DIVORCE LAW AND WOMEN'S LABOR SUPPLY

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ABSTRACT

Divorce law changes made in the 1970s affected marital formation, dissolution, and bargaining within marriage. By altering the terms of the marital contract these legal changes impacted the incentives for women to enter and remain in the labor force. Whereas earlier work had suggested that the impact of unilateral divorce on female employment depended critically on laws governing property division, I show that these results are not robust to alternative specifications and controls. I find instead that unilateral divorce led to an increase in both married and unmarried female labor force participation, regardless of the pre-existing laws regarding property division.

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I. Introduction

The 1970s witnessed two parallel changes: dramatic increases in the labor force participation of women and changes in the laws governing marriage and divorce. This paper assesses how the legal changes surrounding divorce contributed to the rise in women's labor force participation. Divorce laws change the value of exiting a marriage and thus potentially change bargaining within the household. These laws may also change the returns to specialization in household versus market production by reducing the amount of time women can expect to spend in marriage and by increasing the returns to investing in one's options outside of marriage.

Research has shown that women increase their labor force participation in the years prior to a divorce and that those who divorce have engaged in less household specialization (Johnson and Skinner, 1986; Lundberg and Rose, 1999). These studies do not suggest that female labor force participation causes divorce, but rather that the anticipation of a higher probability of divorce increases female labor force participation.

It was this relationship between divorce and labor force participation that led scholars to ask how the legal changes regarding the grounds for divorce may impact female labor force participation. Family law underwent tremendous change in the 1960s and 1970s as states began to consider reducing their role in divorce proceedings. In the first half of the 20th century, most states required evidence of marital fault before allowing a marriage to be dissolved. Beginning in the late 1960s, many states introduced "irreconcilable differences" as grounds for divorce; effectively ushering in a period of unilateral divorce—divorce upon the request of either spouse. In addition to the passage of unilateral divorce laws, many states removed fault as a consideration in property division and some states changed laws governing property division

subsequent to divorce. Currently, all but three states have some form of unilateral divorce and two-thirds allow unrestricted unilateral divorce.

Early results presented in Peters (1986) based on cross-sectional comparisons suggested that unilateral divorce led to a 2 percentage point rise in female labor force participation. Yet these results were argued to be erroneous in Gray (1998) who found that unilateral divorce had no independent effect on women's market work. Instead Gray's results suggested that unilateral divorce laws had very different effects depending on the underlying property division laws. Perhaps most strikingly, Gray interpreted these results as suggesting that women engage in market work more when they gain bargaining power and less when they lose it. In contrast, Chiappori, Fortin, and LaCroix (2002) estimated a structural model in which divorce laws enter by shifting the bargaining positions of the spouses. They find that divorce laws that are favorable to women *reduce* married women's labor supply.

This paper revisits the question of how unilateral divorce impacts female labor force participation and makes 4 key contributions. First, I replicate earlier analysis by Gray (1998) using census data and propose a simple test for assessing the importance of property laws, re-running Gray's analysis separately for a group with substantial marital property—a home—and for those without. These results cast doubt on Gray's interpretation, as I find a decrease in women's labor force participation in states that adopted unilateral divorce where property laws favor men occurs only among those who do not own a home. Second, I show that the expansion of the dataset and the elimination of potentially endogenous individual level controls erode the finding of a differential effect of unilateral divorce across states depending on their underlying property division laws. Replacing these controls with controls for state-level policy and demographic changes leads to a finding of a 1 percentage point rise in female labor force

participation in states that adopt unilateral divorce. Third, I show that the impact of unilateral divorce on female employment fades with marital duration indicating that divorce and shortened marital duration are key contributors to women's increased employment in unilateral divorce states. Finally, I put these results in a longer run perspective by comparing female labor force participation in states with and without unrestricted unilateral divorce over many decades. These specifications more fully exploit the timing of unilateral divorce and show that the timing of the rise in female labor force participation follows that of the legal change.

The results indicate that the incentives provided by unilateral divorce are independent of how property is divided—in a regime in which any party can exit at will there is a greater incentive to maintain one's options outside of marriage. Women seeking both insurance against divorce and greater bargaining power within marriage are thus more likely to engage in market work when states allow unilateral divorce irrespective of the underlying property division laws.

II.   Divorce Reform and Married Women's Labor Supply

Unilateral divorce fundamentally changes the nature of the marriage contract by allowing either party to end the contract at will. This change impacts the bargaining position of each spouse—shifting bargaining power toward the party with the greatest options outside the marriage. Additionally, by allowing either spouse to leave unilaterally, unilateral divorce greatly reduces the ability of couples to bargain inter-temporally. Indeed Stevenson (2007) finds that newlywed couples in unilateral divorce states specialize less in their marriage and are less likely to support each other's human capital investments.

Divorce reform may affect female labor supply by changing women's bargaining position in the relationship, by changing the value of option's outside of marriage to bargaining within

marriage, or by altering the returns to specialization within marriage (and thus the returns to market versus non-market work). Previous work has shown that the divorce rate rose only slightly with the adoption of unilateral divorce, but those who divorce do so quicker (Peters, 1986; Friedberg, 1998; Wolfers, 2006; Matouschek and Rasul 2008). Furthermore, marriage rates are lower with unilateral divorce (Rasul 2006). In sum, the empirical results point toward women spending more of their life outside of marriage in states with unilateral divorce and thus have a greater incentive to acquire market skills.

