

A Multistate Life Table Analysis of Union Regimes in the United States: Trends and Racial Differentials, 1970–2002

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Abstract We estimate trends and racial differentials in marriage, cohabitation, union formation and dissolution (union regimes) for the period 1970–2002 in the United States. These estimates are based on an innovative application of multistate life table analysis to pooled survey data. Our analysis demonstrates (1) a dramatic increase in the lifetime proportions of transitions from never-married, divorced or widowed to cohabiting; (2) a substantial decrease in the stability of cohabiting unions; (3) a dramatic increase in mean ages at cohabiting after divorce and widowhood; (4) a substantial decrease in direct transition from never-married to married; (5) a significant decrease in the overall lifetime proportion of ever marrying

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and re-marrying in the 1970s to 1980s but a relatively stable pattern in the 1990s to 2000–2002; and (6) a substantial decrease in the lifetime proportion of transition from cohabiting to marriage. We also present, for the first time, comparable evidence on differentials in union regimes between four racial groups.

Keywords Multistate life table · Cohabitation · Union dissolution · Marriage · Divorce · Racial differentials

We present a multistate life table analysis of trends and racial/ethnic differentials in marriage and cohabitation, and union formation and dissolution (abbreviated as *union regimes* hereafter) in the United States in the period of 1970–2002. We disaggregate the population into four racial/ethnic groups (non-Hispanic Whites, non-Hispanic Blacks, Hispanics, and non-Hispanic Asians/Others) to analyze differences and differential trends. Our analysis uses life-course estimates of the synthetic cohorts produced from multistate period life table models with seven marital and cohabitation union statuses: (1) never married and not cohabiting, (2) currently married, (3) widowed and not cohabiting, (4) divorced and not cohabiting, (5) never married and cohabiting, (6) widowed and cohabiting, and (7) divorced and cohabiting. To meet the data needs, we pool retrospective histories of union regimes from a number of surveys and use these pooled data to estimate age-gender-race-specific transition probabilities between the seven marital and cohabitation union statuses, the life-time likelihood and timing of experiencing these statuses, and the duration of time in each.

Figure 1 shows the dynamic changes captured in the concept of a union regime: the seven possible statuses are connected in fourteen age-sex-race-specific permutations of status transitions. Many people experience multiple statuses through status transitions, and they remain in different statuses for variable time periods. We use multistate increment-decrement life table models to display a macro-level and whole life-course view of periodical changes and racial differences in union regimes. Our approach condenses unwieldy age-gender-race-specific rates into several much more concentrated and interpretable measures, which in turn are much less affected by the distortions inherent in conventional period crude rates and total rates. This is the first study to examine this full range of marital and cohabitation union statuses for the four racial groups, and we do so over multiple decades.

The key research questions we address in this article are two-fold: (1) To characterize the decadal changes in union regimes for both males and females, such as changes in lifetime proportions of transitions from never-married, divorced or widowed to cohabiting, changes in the stability of cohabiting unions, changes in mean age at cohabiting after divorce and widowhood and changes in the lifetime proportion of transition from cohabiting to marriage; (2) To present for the first time a comprehensive multistate life table view of the racial differentials in union regimes over the past three decades, including Hispanic and non-Hispanic Asian/others American populations, for which analyses are relatively rare.

Below we briefly review previous relevant studies to summarize what is known about U.S. union regime change and variation in recent decades. We also discuss

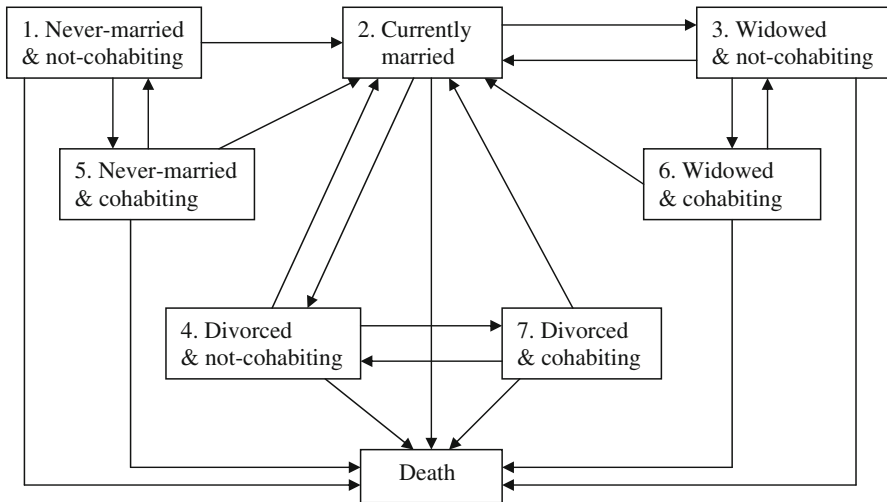


Fig. 1 Multistate model of union regime. *Note:* we do not include the statuses of currently married but cohabiting with someone while separated with legal spouse and direct transitions from currently married to divorced and cohabiting or widowed and cohabiting to avoid over-complexity of our multistate life table model and due to the fact that reliable data for estimating the age-sex-race-specific occurrence/exposure rates of transitions to and from such uncommon statuses is not available

why pooling datasets from multiple surveys is needed and why it is scientifically valid. The second and the third sections describe our data resources, estimation issues, and methods. The fourth section presents estimated trends and racial differences in U.S. union regimes. Finally, we summarize the results and discuss their implications.

A Brief Review on Previous Relevant Studies

Union Regimes in the United States

Several theoretical approaches provide insights into the causes of union regime changes. Institutional theories stress that union formation is heavily influenced by social norms, values, laws, and a wide range of social pressures (Goldstein and Kenney 2001, p. 508). As a consequence, the lifetime proportion of marriage in the U.S. has been persistently high across generations (Goldstein and Kenney 2001; Schoen and Standish 2001). Cohabitation, in which two parties live together but make fewer commitments and accept fewer responsibilities than in the case of marriage, has been steadily increasing in recent decades in the US (DeMaris and William 1993). Further, cohabitation is becoming institutionalized as an expected stage in the life of a union in the US, which contrasts with more institutionalized cohabitation in some European countries (e.g., Sweden) as a full substitute for marriage (Goldstein and Kenney 2001).

Economic approaches frequently maintain that entering/staying in marriage/cohabitation is viewed usefully as a rational choice made by individuals after weighing the benefits and costs of the available options (Becker 1981). Declines in the lifetime proportion of marriage are thus attributed to women's increasing labor force participation, narrowing male/female wage gaps (White and Rogers 2000), and greater obstacles to marriage among the poor (Oppenheimer 1994) that make marriage a less attractive option.

One can piece together substantial information about stability and change in the United States union regimes from prior studies. For instance, between 1970 and 2000, the median age at first marriage for women increased by 4.3–25.1 years; for men, the median age increased by 3.6–26.8 years (U.S. Bureau of the Census 2001). Cohabitation (unmarried heterosexual cohabiting unions) has increased dramatically over the last few decades (Bumpass and Sweet 1995; Casper and Cohen 2000), and has become a widespread and acceptable living arrangement (Bumpass and Hsien-Hen 2000; Smock 2000; Thornton et al. 2007). In the United States about half of young adults cohabit with a partner before marrying (Bumpass and Lu 2000). Divorce rates doubled by the mid-1970s as compared to the 1950s and have remained at a high plateau (or perhaps in a slight decline) since about 1980 (Bramlett and Mosher 2002; Goldstein 1999; Strow and Strow 2006). Roughly 40–50% of all marriages end in divorce (see Cherlin 1992; Cherlin 1999, p. 421; Schoen and Standish 2001), and the likelihood that divorced women will remarry has been declining since the 1950s (Bramlett and Mosher 2002).

But not all of the racial/ethnic groups in the United States share the same patterns of marriage, divorce, remarriage, and cohabitation (see Phillips and Sweeney 2005). Though marriage remains very common among white women, black women show a large decline in the percentage ever marrying (Goldstein and Kenney 2001; Raley 2000). Furthermore, black women have much higher divorce risks than their white counterparts (Kposowa 1998), and remarriage is much less common among blacks than among whites (Bumpass and Sweet 1990; Cherlin 1992; Phillips and Sweeney 2005). In recent decades whites have shown greater increases in cohabitation than blacks; as a result, Bumpass and Lu (2000) report a modest racial difference in the proportion of adults that had ever cohabited by 1995. Among those who do cohabit, however, the likelihood of transition from cohabitation to marriage is lower among blacks than among whites (Manning and Smock 1995). Research on cohabitation, marriage, and divorce for Hispanic and Asian American populations is relatively rare, mainly due to data limitations (Phillips and Sweeney 2005). The existing research on this topic suggests that the likelihood of cohabiting and divorce among Hispanic women lies between those of blacks and whites, whereas Asian Americans are the least likely to cohabit and divorce as compared to whites, blacks, and Hispanics (see Bramlett and Mosher 2002; Sherif-Trask and Koivunen 2007; Simmons and O'Connell 2003).

While useful for many purposes, the traditional approaches of cross-sectional analysis at a given point in time or estimating change from a comparison of proportions married, divorced, or cohabiting at different times have two limitations which we attempt to overcome (or at least to reduce) in this article. First, the traditional approaches analyze the different components or processes of the union

regimes separately, which may not accurately reflect the situation in the real world. For example, the number of cohabiting couples results from a set of transitions. The cohabiting population increases when the unmarried begin to cohabit, but is reduced by both union disruption and transitions to formal marriage. Furthermore, postponed marriage and marital disruption increase cohabitation by increasing the population “at risk” of cohabitation (i.e., the unmarried population). Our multistate union regimes life table analysis, to be presented later in this article, focuses on the full set of multiple increment-decrement union transitions and deals with them simultaneously in an integrated and associated modeling framework (see Fig. 1). We thus appropriately include important and related union regime components producing the growth in cohabiting partnerships. We also show the cumulative impact of the transitions among the full set of marital/union statuses on the overall level of the prevalence of the union regime.

