11 for ages 33 and older, but the coefficient on the dummy variable for the 33 and older category is not significantly different from that for the 30-32 category. The findings for cycles 5 and 6 of the NSFG showed that the curve indicating the total effect of age at marriage on marital instability is steeply downward sloping up to the late twenties, leveling off thereafter. The present results mirror those findings with one exception: the downward slope now extends farther, to the early thirties.

The estimates of the effects of age at marriage in the Panel II specification are net of the influences of the characteristics of the wife, husband and couple at the time of marriage. The age-at-marriage – marital instability curve implied by these estimates is also downward sloping and convex, as in Panel I, but somewhat less steep.

### *3.2. Characteristics of the Wife, Husband and Couple at Marriage*

The estimated associations between the other variables and the odds of marital dissolution, shown in Panel II, are generally in accordance with earlier findings in the literature and are described briefly. Marital instability is higher among respondents with a broken family background, lending support to numerous studies that show an intergenerational transmission of marital instability (Amato 1996). The point estimate of the effect associated with being raised with no religious affiliation is positive, consistent with results for cycles 5 and 6 of the NSFG, but the influence is no longer statistically significant. The proportion of women raised with no religion rose steadily across the three cycles, from 0.06 to 0.08 and 0.10, consistent with other evidence of a growing representation of the unaffiliated in the population (Kosmin & Keysar 2006). At the same time, the “no religion” category increasingly includes people who report no religion because they have moved to individualized belief systems (Ekelund et al. 2006). The lack of significance of the religion variable may reflect these forces.

Consistent with previous findings, the likelihood of experiencing marital instability is markedly lower for women who enter first marriage with 16 years of schooling or more (McLanahan 2004), and substantially higher for those who do so having already had a child (Waite and Lillard 1991). Unions involving a husband who had been previously married are more unstable, also in accordance with previous findings (Castro-Martin and Bumpass 1989; Lehrer and Chiswick 1993).

Sharing living arrangements without the legal document of marriage may lead to behavioral changes conducive to higher marital instability (Thornton et al. 1992); other research has emphasized the role of selectivity factors (e.g., the lower commitment to marriage among



those who cohabit) in explaining the generally positive association between premarital cohabitation and likelihood of divorce found in the literature (Lillard et al. 1995; Svarer 2004). Approximately 36% of respondents in cycle 5 had shared living arrangements with their spouse prior to marriage, and by cycle 6 the figure had risen to 50%; the cycle 7 estimate presented in this paper is 58%, consistent with the notion that premarital cohabitation is now the normative path towards formal marriage (Wilcox & Marquardt 2010). Although selectivity into cohabitation has diminished considerably, Table 2 shows a significant and sizeable destabilizing effect associated with cohabitation with the spouse only. A similar finding of lack of convergence was reported in comparisons covering marriages contracted over the period 1950-1984 (Teachman 2002). Approximately 13% of the cycle 7 sample reported having cohabited with the husband and also others, and another 3% with others only; no significant effects can be discerned in connection with these variables.

Earlier research has found that race/ ethnicity heterogamy has increased in recent decades, reflecting a more tolerant social environment (Amato et al. 2003). Consistent with these findings, 7% of marriages were heterogamous in race/ ethnicity in cycle 5, with an increase to 8% and 9% in cycles 6 and 7, respectively. At the same time, Table 2 shows evidence of a continued large destabilizing effect associated with race/ ethnicity heterogamy.

With regard to age differences between the spouses, there was an increase over the cycles in the proportion of couples with the husband older than the wife by 6 years or more, from 14% in cycle 5 to 16% in cycle 6 and 19% in cycle 7. Theory predicts a positive sign for the effect of age heterogamy on marital instability (Becker 1990). However, the sign for this form of age heterogamy actually ranges in earlier studies from significantly negative to significantly positive (Lehrer 1996; Heaton 2002; Teachman 2002), possibly reflecting differences across studies in

model specifications and related omitted variables biases (Lehrer 2008). The cycle 6 estimates suggest that marital instability for these couples was lower than for their age-homogamous counterparts; no significant effects could be discerned in the cycle 5 data and in the cycle 7 data analyzed here.

