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Demography, Vol. 36, No. 3 (Aug., 1999), 409-414.

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THE LEVELING OF DIVORCE IN THE UNITED STATES*

JOSHUA R. GOLDSTEIN

Is the recent plateau in crude divorce rates due to compositional changes in the married population or to a fundamental change in the long-term trend of rising marital instability? I use refined measures of period divorce rates to show that the leveling of divorce rates appears to be real. Compositional factors do little to explain the end to the more than century-long pattern of rising divorce. Increases in cohabitation also fail to explain the plateau. New theories are needed to explain the determinants of divorce rates at the population level.

Following more than a century of increases, aggregate divorce rates leveled off abruptly beginning in about 1980. With no behavioral theory predicting a leveling of divorce, compositional explanations have predominated; some researchers have suggested it is too early to take the plateau seriously.¹ Among the compositional explanations have been (1) the aging of baby boomers, which has increased the average duration of intact marriages; (2) the increase in the age at first marriage, which has lessened the number of very young brides and grooms; (3) a possible end to the rise in remarriages, which historically have had higher dissolution rates; and (4) the increase in cohabitation, which may have siphoned away some of the couples most likely to divorce. I examine each of these explanations by exploring detailed divorce data from the last several decades.

ANALYSIS OF DIVORCE RATES

The most widely used summary measure of divorce is the crude divorce rate for married persons (hereafter referred to as simply the *crude divorce rate*), the number of divorces in a year divided by the count of married women aged 15 and over. As this measure is subject to changes in the composition of the married population, I use several methods to obtain

more refined measures of period trends in divorce. First, I estimate period changes in divorce rates broken down by marital duration and order of marriage. Because duration-specific rates are not published, I estimate them from the retrospective marital histories in the Current Population Survey (CPS).

The CPS sample is not large enough to allow for the reliable calculation of rates that vary both by age at marriage and by marital duration. Therefore, I use a second method, multivariate survival analysis, to take into account increases in age at marriage. Survival analysis also allows the inclusion of female educational attainment and the level and timing of childbearing as potential explanatory variables. Educational attainment is used as a proxy for female economic independence, which, economists often argue, has been behind the increase in divorce (Becker 1991; Becker, Landes, and Michael 1977; Grossbard-Shechtman 1993). I also introduce the level and timing of childbearing as an explanatory variable to determine whether the tendency of cohabiting couples to marry once they have children has increased the selectivity of marriage and whether it accounts for some of the leveling of the divorce rate (Manning and Smock 1995). Finally, I estimate the effect of nonmarital unions on the divorce rate.