The theory behind why the divorce rate is largely unchanged in the face of a change in who has the right to divorce stems from the Coase theorem. Since the property right—the right to divorce—is fully assigned in both cases, couples should bargain to reach the efficient outcome. Regardless of whether both spouses must consent or whether one spouse can leave unilaterally, divorces should only occur when the joint utility of the husband and wife divorced exceeds that from remaining married. While the efficient outcome—divorce or remain married—should be unchanged, there are important distributional changes. In the case of mutual consent divorce, the person whose utility is greater if divorced must compensate their spouse in order to make divorce preferable to remaining married for both of them, while under unilateral divorce such a spouse would simply exit the marriage keeping all of the rents (if remaining married was jointly optimal, then under unilateral divorce the spouse wishing to remain married must compensates the spouse who prefers divorce, under mutual consent divorce no compensation is needed). These distributional changes point to why in unilateral divorce states there are greater incentives to preserve one's options outside of marriage—the outside options both set the relevant threat point for bargaining within marriage and determine the minimum utility that one would receive in the wake of a divorce.

In Gray's analysis he pointed to the role of laws regarding the division of property in establishing the bargaining position of husbands and wives in the wake of unilateral divorce. He classified each state into one of three largely stable regimes—equitable division, community property, and common law—which differ in how much of the property is typically allocated to the wife upon divorce. Gray's interpretation was that women in states where the legal guidelines lead them to receive small settlements at divorce lose bargaining power relative to their husbands when the grounds for divorce change from mutual consent to unilateral. However, this is only true if it is the husband who prefers to divorce. Indeed, under all types of property laws, women whose relative utility is higher inside the marriage than is their husbands—i.e. who prefer to remain married more than their husbands do—lose bargaining power to their husbands with a switch to unilateral divorce. Laws regarding the division of property affect the legal parameters for the division of assets; however these laws do not uniquely determine which spouse has a higher value of exiting the relationship. If the woman prefers to divorce, then the passage of unilateral divorce laws transfers bargaining power to her regardless of the underlying property laws. If property division laws are stable during the transition to unilateral divorce, the shock to bargaining is the transfer of the right to exit the marriage.

So how do we know whether women or men prefer to exit the marriage, and moreover whether this varies by the laws regarding the division of property? Empirical work has found that women are more likely to file for divorce: around two-thirds of those filing for divorce are women. Brinig and Allen (2000) argue that one reason for this is because women have a greater likelihood of gaining custody of their children. Men who value living with their children may therefore value exiting the marriage less than their wife. Since property distribution laws do not

apply to custody, concerns over custody may impact the value of exiting the marriage in a way that is uncorrelated with property division laws.

Moreover, the shift in bargaining power toward the person most interested in exiting the marriage changes the incentives for both married and unmarried women to acquire human capital and labor market experience. These skills will now yield a greater return to women, even if they ultimately exit the labor market, simply because they raise women's outside options and thus bargaining power within a marriage. However, the additional investment in human capital and labor market experienced spurred by the increased value of one's options outside of marriage increases the opportunity cost of exiting the labor market. This combination of incentives and bargaining jointly ensures that women will raise their labor force participation when divorce laws are unilateral regardless of how property is divided upon divorce.

III. Empirical Results

Much research has exploited the variation occurring from the fact that states differed in the timing of their reforms to divorce law and that the reforms were considered routine policy refinement, passed "with little notice or dissent" (Jacob, 1988). As a result, the timing of the legislative changes have been considered to be independent of other social changes and therefore provide a credible quasi-experimental setting in which to assess the causal relationship between changing divorce laws and family outcomes.[1]

Many of these changes occurred in the early and mid-1970s. While the timing of divorce

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[1] Early research primarily focused on how unilateral divorce impacted the divorce rate (Peters 1986, Parkman 1992, Peters 1992). This research has continued and with it so has our understanding of the changes in divorce law. More recent research includes Wolfers (2006) who re-examines the impact of unilateral divorce on the divorce rate, finding a small and transitory rise in divorce that dissipated within a decade. Stevenson (2007) examines the impact of unilateral divorce on the behavior of newlyweds within marriage, while Stevenson and Wolfers (2006) find that unilateral divorce reduces domestic violence and suicide. Drewianka (2008) examines the impact of divorce laws on aggregate levels of fertility, finding that unilateral divorce led to a small overall decline in fertility.

laws provides the possibility of more granular analysis that exploits the variation in the timing across many years, the US census provides large, representative samples, albeit only every decade. The empirical strategy using census data is to compare changes across states in the employment of married women from 1970, when few states allowed unilateral divorce, to 1980, by which time many states had adopted unilateral divorce, based on whether or not the state adopted unilateral divorce.

The identification strategy can be illustrated using a simple two-by-two table that shows the means in 1970 and 1980 of married women's employment separately for states that had adopted unilateral divorce by 1980 and states that had not. Table 1 shows these means along with their differences. Women's labor force participation in 1970 is lower in states that adopted unilateral divorce, yet is higher in these states in 1980 compared with those states that did not adopt it. The difference-in-difference estimate suggests that women's employment rose 1.2 percentage points more in states that adopted unilateral divorce compared with those that did not, however these results are imprecisely estimated.

This coarse comparison provides suggestive evidence of a rise in married women's employment in states that adopted unilateral divorce. Gray (1998), who also found imprecisely estimated effects in a basic specification examining unilateral divorce on women's employment, further proposed breaking states down by the underlying property division in each state. We now turn to replicating and extending Gray's analysis using the 1970 and 1980 Censuses of Population. For consistency, I start by following Gray's coding of property division laws and his coding of unilateral divorce laws in the following analysis.

