

Change in the Stability of Marital and Cohabiting Unions Following the Birth of a Child

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Abstract The share of births to cohabiting couples has increased dramatically in recent decades. How we evaluate the implications of these increases depends critically on change in the stability of cohabiting families. This study examines change over time in the stability of U.S. couples who have a child together, drawing on data from the 1995 and 2006–2010 National Survey of Family Growth (NSFG). We parse out the extent to which change in the stability of cohabiting and married families reflects change in couples' behavior versus shifts in the characteristics of those who cohabit, carefully accounting for trajectories of cohabitation and marriage around the couple's first birth. Multivariate event history models provide evidence of a weakening association between cohabitation and instability given that marriage occurs at some point before or after the couple's first birth. The more recent data show statistically indistinguishable separation risks for couples who have a birth in marriage without ever cohabiting, those who cohabit and then have a birth in marriage, and those who have a birth in cohabitation and then marry. Cohabiting unions with children are significantly less stable when de-coupled from marriage, although the parents in this group also differ most from others on observed (and likely, unobserved) characteristics.

Keywords Marriage · Cohabitation · Nonmarital childbearing · Union dissolution · Family stability

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Introduction

The share of births to unmarried women in the U.S. has almost doubled over the past 25 years: from 22 % in 1985 to 41 % in 2010 (Martin et al. 2012). The shift from marital to cohabiting births accounts for much of the increase over this period, particularly in the first decade of the twenty-first century (Kennedy and Bumpass 2011; Martinez et al. 2012; Raley 2001). As of the mid-2000s, 59 % of nonmarital births—21 % of all births—were to cohabiting parents (Lichter 2012). From the perspective of children, living with two cohabiting parents in many ways resembles living with two married parents, with two potential earners and caretakers in the household. However, couples who have a child within cohabitation are more likely to separate than those who are married at the time of birth (Manning et al. 2004; Raley and Wildsmith 2004; Tach and Edin 2013; Wu and Musick 2008), and a growing body of research has demonstrated negative associations between family transitions and child well-being (Cavanagh and Huston 2006; Craigie et al. 2010; Fomby and Cherlin 2007; Fomby and Sennott 2013; Magnuson and Berger 2009; Osborne and McLanahan 2007; Wu 1996; Wu and Martinson 1993). How we evaluate the implications of increases in childbearing within cohabitation thus depends critically on trends in the stability of cohabiting families.

The second demographic transition theory posits that cohabitation should become more normative and look increasingly like marriage over time: namely, that childrearing in cohabitation should become more common and cohabiting families should become more stable over time (Kiernan 2000; Van de Kaa 1987). A contrasting view points to the increasingly privileged position of marriage relative to cohabitation, both in terms of who selects in and the social status accorded to married couples (Cherlin 2009; Furstenberg 1996), suggesting growing differences in the stability of married and cohabiting families. No empirical work to date has directly assessed change over time in the stability of couples following the birth of a child. Prior studies on change in the stability of cohabitation have relied on broad samples of cohabitators, including childless cohabitators, those with children from prior relationships, and those with biological children (e.g., Kennedy and Ruggles 2013; Lichter et al. 2010)—groups that vary in their reasons for cohabiting and commitment to the relationship (Reed 2006).

We limit our analysis to couples who have a child together, who arguably have the most at stake in staying together. Cohabiting couples with children express high hopes that their relationships will last (Gibson-Davis et al. 2005; Waller 2001) and experience higher emotional distress following separation than those without children (Tavares and Aassve 2013). Further, couples with children are of particular concern from a policy perspective given that parental separation directly affects children's living arrangements and often the resources available to them (Tach and Eads 2015; Tach et al. 2010). Our analysis draws on data from the 1995 and 2006–2010 National Survey of Family Growth (NSFG) to assess change in the stability of couples who had a first birth together within 10 years of the survey (born in 1990 vs. 2003 at the median). Using discrete-time event history analysis, we parse out the extent to which change in the stability of cohabiting and married families reflects change in couples' behavior versus shifts in the characteristics of those who cohabit, carefully accounting for trajectories of cohabitation and marriage around the couple's first birth. This article illustrates change in patterns of stability using simple simulations to generate predicted probabilities of

union dissolution, altering assumptions about union formation and the composition of unions over time.

Background

Change in the Stability of Cohabiting Families Over Time

Conceptual models of family change provide contrasting views on how we might expect the stability of cohabiting families to change over time. Drawing on the second demographic transition theory, Kiernan (2000) posited a series of stages in which cohabitation emerges as a marginalized behavior and gradually becomes an accepted family form. Along the way, distinctions between cohabitation and marriage fade, and cohabitation transitions from a short-term and largely childless state to a much more stable arrangement in which having and raising children is commonplace. Consistent with this notion, childbearing within cohabitation has increased across Europe since the 1970s, as has the share of couples still cohabiting three years after conceiving a child (Perelli-Harris et al. 2012: table 3). Cherlin's (2004) deinstitutionalization hypothesis also predicts fading distinctions between cohabitation and marriage as social norms defining partners' behavior in marriage grow weaker over time (e.g., with less rigidity in gendered family roles) and norms defining cohabitation grow stronger (e.g., with greater legal recognition). As with the second demographic transition theory, deinstitutionalization points to growing similarity in the childbearing behavior and relationship stability of marriage and cohabitation.

An alternative view points to persistent differences and potentially divergence in the experiences of marriage and cohabitation. This forecast draws on ideas emphasizing the growing symbolic significance of marriage as a marker of prestige (Cherlin 2009; Furstenberg 1996) and on accounts that men and women of all education levels place a high value on marriage but perceive substantial economic prerequisites (Carlson et al. 2004; Edin and Kefalas 2005; Gibson-Davis 2009; Gibson-Davis et al. 2005; Smock et al. 2005). Short of these prerequisites, couples forgo marriage and opt into cohabitation as a "budget" route to family formation (Furstenberg 1996). The increasing social value of marriage relative to cohabitation is consistent with McLanahan's (2004) discussion of the differential impact of the second demographic transition on women, with associated economic and ideational changes undermining stable relationships for women at the bottom of the education distribution and strengthening them for women at the top. It is also consistent with Perelli-Harris et al.'s (2010) cross-national investigation of cohabiting fertility, which emphasized the link between economic instability and the impermanence of cohabitation. Together, these strands of research have suggested that despite increases in cohabiting fertility, the experiences of marital and cohabiting families may remain distinct—and potentially diverge over time. In particular, cohabitation may remain a less-stable union form, and grow less stable over time relative to marriage.