Data

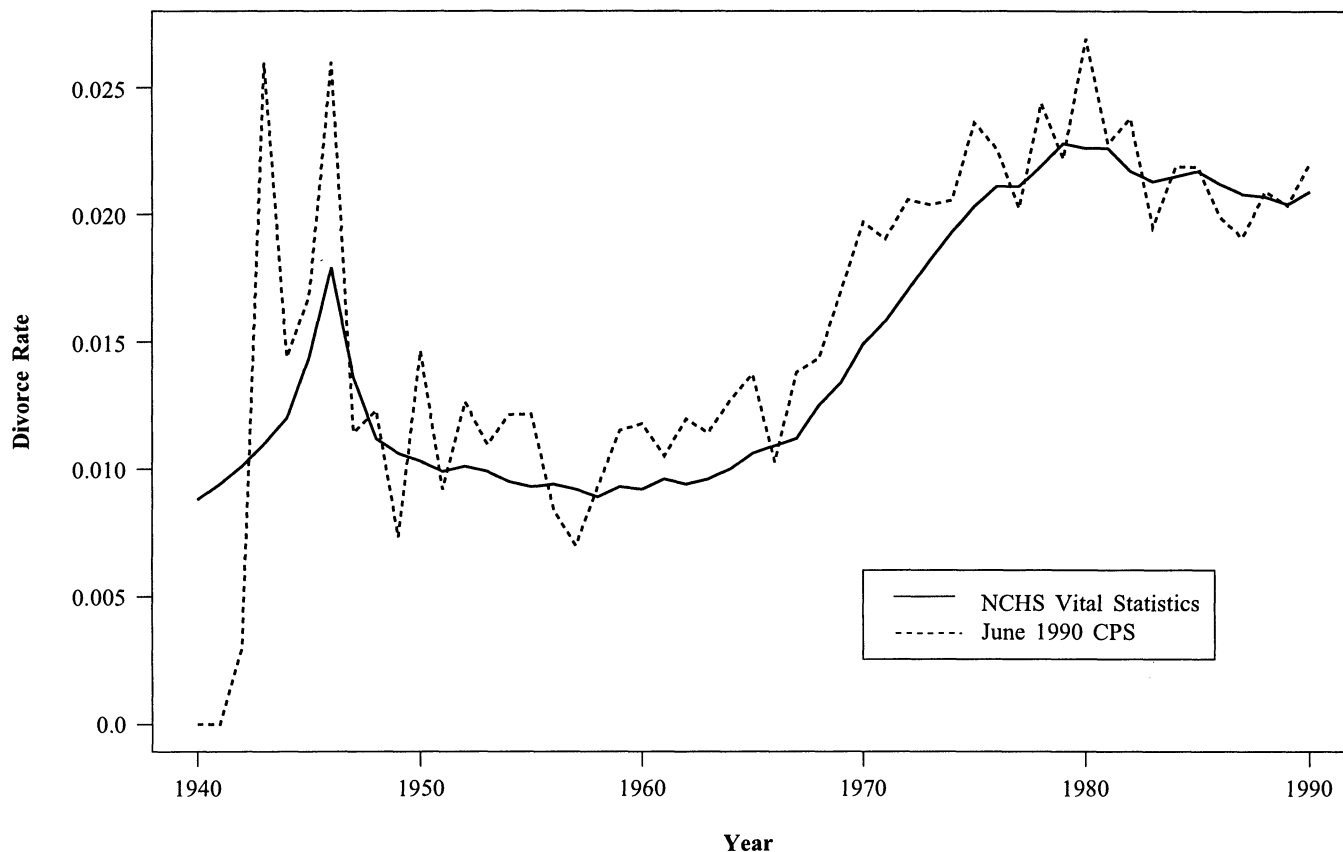
Data for both the duration-specific divorce rate and multivariate analyses are based on female marital histories from the June 1990 and June 1995 CPS. The two surveys were combined so that most years included retrospective data from both 1990 and 1995. Data quality has been a concern for the data gathered in the CPS because of their retrospective nature: Both marriages and divorces are underreported in the CPS (London 1986; Pendleton, McCarthy, and Cherlin 1983), and there are many missing responses imputed. When the CPS is used for both the denominator and the numerator of divorce rates, however, these difficulties are not severe. Figure 1 shows that annual crude divorce rates for married persons calculated from the 1990 CPS correspond well with the vital statistics time-series data. Vital statistics are the basis for the published estimates of the crude divorce rates, but are not suitable for the estimation of duration-specific rates because there is no direct way to estimate the exposure of the population at risk of divorce.² Rates in the early years of

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1. Martin and Bumpass (1989:49) cautioned regarding divorce that "[W]e should be slow to interpret plateaus or reversals as turning points in processes with such deep historical roots." In their review article, DaVanzo and Rahman (1993:13) concluded, "Although this 'decline' in divorce rates has generated a great deal of interest, it may be nothing more than a brief fluctuation." Ruggles (1997), and others commenting on his work (Oppenheimer 1997; Preston 1997), discussed increases in divorce and separation from 1880 to 1990 while hardly mentioning that the rise in divorce appears to have come to an end.

2. Vital statistics are used in published tabulations of age-specific divorce rates, but the tabulations here required special estimates of the married population at risk of divorce from the Census Bureau. Sample surveys are likely to be the major source of information on divorce trends in the future because collection of divorce certificate data for vital statistics is being discontinued (U.S. Department of Health and Human Services 1995).