The primary regression he runs is a probit estimate of:

$$Employed_{i,s,t} = \alpha + \beta_1 \, Unilateral \; w/ \, common \; law_{s,t} + \beta_2 \, Unilateral \; w/ \, community_{s,t} + \beta_3 \, Unilateral \; w/ \, equitable_{s,t} +$$

$$\delta \, Equitable \; Division_{s,t} + \chi \, Household \; nonlabor \; income_{i,s,t} + \phi \, Husband's \; Income_{i,s,t} + \sum_{k=1}^{2} \varphi_k \, (Kids \; Ever \; Born_{i,s,t})^k +$$

$$\gamma \, Any \; kids \; under \; 6_{i,s,t} + \eta \, Age_{i,s,t} + \mu \, White_{i,s,t} + \xi \, Education_{i,s,t} + \psi \, Urban_{i,s,t} + \lambda \, Year \; of \; Census_t + \sum_s \eta_s \, State_s + \varepsilon_{i,s,t}$$

where the β's are the coefficients of interest. The effect of unilateral divorce is estimated

separately for the three property division regimes: common law, community property, and

equitable division. The same specification is also run replacing the three dummy variables with

a single indicator variable for unilateral divorce regardless of the type of property division. Gray

(1998) reports that one state in his sample changes from common law property division to

equitable division over this period; he therefore includes the direct effect of adopting equitable

property division in his regressions.[2] Aside from state and year fixed effects, individual

characteristics are included as controls, although many of these controls may themselves be

changed by the adoption of unilateral divorce. For instance, existing research has shown an

effect of unilateral divorce on fertility (Drewianka, 2008). Husband's income is particularly

problematic as husbands and wives labor supply are jointly determined, presumably by

household bargaining. Thus any policy change that impacts household bargaining may impact

both wives and husbands earnings. Including such controls provides estimates that do not reflect

any impact of unilateral divorce on women's labor force participation that is mediated through

changes in these parameters.

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[2] I follow his sample which excludes 5 states that changed their divorce laws in the late 1970s. Only one state in his sample changed from common law property division to equitable division during this period. Thus equitable division is included as a control, common law is the excluded category, and community property is collinear with the state fixed effects and is therefore not included. Following Gray, the control for equitable division is not included when the three dummy variables for unilateral divorce are replaced by a single indicator variable.

The first column of Table 2 reports Gray's primary specification (his Table 3, columns 2 & 3).[3] Panel A reports regressions where the independent variables of interest are three dummy variables indicating whether a state has unilateral divorce with equitable division, common law, or community property division laws. Panel B reports regressions where the three dummy variables are replaced by a single dummy variable indicating whether the state has unilateral divorce. The second column replicates this specification using the same 1 in 1000 Censuses samples and follows his coding of both the dependent and independent variables.[4] The replication is nearly exact with coefficient estimates within rounding error at the third decimal place.[5]

The next several columns investigate the hypothesis put forward by Gray that the estimates of the response of married women's labor supply to the adoption of unilateral divorce is governed by how the state will divide property by considering the property that a couple owns. The argument for why unilateral divorce affects women differently in common law states versus equitable division or community property states is that men typically hold title to property in common law states and thus have greater resources upon divorce. The most important asset that most couples divide at divorce is their home (and this asset is also easily held only in the husband's name). Moreover, home owners simply have more assets on average than do renters. As such, we would expect to see differences between home owners and renters in the impact of unilateral divorce laws that vary by property regime, with the results shown in column 1 driven by those who own property. What we see instead is that the negative relationship between married women's employment and the adoption of unilateral divorce in states with common law

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[3] Gray (1998) reports t-statistics. I calculate the implied standard errors and show standard errors rather than t-statistics.
[4] ICPSR studies: 0018 and 8101.
[5] Robust standard errors are reported in parenthesis, calculated to be consistent with Gray (1998).

property division is driven largely by those who do not own a home. The change to unilateral divorce leads to a statistically significant 10 percentage point decrease among renters in married women's employment in states with common law property division. In contrast, among home owners unilateral divorce leads to a non-significant 2 percentage point fall. The coefficient on unilateral divorce with community property is similar across the two groups and the coefficient on unilateral divorce with equitable division is positive for both groups, albeit slightly larger for renters. These findings point to the potential for there to be an omitted variable impacting married women's employment that is correlated with the adoption of unilateral divorce in the three states—Florida, Georgia, and Alabama—that are included in the analysis as having both common law property division and unilateral grounds for divorce in 1980.

Similarly, we can disentangle the effects by race. Column 5 shows a large negative effect among blacks when unilateral divorce is adopted in states with common law property division—a statistically significant decrease in married black women's employment of 18 percentage points. In comparison, among non-black married women the estimated coefficient indicates a statistically insignificant fall of 1.2 percentage points. Among blacks there is also a small, imprecisely estimated, fall in married women's employment when unilateral divorce is adopted by states with equitable division property division laws. Looking at community property states, we see a large, 11 percentage point, rise in married black women's employment when unilateral divorce is passed. Among non-blacks there is a small increase in married women's employment in both community property and equitable division states that adopt unilateral divorce. These unexpected and large differences in the estimated effects by race further point to the potential for omitted variable bias to be impacting the results found in Gray (1998).[6]

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[6] In tables available from the author on request I investigate the labor force participation of never married men ages 40 to 65. This employment of this group is unlikely to be unaffected by household bargaining

