

THE IMPACT OF DIVORCE LAWS ON MARRIAGE

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Abstract

Marriage rates have declined dramatically over the last 30 years. This paper examines whether the adoption of unilateral divorce laws has contributed to this decline. Using US state level panel data, I provide evidence that after the adoption of unilateral divorce, marriage rates declined significantly and permanently in adopting states. The decline in marriage caused by unilateral divorce corresponds to 46% of the initial difference in marriage rates in 1970 across adopting and non-adopting states, and accounts for 3.6% of the overall decline in the marriage rate.

The effect of unilateral divorce on the rate of marriages per single is of equal qualitative importance. Analyzing the propensity to marry within specific cohorts, I find unilateral divorce had the greatest impact in reducing the propensity to marry among whites, and those marrying for a second time.

States which also introduced an equitable division of property across spouses in divorce had further significant reductions in marriage rates. This had the greatest qualitative impact among older white males, and those marrying for the second time.

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1 Introduction

The family is one building block of society that has changed dramatically over the past two generations. One aspect of change that has gained the attention of many economists and sociologists has been the rise in divorce. There is no shortage of potential explanations for this weakening in the traditional family structure. These include higher psychological expectations for marriage, secularization, a growing acceptance of divorce especially in the presence of children, increased state support of single parents, greater wage earning opportunities for women relative to those available for men, the availability of modern contraceptives, and a liberalization of divorce laws.

Ironically much of this debate has taken place when divorce rates have been falling. Indeed the last 20 years has been the longest period of sustained decline in divorce in America since records began in 1860.¹

Of more concern now is the sustained decline in marriage. Today, fewer people are marrying than at any time in the past 40 years, the children of the unmarried account for nearly as many as those living in single parent households, and the majority of births occur out of wedlock.²

The decline in marriage is of concern if we believe marriage to be a good thing, in that there are positive private and social returns to marriage. A large body of literature, summarized in Waite and Gallagher (2000), indeed shows a strong correlation between being married and having better health, higher wages, and accumulating more wealth.³

Furthermore, changing marital patterns have implications for the life cycle behavior of individuals - their attachment to the labor market, savings, and fertility. Even ignoring the welfare consequences of those directly involved, the decline in marriage has far reaching macroeconomic consequences.

This paper studies the consequences for marriage of changes in divorce law that occurred predominantly in the 1970s, a period widely referred to as the “divorce revolution”. In particular I consider the effects on marriage rates of moving from mutual consent to unilateral divorce.

Under mutual consent, both spouses need to agree before divorce can be filed for. Under unilateral divorce, either party can file for divorce without the consent of their spouse. Hence moving from mutual consent to unilateral divorce essentially re-assigns the right to divorce from being held jointly, to being held individually.

¹This paper focuses exclusively on the United States. Similar trends in marriage and divorce are observed in the UK and Canada, both of which have introduced unilateral divorce laws as in the United States.

²In 1994 37% of children in single parent households were living with divorced parents, 36% were living with a never married parent, and the remainder lived with a separated parent (Bureau of the Census (1996)). The percentage of births to unmarried women rose from 5% in 1940 to 65% in 2000 (National Vital Statistics Report (2000)).

³Relatedly, Akerlof (1998) provides evidence that men who delay marriage or remain single are less likely to be employed, tend to have lower incomes than married men and are more prone to crime and drug use.

As first argued by Becker *et al* (1977), if spouses can bargain efficiently, the Coase theorem implies moving from mutual consent to unilateral divorce only affects the distribution of welfare within marriage, not the incidence of marriage and divorce. However spouses may be unable to bargain efficiently for a variety of reasons. For instance, spouses may be unable to commit *ex ante* to all possible divisions of the gains from marriage, or there may be other transactions costs arising from private information. In this case the incidence of marriage and divorce would differ under mutual consent and unilateral divorce laws.⁴

In particular, when spouses are unable to bargain efficiently, moving from mutual consent to unilateral divorce has two opposing effects on the incentive to marry.

On the one hand, individuals now know they cannot be stuck in a marriage they would prefer to leave. This increases the value of marriage, all else equal. On the other hand, they may be in a marriage in which they prefer to stay but their spouse prefers to leave. This decreases the value of marriage, all else equal. Which of these two channels is the more important cannot be determined *a priori*. This paper provides the first empirical evidence to determine the dominant effect.⁵

I use three different data sources to identify the effect of moving from mutual consent to unilateral divorce on marriage. First, *Vital Statistics* data is used to construct crude marriage rates - the number of marriages per 1000 of the adult population. This series is constructed for all states from 1960 until 2000, and so allows the causal effect of unilateral divorce to be distinguished from pre-existing trends in marriage rates.

Second, I combine *Vital Statistics* and March CPS data to derive rates of marriages per single adult. This relates to the actual propensity to marry, as it is defined relative to the “at risk” population.

Third, I combine marriage certificates and March CPS data to construct cohort specific marriage propensities. Marriage certificates data contains basic demographic characteristics from which these are constructed. In particular, I calculate age, gender, race, and marriage number specific rates of marriages per single. To my knowledge, this is the first time such data has been used to analyze the effect of any social change on marriage rates.

The main empirical results are as follows. First, after the adoption of unilateral divorce, crude marriage rates declined significantly and permanently in adopting states. The effect of unilateral divorce on marriage rates corresponds to 46% of the initial difference in marriage rates in 1970 across adopting and non-adopting states, and accounts for 3.6% of the overall decline in

⁴Lundberg and Pollak (2001) and Murphy (2002) present models of household behavior in which limits on marital contracting lead to inefficient outcomes. Peters (1986) sets out a model in which inefficiencies arise because spouses have private information over their payoffs in divorce.

⁵Rasul (2003) develops a model of search in marriage markets that makes precise the interaction between divorce laws, incentives to marry, and selection into marriage, when households cannot bargain efficiently.

the marriage rate.

This result is robust to controlling for a number of economic determinants of marriage, taking account of the adoption of unilateral divorce laws in neighboring states, and the potential endogeneity of divorce laws.

The contribution of unilateral divorce in reducing the rate of marriages per single - a closer measure of the propensity to marry - is equally significant. Further analyzing the propensity to marry within specific cohorts, I find the move to unilateral divorce had the greatest impact in reducing the propensity to marry among whites, and those marrying for a second time.

States which also introduced an equitable division of property across spouses in divorce had further significant reductions in marriage rates. This had the greatest qualitative impacts among older white males, and those marrying for the second time.

The paper makes a number of contributions to the economics literature. First, I provide new evidence on some of the *unintended* consequences of divorce law reforms.⁶ As argued in more detail in the next section, little or no attention was given to the potential consequences on marriage when unilateral divorce laws were being considered.

Second, the paper helps reinterpret and reconcile earlier findings in the literature on the relation between divorce laws and divorce rates (Friedberg (1998), Gruber (2000), Wolfers (2000)). By not explicitly taking account of the unintended effects of divorce laws on incentives to marry, these estimates of the causal effect of divorce laws on divorce rates are likely to be *underestimated*.

The paper is organized into seven sections. Section two overviews changes in divorce laws in the 1970s. Section three presents a descriptive analysis of marriage markets in the past forty years and sets out the empirical methodology for estimating the causal effect of unilateral divorce on marriage rates. Section four contains the main results and robustness checks. Section five analyzes the effects of other aspects of divorce laws on the marriage rate. Section six analyzes the effect of divorce laws on cohort specific rates of marriages per single. This sheds light on the groups most affected by the divorce revolution. Section seven concludes. All data definitions are in the data appendix.

2 Coding Changes in Divorce Law

The 1970s was a decade of major change in divorce laws, a period widely referred to as the “divorce revolution”. Foremost of these changes was the introduction of unilateral divorce. Between 1968 and 1977 the majority of states passed such laws, moving from a regime in which

⁶The only paper that has previously examined this issue is Brinig and Crafton (1994). They regress state level marriage rates (defined as the number of marriages per 1000 of the population) from 1965 to 1987 on a time trend, state adult population and a dummy for unilateral divorce. They do not control for state fixed effects. They find a significant and negative effect of unilateral divorce on marriage rates.

the dissolution of marriage required the mutual consent of both spouses, to one in which spouses could unilaterally file for divorce.

To understand the motivation behind such laws, it is instructive to consider the case of California, one of the earliest adopters.⁷ Criticism of the mutual consent system stemmed from the view that it reduced the welfare of spouses, and led to perjured testimony in collusive divorce proceedings that fostered disrespect towards the law.⁸ Californian legislators believed they would improve welfare within families and end the legal convention in which extreme cruelty was almost the only universal ground for divorce (Parkman (1992)). The Californian Family Law Act became effective in 1970 and established two grounds on which spouses could unilaterally file for divorce - (i) irreconcilable differences; (ii) incurable insanity.

The reform received widespread support from conservative sections of society who perceived it as strengthening families and *reducing* the opportunities for divorce. Lobbies for divorced men and feminist groups also supported the move. Male lobby groups perceived mutual consent divorce to work in favor of wives because men had to “bribe” their wives for them to agree to divorce. Feminist lobbies viewed the reform as eliminating an unjust element of the legal system because women were often unable to “bribe” their husbands to divorce.⁹

The adoption of unilateral divorce was also a largely apolitical issue. Liberals advocated unilateral divorce to prevent women being trapped in unhappy marriages. Conservatives favored unilateral divorce as an extension of personal rights and freedoms.

Throughout the reform process, little if any consideration was given to the effect on the incentives to marry.¹⁰

The other significant change in divorce laws during the 1970s related to how property and assets were divided in divorce. Prior to the 1970s, the majority of states had a divorce regime

⁷The Californian experience is important because the National Conference on Commissioners of Uniform State Laws later based the standard for marital dissolution in the Uniform Marriage and Divorce Act (1974) on California’s requirements for divorce.

⁸Both concerns stem from whether spouses can reach efficient bargains. If spouses were unable or unwilling to make such agreements, some marriages would not be dissolved under mutual consent even though it would be efficient for the couple to do so. If spouses could bargain efficiently, the perception was that men had to “bribe” their wives in order for them to consent to divorce leading to collusion between spouses in court proceedings. Rheinstein (1971) and Ellman *et al* (1998) provide evidence on how perjured testimony and collusion between spouses, were commonplace in divorce cases under mutual consent.

⁹Again, these viewpoints differ in whether spouses can or cannot reach efficient bargains.

¹⁰In addition to changing the right to divorce, the Californian law also established that no assignment of fault was required, nor did fault play any role in divorce settlements. This second strand of California’s law change, no-fault divorce, has often been confused with unilateral divorce. The *innovative* part of the Californian legislation was the introduction of unilateral divorce. As Gruber (2000) notes, in 1960 some 20% of the population already resided in no-fault states. Moving from fault based to no-fault divorce lowers the costs of exiting marriage because it reduces *ex post* bargaining costs, and financial penalties can no longer be imposed on at-fault spouses. As is well established in the literature on search in labor markets, reducing the costs of exiting marriage leads to increased match formation - an increase in the marriage rate, all else equal.

in place that typically led to an unequal division of property in divorce. Each spouse was either only entitled to the property that they owned before the marriage, or fault was to play a role in the division of assets, or some states had explicit “two thirds” rules for property division. I collectively refer to these types of regime as “common” property divorce laws. In the early 1960s, around 90% of the American population resided in states with such common property divorce laws.

By the end of the 1970s the majority of states had moved to divorce regimes in which property was generally more equally divided. In such regimes, the division of property was either explicitly required to be equal, or had to be divided in a “just and reasonable manner”, or had to be divided “in the spirit with modern equitable property division”, or started from a supposition of equal division between spouses. I collectively refer to these types of regime as “equitable” property divorce laws.

Again, the motives for doing so were primarily related to improving the welfare of divorcees, and little attention was given to potential consequences for incentives to marry.

Figure 1 shows the rapid spread of both unilateral and equitable property divorce laws. Table 1 gives the years in which these laws were passed by state.¹¹

Note that unlike for equitable property, not all states implemented unilateral divorce laws. This provides an additional source of variation from which to identify the causal effect of unilateral divorce on marriage rates - across adopting and non-adopting states.

3 Empirical Analysis

3.1 Descriptives

I use three different data sources to provide an overview of the American marriage market. First, *Vital Statistics* data is used to construct crude marriage and divorce rates - the number of marriages (divorces) per 1000 of the adult population. These series can be constructed for all states from 1960 until 2000. These marriage market outcomes have been at the centre of the existing empirical debate.¹²

Second, I combine vital statistics and March CPS data to derive rates of marriages per single adult, and divorces per married adult. These marriage and divorce propensities are defined relative to the “at risk” population in each case, and are more informative of underlying changes

¹¹I use the same coding of unilateral divorce as in Friedberg (1998), table 1. Jonathan Gruber provided me with information of laws regarding the division of property in divorce, on which the coding of common property and equitable property laws are derived. Further details are given in the data appendix.

¹²In fact, Friedberg (1998) and Wolfers (2003) estimate the effect of unilateral divorce on the number of divorces per 1000 of the *total* population.

in the marriage market. Each series can be constructed at the state-year level from 1964 until 2000. However only a subset of states are identified in CPS during the 1970s.

Third, I combine marriage certificates and March CPS data to construct cohort specific marriage propensities. Marriage certificates data contains basic demographic characteristics from which these are constructed. In particular, I calculate age, gender, race, and marriage number specific rates of marriages per single for states over time. Marriage certificates data is available for the majority of states, but only from 1968 until 1995. To my knowledge, this is the first time such data has been used to analyze the effect of any social change on marriage rates.

The three series are used at different stages of the empirical analysis, and are described in more detail below.

Crude Marriage and Divorce Rates

Figure 2 shows crude marriage and divorce rates from 1960 to 2000, defined as the number of marriages (divorces) per 1000 of the population aged 15 to 65. While marriage rates rose dramatically when the first baby boomers entered the marriage market, there has subsequently been a sustained decline in marriage since the early 1970s. The figure also highlights the well documented doubling of divorce rates between 1965 and 1980, and the subsequent sustained period of decline in divorce.¹³

Two points are of note. First, despite the attention given to explaining divorce rates in the economics literature, marriage rates are actually more volatile.¹⁴ Second, trends in the divorce rate follow those in the marriage rate after some lag. As expected, this lag corresponds closely to the average length of marital duration. Taken together, figure 2 implies that divorce rates can be expected to decline for at least another decade.

Figures 3a and 3b show marriage and divorce rates by adoption of unilateral divorce law. States that adopted unilateral divorce had historically higher marriage and divorce rates than non-adopters, but there is no discernible difference in either trend prior to the 1970s.¹⁵ While marriage and divorce rates have declined in all states, rates in adopting states had *converged* to their levels in non-adopting states by the end of the 1990s.

There has clearly been a large decline in marriage even in non-adopting states. Hence unilateral divorce will at best, only explain part of the aggregate decline in marriage. The empirical

¹³In the empirical analysis below, the age-sex composition of the population is controlled for. Michael (1988) documents why only a small part of these marriage market changes can be accounted for by a changing age-sex composition of the population over time.

¹⁴The coefficient of variation is 1.57 for marriage rates and .62 for divorce rates.

¹⁵Given that around 40% of the population today live in non-adopting states, an initial difference of 1 marriage per 1000 of the adult population between adopting and non-adopting states translates into a quantitatively large difference in the number of marriages taking place. The series for divorce rates is largely unchanged if states which adopt unilateral divorce in year t are removed. To the extent that there are no required periods of separation before divorce occurs, this would remove the pipeline effect of that state from the aggregate series in the figure.

analysis below seeks to identify the magnitude of the decline in marriage that can be attributed to the adoption of unilateral divorce. More precisely, I seek to establish whether trends in marriage rates changed significantly between adopters of unilateral divorce and non-adopting states, so as to lead to the convergence over time highlighted in figure 3a.

In order to do this, an estimate of the counterfactual world in the absence of the adoption of unilateral divorce, has to be formed. An obvious counterfactual to begin with, can be constructed from marriage rates in non-adopting states. Given the median year of adoption is 1972, the dashed vertical line in figure 3 highlights the approximate time at which a change in trends in marriage rates caused by the adoption of unilateral divorce, ought to have occurred.

Table 2a gives unconditional differences in marriage rates by adoption status. On average, the incidence of marriage fell by 1.02 marriages per 1000 of the adult population in adopting states after the introduction of unilateral divorce. Given the median year of adoption is 1972, table 2a compares marriage rates pre and post 1972 for non-adopters. On average marriage rates declined in non-adopting states by .356 pre and post 1972.

Hence consistent with figure 3a, marriage rates decline in both adopting and non-adopting states. However, assuming a counterfactual world in which all non-adopting states would have adopted in 1972, the unconditional difference-in-difference in marriage rates between adopters and non-adopters from 1960 to 2000 is -.661. In other words, marriage rates declined by .661 *more* in states that adopted unilateral divorce.

This accounts for 56% of the initial difference in marriage rates between adopting and non-adopting states in 1972. This figure provides a useful upper bound on the magnitude of the difference-in-difference in marriage rates that can potentially be attributed to the adoption of unilateral divorce.