FIGURE 1. COMPARISON OF CRUDE ANNUAL DIVORCE RATES FOR MARRIED PERSONS: JUNE 1990 CPS AND NCHS



Note: The 1940–1990 NCHS rates include all women aged 15 and over, whereas the CPS includes only women aged 15 to 65.

both surveys are based on very little exposure, so the analysis is limited to rates calculated from 1960 through 1995. Marital duration is measured by single years from 0 through 9 years, and in five-year intervals for durations of 10 years and above.

Statistical Analysis

The statistical model used for the analysis of change over time is based on models recently applied to large arrays of mortality rates (Lee and Carter 1992; Wilmoth 1990). The model is linear in the logarithms of divorce rates. Modeling logs tends to equalize the variance and provide more reliable estimates of coefficients. Exploratory analysis showed that duration-specific divorce rates tended to vary proportionally, rather than additively, from year to year.

To account for the variation in exposure rates calculated from retrospective data, I model the number of events given the exposure:

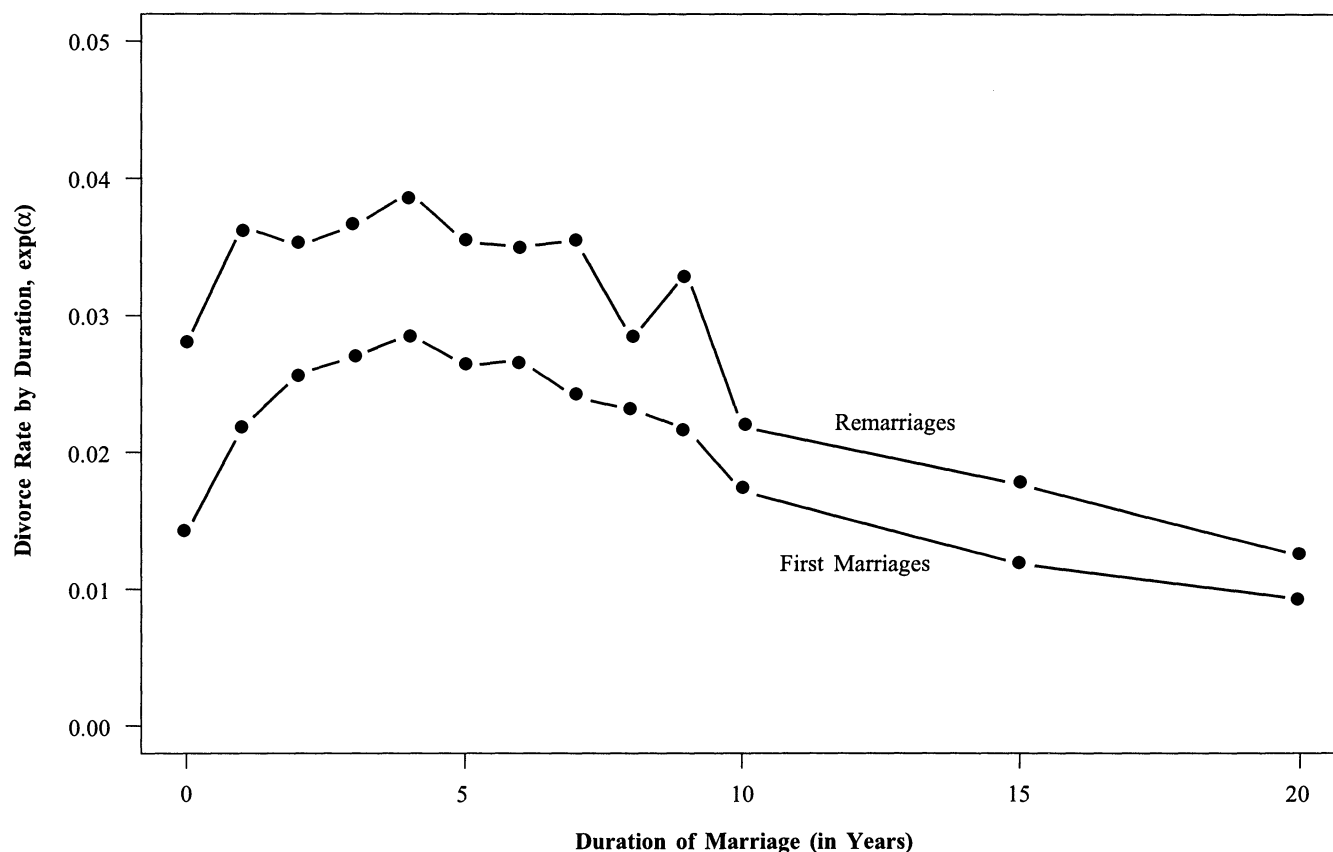
$$\log D_{x,t} = \alpha_x + \beta_t + \log E_{x,t} + \epsilon_{x,t}, \quad (1)$$