While many researchers have argued for the exogeneity of the adoption of unilateral divorce laws as they were adopted around the country largely as a procedure refinement to already existing divorce law, there have not been similar arguments made for the exogeneity of property division laws. Furthermore, in parsing this effect out across the three property division regimes there are fewer state changes to identify the effects, making it easier for other changes in state policies to be spuriously correlated with the adoption of unilateral divorce. For instance, among common law states, only 3 states changed their divorce laws to allow unrestricted unilateral divorce; among community property states there are 5 that adopted unilateral divorce. The majority of the states, 29, follow equitable division, of which 17 changed their divorce law to allow unilateral divorce between 1970 and 1980.[7] The few states with community property or common-law property division laws may also have had other policy changes during the 1970s. Abortion laws were changing, food stamp programs were being introduced and expanded, AFDC varied and was changing, including AFDC for married couples through the AFDC-Unemployed Parent program. If the adoption of any of these programs was correlated with the adoption of unilateral divorce under particular divorce regimes then adding controls for these programs would likely impact the estimated coefficient on unilateral divorce.

Table 3 seeks to reconsider Gray's results. The first column expands the sample by using a larger Census file, the 1 in 100 census files provided by IPUMS; these samples yield both more

changes instigated by the adoption of unilateral divorce. The coefficients for never-married men are similar to those shown for married women. Between 1970 and 1980, employment of never-married men increases in states with community property laws or equitable division laws that adopt unilateral divorce and decreases in states that adopted unilateral divorce with common law property division. These findings point to the importance of investigating omitted variable bias and sample selection effects further.

[7] Of these, Gray excludes from the analysis four of the states that adopted unilateral divorce because their law changes occurred in the latter part of the 1970s.

observations and ensure uniform coding of variables across the years.[8] Additionally, I exclude controls for potentially endogenous individual-level variables. Since these controls are themselves are likely impacted by unilateral divorce, holding them constant will bias the coefficient on unilateral divorce.[9] Instead, by eliminating these controls, the coefficient on unilateral divorce will instead capture the aggregate impact of unilateral divorce on married women's employment.[10]

The results reported in the first column show that using the larger sample and dropping the potentially endogenous variables attenuates the estimated coefficients (the remaining individual level controls include a quadratic for age, a saturated set of dummy variables for educational attainment, and race).[11] Panel A shows a negative relationship between married women's employment and unilateral divorce in common law states and a positive relationship for unilateral divorce in equitable and community property division states and Panel B shows no statistically significant effect of unilateral divorce when the effect is not allowed to vary by property laws. The second column adds controls for time-varying factors at the state-level, such as the natural log of state personal income per capita, age composition variables indicating the share of states' populations aged 26-40, 41-55, 56-65, and over 65, the share of the state's

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[8] This includes correcting the coding of race. Gray coded Hispanics in only states sharing a border with Mexico as non-white in 1970 and all Hispanics were coded as non-white in 1980. This derives from using two different variables—Spanish surname and Hispanic—to define white. Since Hispanic is available for 1970 and 1980 a consistent coding is available for these two periods.

[9] For example, unilateral divorce has been shown to reduce the likelihood of having a small child in the home (Stevenson, 2007). Because women with small children tend to work less, unilateral divorce may lead to an increase in employment through its impact on the probability of having a child. Controlling for children in the home in this case will lead the coefficient on unilateral divorce to be biased downward.

[10] While having small children in the home and husband's income both impact married women's labor supply, neither of these factors are likely to be correlated ex ante with whether or not a state adopted unilateral divorce, i.e. their exclusion only impacts the coefficient on unilateral because of the causal influence of unilateral divorce on these variables. As such, excluding these variables eliminates the edogeneity bias.

[11] The larger sample size highlights the need to cluster the standard errors at the level of exogenous variation. Robust standard errors are all very small. Instead Table 3 uses standard errors clustered at the state-year level.

population that is black, the share that are immigrants, and the male unemployment rate. The

estimated effects in Panel A are now all positive, albeit not statistically significant. Panel B

shows an effect of unilateral divorce on married women's labor supply of 0.5 percentage points

that is imprecisely measured and thus would allow effects in either direction.

The third column adds controls for time-varying state-level policies such as the presence

of a food stamp program, the presence of welfare for families with an unemployed parent, the

maximum AFDC rate for a family of four, and whether a state allows abortion. Both Panels A &

B now show statistically significant increases in married women's labor force participation of

about 1 percentage point when unilateral divorce is adopted—regardless of the underlying laws

governing property division at divorce. Breaking this effect across the three property regimes

shows coefficient estimates that are similar across the three types of property laws.[12] The next

column includes the states that were dropped from Gray's analysis: Massachusetts, Montana,

Rhode Island, Wisconsin, and Missouri (Gray dropped them because they changed their divorce

laws in the mid 1970s and therefore had less time to impact behavior). The estimated

coefficients are little changed when these states are included and the precision of the estimates

increases slightly.

The next few columns show that the large differences in the effect of unilateral divorce

estimated for renters versus non-renters and blacks versus non-blacks that were evident in Table

2 are no longer evident once controls are added for time-varying state-characteristics. While the

estimates for renters and blacks are smaller than those for home owners and non-blacks, the

estimates for renters and blacks are very imprecisely estimated. As such, there are not

statistically significant differences between renters and owners or between blacks and non-

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[12] While the coefficient estimate is large and more precisely estimated among the equitable division states
that adopted unilateral divorce, the unilateral coefficients are not statistically significantly different from
one another.

blacks. While it is plausible that unilateral divorce may have a differential impact by race or home ownership—for instance, women with higher earnings potential should be more likely to increase their labor supply in the face of the incentives provided by unilateral divorce—these estimates do not allow any such inferences to be drawn.

