



Maryland Population Research Center

WORKING PAPER

**Recession and Divorce in the United States:
Economic Conditions and the Odds of Divorce, 2008-2010**



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April, 2012

ABSTRACT

The economic recession that began in 2007 prompted speculation over its effects on divorce rates in the U.S. Opposing hypotheses suggest either that recession increases divorce through a stress mechanism; or that it reduces divorce by exacerbating cost barriers or strengthening family bonds. The American Community Survey now offers a large-scale, repeated national sample survey with size large enough to test state-level divorce patterns – and timing suitable for examining potential effects of changing economic conditions. After establishing an individual-level model predicting women’s divorce, I test whether unemployment and foreclosures are associated with the odds of divorce, and for whom. Results show that foreclosure rates are positively associated with the odds of divorce, but only for those with more than a high school education. State unemployment rates show no effect on odds of divorce. I also test the effect of state laws delaying divorce, and find they have an increasingly negative effect of the three-year period, suggesting a backlog of new divorces during the recession.

INTRODUCTION

Crude and refined divorce rates have fallen in the United States since the early 1980s, despite swings in the business cycle (Amato 2010; Kreider and Ellis 2011; Stevenson and Wolfers 2007). Further, over the last century, dramatic waves in period-based divorce rates belie a near-linear upward trend in divorce probabilities for sequential birth cohorts (Schoen and Canudas-Romo 2006). Thus, economic cycles are not the major influence in long-term divorce trends. Nevertheless, the severity of the economic recession that began in 2007 has prompted speculation over its effects on U.S. families, and early effects have apparently been found already, for example, on fertility (Sutton, Hamilton and Mathews 2011) and cohabitation (Kreider 2010). In this paper I offer the first large-scale multivariate description of the determinants of divorce using the American Community Survey (ACS), and test hypotheses for the recession's impact on the odds of divorce.

Several theories suggest economic recessions might affect couples' odds of divorce, even if only in the short term (Amato and Beattie 2011). On the one hand, economic hardship adds stress to marriages that *increases* the risk of marital conflict and dissolution (Hardie and Lucas 2010; White and Rogers 2000). Job loss and low earnings are perhaps the best studied aspects of economic hardship, with men's conditions usually found to be especially consequential (Lewin 2005; Ono 1998). But home foreclosure, poverty, wage declines, job shift changes, fear of unemployment, or other economic threats (actual or perceived) may have similar stressing effects.

On the other hand, there are two mechanisms by which economic hardship might *reduce* the occurrence of divorce, at least temporarily. First, loss of a job or a decline in the value of a home may make divorce more costly relative to a spouse's or couple's available resources.

Divorcing presents potential costs in housing, legal fees, childcare and losses from diminished economies of scale. The recession may have increased the economic barriers that make these costs insurmountable for some people considering a divorce. Beyond the direct effects, by altering available opportunities and prices, fluctuations in the job and housing markets may shift decision-making in families that do not themselves suffer job loss or experience home foreclosure (for example, we have seen broad recent declines in economic expectations [Hurd and Rohwedder 2010]).

Second, hard economic times within families may draw some couples closer together in resilience, so that even those considering divorce might set aside their conflicts and pull together, resulting in declining divorce rates. Wilcox (2011) has advanced this argument for the recent recession, partly based on the agreement of a few survey respondents with the statement, “the recession has deepened my commitment to my marriage.”¹

In the recent recession, men’s unemployment, falling home prices and rising rates of home foreclosures in particular have been pronounced features of the household economic landscape (Farber 2011; Mattingly and Smith 2010). The collapse in home prices in particular was much more dramatic than had been seen in the previous six recessions (Gascon 2009). Home foreclosures tripled from 2006 to 2009, to almost 2.5 million per year (Mian, Sufi and Trebbi 2011). Foreclosures and falling home prices contribute to the economic stress levels in millions more households than were directly affected by job loss. In this as in previous recent recessions, the hardest hit by job losses were men, Black and Hispanic workers, younger workers, and those with low education (Hoynes, Miller and Schaller 2012).