where $D_{x,t}$ is the number of divorces of duration x at time t , $E_{x,t}$ is the person-years of marital exposure of duration x at time t , and ϵ is the residual from the model. The model is fit separately for divorces from first marriages and divorces from remarriages, generating two sets of duration (α) coefficients and two sets of period (β) coefficients.

The exponentiated marital duration effects for both first marriages and remarriages are shown in Figure 2. The duration-specific pattern of divorce is remarkably similar for first marriages and remarriages. Divorce rates peak during the fourth year for both first marriages and remarriages. The level of divorce for remarriages is consistently higher for all durations.

In their analysis of age-specific rates, Martin and Bumpass (1989) question whether divorce rates from remarriage are actually higher than those from first marriages, proposing instead that duration-related selection effects explain most of the difference. The duration analysis given here, however, shows that, at equal durations, levels of divorce are indeed higher for remarriages than for first marriages.

FIGURE 2. ESTIMATED MARITAL DURATION EFFECTS FOR DIVORCE, BY MARRIAGE ORDER



The estimated period coefficients of divorce by marriage order are shown in Figure 3. Zero represents the average level of the time series during the entire 1960–1995 period. Thus, a value of 0.538 means that the level of divorce in that year was $e^{0.538} = 1.7$ times the average level during the period.

The period coefficients in Figure 3 show that the leveling of divorce rates seen since 1980 is not an artifact of using crude rates: The plateau is clear even after duration and marriage order are controlled. In fact, increases in the divorce rate were already beginning to wane in the mid-1970s. The trend of divorce is flatter for remarriages than for first marriages and may even have declined somewhat, although small sample sizes make any interpretation of the time trend of remarriage speculative.

Having shown that the plateau in divorce persists even after population age structure and marital order are accounted for, I turn to multivariate methods to determine if individual-level factors, such as delayed age at marriage, changes in childbearing, or a slowdown in the trend toward female economic independence, can explain the plateau. I use Cox regression to produce a set of period effects, controlling for respondents' education level (less than a high

