Yours, Mine and Ours:
DO DIVORCE LAWS AFFECT THE INTERTEMPORAL
BEHAVIOR OF MARRIED COUPLES?*

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Abstract
This paper examines how divorce laws affect couples’ intertemporal choices and wellbeing. Exploiting panel variation in U.S. laws, I estimate the parameters of a model of household decision making. Household survey data indicate that the introduction of unilateral divorce in states that imposed an equal division of property is associated with higher household savings and lower female employment, implying a distortion in household assets accumulation and a transfer towards wives whose share in household resources is smaller than their husband’s share. When spouses share consumption equally, separate property or prenuptial agreements can reduce distortions and increase equity.

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This paper examines how property rights within marriage regulated by divorce laws influence the intertemporal behavior and the wellbeing of married people. During the 1970s and 1980s, most U.S. couples entered a legal system in which each spouse can obtain divorce without the consent of the other spouse and keep a fraction of the marital assets, independently of who holds the formal title to the property (Golden 1983). This study explores the impact of the introduction of this regime, namely of unilateral divorce and of equitable distribution, on the intertemporal behavior of couples. It also analyzes how the current divorce legal system affects the wellbeing of married and divorced women, who are often believed to face more negative consequences of divorce compared to men (e.g. Weitzman 1985 and 1996, Peterson 1996).

To understand the welfare implications of divorce law reforms, I build a dynamic model of household decision making that captures the key aspects of these laws. The model suggests that the impact of divorce laws crucially depends on how spouses allocate resources (consumption, leisure, assets) while married: only a spouse who has a sufficiently lower share of marital resources compared to the other spouse benefits from an equal division of property upon divorce, especially if (s)he can obtain divorce without the consent of the other spouse.

To uncover the parameters of intra-household allocation of resources, I examine the changes in household savings and wives’ employment status in response to the reforms in U.S. divorce laws. In particular, I exploit the variation in U.S. divorce laws over time and across states using data from the Panel Study of Income Dynamics and from the National Longitudinal Survey of Young and Mature Women, examining the behavior of the couples married before such reforms. These samples span from the late 1960s to the 1990s. Two main facts emerge from these surveys. First, the introduction of unilateral divorce in states where property is divided equally leads to a significantly higher accumulation of assets compared to states where property is not divided by the courts, but rather assigned to the spouse who holds the title to the property. Second, when unilateral divorce is introduced in states where property is divided equally, married women become less likely to work, while no change is observed in states that do not impose an equal division of property.

These estimates provide information to identify for the parameters of intra-household allocation in the dynamic model and they are consistent with the prediction that unilateral divorce results in limited commitment within marriage and in a reallocation of resources inside the house-
Property division laws affect each spouse’s divorce allocation. When a spouse can divorce unilaterally, the divorce allocations affect the intra-household allocations during marriage. This channel does not operate when divorcing requires the consent of both spouses. I use the estimated structural parameters to compute the welfare effects of the reforms and to perform counterfactual experiments, which examine who benefits and who loses from alternative legal regimes and from prenuptial agreements.

The dynamic model, estimated by indirect inference, replicates the responses of assets accumulation and female employment when the wife’s share of household resources in marriage before the reforms is sufficiently low compared to her husband’s share, i.e. if wives’ Pareto weight in the household planning problem is lower than their husband’s Pareto weight. In particular, for couples married before the reforms, I estimate wives’ Pareto weight to be equal to a third of their husband’s Pareto weight. When mutual consent divorce is in place, such weights entirely determine the ratio of the marginal utilities of spouses’ consumption. After unilateral divorce is introduced, that ratio may change to make it incentive-compatible for spouses to remain married.

Women in the sample benefit from the laws that impose an equal division of property upon divorce, because they have a lower share of the couples’ resources (including assets) compared to their husband. My simulation suggests that these women would obtain a larger share of household assets at the time of divorce in community property states (where assets are divided equally) than in a title-based states (where assets are assigned to the spouse who holds the title to the property, reflecting the intra-household allocations). Equal division of property alters the allocation of resources in divorce compared the intra-household allocation, and unilateral divorce leads the divorce allocation to influence the intra-household one.

The model indicates that asset accumulation during marriage increases because spouses’ individual incentives to save are distorted by the reforms. Because mandated equal division of property does not reflect the allocation of resources within marriage, such regime results in the equivalent of a tax on savings for the spouse with larger Pareto weight, and a subsidy for the other spouse. For sufficiently low values in the wives’ Pareto weight, the model also replicates the decline in female employment that follows the reforms. Unilateral divorce allows women who live in community property states to credibly exercise the threat of divorce and to gain, on average, more consumption and leisure also during marriage compared to the allocation in mutual
consent divorce. Hence, a more symmetric distribution of consumption in marriage follows from the symmetric distribution of resources in divorce that the equal division of property imposes.