There was also an increase in the percentage of couples in which the wife was older than the husband by 3 years or more, from 2% in cycle 5 to 4 % in cycles 6 and 7, lending support to other research showing an increased prevalence of this particular form of age heterogamy as women have come to enjoy more equal opportunities in the labor market (Coles & Francesconi 2011). But as Table 2 shows, this form of age heterogamy continues to be associated with a sizeable increase in the probability of marital dissolution.

### ***3.3. Age at Marriage and Characteristics of the Match***

Table 3 displays selected characteristics of the respondents and their partners by the wife's age at first marriage. Women who enter marriage in their late twenties or after are more likely than their counterparts who do so earlier to have completed 16 years of schooling or more, by a wide margin. Although cycle 7 of the NSFG does not contain information on the husband's education, patterns of assortative mating by education suggest that their husbands likely had high levels of schooling also (Kalmijn 1991; Fernandez & Rogerson 2001). In other observed dimensions of the match, however, women who married in their late twenties or later tended to form unions with characteristics found in earlier research to be associated with higher marital instability: they were more likely to wed men who had been previously married and who were younger than them by three years or more. These patterns closely mirror those uncovered earlier, for cycles 5 and 6, and are suggestive of a "poor-match effect" emerging as the biological clock

begins to tick. Cycle 5, which contained richer data on husbands' characteristics, showed that women who postpone marriage are also more likely to enter unions that are heterogamous in two other important dimensions: education and religion. In addition, in all cycles, women who delay marriage themselves have characteristics associated with marital instability: they are more likely to have a child from a previous union and to have previously cohabited. Overall, these patterns suggest that women who marry in their late twenties or after disproportionately enter unconventional matches. At the same time, the absence of a U-shape in all cycles indicates that the unions they form tend to be solid.

Two different explanations may explain this puzzle: (a) One hypothesis is that whatever challenges these unconventional matches may pose, they can be addressed with the greater resources and higher maturity that come with higher educational levels and older ages, respectively. That is, the destabilizing effects typically associated with cohabitation before marriage, a husband who had a previous marriage, and age and race/ ethnicity heterogamy, may simply not be present in couples that have delayed entry into marriage. (b) An alternative hypothesis is that these indicators of unconventional matches are always associated with higher marital instability – even in couples that have delayed entry to marriage – but the stabilizing effects associated with the older ages and higher levels of educational attainment are larger and dominate.

#### ***3.4. Subsample of Women who Delayed First Marriage***

To test these hypotheses, Panel III in Table 2 presents results for regressions estimated with the subsample of respondents who entered first marriage at age 27 or later. The sample size is  $n = 799$  and the coefficients are estimated with less precision. The direction of the effects,

however, is clear. Although the coefficient on race/ ethnicity heterogamy is smaller and loses significance in the subsample, for all other traits, the magnitudes of the coefficients associated with characteristics that are generally destabilizing are at least as large in the subsample. This is true of a previous marriage of the husband, the wife being older than the husband by three years or more, and cohabitation prior to the marriage with the spouse only. Moreover, the dummy variable indicating cohabitation with others only is now significantly positive at the 0.10 level and large in magnitude. Overall, the results are strongly supportive of hypothesis (b) above.

Examination of the predicted probabilities is instructive. The reference woman for the regression in Table 2, Panel II (full sample) entered first marriage at age 20-26 with 12-15 years of schooling. Her counterpart in Panel III (subsample) entered first marriage at age 27-29 having completed 16 years of schooling or more, the modal education for this group. As an illustration, Panel III shows that, in the subsample, the fifth-year dissolution probability for a couple in which the husband had been married before is 0.09, compared to 0.06 if he had not. By comparison, Panel II, for the full sample, shows that the probability is 0.19 for a woman whose husband had not been married before. These results illustrate the relative stability of unions that begin later in life with high educational levels, even in the case of unconventional matches.

