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# 'Til Recession Do Us Part: Booms, Busts and Divorce in The United States

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## Abstract

A general hypothesis regarding the impact of permanent income levels and business cycle fluctuations on divorce rate at the state level in the United States is analysed in this article. Based on the data for 45 states over the sample period of 1978–2009, it is shown that the higher the level of transitory income, the higher the incidence of divorce. In other words, divorce is pro-cyclical.

## Keywords

divorce, business cycle, Great Recession, pro-cyclical

## I. Introduction

*'They started to fight when the money got tight, and they just didn't count on the tears...' Billy Joel 'Scenes from an Italian Restaurant'*

Do recessions tear married couples apart? Or do they push them closer together? Mather and Lavery (2010) noted that marriage rates among young people have been dropping for years, but the decline has accelerated since the recession began. Cohen (2010) has also picked up on the idea that the recession '... seems to be hurrying along a decline in marriage'. A survey conducted in 2008 in London among financial analysts, stockbrokers and hedge fund managers suggested that the economic downturn prompted an upsurge in divorces among high earners in London's financial centre (*Economist*, 2008). One explanation is that the defecting spouses of high earners are getting out before the economic crunch reduces the potential for lucrative settlements. Using county-level data from the state of Washington, Brines and Serafini (2010) showed that rising unemployment led to an increase in the number of divorce filings and this effect was most pronounced during the 2008 recession.

On the contrary, another survey result from the United Kingdom showed that as the recession took hold in 2008, the number of divorces fell to the lowest level since 1975, suggesting that more couples may be staying together because the economic crisis left them unable to afford to split (Cassidy, 2010). Unlike the high-income earners, the link between divorce rates and economic conditions is less clear-cut for the middle-income earners, not least since the main marital assets are houses rather than spouses. Rising inflation and falling house prices put pressure on marriages and might thus contribute to higher divorce rates. Still the same factors also make splitting up more complicated. Falling property prices mean that selling the family home may not provide sufficient funds for two separate homes, especially now that lenders have become much more selective (*Economist*, 2010; Rainer and Smith, 2010).

Yet some have sounded a contrarian and optimistic view. Stevenson and Wolfers (2007) and Wolfers (2010) have suggested that marriage and divorce rates have remained remarkably immune to the ups and downs of the business cycle. In 2009, there were about 2.1 million marriages in the United States. Although it does represent a slight decline since the Great Recession began, Wolfers (2010) argues that it is the same rate of decline that existed during the preceding business cycles and reflects a 30-year trend. Other researchers have focused on the response of family arrangements to sudden or severe economic dislocations that may challenge norms of household resource allocation or otherwise disrupt long-established patterns of behaviour in marriage (Elder, 1974; Westin, 1976; Ware, 1982). Still others point to the enduring resilience of family bonds, and suggest that these ties are remarkably adaptive in their ability to absorb social, economic and cultural 'shocks'. These authors maintain that the fragility of marriage in recent years is vastly overstated.

So which view is correct? Will the recession strengthen or weaken marriage? Two conflicting explanations of this relationship have been given in the literature (South, 1985). On the one hand, economic booms make divorce more affordable, providing unhappy couples the financial means to end their marriages. So demand for divorce would increase as income increases, thus leading to the widely held belief that the number of divorces increases during economic expansions and decreases during recessions. On the other hand, deteriorating economic conditions, due to say high unemployment, place strains on marital relationship and lead to more divorce (Liker and Elder, 1983). According to this view, divorce would increase during economic downturns.

This article will analyse the impact of business cycle fluctuations on divorce in the United States using state-level data. Determining how macroeconomic conditions affect divorce rates is an important component in understanding the stability of marriages. Another motivation for this study is that the results would suggest important avenues for future research on the determinants of divorce at the individual level. For example, researchers and policymakers have long sought to identify factors that contribute to marital instability, particularly in at-risk populations. Identifying how macroeconomic conditions affect families will contribute to our understanding of how families may or may not cope with business cycles.

The rest of the article is organized as follows. Section II discusses the trend in marriage and divorce in the United States. Section III presents the methodology, while Section IV discusses the data source and estimation results. The article ends with a summary and conclusions in Section V.

## II. Trends in Marriage and Divorce

Fewer couples get divorced in times of economic difficulty, but is that because their marriages are great, or because they are too broke to get divorced? ‘The Survey of Marital Generosity’, conducted by the National Marriage Project at the University of Virginia in 2011, seems to suggest that both things may occur in times of national hardship. Despite previous findings that financial stress tends to weaken marriages, the survey from a nationally representative sample of 1197 married Americans aged 18–45 found that 29% of Americans believe the most recent recession deepened their commitment to marriage. What is more, 38% of couples who had been considering divorce prior to the recession put those plans aside.

