Does the unemployment rate affect the divorce rate? An analysis of state data 1960–2005

Paul R. Amato *, Brett Beattie

Department of Sociology, Pennsylvania State University, USA

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ABSTRACT

We analyzed data from 50 states and the District of Columbia from 1960 to 2005 to study how the unemployment rate and the divorce rate are related. Unemployment is positively related to divorce in a bivariate analysis, but the association is not significant when state and year fixed effects are included in the statistical model. When the sample is divided into time periods, unemployment is negatively and significantly associated with divorce after 1980. These findings provide the strongest support for a "cost of divorce" perspective and suggest that a high rate of unemployment decreases the rate of divorce, net of unobserved time-invariant state characteristics and period (year) trends.

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1. Introduction

The Great Recession, which began in December, 2007, is widely recognized as the most serious economic crisis since the Great Depression of 1929–1939 (Sum et al., 2009). A key indicator of recessions is the unemployment rate, which reached 10.2% of the US labor force in March 2010—up from 4.6% 3 years earlier (US Bureau of Labor Statistics, 2010). Some economists believe that the US pulled out of the recession in the second half of 2009, whereas others argue that it is still continuing (Cohan, 2010). Irrespective of whether the recession is officially over, recovery will be slow, and the high unemployment rate (at the time of this writing) is likely to persist for several years. Moreover, economists warn that many workers who lost jobs will take a great deal of time—perhaps decades—to recapture their previous level of earnings (Luo, 2009).

Do periods of high unemployment destabilize marriage? Although this seems like a strong possibility, the evidence is far from clear about the existence and nature of such an association. Most studies on this topic have used individual-level data to estimate the effects of unemployment on marital stability but, as we note below, these studies are open to multiple interpretations. Moreover, the last study (to our knowledge) that used aggregate-level data to estimate the effects of unemployment on divorce in the US was published a quarter of a century ago (South, 1985).

The current study has two goals. The first goal is to determine whether unemployment and divorce rates move in a counter-cyclical or pro-cyclical fashion. To accomplish this goal, we show state-level trends in unemployment and divorce between 1960 and 2005. The second goal is to estimate how unemployment may affect divorce. To address this goal, we conduct regression analyses of state-level data using state and year fixed effects to account for multiple sources of unobserved heterogeneity.

2. Background

Several theoretical perspectives are relevant to understanding how unemployment rates and divorce rates may be linked. Each perspective leads to a different conclusion about the association between these trends.

* Corresponding author.
E-mail address: pxa6@psu.edu (P.R. Amato).

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2.1. The psychosocial stress perspective

Many studies suggest that economic hardship produces stress—a condition in which the demands of the environment exceed people’s resources and capacity to cope (Lazarus and Folkman, 1984). Stress, in turn, has debilitating effects on the quality of marital relationships. In an early study, Komarovsky (1940) examined husbands’ unemployment during the Great Depression. Both spouses initially were optimistic about the husbands’ prospects for a new job. But over time, spouses became discouraged, and tension between unemployed men and their wives increased. Elder’s (1974) influential work, based on archival data from the Great Depression, yielded comparable conclusions. That is, long-term unemployment and economic hardship increased psychological distress and exacerbated discord between spouses.

Elder, and their associates studied economic hardship among rural families in Iowa during the farm crisis of the 1980s. Hardship appeared to increase spouses’ psychological distress—hostility among husbands and depression among wives—and decrease spouses’ expressions of emotional support, warmth, and satisfaction (Conger and Elder, 1994; Conger et al., 1990; Conger and Conger, 2002; Elder et al., 1992). Another study from this period found that economically stressed farmers in Nebraska were likely to be thinking about divorce. Depressive affect mediated about half of the association between economic problems and thinking about divorce (Johnson and Booth, 1990). In a national survey of married couples, Amato et al. (2007) found that family income was a strong predictor of perceived economic hardship. Perceived economic hardship, in turn, was associated with low marital happiness, less marital interaction, more marital conflict, more marital problems, and more frequent thoughts of divorce. With respect to divorce, studies consistently show that a husband’s low earnings increase the risk of marital dissolution (e.g., Hoffman and Duncan, 1995; Ono, 1998). Taken together, these studies provide strong support for an association between economic hardship and disturbed marital relationships.