Note that the magnitude of the final estimate of the impact of unilateral divorce on married women's employment is similar to what was seen in the simple differences-in-differences table. Tables 2 and 3 point to the problem of omitted variable bias in determining whether unilateral divorce impacted married women's labor force participation. As such, they also illustrate the difficulty of attempting to sort out differences in the impact of unilateral divorce among the few states that followed a property division rule different from that of equitable division.

An additional difficulty may stem from the fact that states were making many changes regarding the division of property upon divorce during this period. The division of states into one of three categories followed by Gray (1998) is further complicated by differing interpretations of the relevant changes in divorce law that occurred over this period. The coding of whether a state adopted unilateral divorce as grounds for divorce is reasonably straightforward with disagreement among scholars occurring only for a handful of states. Replacing the definition of unilateral divorce with that followed in Gruber (2004) or Friedberg (1998) yields qualitatively similar results.

In contrast, there are sharply differing classifications of the regimes governing property division. Gray (1998) codes all states as falling into one of three property division regimes: common law, community property, and equitable division. However, this division ignores whether a state had eliminated fault from consideration in property division. No-fault property

division did not occur simultaneously with unilateral divorce. Indeed many of the states that allowed unilateral divorce retained fault as a consideration in the division of property (Jacob, 1988). Among Gray's classification, none of the common law states adopting unilateral divorce had adopted no-fault property division by 1980, while 4 of the community property and 12 of the equitable division did. Additional classifications come from Jacob (1988), who goes through property division laws finding that, by 1983, 22 states had a provision to value the homemaking contribution of spouses, 19 states had "unequivocally eliminated fault from consideration in property division" (p.121), and 5 states had switched to "equal" distribution, 5 were ambiguous, while the remainder followed equitable division. Examining the effects of unilateral divorce among all of these differing schemes yields largely similar findings to those seen thus far—in most cases unilateral divorce leads to approximately a 1 percentage point rise in women's labor force participation regardless of the underlying rules governing the division of property.

Beyond the complex, and sometimes conflicting, coding of property division laws, isolating the effects of unilateral divorce separately for each type of property division law is difficult because these laws affect only a few states. As such, the rest of this paper will focus on further examining the effect of unilateral divorce on female labor force participation without attempting to separate the effects by differing types of property division.

Table 4 considers whether selection into and out of marriage affects the estimates of the effect of unilateral divorce on married women's labor force participation by examining the impact of unilateral divorce on married women's employment separately by marital duration. The estimates show that unilateral divorce has the largest impact on the labor force participation of women married 5-15 years, the period during which many marriages are most likely to end. This relationship suggests that the threat of divorce may be playing a role in the relationship

between unilateral divorce and whether married women work. Alternatively, women in long duration marriages, in the decade following unilateral divorce's passage, may be older and have lower labor market opportunities as well as fewer remaining years from which to benefit from entering the labor force.[13]

Thus far our examination of the impact of unilateral divorce on women's labor force participation has focused on the years soon after states adopted unilateral divorce. However, unilateral divorce impacts both the selection of spouses into marriage and the duration of marriage. As such these effects may either diminish or grow over time as people adapt to the new marital environment. Figures 1a and 1b show the aggregate labor force participation rates of married and all women respectively using annual data from the March CPS from 1968 to 1995. These figures show that female labor force participation rose in the mid-1970s in states that adopted unilateral divorce relative to those that did not (while states vary in the timing of adoption, states are simply grouped into those that adopt unilateral divorce and those that do not). This rise for married women appears to last about 10 years. In contrast, the labor force participation rates for all women rose and remain about 2 percentage points higher in unilateral divorce states. This difference reflects the greater labor force participation rates for unmarried women as well as married women. This result is consistent with the fact that unilateral divorce has been shown to cause a lower likelihood of marriage, a higher probability of working during marriage, and a shorter expected marital duration. As a result, unmarried women in unilateral divorce states have a greater incentive to invest in market skills compared to women in states without unilateral divorce.

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[13] While the regressions control for age, there may be differential effects of unilateral divorce on women's labor supply by age.

These figures suggest that the timing in the difference in female employment between unilateral divorce states and those without unilateral divorce is suggestive of the role of unilateral divorce in increasing employment. To test further whether the timing evidence supports a role for unilateral divorce in increasing female labor force participation we now turn to regression analysis. The difficulty of establishing a relationship between unilateral divorce and marital outcomes given pre-existing differences among states in trends in norms and behavior regarding marriage has led scholars to examine data sets that cover a long period and allow the dynamic response of the policy change to be explicitly mapped out by including leads and lags for unilateral divorce. The ideal data for such an analysis is annual data which contain representative samples of women in each state of the United States. While the Current Population Survey (CPS) provides such data for recent years, the CPS grouped several states together during the 1970s reducing the number of state-years available for analysis. In particular, several states are grouped together between 1968 and 1972 and others are grouped together between 1973 and 1976. Only around a quarter of the states are separately identified over the entire period. I use all available state-years in the regressions shown in Table 5; however the results are similar when I include only states that can be individually identified each year between 1968 and 1995.