I use the estimates of the parameters of the dynamic model to examine the welfare implications of the current property division rules. Given the estimates of the intra-household allocation parameters, my simulations suggest that, as intended by the policymakers who promoted it, the equal division of property granted more assets to women in the 1970s and ’80s compared to a system based on who owns the formal title to the property. While such a system benefits women with a low share in household resources, it may prevent women whose Pareto weight is close to their husband’s weight from smoothing the marginal utility of their consumption upon divorce. When women consume as much as their husband in marriage, but have lower permanent income (for example, because of a gender wage gap), they may be better off in a separate property regime or with prenuptial agreements, as they may need to accumulate more savings to smooth the marginal utility of their consumption in case of divorce. Community property may preclude women from doing so, leaving them even more exposed to the costs of marital disruption. At the same time, community property distorts the intertemporal behavior of the couples and, from the point of view of the household, may provide lower utility than separate property. My counterfactual experiments indicate that reverting to separate property or promoting prenuptial agreements may lead increase the wellbeing of secondary earners at divorce, while reducing the distortions in the intertemporal choices of couples.

The contribution of this paper is threefold. First, I develop and estimate a dynamic model that explicitly incorporates mutual consent versus unilateral divorce regimes and property division laws. In a dynamic setting, the introduction of unilateral divorce results in limited commitment to intra-household allocation, which is not present in the mutual consent regime. Intra-household reallocation in favor of wives, due to limited commitment, provides a straightforward explanation for the reduction in their likelihood of employment that is observed in survey data when unilateral divorce is introduced in community property states. This finding supports the evidence on the presence of inefficiencies (Udry 1996) and, in particular, of limited commitment (Mazzocco 2007, Mazzocco et al. 2009) in intra-household decision making.

Second, this paper documents and explains the empirical relationship between changes in divorce laws (unilateral divorce and property division rules) and the saving behavior of married
couples, adding to the literature that examines how unilateral divorce affects household outcomes, such as labor supply (Gray 1998, Stevenson 2008), the welfare of children (Gruber 2004), the divorce rate (Friedberg 1998, Wolfers 2006), household specialization (Stevenson 2007) and domestic violence (Stevenson and Wolfers 2006). In addition to the unilateral divorce reform, I document and exploit the variation in the introduction of equitable distribution over the course of the 1970s and 1980s. To isolate such a relationship from selection and sorting issues, I examine a sample of couples that married before these reforms. Using panel household data, I show that asset accumulation and female employment respond to divorce law reforms in a way that is consistent with the predictions of the model. Understanding why the divorce laws affect the incentives to save and invest may have important policy implications, given the frequency of divorce in the United States and the fact that divorce laws are subject to continuous changes through the actions of courts and lawmakers. For example, in the summer of 2010, the state of New York approved no-fault unilateral divorce. Other states have introduced or consider introducing covenant marriages, which require the consent of both spouses to be broken. Little is known about how or why the intertemporal behavior during marriage may respond to such reforms. Today, judges, legal authors and lawyers primarily rely on anecdotal evidence and personal experience when evaluating property division (Turner, 2005).

Third, this study illustrates the implications of the current U.S. property division laws on couples’ welfare and shows that the equal division of property can sometimes result in the opposite of what policymakers intended when they promoted the removal of separate property. Divorce can generate significant economic costs, such as direct legal and relocation costs, as well as loss of economies of scale and risk sharing. It can be especially costly for the spouse with lower permanent income, who can no longer benefit from sharing resources with the partner. Because there is no market insurance for divorce, self-insurance plays a central role in consumption smoothing. This paper investigates how different ways of dividing property at the time of divorce can affect the ability of secondary earners to use savings to smooth consumption in divorce. Recently, some legal scholars have suggested that in order to insure the consumption of secondary earners, all household property should be subject to division, including property acquired before marriage.

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1Louisiana was the first state to approve covenant marriages in 1997, followed by Arizona and Arkansas. Several states are currently debating the issue (Nock et al. 2008).
(Motro 2008). Others have instead suggested that even joint bank accounts should be banned to encourage spouses to manage their resources separately and let women have “a purse of their own” (Mahle 2006). My study shows that an unobservable parameter, wives’ consumption share in marriage, has crucial implications for the debate over the benefits of alternative allocations of property rights inside the household. For a relevant set of values of this parameter (for instance, when husband and wife share consumption equally), mandated equal division of property assigns to secondary earners a lower share of household assets compared to a regime in which spouses can retain their own property or can jointly choose a division rule at the time of marriage. Thus, current property division rules may be inadequate to protect many secondary earners from a drop in consumption at divorce.