Studies that have focused specifically on unemployment and divorce also provide support for the psychosocial stress perspective. Preston and McDonald (1979), Ross and Sawhill (1975), Bumpass et al. (1991), and Lewin (2005) all found that unemployment among husbands was associated with an elevated risk of divorce. Similar results have been obtained in several European countries. For example, Jensen and Smith (1990) found that unemployment among husbands, but not among wives, was positively associated with divorce in Denmark. Similarly, Jalovaara (2003) and Hansen (2005) reported that unemployment among either husbands or wives was positively associated with divorce in Finland and Norway, respectively.

The psychosocial hardship perspective leads to the following hypothesis: (1) The unemployment rate is positively associated with the divorce rate. Although a change in unemployment may affect the number of divorces in the same year, the association is likely to be stronger when variables are lagged. Presumably the stress associated with job loss takes time to erode a marriage to the point of disruption. Even couples who are ready to divorce sometimes wait months (or years) before their divorces are finalized and become part of the vital statistics count for that year. Some states also require waiting periods between the filing and granting of divorces. In fact, the median duration from the time of separation to divorce is about 1 year (Bramlett and Mosher, 2001.) Consequently, the psychosocial stress perspective suggests a stronger association when divorce is measured after unemployment, although the length of the lag is not clear. The current study uses lags ranging from 1 to 5 years.

2.2. The cost of divorce perspective

The second perspective focuses on the fact that divorces are costly with respect to standard of living and the accumulation of wealth. These losses include court costs, lawyer’s fees, moving to a new residence for at least one and often both spouses, purchasing new furniture, dividing marital property, and the general loss of economies of scale associated with splitting one household into two. During a period of high unemployment, troubled spouses may be reluctant to incur these costs because (1) one spouse might be jobless, (2) one spouse may need to enter the full-time labor force at a time when jobs are scarce, and (3) employed spouses may be concerned about future joblessness. Indeed, the perceived value of a husband or wife with a steady job may increase during periods of high unemployment, thus decreasing the desire for divorce.

Research has abundantly documented the fact that women’s standard of living declines following divorce (e.g., Smock et al., 1999; Peterson, 1996). Although less well documented, the standard of living of most men also declines following divorce. McManus and DiPrete (2001) pointed out that economic interdependence between husbands and wives has increased in recent decades due to women’s growing labor force participation, the rise in women’s real wages, the decline in men’s earnings (especially men without college degrees), and the greater sharing of household labor and child rearing within marriage. Consistent with these observations, their analysis found that men are more likely now than in the past to lose financial ground following divorce. Along similar lines, Braver (1999) found that household income was substantially lower among mothers than fathers following divorce. This gap in standard of living essentially closed, however, after taxes, government transfers, child support, and alimony were taken into consideration. These studies suggest that husbands as well as wives have good reasons for avoiding divorce during periods of economic insecurity. Unemployment and the associated cost of divorce may even lead troubled couples to improve their relationships. As Wilcox (2009, p. 9) proposed, “Most married couples have not responded to the economic crisis of the moment by heading for divorce court; instead, judging by divorce trends, many couples appear to be developing a new appreciation for the economic and social support that marriage can provide in tough times.”

Few studies have directly addressed this issue. Nevertheless it is well known that the divorce rate in the United States declined during the first few years of the Great Depression. The usual explanation is that couples felt that they literally could
not afford to divorce (Cherlin, 1991). These considerations lead to the following hypothesis: (H2) **The unemployment rate is negatively associated with the divorce rate.** In contrast to H1 from the psychosocial stress perspective, however, we would expect to see this negative association primarily when unemployment and divorce are measured in the same year. Although unemployment may gradually increase marital tension and erode marital stability, it creates an immediate economic disincentive to separate.

2.3. Hybrid perspectives

Although the perspectives outlined earlier lead to clashing hypotheses, it is possible for more than one perspective to be correct, depending on the timing of measurement. For example, Cherlin (2009) combined elements of the psychosocial stress and cost of divorce perspectives by suggesting that Great Recession (like the Great Depression) is likely to cause a dip in the divorce rate followed by an increase when the economy improves. As he stated, “Today’s economic slump could well generate a similar backlog of couples whose relationships have been irreparably ruined. So it is only when the economy is healthy again that we will begin to see just how many fractured families have been created” (page A25). Although Cherlin was referring to major economic crises, the same logic may apply to the more moderate recessions of the last half century. If this perspective is correct, then we would expect to see a decline in the rate of divorce when unemployment is high (due to the high cost of divorce) followed by a noticeable increase in the rate of divorce in subsequent years (due to the toll that economic hardship takes on marital quality). These considerations lead to the following hypothesis: (H3) **The unemployment rate and the divorce rate are negatively associated when both rates are measured in the same year and positively associated when the divorce rate is measured in subsequent years.**

To put this hypothesis in context, most economic recessions are relatively short. Since 1945, the US has experienced 10 recessions (excluding the Great Recession) with the mean duration being about 1 year (National Bureau of Economic Research, 2010). For example, the unemployment rate in the US reached 8% in January of 1975 and remained at this level for 12 months before declining. The longest spell of high unemployment in recent history (excluding the Great Recession) began when the rate reached 8% in November of 1981 and ended 27 months later. In general, therefore, we would expect to see divorce rates increase within one to 3 years following a year of high unemployment.