Marriage and Divorce Propensities

Crude marriage and divorce rates hide much of the underlying variation of interest. As they measure changes in marriage and divorce relative to the adult population as a whole, and population moves slowly over time, much of the interesting time variation in marriage rates is not observed in figure 3a. Furthermore, being calculated in per capita terms, crude rates are not relative to the “at risk” population. Figure 4 therefore shows trends in marriages per single, and divorces per married, split by adopting and non-adopting states, as these more closely capture the propensity to marry and divorce.¹⁶

The decline in marriage is more stark when measured as the rate of marriages per single. As with the crude marriage rate, marriages per single were initially higher in adopting states. Post

¹⁶Both types of aggregate series are positively correlated and display similar trends over time. Crude marriage rates and the rate of marriages per single have correlation coefficient .62. The crude divorce rate and the rate of divorces per married have correlation coefficient .86.

1972, marriage rates converge across all states, so that by 2000, rates of marriage per single are actually slightly lower in adopting states.

Table 2b shows the difference-in-difference in marriages per single across adopting and non-adopting states. This is again based on a counterfactual world in which non-adopting states would have adopted in 1972. The difference-in-difference is negative - marriage rates have declined more quickly in adopting states. The quantitative importance of these changes - both in absolute magnitude and proportionate to their level before adoption - are greater than those observed for the crude marriage rate.

Turning to the divorce rate, figure 4b shows the number of divorces per married has continued to rise over time, unlike the crude divorce rate. However the rate of increase in divorces per marriage has decreased considerably since the mid 1970s.¹⁷

In adopting states there was a continued increase in the propensity to divorce after 1972. However, starting in 1980, the number of divorces per marriage begins *declining* in adopting states. For non-adopting states, no change in trend immediately around 1972 is observed, although divorce propensities in non-adopting states plateau from 1980 onwards.

The change in the series among adopting states reflects *two* different effects. First, among the existing stock of married couples, those who married under mutual consent are more likely to divorce all else equal. This is a *pipeline* effect, and captures those marriages which one spouse would have preferred to end if they could have. It was only after the change in divorce regime that this spouse could unilaterally file for divorce.

Second, for the marginal couple married under unilateral divorce, the quality of their match may differ from those previously married under mutual consent. These newly married couples have a different divorce propensity than those married under mutual consent. This difference in divorce propensities is a *selection* effect. Results later in the paper will shed more light on the precise nature of this changed selection into marriage.

The time series for divorces per married in figure 4b is consistent with the selection effect more than offsetting the pipeline effect in steady state. There is a slowdown in the rate of increase of the divorce propensity among adopting states after 1972, followed by a gradual decline.

Table 2b confirms that the difference-in-difference in divorce rates - whether defined relative to those currently married or to the adult population as a whole - have declined more quickly in unilateral states.

¹⁷This seemingly anomalous result - that marriage rates however defined move together, but divorce rates do not - can be explained. Consider a social change that causes the reservation marriage market signal to fall. This leads to a smaller fraction of matched couples to marry, and so a greater stock of singles, all else equal. Hence if only better matched couples marry, both the crude marriage rate and rates of marriage per single decline. However, the flow from marriage into singlehood and the stock of married individuals both fall. Hence changes in rates of divorces per marriage are always ambiguous. Moreover, the divorce rate measured this way can move in the opposite direction to the crude divorce rate, as observed in figure 4b.

The balance of evidence therefore suggests couples became *better* matched under unilateral divorce than mutual consent divorce. Marriage and divorce rates in unilateral divorce states both converge to the levels in mutual consent states.

This information is summarized in figure 4c, which shows the difference over time in marriage and divorce propensities, between adopting and non-adopting states. While both series were diverging prior to 1972, the median year of adoption, the figure illustrates the gradual convergence in marriage and divorce propensities over the next quarter of a century. This is consistent with there being a change in the underlying incentives to marry. This can be due to any factor that causes the gains to marriage over being unmarried to have fallen. Thus identifying the qualitative and quantitative importance of the introduction of unilateral divorce on marriage rates is an important first empirical step in a far wider research agenda.

Marriage Propensities Across Cohorts

Combining marriage certificates and March CPS data allows cohort specific marriage propensities to be calculated. This helps shed light on those groups that may have been most affected by a liberalization of divorce laws.

Figure 5 shows trends in marriage propensities across age cohorts, by gender. For both genders, the greatest declines in marriage have occurred for younger cohorts, although there have also been declines for older cohorts, despite steadily increasing rates of remarriage.¹⁸

The two panels highlight some notable differences across men and women. Since the mid 1980s, the probability of a twenty-something man marrying, conditional on being single, has been the same as for a thirty-something man. This is in contrast to the late 1960s where marriage propensities declined with age across male age cohorts. This is also in contrast to women, for whom divorce propensities although declining over time within a cohort, remain higher among younger cohorts at any given moment in time.

Figure 6 shows marriage propensities by marriage number, again split by gender. Among first marriages, the propensity to marry has declined over time for both men and women. It remains slightly higher for women, consistent with the observation that a greater fraction of men remain never married than do women.

Among second marriages, marriage propensities have also declined, and much more so for men than women. The likelihood of a divorced man remarrying in 1995 was 39% of its level in 1970. The same statistic for women is 72%. However it remains the case that even by the mid 1990s, men are 1.5 times more likely to remarry than women. The corresponding figure at the

¹⁸The median age of women at first marriage in 1960 was 20.3. By 1991 this had risen to 24.1. Thus between 1960 and 1990 the proportion of women aged 20 to 24 who had never married more than doubled, from 28.4% to 62.8%. Around 20% of all marriages in 1970 involved an individual marrying for the second time or more, rising to 33% by 1995.

start of the 1970s was closer to 2.5.

3.2 Methodology

I estimate panel data regressions for the marriage rate (m_{st}) in state s in year t ;

$$m_{st} = \alpha_s + \gamma_t + \delta l_{st} + \beta X_{st} + u_{st} \quad (1)$$

where α_s are state fixed effects, γ_t are year fixed effects, l_{st} is a dummy equal to one if unilateral divorce is in place, X_{st} is a set of observable controls, and u_{st} is a disturbance term.¹⁹ The sample runs from 1960 to 2000 for all states excluding Nevada.²⁰ Robust standard errors are calculated throughout.

Identification of δ arises through three sources of variation - across states, across years in which states adopted, and because some states never adopted unilateral divorce.

As is clear from figure 3a, changes in divorce laws do not explain all of the variation in the *level* of marriage rates over time. Marriage rates declined even in non-adopting states, namely in the absence of unilateral divorce laws. The empirical strategy embodied in (1) is to identify whether unilateral divorce laws explain the change in trends in marriage rates between adopting and non-adopting states.

The null hypothesis is that changes in the right to divorce - moving from mutual consent to unilateral divorce - ought to have no affect on the incidence of marriage so that $\delta = 0$. This is consistent with both unitary (Becker (1991)) and Nash bargaining (McElroy and Horney (1981)) models of household behavior. In both frameworks, households are assumed able to reach Coasean bargains so that changing the right to divorce has no effect on marital formation or dissolution, but only on the distribution of resources within marriage.

Defining the Marriage Rate

I use three measures of the marriage rate at different stages of the analysis. To begin with, I identify the effect of unilateral divorce on the number of marriages per 1000 of the adult population. As this series runs across all states from 1960 to 2000, it is the only marriage rate

¹⁹The year dummies partly pick up changes in recorded marriage rates over time. After 1990, only provisional marriage rates are reported in the vital statistics, not final marriage rates. Provisional figures are predominantly from urban areas, so if marriage rates are higher there - say because of increasing returns to the matching technology in the marriage market - this causes marriage rates to be overstated after 1990. Indeed a slight bump in the marriage and divorce series in figure 2 around 1990 can be discerned, although this change in reporting does not differ across adopting and non-adopting states.

²⁰The marriage market in Nevada is very different to other US states. As seen in table 1, its marriage rate is some 15 times higher than other adopting states. Its divorce rate is more than double that in other adopting states.

series that is sufficiently long to cleanly distinguish the causal effects of unilateral divorce from pre-existing trends in marriage rates.

This series is used to identify whether there is any causal effect of unilateral divorce on the incidence of marriage. I find a small and significant decline in crude marriage rates after the introduction of unilateral divorce. The result is shown to be robustness to a number of alternative hypothesis on why marriage has declined.

I then show the main results to hold using the shorter series of marriages per 1000 single adults. As expected, the quantitative effects of unilateral divorce law on marriages per single are greater than on the crude marriage rate.

Finally, I exploit cohort specific rates of marriages per single to identify the marginal marriage affected by divorce law liberalization. I do this for cohorts based on age, gender, race, and marriage number.

Sources of Bias

A number of confounding factors can lead δ to be inconsistently estimated in (1). The first is omitted factors that - (i) determine the difference-in-difference in marriage rates by adoption status, and, (ii) are correlated to the introduction of unilateral divorce.

To give a concrete example, suppose states which adopt unilateral divorce also have a greater rise in female labor force participation. If working women are less likely to marry, all else equal, then the decline in marriage is actually attributable to the higher rates of growth of female labor force participation in adopting states. Sections 4.2 and 4.4 deal with concerns arising from omitted economic and sociological determinants of marriage.

A second source of bias arises from the fact that marriage and divorce need not occur in the same state. If states neighboring s adopt, it can be “as if” individuals in s have access to unilateral divorce. This leads to two biases.

First, among adopters, later adopters of unilateral divorce are likely to have more neighboring adopters, all else equal. Hence the effect of unilateral divorce on their own marriage rate is partly dissipated through the effect of neighbors that have already adopted. If so, $\hat{\delta}$ is subject to attenuation bias.

Second, an identifying assumption in (1) - that in the absence of unilateral divorce, all states would have had the same trends in marriage rates - is then violated. States which have no change in divorce law may not be the correct counterfactual from which to identify the causal effect of unilateral divorce. Section 4.3 assesses the importance of such concerns arising from the adoption of unilateral divorce by neighboring states.

A third concern arises from the potential endogeneity of divorce laws. Given higher divorce rates in adopting states, as shown in figure 3b, legislators may be more likely to introduce unilateral divorce when divorce rates are higher. This creates a correlation between marriage

rates and the likelihood of adoption of unilateral divorce because of the statistical association between marriage and divorce rates.

To make precise this endogeneity bias, suppose;

$$m_{st} = \alpha_s^m + \gamma_t^m + \delta l_{st} + u_{st}^m = \delta l_{st} + u_{st} \quad (2a)$$

$$l_{st}^* = \alpha_s^l + \gamma_t^l + \mu m_{st} + v_{st}^l = \mu m_{st} + v_{st} \quad (2b)$$

where l_{st}^* is the unobserved propensity to legislate for the introduction of unilateral divorce law in state s in year t .

If only the marriage rate equation (2a) is estimated;

$$\text{plim } \hat{\delta} = \frac{\delta + \mu\sigma_v^2 + (1 + \mu\delta)\sigma_{vu}}{1 + \mu^2\sigma_v^2 + 2\mu\sigma_{vu}} \quad (3)$$

where $\sigma_v^2 = \text{var}(\alpha_s^l + \gamma_t^l + v_{st}^l)$, $\sigma_u^2 = \text{var}(\alpha_s^m + \gamma_t^m + u_{st}^m)$, $\sigma_{vu} = \text{cov}(u_{st}, v_{st})$, and σ_u^2 has been normalized to one. The parameter δ is then only consistently estimated if there is no simultaneity between marriage rates and divorce laws ($\mu = 0$), and there are no unobservable determinants of divorce laws that also drive marriage rates ($\sigma_{vu} = 0$).

If the true effect of unilateral divorce is to reduce marriage rates ($\delta < 0$), states with higher marriage rates are more likely to adopt unilateral divorce ($\mu > 0$), and disturbance terms are positively correlated ($\sigma_{vu} > 0$), $\hat{\delta}$ is biased upwards, namely it is less negative. Hence it is more likely that no effect of unilateral divorce laws on marriage rates is found.

If the disturbance terms are negatively correlated ($\sigma_{vu} < 0$), $\hat{\delta}$ can be biased downwards. This arises if states with high marriage rates are *less* likely to adopt unilateral divorce. Alternatively suppose early adopters of unilateral divorce are precisely those states in which it has the largest effect. Then because δ is identified more from earlier adopters, this type of survivor bias tends to bias $\hat{\delta}$ downwards.

In section 4.5 I address these concerns by instrumenting directly for the adoption of unilateral divorce using state level time varying political characteristics.

Table 3 details how adopting and non-adopting states differ on observable economic outcomes. Prior to 1972, adopting and non-adopting states do not differ in terms of per capita disposable income, female labor force participation rates, the ratio of female to male incomes, wage inequality among men - as measured by the standard deviation of men's income from employment, and the fraction of women that are high school graduates. Moreover, the difference-in-difference in these economic outcomes over time are also not significantly different between adopters and non-adopters.

On face value, the hypothesis that the decline in marriage was greater in states that adopted

unilateral divorce simply because those states had greater changes in rates of female labor force participation over time, say, does not find strong support in the data. The next section establishes in more detail the effect of unilateral divorce on marriage rates, conditional on other determinants of marriage.

4 The Impact of Unilateral Divorce on Marriage

4.1 Basic Results

Column 1 of table 4 regresses the marriage rate on state and year fixed effects, and a dummy for whether unilateral divorce is in place. The introduction of unilateral divorce significantly reduces marriage rates in adopting states. There are at least three ways to assess the magnitude of this effect.

First it corresponds to 46% of the initial difference in marriage rates in 1970, on the eve of the Californian adoption of unilateral divorce. Second, it corresponds to 86% of the unconditional difference-in-difference given in table 2a. Third, as given by the elasticity at the foot of table 4, the introduction of unilateral divorce leads to a 3.6% decline in the marriage rate.

An identifying assumption in (1) is that in the absence of unilateral divorce, all states would have had the same trends in marriage rates. To check for this, column 2 includes dummies for whether unilateral divorce will be introduced in 2 to 3 years time, 4 to 5 years time, and 6 to 10 years time. The omitted category is the year before introduction. Consistent with figure 3a, there is no evidence of significant differences in trends in marriage rates by adoption status, in the decade *before* the introduction of unilateral divorce.

Column 3 controls for basic state level demographics - the adult population (in millions), its square, the proportion of the state-year population that is black, and of other race. The effect of unilateral divorce remains negative and significant at the 1% level when these factors are controlled for.

One concern is that the marriage rate series starts in 1960, a period of considerable flux in marriage markets for a variety of reasons. If marriage markets were then out of equilibrium, and if states that adopted unilateral divorce were further from their long run equilibrium, there would naturally have been convergence in marriage rates of adopting and non-adopting states.

To check for this type of reversion to the mean, column 4 controls for the state marriage rate in 1960 interacted with a linear time trend. The result provides evidence of convergence in marriage rates over time - states that started with higher marriage rates had greater declines over time. However the effect of unilateral divorce law remains negative and significant at the 1% level.

The analysis so far has exploited three sources of variation - across states, across time, and between adopting and non-adopting states. An underlying assumption behind this is that in the absence of unilateral divorce, marriage rates would have been the same in states that adopted at *some* point, to those in states that *never* adopted. In other words, non-adopting states represent the counterfactual world of what would have happened in adopting states, if they had never adopted.

The next column ignores non-adopting states and only exploits variation *within* the subsample of adopting states. The effect of unilateral divorce is then identified only off the variation in timing of adoption across adopting states. The result in column 5, shows that unilateral divorce caused marriage rates to significantly decline within the group of adopting states. In short, the effect of unilateral divorce on marriage rates is not being driven purely by differences across adopting and non-adopting states is some dimension other than unilateral divorce.

In column 6, I ignore the time variation in marriage rates, so that the effect of unilateral divorce is only identified from variation pre and post adoption for adopters, and pre and post 1972 for non-adopters. In particular, observations for each state are collapsed into an average marriage rate, pre and post adoption or 1972. The initial marriage rate in 1960 is still controlled for. The result in column 6 shows that standard errors rise as expected, but the effect of unilateral divorce remains significant as before.

Taken together, the results in table 4 suggest that the introduction of unilateral divorce led to a qualitatively significant and quantitatively large reduction in marriage rates. The rate of marriages per 1000 of the adult population declined by about .5 more in adopting than non-adopting states. This accounts for 40% of the gap in marriage rates between adopting and non-adopting states in 1970, two thirds of the unconditional difference-in-difference in marriage rates, and some 4% of the overall change in marriage rates.

4.2 Economic Determinants of Marriage

If the gains from marriage have changed differentially over time between adopting and non-adopting states, and these gains are correlated to the introduction of unilateral divorce, the previous estimated effect of unilateral divorce on the marriage rate is biased. This concern is addressed in table 5 by controlling for other economic determinants of marriage. These controls are constructed at the state level from CPS data. The sample size is thus smaller than in table 4 because these are available from 1964 to 2000, and only for a subset of states in the 1970s.²¹

²¹This approach differs from that in Friedberg (1998). To identify the causal effect of unilateral divorce on divorce rates, Friedberg allows state effects to trend linearly and quadratically over time. Her results are sensitive to the inclusion of such trends. Furthermore, the inclusion of these trends *raises* the coefficient on unilateral. These state trends therefore appear to be negatively correlated to unobservables that drive both the divorce rate

Column 1 controls for the share of the total population that is of gender j , in age group a , and of race r , where the age groups are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and race is white, black or other. This gives a set 60 controls that capture the entire gender-age-race distribution in state s in year t . Controlling for these, the effect of unilateral divorce on marriage rates remains largely unchanged from the baseline specifications in table 4. In short, the decline in marriage is not simply reflective of a demographic composition of the marriageable population that is changing in a differential way across adopting and non-adopting states.