In assessing change in the nature of cohabitation over time, prior U.S. work has typically analyzed heterogeneous groups of cohabitators at various life stages. To our knowledge, no prior work has looked specifically at change in the stability of couples who have a child together, despite what would seem a quite different process with

greater costs to those involved. Available estimates of change pooling over cohabitators with and without children are somewhat mixed, showing a leveling off or decline in the risk of dissolution from first cohabitation between the early 1980s and 2000s (Kennedy and Bumpass 2008; Kennedy and Ruggles 2013), but an increase from first- and higher-order cohabitations since the 2000s (Guzzo 2014). Transitions to marriage among cohabitators have declined (Bumpass and Lu 2000; Guzzo 2014; Kennedy and Bumpass 2008, 2011; Lichter et al. 2006); and among the most recent cohorts, the long-standing link between premarital cohabitation and marital instability has disappeared (Manning and Cohen 2012; Reinhold 2010). Whether trends among cohabiting couples with children follow these general patterns is an open question, as both norms about having children in cohabitation and the characteristics of cohabiting parents may be changing in ways that differentially play into their risks of dissolution.

Change in the Characteristics of Cohabiting Families

Cohabitation—particularly as a context for having children—has always been more common among the least-advantaged men and women (Bumpass and Lu 2000; Kennedy and Bumpass 2008). In recent years, education differences in childbearing within cohabitation have blurred along the lower end of the education distribution but not at the top: between 1997–2001 and 2002–2007, there was a 40 % increase in the proportion of births within cohabitation among moderately educated women (with a high school diploma or some college) in contrast with little or no change among women with the lowest and highest levels of education (Kennedy and Bumpass 2011: table 6). In both periods, just 3 % of all births to college graduates were to cohabiting women (Kennedy and Bumpass 2011). The implications of changes in education patterns for the stability of families are not entirely straightforward. College graduates are increasingly distinct in their hold on childbearing in marriage, and the association between college and marital stability has strengthened over time (Martin 2006; Raley and Bumpass 2003). Yet, relative to women who do not complete high school, those with a high school diploma or some college should have more stable unions, and cohabiting family formation has moved especially rapidly into these educational ranks. Higher average levels of education among cohabiting parents may promote stability, although perhaps not relative to married parents, who are increasingly selected on college graduation.

Changes in the composition of cohabitators on the basis of union and childbearing histories may also factor into changes in the relative stability of cohabiting and married families. The share of men and women reporting multiple premarital cohabitations (serial cohabitation) has risen over time (Cohen and Manning 2010; Lichter et al. 2010). A history of prior cohabitation is more common among cohabiting versus married parents (Osborne et al. 2007) and is associated with lower marriage expectations and chances (Cohen and Manning 2010; Lichter and Qian 2008). The presence of children from another relationship (multipartnered fertility) has also risen and is more prevalent among unmarried parents (Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007a, b; Tach and Edin 2013; Thomson et al. 2014). Research on marital dissolution has consistently linked prior union and childbearing experiences to increased instability (e.g., Lichter and Qian 2008; Martin and Bumpass 1989; Sweeney 2010; Teachman 2002, 2003), and a growing body of work has found these factors to be associated with union dissolution among unmarried parents

(Carlson et al. 2004; Lichter et al. 2006; Manlove et al. 2012; Osborne et al. 2007; Tach and Edin 2013). Evidence thus suggests that growing family complexity may lead to greater instability among cohabiting- versus married-parent families.

Beyond education and family complexity, the characteristics of cohabiting parents may be changing in other ways that could account for change in the stability of cohabiting families relative to married-parent families. These include observable characteristics, such as race/ethnicity, family background, age at birth, the intendedness of the couple's first birth together, and subsequent fertility within the union—all factors associated (albeit in different ways) with both union stability (Carlson et al. 2004; Guzzo and Hayford 2012; Manlove et al. 2012; Osborne et al. 2007; Phillips and Sweeney 2006; Teachman 2002) and cohabitators' transitions to marriage (Carlson et al. 2004; Lichter and Qian 2008; Lichter et al. 2006; Manlove et al. 2012). Accounting for a detailed set of observable characteristics helps control for the compositional changes that may drive change in union stability over time.

Unobserved correlates of parents' union status and transitions, however, may still confound efforts to separate compositional and behavioral components of change. For example, as barriers to cohabitation decline, more couples may "slide" into cohabitation and childbearing at lower levels of commitment (e.g., Manning and Smock 2005). Alternatively, as the social imperative to marry declines, couples at higher levels of commitment may decide on childbearing with less concern over marriage or its timing relative to childbirth. These processes both reflect and play into changes in the meaning of cohabitation.

Transitions From Cohabitation to Marriage Around the Time of a Birth

Many cohabiting couples marry at some point before or after having a child, further complicating how we assess the stability of cohabiting families. Key to our analysis of childbearing unions, a handful of studies have investigated the (point-in-time) association between relationship stability and union transitions around the time of a birth. Data from the 1995 NSFG showed that couples who were cohabiting at birth and subsequently married were more stable than those who remained cohabiting (Manning et al. 2004; Wu and Musick 2008). Wu and Musick (2008) further disaggregated union trajectories and estimated the lowest odds of instability among couples with no cohabitation experience, somewhat higher odds among cohabitators transitioning to marriage before or after the birth, and the highest odds among cohabitators who never transitioned to marriage. Notably, among cohabitators who married, there was no association between the timing of marriage relative to childbirth and union stability. Using data from the 1997 National Longitudinal Survey of Youth (NLSY97), Rackin and Gibson-Davis (2012) similarly found little difference in stability between couples entering marriage before and after conceiving their first child.