¹ However, Wilcox also reports that those who acknowledge financial stress as a result of the recession place themselves at *higher* subjective risk of divorce or separation. The data from that study are not publically available.

While there is abundant evidence that economic stress increases the odds of divorce at the family level, such evidence for the cost or resilience predictions is as yet elusive. However, consistent with the expectation that recessions forestall or prevent divorces, two recent studies have analyzed state-level time series of divorce and unemployment rates, and both find that higher unemployment is associated with lower divorce rates since 1980, using a variety of state- and year-level fixed-effects specifications (Amato and Beattie 2011; Hellerstein and Morrill 2011). This paper builds upon those studies, neither of which focuses directly on the recent recession, tests indicators of the housing crisis, or uses data with individual-level covariates.

Of course, different impacts on divorce during recessions might be operating simultaneously – working in opposite directions for different families, or even presenting opposing influences within the same families. That means a finding of no contextual effect on divorce cannot rule out such mechanisms. But given the severity of the economic shock that began in late 2007 – and some of the unique qualities of this recession – we may be able to discern which, if any, of these mechanisms were active in the recent period.

Thorough individual-level analyses of marital outcomes for the recent recession would optimally involve relationship and homeownership histories as well as employment and other information for both spouses (e.g., Hansen 2005). However, the introduction of a divorce event question in the American Community Survey in 2008 presents the opportunity to calculate the odds of divorce for all states for the years 2008 and 2009, and includes important covariates such as marital duration, marriage order, education and race/ethnicity (Elliot, Simmon and Lewis 2010). If recession indicators across states are associated with rising divorce rates, that would be consistent with the stress perspective at the couple level, as economic shock and hardship fray marital relationships. If, on the other hand, states with more severe recession symptoms have

lower divorce rates, that might be consistent either with the costs-of-divorce perspective, or with the family resilience argument. In the process of examining these propositions, this paper presents, to my knowledge, the first multivariate analysis of incidence of divorce using the new data from the American Community Survey.

HYPOTHESES

From this review, two hypotheses emerge for state-level direct effects, holding constant individual-level characteristics. If economic hardship puts strain on marital relationships, the experience of unemployment or home foreclosure may increase the odds of divorce. Thus, *ceteris paribus*,

H₁: Economic stress. Divorce rates are higher in states with greater unemployment and foreclosure rates.

On the other hand, divorce is often costly, and economic crises may make it unaffordable for more people, especially those needing to sell a home. And, although the evidence is scant, Wilcox (2010) speculates that couples experiencing economic hardship may rally around their relationships – especially postponing or reconsidering divorce. Thus,

H₂. Divorce costs or resilience. Divorce rates are lower in states with greater unemployment and foreclosure rates.

These economic trends may increase the relative costs of divorce by making it more difficult or lucrative to sell homes and/or find new jobs. Foreclosures represent a potential shock to couples, but also contaminate real estate markets for all sellers.

Using a few simple state-level indicators of the severity of recession drawing from the unemployment and housing crises, therefore, I offer tests of the association between the recent

recession and divorce patterns, which might help illuminate the mechanisms for such an association.

Further, I test two hypotheses regarding this recession's effects on divorce dynamics. Recent research emphasizes the growing social-class divide in divorce patterns (Isen and Stevensen 2010; Martin 2006). In light of the disproportionate hardship experienced by lower-education workers during the recession (Hoynes, Miller and Schaller 2012), I test whether adverse economic conditions have disparate effects across education levels, by examining the interaction between state-level indicators and education effects. I consider two possibilities:

H_{3a}. Lower education effect. Unemployment and foreclosures increase the relative odds of divorce for people with less education.

This might be the case because the recession had a more pronounced effect on those with less education – especially regarding job loss – increasing their the chance that economic distress would lead to divorce. On the other hand,

H_{3b}. Higher education effect. Unemployment and foreclosures increase the relative odds of divorce for people with more education.