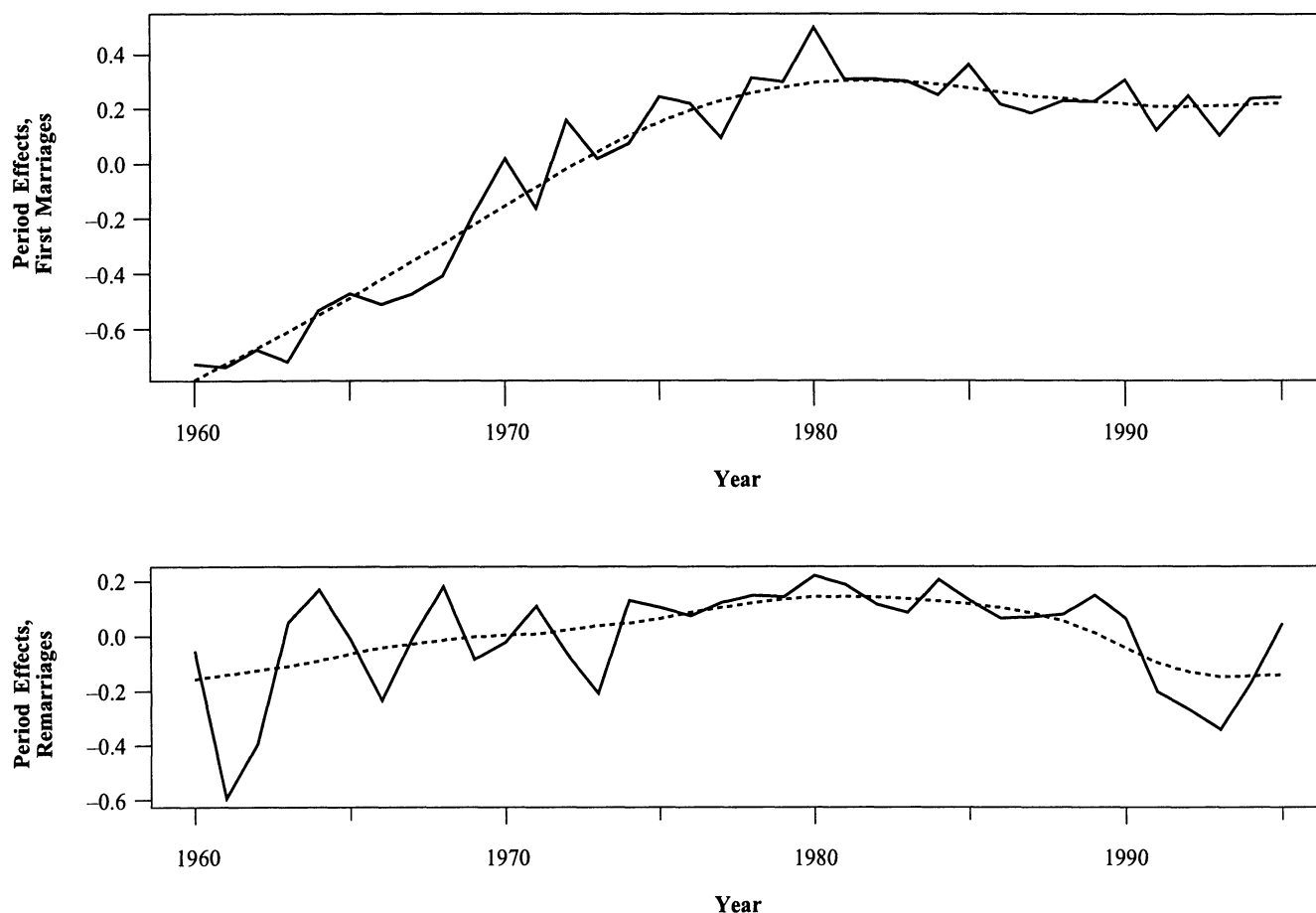
school education, high school education, or more than a high school education), the number of children born in a marriage (none, one, or more than two), the presence of children born before the marriage, and age at marriage. The model has the form

$$r(t) = h(t) \exp \{ \beta_p X_p(t) + \beta_E X_E + \beta_K X_K(t) + \beta_R X_R + \beta_A X_A \}, \quad (2)$$

where $h(t)$ is the baseline hazard of divorce after t years of marriage, β_p is the set of period effects, β_E is the set of education effects, β_K is the set of effects for number of children born, β_R is the effect of at least one birth before marriage, and β_A is the effect of age at marriage. The period and children effects are modeled as time-dependent covariates. The period coefficients from this model (shown in Figure 4) demonstrate that controlling for covariates does not change the basic pattern of divorce over time. Divorce rates would have leveled even if there had been no change in age at marriage, the educational attainment of women, the number of children, and the timing of childbearing.³

3. The slight decline in the 1985–1989 period is consistent with the pattern in the annual crude divorce rate, but it is not statistically significant.