1 U.S. Divorce Laws: Overview and Literature Review

Widespread and fundamental changes to state divorce laws occurred between the late 1960s and the 1980s. Across states and over time, divorce was allowed also without the consent of one of the spouses, and property division rules were modified to promote equitable distribution of assets.

1.1 Grounds for Divorce

Over the decades of analysis, the legal regimes governing the grounds for divorce in the United States can be described as mutual consent regimes or unilateral divorce regimes. Prior to the 1960s, state regulation allowed divorce only under mutual consent, which permits divorce when both husband and wife agree to it or based on fault grounds, such as adultery or domestic violence. The late 1960s brought about the start of the so-called “unilateral divorce revolution,” which allows one party to obtain divorce without the consent of the other. From 1970 to 1990, the number of states allowing unilateral divorce grew from three to thirty-five (see Table 7 in Appendix F, which illustrated the considerable variation in the content of these laws across states and over time).

A contentious literature has attempted to establish whether the surge in divorce rates that
occurred in the 1970s was caused by unilateral divorce. Making divorce easier may also affect allocations within marriage, which could explain part of the decline in female suicide rate and domestic violence associated with the reforms (Stevenson and Wolfers 2006). However, research on how unilateral divorce affects the labor supply of women is not conclusive (cf. Gray 1998, Stevenson 2008).

Both an increase in the risk of divorce and a change in intra-household allocations due to divorce law reforms may affect household intertemporal behavior. Yet, there is little research on this subject. Stevenson (2007) finds that the introduction of unilateral divorce negatively affects the propensity to undertake marriage-specific investments, such as supporting a spouse through school or buying a home (depending on the property division regime).

### 1.2 Property Division Laws

Property division regimes over the period of analysis can be broadly classified into three main systems:

a) **Title-based regimes**, in which assets are allocated according to the title of ownership;

b) **Community property regimes**, in which marital assets and debts are divided equally between the spouses, under the presumption that they are jointly owned;

c) **Equitable distribution regimes**, in which courts have discretion in dividing marital assets in order to achieve equity. This process may result in equal division or in a division that favors either the spouse who contributed the most to the purchase of the asset or the one in higher financial need.

At the turn of the 20th century, property division based on the formal title to the property was the dominant legal regime, with the exception of eight states, primarily those with a French or Spanish colonial legacy, such as Louisiana, New Mexico or California, which had community

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2By the Coase theorem, the change from mutual consent divorce to unilateral divorce should not affect the probability of divorce since couples should always be able to achieve the efficient outcome (Becker 1991). For the Becker-Coase theorem to hold, a number of strong assumptions are needed (Clark 1999, Chiappori et al. 2007 and Fella et al. 2004). In cross-sectional analysis, unilateral divorce states did not have higher divorce rates (Peters 1986 and 1992, although see Allen 1992). Also, the empirical association between unilateral divorce and higher divorce rates in the state-level panel data (Friedberg 1998) may be driven by pre-existing trends in divorce rates (Wolfers 2006), apart from a short-term impact, which suggests that unilateral divorce increased the probability of divorce for couples that were already married (Mechoulan 2006). The difference between short-term and long-term effects may be driven by changes in the likelihood of marriage (Rasul 2003) and in the quality of matching in the marriage market.
property regimes. Over the course of the century, and in particular following the federal Uniform Marriage and Divorce Act (UMDA) of 1970, title-based states shifted towards equitable distribution (Golden 1983, Turner 1998). The UMDA, which were intended to favor secondary earners in divorce settlements, created the legal ground for the introduction of equitable distribution in all states: in 1989, Mississippi was the last title-based state to transition into equitable distribution (American Bar Association, 1977-2005). In Appendix A, I illustrate how the timing of the transition from title-based regime into equitable distribution is uncorrelated with pre-reform proxies for the economic condition of women in each state.

From a theoretical perspective, the literature suggests that property division rules to influence both the accumulation of assets (Dnes 1999, Aura 2003) and marital sorting (Chiappori et al. 2008). While the reforms in property division rules have not been subject of empirical analysis, their cross-sectional variation has been used as a distribution factor in intra-household bargaining (Chiappori et al. 2002) and appears to influence the way unilateral divorce affects female labor supply (see Gray 1998, although Stevenson 2008 finds no differential effect of unilateral divorce across property division rules).