### ***3.5. Wife's Education at Marriage - Comparisons Across Cycles 5, 6 and 7***

The simple statistics on median age at first marriage with which we opened this paper mask considerable variation by education. The cross-tabulations in Table 3 indicate that it is the most highly educated women who are delaying entry to first marriage, and the hazards models in Table 2 show that it is these women who are going on to solid unions - both their high education

and their older age at marriage contribute to marital stability. These patterns mirror previous findings for cycles 5 and 6.

The proportion of women who entered first marriage with 16 years of schooling or more rose from 0.16 in cycle 5 to 0.28 in cycle 6 and to 0.31 in cycle 7. In addition, Table 4 shows that notable changes took place across the cycles in the education–marital instability association. In cycle 5, the marriages of high-school dropouts were more unstable than those of their counterparts who had completed 12-15 years of schooling by a modest margin: a fifth-year dissolution probability of 0.16 as compared to 0.13. In contrast, the cycle 6 estimates showed no significant difference between these two groups, and that pattern also prevails in the cycle 7 estimates presented here. These findings are consistent with recent research showing that the “moderately educated middle” (i.e., those who do not have a four-year college degree but have completed high school) increasingly resemble high school dropouts in their patterns of divorce, and also of marriage, non-marital fertility, and other demographic and economic behaviors (Wilcox and Marquardt 2010). Further studies on the seeming disappearance of “middle America” – assessing the robustness of these findings with other data sets and methodologies – will undoubtedly be a high priority in the research agenda in years to come.

The results in Table 4 also show that the gap in the fifth-year dissolution probability between women with 16 years of schooling or more and their counterparts with 12-15 years grew from 3 percentage points in cycle 5, to 8 percentage points in cycles 6 and 7. Related research has noted that more and less advantaged SES groups in the U.S. have been following divergent trajectories, not only in the patterns of age at marriage and divorce discussed here, but also in trends of female employment, out-of-wedlock childbearing, and fathers’ involvement with children. The result has been a widening gap in resources available to children from these groups

as the second demographic transition has unfolded (McLanahan 2004). The divergence has been caused partly by rising income inequality spurred by technological change and globalization, and partly by major socio-economic and cultural transformations including changes in women's bargaining power brought about by the contraceptive revolution (Akerlof et al. 1996; McLanahan 2004; Lemieux 2008).

#### **4. DISCUSSION**

Analyses of data from the 2006-2010 NSFG cycle show that women who delay first marriage disproportionately enter unions with 16 years of schooling or more (and their husbands likely have similarly high levels of education); in other respects, however, their marriages tend to have characteristics that traditionally have been associated with high marital instability, including age heterogamy and a previous marriage of the husband. At the same time, the unions they form tend to be very solid. Both of these results are consistent with earlier findings for cycles 5 and 6 of the NSFG. The analyses in this paper shed light on these results and provide an interpretation. Estimation of the model with the subsample of respondents who delayed entry to first marriage found that those traits that are associated with unconventional matches are generally destabilizing for these women also. But the stabilizing effects associated with the greater maturity that comes with older ages and the higher level of economic resources that come with higher educational levels are far larger in magnitude.

Having emphasized the flattening out of the curve at late ages at marriage – the U-shape postulated by Becker et al. (1977) is not there – the most salient aspect of the age at marriage–marital instability relationship is the steep downward sloping curve from the teens to the late twenties in cycles 5 and 6, and to the early thirties in cycle 7. It is important to note that while marriages that take place before age 20 are by far the most unstable, the difference in the

estimated fifth-year dissolution probabilities for marriages contracted at ages 20-26 versus 30-32 is also sizeable - 11 percentage points. That is, the pronounced negative relationship between age at first marriage and marital instability is not driven just by unstable marriages contracted at very young ages, as has been suggested in earlier scholarly research (Heaton 2002; Glenn et al. 2010) and the popular press (Regnerus 2009). The divorce rate has been declining in the U.S. since the early 1980s (Stevenson & Wolfers 2007; Cherlin 2010; Isen & Stevenson 2011). The present findings suggest that an important item in the agenda for future research is quantifying the extent to which this decline over time can be accounted for by the two major trends emphasized in this paper: the tendency to enter marriage at later ages (greater maturity), and the increased levels of men's and women's education at marriage (higher level of resources).