This survey suggests that although there are certainly cases of couples delaying marriage as the result of a job loss due to the Great Recession, it is not likely the primary cause for the decline in the percentage of married persons between 2008 and 2009. The proportion of people 15 years and over who are married is on the decline in the United States and has been for decades, during the times of both economic growth and recessions (see 1–3 for the trend in divorce rate at both the aggregate and disaggregate level). There are several factors at work contributing to this decline. As the percentage of married persons has declined from 67% in 1950 to 54% in 2009, the percentage of divorced persons has risen. In 2009, more than 23 million or 9.7% of the population was divorced compared with just 2.2% in 1950. Last year, 30% of the population 15 years and over had never been married compared with 23% in 1950. Both men and women are delaying marriage. In 1970, the median age for first marriage was 23 years for men and 21 years for women. Last year, the median age for first marriage had risen to 28 years for men and 26 years for women. As these trends suggest, the percentage of the population married would likely have declined between 2008 and 2009 even if the economy had been booming. Between 2005 and 2006 during the height of the last expansion, the percentage of the population that was married declined by 0.4%. The percentage of the population that is married has declined or remained unchanged in 12 out of the past 15 years.

Fig. 1. Number of divorces/1000 married women aged 15 and older, by year, in the United States

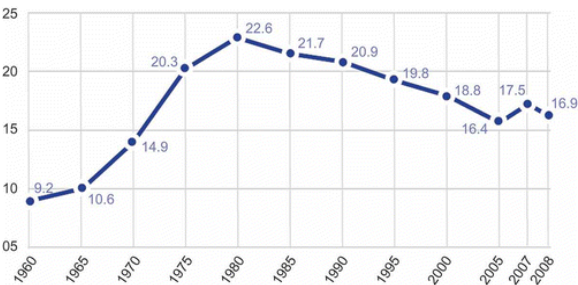


Fig. 2. Percentage of all persons aged 15 and older who were divorced, by sex and race, 1960–2010

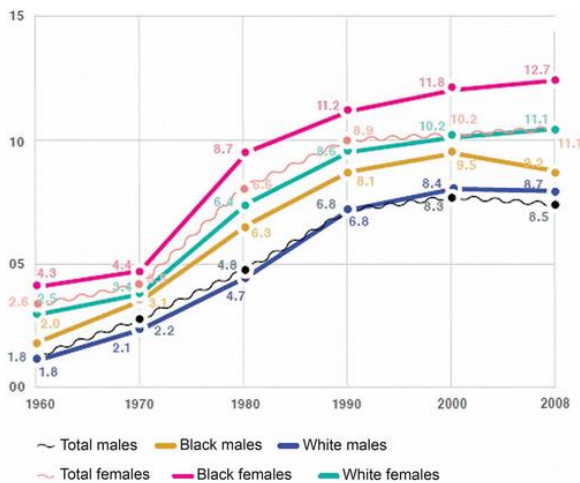
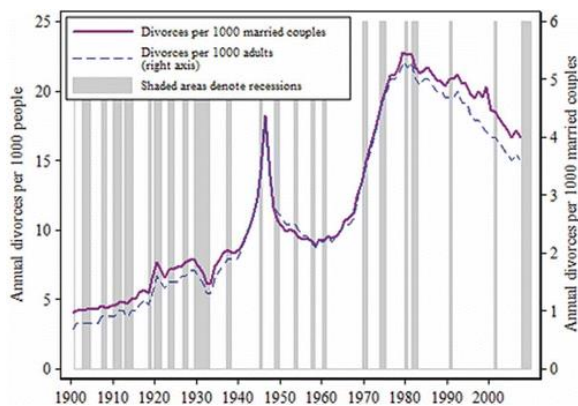


Fig. 3. Historical divorce rate in the United States, 1900–2009



In the decade and a half that followed the passing of the no-fault divorce bill in California in 1969, virtually every state in the Union followed California's lead and enacted a no-fault divorce law of its own. This legal transformation was only one of the more visible signs of the divorce revolution then sweeping the United States: from 1960 to 1980, the divorce rate more than doubled – from 9.2 divorces/1000 married women to 22.6 divorces/1000 married women. In the years since 1980, however, these trends have not continued on straight upward paths, and the story of divorce has grown increasingly complicated. In the case of divorce, as in so many others, the worst consequences of the social revolution of the 1960s and 1970s are now felt disproportionately by the poor and less educated, whereas the wealthy elites who set off these transformations in the first place have managed to reclaim somewhat healthier and more stable habits of married life. This imbalance leaves our cultural and political elites less well attuned to the magnitude of social dysfunction in much of American society, and leaves the most vulnerable Americans – especially children living in poor and working-class communities – even worse off than they would otherwise be.