Thus, in studies that carefully account for union transitions around a couple's first birth, ever cohabiting is associated with greater instability and ever marrying with less, but the precise ordering of marriage and parenthood among cohabitators who marry matters little for subsequent stability. If cohabitators' decisions to marry were driven primarily by accidental pregnancies and practical issues around coparenting, the ordering of marriage and childbirth would presumably matter more (e.g., Reed 2006). It appears instead that cohabiting couples may be jointly planning marriage and childbirth

as the quality and commitment of their relationship grows, with little regard to which comes first. We build on this attention to the ordering of union transitions and childbirth, expanding on prior work by exploring changes in these relationships over time.

Our analysis focuses on how the stability of union-birth trajectories has changed over time, using an event history framework and simple simulations to assess whether there has been a convergence or divergence in the stability of relationship trajectories involving cohabitation and marriage. In particular, we address the following questions: Has the role of cohabitation in family formation evolved such that cohabiting is now a weaker marker of instability, and marrying a weaker marker of stability? Or should we expect the opposite based on accounts of marriage's rising social status? Further, as cohabiting fertility increases, are more cohabiting parents compelled to marry at lower levels of commitment, suggesting sharper differences in the stability of cohabitators who transition to marriage before versus after a birth? Or conversely, in the context of waning pressure to formalize relationships prior to a child's birth, are committed couples increasingly planning families without regard to when in the process marriage occurs? In the following sections, we describe the details of our approach.

Data and Method

NSFG Samples

We use data from the 1995 and 2006–2010 NSFG, nationally representative fertility surveys of women aged 15–44 (Abma et al. 1997; National Center for Health Statistics 2011). The NSFG is a repeated cross section and has been conducted six times between 1973 and 2002; in 2006, the National Center for Health Statistics (NCHS) moved to continuous interviewing, spreading data collection over time rather than collecting it in cycles. For a discussion of this innovation, see Lepkowski et al. 2010. Interviews are in-person and include complete fertility, marriage, and (beginning with the 1995 survey) cohabitation histories. In 1995, 10,847 women were interviewed (79 % response rate), and the 2006–2010 NSFG includes 12,279 women (78 % response rate).¹ The 1995 NSFG oversampled Hispanics and blacks; in addition to these groups, the 2006–2010 NSFG oversampled respondents aged 15–24. Sampling weights adjust for differences in sampling rates, response rates, and coverage rates and are applied in all analyses (using the *SVY* commands in STATA 12.0).

Our analysis includes all marital and cohabiting unions bearing a child within 10 years of the 1995 and 2006–2010 interviews (i.e., between 1985–1995 and 1997–2010, respectively, representing parenthood cohorts). Restricting births to a 10-year window limits retrospection bias in union histories (Hayford and Morgan 2008) and includes women up to age 35 in the first year of observation (and age 44 by the last year of observation), beyond which a relatively small share of women go on to have a first

¹ The NSFG has historically been a survey of women, but men were added as of 2002. Unfortunately for our purposes, the 2002 round contained an error in skip patterns, resulting in substantial missing data on dates of marital separation (Kennedy and Bumpass 2008). We thus rely on data on women from 1995 and 2006–2010 NSFGs, which span rapid increases in cohabiting fertility.

child (Martinez et al. 2012). Our union sample includes 2,656 unions from the 1995 survey (2,562 women) and 3,046 unions (2,907 women) from 2006–2010. Although it is uncommon, women may contribute more than one union to the analysis file (models account for clustering, as described later).

To explore change in union stability, we transform our union-level file into a union-month file. We assess union duration in units of a month to allow for relative precision in the timing of transitions into marriage and separation, which commonly occur at short durations among cohabitators. The risk of separation is clocked from childbirth to reflect our interest in the stability of couples who have a child together, a group of significance from scientific and policy perspectives. Our union-month file thus includes one record for every month at risk of union dissolution from the time of birth until separation or censoring at interview, for up to 120 months (10 years). The final sample totals 136,955 months from the 1995 survey and 145,434 months from the 2006–2010 survey.

Modeling Union-Birth Trajectories

Following the strategy of Wu and Musick (2008), we model four union-birth trajectories: (1) married at union start and birth (M→B); (2) cohabiting at union start and married at birth (C→M→B); (3) cohabiting at birth and married at some time t following the birth (C→B→M); and (4) cohabiting at birth without ever marrying (C→B).² To examine the link between these trajectories and union stability, we run discrete-time event history models of the general form:

$$\log[P_t/(1-P_t)] = \alpha_1 + \alpha_2 dur_t + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_{3t} + \text{sociodemographic characteristics}, \quad (1)$$

where the log odds or logit of separation is an additive function of covariates, and t indexes union duration in months from a first birth. The parameters α_1 and α_2 represent the baseline hazard, or the value of the log odds of separation at duration t when all other covariates are 0. The x s are union status indicators constructed from the union and fertility histories. Two are duration-invariant, and the third varies with union duration: $x_1 = 1$ if cohabiting at union start (0 if married at union start); $x_2 = 1$ if cohabiting at birth (0 if married at birth); and $x_3 = 1$ if married in month t following birth (0 if cohabiting). Net of sociodemographic characteristics, this model yields the parameters shown in the following table for our four union-birth trajectories and selected contrasts among them:

Trajectories	Parameters	Selected contrasts
1) M→B	β_3	2 vs. 1: β_1
2) C→M→B	$\beta_1 + \beta_3$	3 vs. 2: β_2
3) C→B→M	$\beta_1 + \beta_2 + \beta_3$	4 vs. 3: β_3
4) C→B	$\beta_1 + \beta_2$	4 vs. 1: $(\beta_1 + \beta_2) - \beta_3$

² We focus on union status transitions around the time of birth, without accounting separately for transitions during pregnancy. Most transitions during pregnancy now involve cohabitation as opposed to marriage, and couples cohabiting at birth differ little in their subsequent relationship stability and demographic characteristics by whether they transitioned into cohabitation before or after conception (Rackin and Gibson-Davis 2012).

Models are run separately for our 1995 and 2006–2010 samples. We test the statistical significance of contrasts (across union-birth trajectories and over time) using the Wald test, which is computed based on the estimated coefficients and covariance matrix and is asymptotically equivalent to the likelihood-ratio test. Model estimates are clustered at the individual level to account for correlation in error terms among women contributing more than one union.³ To aid in the interpretation of results, we transform our discrete-time logits into monthly predicted probabilities of separation, varying key characteristics and holding others at their weighted mean values. We then multiply the monthly predicted probabilities (i.e., conditional predicted probabilities) to generate the probability of separation within five years of birth—a more intuitive measure than either an estimated odds ratio or predicted monthly probability. Finally, we illustrate the substantive implications of our findings by altering assumptions about the changing distribution and characteristics of unions over time.