Table 5 examines these results exploiting the variation that comes from differences across states in the timing of the adoption of unilateral divorce. The specification in the first column examines the relationship between unilateral divorce and the employment of all women. By looking at all women, the total effect on women's employment is assessed—that stemming from changes in the incentives women face before, during, and after marriage, as well as that stemming from changes in marital duration and timing. The second column adds state-level

aggregate controls. Both columns show a clear rise in female labor force participation that begins a few years after unilateral divorce is adopted. Adding controls increases the estimated coefficients and sharpens the estimates. Both specifications suggested that within 5 years of unilateral divorce female employment has risen by around 2 percentage points.

Columns 3-4 in Table 5 show a less consistent pattern for married women. As was seen in the earlier tables, the relationship between unilateral divorce and married women's employment is sensitive to the inclusion of state-level aggregate controls. The first column does not include controls for other time-varying state-level factors and we see a small and insignificant effect of unilateral divorce on married women's labor supply. Adding controls leads to statistically significant increase of around 2 percentage points that is not seen in the years leading up to unilateral divorce and grows following the adoption of unilateral divorce.

IV. Conclusion

This paper examines how changing the laws governing divorce and property division changes women's labor supply decisions. Divorce laws change the value of exiting the marriage and thus potentially change bargaining within the household. These laws may also change the returns to specialization in household production by reducing the amount of time women can expect to spend in marriage and by increasing the returns to investing in one's options outside of marriage. By increasing the value of the option outside of marriage, unilateral divorce increases the return to acquiring experience and other human capital for women before, during, and after marriage.

In earlier work Gray (1998) argued that there was no direct effect of unilateral divorce on female labor supply; rather the impact of unilateral divorce depends on the prevailing laws

governing property division. This paper shows that the inability to find an effect of unilateral divorce on female labor supply in this earlier analysis reflected omitted variable bias and heterogeneity in treatment for women based on marital duration. Moreover, the small number of states following common law property division and adopting unilateral divorce makes the finding of a negative effect on female employment in these states very sensitive to the sample and specification used.

This paper adds a richer set of controls for state level time-varying factors and finds that adding these controls yields estimates that imply an effect of unilateral divorce on female employment that is invariant across differing legal regimes for the division of property at divorce. These findings suggest that unilateral divorce led to a 1 percentage point rise in female employment. Considering martial duration leads to estimates that are double for those in the earlier years of marriage, with little effect found for those married for 15 years or longer. However, these effects reflect only couples in the years immediately following the adoption of unilateral divorce. Examining 25 years of data shows an increase in female employment for both married and unmarried women following unilateral divorce that reaches its peak about 5 years after unilateral divorce is adopted and remains about 2 percentage points higher than that in states that did not adopt unilateral divorce. These findings point to divorce reform's broader impact on the behavior of individuals both within and outside of marriage.

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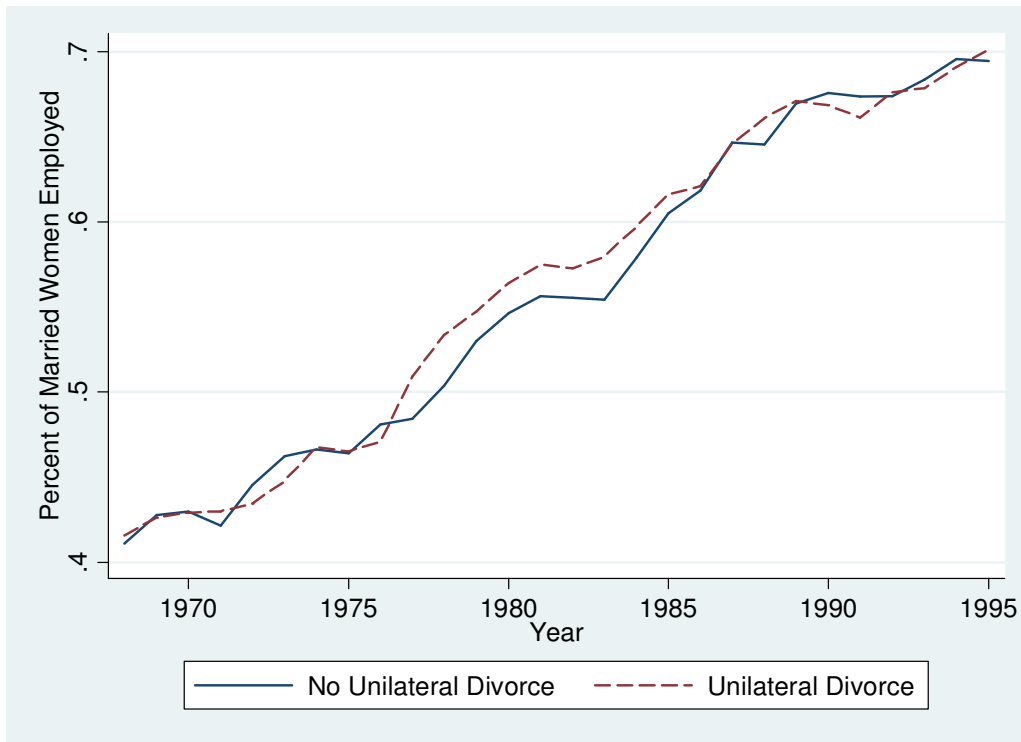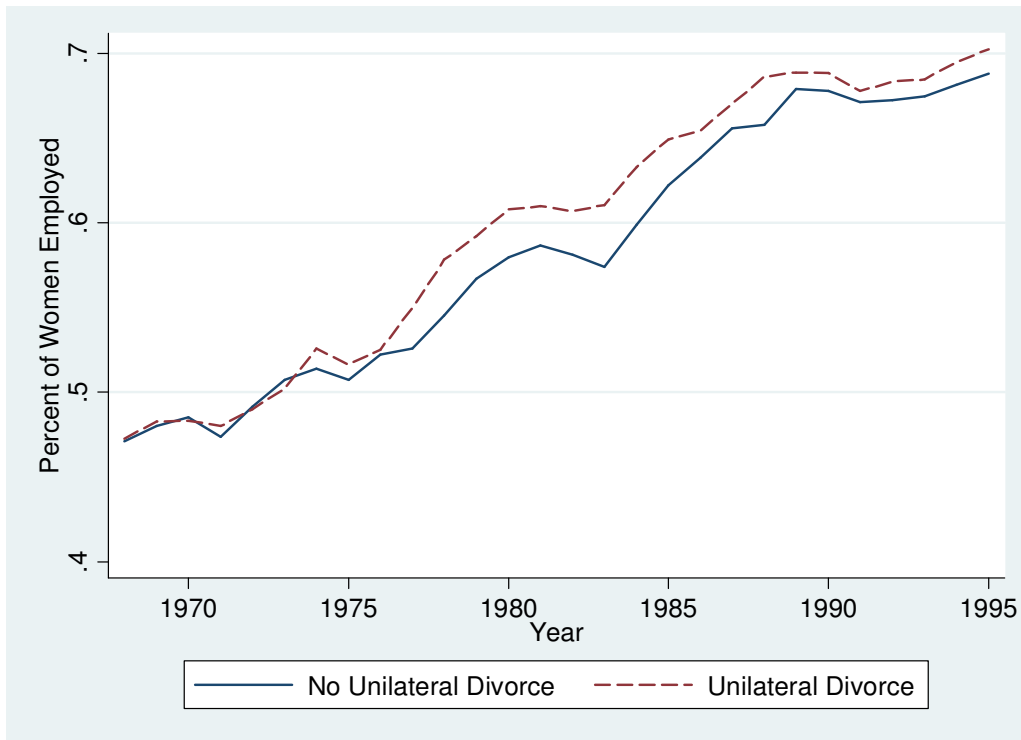**Figure 1a**
"Married Women's Employment"