Second, the traditional approaches cannot clearly infer how the period ‘stock’ variables, such as the proportion of women currently cohabiting, may impact the life courses of average individuals. In contrast, based on observed period age-sex-race-specific probabilities of cohabiting, first marriage, divorce and remarriage, our multistate union regime life table approach estimates the lifetime proportions of cohabitation before first marriage and after divorce and widowhood, the percentage of the life span spent in various marital/union statuses, and the average numbers of cohabiting unions, marriages, and divorces over an average person’s life course for different gender and race groups in various periods. Clearly, our analysis following the multistate life table approach based on the period data could provide more informative summary indicators, which align with conceptions of the life course focusing on union status transitions (e.g., the likelihood of cohabiting, marrying or ending a union).

The studies most like ours, in which multiple marital statuses are examined, are those by Schoen and his colleagues. They have published a series of articles on US marriage, divorce, and remarriage, based on vital statistics and Current Population Survey data, and multistate marital status life table methodology (Schoen 1987, 1988; Schoen and Weinick 1993; Schoen and Standish 2001; Schoen and Canudas-Romo 2006; Schoen and Cheng 2006). These prior studies were mainly based on vital statistics data, which have limitations concerning consistency of race/ethnicity classifications in the numerators and denominators of the marital status transition rates (Schoen and Standish 2001, p. 554; Morgan et al. 1999). Moreover, cohabitation data are not available in vital statistics or in the Current Population Survey. Consequently, these prior multistate life table analyses by Schoen and colleagues excluded cohabitation and racial differentials. Using the Add Health survey and following the multistate life table approach, Schoen et al. (2007) analyzed cohabitation, first marriage and birth for three racial/ethnic groups, but they only examined women, only followed them to age 24, and did not include remarriage and cohabitation after divorce and widowhood. Our study extends these pioneering efforts by examining multistate transitions among seven marital/union statuses (Fig. 1) for all age groups of men and women and for four racial/ethnic

groups in the 1970s, 1980s, 1990s, and 2000–2002, based on pooled national survey data sources.

Pooling Datasets from Multiple Surveys

Previous empirical research has shown that combining data from multiple surveys can provide enhanced estimates by increasing the sample size; pooled data consist of independently sampled observations, which largely rule out correlation in the error terms across different observations (Wooldridge 2003). According to Schenker and Raghunathan (2007), several projects have been conducted within and outside the National Center for Health Statistics to enhance estimations by combining different surveys to extend coverage, improve analysis on self-reported data, and increase the accuracy of measurements derived for smaller population groups and smaller areas. More recently, researchers from various universities in Australia have initiated a project focused on “successful ageing” that uses pooled data observations from nine national and local longitudinal surveys with different sampling strategies (including random, stratified, or clustered sample designs) and age ranges (Anstey et al. 2010). The research team claims that, with appropriate weights, the pooled dataset is nationally representative and their analytical strategy overcomes the limitations of single surveys which include small numbers of people with specific medical conditions and lack of statistical power for effective comparisons among groups with specific characteristics such as very old age, low-prevalence disorders or co-morbidities (Anstey et al. 2010). The “Comparison of Longitudinal European Studies on Aging (CLESA)” has undertaken a similar pooling and harmonization approach to analyze data from six longitudinal studies (Minicuci et al. 2003; Anstey et al. 2010, p. 49). The United Nations Inter-agency Group for Child Mortality Estimation has pooled a number of datasets from vital registration systems, national population censuses and household surveys to produce the best estimates of child and infant mortality rates for various countries (UNICEF, WHO, The World Bank and UN Population Division 2007). Pooling different survey datasets has also been a recognized practice in other fields, such as econometrics (e.g., Wooldridge 2003), public opinion research (e.g., Brace et al. 2002), and in biology studying species other than humans (e.g., Fancy 1997).¹

However, pooled datasets also have limitations. Because not all contributing datasets were equally and nationally representative, the sample needs to be weighted to produce population estimates. As with all retrospective and longitudinal surveys, there are memory errors and biases of sample attrition and missing data due to withdrawal, mortality and other non-responses (Anstey et al. 2010, p. 49).

¹ The *disaggregation approach*, developed by Erikson et al. (1993), pools large numbers of national surveys and then disaggregates the data so as to calculate opinion percentages by state (Lax and Phillips 2009, p. 107). For example, the original datasets of over 100 surveys on gay rights issues were pooled to estimate public opinions about support for same-sex marriage at the state level (Lax and Phillips 2009). Fancy (1997) pooled data from surveys with data on bird densities in different areas and this approach was validated in two field studies where the density of birds could be determined by independent methods.

Data Sources and Estimation Issues

As depicted in Fig. 1 and shown in Appendix 1, the input data for constructing the multistate union regimes life tables are 14 sets of race-sex-age-specific occurrence/exposure rates of marital/union status transitions (ref. to $m_{ij}(x)$ used in the formulas) for the four race groups in different periods. To meet these data needs (especially the needs for estimating the sex-age-specific rates for the minority groups) and based on the literature concerning combining datasets from different surveys reviewed above, we pool the retrospective event history data on marital/union status transitions from the following four national surveys:

- (a) National Survey of Families and Households (NSFH) conducted in 1987–1988, 1992–1994, and 2002.
- (b) National Survey of Family Growth (NSFG) conducted in 1983, 1988, 1995, and 2002.
- (c) Current Population Surveys (CPS) conducted in 1980, 1985, 1990, and 1995.
- (d) Survey of Income and Program Participation (SIPP) conducted in 1996.

There are, in total, 97,778 men (aged 15–95) and 304,536 women (aged 15–98) in the pooled sample. Note three points: First, our pooled dataset reduces problems of small sample sizes for minority race/ethnic groups. For estimates without race or for the majority group only, one large sample survey data set is sufficient. However, when the race-sex-age-status-specific occurrence/exposure rates are estimated for different race groups, the sub-sample sizes for the minority groups are too small if estimated from only one survey. This problem is particularly serious for male minorities. Second, vital registration (VR) data (which has large sample size) is not an option given our focus on union regimes (including cohabitation) and racial differentials. Specifically, VR numerators are obtained from marriage and divorce registration, whose design can vary from state to state, and the denominators are obtained from the census and population projections. The VR and the census forms often do not ask questions in an identical manner. Thus the race-specific numerators and denominators used in computing the age-specific rates by race are not fully compatible. Morgan et al. (1999) presented evidence that the race-specific fertility estimates based on VR data can be seriously flawed. The pooled retrospective data obtained from the NSFH, NSFG, CPS and SIPP surveys do not have such inconsistencies because numerators and denominators are calculated using precisely the same definitions. Moreover, the VR data do not contain cohabitation information, which is of major interest here. Third, the concepts and definitions of age, sex, race, marital/union status, and dates of marital/union status changes (the only measurements needed to estimate the race-sex-age-specific occurrence/exposure rates) are similar in the NSFH, NSFG, CPS and SIPP surveys.

The NSFH, conducted in 1987–1988, 1992–1994, and 2002, and the NSFG, conducted in 1988, 1995, and 2002, collected cohabitation history data. The NSFH dataset contained records of 7,252 cohabiting union formation events and 6,236 dissolution events; the NSFG dataset contained records of 15,447 cohabiting union formations and 13,515 dissolutions. Hayford and Morgan (2008) compared the levels and trends of the measurement of cohabitation and its dissolution estimated

from the NSFH and NSFG survey data. They report that estimates are comparable across these surveys for the 10 year period prior to the survey, with some evidence of declining quality when respondents report on the more distant past. Although some differences in data collection might intensify the increase in cohabitation that we expect to find, careful analyses of such differences indicate that such bias is quite small, given the fact that estimated levels of cohabitation in the same periods from these different surveys do not show significant differences (Hayford and Morgan 2008).

The CPS, SIPP, NSFH, and NSFG datasets all contain detailed event histories of marriage formations and dissolutions that provide large sample sizes for reliable estimates of race-sex-age-specific occurrence/exposure rates for first marriage, divorce, and remarriages of divorced and widowed persons. In contrast, information on the timing and age of current and previous cohabitations was only collected in the NSFH and NSFG; thus, sample sizes for these occurrence/exposure rates are much smaller. To increase comparability and reliability of the estimates using all available data on marital/union status transitions, we employed a straightforward demographic estimation procedure (presented in Appendix 2) to adjust the race-sex-age-specific occurrence/exposure rates of marital/union (including cohabitation) status transitions based on the NSFH and NSFG data. The adjustments make these rates consistent with the race-sex-age-specific occurrence/exposure rates of first marriage, divorce and remarriages of divorced and widowed persons based on all of the data from all four surveys.

The survey data used in this study include marriage histories for the most recent, first, and second marriages, namely, up to three marriages for each respondent. This limitation is not problematic because the number of respondents with more than three marriages is very small.²

The period sex-age-specific *occurrence/exposure* (*o/e*) rate, which is the basic input for constructing the multistate life table, is defined as the number of events that occurred (*occurrence*) divided by the number of person-years lived at risk of experiencing the event (*exposure*). We employed the method of event history analysis (Allison 1995) to estimate the race-sex-age-specific *o/e* rates of marriage/union formation and dissolution for the four racial/ethnic groups in the 1970s, 1980s, 1990s and 2000–2002. In our event history analysis models, age (in 5-year groups) and race are treated as covariates in each marriage/union status transition. To account for the sampling design so that each survey could maintain the representativeness of its targeting population, the original sampling weights of each survey are applied when estimating all race-age-specific marital/union status transitions rates based on the pooled dataset.³ For transitions which are not related to cohabitation, race-sex-age-specific *o/e* rates are estimated separately for each period, and in almost all cases the sample size is larger than 5,000. For transitions which are related to cohabitation, race-sex-age-specific *o/e* rates are estimated by

² For example, persons who had more than three marriages constituted 0.67% of all applicable interviewees in SIPP96.