Column 2 additionally controls for per capita disposable income as a proxy for the gains from marriage. This has no effect on the marriage rate.

Well documented changes in labor markets, particularly for women, have taken place over the past forty years. This may drive some of the decline in marriage rates if labor markets operate differently in adopting and non-adopting states. To address this, columns 3 and 4 control for the female labor force participation rate, and the ratio of income from employment between women and men.

Higher female labor force participation rates significantly increase marriage rates. This would imply the gains from marriage are higher for women who are in the labor force. If women's incomes are closer to men's, this significantly reduces marriage rates. *A priori* we may have expected the gains from marriage to be lower for high income women. However, one potentially offsetting factor is that high income women are able to match with high income men. Hence although their gains from marriage may be higher than for low income women, it takes longer to search and match with high income men in the marriage market.²²

Another well documented change has been the increased wage inequality of men. This may affect marriage rates through a variety of channels (Gould and Paserman (2003)). For example, an increase in male earnings may reflect a greater dispersion in the quality of husbands, increasing the option value to searching longer in the marriage market, and thus reducing marriage rates. To check for this, the next column controls for male wage inequality. Wage inequality is measured by the standard deviation of log weekly wages of married men working full time in the labor force aged 16 to 64, derived from March CPS data. The result in column 5, shows no significant effect of male wage inequality on marriage rates.

A related channel is that higher male wage inequality may encourage women to invest more in their human capital in order to capture the higher returns to skill that drive male wage inequality. In column 6, the fraction of women in the marriage market that are high school graduates is also

and the adoption of unilateral divorce. As Wolfers (2003) points out, *a priori* we would expect factors associated with an increasing divorce rate to have increased the pressure for adoption. The approach taken in this paper is to control for state level determinants of marriage rates, as well as instrument directly for unilateral divorce.

²²Edlund (2003) presents an analysis of how women direct their search to urban marriage markets.

controlled for. This has a negative but insignificant effect on the marriage rate.

A clear concern is that the direction of causality could easily run from marriage to labor market outcomes. For example, married women may be less likely to joint the labor force, and there may be a marriage premium in women's earnings. The estimated coefficients are then subject to endogeneity bias.²³

However, the coefficient on unilateral divorce remains negative and significant throughout. The magnitude of the coefficients remain within one standard deviation of each other across specifications in table 5. In short, although the coefficients on the labor market variables ought not to be taken as the causal effect on marriage, the adoption of unilateral divorce appears to be orthogonal to these economic outcomes. As seen in table 3, the levels of these labor market measures were not significantly different across adopting and non-adopting states, nor was their difference-in-difference.

The final column of table 5 reports the estimated elasticity of the marriage rate to each variable. This allows a comparison of the relative importance of unilateral divorce vis-à-vis economic determinants of marriage, in explaining the decline in marriage. The elasticities suggest that, evaluated at the mean, the introduction of unilateral divorce caused an decline in marriage equivalent to a one quarter of one percentage point fall in female labor force participation rates, or a one fifth of one percentage point rise in the ratio of women to men's income.

4.3 The Behavior of Neighboring States

A second set of concerns arise from the identifying assumption in (1) that the marginal effect of unilateral divorce is the same across all states. At any moment in time, δ is identified using only those states that have passed unilateral divorce, so if early adopters differ from late adopters, $\hat{\delta}$ is biased. This may be of concern because as figure 7 shows, the geographical pattern of adoption was not random. Unilateral divorce was adopted in regional clusters, spreading eastwards over time.

A least two factors can lead to early and late adopters being different. On the one hand, suppose early adopters are those states in which the greatest declines in marriage would have occurred in any case. This type of selection leads $\hat{\delta}$ to be biased downwards, so the effect of unilateral divorce on marriage is overestimated.

On the other hand, because marriage and divorce need not occur in the same state, if states neighboring s adopt, it can be "as if" individuals in s have access to unilateral divorce. This changes individual behavior in non-adopting states and castes doubt on the use of non-adopters

²³Budig and England (2001) find using NLSY data that there is a marriage premium for women in the labor force. However this is more than offset by a motherhood penalty of 7% per child.

as the correct counterfactual from which to identify the causal effect of unilateral divorce.

As late adopters are likely to have more neighboring adopters, there is a smaller effect on the marriage rate in state s of that state itself adopting. Ignoring such spillover effects, $\hat{\delta}$ is biased upwards for later adopters, and the effect of unilateral divorce on marriage rates is underestimated.

Table 6 explores the effects of adoption by neighboring states. Throughout, Hawaii, Alaska and the District of Columbia are dropped from the sample. The first column estimates the baseline specification as in column 1 of table 5, using only the remaining states. This gives a benchmark figure that unilateral divorce significantly reduced the marriage rate by .689 marriages per 1000 of the adult population in adopting states.

Column 2 controls for an interaction between unilateral divorce and whether the state is an early or late adopter. There is no significant difference in the effect of unilateral divorce and the timing of adoption *per se*. The evidence does not therefore support the hypothesis of selection within adoption states - it is not that early adopters had the greatest declines in marriage rates.²⁴

Column 3 controls for the percentage of neighboring states that have adopted. Adoption by neighbors has an offsetting effect to the adoption by state s itself. Indeed, if all neighbors have adopted, the net effect of state s itself adopting unilateral divorce is not significantly different from zero.²⁵

The effect of neighboring states can differ for at least two reasons. On the one hand, if state s is itself larger, transportation costs to neighboring states are higher, all else equal. The effect of neighbors to s adopting should then be smaller. On the other hand, the larger is state s , the greater likelihood any given marriage market participant lives along a border with a neighboring state. The effect of neighbors to s adopting should then be larger all else equal.

Column 4 interacts the percentage of neighbors that have adopted with the area of state s itself. The adoption of unilateral divorce by neighboring states has a greater effect on larger states. This result is consistent with there being large fixed costs to travel, and larger states having more marriage market participants living on state borders.

The state with the most permissive divorce laws is Nevada, which adopted in 1973. If any state were to have an effect on its neighbors, it would be Nevada. Column 5 checks for this by introducing a three way interaction between unilateral divorce in state s , whether s borders Nevada, and whether Nevada has itself adopted unilateral divorce.

States bordering Nevada have significant reductions in their marriage rates. This effect is only present *after* Nevada has itself adopted unilateral divorce. Indeed for states bordering Nevada after Nevada has adopted, the net effect of unilateral divorce is to reduce marriage rates by 4.92,

²⁴This result holds within the entire sample of states also.

²⁵Wolfers (2003) finds such cross state spillover effects to also be significant determinants of crude divorce rates.

some seven times larger than the baseline estimate in column 1.

The interaction between neighboring Nevada with whether Nevada has adopted is positive and significant. This is most likely picking up regional differences in marriage rates - as seen in table 1, marriage and divorce rates are historically higher on the West coast. There is no differential effect of the adoption of unilateral divorce in state s pre and post Nevada's adoption in 1973. This is consistent with column 2, that the effect of unilateral divorce on marriage does not differ with the timing of adoption *per se*.

Finally, in column 6 the same specification is estimated after dropping California from the sample, the largest neighbor to Nevada. There remains strong evidence of spillovers from divorce laws in Nevada to the marriage markets of its neighboring states.

The marginal effect of the adoption of unilateral divorce by state s on its own marriage rate, evaluated at the mean, is given at the foot of the table. This remains negative, significant, and is slightly larger in absolute value than in the benchmark specification. Ignoring the cross state spillover effects of divorce laws, leads to an underestimate of the causal effect of the adoption of unilateral divorce in state s on the marriage rate in s itself.

4.4 The Taste For Marriage

Estimates of the effect of unilateral divorce on marriage are inconsistent if there are unobservable determinants of divorce laws that also drive marriage rates, so that $\sigma_{vu} \neq 0$ in (3). This would occur if the intrinsic value placed on marriage differs across adopting and non-adopting states, and the value placed on marriage is correlated both with the introduction of unilateral divorce and the incidence of marriage. To shed more light on this, I estimate how the effect of unilateral divorce differs with three proxies for the intrinsic value placed on marriage. This provides an indication of the marginal marriage affected by the introduction of unilateral divorce, and hence whether divorce laws are likely to be endogenously determined with marriage rates or not.²⁶

The first approach uses the frequency of out-of-wedlock births per female aged 15-44, as a proxy for the intrinsic value placed on marriage. In states where individuals value marriage less, there ought to be higher rates of out-of-wedlock births, all else equal. I measure out-of-wedlock births in 1970, which largely predates the introduction of unilateral divorce. Hence the frequency of out-of-wedlock states is not confounded by any endogenous changes in incentives to invest into

²⁶On face value, the hypothesis that the decline in marriage is *purely* down to a shift in tastes does not easily fit the facts. The percentage of Americans that report a “happy marriage is a part of the good life” actually increased between 1991 and 1996 from 72% to 86% (Cherlin (1992)). The proportion of the US population that expects to marry remains at around 90% in the US, and has shown little decline since the 1960s (Thornton (1989), Thornton and Freedman (1982)). What has occurred is that an increasing proportion of women report being less happy in marriage than before (Glenn (1991), Lee *et al* (1991)).

marital specific capital, caused by the move to unilateral divorce.²⁷

Column 1 interacts the introduction of unilateral divorce with the states out-of-wedlock birth rate in 1970. As with all interactions in table 6, the interaction term is in its deviation from its mean, so the coefficient on unilateral divorce is interpreted as the effect on marriage rates at the mean of the interaction variable.

Unilateral divorce has a greater affect in states where more children were born out-of-wedlock in 1970 - a one standard deviation increase in the rate of out-of-wedlock births from its mean, leads to a further fall in marriage rates of .884. These are precisely the states in which, *a priori*, less intrinsic value may be attached to marriage.

The second approach uses information on the permissiveness of divorce laws. I use an index of the permissiveness of the implementation of state divorce laws constructed by Broël-Plateris (1961). This index is based on responses to a questionnaire administered to 68 experts in family law in each state. It is designed to reflect whether states have systematically different standards of evidence and perjury in divorce cases. As such, it serves as a good proxy for state attitudes and social norms towards divorce in the early 1960s. Again this pre-dates the introduction of unilateral divorce laws.²⁸

Column 2 interacts the introduction of unilateral divorce with this measure of permissiveness of divorce laws. The result shows that unilateral divorce laws caused smaller declines in marriage rates in states that *already* had more permissive divorce laws in the early 1960s. Again, these are precisely the states in which, *a priori*, less intrinsic value may be attached to marriage.

The third approach uses the religiosity of the state population to proxy for the intrinsic value placed on marriage. In column 3 I interact unilateral divorce with the percentage of the state adult population that were members of Christian churches in 1952. There are no differential effects of unilateral divorce by the religiosity of the population.²⁹

Overall, the results suggest the marginal marriage resided in states in which there was historically a higher rate of out-of-wedlock births, and where divorce laws were most permissive to begin with. If the demand for legal reform was greatest in these types of state, there is a need to account for potentially endogenous divorce laws. This is the subject of the next section.

²⁷ Stevenson (2003) presents evidence of unilateral divorce leading to changed investment incentives into three types of marital specific capital - home ownership, labor force participation, and the number of children.

²⁸ Further details of this index are reported in Stetson and Wright (1975). They find a positive association between this index and actual divorce laws in place, as well as with divorce rates themselves.

²⁹ A similar result was found when using the share of the religious population that is Catholic in 1952.

4.5 Instrumenting for Unilateral Divorce

The instrumentation strategy pursued here is motivated by the fact that the liberalization of divorce laws was a largely non partisan issue. Liberals viewed unilateral divorce as a means by which women could leave unhappy marriages, conservatives viewed the law as promoting individual rights and freedoms *per se*. Indeed, of the states that passed unilateral divorce laws, 16 had Republican governors, 14 had Democrat governors.

The instrumentation strategy uses state level time varying political characteristics as instruments for the adoption of unilateral divorce. In particular, the first set of instruments used for whether unilateral divorce laws are passed in state s in year t are the age of the governor, whether there is a state election in one year's time, and a measure of the governor's political ideology.³⁰

A governor's age proxies the likelihood the governor has himself been through a divorce, and this may influence their demand for liberal divorce laws. This idea is further supported by two anecdotal pieces of evidence. First, one of the main proponents of divorce law reform in California in the late 1960s, Assemblyman James Hayes, was himself involved in a "bitter divorce action". As documented by Parkman (1992), James and Janne Hayes had married in 1941 when they were nineteen year old college students. Twenty five years and four children later, Janne Hayes filed for divorce. She was awarded custody of the children and the family home, James Hayes was awarded his law practice. Legal wrangling between the couple continued for many years as James Hayes tried to renegotiate the terms of his alimony and child support payments.

Second, a well documented spike in marriage rates occurred during World War 2. Many of these marriages were revealed to be inefficient *ex post*, and as argued by Allen (1998), the demand for divorce liberalization in the 1970s stemmed especially from this cohort of couples that were married during the 1940s.

Whether an election is upcoming is correlated to how responsive governors' are to the electorate's preferences. The instrument is valid if the demand for divorce law reform comes primarily from the existing stock of married couples, as opposed to singles. *A priori*, it seems unlikely that singles were demanding divorce liberalization so as to reduce their incentives to marry.

Finally the governor's ideology measure, taken from Berry *et al* (1998), is a measure of the overall policy stance of the governor. The instrument is valid if this policy stance is correlated to that for divorce law liberalization, and uncorrelated to the state marriage rate.³¹

³⁰Table 6 presented evidence that when states neighboring s adopt unilateral divorce, the marriage rate in s is itself affected. This suggests that one potential instrument for unilateral divorce would be divorce laws in neighboring states. I do not pursue that strategy here because this instrument would not be valid if voter preferences were correlated across states, or there was yardstick competition in divorce laws across states. Understanding the demand for divorce laws across states remains an issue for future research.

³¹The ideology of a state's governor is equal to the average ideology score of state legislators from the same party. These themselves are based on an average score of each legislator's ideology constructed from information from Americans for Democratic Action (ADA), and the Committee on Political Education (COPE). These measures

The first and second stages of the instrumental variables regression are presented in table 8. The first stage R-squared is .69, and the instruments pass a joint test of under identification. Older and more conservative governors are significantly more likely to legislate for unilateral divorce.³² Older governors are more likely to have been divorced themselves, and the majority of governors that introduced unilateral divorce were Republicans.

In the second stage, the effect of unilateral divorce remains negative and significant at the 5% level. The instruments however barely pass the overidentification test.

An alternative instrument set is the governor's age, and a dummy for whether both upper and lower state chambers are controlled by the same party. This second instrument is valid if the degree of political competition is uncorrelated to the demand for divorce law liberalization. *A priori*, states in which the same party controls both state chambers may be more able to reform divorce laws, all else equal.

Using this instrument set, the first stage R-squared is .69, and the instruments pass a joint test of under identification. Older governors are significantly more likely to legislate for unilateral divorce, as are states in which the same party controls both state chambers. In the second stage, the effect of unilateral divorce remains negative and significant at the 5% level. The instruments pass the overidentification test with a p-value of .5085.

The effect of unilateral divorce is therefore greater in absolute magnitude than when divorce laws are taken to be exogenous. As shown in (3), this is in line with the true effect of unilateral divorce on marriage rates to be negative ($\delta < 0$), states with higher marriage rates being more likely to adopt unilateral divorce ($\mu > 0$), and unobservables driving both marriage rates and the adoption of unilateral divorce ($\sigma_{vu} > 0$).

5 The Impact of Other Divorce Laws on Marriage

As discussed in section 2, the change in the right to divorce was not the only aspect of divorce law reform during the 1970s. Hence a concern is that the identified effect of unilateral divorce on marriage rates is merely picking up the effect of some other divorce law. To the extent that there is variation across states and years in which different aspects of divorce law were changed, it is possible to separately identify the effect of each law.

In column 1 of table 9 I control for whether in addition to unilateral divorce, there is a legal separation requirement on couples before divorce can occur. If separation requirements significant increase the costs of exiting marriage, search theory suggests this leads to less marital

are used widely in the political science literature. See Berry *et al* (1998) for further details.

³²An ideology score of zero represents the most conservative values, a maximum score of 100 represents the most liberal position.

formation, all else equal. I find that such separation requirements have no effect on marriage rates after unilateral divorce itself is controlled for.

In column 2 I control for whether fault does not need to be established for property settlement and alimony (PSA) in divorce. Such no-fault requirements for PSA reduce the costs of exiting marriage and should increase the incidence marital formation.³³ The evidence is in support of this. No-fault for PSA has a positive and significant effect on the marriage rate.³⁴

The next column introduces an interaction between unilateral divorce and no-fault for PSA. The result shows that only when states have *both* unilateral divorce and no-fault for PSA is there a significant fall in marriage rates. Changing the costs of exiting marriage through no-fault divorce, only appears to be a binding concern when unilateral divorce is also in place.