FIGURE 3. ESTIMATED AND SMOOTHED PERIOD INTENSITIES OF DIVORCE, BY MARRIAGE ORDER: 1960–1995



Cohabitation and Divorce

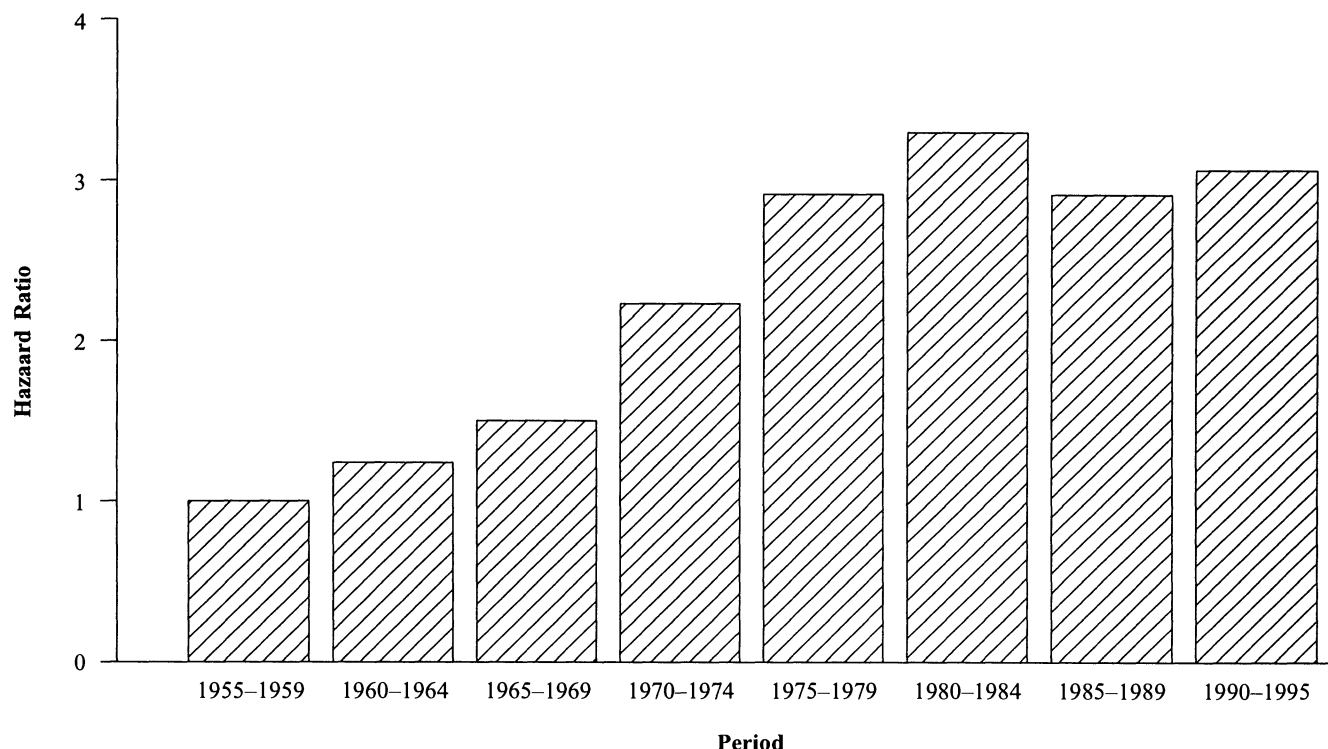
Many have suggested that the rising prevalence of nonmarital cohabitation may have masked a continued increase in the instability of “marriage-like” unions while the divorce rates of official marriages leveled out (Bumpass and Sweet 1989:621). Between 1980 and 1990, the number of cohabiting unions increased from 1.5 million to 2.9 million (U.S. Bureau of the Census 1998). Is the magnitude of this increase enough to explain the plateau in divorce?

To estimate the effect of increases in cohabitation, I address a counterfactual question: What would the crude divorce rate have been if all of the additional cohabiting couples after 1980 had instead chosen to marry? The number of nonmarried cohabiting unions increased from 1.6

million in 1980 to 2.0 million in 1985, 2.9 million in 1990, and 3.7 million in 1995 (U.S. Bureau of the Census 1998: table AD-2). Thus, one can ask how many additional divorces there would have been, say, in 1990 if the 1.3 million additional cohabitators (2.9 million minus 1.6 million) instead had married. Although it is not possible to know exactly what the divorce rates of these “missing” marriages would have been, it is possible to bracket a possible range. Marriage-like unions (Bumpass and Sweet 1989)—that is, those couples who before 1980 would have married but after 1980 chose instead to cohabit—should be more stable than the average cohabiting union but less stable than the average marriage.