Education, Family Complexity, and Controls

Education

The 1995 NSFG contains complete education histories, making it possible to map transitions into and out of schooling onto first birth and union transitions. However, insufficient information is available for 2006–2010 (only the date of high school graduation and, for the later years of interviewing, college graduation) with which to precisely date births relative to schooling transitions. We thus rely on highest degree attained by interview and compare women with less than a high school diploma, a high school diploma, some college (including associate degree), and a college (bachelor's) degree or more. Education at interview overstates education at birth to the extent that women complete additional schooling after having a child: evidence suggests that this slippage should be small given that education levels change little after the birth of a child (Gault et al. 2014; Goldrick-Rab and Sorensen 2010).

Family Complexity

We use complete cohabitation and marriage histories to construct indicators for whether the respondent was previously married and whether she ever lived with another partner outside of marriage. We also compare union and fertility histories to generate an indicator for whether the respondent had any children prior to moving in with or marrying her partner. For women with children born prior to the current cohabitation or marriage, we indicate whether she had a child younger than 1 year old at union start, 1–2 years old, or older than 2. Because the NSFG has no information on noncoresidential relationship histories for our sample, we cannot be sure that children born outside a coresidential relationship are actually children from a *prior* relationship: that is, they could be joint children born prior to coresidence. That scenario would be more likely among children born shortly before a cohabitation or marriage start date versus children born much earlier. Family complexity is measured from the perspective

³ In results not shown, main findings are insensitive to the inclusion of multiple unions.

of the respondent because the NSFG includes limited information on partners' union and birth histories, particularly in 1995.⁴

Controls

We control for several background characteristics of the respondent, including race/ethnicity, her mother's and father's educational attainment, whether she grew up with both biological parents, and whether she grew up attending church on a weekly basis. We include the respondent's and partner's age at first birth in the union, whether the pregnancy leading to birth was mistimed or unwanted, and the duration in cohabitation or marriage at the time of birth. Finally, we include a time-varying indicator for whether the couple had a second child together. Whereas the respondent reports on the father's age at birth for each of her pregnancies, other information on fathers is generally limited, as noted earlier: for example, race/ethnicity and education are not collected in the context of pregnancy histories and are not available for all prior partners. Table 6 in the appendix provides descriptive statistics on key covariates and controls.

Results

Describing Patterns of Change

The first panel of Table 1 presents means on our union status indicators: cohabiting at union start and birth are invariant within unions; cohabiting in month t following birth varies with union duration. Data show a striking shift from marriage to cohabitation between the 1995 and 2006–2010 surveys. Among couples having a child together, the share cohabiting at union start increased from one-half to 70 %, and the share cohabiting at birth increased twofold, from 17 % to 35 %. The proportion of all months spent married declined from 93 % to 81 % from the time of the couple's first birth to separation or censoring (at interview or 10 years duration). This figure includes both continuously married couples and cohabiting couples marrying after childbirth. To give a better indication of change in the share transitioning from cohabitation to marriage, the second panel of Table 1 shows life table estimates of marriage among those cohabiting at birth. Here, we see a marked decline in marriage among cohabitators within one, two, and five years of birth—for example, a decline from about 60 % to just less than one-half marrying within five years of birth.

Table 2 presents change in the characteristics of couples with children, separately for those cohabiting versus married at union start and birth, focusing in particular on shifts in the distributions of education and family complexity. Changes in education in part reflect educational upgrading in the overall population: over time, the shares college-educated increased among both those cohabiting and married at union start. However, change was much less even among those cohabiting versus married at birth, with

⁴ In 1995, partners' prior marriages were ascertained for only a subset of unions, and no information was collected on partners' children from prior relationships or past cohabitations. In 2006–2010, women were asked about partners' previous marriages and children from prior relationships, but not about past cohabitations.

Table 1 Union status around a couple's first birth, 1995 and 2006–2010 NSFG

	1995	2006–2010
Union Status Indicators		
Cohabiting at union start ($x_1 = 1$)	0.50	0.70 ^a
Cohabiting at birth ($x_2 = 1$)	0.17	0.35 ^a
Proportion of all months spent married following birth ($x_{3t} = 1$)	0.93	0.81 ^a
<i>N</i> (unions)	2,656	3,046
<i>N</i> (union-months)	136,955	145,434
Transitions to Marriage Among Those Cohabiting at Birth		
Married within 1 year	0.21	0.15 ^a
Married within 2 years	0.34	0.25 ^a
Married within 5 years	0.59	0.48 ^a
<i>N</i> (unions)	511	1,348
<i>N</i> (union-months)	19,182	51,411

Notes: *N*s are unweighted. All means are weighted using *SVY* procedures in STATA 12.0. Time-invariant characteristics are measured in the month of the couple's first birth together (i.e., the first month of the union-month file). Time-varying characteristics (married in month *t*) are estimated from the full union-month sample. Transitions to marriage are generated from life tables that treat union dissolution as a competing risk.

Source: 1995 and 2006–2010 NSFG (women only). Sample is limited to couples who had a first child together within 10 years of interview.

^a Significantly different from 1995 at $p < .05$.

cohabiting mothers making gains entirely in some college attainment, and married mothers moving rapidly into the ranks of college completers. Just 4 % to 5 % of all cohabiting mothers in both periods had a college degree; this is compared with an increase from 28 % to 49 % of married mothers with a college degree in the 1995 and 2006–2010 samples, respectively. Gaps in education by union status are much wider when measured at the couple's first birth than at the start of their union.