This might be the case because some stresses associated with the recession – especially foreclosures – were felt most directly by couples that owned homes or other amenities that, when threatened, undermined their marriages.

Finally, identifying national effects on divorce trends is difficult because the recession comes during a period of secular decline in divorce rates. So how are we to know if “the recession” increases or decreases the odds of divorce? Variation in state divorce laws allows an additional test of a period effect on divorce rates. Thirteen states have laws that require a delay of six months or more before a divorce becomes final. If these laws do nothing to prevent divorce,

but instead merely delay it, we would expect that over the long run these states would not have lower divorce rates, all else equal. However, if interest in divorce increases uniformly across the country – because of a recession or other period effects – these states would lag behind as the law slowed new divorces. In that case, we would expect an increasing negative effect of divorce delay laws on divorce rates over the course of the recession. Thus,

H₄. Legal delay. Divorce rates will be increasingly lower in states with laws that delay divorces over the period 2008-2010.

In the next section I describe the research design, before turning to the results.

DATA AND METHOD

I estimate odds of divorce for individuals by state from the pooled 2008-2010 American Community Survey (ACS), using data made available by IPUMS (Ruggles et al., 2010). The ACS is an annual survey of more than 2.2 million U.S. households, weighted to represent the national population. Because of its large sample size, it offers the opportunity to analyze divorce for all 50 states and District of Columbia, with some crucial individual-level covariates (Elliot, Simmon and Lewis 2010). In contrast, the vital statistics registration of divorces excludes 5 states, including California, and does not include covariates (Tejada-Vera and Sutton 2010). Further, unlike vital statistics, the data permit coding divorces according to individuals' state of residence rather than the state in which the divorce occurred.²

The sample includes women who are: (a) ages 20 and older; (b) currently married (including separated), or divorced in the 12 months preceding the survey, and; (c) living in the U.S. one year before the survey. Women report whether they have divorced in the previous 12

² This is especially the case for Nevada, for which vital records include many divorces for people who live in other states; the ACS provides a divorce rate for those who report living in the Nevada.

months. I code women according to their residence in one of the 50 states or the District of Columbia; however, because divorce often takes a year or more to unfold, I use the location in which the women were living one year earlier, and exclude those living outside the country at that time. The cross-sectional nature of the data, and its household construction, impose limitations, for example precluding consideration of cohabitation and work history, homeownership at the time of the divorce, or spouse characteristics (since the spouse is no longer present). I estimate logistic regression models for the odds of divorce among women who are married or divorced in the previous year, with state-level fixed effects and standard errors adjusted for the clustering within states.

State variables

State-level unemployment data are from the Bureau of Labor Statistics' Local Area Unemployment Statistics Program, which publishes annual average unemployment rates for every state and the District of Columbia (BLS 2011). Real estate foreclosure data are from the private company Realtytrac, which for the years 2007-2009 released an annual report that included the percentage of housing units with at least one foreclosure filing during the calendar year (Realtytrac 2007, 2008, 2009).

Levels of unemployment and foreclosures reflect economic conditions that may influence divorce rates, while changes in these measures reflect the severity of the recessionary shock net of the baseline rates. Amato and Beattie (2011) find the strongest effects of unemployment on divorce in the contemporaneous year or with a one-year lag. However, the ACS asks not about the calendar year, but rather about the 12 months previous to the interview. Therefore, I lag state variables one year, and also use state fixed effects, which make effect of the lagged variables interpretable as change effects. The lagged unemployment rates range from 2.7% to 13.3%.

Housing units in foreclosure represented .01% to 10.17% of all units. Divorce delay laws are coded dichotomously, with 13 states coded =1 for the presence of laws requiring delays of 180 or more before finalizing a divorce.³

The variables used in the regressions are summarized in Table 1, and state values are listed in Appendix Table A1. Because of the skewed nature of the foreclosure variable, I transform that variable with a natural log function.