Figure 1b
Total Women's Employment

Notes: Data are from the Current Population Survey 1968-1995.

Table 1
Mean of Married Women's Employment in States Adopting and Not Adopting Unilateral Divorce

	Adopted unilateral divorce between 1970 and 1980	Did not adopt unilateral divorce between 1970 and 1980	Difference
Married Women's Employment in 1980	.657 (.006)	.654 (.012)	.008 (.014)
Married Women's Employment in 1970	.542 (.006)	.550 (.010)	-.004 (.013)
Difference	.115 (.009)	.103 (.017)	**.012 (.019)**

Notes: The coding of unilateral divorce follows Gray (1998). There are 25 states that are coded as adopting unilateral divorce between 1970 and 1980. The remaining 25 states and the District of Columbia do not. Married women's employment is estimated from the US census which asks women whether they were employed in the previous year. Data are aggregated at the state level. Robust standard errors are in parenthesis. The bottom right cell gives the difference-in-difference estimate.

Table 2

Female Employment and the Adoption of Unilateral Divorce with Different Property Division Laws: Comparing Effects for Different Groups

	Gray (AER 1998)	Replication	Renters	Home Owners	Black	Non-black
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Unilateral divorce w/ common law	-.036 (.015)	-.037 (.016)	-.100 (.032)	-.017 (.018)	-.178 (.046)	-.012 (.017)
Unilateral divorce w/ equitable distribution	.013 (.010)	.013 (.011)	.023 (.021)	.009 (.012)	-.026 (.048)	.011 (.011)
Unilateral divorce w/ community property	.023 (.012)	.024 (.012)	.023 (.021)	.028 (.014)	.113 (.043)	.022 (.012)
Panel B						
Unilateral	.006 (.008)	.006 (.008)	-.000 (.016)	.008 (.010)	-.053 (.031)	.010 (.009)
Sample size	63,615	63,615	16,842	46,622	4,977	58,631

Notes: All columns report Probit estimates, evaluated at the cell mean. Robust standard errors are in parentheses. Regression specification follows Gray (1998):

$$Employed_{i,s,t} = \alpha + \beta_1\,Unilateral\ w/\ common\ law_{s,t} + \beta_2\,Unilateral\ w/\ community_{s,t} + \beta_3\,Unilateral\ w/\ equitable_{s,t} + \delta\,Equitable\ Division_{s,t} + \chi\,Household\ nonlabor\ income_{i,s,t} +$$

$$\phi\,Husband's\ Income_{i,s,t} + \sum_{k=1}^{2}\varphi_k\,(Kids\ Ever\ Born_{i,s,t})^k + \gamma\,Any\ kids\ under\ 6_{i,s,t} + \eta\,Age_{i,s,t} + \mu\,White_{i,s,t} + \xi\,Education_{i,s,t} + \psi\,Urban_{i,s,t} + \lambda\,Year\ of\ Census_t + \sum_{s}\eta_s\,State_s + \varepsilon_{i,s,t}$$

where the β's are the coefficients of interest. Panel A reports the effect of unilateral divorce estimated separately for the three property division regimes: common law, community property, and equitable division. Panel B reports the effect of a single dummy variable for unilateral divorce. Controls include state and year fixed effects, a dummy for non-Hispanic white (Hispanics were not identified in most states prior to 1980), a dummy for urban status, non-labor household income, husband's income, number of children ever born, children ever born squared, any children under 6, years of education, age. Data are from the 1970 and 1980 US census; the dependent variable measures whether a woman reported having worked in the year prior to the census.