After rising from 16.4/1000 married women in 2005 to 17.5/1000 married women in 2007, divorce rates in the United States fell to 16.9/1000 married women in 2008. This decline in divorce rates suggests that most married couples have not responded to the economic crisis following the 2007–09 recession by divorcing. Instead, judging by divorce trends, many couple appear to be developing a new appreciation for the economic and social support that marriage can provide in tough times.

### III. Methodology

In this article, we consider a general hypothesis regarding the impact of permanent income levels and business cycle fluctuations on divorce rate at the state level. To do so, we follow Melitz and Zumer (2002) and use the regression model that they used to examine the regional distribution and stabilization through the central government budget. Gokcekus and Suzuki (2011) used the same model to analyse the impact of business cycle on corruption.

Consider the following equation:

$$\text{DIVORCE}_{i,t} = \beta_0 + \beta_1 \text{INCOME}_i + \beta_2 (\text{INCOME}_{i,t} - \text{INCOME}_i) + \varepsilon_{i,t} \quad (1)$$

(1)

$$\text{DIVORCE}_{i,t} = \beta_0 + \beta_1 \text{INCOME}_i + \beta_2 (\text{INCOME}_{i,t} - \text{INCOME}_i) + \varepsilon_{i,t}$$

where  $\text{DIVORCE}_{i,t}$ , defined as  $\text{DIVORCE}_{i,t} / \text{DIVORCE}_{\text{AVE},t}$ , stands for the relative level of divorce;  $\text{INCOME}_{i,t}$  is  $\text{GDP}_{i,t} / \text{GDP}_{\text{AVE},t}$ , and GDP is per capita gross state product; and  $\varepsilon_{i,t}$  is a disturbance term. Subscripts  $i$  and  $t$  refer to state ( $i = 1, 2, \dots, M$ ) and year ( $t = 1, 2, \dots, T$ ), and AVE is the average over the sample state. The average of  $\text{INCOME}_{i,t}$  over the entire period,  $\text{INCOME}_i$ , reflects the level of permanent income in state  $i$  relative to other states in the sample. The deviation,  $(\text{INCOME}_{i,t} - \text{INCOME}_i)$ , reflects transitory income.

Gokcekus and Suzuki (2011) have shown that coefficient  $\beta_1$  can exist even when there is no movement in the time series, whereas coefficient  $\beta_2$  depends entirely on such movement. This can be shown by decomposing Equation 1 into two components:

(2)

$$\text{DIVORCE}_{i,t} = \beta_0 + \beta_1 \text{INCOME}_i + \eta_i$$

(3)

$$\text{DIVORCE}_{i,t} - \text{DIVORCE}_i = \beta_2 (\text{INCOME}_{i,t} - \text{INCOME}_i) + \mu_{i,t}$$

where  $\eta_i$  and  $\mu_{i,t}$  are the two disturbance terms. As  $\eta_i$  and  $\mu_{i,t}$  add up to  $\varepsilon_{i,t}$ , Equations 2 and 3 add up to Equation 1.

The coefficient  $\beta_1$  measures the response to the level of permanent income, whereas the coefficient  $\beta_2$  shows the effect of contemporary transitory deviations from the long-run average income level on divorce rate over the business cycle. In other words, it shows the cyclical behaviour of divorce.

Melitz and Zumer (2002) and Gokcekus and Suzuki (2011) argue that a distributed-lag version of the equations is more appropriate when there is a lagged impact. Accordingly, Equation 3 could be reformulated as

(4)

$$\text{DIVORCE}_{i,t} - \text{DIVORCE}_i = \sum_{j=0}^L \beta_{2,t-j} (\text{INCOME}_{i,t-j} - \text{INCOME}_i) + v_{i,t}$$

where  $L$  is the number of lags;  $\sum_{j=0}^L \beta_{2,t-j}$  is the cumulative sum of the effect of transitory deviations, and  $v_{i,t}$  is the disturbance term.