Individual variables

Sweeney and Phillips (2004), using data from 1995, predict divorce using measures of race, age at marriage, education, and premarital fertility history, which are commonly associated with divorce outcomes (Amato 2010). Only some of those variables are available here, but the ACS data are much more recent; large-scale analyses of divorce risks have recently relied on the Current Population Survey's marital history, which ended in 1995, or other surveys from the 1990s or early 2000s (e.g., Phillips and Sweeney 2006; Bulanda and Brown 2007).

The ACS includes information on the year of the most recent marriage, which allows construction of a marital duration variable; and on the number of marriages a person has experienced, which identifies marriage order (Martin and Bumpass 1989). I enter marital duration in five-year categories in the first model, for illustrative purposes, but thereafter use a linear term for marital duration, and a linear as well as quadratic term for age. Foreign-born status, which is associated with lower odds of divorce (Phillips and Sweeney 2006), is entered as a dummy variable, as are the common race and ethnicity categories (Bulanda and Brown 2007).

³ Laws were coded from lists maintained publicly by two private companies, Divorcesource.com and Totaldivorce.com. In the several cases for the lists did not agree (CA, CT, DE, MO), I consulted state-specific sources. The states coded with delays were: CA, DC, DE, IL, LA, MD, MT, NJ, NY, NC, SC, VT, and VA.

Education in the ACS includes many categories, but after initial models, I collapsed them to three: high school complete or less, some college but no BA, and BA or higher degree complete.

RESULTS

The ACS provides estimates for the number of divorced women for the years 2008-2010, which, along with the number of married women, can be used to calculate a refined divorce rate:

	<u>2008</u>	<u>2009</u>	<u>2010</u>
<i>Divorced women</i>	1,309,921	1,219,656	1,250,086
<i>Divorce per 1,000 married women</i>	20.9	19.5	19.8

Note: The analysis below includes only those women age 20 and older who were living in the U.S. twelve months before the survey.

We cannot directly compare these numbers directly with those generated by the vital statistics system, for two reasons. First, the method of collecting data is different with ACS relying on a national survey and vital statistics relying on administrative records. Second, the national vital statistics system has not provided national coverage for a number of years, including the 10 most recent years before the ACS (which cover the last national recession). However, for reference I have produced Figure 1, which shows divorces per 1,000 married women from 1940 to 1997 from the vital statistics system, along with the ACS estimates above. It shows that the decline in divorce rates from 2008 to 2009 is steep by the historical standards of the vital statistics data, even when countered by the uptick in 2010 – which itself is not unprecedented. However, the three years of aggregate national estimates from ACS data do not help much on the question of possible recession effects.

The micro-level regression model is presented in Figure 2. Net odds of divorce were lowest in 2009, and slightly higher in 2010 although still significantly below the 2008 level – consistent with the aggregate trend. Women in states with divorce delay laws have lower divorce rates. Marital duration is associated with declining odds of divorce after a sharp increase for the year 5-9 period. Second and third marriages have much higher odds of divorce. College graduates have lower divorce rates than high school dropouts and graduates, and those with some college have the highest rates. Foreign born women have lower divorce odds, as do Asian/Pacific Islanders, while Latinas, American Indians and Blacks have higher rates than non-Latina Whites.

To test the legal delay hypothesis (H_4), that rising divorce interest creates a backlog in the states with legal divorce delays, I re-estimated the individual model with the divorce delay variable interacting with years 2009 and 2010. In the model (not shown), the negative effect of divorce delay laws grew stronger – in odds ratio terms, from .921 in 2008 to .910 in 2009, and again to .869 for 2010. This is consistent with H_4 and the suggestion that a period-based surge temporarily increased the effect of delay laws. (The divorce variable is not included in the state models below, because the state fixed models could not converge with it included.)