Table 3
Female Employment and the Adoption of Unilateral Divorce with Different Property Division Laws: State-Level Controls

	Minimal controls (1% Sample)	+Aggregate state-level demographic controls	+Aggregate state-level policy controls	+Excluded states	Renters	Home Owners	Black	Non-Black
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A								
Unilateral divorce w/ common law	-.010 (.004)	.001 (.008)	.009 (.010)	.009 (.009)	-.002 (.018)	.010 (.009)	.012 (.011)	.011 (.011)
Unilateral divorce w/ equitable distribution	.005 (.007)	.009 (.007)	.015 (.009)	.016 (.007)	.006 (.010)	.018 (.008)	-.021 (.020)	.016 (.007)
Unilateral divorce w/ community property	.004 (.003)	-.003 (.007)	.008 (.011)	.008 (.011)	.009 (.018)	.006 (.006)	-.049 (.029)	.008 (.012)
Panel B								
Unilateral	.001 (.004)	.005 (.005)	.012 (.007)	.013 (.006)	.004 (.010)	.016 (.006)	-.009 (.013)	.014 (.006)
Reduced set of controls	✓	✓	✓	✓	✓	✓	✓	✓
State-level demographic controls		✓	✓	✓	✓	✓	✓	✓
State-level policy controls			✓	✓	✓	✓	✓	✓
Sample size	656,375	656,375	656,375	695,488	185,876	509,612	51,755	643,725

Notes: All columns report Probit estimates, evaluated at the cell mean. Standard errors clustered at the level of the state-year are in parentheses. The regression follows the specification in Table 2 however the controls are now varied across columns 1-3. In column 1, the reduced set of controls include dummy variables for white and black, a quadratic for age, a saturated set of dummy variables for education, along with state and year fixed effects. In column 2, state-level demographic controls for age composition variables indicating the share of states' populations aged 26-40, 41-55, 56-65, and over 65, the share of the state's population that is black (except for columns 7 & 8), the share of the state's population that are immigrants, the natural log of state personal income per capita, and the unemployment rate are also included. Finally, in column 3 state-level policy controls for the maximum AFDC rate for a family of four, existence of the AFDC unemployed parent and food stamp programs, and the Donohue and Levitt coding of whether a state has abortion access are added. Columns 4-8 included the full set of controls as included in column 3. Data are from the 1970 and 1980 US census; the dependent variable measures whether a women reported having worked in the year prior to the census.

Table 4
Female Employment and the Adoption of Unilateral Divorce with Different Property Division Laws: Heterogeneity and Selection

	Married 5 years or less	Married 5-10 years	Married 11-15 years	Married more than 15 years
	(1)	(2)	(3)	(4)
Unilateral	.006	.025	.020	.004
	(.008)	(.010)	(.011)	(.006)
	{.007}	{.007}	{.008}	{.007}
State-level aggregate controls and reduced individual level	✓	✓	✓	✓
Sample size	125,050	100,499	89,211	283,765

Notes: All columns report Probit estimates, evaluated at the cell mean.

Robust standard errors are in parentheses. Standard errors clustered at the level of the state-year are in curly brackets.

The reduced set of controls includes dummy variables for white and black, a quadratic for age, a saturated set of dummy variables for education, along with state and year fixed effects.

State-level aggregate controls include the maximum AFDC rate for a family of four, existence of the AFDC unemployed parent and food stamp programs, the natural log of state personal income per capita, the unemployment rate, age composition variables indicating the share of states' populations aged 26-40, 41-55, 56-65, and over 65, the Donohue and Levitt coding of whether a state has abortion access, and the share of the state's population that is black, white and other.

Table 5
Effects of Unilateral Divorce on Female Employment

	All Women		Married Women	
Column No	(1)	(2)	(3)	(4)
1-3 years prior to change	*-.004*	*-.005*	*-.003*	*.000*
	(.008)	(.008)	(.010)	(.009)
Year of change	-.002	.008	-.002	.017
	(.010)	(.010)	(.013)	(.010)
1-3 years later	.010	.012	.001	.017
	(.008)	(.008)	(.010)	(.008)
4-6 years later	.016	.023	.010	.027
	(.007)	(.008)	(.008)	(.008)
7-9 years later	.015	.023	.006	.026
	(.007)	(.008)	(.010)	(.008)
10 years or more later	.016	.026	.004	.027
	(.008)	(.008)	(.010)	(.009)
<u>Control variables</u>				
State and year fixed effects	✓	✓	✓	✓
Economic, demographic and social policy controls[#]		✓		✓
Sample	All states 1968-1995 (some state-years missing)		All states 1968-1995 (some state-years missing)	
Sample size	1116		1116	

Dependent variable is the aggregate female employment rate in the state. Robust standard errors are in parentheses.

[#] Controls include the maximum AFDC rate for a family of four; existence of the AFDC unemployed parent and food stamp programs; the natural log of state personal income per capita, the unemployment rate; age composition variables indicating the share of states' populations aged 14-19; and then ten-year cohorts beginning with age 20 up to a variable for 90+; the Donohue and Levitt Effective access; and the share of the state's population that is black, white and other. (Employment status, age and race data are constructed from Unicon's March CPS files, and refer to the population aged 14 years or greater.)