Changes in prior union and childbearing experiences appear less important, to the extent that we are able to capture them from the mother's perspective only. Consistent with prior literature, we see evidence of increasing serial cohabitation; less discussed, however, we also see evidence of declining serial marriage (changes statistically significant among all but those married at union start). For example, among those cohabiting at birth, the share who previously cohabited increased from 16 % to 23 % over time—a change almost completely offset by declines in the share previously married (13 % in the 1995 survey vs. 7 % in 2006–2010). Patterns of change were similar for those married at birth, although a history of prior unions was not as common, particularly prior cohabitation. Unexpectedly, data show stability or declines in the share of mothers with a child from a prior relationship. Among cohabiting mothers, for example, the share with a child from a previous relationship declined from 27 % to 21 %; this is compared with 7 % and 5 % among married mothers in 1995 and 2006–2010, respectively (decline not statistically significant). Point-in-time differences between cohabiting and married mothers (as well as between those cohabiting and married at union start) are more striking than change over time.

Table 2 Key characteristics of couples who had a child together by union status at union start and birth, 1995 and 2006–2010 NSFG

	Union Status at Union Start		Union Status at Birth	
	Cohabiting		Married	
	1995	2006–2010	1995	2006–2010
R's Education (highest degree at interview)				
Less than HS	0.17	0.19	0.08	0.10
HS diploma	0.43	0.28 ^a	0.35	0.16 ^a
Some college	0.24	0.27 ^a	0.26	0.23
College +	0.17	0.26 ^a	0.30	0.51 ^a
Family Complexity (union and birth histories)				
R cohabited previously	0.15	0.19 ^a	0.03	0.04
R married previously	0.14	0.07 ^a	0.05	0.04
R had child(ren) at start of this union	0.14	0.14	0.06	0.04 ^a
<i>N</i> (unions)	1,343	2,223	1,313	823
<i>N</i> (union-months)	61,223	96,344	75,732	49,090
			19,182	51,411
			2,145	117,773
			0.09	0.09
			0.37	0.36 ^a
			0.26	0.29 ^a
			0.28	0.05
			0.08	0.23 ^a
			0.09	0.07 ^a
			0.07	0.21 ^a
			2,145	1,698
			117,773	94,023

Notes: *N*s are unweighted. All means are weighted using *SVY* procedures in STATA 12.0. Characteristics are measured in the month of the couple's first birth together (i.e., the first month of the union-month file). R = respondent.

Source: 1995 and 2006–2010 NSFG (women only). Sample limited to couples who had a first child together within 10 years of interview.

^a Significantly different from 1995 at *p* < .05.

Event History Analysis

Table 3 presents results from discrete-time event history models of separation within 10 years of a couple's first birth together. Model 1 includes only our union status indicators; Model 2 adds education, family complexity, and all controls. We describe results of our event history models as presented in Table 3 and then go on to flesh out comparisons of our four union-birth trajectories in upcoming Tables 4 and 5.

Table 3 shows that marriage is associated with greater stability and cohabitation with less, although estimates of cohabitation are sensitive to controls and period. In 1995, the odds of separation among those cohabiting versus married at union start were 52 % higher in Model 1 (without controls) and 42 % higher in Model 2 (with controls). The estimated coefficients on cohabitation at union start are close to 1 and statistically insignificant in the later period (Models 1 and 2, with and without controls); in the full model with all controls, this represents a statistically significant decline in the association between cohabitation at union start and separation over time (as indicated by the superscripted a). This change is consistent with recent work (Manning and Cohen 2012; Reinhold 2010) that found a decline over time in the association between living together prior to marriage and subsequent divorce.

Cohabiting at birth is associated with more than a doubling of the odds of separation relative to married at birth in Model 1, in both time periods. Odds ratios become smaller (close to 1) and statistically insignificant when the full set of controls is added in Model 2. The time-varying indicator for marriage is also large in magnitude and statistically significant in Model 1. In contrast to the coefficient on cohabiting at birth, the time-varying marriage indicator changes little with the addition of controls, suggesting a reduction in the odds of separation upon marriage of about 40 % in 1995 and 60 % in 2006–2010. In the later period, marriage in month t is the only union status indicator associated with stability net of controls, pointing to the importance of ever-marrying over its timing relative to childbirth.

Education and family complexity are associated with union disruption in much the same way in the 1995 and 2006–2010 periods; we find no statistically significant differences in Model 2 coefficients tested across models run separately by survey year. Having a college degree is associated with substantially lower odds of separation—35 % to 46 % lower in the earlier and later periods, respectively—relative to having a high school diploma. The protective effect of education appears limited to a college degree, with small and statistically insignificant differences in stability across other educational statuses.

We find some evidence that mothers with a history of prior unions or children from past relationships have less-stable unions, although estimated associations are weaker than expected. Whether the respondent had a previous cohabiting partner was associated with a 44 % higher odds of separation in the earlier period only (no statistically significant association in the later period); whether she was previously married is not statistically significant in either period. Having a child from a prior relationship is associated with a higher odds of separation (marginally significant 44 % higher in the earlier period and 72 % higher in the later period), but only when the child is age 2 or older at the time of the couple's first birth together.⁵

⁵ In supplementary models run on the 2006–2010 data only (available upon request), we found that additional measures of partners' prior marriages and children were not statistically significant and did not change the estimated coefficients on marriage and cohabitation.

Table 3 Odds ratios from discrete-time event history models of separation within 10 years of birth, 1995 and 2006–2010 NSFG

	Model 1		Model 2	
	1995	2006–2010	1995	2006–2010
Key Variables				
Union duration (months from first birth in union)	1.00	1.00	1.00	1.01*
Union status indicators				
Cohabiting at union start	1.52***	1.20	1.42**	0.98 ^a
Cohabiting at birth	2.09***	2.29***	1.22	1.03
Married in month <i>t</i> (time-varying)	0.56**	0.41***	0.58**	0.43***
R's education (highest degree at interview)				
Less than HS			0.93	1.20
HS diploma (ref.)			1.00	1.00
Some college			0.86	0.92
College+			0.65*	0.54***
Family complexity (union and birth histories)				
R cohabited previously			1.44*	1.06
R married previously			1.22	1.10
R had child(ren) at start of this union				
No child(ren) (ref.)			1.00	1.00
Youngest child age <1 year			0.75	1.02
Youngest child age 1–2 years			1.24	1.45
Youngest child age >2 years			1.44 [†]	1.72**
Controls				
Racial/ethnic background				
Non-Hispanic white (ref.)			1.00	1.00
Non-Hispanic black			1.62**	1.25
Hispanic			0.86	0.74*
Other			0.92	0.76
Father's education (highest grade)				
Less than HS			0.83	0.77
HS diploma (ref.)			1.00	1.00
Some college+			0.91	1.27 ^{a†}
Missing			0.83	1.02
Mother's education (highest grade)				
Less than HS			0.93	1.03
HS diploma (ref.)			1.00	1.00
Some college+			1.10	1.09
Missing			0.77	0.94
Grew up with both parents			0.85	0.65**
Attended church weekly			0.69**	0.65**
Characteristics of first birth in this union				
R's age			0.91***	0.94**