Another major distinction across state divorce laws relates to the actual division of property in divorce. States can be classified as either being in a common property regime, or an equitable property regime. As discussed in section 2, in the former regime, spouses are generally only entitled to the assets they themselves brought into the marriage, or some other non-equitable rule is in place. Under an equitable regime, property and assets are generally equally divided across spouses in divorce.

Column 4 controls for whether a state has an equitable or common property divorce law regime.³⁵ If property is equally divided in divorce, this significantly *reduces* marriage rates. There remains a negative and significant effect of unilateral divorce law on marriage rates, over and above the effect of an equitable division of property. Column 5 introduces an interaction between these two aspects of divorce law. The result suggests that the qualitative and quantitative impact of the two laws are independent of each other. Identifying the characteristics of the marginal couple that is discouraged from marrying in response to each type of divorce law, is explored further in the next section.

For completeness, I consider the possibility that the introduction of unilateral divorce may be correlated to the introduction of two other non-divorce related aspects of legal change - legalized abortion and laws promoting the joint custody of children.

Abortion was legalized in five US states in 1970, with the remaining states following suit in 1973. This is exactly when divorce laws were being reformed.³⁶ Legalizing abortion would reduce

³³The introduction of no-fault divorce laws lower divorce costs because they reduce the proof required to instigate divorce, and courts can no longer impose financial penalties on at-fault spouses.

³⁴In this sample, 51.4% of state-year observations have mutual consent and fault for PSA, 7.17% have mutual consent and no-fault for PSA, 19.9% have unilateral and fault for PSA, and the remaining 21.6% have both unilateral and no-fault for PSA.

³⁵In this sample, 22.0% of state-year observations have mutual consent and common property, 36.5% have mutual consent and an equitable property division, 3.56% have unilateral and common property, and the remaining 37.9% have both unilateral and an equitable division of property.

³⁶Abortion was legalized nationally following the Supreme Court's 1973 decision in *Roe v. Wade*. The coding of when states legalized abortion is from Donohue and Levitt (2000).

marriage rates if prior to legalization, couples faced social pressure to marry if they were to give birth out-of-wedlock, so called “shotgun” marriages.³⁷ Column 6 controls for the legalization of abortion. This is found to have no significant affect on the marriage rate, evaluated at the mean.

Laws favoring joint custody were adopted from the 1980s onwards in nearly all states.³⁸ The move towards the promotion of joint custody of children in divorce causes a redistribution of the gains from marriage. This reduces the incentives to marry for the party that loses from this redistribution. If however joint custody laws increase the aggregate incentives of spouses to make marital specific investments into their children during marriage, this increases the value of marriage and raise marriage rates. Column 7 shows this law change to have no affect on the marriage rate, evaluated at the mean.

The effect of unilateral divorce and an equitable property regime, continue to both significantly reduce the marriage rate. The final column of table 9 reports the elasticity of the marriage rate with respect to each divorce law. The effects of the laws are quantitatively similar. Evaluated at the mean, the introduction of either law leads to a fall in marriage rates of around 3.5%.

5.1 Where Divorce Laws Matter Most

Table 10 explores in more detail the economic environment in which each aspect of divorce law matters most. This sheds light on the nature of sorting in the marriage market, and how this is affected as two margins change - a reallocation of the right to divorce, and a redistribution of property in divorce.

I interact each divorce law with three state-year economic characteristics in turn - women’s income from employment, the female labor force participation rate, and the fraction of women that are high school graduates. Each interaction term is measured as a deviation from its mean, so the coefficient on the divorce law is interpreted as its effect on the marriage rate, evaluated at the mean of the interaction variable.

Reading across the first three columns in table 10, we see that unilateral divorce reduced marriage rates by significantly more in states in which (relative to the average) - (i) women have higher incomes from employment; (ii) more women participate in the labor market; (iii) a greater fraction of women are high school graduates.

Taken together, this suggests that a given matched couple are less likely to marry in states in which unilateral divorce is in place, and women are economically better off, all else equal.

³⁷See Akerlof *et al* (1996) for a formal analysis of this mechanism. Marriage rates would also decline as the availability of contraception increased. Goldin and Katz (2002) provide a detailed empirical analysis of the introduction of the contraceptive pill, and women’s age at first marriage.

³⁸The definition and coding for joint custody is given in the data appendix.

To see why this may be so, recall there are two opposing effects on incentives to marry moving from a mutual consent to unilateral divorce regime, when couples cannot reach Coasean bargains. On the one hand, individuals know they may be divorced against their will - this reduces the value of marriage. On the other hand, individuals know they cannot be stuck in a marriage they would prefer to leave - this increases the value of marriage.

As women become economically better off relative to men, this second effect, which increases the value of marriage, becomes less important relative to the first. The effect can be magnified if unattached women select jobs, colleges and leisure activities in order to affect the chances of meeting a suitably qualified man - namely there is directed search in marriage markets. The net effect of unilateral divorce is to reduce incentives to marry, an effect which is stronger for women who are better off when unmarried to begin with.

Reading across the last three columns in table 10, moving from common property to an equal property regime reduces marriage rates significantly more in states in which (relative to the average) - (i) women's income from employment was lower; (ii) the fraction of women high school graduates was lower. There is no differential impact of this law with variations in female labor force participation rates.

Taken together, these results suggest that a given matched couple are less likely to marry in states in which an equitable property regime is in place, and women are economically worse off, all else equal. This may be because when property is equally divided in divorce, there are increased incentives for better off individuals to sort positively on income, wealth, and assets. Hence the likelihood of any given matched couple both preferring to marry rather than remain single, falls.

6 Alternative Definitions of the Marriage Rate

6.1 The Rate of Marriages Per Single

The analysis has focussed on identifying the effect of unilateral divorce on the number of marriages per 1000 of the adult population. As this series runs across all states from 1960 to 2000, it is the only available marriage rate series that is sufficiently long to cleanly distinguish the causal effects of unilateral divorce from pre-existing trends in marriage rates.

Having established an effect of unilateral divorce on marriage rates, I now show the main results continue to hold using the shorter series of marriages per 1000 single adults. State-year level measures of the number of adult singles - aged 15 to 65 - are constructed from March CPS data. These are available from 1964 to 2000, but only a subset of the largest states are covered in the CPS during the 1970s.

The rate of marriages per single however reflects the flow of individuals from singlehood into marriage, *conditional* on being single. As such it is a better measure of the propensity to marry than the number of marriages relative to the adult population as a whole.

To be clear, I estimate panel data regressions for the propensity to marry (ms_{st}) in state s in year t ;

$$ms_{st} = \alpha_s + \gamma_t + \delta l_{st} + \beta X_{st} + u_{st} \quad (4)$$

where α_s are state fixed effects, γ_t are year fixed effects, l_{st} is a dummy equal to one if unilateral divorce is in place, X_{st} is a set of observable controls, and u_{st} is a disturbance term. As the adoption of unilateral divorce is positively serially correlated over time, standard errors in (4) may be biased downwards (Bertrand *et al* (2003)). I therefore cluster standard errors by state. Again, Nevada is excluded throughout.

I estimate a similar set of specifications as in table 4 to identify the effect of unilateral divorce on the marriage propensity. Column 1 of table 10 regresses the marriage propensity on state and year fixed effects, and the unilateral divorce dummy. Unilateral divorce significantly reduces marriage propensities in adopting states. The magnitude of this effect, -16.1, corresponds to 82% of the initial difference in marriage propensities in 1970.

To check for any evidence of a pre-trend in marriage propensities before unilateral divorce is introduced, column 2 includes dummies for whether unilateral divorce will be introduced in 2 to 3 years time, 4 to 5 years time, and 6 to 10 years time. The omitted category is the year before introduction. There is little conclusive evidence of a pre-trend in the decade *before* the introduction of unilateral divorce.

Column 3 controls for the share of the total adult singles population that is single, of gender j , in age group a , and of race r , where the age groups are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and race is white, black or other. The effect of unilateral divorce remains negative and significant when these demographic shares of singles are controlled for.

To check for reversion to the mean, column 4 controls for the state crude marriage rate in 1960 interacted with a linear time trend. There is evidence of convergence in marriage propensities over time, yet the effect of unilateral divorce law remains negative and significant.

The next column ignores non-adopting states and only exploits variation *within* the subsample of adopting states. The effect of unilateral divorce is identified only off the variation in timing of adoption across adopting states. The result in column 5, shows that unilateral divorce caused marriage propensities to significantly decline within the group of adopting states.

In column 6, I ignore the time variation in marriage propensities, so the effect of unilateral divorce is only identified from variation pre and post adoption for adopters, and pre and post 1972 for non-adopters. Observations for each state are collapsed into an average marriage propensity,

pre and post adoption or 1972. The initial marriage rate in 1960 is still controlled for. The result in column 6 shows the effect of unilateral divorce to remain significant as before.

The final column controls for both unilateral divorce, and the property divorce regime. While the effects of unilateral divorce remain largely as before, the move from common to an equal division of property has no significant effect on the propensity to marry.³⁹

Dynamics

If the move to unilateral divorce is truly reducing incentives to marry, this should be a permanent effect. To explore the short and long run impact of unilateral divorce on the rate of marriages per single I estimate the following specification;

$$ms_{st} = \alpha_s + \gamma_t + \sum_{T=-7}^{20} \mu_{t-T} L_{sT} + \beta demo_{st}^{jar} + \lambda m_{s,1960}.time_t + u_{st} \quad (5)$$

where L_{sT} is a dummy equal to one if unilateral divorce was passed T years ago in state s , $demo_{st}^{jar}$ is the share of the total adult singles population that is single, of gender j , in age group a , and of race r , as described above, and $m_{s,1960}.time_t$ is the crude marriage rate in 1960 interacted with a linear time trend. The estimated effects of unilateral divorce T years after its introduction on the marriage propensity, $\hat{\mu}_{t-T}$, are shown in figure 8, along with a 95% confidence interval.

There is only enough data to estimate the effects of unilateral divorce starting from seven years prior to its introduction in any given state.⁴⁰ Consistent with the earlier regression results, the marginal effect of unilateral divorce is zero prior to adoption, and negative and significant after adoption. From the time of adoption, significantly fewer individuals move from singlehood into marriage in adopting states. This leads to the gradual convergence in marriage propensities across states, as noted in figure 4.

6.2 Cohort Level Analysis

In this section I analyze the effects of divorce laws on rates of marriages per single within gender, age, race, and marriage number cohorts. I define the marriage propensity in cohort c for state s in year t as;

$$ms_{cst} = \frac{\text{number of individuals in cohort } c \text{ that marry in state } s \text{ in year } t}{\text{number of single individuals in cohort } c \text{ in state } s \text{ in year } t} \times 1000 \quad (6)$$

³⁹In this sample, 16.8% of state-year observations have mutual consent and common property, 36.9% have mutual consent and an equitable property division, 2.63% have unilateral and common property, and the remaining 43.6% have both unilateral and an equitable division of property.

⁴⁰To be clear, the estimated coefficient and standard error in figure 8 is calculated only from those states which adopted seven years after the marriage propensity series begins. As T increases, more states can be used to estimate each coefficient and associated standard error.

I combine marriage certificates and March CPS data to construct these cohort specific marriage propensities. Marriage certificates data is available for the majority of states, but only from 1968 until 1995, and the total number of singles can only be constructed for a subset of states in the 1970s. To begin with, I analyze cohort specific marriage propensities for 15-29 and 30-44 year olds, by race and gender.

Table 12 gives unconditional differences in these age-gender-race specific marriage propensities. The table compares marriage propensities pre and post 1972 for non-adopters, and pre and post adoption for adopters. Across all cohorts, there have been large reductions in marriage propensities over time. For each age-gender-race cohort, the decline in marriage propensities has been greater in adopting states.

In table 13 I regress cohort specific rates of marriages per single, on unilateral divorce, and whether an equitable division of property regime is in place. All specifications also control for state and year fixed effects, and the demographic shares of the appropriate groups of singles.

Unilateral divorce significantly reduces the number of marriages per single across nearly all gender, age, and race groups. In proportionate terms, there are no differential effects by gender. For whites, both age cohorts are equally affected. Amongst blacks, the older cohort is relatively more affected.

The pattern of coefficients on the dummy for the equitable property regime is also revealing. Among whites, it is predominantly older white men that become less likely to marry conditional on being single, when property is more equally divided in divorce. Older black women become more likely to marry under such a divorce regime, all else equal.

I next construct marriage propensities by gender, for first and second marriages. In table 14 I regress these on the two divorce laws, state and year fixed effects, and the demographic shares of the appropriate groups of singles. For first marriage cohorts, these correspond to the share of the total adult singles population that is single, of gender j , in age group a , and of race r , as described above. For second marriages these correspond to the same groups but only for those that have been married once before.

Unilateral divorce reduces marriage rates both for those marrying for the first and second time. However the impact of unilateral divorce is qualitatively larger for second marriages. This is true across both genders.

Individuals are significantly less likely to marry for a second time when property is more equally divided in divorce. There are no effects of this law on first marriages.

Overall the results by cohort imply unilateral divorce had the greatest qualitative impact in reducing marriage among whites, and those marrying for a second time. In contrast, the move towards having a more equitable division of property had the greatest qualitative impact in reducing marriage among older cohorts, and those marrying for the second time.

7 Conclusion

Marriage as a social institution has been in decline for the last three decades. This paper shows that the move from mutual consent to unilateral divorce laws has contributed significantly to this decline. After the adoption of unilateral divorce, crude marriage rates declined significantly and permanently in adopting states. The effect of unilateral divorce on marriage rates corresponds to 46% of the initial difference in marriage rates in 1970 across adopting and non-adopting states, and accounts for 3.6% of the overall decline in the marriage rate.

The contribution of unilateral divorce in reducing the rate of marriages per single - a closer measure of the propensity to marry - is equally significant. Analyzing the propensity to marry within specific cohorts, I find unilateral divorce had the greatest qualitative impact in reducing the propensity to marry among whites, and those marrying for a second time.

States which also introduced an equitable division of property across spouses in divorce had further significant reductions in marriage rates. This had the greatest qualitative impacts among older white males, and those marrying for the second time.

The result that unilateral divorce significantly and permanently reduces marriage rates, sheds light on the nature of household bargaining. If spouses bargain efficiently, the Coase theorem implies the assignment of the right to divorce ought to have no affect on the incidence of marriage and divorce. This paper suggests households do not bargain efficiently, as assumed in standard models of household decision making, such as the unitary (Becker (1991)) or Nash bargaining models (McElroy and Horney (1981)).

Households may not reach efficient outcomes for a variety of reasons. For example, spouses may possess private information either on the value of marriage to them, leading to *ex ante* transaction costs, or on the value of their payoff in divorce, leading to *ex post* transaction costs. Alternatively spouses may be unable to commit *ex ante* to all possible divisions of the marital surplus. Exploring the nature of household bargains remains a rich area of research in its own right. Understanding these issues better will also shed light on the relationship between divorce laws and the allocation of resources *within* marriage, as well as the *efficiency* of marital formation and dissolution.

This paper hints at the possibility that under unilateral divorce, the composition of the marital stock has changed. This is because marriages that would have occurred under mutual consent no longer take place. In other words, unilateral divorce caused *selection* into marriage. This is consistent with findings in the existing literature.⁴¹

⁴¹A number of recent empirical studies have argued that changes in divorce laws lead to exogenous changes in bargaining power across spouses, which changes the distribution of welfare within marriage. Evidence in favor of this has been found in the context of labor supply (Gray (1998), Chiappori *et al* (2002)), spousal homicide and domestic violence (Stevenson and Wolfers (2003), Dee (2003)), and investments into marital specific capital

For example, Choo and Siow (2003) derive a statistic to measure of the gains to marriage over time. Using US census data, they calibrate their statistic using the frequency of matches across different types of marriage market participant. They find the gains to marriage for young adults fell substantially from 1970 to 1980.

Murphy (1999) presents evidence that the average difference in child outcomes between children of married and unmarried parents has *increased* since 1960. He argues that this reflects a compositional effect, that the pool of surviving marriages are better on average, although he offers no explanation as to why this is so.

Weiss and Willis (1997) report using data from the National Study of the High School Class of 1972, that couples married under unilateral divorce are *less* likely to divorce than those married under mutual consent, all else equal, despite living in a more liberal divorce regime. Mechoulan (2003) finds similar evidence using CPS data.

All of these findings point in the direction of unilateral divorce causing couples to become better matched in the marriage market.

The results of this paper also help reinterpret the empirical evidence on the causal effect of divorce laws on divorce rates. Using US state level panel data between 1968 and 2000, Friedberg (1998) found that unilateral divorce explains 17% of the rise in divorces per capita. Given the link between divorce laws and incentives to marry, this paper suggests that by ignoring the effects of divorce laws on the incentive to marry, these results are likely to *underestimate* the true causal effect of divorce laws on divorce rates.

The analysis in this paper also begs the question of whether individuals are substituting cohabitation for marriage. Although cohabitation has become more prevalent it remains short lived, preceding rather than replacing marriage. Bumpass and Sweet (1989) find 40% of cohabiting couples either marry or stop living together within one year, a third of cohabiting couples are still cohabiting after two years, and 60% of those in cohabiting unions marry their cohabiting partner. Furthermore, cohabitation is unlikely to explain the plateauing out of divorce rates in the 1990s. Couples who marry after cohabiting are typically found to have *higher* rates of marital dissolution (Bumpass and Sweet (1989), Waters and Ressler (1999)), and cohabiters are more similar to single rather than married individuals in socioeconomic characteristics and attitudes (Rindfuss and Vandenheuval (1990)).