2 The Model

To identify the channels through which divorce laws affect household behavior and welfare, I develop a dynamic model of household choice in which spouses jointly decide how much to save, how to allocate consumption and whether or not to work. The model represents the behavior of two individuals, husband $H$ and wife $W$, who are married at time 1 and live until time $T$. In every period from time 1 to $T$, the household chooses how much to save, how to allocate private consumption between the spouses and whether to stay together or divorce. Between time 1 and

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3 These legal reforms were salient to U.S. households. For instance, between June and July 1980, when equitable distribution was introduced in New York state, seven articles were published in The New York Times regarding this legal change. Between 1974 and 1990 eighty articles from The New York Times had either “marital property” or “divorce and dissolution” as their focus (http://www.lexisnexis.com).

4 These reforms can be seen as a further expansion in the property rights of women after the long process of rights acquisition that commenced in the middle of the 19th century and granted women control over their property and earnings (Geddes and Lueck 2002, Doepke and Tertilt 2009, Fernandez 2009).

5 Prenuptial agreements were likely to have only a minor incidence, because they were not consistently enforced by courts until the 1980s. Since the 1983 Uniform Premarital Agreements Act, the enforcement of prenuptial agreements has become more likely.
time $T - R$, the household also makes decisions about the wife’s labor supply. Husbands in this model always work until they retire. From time $T - R + 1$ to $T$, spouses are retired.

### 2.1 Preferences

Both husband and wife derive utility from own consumption $c^j$ and disutility from own labor force participation $P^j$ for $j = H, W$. Preferences are separable across periods of time and states of the world.

Each spouse has a subjective taste-for-marriage parameter $\xi^j_t$, which evolves over time. This parameter reflects the spouses’ affection for one another and their attachment to marriage based on other idiosyncratic factors (e.g. fear of the social stigma associated with divorce, concerns about the wellbeing of the children).

Period utility takes the form

$$u^j_{married} = u(c^j_t, P^j_t) + \xi^j_t, \quad u^j_{divorced} = u(c^j_t, P^j_t).$$

The taste shocks follow a random walk stochastic process, which captures the persistence in the taste for the current marriage:

$$\xi^j_t = \xi^j_{t-1} + \epsilon^j_t, \quad \xi^j_1 = \epsilon^j_1 \quad \text{where } \epsilon^j_t \text{ is distributed as } N(0, \sigma^2) \quad \text{for } j = W, H.$$

The utility function $u(c, P)$ is Constant Relative Risk Aversion (CRRA) and is separable in consumption and participation in the labor market:

$$u(c, P) = \frac{c^{1-\gamma}}{1-\gamma} - \psi P, \quad \text{with } \gamma \geq 0 \text{ and } \psi > 0.$$

### 2.2 Economies of Scale and Children

Spouses benefit from economies of scale in consumption: for a given level of household expenditure $x$, spouses’ consumption depends on the household inverse production function

$$x = F(c^H, c^W) e(k) = \left[(c^H)^\rho + (c^W)^\rho\right]^{\frac{1}{\rho}} e(k).$$
With $\rho \geq 1$, this functional form implies that, for a given level of expenditure, a couple is able to consume more than what it could consume if spouses were living separately. The magnitude of economies of scale in the household depends on the consumption gap between spouses: if one spouse does not consume anything, there are no economies of scale. Economies of scale are maximized when spouses consume the same amount. Children affect household consumption according to an equivalence scale, denoted as $e(k)$ (where $k$ stands for “kids”).

Childbirth occurs at predetermined ages of the parents and fertility is exogenous. Previous literature has indicated that the introduction of unilateral divorce did not seem to have an impact on marital fertility, but it affected the selection into marriage (cf. Alesina and Giuliano 2009). Because the sample only includes couples married before the reforms, this selection mechanism does not influence my analysis.

2.3 Income over the Life Cycle

Each spouse’s labor income ($y^j$ for $j = H, W$) depends on her human capital ($h^j$) and on her permanent income ($z^j$):

$$\ln(y^j_t) = \ln(h^j_{t-1}) + z^j_t.$$ 

Spouses experience permanent income shocks, which follow a random walk process:

$$z^j_t = z^j_{t-1} + \zeta^j_t \quad \text{and} \quad z^j_1 = \zeta^j_1$$ (1)

in which $\zeta^j_t$ is i.i.d. as $N(0, \sigma_{\zeta}^2)$ and is correlated between spouses.