Table 3 (continued)

	Model 1		Model 2	
	1995	2006–2010	1995	2006–2010
Partner's age			0.99	1.01
Pregnancy mistimed			1.05	1.53 ^{a**}
Pregnancy unwanted			1.22	1.59 ^{**}
Union duration at time of birth (in months)			1.00	1.00
Couple had another child together in month <i>t</i>			0.74 [*]	0.58 ^{***}
Constant	0.01	0.01	0.09	0.04
<i>N</i> (union-months)	136,955	145,434	136,241	145,414

Notes: *N*s are unweighted. All models weighted using *SVY* procedures in STATA 12.0. R = respondent.

Source: 1995 and 2006–2010 NSFG (women only). Sample is limited to couples who had a first child together within 10 years of interview. Union duration is measured in months from first birth.

^a Significantly different from 1995 at $p < .05$.

[†] $p < .10$; $*$ $p < .05$; $**$ $p < .01$; $***$ $p < .001$ (differences from 1.00)

Other covariates are largely associated with union dissolution in expected ways. Compared with whites, blacks have higher odds of union dissolution (although differences are not significant in the more recent period), and Hispanics have lower odds. An additional year of mother's age at birth is associated with a 6% to 9% reduction in the monthly odds of

Table 4 Odds ratios associated with union-birth trajectories, derived from discrete-time event history models of separation within 10 years of birth, 1995 and 2006–2010 NSFG

	M→B	C→M→B	C→B→M	C→B
1995				
M→B	1.00	1.42 ^{**}	1.73 ^{**}	2.99 ^{***}
C→M→B		1.00	1.22	2.11 ^{***}
C→B→M			1.00	1.72 ^{**}
C→B				1.00
2006–2010				
M→B	1.00	0.98 ^a	1.01 ^a	2.35 ^{a***}
C→M→B		1.00	1.03	2.38 ^{***}
C→B→M			1.00	2.32 ^{***}
C→B				1.00

Notes: Table is derived from combining and testing coefficients from Model 2 (with all controls) in Table 3. Union-birth trajectories: M→B = married at union start and birth; C→M→B = cohabiting at union start and married at birth; C→B→M = cohabiting at birth and married at *t* following birth; C→B = cohabiting at birth without ever marrying.

Source: 1995 and 2006–2010 NSFG (women only). Sample is limited to couples who had a first child together within 10 years of interview. Union duration is measured in months from first birth.

^a Significantly different from 1995 at $p < .05$.

$**$ $p < .01$; $***$ $p < .001$ (differences from 1.00)

Table 5 Predicted probabilities of separation within five years of birth, derived from discrete-time event history models, 1995 and 2006–2010 NSFG

	1995	2006–2010
Varying Union-Birth Trajectories		
M→B	0.14	0.14
C→M→B	0.19	0.14
C→B→M	0.23	0.14
C→B	0.36	0.29
Ratio C→B / M→B	2.59	2.13
Simulations (over all union-birth trajectories)		
Observed model coefficients and means ^a	0.17	0.16
2006–2010 coefficients and 1995 union status means ^b	—	0.15
2006–2010 model coefficients and all 1995 means ^c	—	0.14

Notes: Predicted monthly probabilities of separation are derived from Model 2 (with all controls) in Table 3, varying union status and holding all other covariates at weighted mean values shown in Table 6 in the appendix. Monthly conditional probabilities of separation are multiplied to generate estimated proportions separating over five years. Union-birth trajectories: M→B = married at union start and birth; C→M→B = cohabiting at union start and married at birth; C→B→M = cohabiting at birth and married at t following birth; C→B = cohabiting at birth without ever marrying.

Source: 1995 and 2006–2010 NSFG (women only). Sample is limited to couples who had a first child together within 10 years of interview. Union duration is measured in months from first birth.

^a Predicted probability of separation from observed models, all covariates held at observed levels.

^b Predicted probability of separation from 2006–2010 model, union status indicators held at their 1995 means, all other controls held at their 2006–2010 means.

^c Predicted probability of separation from 2006–2010 model, all covariates held at their 1995 means.

dissolution; father's age at birth appears to provide no additional protection above and beyond mother's age. Births that came earlier than intended or were unwanted at the time of pregnancy are associated with higher risks of separation in the later period only (53 % and 59 % higher odds, respectively). Also associated with reductions in the odds of disruption are growing up with both parents (statistically significant in the later period only), church attendance, and having another child with the current partner.

Comparisons Across Union-Birth Trajectories

Table 4 shows the odds ratios of separation for our four union-birth trajectories estimated from our full model (Model 2, Table 3). Here, coefficients are combined (as illustrated in the earlier section on our methods for selected contrasts) and exponentiated to represent odds ratios. We shift the contrast category down the rows of the table to show comparisons across all four trajectories: (1) married at union start and birth (M→B); (2) cohabiting at union start and married at birth (C→M→B); (3) cohabiting at birth and married at some time t following the birth (C→B→M); and (4) cohabiting at birth without ever marrying (C→B).

The second column of Table 4 compares the odds of separation of those cohabiting premaritally and then having a child (C→M→B) to those marrying directly (M→B); these are simply the odds ratios associated with cohabiting at union start, as shown in Table 3 and discussed earlier. Odds ratios in the third column compare cohabitators who

married after a birth ($C \rightarrow B \rightarrow M$) with those who married prior to a birth, whether directly ($M \rightarrow B$) or after having cohabited ($C \rightarrow M \rightarrow B$). The odds of separation of those marrying after a birth relative to those marrying directly were 1.73 times higher in 1995. This odds ratio declined significantly from the earlier to the later period; in 2006–2010, it is close to 1 and statistically insignificant. In neither period is there a statistically significant difference in the odds of separation between cohabiting couples who married after having a child versus before (i.e., $C \rightarrow B \rightarrow M$ vs. $C \rightarrow M \rightarrow B$). The final column of Table 4 compares the odds of separation among cohabitators who never marry (within 10 years of a birth, $C \rightarrow B$) with those who married at some point, whether directly ($M \rightarrow B$), before a birth ($C \rightarrow M \rightarrow B$), or after a birth ($C \rightarrow B \rightarrow M$). In both periods, those who never marry have substantially higher odds of separation than those who married at some point—in the range of two to three times higher, net of controls and depending on the particular contrast. The only statistically significant change over time is in the odds of separation among those never marrying versus marrying directly, from 2.99 to 2.35 in the earlier and later periods, respectively.