³ By applying the original sampling weights, we have total risk population and events at different time points and thus we can estimate unbiased race-age-specific marital/union status transition rates.

pooling both sexes and all four periods, while treating sex and period as covariates due to small sample size.⁴ We have examined 14 sets of status transition rates among the seven marital/union statuses (see Fig. 1) by gender, race/ethnic group and period ($14 \times 2 \times 4 \times 4$ equals 448 sets of rates). The smoothness and plausibility of these estimates were confirmed by graphing.

Based on estimates of the sex-age-specific and marital status (never-married, married, widowed, divorced) specific death rates for all races combined in the 1970s, 1980s, and 1990s used in Schoen and Standish (2001) and the race-sex-age-specific death rates released by the NCHS (Arias 2004), we estimated race-sex-age-marital status-specific death rates in the 1970s, 1980s, 1990s, and 2000–2002. Given the fact that death rates for cohabiting persons are not available and the literature considering cohabitation as mostly a transitional stage before marriage in the US (e.g., Goldstein and Kenney 2001), we assume that the race-age-specific death rates of never-married and cohabiting men/women are equal to the average of the corresponding death rates of never-married and married men/women; the race-age-specific death rates of widowed and cohabiting men/women are equal to the average of the corresponding death rates of widowed and married men/women; and the race-age-specific death rates of divorced and cohabiting men/women are equal to the average of the corresponding death rates of divorced and married men/women.

To evaluate and validate our approach of pooling the relevant data from the four national surveys, Appendix 3 compares our estimates of the summary measures for all races combined (excluding cohabitation) based on the pooled data to the corresponding measures of multistate marital status life tables (without information on cohabitation) presented by Schoen and Standish (2001). Comparing our estimates with theirs, the lifetime proportions of first marriage, divorce and remarriage are generally consistent in the 1980s and 1990s—among sixteen pairs of the summary measures, ten have a discrepancy rate of less than 5%, three have a discrepancy rate of 6.5–7.5%, and three have a discrepancy rate of around 10%. Only the lifetime proportion of remarriage of widowed persons in the 1970s differed by more than 15% (see Appendix 3). Furthermore, as demonstrated in the results section below, the patterns of levels, trends and racial differentials derived from the present study based on the pooled survey data are generally and qualitatively consistent with the other previous studies using totally different approaches. However, we provide much more life-time summary measures of union regimes in the context of life course analysis following the multistate life table approach. In sum, all the empirical evidence and the three considerations discussed above convince us that pooling the data from the four national surveys provides valid estimates of trends and differentials in union regimes (including cohabitation). In fact, our empirical results concerning the union regime trends of minority races from pooling the relevant datasets in this study are consistent with the points by Schenker and Raghunathan (2007, p. 1810) that combining information from multiple surveys is useful in enhancing research dealing with smaller population

⁴ We did not include interaction terms in the event history analysis models because almost all interactions are not statistically significant, and in the few cases where the interactions are significant, the main effects are unstable and uninterpretable. We believe that employing the method of event history analysis provides the best estimates of race-sex-age-specific o/e rates for different periods.

groups. However, we are fully aware that interpretations of the results based on the survey data must be cautious due to possible recall errors, especially for men, for divorces and cohabitations, and for events more distant from the survey date (Manning and Smock 2000; Teitler et al. 2006; Hayford and Morgan 2008).

Method

As discussed in the literature (e.g., Rogers 1975; Willekens et al. 1982; Land and Rogers 1982; Schoen 1988; Preston et al. 2001), the multistate life table condenses the observed unwieldy sex-age-specific occurrence/exposure (o/e) rates of status transitions into several interpretable summary measures. These life table summary measures are much less affected by distortions inherent in the conventional period crude rates and total rates of union formations and dissolutions based on age-specific frequencies, which cannot adequately distinguish between at-risk and non-risk populations. The basic methods, the associated assumptions (e.g., the Markov assumption which does not fully consider prior history, assumes homogeneity within each of the age-gender-race/ethnic categories identified, and does not count the duration in a state⁵), and their implications for constructing the multistate union regime life table in this study are the same as those for the standard multistate life table models which can be found in published articles and standard text books (e.g., Willekens et al. 1982; Schoen 1988; Preston et al. 2001), and thus will not be repeated here.

In this study, we extend the multistate marital status life table model into a multistate union regimes life table by introducing formation and dissolution of cohabitation status and its combinations with marital statuses. The set of the transitions among these statuses comprises a union regime (see Fig. 1). The major summary measures of the union regime are the lifetime proportions of marital/union status transitions, average lifetime numbers of cohabitations (including cohabitations before first marriage and after marriage dissolution), marriages (including first marriage and remarriages), and divorce. The lifetime proportion of marital/union status transitions is defined as the total number of events of transition from status i to j divided by the total number of events that lead to entering status i , in the context of a hypothetical cohort (for period analysis) or a real cohort. For example, if the female lifetime proportion of cohabitation after divorce in period t is 0.43, then this implies that 43% of divorce events would be followed by cohabitation, given that a hypothetical cohort experienced the observed female o/e rates of union formation and dissolution in period t . Based on the construction of the multistate life tables, we also estimated the average number of cohabitating unions, marriages, and divorces over a person's life time, which are defined as the total number of events of cohabitations, marriages, and divorces occurring to all members of the life table cohort during their lives divided by the initial size of the life table cohort (called the *radix*, it is usually a round number such as 1 or 100,000). The percentage of the life

⁵ The assumption of ignoring the duration-specific effects may be released by employing the semi-Markov models which introduce duration-specific (in addition to age-specific) rates (e.g., Rajulton 2001).

span spent in different union statuses is defined by the person-years spent in union status i among all members of the life table cohort divided by their total number of person-years regardless of union status. This summary measure of our marital/union status life table is conceptually similar to the well-known and widely used demographic measure of period life expectancy in year t , which is the average life span of a hypothetical cohort subjected to the observed period age-specific death rates in year t . But we estimate much more than overall life expectancy, namely, we decompose the average life span implied by the race-sex-age-specific occurrence/exposure rates observed in period t into different portions of the life-time spent in different marital/union statuses. Formulas expressing the definitions of the lifetime proportions of union formation and dissolution, average number of cohabitation unions, marriages, and divorces per person in the life time, and percentage of life span spent in different marital/union statuses are presented in Appendix 1.

Results: Trends and Racial Differences in Union Regimes

We will focus attention on the multistate union regimes life table analysis of cohabitation union formation and dissolution as opposed to marriage/divorce. The latter are better known and documented. We first present the results for all races combined; then we will turn to racial differentials.

Dramatic Increase in Cohabitation

Our multistate life table analysis shows that cohabitation prior to first marriage shifted from a minority to a dominant pattern over the period of study. For all races combined, the female lifetime proportions of cohabitation before first marriage were 25, 46, 60, and 61% based on rates observed in the 1970s, 1980s, 1990s, and 2000–2002, respectively (see row 1 in “Women” panel, Table 1). The corresponding lifetime proportions for men were 33, 55, 66, and 70% (see row 1 in “Men” panel, Table 1). Compared to the 1970s, the 2000–2002 female and male lifetime proportions of transition from never-married to cohabiting in the United States increased by factors of 2.4 ($=.61/.25$) and 2.1 ($=.70/.33$), respectively.

Further, the likelihood of cohabitation did not only increase for never-married persons. Divorcees were also increasingly likely to cohabit. As compared to the 1970s, the lifetime proportion of transition from divorced to cohabitating among women and men in the 1990s increased substantially, by factors of 1.8 and 1.7 ($=.46/.25$, see row 3 in “Women” panel of Table 1, and $=.49/.28$, see row 3 in “Men” panel of Table 1). While the lifetime proportion of cohabitation among widowed persons is much lower than that among divorcees (mainly due to the fact that widows and widowers are much older), the likelihood of cohabitation among widowed women and men in the 1990s increased dramatically as well by factors approaching 4.0 compared to the 1970s (rows 2 in Table 1).⁶ Furthermore, as to be

⁶ Hereafter, the note in the parenthesis “rows # in Table * (# and * are alphabetical numbers) refers to the two rows numbered # in the “Women” and “Men” panels in the Table labeled as *.