Finally, the decline in marriage remains of considerable concern to policy makers. Indeed there is an absolute plethora of state level policies designed to promote marriage. These include media campaigns, the re-introduction of covenant marriages, and the removal of marriage penalties in tax codes and medicaid programs. A list of state policies promoting marriage is given in table 15. The aims of these policies are both to encourage more individuals to marry, and make it (Stevenson (2003)).

more likely that existing marriages remain intact. This paper is but a first step in understanding whether such policies will have these desired effects.

8 Data Appendix

The coding for **unilateral divorce** follows Friedberg (1998), table 1. The coding for laws regarding the **division of property** in divorce was provided by Jonathan Gruber. The coding for whether **separation requirements** exist and on whether fault plays a role in property settlement and alimony follows Mechoulan (2002).

The coding for when **abortion was legalized** in each state is from Donohue and Levitt (2000). **Joint custody** is defined to include - (i) joint legal custody where both parents retain joint responsibility for the care and control of the child and joint authority to make decisions concerning the child even though the child's primary residence may be only with one parent; (ii) joint physical custody where both parents share physical and custodial care of the child; (iii) any combination of joint legal and joint physical custody which the court deems to be in the best interests of the child. The coding of when states enacted legislation promoting joint custody is taken from Brinig and Buckley (1998).

Marriage and divorce certificate data were obtained from the *National Vital Statistics System of the National Center for Health Statistics*, for all years between 1968 to 1995. The certificates data includes all marriages for states with small numbers of marriages, and a sample of marriages for larger states. Marriage certificates data includes date of marriage, state residency, education, previous marital status, number of marriages, and ages of bride and groom. This covers around 44 states, depending on the exact year. Divorce certificates data includes marital duration, number of children under 18, month and year of marriage, number of marriages, age, race, state residency of husband and wife, and the allocation of child custody is recorded after 1989. Divorce certificates data covers 26 states in 1968, 28 in 1969-70, 29 in 1971-77, 28 in 1978, 30 in 1979-80, 31 in 1981-85, and 31 and DC after 1986. Marriages or divorces of members of the Armed forces or other US nationals that occur outside of the United States are excluded.

Data on **out-of-wedlock** births was obtained from the *1960-1995 National and State Data Files on Adolescent Fertility, Assembled by Child Trends*, supplied by the Sociometrics Corporation, Los Altos: California.

The March rounds of the **Current Population Survey** (CPS) are used to construct the number of singles by age, race, gender, and marriage number cohort by state-year, from 1968 until 1995. These are also used to construct the labor market variables. From 1968 to 1972 the following states are identified - CA, DC, FL, GA, IL, IN, KY, LA, MD, MO, NJ, NY, OH, OR, PA, TN and WV. Between 1973 and 1976 the following states are identified - CA, CT, DC, FL,

IL, IN, MA, NC, NJ, NY, OH and PA. After 1976, state level aggregates can be constructed for 43 states.

All monetary variables are indexed at April 1st 2000 values.

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Figure 1 : The Coverage and Timing of Divorce Laws

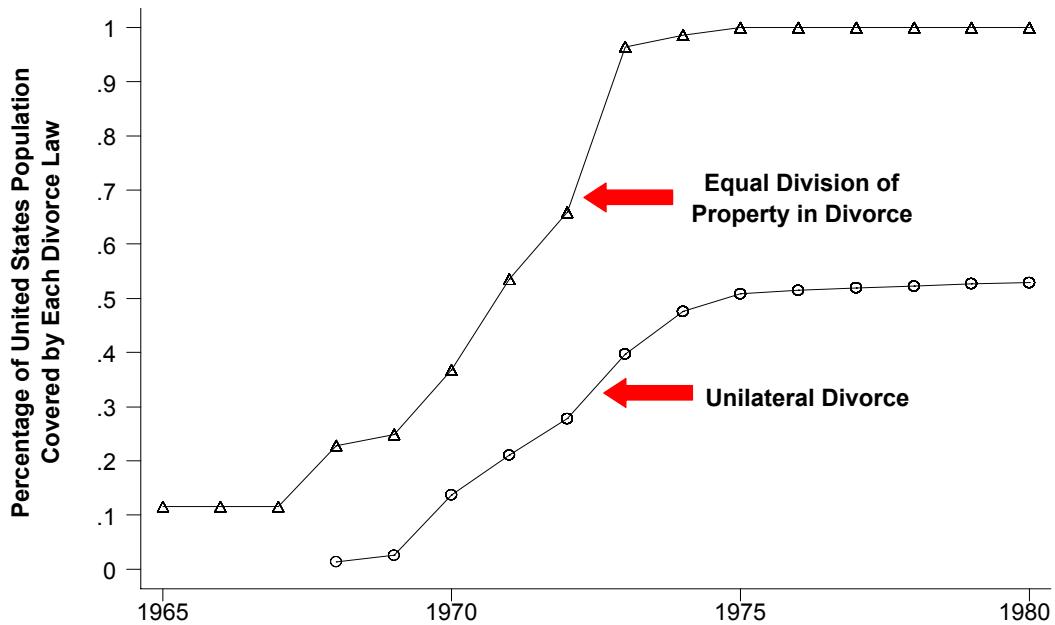
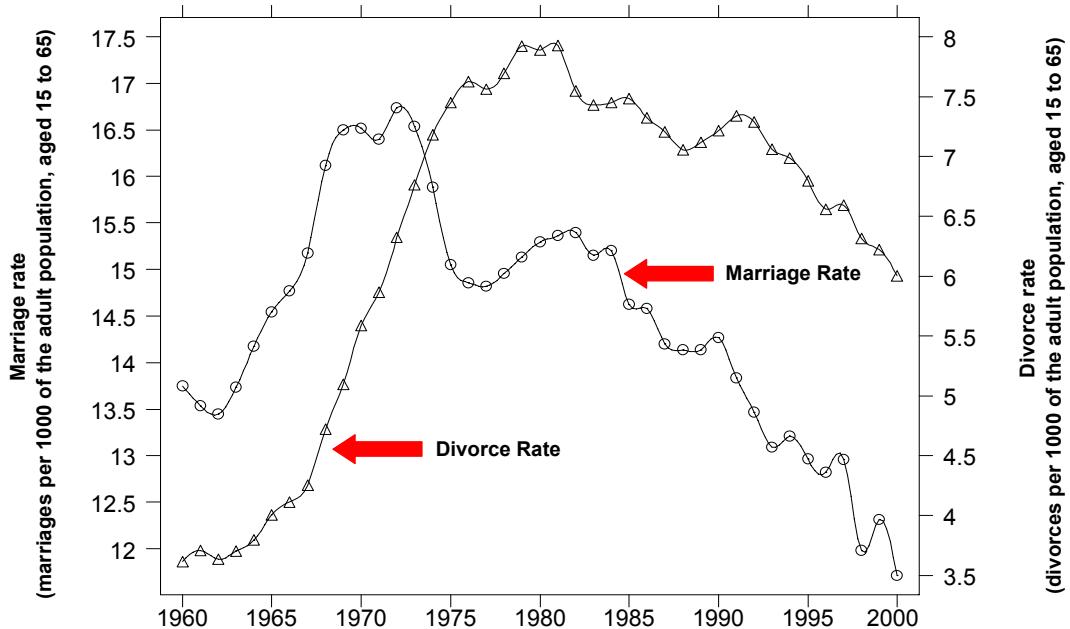


Figure 2 : Marriage and Divorce Rates

(per 1000 of the adult population aged 15 to 65)



Notes: The coding for unilateral divorce follows that in Friedberg (1998), table 1. The coding on the equal division of property in divorce was based on a coding of property laws provided by Jonathon Gruber. Further details are given in the data appendix. Marriage and divorce rates are defined as the number of marriages and divorces per 1000 of the population aged 15 to 65. These are weighted by mid year state populations to form the aggregate time series. All states, except NB and MS, require individuals to be 18 to marry without parental consent. NB sets the age of consent at 19, MS sets it at 21. DE, FL, GA, KY, MD, OK allow pregnant teens or teens who have already had a child to get married without parental permission. In FL, KY, and OK couples require court authorization.

Figure 3a : Marriage Rates by Adoption of Unilateral Divorce

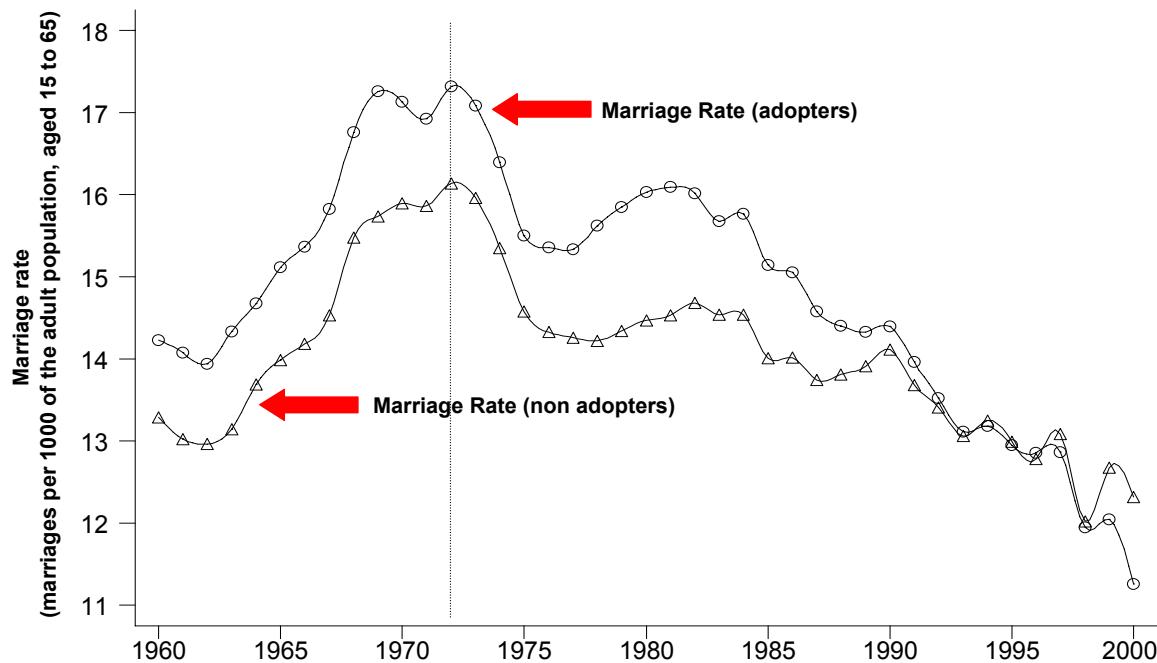
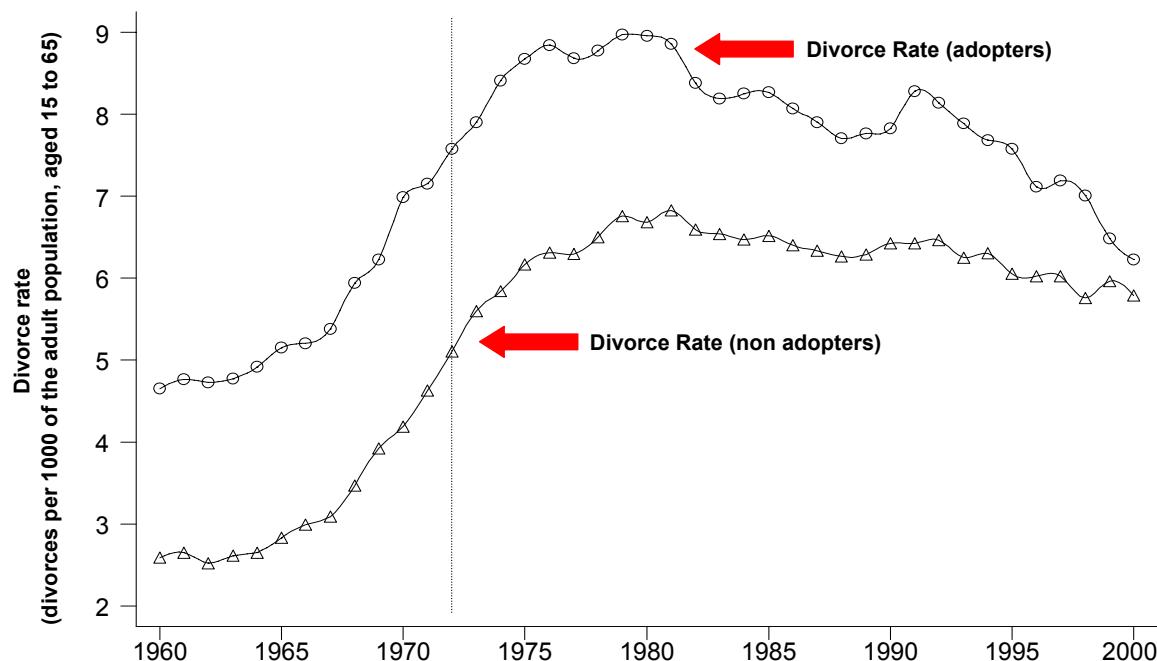


Figure 3b : Divorce Rates by Adoption of Unilateral Divorce



Notes: In total 31 states adopted unilateral divorce between 1968 and 1985. Each time series is calculated as a population weighted average of state level marriage (divorce) rates, excluding Nevada. The dashed vertical line corresponds to 1972 - the median year of adoption of unilateral divorce law.

Figure 4a : Marriage Rates per 1000 Singles

(by adoption of unilateral divorce)



Figure 4b : Divorce Rates per 1000 Married

(by adoption of unilateral divorce)

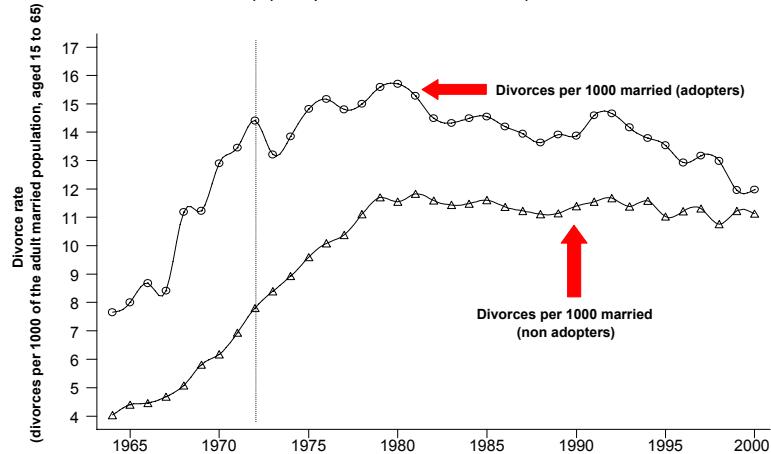
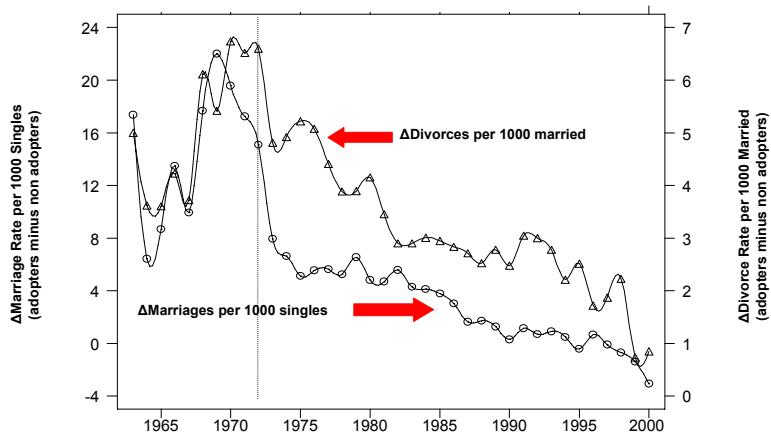
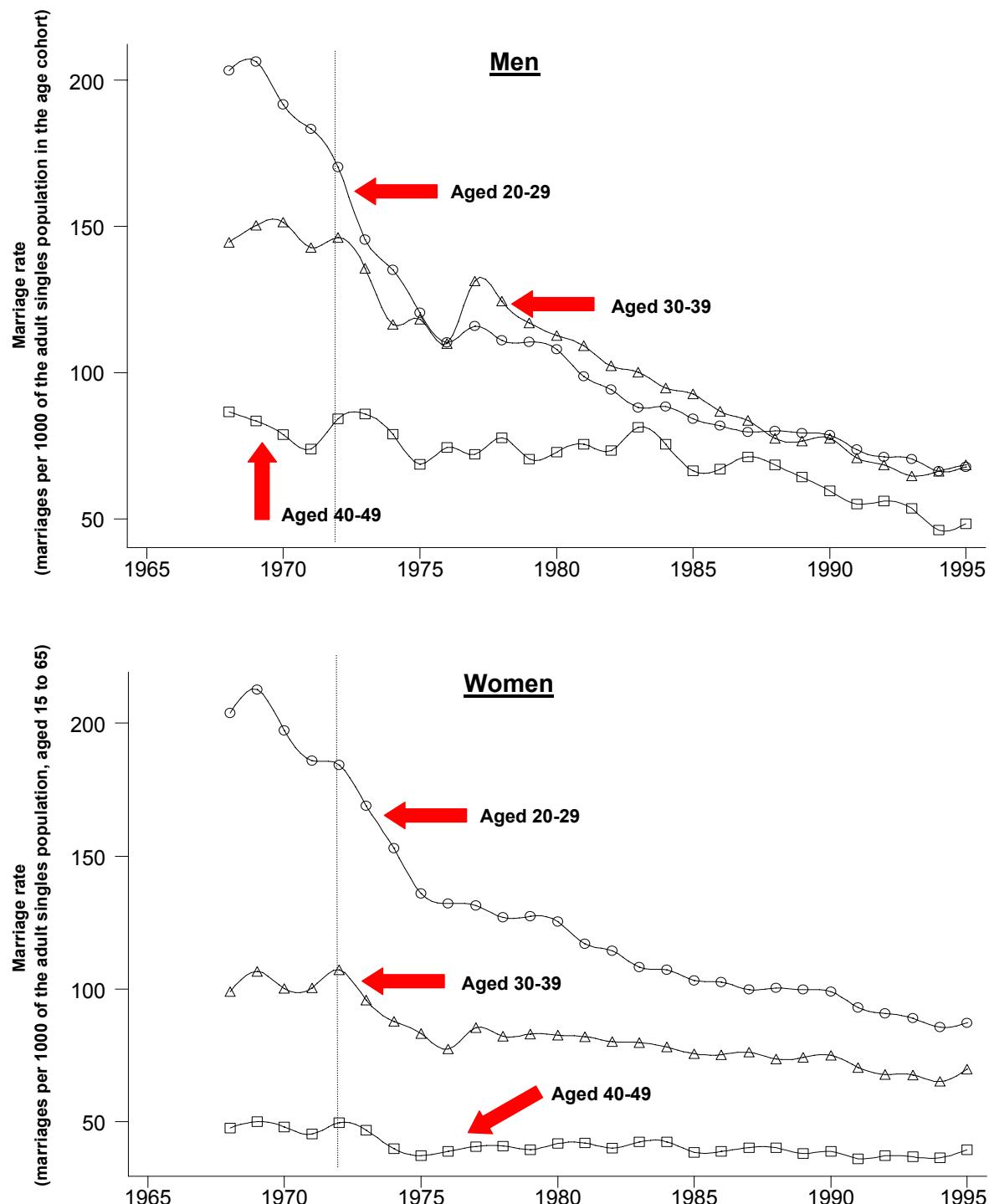