Another hybrid perspective assumes that historical shifts have occurred in the cost of divorce. By 1980 the great majority of states had adopted some version of no-fault divorce, and no-fault divorces are generally less expensive than fault divorces. In an uncontested no-fault divorce, court costs are relatively low and lawyers’ fees are modest. Moreover, since 1980 the educational attainment of wives and husbands reached parity, the large scale movement of married women into the labor force continued to increase, and women experienced growth in real income (Amato et al., 2007). These changes made married-couple families more secure financially and wives more economically independent of their husbands. And should a spouse lose a job, unemployment insurance and other forms of public assistance are available today that did not exist during the Great Depression. These considerations suggest that divorce is less costly now than in the past, even during periods of high unemployment. The corresponding hypothesis is: (H4) **The negative association between unemployment and divorce has become weaker in more recent decades.**

An alternative possibility focuses on changes in people’s expectations for an acceptable standard of living. Between 1974 and 2005, the average size of a single-family home increased from 1695 to 2434 square feet (US Census Bureau, 2008, Table 936). Amato et al. (2007) reported that the median income of married couples increased from $47,000 in 1980 to $65,000 in 2000 (in constant 2000 dollars). Correspondingly, the median value of married couples’ assets increased from $125,500 to $228,300 (in constant 2000 dollars). Increases in wives’ hours in the workforce and earnings largely accounted for this change. But despite the fact that median family income increased by 38% and median family assets increased by 82%, spouses’ ratings of satisfaction with their financial situations did not change. These findings suggest that married couples’ financial expectations rose as their standard of living increased. In other words, people needed substantially more financial resources in 2000 than in 1980 to report the same level of financial comfort. This argument is consistent with broader perspectives alleging that American culture became increasingly materialistic during the latter part of the 20th century (e.g., Etzioni, 2009).

Married couples’ rising standard of living since 1980 means that divorce may have become a growing threat to people’s financial expectations—expectations that are usually based on having two earners in the household. In addition, the dramatic increase in health care and insurance costs during the last two decades (US Census Bureau, 2008, Table 129) means that unemployment carries additional risks, especially if an unemployed spouse depends on an employed spouse for insurance. These considerations suggest that the perceived financial impact of divorce increased after 1980. This assumption is consistent with declining divorce rates for college educated couples—those who stand to lose the most in absolute terms from dividing their households—and a rise in divorce rates among couples without college degrees (McLanahan, 2004). This reasoning leads to the final hypothesis: (H5) **The negative association between unemployment and divorce has become stronger in recent decades.**

2.4. The individual liabilities (selection) perspective

Although the notion that unemployment and financial hardship affect people’s decision to divorce is intuitively compelling, an alternative model based on selection into unemployment and divorce is plausible. For want of a better term, we refer
to this as the “individual liabilities” perspective. This reasoning takes two related forms. First, undesirable traits that individuals bring to marriage can result in unemployment and affect the quality of marriage negatively. These undesirable traits (or liabilities) include poor work habits, mental health problems, personality disorders, antisocial tendencies, or substance abuse. For example, a husband may be fired by his boss and divorced by his wife because his heavy drinking erodes his performance of work and family roles, respectively. Or an untrustworthy husband may steal from his boss and cheat on his wife, thus arousing the ire of both. A related version of this perspective draws on signaling theory (Spence, 1973). According to this view, a husband’s job loss may “signal” to his wife that he does not have the skills or inclination to be a good provider for his family and, hence, a suitable mate. In this scenario, unemployment leads to marital problems and divorce, not because of economic hardship, but because of disillusionment with the jobless spouse. Although originally framed in terms of male unemployment, the same phenomenon could occur in dual-earner families in which the wife is unemployed. According to this perspective, the positive association between unemployment and divorce is largely spurious.