Table 1 Lifetime proportions of marital/union status transitions, by race groups

Race group Period	All races combined		Non-Hispanic White		Non-Hispanic Black		Hispanic		Non-Hispanic Asian/Others											
	1970s	1990s	1980s	2000-02/1970s	1980s	1990s	2000-02/1970s	1980s	1990s	2000-02/1970s	1980s	1990s	2000-02/1970s							
Women																				
<i>Lifetime proportion of Cohabitation</i>																				
1) Lifetime proportion never-married to cohabiting	0.25	0.46	0.60	0.61	0.24	0.46	0.62	0.63	0.27	0.48	0.64	0.66	0.27	0.43	0.54	0.59	0.22	0.37	0.54	0.58
2) Lifetime proportion widowed to cohabiting	0.01	0.02	0.03	0.04	0.01	0.03	0.03	0.06	0.01	0.02	0.02	0.03	0.01	0.01	0.02	0.03	0.01	0.01	0.01	0.02
3) Lifetime proportion divorced to cohabiting	0.25	0.37	0.46	0.43	0.23	0.43	0.53	0.49	0.21	0.31	0.39	0.35	0.24	0.36	0.44	0.24	0.36	0.46	0.46	0.42
4) Lifetime proportion cohabiting union dissolution	0.31	0.40	0.46	0.48	0.32	0.39	0.45	0.49	0.46	0.51	0.56	0.60	0.34	0.40	0.45	0.51	0.38	0.42	0.47	0.52
5) Lifetime proportion cohabiting to married	0.66	0.58	0.51	0.49	0.65	0.58	0.53	0.49	0.49	0.44	0.40	0.36	0.63	0.56	0.52	0.47	0.60	0.56	0.52	0.46
<i>Lifetime proportion of First marriage</i>																				
6) Overall lifetime proportion of first marriage	0.92	0.89	0.87	0.86	0.95	0.93	0.91	0.90	0.81	0.70	0.65	0.65	0.94	0.92	0.92	0.90	0.90	0.89	0.89	0.87
7) % of 1st marriage while not-cohab. before mar.	80.4	62.9	50.6	50.0	78.9	59.1	50.5	52.2	96.3	78.6	63.1	58.5	64.9	41.3	32.6	33.3	68.9	56.2	43.8	46.0
8) % of 1st marriage while cohab. before mar.	19.6	37.1	49.4	50.0	21.1	40.9	49.5	47.8	3.7	21.4	36.9	41.5	35.1	58.7	67.4	66.7	31.1	43.8	56.2	54.0
<i>Lifetime proportion of Remarriages</i>																				
9) Overall lifetime proportion of remarriage of widows	0.12	0.07	0.05	0.04	0.12	0.07	0.06	0.05	0.11	0.06	0.04	0.03	0.08	0.04	0.03	0.02	0.06	0.04	0.03	0.03
10) % of remar. of widows while not-cohab. bef mar.	91.7	85.7	80.0	75.0	91.7	71.4	66.7	60.0	90.9	83.3	75.0	66.7	93.8	87.5	83.3	75.0	91.7	87.5	80.0	80.0
11) % of remar. of widows while cohab. bef mar.	8.3	14.3	20.0	25.0	8.3	28.6	33.3	40.0	9.1	16.7	25.0	33.3	6.3	12.5	16.7	25.0	8.3	12.5	20.0	20.0
12) Overall lifetime proportion of remarriage of divorcees	0.74	0.65	0.63	0.59	0.76	0.68	0.66	0.64	0.56	0.49	0.43	0.44	0.68	0.59	0.59	0.56	0.74	0.63	0.62	0.59
13) % of remar of divorcees while not-cohab. bef mar	75.7	61.5	52.4	54.2	73.7	57.4	50.0	50.0	91.1	69.4	62.8	56.8	82.4	62.7	52.5	55.6	71.6	69.8	54.8	55.9
14) % of remar of divorcees while cohab. bef mar.	24.3	38.5	47.6	45.8	26.3	42.6	50.0	50.0	8.9	30.6	37.2	43.2	17.6	37.3	47.5	46.4	28.4	30.2	45.2	44.1
15) Lifetime proportion of Divorces																				
Men																				
<i>Lifetime proportion of Cohabitation</i>																				
1) Lifetime proportion never-married to cohabiting	0.33	0.55	0.66	0.70	0.32	0.57	0.68	0.75	0.31	0.50	0.65	0.71	0.33	0.50	0.63	0.72	0.28	0.45	0.66	0.72
2) Lifetime proportion widowed to cohabiting	0.02	0.04	0.06	0.07	0.02	0.05	0.07	0.08	0.02	0.04	0.05	0.06	0.02	0.04	0.06	0.05	0.02	0.01	0.02	0.03
3) Lifetime proportion divorced to cohabiting	0.28	0.42	0.49	0.47	0.31	0.46	0.54	0.51	0.23	0.35	0.39	0.38	0.24	0.37	0.45	0.41	0.26	0.38	0.46	0.43
4) Lifetime proportion cohabiting union dissolution	0.31	0.42	0.45	0.47	0.36	0.43	0.49	0.55	0.49	0.53	0.58	0.61	0.37	0.42	0.49	0.55	0.42	0.45	0.54	0.58
5) Lifetime proportion cohabiting to married	0.66	0.55	0.51	0.49	0.61	0.54	0.48	0.42	0.43	0.40	0.36	0.35	0.58	0.52	0.46	0.41	0.54	0.52	0.44	0.40
<i>Lifetime proportion of First marriage</i>																				
6) Overall lifetime proportion of first marriage	0.92	0.86	0.84	0.83	0.94	0.89	0.88	0.83	0.83	0.75	0.71	0.72	0.93	0.86	0.87	0.85	0.90	0.86	0.81	0.82
7) % of 1st marriage while not-cohab. before mar.	73.9	55.8	42.9	38.6	79.8	60.7	48.9	43.5	65.1	50.7	40.8	30.6	76.3	62.8	39.1	36.5	81.1	58.1	46.9	39.0
8) % of 1st marriage while cohab. before mar.	26.1	44.2	57.1	61.4	20.2	39.3	51.1	56.5	34.9	49.3	59.2	69.4	23.7	37.2	60.9	63.5	18.9	41.9	53.1	61.0
<i>Lifetime proportion of Remarriages</i>																				
9) Overall lifetime proportion of remarriage of widows	0.34	0.18	0.13	0.11	0.34	0.18	0.14	0.12	0.31	0.15	0.13	0.10	0.30	0.15	0.10	0.07	0.18	0.10	0.07	0.06
10) % of remar. of widows while not-cohab. bef mar.	97.1	88.9	84.6	81.8	97.1	94.4	85.7	83.3	96.8	93.3	76.9	60.0	93.3	73.3	80.0	57.1	93.3	90.0	85.7	83.3
11) % of remar. of widows while cohab. bef mar.	2.9	11.1	15.4	18.2	2.9	5.6	14.3	16.7	3.2	6.7	23.1	40.0	6.7	26.7	20.0	42.9	6.7	10.0	14.3	16.7
12) Overall lifetime proportion of remarriage of divorcees	0.80	0.76	0.72	0.72	0.82	0.79	0.75	0.75	0.65	0.61	0.61	0.59	0.78	0.77	0.70	0.71	0.80	0.80	0.74	0.76
13) % of remar of divorcees while not-cohab. bef mar	73.8	61.8	54.2	58.3	72.0	58.2	52.0	54.7	83.1	63.9	52.5	55.9	75.6	55.8	52.9	56.3	70.0	65.0	54.1	57.9
14) % of remar of divorcees while cohab. bef mar.	26.3	38.2	45.8	41.7	28.0	41.8	48.0	45.3	16.9	36.1	47.5	44.1	24.4	44.2	47.1	43.7	30.0	35.0	45.9	42.1
15) Lifetime proportion of Divorces																				
0.38	0.43	0.40	0.40	0.40	0.38	0.42	0.40	0.40	0.44	0.49	0.47	0.47	0.34	0.37	0.34	0.35	0.34	0.37	0.34	0.35

discussed in more detail later, there are many more middle-aged and elderly widowers and widows who are cohabiting now as compared to earlier periods. Thus, the increase in the likelihood of cohabitation is pervasive across all possible union statuses (i.e., never married, divorced, and widowed).

The multistate life table estimates of average number of cohabitation unions during whole life span per person for women and men in 2000–2002 are 1.15 and 1.36, which are about 2.5 times as large as those in the 1970s (rows 1 in Table 2). Clearly, cohabitation has increased dramatically over the last three decades and has become a widespread living arrangement (see Casper and Cohen 2000).

Table 2 presents estimates of the percentage of adult life spent in various marital statuses, in which the rows 1 through 7 distribute the 100% of the adult life span over the seven union statuses. Despite the dramatic increase in cohabitation documented here, the average American still spends a rather small portion of his or her adult life span in cohabiting unions (around the 4–8% range, see rows 9 in Table 2). This is because cohabitation is a relatively short-lived experience, mostly ending either by terminating the relationship or by marrying within a few years (also reported in other studies, e.g., Smock 2000; Bumpass and Hsien-Hen 2000; Thornton 1988; Wu and Balakrishnan 1995).

Decrease in the Stability of Cohabiting Unions

How stable are the cohabiting unions? Based on our multistate union regimes life table analysis, the proportion of cohabitating unions that will end in disruption in 2000–2002 is 0.48 and 0.47 for women and men, representing an approximate 50% increase compared to the risk of disruption in the 1970s (see rows 4 in Table 1). Thus, while the lifetime proportion of cohabitation has increased tremendously, cohabiting unions have become less stable in and after the 1990s as compared to that in earlier periods (consistent with Bumpass and Hsien-Hen 2000).

Decline in the Likelihood of Transition from Cohabitation to Marriage

Table 1 also shows (rows 5) that approximately half of cohabiting women and men in 2000–2002 would eventually marry, in contrast to about two-thirds in the 1970s; namely, the lifetime proportion of transition from cohabiting to married in 2000–2002 decreased by roughly 16 percentage points as compared to that in the 1970s (rows 5 in Table 1). Such decline in the likelihood of transition from cohabitation to marriage is pervasive among women and men who are never-married and cohabiting, widowed and cohabiting, or divorced and cohabiting (rows 8, 11, and 14 in Table 1).