#### IV. Data Source and Empirical Results

The measure of divorce used in this study is the refined divorce rate, defined as the number of divorces/1000 married women aged 15 and older. South (1985) has argued that although the refined divorce rate is insensitive to the age composition of the married population, the measure compares favourably with age-specific divorce rates and is clearly preferable to two other measures, the crude divorce rate and the ratio of divorces to marriages.

Data on gross state product are taken from the Bureau of Economic Analysis. The state-level annual divorce rate data are from the vital statistics data series prepared by the National Center for Health Statistics. Updates by Justin Wolfers (<http://bpp.wharton.upenn.edu/jwolfers/data/DivorceDataAppendix.pdf>) are used to update the series through 1998. Figures for 1999–2009 are again taken from the National Center for Health Statistics: [http://www.cdc.gov/nchs/data/nvss/divorce\\_rates\\_90\\_95\\_99-09.pdf](http://www.cdc.gov/nchs/data/nvss/divorce_rates_90_95_99-09.pdf).

The sample period runs from 1978 through 2009. Unfortunately, consistent divorce data are not available for all states in the United States. The Vital Statistics are missing data for a number of years for California, Hawaii, Indiana, Louisiana and New Mexico. These five states are therefore dropped from the analysis.

As pointed out by Hellerstein and Morrill (2011), this sample period reflects a period where vast changes occurred in the divorce rate. As divorces became more common in the late 1970s and early 1980s, cultural attitude towards divorce shifted and it carried less of a social stigma (also see Thornton and Young-DeMarco, 2001). Moreover, as many states adopted the unilateral and no-fault divorce legislation, it became easier for one partner alone to initiate a divorce and that partner would not have the same burden of establishing fault for grounds of divorce (Friedberg, 1998). Hellerstein and Morrill (2011) also argued that as long as one of the possible channels by which macroeconomic conditions affect divorce is through a change in one partner's valuation of the quality of the marital match, this channel will be much more relevant in a situation where one partner can initiate divorce without establishing fault. Moreover, women were entering the labour force in increasing numbers thereby reducing a woman's financial risk in divorcing.

Equations 2–4 are estimated separately using five regressions. Equation 2 is initially estimated using Ordinary Least Squares (OLS) and is shown in Column 2 in Table 1. The coefficient of  $\beta_1$  is 0.566 and is statistically significant and negative. This implies that permanent income significantly reduces the occurrence of divorce. As there is a potential for reciprocal influence and endogeneity, the methodology outlined in Chowdhury (2004) is used to estimate Equation 2 using Two-Stage Least Squares (2SLS). Latitude is used as an instrumental variable for per capita state income. The results of the 2SLS are reported in Column 3. The coefficient of  $\beta_1$  is again statistically significant and negative with an absolute value of 0.608. Thus the finding from the OLS that an increase in permanent income significantly reduces the occurrence of divorce is also supported by the 2SLS results.

**Table 1. Regression results: divorce as a function of permanent and transitory incomes**

	Equation 2		Equation 3		Equation 4
Column 1	2	3	4	5	6
Independent variable (coefficient)	OLS	IV (2SLS)	OLS	GMM-IV	GMM-IV
Constant ( $\beta_0$ )	0.391 (0.063)	0.644 (0.000)			
Permanent ( $\beta_1$ ) income	-0.566 (0.013)	-0.608 (0.044)			
Transitory ( $\beta_2$ ) income			0.224 (0.023)	0.189 (0.007)	0.165
Transitory ( $\beta_{2,t}$ ) income					0.128 (0.001)
Transitory ( $\beta_{2,t-1}$ ) income					0.095 (0.002)
Number of observations	45	45	1350	1350	1350
Adjusted $R^2$	0.70	0.68	0.18		
Degrees of freedom	43	43	1349	82	164

Notes: GMM, Generalized Method of Moments; GMM-IV, Generalized Method of Moment–Instrumental Variable; OLS, Ordinary Least Squares. p-Values are in parentheses. GMM-IV refers to Arellano Bond Bover GMM-IV estimation.

$\beta_2$  in Column 5 refers to  $\sum_{j=0}^L \beta_{2,t-j}$  in Equation 4.



Next, we estimate the contemporary effect of transitory income on divorce as given in Equation 3. The OLS results are given in Column 4 in Table 1. The results show a statistically significant positive relationship between divorce and transitory income. The coefficient of  $\beta_2$  is positive and equal to 0.224. Equation 3 is also estimated using the Generalized Method of Moment–Instrumental Variable (GMM-IV) technique (Arellano and Bond, 1991; Chowdhury, 2004). The results are shown in Column 5. The coefficient of  $\beta_2$  is again statistically significant and positive. The coefficient estimate is 0.189. These estimates indicate that divorce practices are more pervasive during business booms.