One study provides support for this perspective. Charles and Stephens (2004) found that the hazard of divorce increased after a spouse’s job loss but not after a spouse became disabled, despite the fact that the economic consequences were similar. They also found that divorce increased following layoffs (which affected a single worker) but not following plant closings (which affected large numbers of workers). The authors concluded that information conveyed about a partner’s suitability as a mate and a good match is more important than financial losses in predicting divorce. Other economists have supported this argument by arguing that there is little or no correlation between large scale economic cycles and divorce rates (Stevenson and Wolfers, 2007; Wolfers, 2009).

State-level data are well suited to address this issue. At the individual level, a particular spouse may have traits that lead to job loss as well as divorce. But at the aggregate level this explanation makes less sense. Although unemployment rates rise or decline in particular years, it is unlikely that individual selection factors are responsible. The frequency of traits such as poor work habits, personality disorders, and substance abuse may change over time in the population, but these traits cannot change quickly enough to account for yearly fluctuations in unemployment. Instead, macro-level variations in unemployment almost certainly reflect the usual business cycles of expansion and contraction that characterize all capitalist economies.

2.5. Contributions of the current study

The current study makes two contributions to the literature on divorce. First, we use state-level data to examine the association between unemployment and divorce rates between 1960 and 2005. Surprisingly few studies have used aggregate-level data to study these variables. The most recent study to our knowledge was conducted by South (1985). His analysis, based on data collected between 1947 and 1979, found a positive association between the annual unemployment rate and the divorce rate in the US—a result that supports the psychosocial stress perspective. Correspondingly, in a study of 31 European countries, Kalmijn (2007) found that unemployment rates were significantly and negatively associated with divorce when using OLS regression—a result that supports the cost of divorce perspective. When the author adopted a country fixed-effects model, however, the association no longer was statistically significant—a result consistent with the individual liabilities perspective. Given the small number of studies on this topic, and the conflicting results of these studies, new research on this topic is warranted.

Second, our study casts light on theoretical perspectives involving psychosocial stress, the cost of divorce, and hybrid perspectives that incorporate elements of both. Few studies are available to choose between these perspectives. But with the United States currently experiencing the most severe economic crisis since the 1930s, social scientists, policy makers, journalists, and others have expressed strong interest in understanding how unemployment and divorce are related.¹

3. Methods

3.1. Variables

We compiled data on unemployment rates and divorce rates for each of the 50 states plus the District of Columbia beginning in 1960 and continuing in 5 year intervals until 2005 (1960, 1965, 1970, 1975, 1980, 1985, 1990, 1995, 2000, and 2005). Data on unemployment rates in each state are available from the Bureau of Labor Statistics (BLS) from 1976 to 2005. We used multiple sources to obtain state unemployment rates for earlier years: the Statistical Abstract of the United States for 1970 and 1975, and the Current Population Surveys for 1965 and 1960. The unemployment rate is simply the percentage of unemployed individuals relative to the total number of individuals in the labor force. Data on the number of divorces in each state were obtained from the National Center on Health Statistics, and data on the number of married individuals in each state were obtained from the Statistical Abstract of the United States.¹

¹ After submitting our research for review, we became aware of a conference paper by Hellerstein and Morrill (2010) with many similarities to the present paper. Consistent with the current paper, they analyzed state-level data between 1976 and 2005 with state and year fixed effects. Moreover, as in the current paper, their analysis revealed a significant negative association between unemployment and divorce. Although these authors used a narrower time period (but with more observations), listwise deletion of missing data, a different statistical model, and different theoretical frameworks, their findings represents a strong replication of the results reported here.
were obtained from multiple volumes of the *Statistical Abstract of the United States*. We calculated the divorce rate for each state and year using the following formula:

\[
\text{Divorce rate} = \frac{\text{Number of divorces}}{\text{number of married individuals}/2} \times 1000. \tag{1}
\]

This rate can be interpreted as the number of divorces in a given year per 1000 married couples.

For supplementary analyses (described later), we calculated the crude divorce rate (the number of divorces in a given year divided by the total population \( \times 1000 \)). We also included the percentage of separated adults in the state population in each year. These data were obtained from various issues of the *Statistical Abstract of the United States*.

We created a stacked data set with each observation representing a particular state in a particular year. The resulting data file included 510 observations (50 states plus Washington DC \( \times 10 \) years).