Figure 4c : Differences in Rates, by Years Since Adoption



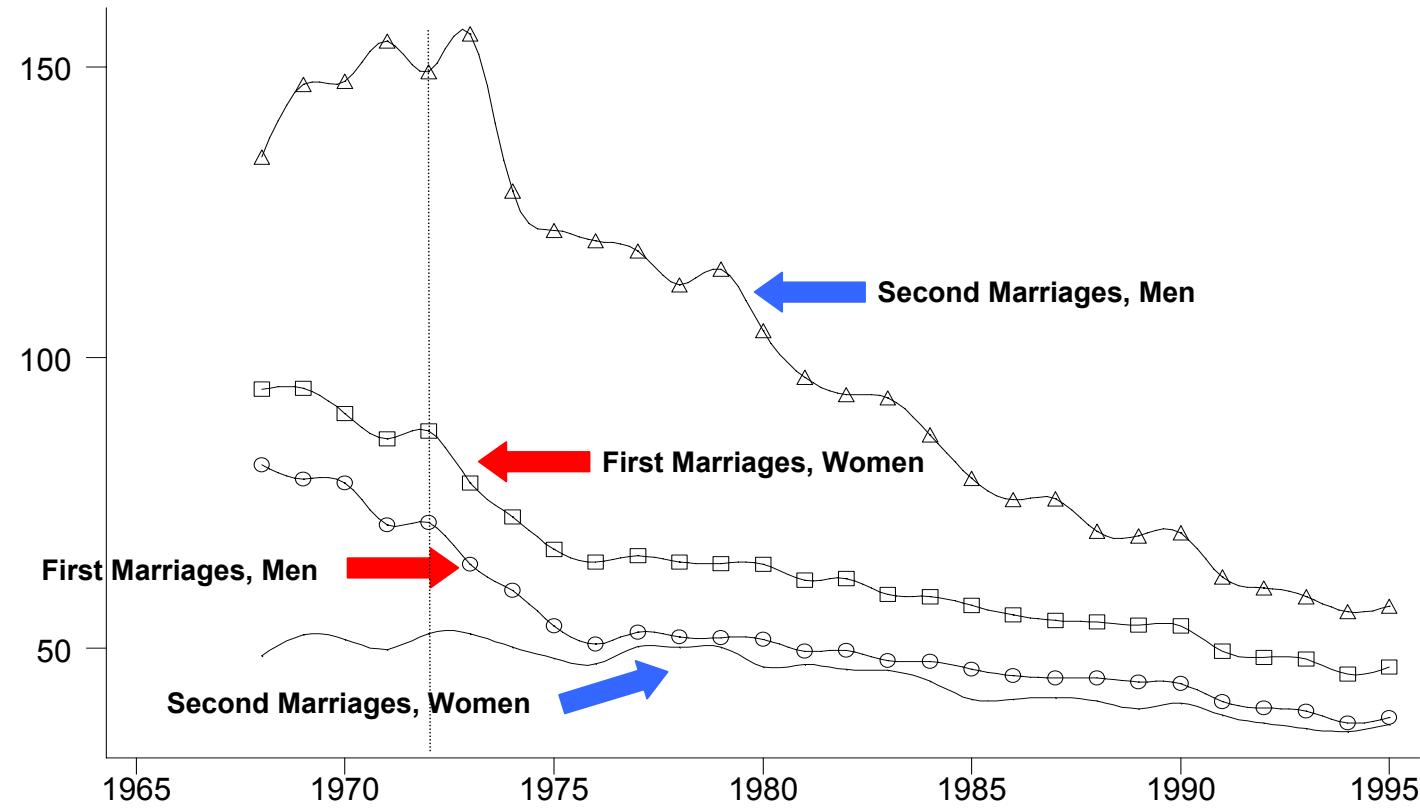
Notes: In total 31 states adopted unilateral divorce between 1968 and 1985. Each time series is calculated as a population weighted average of state level marriage and divorce rates, excluding Nevada. The stock of married and single individuals for each state-year is constructed from CPS data. These are used from 1964 onwards. For some years, only a subset of states are available. The time series for the rates of marriage per singles and divorces per married are weighted by mid year population estimates to account of this. Further details are given in the data appendix. In figure 4c, both differences are calculated as the series for adopters minus the series for non adopters.

Figure 5 : Rates of Marriages per 1000 Single, by Age Cohort



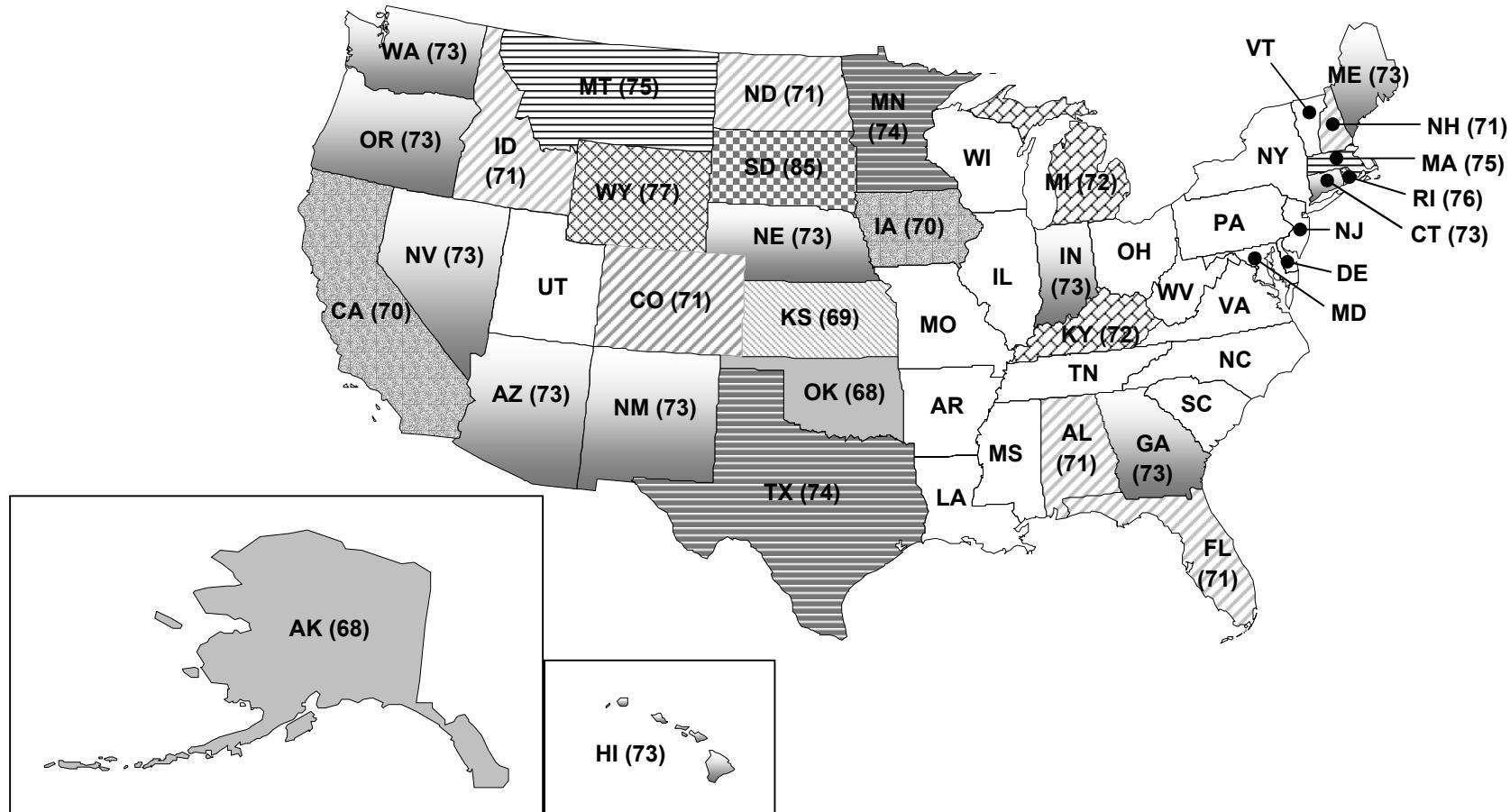
Notes: Each series is calculated as a population weighted average of state level marriage and divorce rates, excluding Nevada. Marriage rate per singles series are constructed from marriage certificates data combined with annual March CPS data. Marriage certificates data are available from 1968 to 1995. For some years, only a subset of states are available. The series for the rates of marriage per singles is weighted to take account of this. Further details are given in the data appendix. The dashed vertical line corresponds to 1972 - the median year of adoption of unilateral divorce law.

Figure 6 : Rates of Marriages per 1000 Singles, by Marriage Number Cohort



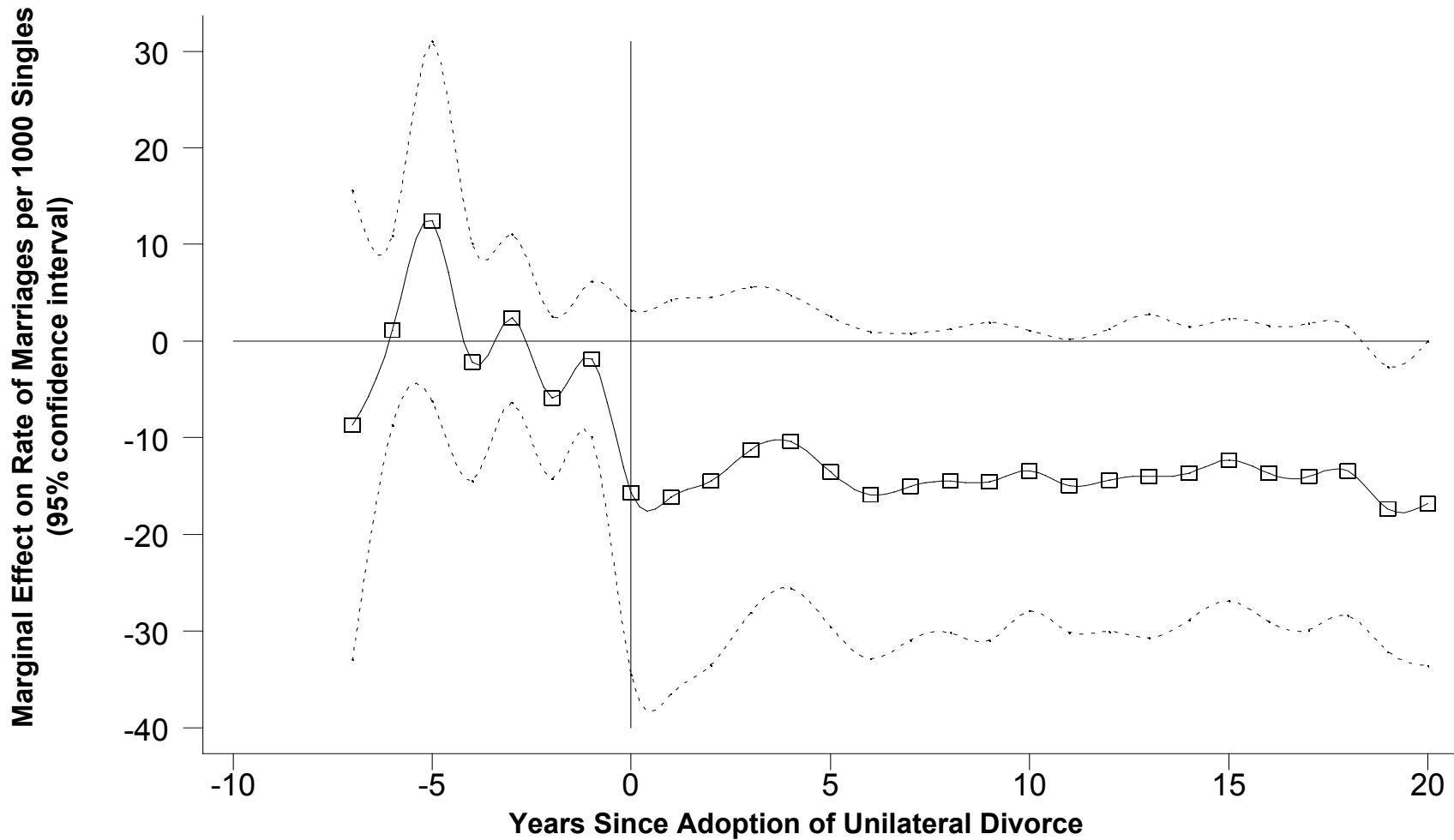
Notes: Each series is calculated as a population weighted average of state level marriage and divorce rates, excluding Nevada. The marriage rate per singles series is constructed from marriage certificates data combined with annual March CPS data. Marriage certificates data are available from 1968 to 1995. For some years, only a subset of states are available. The series for the rates of marriage per singles is weighted to take account of this. Further details are given in the data appendix. The dashed vertical line corresponds to 1972 - the median year of adoption of unilateral divorce law.

Figure 7 : The Adoption of Unilateral Divorce Laws Across the United States



Notes: Years in parentheses correspond to the year of adoption of unilateral divorce law. Coding for year of adoption taken from Friedberg (1998), table 1.

Figure 8: The Long Run Impact of Unilateral Divorce on the Rate of Marriages per 1000 Singles



Notes: The marriage rate is defined as the number of marriages per 1000 of the adult single population, aged 15 to 65. The figure plots the estimated coefficients and 95% confidence intervals for each of the dynamic dummies as specified in the main text.