To estimate the crude dissolution rate of cohabiting couples, I combine life table estimates of the durability of cohabiting unions (Bumpass and Sweet 1989:620) with the cross-sectional duration structure observed in the 1987–1988 National Survey of Families and Households (Bumpass, Sweet, and Cherlin 1991:919). This produces an

The standard errors of the hazard ratios for the 1980–1984, 1985–1989, and 1990–1995 periods are about 0.33, more than the estimated change between these periods.

FIGURE 4. PERIOD EFFECTS ON HAZARDS OF DIVORCE FROM FIRST MARRIAGES, CONTROLLING FOR AGE AT MARRIAGE, EDUCATION, NUMBER OF CHILDREN, AND TIMING OF CHILDBEARING

estimate of 15%, roughly seven times the crude divorce rate.

Table 1 shows the crude divorce rate under a range of hypothetical scenarios. The second column shows what would have happened if the crude divorce rate had continued to increase at the rate it did from 1960 to 1980. The third, fourth, and fifth columns show the hypothetical crude divorce rates that would have occurred if there had been no increase in cohabitation, but instead these new cohabiting couples had married. The low estimate corresponds to the assumption that the new marriages would have been as stable as the marriages that actually took place; it corresponds to the observed crude divorce rate. The high estimate assumes that all of the new marriages dissolved at the rate at which all cohabiting couples dissolved their unions. The middle estimate is the arithmetic average of the high and low estimates.

None of the three cases, even the high estimate, come close to replicating the increase that would have been seen if there had been no plateau in divorce rates (compare columns 3, 4, and 5 with column 2). In fact, only the high estimate shows any increase in the divorce rate after 1990, accounting for about one half of the gap between the observed and extrapolated rates. The middle estimate explains only about one sixth of the gap.

CONCLUSION

The plateau in divorce rates observed since 1980 marks a break in the more than century-long rise in divorce rates. Compositional factors, such as the age structure of the population (measured in terms of marital duration), age at marriage, and marriage order, fail to account for the leveling of divorce rates. If anything, controlling for the compositional effect of increased remarriage sets the beginning of the pla-

TABLE 1. THE CRUDE DIVORCE RATE (PER 1,000 MARRIAGES), OBSERVED AND UNDER VARIOUS HYPOTHETICAL SCENARIOS, 1980-1995

Year	Linear Extrapolation From 1960-1980	Scenarios Without Increased Cohabitation			Observed
		Low Estimate	Middle Estimate	High Estimate	
(1)	(2)	(3)	(4)	(5)	(6)
1980	22.6	22.6	22.6	22.6	22.6
1985	26.0	21.7	22.2	22.6	21.7
1990	29.3	20.9	22.4	23.8	20.9
1995	32.7	19.8	22.0	24.2	19.8

teau several years before the 1980 leveling of the crude divorce rate. Changes in the individual characteristics and behavior, such as age at marriage, educational attainment, number of children, and the timing of childbearing, also fail to explain the plateau. Finally, any increased selectivity of marriage linked to cohabitation appears to be only a small part of the story behind the leveling of marital instability.

Despite its leveling off since 1980, the divorce rate in the United States is still the highest in the world. If the plateau continues, however, the children born in the late 1970s (who are beginning to marry now) will, for the first time in generations, face risks of divorce similar to their parents. To the extent that we believe that "expectations about divorce are partly self-fulfilling" (Becker 1991:329), the recent plateau could well break the momentum that has increased marital instability over the last century. Although I have not presented forecasts, my findings lend credence to the predictions of those such as Bell and Kumar (1996), who assumed in their forecasts for the Social Security Administration that the period rate of divorce will continue at its present level.

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