Federal funding for the collection and publication of vital statistics on divorce was suspended in January of 1996 and, as a result, several states do not submit vital statistics on divorce to the federal government on a regular basis. For example, in 2000, California, Georgia, Hawaii, Indiana, and Louisiana did not report this information. For this reason, divorce data were missing in 23 out of 510 state-years (5%). We estimated state divorce rates for missing years with a single regression-based imputation using the following variables: year, state population, the percentage of divorced adults in the population, the percentage of individuals in various ethnic and racial categories, the percentage of individuals in various age groups, the percentage of high school and college graduates, median family income (adjusted for inflation), and previous values of the divorce rate. A preliminary regression analysis revealed that these independent variables accounted for 95% of the variance in state divorce rates \( (R^2 \text{ adjusted}) \), which suggests that the imputation process yielded reasonable estimates. Note that multiple imputation does not work noticeably better than a single imputation when the percentage of missing values is small (Amato et al., 2007).

3.2. Analysis

The analysis involved a pooled time series analysis with state and year fixed effects. State fixed effects were captured by adding 50 dummy variables to the regression equation—one for each state plus the District of Columbia \( (-1) \). This procedure is equivalent to setting the mean unemployment and divorce rates within each state to zero, with the rates in particular years represented as deviations from the state mean. Because only within-state variance is modeled, state fixed effects eliminate the influence of all unobserved within-state variables that are time invariant (Allison, 2009). Time invariant variables include any legal, social, or cultural factors that do not change during the years of observation. Region of the country is an example of a time invariant variable. Year fixed effects were represented as a series of nine dummy variables for each of the 10 years of observation \( (-1) \). This step is equivalent to setting the mean unemployment and divorce rates for each year at zero, with the rates for each state in a particular year being represented as deviations from the mean for that year. Year fixed effects are commonly used with state time-series data (e.g., Corman, 2003; Gruber, 2004; Strully, Rehkopf, Xuan, 2010), and are necessary in the present study to account for secular changes in the national divorce rate between 1960 and 2005. Year fixed effect models also eliminate the influence of all macro-level variables that affect all states the same way in the same year. For example, an increase in the proportion of young adults in the population raises the unemployment rate as well as the divorce rate. If the size of this group changes over time in a similar manner in all states, then year fixed effects eliminate the influence of this confounding variable. (Allison, 2009, also recommends the use of year fixed effects with individual level panel data.) The formula for the analysis is

\[
Y_{it} = \alpha + \beta \text{Unemployment rate}_i + \sum_{t=1}^{T-1} \text{State}_t + \sum_{t=1}^{T-1} \text{Year}_t + \epsilon_{it} \tag{2}
\]

where \( Y_{it} \) is the divorce rate in state \( i \) in year \( t \); \( \alpha \) is a constant, \( \beta \) is a regression coefficient, State, refers to state fixed effects, Year, refers to year fixed effects, and \( \epsilon_{it} \) is the error term.

Because the analysis includes 10 observations for each state, the observations are not independent of one another. For this reason, we treated states as clusters and calculated robust standard errors. Clustering by state is an effective way of dealing with the autocorrelation in time-series data (Bertrand et al., 2004) and is frequently used in studies that involve state-level data with multiple observations over time (e.g., Corman, 2003; Gruber, 2004; Strully et al., 2010). We also weighted each observation by the state population in that year and adjusted the standard errors to take this into account.

4. Results

4.1. Descriptive trends

Fig. 1 shows the divorce rates for each of the 50 states and the District of Columbia. The figure reveals one major outlier. The divorce rate was extremely high in Nevada during the 1960s and then declined substantially in subsequent years. The explanation for this outlier is clear. Prior to the spread of unilateral no-fault divorce in the 1970s, Nevada had unusually lenient divorce laws, and many people traveled there to obtain divorces. Indeed, the high rate of divorce in Nevada is misleading, because many people who obtained divorces were not state residents. Due to Nevada's atypical pattern, we conducted
analyses that included and excluded this state. Excluding Nevada had virtually no impact on the results, presumably because we weighted the data by state population and Nevada is sparsely populated (especially in earlier decades when its divorce rate was most atypical). All of our reported results include Nevada for the sake of completeness.

Fig. 2 shows the divorce rates again but with Nevada removed. To clarify the figure further, we removed the District of Columbia, which had an atypically high divorce rate in 1975 and 1980. The trends for the remaining 49 states are quite consistent. Although divorce rates are consistently higher in some states than in others, virtually all states followed the same trend over time. That is, divorce rates increased from 1960 to around 1980 and then declined.