Table 1 : Divorce Law Across the United States

	Unilateral Divorce	Year of Enactment of Divorce Law			Marriage Rate (marriages per 1000 of adult population)				Divorce Rate (divorces per 1000 of adult population)			
		Separation Requirement for Divorce	No Fault for Property Division and Alimony	Equitable Division of Property and Assets	1960s	1970s	1980s	1990s	1960s	1970s	1980s	1990s
Alabama	1971	No	Fault	1980	18.6	20.9	17.8	15.7	6.4	9.3	9.7	9.3
Alaska	1968		1974	pre 1950	14.7	18.1	17.6	13.7	6.6	10.9	10.7	7.7
Arizona	1973		1973	pre 1950	13.7	18.5	16.5	14.5	9.2	11.6	10.6	9.5
Arkansas	-	No	1979	1979	17.9	19.4	21.0	23.7	6.1	10.9	10.9	10.6
California	1970		1970	pre 1950	11.7	12.1	12.8	10.3	5.6	8.7	7.6	
Colorado	1971		1971	1972	16.3	17.1	15.9	13.5	5.9	9.0	8.7	8.1
Connecticut	1973	No	Fault	1973	11.9	12.1	12.4	10.7	2.2	5.1	5.7	4.7
Delaware	-		1974	pre 1950	10.1	11.3	12.5	11.0	2.7	6.7	7.0	6.9
District of Columbia	-	No	Fault	1977	16.5	11.2	11.7	9.6	2.9	6.7	6.9	4.9
Florida	1971		1986	1988	14.2	17.5	17.5	16.5	7.3	11.2	10.6	9.4
Georgia	1973		Fault	1980	21.5	21.2	18.0	13.2	4.6	8.3	8.5	7.8
Hawaii	1973	No	1960	1955	14.7	17.8	21.2	24.7	3.4	7.1	6.6	6.4
Idaho	1971		1990	pre 1950	32.1	25.0	20.9	20.5	7.3	9.7	10.2	9.4
Illinois	-	No	1977	1977	15.3	15.8	13.0	11.8	4.0	6.5	6.4	5.5
Indiana	1973		1973	1958	16.7	17.2	14.8	12.0	6.0	10.3	9.8	
Iowa	1970		1972	pre 1950	13.7	15.0	14.0	13.0	3.4	5.4	5.9	5.9
Kansas	1969		1990	pre 1950	14.0	16.5	15.4	12.9	4.5	7.9	8.1	7.3
Kentucky	1972		Fault	1972	15.5	15.7	17.2	18.2	4.2	6.3	7.5	8.7
Louisiana	-	No	Fault	1978	13.7	16.1	14.2	13.8	4.9			
Maine	1973		1985	1972	15.0	17.6	16.2	13.2	4.4	7.6	7.8	6.5
Maryland	-	No	Fault	1969	21.0	17.7	15.2	12.6	3.1	5.2	5.4	4.9
Massachusetts	1975		Fault	1974	11.8	12.1	12.4	10.6	2.3	4.1	4.7	3.7
Michigan	1972		Fault	1983	15.3	15.3	13.1	11.1	4.1	6.8	6.6	6.2
Minnesota	1974		1974	1951	13.0	13.4	13.0	10.9	2.6	5.0	5.5	5.2
Mississippi	-	No	Fault	pre 1950	17.5	19.4	15.9	13.0	4.6	7.9	8.0	8.1
Missouri	-	No	Fault	1974	15.2	17.3	15.9	13.3	5.1	7.7	8.0	7.6
Montana	1975		1975	1976	13.1	16.2	14.3	12.4	5.3	8.8	8.6	7.2
Nebraska	1972		1972	1972	14.5	14.8	13.0	12.1	3.1	5.5	6.3	6.1
Nevada	1973		pre 1950	295.8	262.5	271.4	133.3	37.7	26.1	21.1	12.8	
New Hampshire	1971		Fault	1988	21.9	18.2	16.0	12.5	4.0	7.5	7.4	7.2
New Jersey	-	No	1980	1971	11.0	11.6	11.8	10.6	1.5	4.1	5.4	4.8
New Mexico	1973		1976	pre 1950	19.4	21.4	16.6	13.1	5.3	11.1	11.6	9.0
North Carolina	-	No	Fault	1962	12.2	12.7	13.3	12.5	0.8	4.2	5.4	4.8
North Dakota	1971		Fault	1981	13.0	13.0	12.0	11.9	3.1	5.8	7.3	
Ohio	-	No	Fault	pre 1950	12.7	14.6	13.1	11.4	2.0	4.1	5.4	5.3
Oklahoma	1968		1990	1990	12.5	14.4	13.9	12.4	4.3	7.4	7.4	6.8
Oregon	1973		1975	1975	21.6	23.9	18.9	13.8	8.3	11.6	11.6	10.3
Pennsylvania	-	No	1971	1971	11.4	13.3	13.0	12.5	5.9	9.3	9.2	7.7
Rhode Island	1976		Fault	1979	11.1	12.4	11.5	10.0	2.3	4.2	5.0	5.1
South Carolina	-	No	Fault	1979	11.5	12.0	12.3	11.8	1.9	4.4	5.6	5.2
South Dakota	1985		Fault	pre 1950	29.6	30.3	24.4	19.5	2.2	5.0	6.3	6.2
Tennessee	-	No	Fault	1959	20.7	26.7	18.0	16.1	2.5	4.9	6.0	6.2
Texas	1974		Fault	1970	17.6	19.8	18.3	15.2	6.5	9.0	9.3	7.7
Utah	-	No	1987	pre 1950	15.8	19.8	18.2	17.1	5.0	7.7	8.6	7.5
Vermont	-	No	Fault	pre 1950	15.4	16.2	16.0	15.4	2.5	5.6	6.9	6.8
Virginia	-	No	Fault	1982	16.2	17.2	16.5	15.1	3.2	5.4	6.4	6.6
Washington	1973		1973	pre 1950	18.0	18.4	15.6	12.3	6.4	10.0	9.3	8.1
West Virginia	-	No	Fault	1984	13.1	15.1	12.2	10.1	3.7	6.8	7.9	7.8
Wisconsin	-		1977	1978	11.5	13.1	13.0	11.1	2.2	4.5	5.5	5.3
Wyoming	1977		Fault	pre 1950	18.5	23.3	17.8	15.6	7.5	10.6	11.4	9.9

United States

Notes: The code for unilateral divorce follows that in Friedberg (1989), table 1. This coding on the equal division of property in divorce was based on a coding of property laws provided by Jonathan Gruber. The coding for separation requirements in divorce, and whether there is no-fault for property settlement and alimony is from Mechoulam (2002). The aggregate marriage and divorce rates are from the UN World Bank (2005).

Table 2a : Unconditional Differences in Marriage Rates, by Adoption of Unilateral Divorce

Annual marriages per thousand of the adult population (aged 15 to 65)

Means, standard errors in parentheses, and 95% confidence interval in brackets

	Mutual Consent/Before 1972	Unilateral/After 1972	Difference
All states	14.9 (.600) [13.7, 16.1]	14.3 (.531) [13.2, 15.4]	-.590
Adopting states	15.6 (.874) [13.8, 17.4]	14.6 (.818) [12.9, 16.2]	-1.02
Non-adopting states	14.3 (.801) [12.6, 15.9]	14.0 (.657) [12.6, 15.3]	-.356
Difference	-1.26	-.602	<u>Difference in Difference = -.661</u>

Notes: Each series is calculated as a population weighted average of the state level marriage and divorce rates, excluding Nevada. This average takes account of not all states being observed in all years. Standard errors and confidence intervals take account of observations within the same state not being independent over time. Definitions of all variables are given in the data appendix.

Table 2b : Unconditional Differences in Other Marriage Market Characteristics, by Adoption of Unilateral Divorce

Means, standard errors in parentheses, and 95% confidence interval in brackets

	Mutual Consent Before 1972	Unilateral After 1972	Difference
<u>Annual marriages per thousand of the single adult population (aged 15 to 65)</u>			
Adopting states	63.4 (5.76) [51.6, 75.1]	38.1 (2.84) [32.3, 43.9]	-25.3
Non-adopting states	47.4 (2.76) [41.6, 53.2]	35.7 (1.73) [32.0, 39.3]	-11.7
<u>Annual divorces per thousand of the adult population (aged 15 to 65)</u>			
Adopting states	5.37 (.382) [4.58, 6.15]	8.03 (.377) [7.26, 8.81]	2.67
Non-adopting states	3.18 (.499) [2.13, 4.22]	6.24 (.383) [5.43, 7.04]	3.06
<u>Annual divorces per thousand of the married adult population (aged 15 to 65)</u>			
Adopting states	9.55 (.697) [8.12, 11.0]	14.2 (.708) [12.7, 15.6]	4.62
Non-adopting states	4.97 (.769) [3.36, 6.58]	10.9 (.598) [9.67, 12.2]	5.95

Notes: Each series is calculated as a population weighted average of the state level marriage and divorce rates, excluding Nevada. This average takes account of not all states being observed in all years. Standard error confidence intervals take account of observations within the same state not being independent over time. Definitions of all variables are given in the data appendix.

Table 3 : Unconditional Differences in Economic Characteristics, by Adoption of Unilateral Divorce

Means and standard errors in parentheses

	Mutual Consent Before 1972	Unilateral After 1972	Difference	Difference in Difference
<u>Per capita personal disposable income (\$000)</u>				
Adopting states	3.14 (.108)	15.8 (.407)	12.6	
Non-adopting states	3.13 (.153)	16.0 (.548)	12.9	.224
<u>Women's labor force participation rate (0 - 1)</u>				
Adopting states	.429 (.007)	.582 (.012)	.153	
Non-adopting states	.417 (.006)	.570 (.011)	.153	.000
<u>Women/men income ratio (0 - 1)</u>				
Adopting states	.427 (.004)	.548 (.005)	.121	
Non-adopting states	.446 (.008)	.542 (.008)	.096	.025
<u>Standard deviation of men's income from employment (\$000)</u>				
Adopting states	5.41 (.201)	20.6 (.488)	15.1	
Non-adopting states	5.29 (.177)	20.6 (.493)	15.3	.201
<u>Fraction of women high school graduates (0 - 1)</u>				
Adopting states	.173 (.011)	.471 (.010)	.298	
Non-adopting states	.146 (.008)	.447 (.011)	.301	.003

Notes: Each series is calculated as a population weighted average of the state level marriage and divorce rates, excluding Nevada. This average takes account of not all states being observed in all years. Standard errors take account of observations within the same state not being independent over time. Definitions of all variables are given in the data appendix.

Table 4 : The Impact of Unilateral Divorce on Marriage Rates

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult population (aged 15 to 65)

Robust standard errors in parentheses

	(1)	(2) Pre-trend	(3) Controls	(4) Reversion to the Mean	(5) Adopting States Only	(6) Collapse Time Variation
Unilateral divorce	-.568*** (.203)	-.521** (.251)	-.626*** (.205)	-.493*** (.173)	-1.08*** (.328)	-.888** (.425)
Unilateral adopted in 2 - 3 years time		.165 (.376)				
Unilateral adopted in 4 - 5 years time		.112 (.396)				
Unilateral adopted in 6 - 10 years time		.333 (.295)				
Marriage rate in 1960 x time trend				-.024*** (.001)	-.027*** (.002)	
Marriage rate in 1960						.808*** (.147)
Elasticity (unilateral divorce)	-.036	-.033	-.040	-.031	-.066	-.056
Year Effects	Yes	Yes	Yes	Yes	Yes	No
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	.7369	.7369	.7418	.8180	.7898	.6812
Number of Observations	2050	2050	2050	2050	1230	100

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample period is 1960-2000, for all states excluding Nevada. Columns 3 to 6 control for adult population (in millions), its square, the proportion of the state-year population that is black, and of other race. Column 5 uses only observations from adopting states. In column 6 the observations for each state are collapsed into an average marriage rate. This is pre and post 1972, the median year of adoption, for non adopters, and pre and post adoption otherwise. Elasticities are calculated in the form of $d(\ln y)/d(x)$ for unilateral divorce. Definitions of all variables are given in the data appendix.

Table 5 : Economic Determinants of Marriage

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult population (aged 15 to 65)

Robust standard errors in parentheses

	(1)	(2)	(3)	(4)	(5)	(6)	Elasticity
Unilateral divorce	-.551** (.233)	-.550** (.234)	-.564** (.233)	-.522** (.231)	-.518** (.232)	-.517** (.232)	-.034
Per capita personal disposable income (\$000)		.012 (.033)	.018 (.033)	.020 (.032)	.047 (.037)	.048 (.038)	.044
Women's labor force participation rate (0 - 1)			2.74* (1.55)	3.31** (1.54)	3.15** (1.54)	3.22** (1.62)	.122
Women/men income ratio (0 - 1)				-3.81*** (1.30)	-4.50*** (1.39)	-4.52*** (1.40)	-.159
Standard deviation of men's income from employment (\$000)					-.026 (.020)	-.026 (.020)	-.032
Fraction of women that are high school graduates (0 - 1)						-.338 (1.62)	-.010
Marriage rate in 1960 x time trend	-.024*** (.002)	-.024*** (.002)	-.024*** (.002)	-.024*** (.002)	-.024*** (.002)	-.024*** (.002)	
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	
State Effects	Yes	Yes	Yes	Yes	Yes	Yes	
Adjusted R-squared	.8291	.8290	.8294	.8307	.8309	.8308	
Number of Observations	1597	1597	1597	1597	1597	1597	

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample period is 1963-2000, for CPS states excluding Nevada. Demographic controls are the shares of the total population that is of gender j, in age group a, and of race r, in state s in year t, where the age groups are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and race is white, black or other. Elasticities are calculated in the form of $d(\ln y)/d(x)$ for unilateral divorce and $d(\ln y)/d(\ln x)$ otherwise. Definitions of all variables are given in the data appendix.

Table 6 : The Behavior of Neighboring States

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult population (aged 15 to 65)

Robust standard errors in parentheses

	(1) Benchmark	(2) Timing	(3) Percentage	(4) Size	(5) Nevada
Unilateral divorce	-.689*** (.226)	-.835*** (.331)	-.944*** (.252)	-1.01*** (.251)	-1.25** (.602)
Unilateral divorce x adopted after 1972		.241 (.323)			
Percentage of neighbors that have adopted			1.10*** (.375)	1.01*** (.378)	
Percentage of neighbors that have adopted x own area (10000km²)				.373*** (.126)	
Unilateral divorce x neighbor Nevada x Nevada adopted unilateral divorce					-3.67*** (.606)
Neighbor Nevada x Nevada adopted unilateral divorce					2.79*** (.550)
Unilateral divorce x neighbor Nevada					.104 (.754)
Unilateral divorce x Nevada adopted unilateral divorce					.784 (.598)
Marriage rate in 1960 x time trend	-.023*** (.002)	-.023*** (.002)	-.023*** (.002)	-.023** (.002)	-.024*** (.002)
Marginal effect and 95% confidence interval on unilateral divorce					-1.01 [-1.58, -.441]
Demographic Controls	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes
State Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	.8420	.8419	.8430	.8438	.8435
Number of Observations	1501	1501	1501	1501	1501

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample includes all states excluding Nevada, Alaska, Hawaii and the District of Columbia. In column 4, s measured as a deviation from the mean area across all states. Column 6 drops California. Marginal effects in columns 5 and 6 are calculated at the mean of all controls. All specifications control for demographic shares, rate in 1960 interacted with a time trend, year and state effects. Demographic controls are the shares of the total population that is of gender j, in age group a, and of race r, in state s in year t, where the age groups are 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and race is white, black or other. Definitions of all variables are given in the data appendix.

Table 7 : The Taste for Marriage

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult population (aged 15 to 65)

Robust standard errors in parentheses, 95% confidence intervals in brackets

All interaction terms are in deviations from their mean

	(1) Out-of-Wedlock Births	(2) Permissive Divorce Laws	(3) Religiosity	Mean (sd) of interaction term
Unilateral divorce	-.751*** (.250)	-.734*** (.220)	-.661*** (.236)	
Unilateral divorce x Fraction of out-of-wedlock births in 1970	-20.1*** (6.05)	.020*** (.007)	.532 (1.40)	.024 (.044) 48.4 (22.1) .429 (.124)
Permissiveness of divorce laws in 1961				
Percentage of adult population that attended church in 1952				
Marriage rate in 1960 x time trend	-.022*** (.002)	-.024*** (.002)	-.024*** (.002)	
Demographic Controls	Yes	Yes	Yes	
Year Effects	Yes	Yes	Yes	
State Effects	Yes	Yes	Yes	
Adjusted R-squared	.8333	.8417	.8406	
Number of Observations	1597	1539	1539	

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample period is 1963-2000, for all states excluding Nevada. All specifications control for demographic shares, the marriage rate in 1960 interacted with a time trend, and state and year effects. Demographic controls are the shares of the total population that is of gender j, in age group a, and of race r, in state s in year t, where the age groups are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and race is white, black or other. Low out-of-wedlock states are those states with lower than the median number of out-of-wedlock births per female aged 15-44, measured in 1970. The permissiveness of divorce laws in 1961 is measured by the Broél-Plateris (1961) index as reported in Stetson and Wright (1975). All interaction terms are in deviations from their mean. Hence the coefficient on unilateral is the effect of unilateral at the mean of the interaction term. Definitions of all variables are given in the data appendix.

Table 8 : Endogenous Divorce Laws

Panel data regression estimates

	<u>First Stage</u>	<u>Second Stage</u>	<u>First Stage</u>	<u>Second Stage</u>
	Unilateral divorce	Annual Marriages per 1000 of the Adult Population (aged 15 to 65)	Unilateral divorce	Annual Marriages per 1000 of the Adult Population (aged 15 to 65)
Governor's age x 10⁻²	.883*** (.105)		.882*** (.105)	
Election in one year	-.024 (.021)			
Governor's political ideology score x 10⁻²	-.098** (.045)			
Same party has majority in upper and lower house			.060*** (.022)	
Unilateral divorce		-1.34** (.652)		-1.17* (.643)
Test of underidentification (p-value)	.0000		.0000	
Test of overidentification (p-value)		.1454		.5085
Adjusted R-squared	.6928	.8684	.6934	.8695
Number of Observations	1410	1410	1410	1410

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample period is 1960-1989, for all states excluding Nevada, Arkansas, Hawaii, and the District of Columbia. Controls are adult population (in millions), its square, the proportion of the state-year population that is black, the proportion of the state-year population of other race, and the marriage rate in 1960 interacted with a time trend. The measure of governor ideology is from Berry *et al* (1998). An ideology score of zero represents the most conservative values, a maximum score of 100 represents the most liberal position. The test for overidentification of the instruments is based on a Lagrange multiplier test formed by regressing the instrumental-variables residuals on the full instrument matrix. The joint null hypothesis is that the equation is properly specified and the instruments are uncorrelated with the disturbance. The test statistic under the null is distributed Chi-squared (k), where k is the number of overidentifying restrictions. Definitions of all variables are given in the data appendix.