The full models are presented in Table 2 (with individual control variables not shown). In Model 1 the state unemployment and foreclosure rates are added to the individual model described above. Of these, foreclosure rates are positively associated with divorce odds, net of other factors. However, that effect is reduced by about half, and is no longer statistically significant, when the state fixed effects are added in Model 2. Thus, there is partial evidence for H_1 , divorce stress, and no support for H_2 , divorce costs (or resilience).

The third model introduces interaction terms between education levels and state recession indicators, for tests of H_3 . These coefficients show that foreclosures have a positive effect on

divorce for women with some college, or BA degrees, relative to those who have high school only or less. These interactions hold when state fixed effects are added in Model 4. There are no significant interactions with state unemployment rates. To illustrate these interactions, I calculated predicted probabilities of divorce from Model 4, and plotted the means of these predictions for each state against the (logged) foreclosure rates, by education level. This simulation is presented in Figure 3. The left panel shows the null effect of foreclosure rates on those with high school diplomas or less (non-significant in Model 4), along with the positive effects for those with some college and BA degrees or higher, in the center and right panels respectively. Thus, there is partial support for H_{3b} – positive effects on divorce for those with more education – but only with regard to foreclosures, not unemployment rate.

DISCUSSION

In summary, this analysis of the divorce rate among a sample of about 2 million U.S. women in 2008-2010 provides some evidence for effects of the economic crisis on the odds of divorce. The national divorce rate declined during the recession in these data, from 20.9 per 1,000 married women in 2008 to 19.5 in 2009, before rebounding to 19.8 in 2010. Net of individual-level controls and state fixed effects, the divorce rate fell over the period, but the decline is not out of line with previously recorded trends since the early 1980s.

The relative odds of divorce are no greater in states where unemployment rates are higher, which is not consistent with recent time-series results at the state level reported by Amato and Beattie (2011) and Hellerstein and Morrill (2011) for earlier periods. Whether this discrepancy results from specific features of this time period or the individual-level multivariate models I use remains to be seen. On the other hand, higher foreclosure rates are associated with higher levels of divorce, but only for those with more than a high school education. Although I

cannot distinguish the mechanisms for such an effect here, it may be that the stresses associated with foreclosures – whether directly on those couples whose homes are foreclosed, or indirectly for those in real estate markets battered by high foreclosure rates – were felt most directly by the higher-education couples that were more likely to own homes. (Unfortunately, neither income nor homeownership of couples before their divorces is available in these data.) This possible mechanism is consistent with the stress hypothesis generally – that economic stress increases the odds of divorce – but a stronger conclusion requires further research. In any event, these results should at least raise the question of housing market effects on divorce, which future studies may be able to pursue in more depth.

With regard to the educational disparity in divorce, more generally (Isen and Stevensen 2010; Martin 2006), the ACS data confirm a large divide in divorce odds between those with higher and lower levels of education – although the odds are highest for those with some college, rather than those with the least education. If it develops that this recession was especially punishing for those with higher levels of education – because of the housing crisis in particular – that will add a new complication to our assessment of long-term trends.

In light of the preliminary nature of these results, any interpretation of recession effects on divorce is speculative. Indeed, these results should interject a note of caution into the fast-moving discourse on the effects of the recession, which the news media and public have been eager to consume. Consider the response to W. Bradford Wilcox's (2009:17) early conclusion that "one piece of good news emerging from the last two years is that marital stability is up." Bishop Richard Williamson (2009) declared that "every cloud has a silver lining," and called the report "some good news for Christmas." The *New York Times* columnist Ross Douthat (2009) paraphrased the report to say, "economic stress seems to have made American marriages slightly

more stable overall.” These conclusions were undoubtedly premature, and may have been wrong altogether.

Although the recession formally ended when economic growth was recorded in 2009, its effects in terms of high unemployment and foreclosure rates have persisted into 2011. However, with regard to divorce, history shows that fluctuations in divorce rates resulting from changing economic conditions may reflect the *timing* of divorce more than the odds of divorce for specific marriages or birth cohorts (Schoen and Canudas-Romo 2006). In fact, the long-term effects of this recession may in the end follow from changes in the timing and quality of marriages during the down years, rather than from the dynamics within already-married couples (Cvrcek 2011). Further impacts of these events on American family structure and behavior are likely to emerge in future studies.