Decline in Marriages But Substantial Increase in Proportion of Marriages with Cohabitation Before Marrying

While not as dramatic as the increase in cohabitation, the decline in marriage in the 1980s, 1990s and 2000–2002 is substantial and pervasive as compared to the 1970s, but remained relatively stable after the 1980s. The overall lifetime proportion of

Table 2 The percent of lifetime after age 15 spent in different marital/union statuses and life-time average number of cohabitations, marriages, and divorcees

Race group Period	All races combined			Non-Hispanic White			Non-Hispanic Black			Hispanic			Non-Hispanic Asian/Others							
	1970s	1980s	1990s	2000-02	1970s	1980s	1990s	2000-02	1970s	1980s	1990s	2000-02	1970s	1980s	1990s	2000-02				
Women																				
(1) % life in never-mar & not cohabiting	19.2	22.7	22.8	24.3	17.4	19.0	19.9	20.9	29.8	38.4	42.9	42.6	18.3	20.3	19.5	20.3	21.6	23.9	22.3	24.1
(2) % life in never-mar & cohabiting	1.1	2.9	4.0	4.4	0.9	2.6	3.6	3.3	2.3	5.3	6.5	6.3	1.5	3.4	5.0	4.8	1.3	1.8	3.1	2.7
(3) % life in married	61.2	54.6	53.8	52.9	63.8	59.0	57.8	57.5	42.5	33.7	27.5	30.5	60.8	55.4	55.3	55.5	60.2	57.7	59.6	57.5
(4) % life in widowed & not cohabiting	6.5	5.7	5.0	4.8	6.4	5.8	5.0	4.9	6.4	5.0	3.7	3.9	6.0	5.0	4.2	4.0	7.0	4.0	3.5	3.3
(5) % life in widowed & cohabiting	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
(6) % life in divorced & not cohabiting	11.1	12.4	12.0	11.7	10.5	11.7	11.3	11.3	17.9	16.2	17.1	15.2	12.6	14.2	13.9	13.6	8.9	11.4	9.9	10.8
(7) % life in divorced & cohabiting	0.9	1.5	2.1	1.7	1.0	1.8	2.3	2.0	1.0	1.4	2.3	1.5	0.9	1.6	2.1	1.8	0.8	1.3	1.6	1.6
Sum of (1) to (7)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
(8) Subtotal % life in never-married	20.4	25.6	26.8	29.6	18.4	21.6	23.5	24.2	32.2	43.7	49.4	48.9	19.8	23.7	24.5	25.0	22.9	25.7	25.4	26.8
(9) Subtotal % life in cohabitation	2.0	4.5	6.3	6.2	1.9	4.4	6.1	5.4	3.4	6.7	8.8	7.8	2.4	5.1	7.2	6.7	2.3	3.1	4.7	4.3
(10) Subtotal % life in widowhood	6.5	5.8	5.1	4.8	6.4	5.9	5.1	5.0	6.5	5.0	3.7	3.9	6.0	5.1	4.3	4.1	7.2	4.0	3.6	3.3
(11) Subtotal % life in divorced	12.0	13.9	14.2	13.4	11.4	13.5	13.6	13.3	18.9	17.6	19.4	16.6	13.5	15.8	16.0	15.4	9.8	12.6	11.5	12.4
(12) Lifetime av. # of cohabitations per person	0.44	0.83	1.15	1.15	0.47	0.95	1.27	1.22	0.45	0.89	1.10	1.08	0.41	0.77	1.08	0.41	0.37	0.65	0.96	1.29
(13) Lifetime av. # of marriages per person	1.39	1.29	1.22	1.16	1.44	1.35	1.28	1.24	1.18	0.98	0.88	0.86	1.32	1.22	1.22	1.32	1.26	1.20	1.14	1.16
(14) Lifetime av. # of divorcees per person	0.58	0.58	0.52	0.49	0.58	0.60	0.55	0.51	0.60	0.54	0.50	0.45	0.53	0.52	0.52	0.54	0.47	0.50	0.41	0.39
Men																				
(1) % life in never-mar & not cohabiting	20.6	26.1	26.9	27.8	20.8	24.2	24.5	26.4	30.1	37.6	39.2	38.1	19.4	24.0	23.5	24.9	25.2	28.7	33.2	30.5
(2) % life in never-mar & cohabiting	1.4	3.6	5.4	5.5	1.4	3.3	5.0	5.0	2.2	4.0	5.7	5.5	2.2	4.7	6.0	6.9	1.2	2.3	3.9	4.0
(3) % life in married	65.2	56.4	54.2	53.1	65.7	58.7	56.9	55.1	50.8	41.0	39.7	40.1	65.9	58.4	57.3	55.6	61.3	57.5	52.3	54.7
(4) % life in widowed & not cohabiting	4.7	4.9	4.5	4.3	4.5	4.8	4.4	4.2	4.7	4.5	4.2	4.2	5.2	5.1	4.7	4.2	5.8	3.9	3.3	3.3
(5) % life in widowed & cohabiting	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0
(6) % life in divorced & not cohabiting	7.2	7.5	6.8	7.4	6.6	7.2	6.8	7.1	11.0	11.1	9.3	10.3	6.7	6.6	6.7	6.9	5.8	6.5	5.9	6.2
(7) % life in divorced & cohabiting	0.9	1.5	1.8	1.7	1.0	1.8	2.2	2.0	1.1	1.7	1.8	1.7	0.6	1.1	1.6	1.4	0.6	1.2	1.4	1.3
Sum of (1) to (7)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
(8) Subtotal % life in never-married	22.0	29.7	32.3	33.3	22.2	27.4	29.5	31.4	32.3	41.6	44.9	43.6	21.6	28.7	29.5	31.8	26.4	31.0	37.0	34.5
(9) Subtotal % life in cohabitation	2.3	5.2	7.4	7.4	2.4	5.2	7.4	7.2	3.4	5.8	7.6	7.3	2.9	5.9	7.8	8.4	1.8	3.5	5.3	5.4
(10) Subtotal % life in widowhood	4.8	4.9	4.7	4.5	4.6	4.9	4.6	4.4	4.8	4.6	4.3	4.3	5.2	5.2	5.0	4.4	5.9	3.9	3.4	3.4
(11) Subtotal % life in divorced	8.1	9.0	8.6	9.1	7.6	9.0	9.1	12.1	12.8	11.1	12.0	11.1	12.0	7.3	7.7	8.3	8.3	6.0	7.7	7.5
(12) Lifetime av. # of cohabitations per person	0.55	1.02	1.26	1.36	0.64	1.20	1.48	1.52	0.53	0.91	1.16	1.24	0.46	0.98	1.24	1.32	0.50	0.81	1.06	1.21
(13) Lifetime av. # of marriages per person	1.52	1.36	1.23	1.21	1.57	1.42	1.31	1.27	1.32	1.08	1.04	1.03	1.36	1.22	1.17	1.16	1.33	1.27	1.10	1.15
(14) Lifetime av. # of divorcees per person	0.59	0.58	0.49	0.48	0.60	0.60	0.52	0.51	0.58	0.50	0.48	0.47	0.54	0.45	0.39	0.41	0.46	0.48	0.38	0.40

ever marrying (rows 6 in Table 1) declined from 92% in the 1970s to 86–87% in the 1990s and 2000–2002 among women, and from 92% in the 1970s to 83–84% in the 1990s and 2000–2002 among men. Table 1 (rows 9 and 12) also shows that the lifetime proportions of remarriages of widowers/widows and divorcees (either via cohabitation or not) all decreased substantially in the 1990s and 2000–2002, as compared to the 1970s. The decreased lifetime proportions of first marriage and remarriage coupled with the dramatically increased lifetime proportion of cohabitation and delayed marriage substantially reduced the percentage of adult life spent in the currently married status among women and men, from 61.2 and 65.2% in the 1970s to 52.9 and 53.1% in 2000–2002 (rows 3 in Table 2); the percentage did not change substantially after the 1980s.

It is interesting to note that the dramatic increase in cohabitation and decline in marriages have resulted in large increases in cohabitation prior to first marriage—from 19.6 and 26.1% in 1970s to 50.0 and 61.4% in 2000–2002 (rows 8 of Table 1) for women and men, respectively. This represents a 2.3–2.6 fold increase (rows 8 in Table 1). Similarly, among all of the remarriages, the life table proportions of remarriages with cohabitation before remarrying has also increased dramatically (rows 11 and 14 in Table 1). Accordingly, the life table proportions of first marriages and remarriages without cohabitation before marrying have decreased dramatically. Clearly, for many Americans who eventually marry, cohabitation has become a transitional stage to marriage.

Our multistate union regimes life table results show that the lifetime proportion of divorce among American women and men increased from 0.41 and 0.38 in the 1970s to 0.45 and 0.43 in the 1980s, and then slightly declined in the 1990s and remained stable in 2000–2002, which was consistent with the previous studies (Goldstein 1999; Strow and Strow 2006; Cherlin 1999, p. 421; Schoen and Standish 2001).

Timing of Cohabitation

It is well known that Americans have substantially delayed their first marriages over recent decades. However, other changes are less well-known, e.g., in the timing of cohabitation, in the average total cohabiting duration of all unions combined before first marriage, and in the average cohabiting duration per union before first marriage. The present study fills this gap.⁷ As shown in Table 3, the mean age at onset of cohabitation before first marriage, after divorce, and after widowhood all increased substantially among all four racial groups. For all races combined, mean age at cohabitation before first marriage for women and men in 2000–2002 was 23.7 and 24.8 years old, respectively, in contrast to 20.5 and 22.0 years old in the 1970s; this represents a 3.2 and 2.8 year increase between the two periods (rows 1 in Table 3). The average total cohabiting duration of all unions before first marriage increased substantially over the past three decades by 1.98 and 1.55 years for

⁷ The measurements presented in this subsection concerning the timing of cohabitation before first marriage, after divorce, and after widowhood are estimated directly using the cohabitation history data from NSFH and NSFG.

women and men (of all races combined, see row 4 in Table 3). The average cohabiting duration per union before first marriage also increased substantially in the past three decades by 1.86 and 1.43 years for women and men (all races combined, see row 5 in Table 3).

The increase in the mean ages at cohabitation after divorce and widowhood are much more dramatic. The female and male mean age at cohabitation after divorce in 2000–2002 reached 35.5 and 38 years old, an increase of 9.7 and 7 years, as compared to the 1970s (rows 2 in Table 3). As compared to the 1970s, the mean age at cohabitation after widowhood in 2000–2002, increased by 17.6 and 23 years for women and men, respectively (rows 3 in Table 3)! The percentages of the after-divorce cohabitation occurring after age 50 in 2000–2002 were 4.8 and 4.6 times as high as that in the 1970s. In 2000–2002, 58.8 and 50.6% of the after-widowhood cohabitation took place after age 50, which was 3.1 and 3.7 times as high as that in the 1970s (see Fig. 2). These estimates clearly show that cohabitation was a phenomenon among relatively young people in the 1970s, but it has become much more popular now among the middle-aged and elderly.⁸ Note that the mean age at cohabitation after widowhood among widowers had reached 57.2 years old in 2000–2002. Such a trend may be beneficial for enhancing family care among older adults, because elderly cohabiting partners may be likely to take care of each other (Stevenson and Wolfers 2007).