Fig. 3 shows the mean divorce and unemployment rates for states between 1960 and 2005, weighted by population size. The divorce rate shows the expected pattern, with a rapid increase during the 1960s and 1970s and a gradual decline after 1980. The unemployment rate displays a rough correspondence to the divorce rate. During the 1960s, the divorce rate was increasing while the unemployment rate was relatively stable. After this both rates increased in tandem until the 1980s, then declined in tandem during the latter part of the 20th century. The two rates began to diverge again in 2000 and 2005, with the divorce rate continuing to decline while the unemployment rate increased somewhat. Overall, however, the trends appear to be positively correlated.

4.2. Main results

Table 1 shows the results from several regression models. Model 1 shows the bivariate association between the unemployment rate and the divorce rate. As anticipated from Fig. 3 the bivariate association was positive and significant. The $b$ coefficient indicates that a one point increase in the unemployment rate was associated with a one point increase in the
divorce rate. This result is consistent with Hypothesis 1 from the psychosocial stress perspective and suggests that economic hardship associated with unemployment undermines marital stability.

Model 2 adds the state and year fixed effects. The regression coefficient was reduced to a nonsignificant value and was close to zero. Fixed-effects models tend to have relatively large standard errors. For this reason, a significant result that becomes nonsignificant when switching to a fixed-effects model may reflect a loss of efficiency rather than a substantive finding. In the present case, however, the standard errors for Models 1 and 2 were similar. Consequently, the most appropriate
conclusion would appear to be that the positive association between unemployment and divorce in Model 1 was due to the influence of unmeasured variables (Allison, 2009), although it is not possible to determine what these variables might be. The year dummies (with 1960 serving as the omitted comparison year) revealed the expected trend. That is, the coefficients increased from 1965 through 1980 and declined in subsequent years. (The 50 b coefficients for the state dummy variables are not shown because they are of little substantive interest.) This model yielded an R² value of .815.

Models 3–6 are based on the notion (described earlier) that the association between unemployment and divorce may have changed over time. Model 3, based on the years 1960–1980, revealed a positive and significant association. Model 4 (based on the same years) shows that with state and year fixed effects added to the equation, the b coefficient declined in magnitude but remained positive and marginally significant (p = .08). This result provides modest support for Hypothesis 1 from the psychosocial stress perspective, at least for this period. Model 5, based on the years 1985–2005, also shows a positive and significant association between unemployment and divorce. With state and year fixed effects added to the equation in Model 6, the b coefficient became negative and statistically significant. We compared the b coefficients from models Models 4 and 6 using the formula recommended by Paternoster et al. (1998), and the two coefficients were statistically different from one another (t = 2.96, p < .01). These findings provide support for the Hypothesis 5, which states that the association between unemployment and divorce has changed over time, with the cost of divorce becoming more relevant after 1980. (In alternative specifications, we split the observations at various years other than 1980. The results yielded the same conclusions as those shown in Table 1. That is, the association between unemployment and divorce was positive in earlier years and negative in more recent years.)

As we described earlier, the cost of divorce perspective suggests that the negative association between unemployment and divorce should be most prominent when both rates are measured in the same year (as in Table 1). The psychosocial stress perspective, however, holds that a positive association is most likely to emerge when the divorce rate is measured in the years following the measurement of unemployment. Table 2 shows the results of regression analyses in which the divorce rate was measured 1 year, 2 years, and 3 years after the year in which unemployment was measured. (For example, we regressed divorce in 1961, 1962, and 1963 on unemployment in 1960.) For convenience, the results of the analysis in which unemployment and divorce are measured in the same year (from Table 1) also are included in the first row. The b coefficients for state and year dummies are excluded for ease of inspection.

The bivariate associations (shown in Model 1) were positive and significant, irrespective of whether both variables were measured in the same year or whether the divorce rate was measured 1, 2, or 3 years after the unemployment rate. Contrary to predictions from the psychosocial stress perspective, however, the b coefficients became weaker rather than stronger over time. Moreover, the b coefficients from Model 2, which included state and year fixed effects, were negative and not significant. When the sample was divided into the years 1960–1980 and 1985–2005, none of the lagged b coefficients was significant or approached significance. These results provide little support for the psychosocial stress perspective, which assumes that a high level of unemployment increases the subsequent (but not the simultaneous) risk of divorce. (We also used a 4 and 5-year lags and found no significant association between unemployment and divorce.)

4.3. Sensitivity analyses

We conducted additional analyses to assess the stability of our findings. In one analysis we replaced the divorce rate (the number of divorces in a state relative to the number of married individuals in the state) with the crude divorce rate (the number of divorces in a state relative to the total state population). The results of this analysis were substantively identical to the results shown in Table 1. These findings support the conclusion that after 1980, unemployment and divorce were negative associated.