Table 5 shows predicted probabilities of separation within five years—a more intuitive measure than monthly odds ratios—estimated from the same discrete-time event history models, adjusted by our full set of controls (Model 2, Table 3). These vary union status indicators and set controls to their weighted sample means (shown in Table 6 in the appendix). The table underscores a few key points. First, dissolution rates are high among cohabiting parents who never marry relative to all other groups, although they have declined over time: an estimated 36 % of cohabiting parents ($C \rightarrow B$) separated within five years in the earlier period and 29 % in the later period. This is 2.59 and 2.13 times the proportion separating among those marrying directly in the earlier and later periods, respectively.⁶

Second, Table 5 illustrates the growing similarity over time in union-birth trajectories involving marriage, irrespective of its timing relative to childbirth. In the 1995 period, couples marrying directly ($M \rightarrow B$) were significantly more stable than all other union-birth trajectories net of controls, with an estimated 14 % separating after five years compared with 19 % and 23 % among those premaritally cohabiting ($C \rightarrow M \rightarrow B$) and marrying after a cohabiting birth ($C \rightarrow B \rightarrow M$), respectively. In the 2006–2010 period, estimated differences among these groups were negligible and not statistically significant (as shown in Table 4). In the later period, the only union-birth trajectory that is statistically distinct from the others is cohabiting without marriage.

Finally, predicted probabilities show that offsetting factors play into overall change in the stability of couples with children over time. The composition of couples with children has shifted to cohabiting parents who never marry (and tend to have the least stable unions), but there has also been an uptick in the stability of cohabiting couples, regardless of whether they transition to marriage and whether this transition occurs before or after a birth. These factors have translated into no discernible change in the stability of unions having children within 10 years of the 1995 and 2006–2010 interviews (first row, second panel, Table 5): overall, estimated proportions separating within five years were 17 % and 16 % for the earlier and later periods, respectively

⁶ Without controls, these differences are on the order of four to five times, with estimates showing more than one-half of cohabiting couples in both periods separating within five years (estimates available upon request).

(differences not statistically significant based on pooled models interacting survey year and duration).

The last rows of Table 5 address what the overall stability of unions with children might have looked like in 2006–2010 had there been no change in the distribution of unions over time. We generated predicted probabilities derived from models using the 2006–2010 data, setting union status indicators to their 1995 levels and holding all other covariates constant at their 2006–2010 levels. Had union status remained unchanged from 1995, an estimated 15 % of all unions with children would have separated within five years in the 2006–2010 period as opposed to 16 % based on the distribution of unions actually observed in 2006–2010. An estimated 14 % would have separated if all covariates (union status indicators plus education, family complexity, and controls) were held to their 1995 levels, representing less than a 15 % reduction relative to observed levels.

Discussion

Some readings of family change have predicted growing similarity in the meanings and functions of marriage and cohabitation (e.g., Kiernan 2000), whereas others have pointed to divergence, with marriage an increasingly privileged and stable status relative to cohabitation (e.g., McLanahan 2004). The implications of rapid increases in births to cohabiting couples depend critically on the question of stability. Using event history models and other descriptive tools, ours is the first analysis to our knowledge to examine change in stability among couples who have a child together—a group of particular concern to social scientists and policy makers. Other work to date has either focused on point-in-time comparisons of married and cohabiting parents or examined change among heterogeneous groups of cohabitators, potentially confounding our understanding of trends in the stability of cohabiting families and implications for well-being.

We examined the degree to which change in the stability of cohabiting and married families reflects change in couples' behavior versus shifts in the characteristics of those who cohabit, carefully accounting for trajectories of cohabitation and marriage around the couple's first birth. We documented a sharper divide in college attainment among cohabiting versus married mothers over time, with the share of college graduates remaining a small fraction (5 %) of those cohabiting at birth but growing substantially among those married at birth (to fully one-half, whether married directly or after cohabiting). In our fully controlled models, only a college degree appeared to have any protective effect on union stability, nearly halving the odds of separation relative to a high school diploma. Thus, although cohabiting mothers moved up the educational ranks from high school to some college over the period under investigation, nothing in our models suggested that this educational upgrading increased union stability.

We found weak evidence for the importance of growing family complexity to changes over time in the stability of unions with children. We reported increases in serial cohabitation of about the same magnitude as decreases in serial marriage, such that about 20 % of our sample reported a prior coresidential union in both the 1995 and 2006–2010 periods. Reports highlighting increases in serial cohabitation

(Cohen and Manning 2010; Lichter et al. 2010) have not accounted for the shift from prior marriage to cohabitation, and they included cohabitators with and without children—a broader sample likely to capture a greater share of couples who enter cohabitation out of short-term convenience and exit at relatively low cost. We found stable or declining shares of women with a child from a previous relationship. Associations were generally modest between our indicators of family complexity and union instability, in all suggesting a small role of family complexity in accounting for changes in union stability over time—smaller than we expected based on recent attention to family complexity and its potential link to the subsequent life course (e.g., Carlson and Furstenberg 2006; Guzzo and Furstenberg 2007a, b; Lichter and Qian 2008; but see Manning et al. 2014).