Significant Racial Differentials

Hereafter, we will abbreviate non-Hispanic White as “Whites,” non-Hispanic Black as “Blacks,” Hispanic (black or white or any other race or combination of races) as “Hispanics,” and non-Hispanic Asian/Others as “Asians/Others.”⁹ The increases in likelihood of cohabitation described above are visible for all four groups. But compared to some other union transitions (to be discussed below), the racial/ethnic differences in the lifetime proportion of cohabiting prior to marriage are modest in all periods (rows 1 in Table 1). Nevertheless, White and Asian/Other women had the lowest and Black women had the highest lifetime proportion of transition from never-married to cohabiting in the 1970s. But by the 1990s and 2000–2002, never-married White women had roughly the same lifetime proportion of cohabitation as never-married Black women. Hispanic and Asian/Other women retained modestly lower levels (59 and 58%). Our estimates are broadly consistent with the findings of

⁸ Another possible explanation is that people in the 1970s were more likely to be widowed at younger ages due to acute diseases and accidents (or even the Vietnam war).

⁹ Both the Hispanics and Asians/Others categories are quite heterogeneous. The largest group of Hispanics is Mexican, but there are substantial numbers from Cuba, Puerto Rico and elsewhere in Central and South America. “Asians/Others” are mostly Asian (itself a heterogeneous category) but also includes small numbers of Pacific Islanders and American Indians. However, if we further distinguished more detailed categories within the Hispanic and Asian/Other race/ethnic groups, the sub-sample size in the survey datasets would be too small and would result in serious biases in the race-sex-age-specific o/e rates estimations and the multistate life table construction. Thus, we only offer a four-category race/ethnic variable that has mutually exclusive and exhaustive categories and provides a sense of racial/ethnic variations in U.S. union regimes, which is the best we can do given the available survey data sources.

Table 3 Mean ages at onset of cohabitation before 1st marriage, divorce and widowhood, and average duration of cohabitation before 1st marriage

Race group	All races combined		Non-Hispanic White		Non-Hispanic Black		Hispanic		Non-Hispanic Asian/Others											
	1970s	1980s	1970s	1980s	1970s	1980s	1970s	1980s	1970s	1980s										
Women																				
(1) mean age at onset of cohabitation before 1 st marriage	20.5	22.3	23.7	20.4	22.2	23.0	23.2	20.7	22.9	24.7	25.9	19.7	21.1	21.9	23.0	20.8	22.5	22.6	23.2	
(2) mean age at onset of cohabitation after divorce	25.8	29.1	32.5	25.9	29.1	32.5	36.0	26.0	30.0	34.2	36.8	24.8	28.1	30.9	33.1	22.3	28.8	31.5	34.9	
(3) mean age at onset of cohabitation after widowhood	29.3	35.8	41.1	30.9	36.8	42.7	49	25.7	36.5	40.3	44.7	23.0	26.2	34.3	39.4	21.2	27.1	33.0	39.3	
(4) average total cohabiting duration (years) of all unions combined before 1 st marriage	1.44	2.25	2.87	3.42	1.22	1.82	2.36	2.74	1.90	3.04	3.62	3.95	1.59	2.70	3.52	4.31	1.62	1.57	2.43	2.45
(5) average cohabiting duration (years) per union before 1st marriage	1.36	2.03	2.52	3.22	1.14	1.61	2.07	2.52	1.85	2.85	3.14	3.82	1.51	2.46	3.17	4.14	1.54	1.42	2.05	2.16
Men																				
(1) mean age at onset of cohabitation before 1 st marriage	22.0	23.7	25.2	24.8	22.0	23.8	25.8	24.7	22.7	24.5	25.8	25.9	21.1	22.3	23.5	24.4	20.3	23.4	23.0	23.4
(2) mean age at onset of cohabitation after divorce	31.0	33.7	37.8	38.0	30.9	33.3	38.4	39.2	31.0	34.3	40.4	40.1	29.6	32.2	36.5	36.0	26.6	33.0	37.2	38.0
(3) mean age at onset of cohabitation after widowhood	33.9	44.1	50.1	57.2	35.7	44.9	52.3	59.3	31.0	43.7	47.9	53.1	28.2	32.0	41.2	47.4	25.8	32.8	39.3	46.9
(4) average total cohabiting duration (years) of all unions combined before 1 st marriage	1.42	1.92	2.66	2.97	1.31	1.74	2.45	2.57	1.94	2.42	2.82	3.03	1.23	2.27	3.23	3.59	1.40	1.83	1.82	2.84
(5) average cohabiting duration (years) per union before 1st marriage	1.32	1.77	2.43	2.75	1.22	1.59	2.24	2.34	1.87	2.21	2.53	2.82	1.14	2.23	2.98	3.40	1.26	1.76	1.70	2.56

other relevant studies using different approaches (e.g., Smock 2000; Manning and Smock 1995).

In general, Whites had a substantially higher lifetime proportion of transition from widowed to cohabiting and from divorced to cohabiting across all periods for both women and men (rows 2 and 3 in Table 1). The lifetime proportion of cohabiting union dissolution among Black women and men was the highest as compared to Whites, Hispanics, and Asian/Others (rows 4 in Table 1).

The life table percentage of Blacks who eventually marry is sharply lower than other groups. In the 1990s, for instance, 65% of Black women and 91% of White women would marry during their lifetimes if the rates estimated for the 1990s persisted (rows 6 in Table 1). The Blacks' overall lifetime proportion of transition from cohabitation to married are remarkably lower than any other race groups (rows 5 in Table 1). Brown (2000) also reported that (compared to cohabiting Whites) cohabiting Blacks are substantially less likely to marry, although Black and White cohabiting couples are about equally likely to report that they expect to marry. The overall lifetime proportion of first marriage and overall lifetime proportion of remarriage of divorcees among Blacks are much lower than any other racial group (rows 6 and 12 in Table 1). The lifetime proportion of divorce among Blacks is much higher than any other racial group across all time periods studied (rows 15 in Table 1). The lifetime proportion of divorce among Hispanic men and both Asian/Other men and women was about 3–5% points lower than that among White men and women, while Hispanic women share almost the same divorce likelihood as Whites (rows 15 in Table 1).

In contrast to the large differences between Blacks and the other three racial groups, the racial differentials in union formation and dissolution between Whites, Hispanics and Asians/Others are generally modest, except that widowed and divorced Whites had distinctly higher lifetime proportions of transition to cohabitation and remarriage (rows 9 and 12 in Table 1).

The Black/White women's differential in marriage behavior is captured by the much smaller portion of Black women's adult life spent currently married—30.5 and 57.5% for the Black and White women, respectively, in 2000–2002 period. While the portion of life span spent married has declined for both groups, the decline is greater for Blacks than Whites over this time period. Differences between Whites and Asian/Other groups are modest and relatively stable over this period (rows 3 in Table 2).

The Hispanics and Asians/Others have substantially lower mean age at cohabitation before first marriage, after divorce and after widowhood than the Whites and Blacks, while the racial differentials in mean age at cohabitation between the Whites and Blacks are rather modest (rows 1–3 in Table 3). It is interesting that the lifetime proportion of transition from widowed to cohabiting (rows 1 in Table 1) and the mean age at cohabitation after widowhood (rows 3 in Table 3) among Hispanics and Asians/Others are much lower than that of Whites, which may indicate that the traditional view concerning a man and a woman living together without marriage and loyalty to the marriage still remain relatively stronger among Hispanic and Asian/Other widowed middle-age and old adults.

Discussion and Concluding Remarks

Based on detailed age-sex-race-specific occurrence/exposure rates estimated from pooled survey data, we characterize decadal union regimes—the lifetime proportions and average number of status transitions, and the portions of adult life spent in a full set of cohabitation and marital statuses. We describe these regimes for the total population and for racial/ethnic sub-groups, employing a new multistate life table model with seven marital/union statuses. For the population as a whole, primary union regime changes include a tremendous increase in lifetime proportions of transitions from never-married, divorced or widowed to cohabiting; a substantial decrease in the stability of cohabiting unions; a dramatic increase in mean age at cohabiting after divorce and widowhood; a substantial decrease in direct transition from never-married to married; and a significant decrease in the 1970s to the 1980s but relatively stable pattern in the 1990s to 2000–2002 in the overall lifetime proportion of ever marrying and re-marrying; and a substantial decrease in the lifetime proportion of transition from cohabiting to marriage. In short, cohabiting unions have become more common, less stable, less likely to transition to marriage, and much more popular among middle-aged and old adults.

We also present for the first time a comprehensive multistate life table view of the substantial racial differentials in union regimes over the past three decades. We found that the racial differentials in the lifetime proportion of transition from never-married to cohabiting are rather modest. The most striking contrasts are Whites' persistently higher lifetime proportion of transitions from divorced to cohabiting and from widowed to cohabiting than any other racial group, and the much lower likelihood of transition from either cohabiting or not-cohabiting to marriage among Blacks compared to other groups. We also found a substantially lower lifetime proportion of transition from widowhood to cohabiting and lower mean age at cohabiting after widowhood among the Hispanics and Asians/Others, compared to Whites.

In sum, our analysis offers a number of unique and useful contributions. First, we substantially extend Schoen and colleagues' important pioneering research on multistate life table analysis of marriage formation and dissolution for all races combined by including cohabitation and examining racial differentials across more than three decades (up to 2002). To our knowledge, this study is the first to distinguish between cohabitations occurring before first marriage, after divorce and after widowhood, and to present their likelihood of occurrence and the length of stay in these various cohabiting statuses over the entire life course, based on an innovative application of multistate life table analysis.