### Table 2
Regression of state divorce rates in year, through yeart + 3 on state unemployment rates in year (unstandardized coefficients).

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Divorce₁</td>
<td>1.073***</td>
<td>−0.048</td>
<td>0.310*</td>
<td>−0.380*</td>
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<tr>
<td></td>
<td>(0.194)</td>
<td>(0.184)</td>
<td>(0.175)</td>
<td>(0.139)</td>
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<tr>
<td>Divorce₁₁</td>
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<td>−0.098</td>
<td>0.082</td>
<td>−0.216</td>
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<td></td>
<td>(0.208)</td>
<td>(0.194)</td>
<td>(0.167)</td>
<td>(0.177)</td>
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<tr>
<td>Divorce₁₂</td>
<td>0.800**</td>
<td>−0.261</td>
<td>−0.005</td>
<td>−0.073</td>
</tr>
<tr>
<td></td>
<td>(0.219)</td>
<td>(0.254)</td>
<td>(0.187)</td>
<td>(0.156)</td>
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<tr>
<td>Divorce₁₃</td>
<td>0.831*</td>
<td>−0.199</td>
<td>−0.063</td>
<td>−0.127</td>
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<tr>
<td></td>
<td>(0.207)</td>
<td>(0.207)</td>
<td>(0.176)</td>
<td>(0.154)</td>
</tr>
<tr>
<td>N observations</td>
<td>510</td>
<td>510</td>
<td>255</td>
<td>255</td>
</tr>
</tbody>
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Note: Each coefficient comes from a separate regression analysis.

*** p < .001.
** p < .01.
* p < .05.

... p < .1.
In another analysis, we replaced the divorce rate with the percentage of separated (but not divorced) adults in the state population. As noted earlier, the psychosocial stress perspective suggests that unemployment rates and divorce rates are not necessarily associated in the same year because most couples experience a period of separation prior to divorce. The unemployment rate and the percentage of separated adults in the population, however, are likely to be positively associated within the same year. This analysis indicated that the unemployment rate was positively and significantly associated with the percentage of separated adults at the bivariate level ($b = 1.281, SE = .553, p < .05$) but not when state and year fixed effects were incorporated into the model. (No variations over time emerged for this outcome.)

Although most methodologists are comfortable with imputing missing data on the dependent variable (e.g., Schafer and Olsen, 1998), some have argued that doing so increases the amount of "noise" in the dependent variable (e.g., von Hippel, 2007). Consequently, we conducted analyses in which cases with missing data on divorce were either included or excluded. We also considered whether weighting data by state population affected the results. In other words, we conducted four sets of analyses (imputation versus listwise deletion by weighting versus not weighting). All four analyses produced results that were substantively identical to those reported earlier.

5. Discussion

The goal of this study was to assess the longitudinal association between state unemployment rates and divorce rates. Our analysis was guided by hypotheses derived from different theoretical perspectives. The psychosocial stress perspective assumes that unemployment and divorce are positively associated. The cost of divorce perspective, in contrast, assumes that unemployment and divorce are negatively associated. We also entertained several hybrid hypotheses that contained elements from more than one perspective.

A substantial number of studies conducted with individual-level data provide support for the psychosocial stress perspective (Preston and McDonald, 1979; Ross and Sawhill, 1975; Bumpass et al., 1991; Lewin, 2005; Jensen and Smith, 1990; Jalovaara, 2003; Hansen, 2005). Our analyses of state-level data, however, provide minimal support for this view. The bivariate association between state unemployment and divorce rates was positive and significant. But when state and year fixed effects were included in the analysis, this association collapsed toward zero and was not statistically significant. We found some evidence in support of the psychosocial stress perspective in the period 1960–1980. During these years, unemployment and divorce rates were positively associated and marginally significant. After 1980, however, the association between these two variables was negative (and significant) rather than positive.

Further analysis revealed that divorce rates measured 1–5 years after unemployment rates showed a pattern inconsistent with the psychosocial stress perspective. If unemployment creates hardship that leads to marital dissolution, then the association between these variables should be weak when both variables are measured in the same year and stronger when the divorce rate is measured a few years later. Contrary to this prediction, the association between these variables became weaker (rather than stronger) when divorce was measured in subsequent years. Moreover, the association between the unemployment rate and the number of separated individuals in the population was positive and significant at the bivariate level but not in a more stringent model with state and year fixed effects. Taken together, these results suggest that psychosocial stress may have been a factor in linking unemployment and divorce rates prior to 1980 but is not relevant to understanding divorce rates in more recent decades. The negative and significant association between unemployment and divorce between 1985 and 2005, however, provides clear support for the cost of divorce perspective. When unemployment is high in a given state, couples who may be contemplating marital dissolution are reluctant to take this step. Conversely, when the level of unemployment is low in a given state, couples experience fewer financial barriers to ending their marriages.