Human capital is accumulated through labor force participation. The law of motion for each spouse’s human capital $h^j$ is:

$$\ln(h^j_t) = \ln(h^j_{t-1}) - \delta \cdot (1 - P^j_{t-1}) + (\lambda^j_0 + \lambda^j_1 \cdot t) \cdot P^j_{t-1}.$$ 

If a woman participated in the previous period, her human capital increases at a rate $\lambda^W_0 + \lambda^W_1 t$. If she did not, her human capital depreciates at a rate of $\delta$. Since men always work until they retire, $P^H_{t-1} = 1$, $\forall t$. At the end of period $T - R$, spouses retire and receive a share of their
pre-retirement income in every subsequent period.

If a woman works, the household faces childcare expenses \( d^k \).

### 2.4 Budget Constraints

In marriage, the budget constraints depend on the property division regime. The general form of the budget constraint is:

\[
A_{t+1} - (1 + r) \cdot A_t + x_t = y_t^H + (y_t^W - d^k) \cdot P_t^W.
\]  

(2)

In a title-based regime, spouses save in separate “accounts” \( A^H \) and \( A^W \) that have the same market rate of return \( r \). Thus, \( A_t = A^H_t + A^W_t \). If divorce were not an option, spouses would be indifferent between the two accounts. Since divorce is possible, in each period spouses make portfolio choice decisions over what fraction of household assets to allocate the husband and the wife. Upon divorce, each spouse retains her own assets.

In equitable distribution and community property states, assets are treated as jointly owned upon divorce; thus, spouses save jointly.

After divorce, spouses live off their individual income and assets. They both contribute to the consumption of their children as a fraction of their own consumption (which is meant to capture the cost of child custody and of child support) according to the equivalence scale \( e(k) \) and they share childcare expenses. The budget constraint becomes:

\[
A^j_{t+1} - (1 + r) \cdot A^j_t + c^j_t \cdot e(k_t) = (y^j_t - d^k_t) \cdot P_t^j. \quad j = H, W
\]  

(3)

Each spouse’s level of assets in that first year depends on the property division regime. Upon divorce, wealth is divided according to the state’s law, unless spouses reach an agreement on an alternative division:

a) in a title-based system, spouses maintain their own “account” \( A^j \);

b) in community property, assets are divided equally;

c) in equitable distribution, assets are divided but spouses are \( ex \) \( ante \) uncertain about exact shares. This is meant to capture the fact that “the essential feature of equitable distribution is
the absence of fixed rules for the division of property” (Brake 1982) and that under equitable
distribution between half and two thirds of the property is usually assigned to the spouse with
the highest earnings (Woodhouse and Fetherling 2006).

At the time of marriage, spouses cannot commit to dividing property differently from what
dictated by the law in case of divorce. This assumption reflects the fact that prenuptial agree-
ments were rarely enforced before the mid-1980s and remain infrequent today (Mahar 2003). I
discuss the welfare implications of prenuptial agreements in a counterfactual simulation exercise
in Section 5.

2.5 Problem of the Divorcee

I now characterize the value of being divorced, given state variables $\omega$. In this problem,
$\omega_t = \{A^H_t, A^W_t, z^H_t, z^W_t, \xi^H_t, \xi^W_t, h^W_t, \Omega_t\}$ where $\Omega_t$ represents the vector of divorce laws at time $t$.

In each period $t$, a divorcee has an exogenous probability $\pi^\Omega_t$ of remarrying another person.
The probability of remarriage depends on gender, age and the divorce law regime. If remarriage
occurs, it is an absorbing state and the problem is analogous to the one of a married couple with
no possibility of divorce and no shocks in the taste for marriage. In each period, the divorcee
chooses consumption, savings and whether or not to work (if she is a woman). Thus, the value
of being divorced at time $t$ is:

$$V^{jD}_t(\omega_t) = \max_{c^D_t, P^D_t, A^{D+1}_t} u(c^D_t, P^D_t) + \beta \left\{ \pi^\Omega_{t+1} E[V^{jR}_{t+1}(\omega_{t+1}|\omega_t)] + (1 - \pi^\Omega_{t+1}) E[V^{jD}_{t+1}(\omega_{t+1}|\omega_t)] \right\}$$

s.t. budget constraint in divorce (3), for $j = H, W$.

The budget constraint depends on the property division regime at the time of divorce.