The proportional hazards models in Table 2 control for factors found in earlier studies to be predictive of divorce – wife's family background variables (Panel I), and characteristics of the wife, husband and couple at marriage (Panel II). But of course there is a host of unobserved relevant factors in each of these categories. In particular, our estimate in Table 2, Panel I of the “total effect” must be qualified as subject to omitted variables biases. A recent study focusing on the adverse effect of marriage at very young ages on subsequent economic status was able to obtain a consistent estimate by using variations across states in minimum-age-at-marriage laws as an instrument (Dahl 2005). A similar approach could be used to obtain a consistent estimate of the adverse effect on marital stability, using data sets that include information on state of residence at the time of marriage. However, the pronounced non-linearities uncovered in the present study indicate that simple extrapolation to the older ages – the late twenties and beyond – would be inappropriate.

A limitation of the cycle 7 NSFG is that it lacks information on important characteristics of the husbands, including education and religion. There is an extensive literature showing that differences between the partners in religious affiliation are associated with a higher probability of marriage dissolution (Lehrer & Chiswick 1993; Kalmijn et al. 2005; Vaaler et al. 2009; Lehrer 2009). The present results suggest that although inter-faith marriages contracted at a late age may be significantly less solid than their intra-faith counterparts, overall they are likely to be very stable. The same remarks apply to the destabilizing effects typically associated with education heterogamy. Formally testing these hypotheses with richer data sets would be a fruitful avenue for future research.

## **ENDNOTES**

<sup>1</sup> Some studies have interpreted this negative relationship as reflecting an association between age at first marriage and length of marital search, at the extensive margin (additional information about various potential partners) and at the intensive margin (further information about serious prospects) (Becker 1990; Weiss and Willis 1997). However, it is likely that this association has weakened considerably as the pattern of delayed entry to first marriage has unfolded, in part because it is rare for women who enter first marriage in their thirties to have met their partners during the teen years, in part because diminishing returns to search likely set in at some point.

<sup>2</sup> Limitations of sample size precluded analyses of separate samples for other racial/ethnic groups.

<sup>3</sup> A limitation of the cycle 7 NSFG is that it does not contain information on two other important characteristics of the husband: education and religion.



<sup>4</sup> Comparisons to cycles 5 and 6 in the sections below are based on results reported in Lehrer (2008).

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Table 1. Descriptive Statistics

| Variable  | Definition   | Mean                   |
|---|--|------------------------|
| <b>Wife's Age at Marriage</b>                             |  |                        |
|   | =1 if respondent's (R) age at marriage was in category indicated         |                        |
| Less than 20<br>(20-26)                                   |  | 0.16<br>(0.59)         |
| 27-29   |  | 0.14                   |
| 30-32   |  | 0.07                   |
| 33 or older   |  | 0.05                   |
| <b>Wife's Background Characteristics</b>                  |  |                        |
| Family of origin not intact                               | =1 if R's family of origin was not intact                                | 0.33                   |
| Unaffiliated  | =1 if R was raised with no religious affiliation                         | 0.10                   |
| <b>Wife's Characteristics at Marriage</b>                 |  |                        |
| Education   | =1 if at date of first marriage, R's education was in category indicated |                        |
| Less than 12 years<br>(12 – 15 years)<br>16 years or more |  | 0.15<br>(0.54)<br>0.31 |
| Child from previous union                                 | =1 if R had had a live birth prior to the date of first marriage         | 0.19                   |

**Table 1 (continued)**

| Variable  | Definition  | Mean           |
|---|---|----------------|
| Cohabitation before marriage<br>With spouse only    | =1 if R only cohabited with husband prior to marriage             | 0.45           |
| With spouse and others                              | =1 if R cohabited with husband and others prior to marriage       | 0.13           |
| With others only                                    | =1 if R only cohabited with others prior to marriage              | 0.03           |
| <b><i>Characteristics of husband and couple</i></b> |   |                |
| Husband married before                              | =1 if R's husband had been married before                         | 0.15           |
| Different race/ ethnicity                           | =1 if husband is non-white and/or Hispanic                        | 0.09           |
| Age composition                                     | =1 if difference between husband's and wife's age is as indicated |                |
| 6 years or more                                     |   | 0.19           |
| -3 years or less<br>(more than -3; less than 6)     |   | 0.04<br>(0.77) |
| N   |   | 3,184          |