Why does the cost of divorce perspective receive support in recent decades but not in earlier decades? We argued earlier that married people’s expectations for an acceptable standard of living increased dramatically between 1980 and 2000, their financial satisfaction did not change (Amato et al., 2007). These findings indicate that married couples needed substantially more financial resources in 2000 than in 1980 to feel the same level of financial comfort. The dramatic increase in health care and health insurance costs during the last two decades (US Census Bureau, 2008, Table 129) also suggests that spouses require more financial resources these days to feel secure.

These shifts in financial expectations means that divorce during periods of high unemployment is more costly to married couples now than in the past. For this reason, unemployment (and the likelihood of a decline in standard of living) serves as a barrier to divorce. This phenomenon is likely to occur not only in marriages in which one spouse is unemployed, but also in marriages in which one spouse has been out of the labor force for a period of time and, hence, would need to find employment following a divorce. Even when a husband and wife are both employed, a high rate of unemployment means that they will be cautious about ending their marriage, given that a potential job loss could happen to anyone at anytime. Moreover, during economic recessions, employed husbands and wives may be evaluated especially positively by their spouses—another disincentive to divorce.

Our results are consistent with South (1985), who reported a positive association between the US unemployment rate and the divorce rate between 1947 and 1979. We also observed a positive (although marginally significant) association between 1960 and 1980. After 1980, however, the association became negative rather than positive.

What implications do these findings have for the Great Recession that began in 2007? It is difficult to make predictions, because the recent financial crisis unfolded on a scale not seen since the Great Depression of 1929. Based on our bivariate
analysis, the increase in the national rate of unemployment from about 5% at the beginning of 2008 to 10% by the end of 2009 (US Bureau of Labor Statistics, 2010) would raise the observed divorce rate by about five points. A change of this magnitude would return the level of divorce in the US to a rate comparable to that of 1985, which would essentially wipe out the substantial decline in divorce rates that occurred during the last 25 years. But if we use the estimates from a model based on the years 1985–2005 that includes state and year fixed effects, then we would expect a decline of about two points in the divorce rate. Recent vital statistics data from the Centers for Disease Control and Prevention (2010) reveal that the number of divorces (in participating states) decreased by 1.4% between 2007 and 2008, and by an additional 2.8% between 2008 and 2009. The direction of this change is consistent with our latter prediction.

A limitation of our study is a consequence of using aggregate data. That is, we have no information on how couples react to high rates of unemployment and the reasoning they use to make decisions about splitting up or staying together. These data only can be obtained from surveys of married individuals. Moreover, states are large entities, and the use of smaller geographical units of analysis (such as cities or counties) would be useful. Data on divorce, however, have not been available for units smaller than states until a question on divorce was added to the American Community Survey in 2008. Another potential limitation involves the ecological fallacy: Associations observed at the aggregate level may not exist at the individual level. The notion that unemployment rates affect married couples irrespective of whether individual spouses are unemployed, however, cannot be assessed without aggregate-level data. Another limitation is that we did not assess the reverse possibility that the divorce rate affects the unemployment rate. This might occur if divorce forces some long-term homemakers into the labor force who are unable to find jobs. (This would cause a rise in the available labor force without increasing the number of available jobs, thus raising the unemployment rate.) Alternatively, this might occur if divorce signals to an employer that a worker may not be reliable or productive. These scenarios would result in a positive association between divorce and unemployment rates, however, and the present study found a negative association after 1980. It is difficult to imagine a set of circumstances under which a rise in divorce would produce a decline in unemployment. Given the lack of a plausible explanation for such a causal order, we do not discuss this issue further.

Despite these limitations, our study has a number of strengths. The use of a wide time span (from 1960 to 2005) made it possible to see if the association between divorce and unemployment changed over time. And the use of state and year fixed effects eliminates the potentially confounding influence of a large number of selection factors. Finally, our support for the cost of divorce perspective (since the 1980s) helps to resolve a controversy about how the unemployment rate and the divorce rate are linked at the macro-level. The current results will need to be reconciled with individual-level studies which suggest that unemployment increases the risk of divorce for particular couples.

References

Hellerstein, J. K., Morrill, M., 2010. Booms, Busts, and Divorce, unpublished manuscript.