2.6 Household Planning Problem

The couple’s planning problem depends on the current divorce law regime. In mutual consent
divorce, the couple remains married unless both spouses want to divorce; in unilateral divorce,

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6The value of being remarried is $V^{jR}_t(\omega_t) = u(c^{jR}_t, P^{jR}_t) + \beta E[V^{jR}_{t+1}(\omega_{t+1}|\omega_t)]$ for $j = H, W$, from the solution
to the problem $V^{jR}_t(\omega_t) = \max_{c^{HR}_t, c^{WR}_t, P^{HR}_t, P^{WR}_t, A^{HR+1}_t} \theta u(c^{HR}_t, P^{HR}_t) + (1 - \theta) u(c^{WR}_t, P^{WR}_t) + \beta E[V^{jR}_{t+1}(\omega_{t+1}|\omega_t)]$ subject to the budget constraints.

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the couple divorces even if just one spouse wants to divorce.

The household solves a constrained Pareto problem, in which the husband’s Pareto weight is indicated by \( \theta \) and the wife’s weight by \( 1 - \theta \). The parameter \( \theta \) is determined exogenously.

Define \( q_t = \{ c_t^H, c_t^W, P_t^H, P_t^W, A_{t+1}^H, A_{t+1}^W, D_t \} \) the vector of variables over which the household maximizes, in which \( D_t \) represents the divorce decision at time \( t \).

### 2.6.1 Mutual Consent Regime

In the mutual consent divorce regime, state variables are
\[
\omega_t = \{ A_t^H, A_t^W, z_t^H, z_t^W, \xi_t^H, \xi_t^W, h_t^W, \Omega_t \},
\]
where \( D_t \) equals 1 if divorce occurs and 0 otherwise. A couple that enters period \( t \) as married solves:

\[
V_t(\omega_t) = \max_{q_t} (1 - D_t) \left\{ \theta u(c_t^H, P_t^H; \xi_t^H) + (1 - \theta) u(c_t^W, P_t^W; \xi_t^W) + \beta E[V_{t+1}(\omega_{t+1}|\omega_t)] \right\}
\]

\[
+ D_t \left\{ \theta \left[ u(c_t^H, P_t^H) + \beta E[V_{HDR}^{t+1}(\omega_{t+1}|\omega_t)] \right] + (1 - \theta) \left[ u(c_t^W, P_t^W) + \beta E[V_{WDR}^{t+1}(\omega_{t+1}|\omega_t)] \right] \right\}
\]

s.t. budget constraint in marriage

\[
A_t^H + A_t^W = A_t
\]

budget constraints in divorce for \( j = H, W \)

\[
u(c_t^H, P_t^H) + \beta E[V_{HDR}^{t+1}(\omega_{t+1}|\omega_t)] > V_{HM}^t(\omega_t)
\]

\[
u(c_t^W, P_t^W) + \beta E[V_{WDR}^{t+1}(\omega_{t+1}|\omega_t)] > V_{WM}^t(\omega_t)
\]

where

\[
V_t^{M,j}(\omega_t) = u(c_t^{*j}, P_t^{*j}; \xi_t^j) + \beta E[V_{t+1}^{j}(\omega_{t+1}|\omega_t)]
\]

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7 My formulation is a special case of the collective model with non-participation, examined in Blundell et al. (2007), extended to a dynamic framework and subject to constraints that are imposed by the divorce option.

8 For computational tractability, I will assume that each marital cohort has one value of \( \theta \), which is exogenously determined (e.g. Del Boca and Flinn, 2009). The values of the Pareto weights may be the ones that allow clearing of the marriage market (Choo et al. 2008) or can result from intra-household bargaining at the time of marriage based on non-cooperative threat points (Lundberg and Pollak 1993).
is each spouses’ value of marriage that is obtained by solving the problem for \( D_t = 0 \). The continuation value is \( V_{t+1}^{j} (\omega_{t+1}) = D_{t+1} V_{t+1}^{jD} (\omega_{t+1}) + (1 - D_{t+1}) V_{t+1}^{jM} (\omega_{t+1}) \) for \( j = H, W \) and \( \forall t \) and \( \forall \omega_t \). Hence, the continuation value for the marriage \( V_{t+1} \) is given by the weighted sum of spouses’ continuation values in marriage:

\[
V_{t+1} (\omega_{t+1}) = \theta V_{t+1}^{H} (\omega_{t+1}) + (1 - \theta) V_{t+1}^{W} (\omega_{t+1})
\]

\( \forall t = 1, \ldots, T - 1 \), which depend on marital status

\[
V_{t+1}^{j} (\omega_{t+1}) = D_{t+1} V_{t+1}^{jD} (\omega_{t+1}) + (1 - D_{t+1}) V_{t+1}^{jM} (\omega_{t+1})
\]

for \( j = H, W \).