Second, research on cohabitation, marriage, and divorce for Hispanic and Asian American populations is relatively rare, mainly due to data limitations (Phillips and Sweeney 2005). We provide a full set of life course indicators of marital/union formations and dissolutions not only for Whites and Blacks, but also for Hispanics and Asians/Others, and this is only possible through the approach of pooling survey data adopted in this study.

Third, for a variety of reasons (including that most fertility and family surveys collected data from women only), much previous research focused only on women's

union formation patterns (e.g., Bramlett and Mosher 2002; Casper and Cohen 2000; Goldstein and Kenney 2001). We, however, have produced a full set of estimates for both men and women, which may enhance our understanding of gender differentials and dynamic changes in union regimes.

Fourth, this study reconfirms and refreshes the influential study by Goldstein and Kenney (2001) which forecasted the cohorts born in the 1950s and 1960s using the 1995 CPS data and suggested that the American women's marriage will remain nearly universal (close to 90% will ever-marry). While our study confirms Goldstein and Kenney's finding, we employed a totally different approach of period multistate life table analysis from 1970 to 2002, with full consideration of interactions of the seven possible marital/union statuses. However, unlike Goldstein and Kenney (2001) who focused on White and Black women only, we provide evidence for both women and men among Whites, Blacks, Hispanics, and Asians/Others. We conclude that, while cohabitation has increased dramatically, the likelihood of eventually marrying has remained relatively stable across genders and all four race groups after the 1980s. Our data do reveal a relatively large decline in ever-marriage in the 1980s, as compared to the 1970s.

We are aware of that our present analysis has limitations. Similar to other studies based on survey data sources, the retrospective data we use in this paper may have errors associated with memory biases, non-response and non-coverage. For example, as we mentioned in the data sources section, estimates on cohabitation union formations and dissolutions based on the retrospective NSFH and NSFG data collected in the late 1980s, 1990s and 2002 are comparable across these surveys for the 10 year period prior to the survey, with some evidence of declining quality when respondents report on the more distant past (Hayford and Morgan 2008). Consequently, although no evidence shows serious biases in our estimates, we need to be cautious in interpreting the results on comparisons of union regimes between the 1970s and later periods, which may contain some biases due to memory errors in respondents' recalling events that occurred in the 1970s. Another limitation of this paper is that it leaves some questions unanswered. For instance, what can account for the stability and change in union regimes that we document? Given our goal of demographic analysis and the space limitations, we have not attempted a full theoretical interpretation here. We have not discussed the implications of these union regime changes for future family household structure, living arrangement, and well-being of American Whites, Blacks, Hispanics and Asians/Others—one aim of our subsequent research.

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Appendix 1: Definitions of the summary measures of the multistate union regimes life table

For the sake of clarity, we omit dimensions of race, sex and period in all variables, but we should keep in mind that all estimates are race-sex-period-specific in this study.

Lifetime proportions of marriage/union formation and dissolution

Let $m_{ij}(x)$ denote the age-specific o/e rate of transition from marital/union status i to j ; the codes of i, j represent: 1. never-married & not-cohabiting, 2. currently married, 3. widowed and not-cohabiting, 4. divorced and not cohabiting, 5. never-married and cohabiting, 6. widowed and cohabiting, 7. divorced and cohabiting; $L_i(x)$, person-years lived in marital/union status i between age x and $x + 1$ in the life table population; α and ω , the lowest and highest age considered in constructing the multistate life tables. In our current application, we consider that $\alpha = 15$ and $\omega = 99$.

Let SC denote the lifetime proportion of transition from never-married to cohabitation.

$$SC = \frac{\sum_{x=\alpha}^{\omega} [L_1(x)m_{15}(x)]}{100,000 + \sum_{x=\alpha}^{\omega} [L_5(x)m_{51}(x)]};$$

Let WC denote the lifetime proportion of transition from widowed to cohabitation.

$$WC = \frac{\sum_{x=\alpha}^{\omega} L_3(x)m_{36}(x)}{\sum_{x=\alpha}^{\omega} [L_2(x)m_{23}(x) + L_6(x)m_{63}(x)]}$$

Let DC denote the lifetime proportion of transition from divorced to cohabitation.

$$DC = \frac{\sum_{x=\alpha}^{\omega} L_4(x)m_{47}(x)}{\sum_{x=\alpha}^{\omega} [L_2(x)m_{24}(x) + L_7(x)m_{74}(x)]}$$

Note that SC, WC, and DC cannot be interpreted as proportion of ever experiencing cohabitation before first marriage and after divorce or widowhood, because the numerators of SC, WC, and DC include the events of second and higher order of cohabitation before first marriage or after divorce or widowhood. In other words, SC, WC, and DC include multiple events for some people of entering cohabitation union and entering the risk populations of never-married, widowed and divorced.

Let CM denote the overall lifetime proportion of transition from cohabiting to marrying.

$$CM = \frac{\sum_{x=\alpha}^{\omega} [L_5(x)m_{52}(x) + L_6(x)m_{62}(x) + L_7(x)m_{72}(x)]}{\sum_{x=\alpha}^{\omega} [L_1(x)m_{15}(x) + L_3(x)m_{36}(x) + L_4(x)m_{47}(x)]}$$

Let CS denote the lifetime proportion of cohabitation union dissolution.

$$CS = \frac{\sum_{x=\alpha}^{\omega} [L_5(x)m_{51}(x) + L_6(x)m_{63}(x) + L_7(x)m_{74}(x)]}{\sum_{x=\alpha}^{\omega} [L_1(x)m_{15}(x) + L_3(x, t)m_{36}(x) + L_4(x)m_{47}(x)]}$$

Let SM denote the overall lifetime proportion of first marriage regardless of cohabiting status before first marriage. $S_{nc}M$ denote the proportion of first marriage while not-cohabiting before marrying among all first marriages; S_cM , the proportion of first marriage while cohabiting before marrying among all first marriages;

$$SM = \frac{\sum_{x=\alpha}^{\omega} [L_1(x)m_{12}(x)] + \sum_{x=\alpha}^{\omega} [L_5(x)m_{52}(x)]}{100,000};$$

$$S_{nc}M = \frac{\sum_{x=\alpha}^{\omega} [L_1(x)m_{12}(x)]}{\sum_{x=\alpha}^{\omega} [L_1(x)m_{12}(x)] + \sum_{x=\alpha}^{\omega} [L_5(x)m_{52}(x)]};$$

$$S_cM = \frac{\sum_{x=\alpha}^{\omega} [L_5(x)m_{52}(x)]}{\sum_{x=\alpha}^{\omega} [L_1(x)m_{12}(x)] + \sum_{x=\alpha}^{\omega} [L_5(x)m_{52}(x)]};$$

$$S_{nc}M + S_cM = 1.0$$

Let MD denote the lifetime proportion of divorce.

$$MD = \frac{\sum_{x=\alpha}^{\omega} [L_2(x)m_{24}(x)]}{\sum_i \sum_{x=\alpha}^{\omega} L_i(x, t)m_{i2}(x, t)}, \quad i = 1, 3, 4, 5, 6, 7$$

Let WM denote overall lifetime proportion of remarriage among those who are widowed regardless of cohabiting status before remarriage; $W_{nc}M$, the proportion of remarriage while not-cohabiting before remarrying among all remarriages of widowed; W_cM , the proportion of remarriage while cohabiting before remarrying among all remarriages of widowed.

$$WM = \frac{\sum_{x=\alpha}^{\omega} L_3(x)m_{32}(x) + \sum_{x=\alpha}^{\omega} L_6(x)m_{62}(x)}{\sum_{x=\alpha}^{\omega} L_2(x)m_{23}(x)}$$

$$W_{nc}M = \frac{\sum_{x=\alpha}^{\omega} L_3(x)m_{32}(x)}{\sum_{x=\alpha}^{\omega} L_3(x)m_{32}(x) + \sum_{x=\alpha}^{\omega} L_6(x)m_{62}(x)};$$

$$W_cM = \frac{\sum_{x=\alpha}^{\omega} L_6(x)m_{62}(x)}{\sum_{x=\alpha}^{\omega} L_3(x)m_{32}(x) + \sum_{x=\alpha}^{\omega} L_6(x)m_{62}(x)};$$

$$W_{nc}M + W_cM = 1.0$$

Let DM denote overall lifetime proportion of remarriage among those who are divorced regardless of cohabiting status before remarriage; $D_{nc}M$, the proportion of remarriage while not-cohabiting before remarrying among all remarriages of divorcees; D_cM , the proportion of remarriage while cohabiting before remarrying among all remarriages of divorcees.

$$DM = \frac{\sum_{x=\alpha}^{\omega} L_4(x)m_{42}(x) + \sum_{x=\alpha}^{\omega} L_7(x)m_{72}(x)}{\sum_{x=\alpha}^{\omega} L_2(x)m_{24}(x)}$$

$$D_{nc}M = \frac{\sum_{x=\alpha}^{\omega} L_4(x)m_{42}(x)}{\sum_{x=\alpha}^{\omega} L_4(x)m_{42}(x) + \sum_{x=\alpha}^{\omega} L_7(x)m_{72}(x)};$$

$$D_cM = \frac{\sum_{x=\alpha}^{\omega} L_7(x)m_{72}(x)}{\sum_{x=\alpha}^{\omega} L_4(x)m_{42}(x) + \sum_{x=\alpha}^{\omega} L_7(x)m_{72}(x)};$$

$$D_{nc}M + D_cM = 1.0$$

Average life-time numbers of cohabitations, marriages, divorces, and widowhoods per person