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Divorces per 1,000 married women, 1940-2010

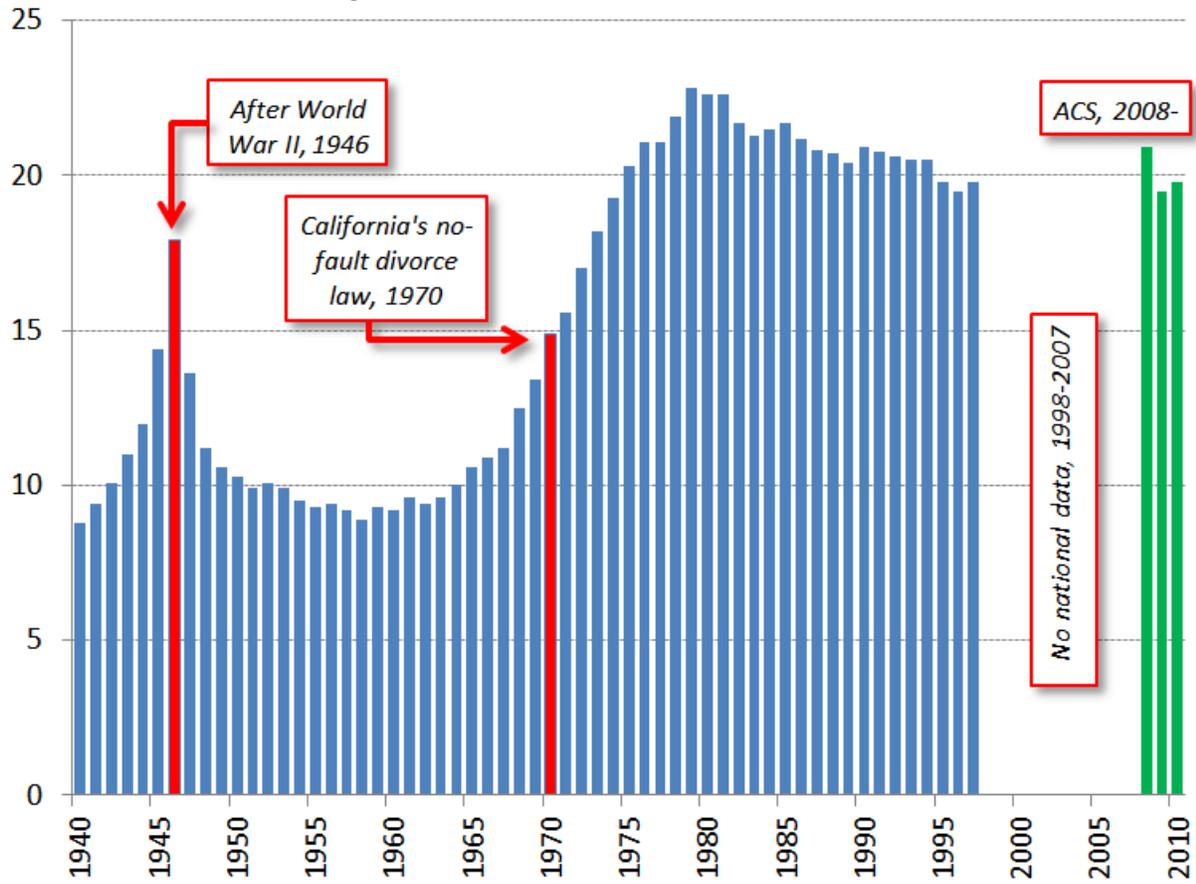


Figure 1. Refined divorce rates, 1940-2010.