The allocation in marriage in mutual consent divorce corresponds to the Pareto-optimal allocation. In every period \( t \), the couple remains married unless both spouses prefer the divorce allocation, described in Subsection 2.5.

If spouses disagree about the divorce under the default property division rule (i.e. one spouse has a binding divorce constraint), the spouse who wants to divorce can persuade the other by offering her (him) a larger fraction of the household assets compared to the one dictated by the law, to make her indifferent between remaining married and divorce.

### 2.6.2 Unilateral Divorce Regime

In a unilateral divorce state, the couple maximizes the weighted sum of spouses’ utilities in marriage under the constraint that both spouses must prefer the marriage allocation to the value of being divorced. Because the marriage allocation has to satisfy these participation constraints, the solution may depart from the Pareto optimal allocation. The formulation of the unilateral divorce case follows from the literature on risk sharing with limited commitment (e.g. Ligon et al. 2000), which has been applied to models of intra-household allocation (Ligon 2002, Mazzocco 2007, Mazzocco et al. 2009, Gallipoli and Turner 2011). Define \( M_t^{j} \) (for \( j = H, W \)) two additional state variables in this problem. \( M_t^{j} > 0 \) indicates that the intra-household allocation departs from the solution to the intertemporal Pareto problem because of
the presence of binding participation constraints between time 1 and time \( t \). State variables are \( \omega_t = \{ A_t^H, A_t^W, y_t^H, y_t^W, \xi_t^H, \xi_t^W, h_t^H, \Omega_t, M_t^H, M_t^W \} \).

The couple solves:

\[
V_t(\omega_t) = \max_{q_t} \left( 1 - D_t \right) \left\{ (\theta + M_t^H) u(c_t^H, P_t^H; \xi_t^H) + (1 - \theta + M_t^W) u(c_t^W, P_t^W; \xi_t^W) + \beta E[V_{t+1}(\omega_{t+1}|\omega_t)] \right\} \\
+ D_t \left\{ (\theta + M_t^H) u(c_t^H, P_t^H; \xi_t^H) + \beta E[V_{t+1}^{HDR}(\omega_{t+1}|\omega_t)] \right\} \\
+ (1 - \theta + M_t^W) \left[ u(c_t^W, P_t^W) + \beta E[V_{t+1}^{WDR}(\omega_{t+1}|\omega_t)] \right] \tag{2}
\]

s.t. budget constraint in marriage (2)

\[
u(c_t^H, P_t^H; \xi_t^H) + \beta E[V_{t+1}^H(\omega_{t+1}|\omega_t)] \geq V_t^{HD}(\omega_t) \quad \text{if } D_t = 0
\]

\[
u(c_t^W, P_t^W; \xi_t^W) + \beta E[V_{t+1}^W(\omega_{t+1}|\omega_t)] \geq V_t^{WD}(\omega_t) \quad \text{if } D_t = 1
\]

budget constraints in divorce (3) for \( j = H, W \)

\[
A_t^H + A_t^W = A_t
\]

where

\[
V_t^{jM}(\omega_t) = u(c_t^{jx}, P_t^{jx}; \xi_t^j) + \beta E[V_{t+1}^j(\omega_{t+1}|\omega_t)]
\]

is each spouses’ value of marriage that comes from solving the problem for \( D_t = 0 \). The continuation value is \( V_{t+1}(\omega_{t+1}) = \theta V_{t+1}^H(\omega_{t+1}) + (1 - \theta) V_{t+1}^W(\omega_{t+1}) \forall t = 1,...,T-1 \), where

\[
V_{t+1}^j(\omega_{t+1}) = D_{t+1} V_{t+1}^{jD}(\omega_{t+1}) + (1 - D_{t+1}) V_{t+1}^{jM}(\omega_{t+1}) \text{ for } j = H, W.
\]

In every period \( t \), the couple remains married only if both spouses prefer the marriage allocation. If, given the solution to the unconstrained problem, spouses disagree about divorcing, then the spouse who wants to remain married can persuade the other by offering her (him) a larger fraction of the couple’s resources than the one established by the Pareto-efficient household planning problem. Hence, the ratio of spouses’ marginal utilities of consumption shifts, as described in the literature on risk sharing with lack of commitment (Kocherlakota 1996). [INSERT DESCRIPTION OF EQUILIBRIUM]
Assume that, given the solution to the unconstrained problem, the wife wants to remain married while the husband wants to divorce (i.e. he has a binding participation constraint). Then, she offers the husband an allocation that makes him indifferent between marriage and divorce. This corresponds to the solution to a Pareto problem in which spouses’ weights correspond to $(\theta + M^H_t + \mu^H_t)$ and $(1 - \theta + M^W_t + \mu^W_t)$, where $M^j_t = \sum_{\tau=1}^{t-1} \mu^j_\tau$, for $M^j_1 = 0$ and $\mu^j > 0$ is spouse’s $j$ binding participation constraint at time $t$, for $j = H, W$ (Marcet and Marimon 1992). If such an allocation is infeasible, i.e. if any allocation that satisfies both spouses’ participation constraints violates the household’s intertemporal budget constraint, then divorce occurs. Appendix B provides a detailed description of the solution algorithm adopted.