Finally, we consider the possibility of lagged influence. Equation 4 is estimated using GMM-IV and the estimation results are reported in Column 6. The coefficients of  $\beta_{2,t}$  and  $\beta_{2,t-1}$  are 0.128 and 0.095, respectively. They are both statistically significant. The total effect of the transitory deviations, the cumulative sum,  $\sum_{j=0}^L \beta_{2,t-j}$  is 0.223. The positive signs of the coefficients are consistent with both the OLS and the GMM-IV (without lag) estimation results. Taken together, the results in Table 1 consistently show that the higher the transitory income, the higher the incidence of divorce. In other words, divorce is pro-cyclical. We find strong evidence that the divorce rate is pro-cyclical, a result that is consistent with the two other very recent studies examining the cyclicity of divorce using vital statistics data (Schaller, 2010; Amato and Beattie, 2011). These results are also similar to those reported by Hellerstein and Morrill (2011) but contrary to the results of Wolfers (2010). Moreover, the results of Equation 2 show that divorce rates are higher in states with higher income.

## V. Summary and Conclusions

In this article, we consider a general hypothesis regarding the impact of permanent income levels and business cycle fluctuations on divorce rate at the state level in the United States. Using the regression model developed by Melitz and Zumer (2002), and data for 45 states over the 1978–2009 sample period, the article shows that the higher the level of transitory income, the higher the incidence of divorce. In other words, divorce is pro-cyclical.

Why do divorce rates decrease during recession and increase during expansion? As divorce eliminates the gains from marriage such as household division of labour (Becker *et al.*, 1997) and the cost sharing of public goods (Lam, 1988), it is costly to the couple. So when an economy is in crisis and people's incomes are low, the cost of divorce will prevent a couple from divorcing irrespective of the quality of their marriage. In this case, divorce is not an effective option for a couple. Extending this reasoning to the Great Recession of 2007–09, it can be argued that scarce employment opportunities and reductions in the value of marital assets had forced couples to remain together, notwithstanding marital difficulties. Unemployment rates have stubbornly remained close to 10%, and the percentage of people working with reduced hours or pay is far in excess of that number. Complicating matters is that divorces are often instigated by financial problems. In many divorces, one or both of the spouses involved have either lost a job, have their job in jeopardy or had their hours or pay reduced. Consequently, many estranged spouses are in a financial bind, when it comes to their divorce, giving a whole new meaning to the promise ‘for richer or poorer’. Many couples simply do not have enough money necessary to support themselves separately and pay for their other financial obligations. As a result, many couples who wanted to separate and divorce had either put their cases on hold and remained together out of economic necessity or were looking for more creative and cost-efficient means by which to separate and divorce.

A second major reason that divorces are being delayed is directly related to the depressed housing market as the marital assets are worth significantly less today than they were just a few years ago. In the past, divorcing couples often used equity that they built up in their marital residence to fund their divorce and provide each of them with a nest egg to begin their separate lives. Home prices in the last few years have dropped significantly, however, wiping out much or all of the equity. Worse yet, in many situations, couples need to attempt a short

sale to separate financially. Anecdotal evidences suggest that in certain cases, moving divorces forward has become more difficult because couples do not have the financial means to support themselves separately.

At the same time, the economic downturn forced many couples to redouble efforts to save their marriages. Despite increased marital stress due to the economy, the divorce rate has actually declined since the financial collapse – one of many trends supposedly caused by the recession. Why? Perhaps it is just too expensive to split up now.

Or perhaps there is a psychological reason behind the drop in divorce during recessions. When surrounded by stories of job loss and foreclosure, couples come to realize what is truly important in life, and their new priorities include serious efforts to make marriages work. In other words, the shifts in the broader economic climate have led many Americans to deepen their commitment to marriage and, in some cases, to cancel their plans to divorce.

But when a couple decides to postpone divorce due to a recession, it does not usually mean their desire ultimately to split is reduced. In fact, studies have shown that couples who experienced unemployment and the resulting financial crisis are more likely to experience split up down the road. So, for some couples, recessions actually stoke demand for divorce, even as they make it more difficult to achieve.

Now that sentiment has changed after the recession ended. As the economy moved into a slow and moderate recovery beginning in mid-2009, this pent-up demand for divorce was released and the rates increased. That, in large part, is why divorce generally follows a ‘pro-cyclical’ course, fluctuating in sympathy with the economy.

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