Table 9 : The Effect of Other Laws on Marriage Rates

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult population (aged 15 to 65)

Robust standard errors in parentheses

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Elasticity from column (4)
Unilateral divorce	-.440** (.200)	-.604*** (.182)	-.910*** (.191)	-.526*** (.171)	-.618*** (.235)	-.526*** (.171)	-.523*** (.170)	-.034
Unilateral divorce and no separation requirement	-.099 (.181)							
No fault for PSA		.566*** (.152)	-.086 (.336)					
Unilateral divorce x No fault for PSA			1.03*** (.393)					
Equitable division of property in divorce				-.569*** (.135)	-.588*** (.151)	-.564*** (.136)	-.571*** (.134)	-.037
Unilateral divorce x equal division of property in divorce					.102 (.218)			
Legalized abortion						-.348 (.266)	-.347 (.266)	
Joint custody of children in divorce							-.052 (.150)	
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
State Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Adjusted R-squared	.8179	.8191	.8203	.8193	.8192	.8194	.8311	
Number of Observations	2050	2050	2050	2050	2050	2050	2050	

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample period is 1960-2000, for all states excluding Nevada. All specifications control for adult population (in millions), its square, the proportion of the state-year population that is black, the proportion of the state-year population of other race, and the marriage rate in 1960 interacted with a time trend. Elasticities are calculated in the form of $d(\ln y)/d(x)$ for the two divorce law dummies. Definitions of all variables are given in the data appendix.

Table 10 : Where Divorce Laws Matter Most

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult population (aged 15 to 65)

Robust standard errors in parentheses

	Interactions With Unilateral Divorce			Interactions With Equitable Division of Property in Divorce		
	(1a) Income	(2a) Labor Force	(3a) Education	(1b) Income	(2b) Labor Force	(3b) Education
Unilateral divorce	-.380 (.244)	-.312 (.240)	-.429* (.241)	-.429* (.240)	-.521** (.238)	-.536** (.238)
Equitable division of property in divorce	-.613*** (.168)	-.560*** (.164)	-.606*** (.166)	-.069 (.219)	-.310* (.184)	.596 (.366)
Interaction terms with divorce law -						
Women's income from employment (\$000s)	-.049*** (.017)			.073** (.038)		
Women's labor force participation rate (0 - 1)		-5.71*** (1.24)			1.78 (1.53)	
Fraction of women that are high school graduates (0 - 1)			-1.29*** (.408)			5.00*** (1.66)
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
State Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	.8261	.8282	.8264	.8254	.8262	.8266
Number of Observations	1597	1597	1597	1597	1597	1597

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Sample period is 1964-2000, for all states excluding Nevada. All specifications control for adult population (in millions), its square, the proportion of the state-year population that is black, the proportion of the state-year population of other race, and the marriage rate in 1960 interacted with a time trend. All interactions terms are in deviation from means. Hence the coefficients on the divorce laws are evaluated at the means of these interaction variables. Definitions of all variables are given in the data appendix.

Table 11 : The Impact of Unilateral Divorce on the Rate of Marriages Per Single

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the adult single population (aged 15 to 44)

Robust standard errors in parentheses, allowing for clustering by state

	(1)	(2) Pre-trend	(3) Controls	(4) Reversion to the Mean	(5) Adopting States Only	(6) Collapse Time Variation	(7) Divorce Laws
Unilateral divorce	-16.1** (7.50)	-15.6** (7.68)	-19.1** (8.28)	-14.0* (7.43)	-15.6* (8.27)	-30.4*** (4.87)	-14.0* (7.43)
Equitable division of property in divorce							.892 (3.67)
Unilateral adopted in 2 - 3 years time		-6.20 (4.97)					
Unilateral adopted in 4 - 5 years time		10.1* (5.66)					
Unilateral adopted in 6 - 10 years time		3.18 (5.57)					
Marriage rate in 1960 x time trend				-.161*** (.051)	-.232*** (.057)		-.161*** (.051)
Marriage rate in 1960						2.03 (1.68)	
Elasticity (unilateral divorce)	-.308	-.300	-.356	-.273	-.264	-.438	-.277
Elasticity (equal division of property)							.018
Year Effects	Yes	Yes	Yes	Yes	Yes	No	Yes
State Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	.5135	.5203	.5610	.6279	.6170	.4222	.6277
Number of Observations	1597	1597	1597	1597	934	100	1597

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout, allowing for clustering by state. Sample period is 1963-2000 for all CPS states excluding Nevada. Columns 3 to 7 control for the share of the total adult singles population that is single and of gender j, in age group a, and of race r, where the age groups are 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, and race is white, black or other. Column 5 uses only observations from adopting states. In column 6 the observations for each non adopting state are added, collapsed into an average marriage rate, pre and post 1972, the median year of adoption. Elasticities are calculated in the form of $d(\ln y)/d(x)$ for unilateral divorce. Definitions of all variables are given in the data appendix.

Table 12 : Unconditional Differences in the Rate of Marriages Per Single, by Gender-Age-Race Cohort

Annual marriages per thousand of the single population in gender-age-race cohort

Means and standard errors in parentheses

<u>Men</u>		<u>Whites</u>				<u>Blacks</u>			
		15-29 Year Olds		30-44 Year Olds		15-29 Year Olds		30-44 Year Olds	
		Mutual Consent (Pre 1972)	Unilateral (Post 1972)						
Adopting states		138 (8.28)	80.1 (4.91)	159 (11.3)	118 (5.88)	101 (2.41)	48.5 (1.26)	145 (13.2)	85.0 (5.70)
Non-adopting states		93.2 (11.0)	75.2 (4.81)	110 (10.5)	105 (6.33)	65.5 (9.32)	47.3 (2.70)	97.6 (13.4)	77.6 (5.21)
Difference in Difference		-39.9		-36.7		-34.3		-39.6	
<u>Women</u>		<u>Whites</u>				<u>Blacks</u>			
		15-29 Year Olds		30-44 Year Olds		15-29 Year Olds		30-44 Year Olds	
		Mutual Consent (Pre 1972)	Unilateral (Post 1972)						
Adopting states		146 (9.94)	108 (8.16)	128 (18.5)	108 (10.4)	113 (5.35)	52.6 (2.02)	87.8 (10.8)	55.0 (4.46)
Non-adopting states		117 (12.6)	98.8 (6.21)	81.7 (11.1)	93.0 (6.32)	71.1 (12.6)	48.9 (2.53)	50.4 (9.20)	46.8 (3.45)
Difference in Difference		-19.8		-31.3		-38.2		-29.2	

Notes: Cohort specific rates of marriages per single are derived from marriage certificates and CPS data. These are available between 1968 and 1995. Each series is calculated as a population weighted average of the state level marriage rates. This average takes account of not all states being observed in all years. Standard errors take account of the fact that observations within the same state are not independent over time. The median year of adoption of unilateral divorce law was 1972. Hence for non-adopting states, the "mutual consent" columns refer to years prior to and including 1972. The "unilateral" columns refer to years after 1972. Definitions of all variables are given in the data appendix.

Table 13 : The Impact of Divorce Laws on the Rate of Marriages Per Single, by Age-Race-Gender Cohorts

Panel data regression estimates

Dependent variable: Annual marriages per thousand of the single population within gender-age-race cohort
Robust standard errors in parentheses

	<u>Men</u>			
	Whites		Blacks	
	(1) 15-29 Year Olds	(2) 30-44 Year Olds	(3) 15-29 Year Olds	(4) 30-44 Year Olds
Unilateral Divorce	-17.0*** (3.53)	-19.5* (11.4)	-11.1* (6.64)	-26.2** (11.6)
Equal division of property in divorce	-1.08 (1.65)	-8.30* (4.64)	-2.41 (2.91)	6.19 (6.08)
Elasticity (unilateral)	-.203	-.167	-.199	-.322
Elasticity (equal division of property)	-.013	-.071	-.043	.076
Adjusted R-squared	.8580	.6467	.5309	.4883
Number of Observations	733	621	609	497

	<u>Women</u>			
	Whites		Blacks	
	(1) 15-29 Year Olds	(2) 30-44 Year Olds	(3) 15-29 Year Olds	(4) 30-44 Year Olds
Unilateral Divorce	-14.7*** (3.75)	-17.7** (7.64)	-14.4 (10.1)	-18.7** (8.73)
Equal division of property in divorce	-2.66 (2.11)	-.990 (3.66)	-4.32 (3.53)	9.19** (4.02)
Elasticity (unilateral)	-.134	-.171	-.261	-.366
Elasticity (equal division of property)	-.024	-.010	-.078	.180
Adjusted R-squared	.8625	.6625	.6314	.4284
Number of Observations	707	674	606	544

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Cohort specific marriage rates are derived from marriage certificates and CPS data. These are available between 1968 and 1995. All specifications control for state and year fixed effects, and the demographic shares of the appropriate age groups. Definitions of all variables are given in the data appendix.

Table 14 : The Impact of Unilateral Divorce on the Rate of Marriages Per Single by Gender-Marriage Number Cohort
Panel data regression estimates

Dependent variable: Annual marriages per thousand of the single population in gender-marriage number cohort
Robust standard errors in parentheses

	<u>Men</u>		<u>Women</u>	
	First Marriage	Second Marriage	First Marriage	Second Marriage
Unilateral Divorce	-11.5*** (3.14)	-62.9*** (21.2)	-10.6** (5.17)	-40.1*** (11.9)
Equal division of property in divorce	.235 (1.48)	-16.4** (7.12)	-1.18 (2.06)	-9.49** (4.00)
Elasticity (unilateral)	-.177	-.421	-.133	-.610
Elasticity (equal division of property)	.004	-.110	-.015	-.145
Adjusted R-squared	.8873	.7556	.8939	.5684
Number of Observations	838	542	636	802

Notes: *** denotes significance at 1%, ** at 5%, and * at 10%. Robust standard errors are calculated throughout. Cohort specific marriage rates are derived from marriage certificates and CPS data. These are available between 1968 and 1995. First and second marriages refer to the marriage number of at least one of the individuals marrying. All specifications control for state and year fixed effects, and the demographic shares of the appropriate age groups. Definitions of all variables are given in the data appendix.

Table 15 : States That Have Proposed or Enacted Policies to Promote Marriage

Activity	Definition	States with Activities (Law or Bill)
COMMISSIONS AND CAMPAIGNS		
State Campaigns	Media campaigns to promote marriage and curb divorce rates.	AZ, AR, NM, OK
Commissions	Summits that focus on strengthening marriage; commissions charged with implementing specific policies.	AZ, LA, MI, SC, UT
Proclamations	Statements recognizing the importance of marriage as a public good and foundation of healthy families.	LA, NC, UT
DIVORCE LAWS/PROCEDURES		
Modifications to No-fault Laws	Laws that make divorce more difficult by requiring mutual consent.	AZ, CA, GA, ID, IN, KS, KY, MA, MI, MN, MT, NH, NJ, TX, VA, WA, WV
Covenant Marriage	Typically requires pre-marital counseling, an agreement to seek additional counseling if marital problems arise, and 2-year waiting period for divorce.	AL, AK, AZ, AR, CA, CO, GA, IN, IA, KS, LA, MD, MI, MN, MS, MO, NE, NM, OH, OK, OR, SC, TN, TX, VA, WA, WV, WI
Mandatory Education	Education for couples with children on the effects of divorce on children.	AK, AZ, AR, CO, CT, FL, HI, IL, IA, KS, KY, MD, MI, MN, MO, MT, NE, NH, NM, PA, TN, TX, UT, VT, VA, WI
Presumption of Joint Legal Custody	States that have a presumption or strong preference in favor of joint legal custody.	All states except AR, CA, NY, WA
Waiting Periods before Divorce	Minimum periods between date of filing for divorce and date court grants divorce.	AL, AZ, AR, CA, GA, IL, IN, IA, LA, MA, MO, NE, OK, OR, SC, TN, TX, UT, VT, VA, WA, WY
Different Laws for Couples with Children	Laws that treat couples with children differently, such as mandatory education, no-fault modifications or increased waiting periods.	AK, AZ, AR, CA, CO, CT, FL, GA, HI, IL, IA, KS, KY, MD, MI, MN, MO, MT, NE, NH, NM, OK, PA, TN, TX, UT, VT, VA, WA, WI
Mediation Initiatives	Mediation, offered through the courts, generally addresses custody and visitation issues.	CA, DC, IA, KS, MO, NM, UT, WI
MARRIAGE AND RELATIONSHIP PREPARATION AND EDUCATION		
Incentives for Marriage Preparation	Activities, such as license fee reductions, for those who participate in education or counseling.	AK, AZ, CA, FL, IL, IA, MD, MI, MN, NM, OK, SD, TN
State Funding for Marriage Support	Use of TANF or other funds to encourage couples to participate in marriage preparation activities.	AZ, MI, OK, TX, UT, WI
Marriage Education for Adults	Suggested or required education, often within the context of license fee reductions, marriage waiting period reductions.	AK, AZ, CA, CT, FL, IL, IN, IA, KS, MD, MI, MN, MS, NM, OK, SD, TN, TX, UT, VA, WI
Remarriage Waiting Periods	Minimum time must elapse between the date a divorce is granted and filing for remarriage.	AL, OK, TX, WI
STATE TAXES		
State EITC	The federal Earned Income Tax Credit reduces federal taxes and provides a wage supplement for low-income working families. States have enacted EITCs to reduce the burden of state taxes on working families.	CO, DC, IL, IA, KS, ME, MD, MA, MN, NJ, NY, OR, RI, VT, WI
State Marriage Penalty	Married couples may face a marriage penalty because the state tax is a percentage of the federal liability or joint and single returns are similar.	GA, KS, MD, NJ, NM, ND, OH, OK, RI, SC, VT, WV

Table 15 continued : States That Have Proposed or Enacted Policies to Promote Marriage

Activity	Definition	States with Activities (Law or Bill)
TANF POLICIES		
TANF Eligibility, Two-parent Families	Elimination of the work history and 100-hour rules.	States that <i>do not</i> base TANF on financial circumstances only are AZ, CA, DC, GA, IN, KY, ME, MA, MS, MO, NH, ND, OK, OR, PA, SD, TN, WA.
Marriage Incentives, TANF	States can disregard income of a new spouse for specified time, provide an incentive payment to monthly benefit, offer child care/health benefits to low-income mothers who marry.	AL, ME, MN, MS, NJ, ND, OK, TN, WA, WV
Marriage Promotion, TANF	State workers actively promote marriage to TANF participants.	OK
Child Support Arrearage Forgiveness	Child support arrearages owed to the state by non-custodial parents are forgiven if parents reunite.	TN, VT
MEDICAID POLICIES		
Medicaid Eligibility Based Solely on Financial Circumstances	States cover two-parent families to the same extent as single-parent families by eliminating the recent work history and "100-hour" rules.	States that <i>do not</i> base Medicaid on financial circumstances only are AR, FL, KY, LA, ME, NE, NH, ND, OK, PA, TN, UT, WV, WI, WY.
Expanded Medicaid Eligibility	States have increased income and asset disregards and/or increased coverage through Section 1115 waivers.	AZ, CA, DE, DC, HI, ME, MN, MO, MT, NM, NY, OH, OK, OR, PA, RI, TN, VT, WA, WI, WY.
Medicaid Eligibility, Pregnant Women	Raise the income eligibility for pregnant women above 185 percent of poverty.	AK, CA, DE, DC, GA, IL, IA, ME, MD, MA, MN, RI, VT
Expanded Health Care Coverage, Two-parent Families.	States cover parents through state-funded programs or SCHIP.	AZ, CA, MN, NJ, OR, RI, WA, WI
MARRIAGE SUPPORT AND PROMOTION		
Home Visitation Programs	A nurse or other professional is sent into the home of targeted families to offer numerous services including marriage or relationships education or skills	HI, NC, OK, UT,
Mentoring, Education, and Counseling	Programs that aim to strengthen families, including communications skills, anger management, mentoring of at-risk families.	AL, AZ, MI, OK, OR, UT
Fatherhood Programs	States are seeking to reunify families by incorporating a marriage component into statewide fatherhood initiatives.	FL, MS, PA, TX, VA
YOUTH EDUCATION AND DEVELOPMENT		
School-based Marriage Education	Statewide marriage education in schools.	AZ, FL, NH, NM, PA, SC, SD, UT, WI
Abstinence-until-marriage Education	States include the message as part of sex education programs, Title V Section 510 programs enacted as part of the 1996 welfare reform law, and as media campaigns.	AL, AZ, GA, HI, IL, IN, IA, MD, MA, MI, MS, MO, MT, NE, NC, OK, OR, SC, TN, VA

Source: Gardiner et al (2002)