**Table 2. Cox Proportional Hazards Models of Marital Dissolution  
(standard errors in parentheses)**

|   | Panel I: Controlling only for wife's background characteristics | Panel II: Adding characteristics of husband and couple at marriage | Panel III: Subsample Wife's age at marriage 27+ |
|---|---|--|---|
|   | Coefficient   | Coefficient  | Coefficient                                     |
|   | Hazard Ratio  | Hazard Ratio   | Hazard Ratio                                    |
|   | 5 <sup>th</sup> year dissolution probability <sup>a</sup>       | 5 <sup>th</sup> year dissolution probability                       | 5 <sup>th</sup> year dissolution probability    |
| <b>Wife's Age at Marriage</b>             |   |  |   |
| Less than 20                              | 0.525 (0.07)**  | 0.435 (0.08)**   | 0.28  |
| <b>20-26 (reference)</b>                  |   | <b>0.19</b>  |   |
| 27-29                                     | -0.465 (0.11)**   | -0.431 (0.12)**  | 0.13  |
| 30-32                                     | -0.866(0.19)**  | -0.835 (0.20)**  | 0.09  |
| 33 or older                               | -0.623 (0.23)**   | -0.491 (0.24)**  | 0.12  |
|   |   |  | 0.65 (0.91)                                     |
|   |   |  | -0.434 (0.22)**                                 |
|   |   |  | -0.090 (0.26)                                   |
|   |   |  | (0.91)  |
| <b>Wife's Background Characteristics</b>  |   |  |   |
| Family of origin not intact               | 0.451 (0.06)**  | 0.311 (0.06)**   | 0.25  |
| Unaffiliated                              | 0.132 (0.09)  | 0.103 (0.09)   | 0.119(0.19)                                     |
|   | (1.14) <sup>b</sup>   | (1.11)   | (1.13)  |
|   | (0.23)  | (0.21)   | (0.07)  |
|   |   |  | (1.14)  |
|   |   |  | (0.07)  |
| <b>Wife's Characteristics at Marriage</b> |   |  |   |
| Education                                 |   |  |   |
| Less than 12 years                        |   | -0.016 (0.08)  | -0.325 (0.28)                                   |
| 12-15 years                               |   |  | (0.72)  |
| 16 years or more                          |   | -0.658 (0.09)**  | -0.586(0.21)**                                  |
|   |   | 0.52   | 0.56  |
|   |   | 0.11   | 0.10  |
|   |   |  | (0.08)  |



Table 2 (continued)

|   | Panel I            |                     | Panel II           |                     | Panel III: subsample |                     |  |
|---|--------------------|---------------------|--------------------|---------------------|----------------------|---------------------|--|
|   | <i>Coefficient</i> | <i>Hazard Ratio</i> | <i>Coefficient</i> | <i>Hazard Ratio</i> | <i>Coefficient</i>   | <i>Hazard Ratio</i> | <i>5<sup>th</sup> year dissolution probability</i> |
| Child from previous union                                       |                    |                     | 0.267 (0.08)**     | 1.31                | 0.747 (0.21)**       | 2.11                | 0.12   |
| Cohabitation before marriage                                    |                    |                     |                    |                     |                      |                     |  |
| With spouse only  |                    |                     | 0.250(0.07)**      | 1.28                | 0.413 (0.25)*        | 1.51                | 0.09   |
| With spouse and others  |                    |                     | -0.013(0.12)       | (0.99)              | -0.103(0.31)         | (0.90)              | (0.05)   |
| With others only  |                    |                     | 0.294(0.20)        | (1.34)              | 0.792 (0.45)*        | 2.21                | 0.12   |
| <b><i>Characteristics of Husband and Couple at Marriage</i></b> |                    |                     |                    |                     |                      |                     |  |
| Husband married before  |                    |                     | 0.183(0.09)**      | 1.20                | 0.448 (0.21)**       | 1.57                | 0.09   |
| Different race/ethnicity  |                    |                     | 0.418(0.09)**      | 1.52                | 0.310 (0.28)         | (1.36)              | (0.08)   |
| Age difference  |                    |                     |                    |                     |                      |                     |  |
| 6 years or more   |                    |                     | -0.013(0.08)       | (0.99)              | -0.082 (0.23)        | (0.92)              | (0.05)   |
| -3 years or less  |                    |                     | 0.328(0.19)*       | 1.39                | 0.491 (0.25)**       | 1.63                | 0.09   |