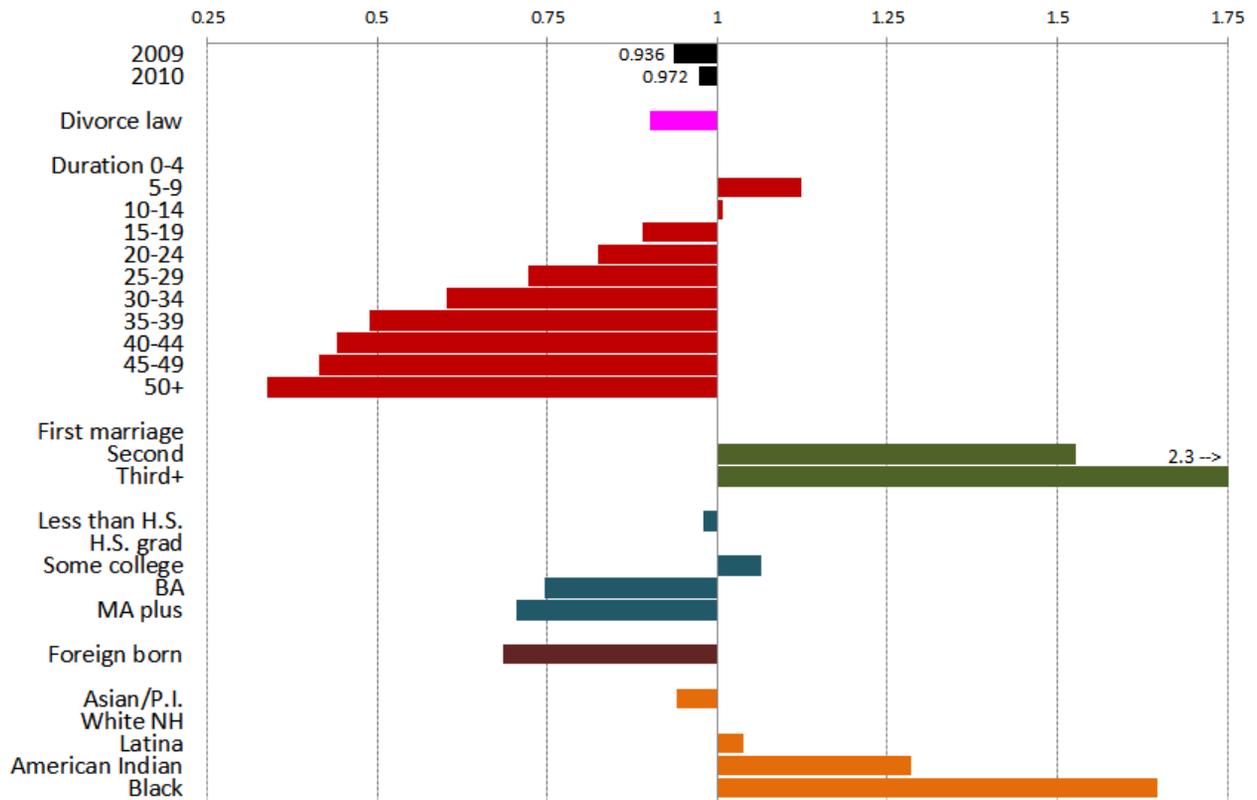


Figure 3. Logistic regression for divorce (odds ratios): Women, 2008-2010

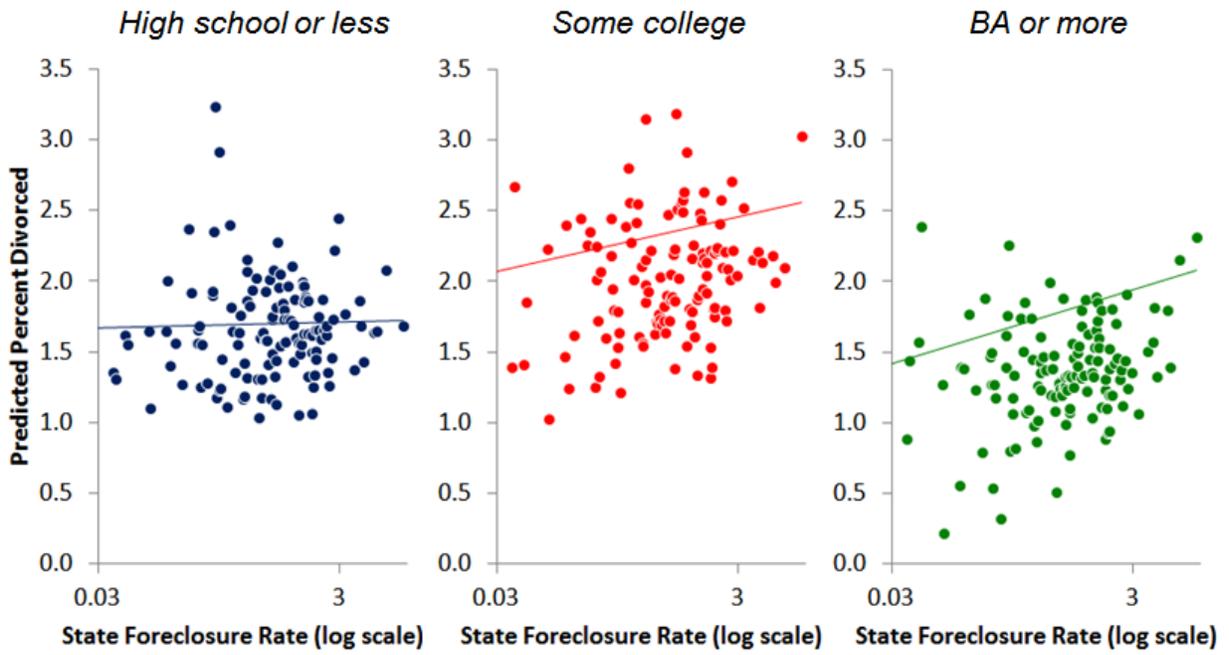


Figure 3. Predicted divorce rates, by state foreclosure rates.

Table 1. Variables used in the analysis*American Community Survey, 2008-2010 (N = 2,080,293)*

	Mean	Std dev	Min	Max
Divorced	.020	.13	0	1
Age	48.422	14.82	20	95
Marriage duration	21.317	16.21	0	81
Second marriage	.189	.39	0	1
Third marriage	.047	.22	0	1
Less than high school	.117	.31	0	1
High school graduate	.277	.45	0	1
Some college	.309	.46	0	1
BA	.181	.39	0	1
MA or higher	.106	.31	0	1
Foreign born	.184	.37	0	1
Hispanic	.130	.31	0	1
American Indian	.012	.11	0	1
Asian/P.I.	.061	.23	0	1
Black	.083	.25	0	1
White	.816	.37	0	1
Unemployment, percent (lagged)	6.547	2.35	2.7	13.3
Foreclosures, percent (lagged)	1.699	1.47	.01	10.17
Divorce delay law	.360	.48	0	1

Table 2. Logistic regression coefficients for divorce on individual and state variables

	Model 1	Model 2	Model 3	Model 4
Intercept	-3.007 ***	-3.224 ***	-2.973 ***	-3.187 ***
2009	-.080 ***	-.082 **	-.079 ***	-.081 **
2010	-.041	-.067	-.039	-.064
Some college	.063 ***	.062 ***	-.003	-.007
BA or higher	-.317 ***	-.311 ***	-.342 ***	-.336 ***
Unemployment	-.001	.006	-.006	.001
Foreclosures (ln)	.028 **	.016	-.001	-.012
Some college* Unemployment			.009	.010
Some college * Foreclosures			.035 +	.033 +
BA+ * Unemployment			.002	.002
BA+ * Foreclosures			.071 **	.065 **
State fixed effects	No	Yes	No	Yes
Percent concordant	67.9	68.1	67.9	68.1

Note: Individual control variables not shown.

* $p < .05$

** $p < .01$

*** $p < .001$