AC—the average number of cohabitation unions per person in the lifetime;

$$AC = \frac{\sum_{x=\alpha}^{\omega} [L_1(x)m_{15}(x) + L_3(x)m_{36}(x) + L_4(x)m_{47}(x)]}{100,000}$$

AM—the average number of marriages (including the first marriage and remarriages) per person in the lifetime;

$$AM = \frac{\sum_i \sum_{x=\alpha}^{\omega} L_i(x)m_{i2}(x)}{100,000}, \quad i = 1, 3, 4, 5, 6, 7$$

AD—the average number of divorces per person in the lifetime;

$$AD = \frac{\sum_{x=\alpha}^{\omega} L_2(x)m_{24}(x)}{100,000}$$

The proportion of life span after age $\hat{\alpha}$ (the lowest marriageable or cohabiting age) spent in different marital/union statuses

Let P_i denote the proportion of life span after age $\hat{\alpha}$ spent in marital/union status i .

$$P_i = \frac{\sum_{x=\alpha}^{\omega} L_i(x)}{\sum_i \sum_{x=\alpha}^{\omega} L_i(x)}, \quad i = 1, 2, 3, 4, 5, 6, 7; \quad \sum_i P_i = 1.0$$

Appendix 2: A procedure to adjust the o/e rates of marital/cohabiting union status transitions based on the NSFH and NSFG data for consistency with the o/e rates of marital status transitions based on the CPS, SIPP, NSFH, and NSFG data

We perform the adjustments for each of the race (x) groups, men, women, and the periods (1970s, 1980s, 1990s, and 2000–2002), respectively, while we omit the dimension indices of race, sex and period in the formulas for simplicity of the presentation.

Let $m_{ij}(x)$ denote the o/e rate of transition from marital status i to marital status j between age x and $x + 1$ based on the CPS, SIPP, NSFH, and NSFG data, using a classic 4 marital statuses model ($i, j = 1, 2, 3, 4$, represent never-married, married, widowed and divorced, respectively, excluding cohabitation).

$m^*_{ij}(x)$, observed and unadjusted age-specific o/e rates of transitions from marital/union status i to j ($i, j = 1, 2, 3, 4, 5, 6, 7$, including cohabitation, see the definitions in Appendix 1), based on NSFH and NSFG data;

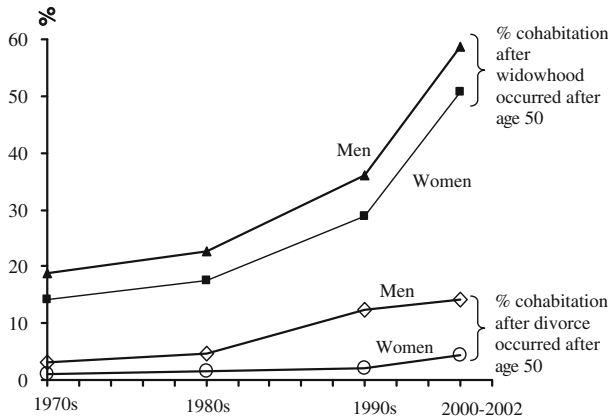


Fig. 2 Percent of onsets of cohabitation after divorce and cohabitation after widowhood occurred over age 50 among all cohabitation events, all races combined

$m_{ij}(x)$, the final adjusted age-specific o/e rates of transitions from marital/union status i to j ($i, j = 1, 2, 3, 4, 5, 6, 7$, including cohabitation) based on pooled survey data, and adjusted to be consistent with $m4_{ij}(x)$; $m_{ij}(x)$ can be analytically transferred into $P_{ij}(x)$, age-specific probabilities of transitions from marital/union status i to j using the standard formula in multistate demography (see, e.g., Willekens et al. 1982; Schoen 1988; Preston et al. 2001).

$$l_i(x + 1) = l_k(x)P_{ki}(x), \quad k = 1, 2, \dots, 7 \tag{1}$$

$$L_i(x) = 0.5[l_i(x) + l_i(x + 1)] \tag{2}$$

The goal of the adjustment is to make the average number of marriages including first and re-marriages (AM7) and average number of divorces (AD7) in the life time in the 7 marital/union status life table (including cohabitation) based on NSFH and NSFG data equal to the corresponding average numbers (AM4 and AD4) in the life table of 4 marital statuses excluding cohabitation based on all of the data from CPS, SIPP, NSFH, and NSFG.

We use the $m4_{ij}(x)$ to compute $P4_{ij}(x)$, age-specific probabilities of marital status transitions based on CPS, SIPP, NSFH, and NSFG data, using the standard formula. Based on $P4_{ij}(x)$, we construct a multi-state life table to get $L4_i(x)$, using formulas (1) and (2) presented above. We then use $m4_{ij}(x)$ and $L4_i(x)$ to compute the AM4 and AD4 in the 4 marital statuses model based on CPS, SIPP, NSFH, and NSFG data.

$$AM4 = \frac{\sum_{x=z}^{\omega} L4_i(x)m4_{i2}(x)}{100,000}, \quad i = 1, 3, 4$$

$$AD4 = \frac{\sum_{x=z}^{\omega} L2(x)m_{24}(x)}{100,000}$$

We then employ the following two-step procedure to adjust the observed o/e rates of 1st marriage, divorce, and remarriages ($m^*_{12}(x)$, $m^*_{52}(x)$, $m^*_{24}(x)$, $m^*_{32}(x)$, $m^*_{62}(x)$, $m^*_{42}(x)$, and $m^*_{72}(x)$), but do not need to adjust the observed o/e rates of

cohabitation union formation and dissolution ($m^*_{15}(x)$, $m^*_{36}(x)$, $m^*_{47}(x)$, $m^*_{51}(x)$, $m^*_{63}(x)$, $m^*_{74}(x)$) based on NSFH and NSFG.

Step 1: Adjustment for the o/e rates of first marriage, remarriage, and divorce

We use the unadjusted survey-based $m^*_{ij}(x)$ to compute $P^*_{ij}(x)$, and we then use $P^*_{ij}(x)$ to construct an initial multi-state life table and get the initial $L^*_i(x)$ using formulas (1) and (2); we then use $m^*_{ij}(x)$ and $L^*_i(x)$ to compute the initial AM7* and AD7* in the 7 marital/union statuses model based on the NSFH and NSFG data.

$$AM7^* = \frac{\sum_{x=\alpha}^{\omega} [L_{i^*}(x)m^*_{i2}(x)]}{100,000}, \quad i = 1, 3, 4, 5, 6, 7 \tag{3}$$

$$AD7^* = \frac{\sum_{x=\alpha}^{\omega} [L_2^*(x)m^*_{24}(x)]}{100,000} \tag{4}$$

We use AM4/AM7*, AD4/AD7* as adjustment factors (not age-specific) to adjust the corresponding age-specific o/e rates of first marriage, remarriage, and divorce for not-cohabiting and cohabiting persons at ages x ($x = \alpha$ to ω).

$$m'_{12}(x) = m^*_{12}(x) AM4/AM7^* \tag{5}$$

$$m'_{52}(x) = m^*_{52}(x) AM4/AM7^* \tag{6}$$

$$m'_{32}(x) = m^*_{32}(x) AM4/AM7^* \tag{7}$$

$$m'_{62}(x) = m^*_{62}(x) AM4/AM7^* \tag{8}$$

$$m'_{42}(x) = m^*_{42}(x) AM4/AM7^* \tag{9}$$

$$m'_{72}(x) = m^*_{72}(x) AM4/AM7^* \tag{10}$$

$$m'_{24}(x) = m^*_{24}(x) AD4/AD7^* \tag{11}$$

Step 2: Check whether the goal of the adjustment is achieved

We use the first adjusted $m'_{ij}(x)$ to compute the first adjusted $P'_{ij}(x)$, and use $m'_{ij}(x)$ to replace $m^*_{ij}(x)$ in the formulas (3) and (4) to get the first adjusted AM7' and AD7'. If the absolute values of the relative difference between AM7' and AM4 and between AD7' and AD4 are all less than a selected criterion (e.g., 0.5%), we have completed Step 2 and have the final estimates of the o/e rates ($m_{ij}(x)$). Otherwise, we will have to use the first adjusted AM7' and AD7' to replace AM7* and AD7* in formulas (5–11) to repeat the iterative procedures described in Step 1 and Step 2 until the selected criterion is achieved.

Appendix 3

See Table 4.

Table 4 Comparisons of summary measures of the marital status life tables (excluding cohabitation) between our estimates based on the pooled survey data and Schoen's estimates based on vital statistics, all races combined

Data set Period	Schoen 1975	Surveys 1970s	Diff	Schoen 1983–1988	Surveys 1980s	Diff	Schoen 1995	Surveys 1990s	Diff
Women									
Lifetime proportion of 1st marriage	0.945	0.926	-0.019	0.888	0.889	0.001	0.887	0.878	-0.009
Lifetime proportion of divorce	0.416	0.410	-0.006	0.437	0.449	0.012	0.425	0.430	0.005
Lifetime proportion of remarriage of widows	0.096	0.117	0.021	0.067	0.067	0	0.048	0.049	0.001
Lifetime proportion of remarriage of divorcees	0.832	0.740	-0.092	0.743	0.646	-0.097	0.687	0.619	-0.068
Men									
Lifetime proportion of 1st marriage	0.931	0.921	-0.01	0.847	0.867	0.02	0.831	0.841	0.01
Lifetime proportion of divorce	0.430	0.382	-0.048	0.433	0.424	-0.009	0.437	0.392	-0.045
Lifetime proportion of remarriage of widows	0.286	0.333	0.047	0.183	0.175	-0.008	0.123	0.132	0.009
Lifetime proportion of remarriage of divorcees	0.883	0.802	-0.081	0.817	0.762	-0.055	0.781	0.723	-0.058

Sources: "Schoen" refers to: Schoen and Standish (2001); "Surveys" refer to our estimates based on pooled data sets of the CPS, SIPP, NSFH and NSFG

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