Panels I and II, n = 3,184. Panel III (respondents with age at first marriage equal to 27 or higher), n = 799

<sup>a</sup> The reference person in Panel I is a respondent who entered her first marriage at age 20-26 and whose family background characteristics are typical, i.e., they are set at the modal category. The other estimated fifth-year dissolution probabilities correspond to respondents who differ from the reference person in only one trait, as noted in the stub.

For the reference person in Panel II, all the characteristics of the wife, husband and couple are also set at the mode.

In a similar way, the reference person in Panel III has the modal characteristics for all variables. Her age at first marriage is set at 27-29, and her education at marriage is set at the modal category for this group: 16 years or more.

<sup>b</sup> Hazard ratios and probabilities are shown in parentheses when the corresponding coefficient is not significant at the 0.10 level.  
 \*\* p < 0.05; \* p < 0.10

**Table 3. Selected Characteristics by Respondent's Age at Marriage<sup>a</sup>**

|   | <i>Age at Marriage</i> |       |       |             | $\chi^2$ test<br>(p-value) |
|---|------------------------|-------|-------|-------------|----------------------------|
|   | <20                    | 20-26 | 27-29 | 30 or older |                            |
| <b><i>Wife's Characteristics at Marriage</i></b>                |                        |       |       |             |                            |
| Education   |                        |       |       |             |                            |
| Less than 12 years  | 42.25                  | 9.38  | 11.14 | 8.15        | <.01                       |
| 16 years or more  | 2.82                   | 29.87 | 51.74 | 52.45       |                            |
| Child from previous union                                       | 15.09                  | 19.23 | 18.56 | 22.83       | 0.04                       |
| <b><i>Characteristics of Husband and Couple at Marriage</i></b> |                        |       |       |             |                            |
| Husband married before  | 9.26                   | 12.39 | 21.35 | 31.52       | <.01                       |
| Cohabitation before marriage                                    |                        |       |       |             |                            |
| With spouse only  | 40.04                  | 45.55 | 53.60 | 42.93       | <0.01                      |
| With spouse and others  | 2.41                   | 10.96 | 21.58 | 31.79       | <0.01                      |
| With others only  | 1.01                   | 2.54  | 2.78  | 4.08        | 0.04                       |
| Age difference: - 3 years or less                               | 0.20                   | 1.27  | 7.66  | 16.30       | <.01                       |
| Race/ethnicity difference                                       | 11.27                  | 8.16  | 9.74  | 7.61        | 0.12                       |

n= 3,184

<sup>a</sup> Figures reported are percentage of cases with dummy variable equal to 1.

**Table 4. Changes across Cycles in Association between Wife's Education and Marital Instability**  
**Estimated Fifth-Year Dissolution Probabilities<sup>a</sup>**

|                                | Cycle 5     | Cycle 6             | Cycle 7     |
|--------------------------------|-------------|---------------------|-------------|
| Wife's education               |             |                     |             |
| Less than 12 years             | 0.16        | (0.23) <sup>b</sup> | (0.19)      |
| <b>12-15 years (reference)</b> | <b>0.13</b> | <b>0.21</b>         | <b>0.19</b> |
| 16 years or more               | 0.10        | 0.13                | 0.11        |
| n                              | 4,413       | 2,437               | 3,184       |

<sup>a</sup> These probabilities are based on the full models - the specifications that include all characteristics of the wife, husband, and couple. The reference person entered marriage at age 20-26 and has all other characteristics set at the modal category.

<sup>b</sup> Probabilities shown in parentheses correspond to coefficients on dummy variables that were not significantly different from the reference category at the 0.10 level.