Our models pointed to no change in the overall stability of unions with children between the 1995 and 2006–2010 periods, with an estimated 16 % to 17 % of all couples with children separating within five years. This echoes recent descriptive statistics from Kennedy and Bumpass (2011), who found a stalling of increases in family transitions among children. Underlying this overall lack of change, we documented a substantial shift into cohabiting unions and important changes in patterns of stability among union-birth trajectories. In the 1995 period, accounting for observed differences in couples' characteristics, those who married directly had significantly lower odds of separation than any of the other union-birth trajectories we examined. That is, any cohabiting experience—followed by marriage or not—was associated with increased instability relative to direct marriage. By the 2006–2010 period, again net of controls, the odds of separation for those who married directly were statistically indistinguishable from those who cohabited premaritally and those who married after a cohabiting birth (both of which became more stable over time); only the higher dissolution rates of the never-married cohabiting parents stood out as distinct from the others. Cohabiting experience was no longer associated with increased instability, as long as marriage followed before or after the birth of a child. These findings point to an evolution in the process of jointly planned marriage and childbirth as suggested in Wu and Musick (2008).

Results support the notion that cohabitation has become a more normative part of the family formation process. Cohabiting as a precursor to marriage and childbirth involves little selection on socioeconomic status (SES) and no discernible risk to stability. Those cohabiting at birth who subsequently marry are, on average, much less advantaged; but after accounting for observed sociodemographic differences, they too are similar in their risks of instability relative to those who marry directly. If cohabiting parents who married after a birth experienced less stability than those who married before, it might suggest that marriages following childbirth were largely in response to unplanned or ambivalently timed pregnancies. The increasing stability of trajectories involving cohabitation and the declining importance of marriage timing relative to parenthood suggests instead that many parents may be jointly planning marriage and childbirth as the quality and commitment of their relationships grow, with little regard to which comes first. This is consistent with waning societal pressure to marry and the blurring of boundaries between marriage and cohabitation (e.g., Cherlin 2004; Van de Kaa 1987).

We also showed, however, that cohabitation de-coupled from marriage has remained relatively unstable—a finding more in line with notions of marriage as an increasingly privileged status and cohabitation as a second-best alternative (e.g., Cherlin 2009; Furstenberg 1996). Controlling for the disadvantaged status of cohabiting parents substantially reduced estimated proportions separating within five years. Nonetheless, estimates of separation among those never marrying remained high: in the later period, about 30 % separated within five years, which is twice the proportion among couples who eventually married. The NSFG includes information on family background and other indicators of SES, prior union and birth histories, and the respondent's age and feelings about the pregnancy. However, the NSFG has no data on partners' economic prospects or the quality of relationships—factors intimately tied to differences in the stability of cohabiting and married parents (Tach and Edin 2013)—thus limiting our ability to account for remaining gaps in stability. Qualitative work has shown that many disadvantaged women have children in nonmarital relationships that are strained by poor economic conditions, a lack of trust, infidelity, and substance use problems, yet hold much higher expectations of marriage (Edin and Kefalas 2005; Gibson-Davis et al. 2005; Reed 2006). Consistent with Reed's (2006) account of how cohabitators perceive their unions, many of the cohabiting relationships that unfold altogether outside marriage may be a practical response to having a(n often unplanned) child together. Further, given that fewer cohabitators marry, those making the transition may be a group increasingly selected on factors associated with stability.

The stability of cohabiting couples with children has implications for the living arrangements of children and the time and financial resources available to them (Tach and Eads 2015; Tach et al. 2010). We noted at the outset that variation in the meanings and functions of cohabitation may confound our understanding of trends in union stability among couples with children; indeed, we showed that focusing on cohabiting couples with children implied less change over time in relationship churning. Further, looking closely at union transitions around the time of child-birth, we found that cohabitation is no longer a marker of instability among couples with children, as long as marriage takes place at some point before or after birth. This finding underscores the limitations of standard measurement strategies that assess union status at a point in time, often at union start or first birth. Our work sheds light on how cohabitation has evolved over the past 25 years, but also raises questions about what accounts for the much greater instability of cohabitation de-coupled from marriage and what we might expect in years to come, particularly as the link to marriage among cohabiting families becomes more tenuous.

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Appendix

Table 6 Characteristics of couples who had a child together, 1995 and 2006–2010 NSFG

	1995	2006–2010
Key Variables		
Union duration (months from first birth in union)	51.21	51.88
Union status around a couple's first birth		
Cohabiting at union start ($x_1 = 1$)	0.50	0.70
Cohabiting at birth ($x_2 = 1$)	0.17	0.36
Proportion of all months spent married following birth ($x_{3t} = 1$)	0.93	0.81
R's education (highest grade at interview)		
Less than HS	0.13	0.16
HS diploma	0.39	0.24
Some college	0.25	0.26
College+	0.24	0.33
Family complexity (union and birth histories)		
R cohabited previously	0.10	0.15
R married previously	0.10	0.06
R had child(ren) at start of this union		
No child(ren)	0.90	0.89
Youngest child age <1 year	0.02	0.03
Youngest child age 1–2 years	0.02	0.02
Youngest child age >2 years	0.06	0.06
Controls		
Racial/ethnic background		
Non-Hispanic white	0.74	0.65
Non-Hispanic black	0.07	0.10
Hispanic	0.14	0.18
Other	0.05	0.07
Father's education (highest grade)		
Less than HS	0.18	0.22
HS diploma	0.43	0.31
Some college+	0.30	0.38
Missing	0.10	0.09
Mother's education (highest grade)		
Less than HS	0.17	0.22
HS diploma	0.54	0.35
Some college+	0.25	0.41
Missing	0.04	0.01
Grew up with both parents	0.63	0.62
Attended church weekly	0.36	0.32

Table 6 (continued)

	1995	2006–2010
Characteristics of first birth in this union		
R's age	26.04	26.38
Partner's age	27.26	28.34
Pregnancy mistimed	0.19	0.22
Pregnancy unwanted	0.03	0.07
Union duration at time of birth (in months)	34.81	36.60
Couple had another child together in month <i>t</i>	0.38	0.38
<i>N</i> (unions)	2,656	3,046
<i>N</i> (union-months)	136,955	145,434

Notes: *N*s are unweighted. All means are weighted using *SVY* procedures in STATA 12.0. Time-invariant characteristics are measured in the month of the couple's first birth together (i.e., the first month of the union-month file). Time-varying characteristics (union duration, married in month *t*, had another child together in month *t*) are estimated from the full union-month sample. R = respondent.

Source: 1995 and 2006–2010 NSFG (women only). Sample is limited to couples who had a first child together within 10 years of interview. Union duration is measured in months from first birth.

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