2.7 Divorce Laws and Household Outcomes

The model has implications for three observable elements of household behavior: divorce, assets accumulation and female labor supply. These implications derive from both the direct effect of each law and the interaction effects between grounds for divorce and property division laws.

Because utility is not perfectly transferable, in this model unilateral divorce increases the likelihood of divorce. In addition, it changes the terms of intra-household allocation. Under mutual consent divorce, the intra-household allocation is fully determined by the Pareto weights. Once unilateral divorce is introduced, the ratio of the marginal utilities of consumption shifts as spouses’ participation constraints become binding, to allow the marriage to continue.\footnote{Under mutual consent divorce, $\frac{u_c(c^H, p^H)}{u_c(c^W, p^W)} = \frac{1-\theta}{\theta}$, because spouses cannot exercise the threat of divorcing without the consent of the other party and thus divorce cannot be a relevant threat-point of intra-household negotiation. Once unilateral divorce is introduced, the ratio becomes $\frac{u_c(c^H, p^H)}{u_c(c^W, p^W)} = \frac{1-\theta+M^W_t}{\theta+M^H_t}$.} For a given $\theta$, property division laws then only affect the intra-household allocation if there is a unilateral divorce, as the consumption share shifts in favor of the spouse who would get more resources in divorce than in the initial intra-household allocation. Equal division of property increases the likelihood that the participation constraints becomes binding for the spouse with a smaller share in household resources, as it improves the outside option $V^{JD}$.

Divorce laws affect assets accumulation in two ways. First, they regulate the fraction of household total assets each spouse can access upon divorce. Second, they influence the amount
of total savings that a household accumulates. In a title-based property division regime, the household can decide what share of the couple’s assets to allocate to each spouse. To allow spouses to smooth consumption upon divorce, their own assets are increasing in their Pareto weight and thus in their share of consumption in marriage. In equitable distribution and community property states, households can only choose the total amount of savings and courts decide spouses’ shares. Thus, only a spouse with a relatively low Pareto weight will benefit from equal division of property compared to a title-based regime (see Figure 2). While in mutual consent the impact of property division laws is attenuated by the fact that spouses may renegotiate the divorce settlements if one spouse does not want to consent to divorcing, in unilateral divorce property division laws directly affect all divorce settlements, and are more likely to influence household behavior.

By altering spouses’ individual resources, divorce laws also influence the incentives to save during marriage. Relative to a title-based regime, equal division of property imposed by courts alters the returns on savings. In marriage, each spouse’s share in household consumption is increasing in his/her Pareto weight. Thus, an equal division of assets acts as a tax on savings for the spouse who consumes more in the marriage (the one with the higher Pareto weight) and as a subsidy for the other. Similarly to a change in the market return on assets or to a tax on savings (Bernheim et al. 2002), such a decrease has a substitution effect (consumption is cheaper at time \( t \) than at time \( t + 1 \), which may decrease savings) and an income effect (for a net saver, resources available at time \( t + 1 \) are lower, which may increase savings). More risk-averse households would respond to equal division of property in unilateral divorce by accumulating more savings, while less risk-averse one would respond by accumulating less assets (this is the interaction effect). Moreover, if divorce imposes upfront costs (independently of the property regime), an increase in the likelihood of divorce may lead households to save more (Cubeddu and Rios-Rull 1997 and 2003, Gonzalez and Ozcan 2008) independently of the way property is divided (this is the main effect of unilateral divorce).

Turning to female labor supply, if women have fewer resources upon divorce than in marriage (e.g. if they benefit from a share of the husbands’ income during marriage), they have an incentive to work to accumulate human capital when facing an increase in the risk of divorce (as verified in Johnson and Skinner 1986). However, the more favorable to women the property regime is, the weaker this channel would be, since tangible assets already provide women with insurance
in case of divorce. In addition, a woman’s likelihood of employment is decreasing in her share of household resources, which is related to the weight of the wife’s disutility of working in the household planning problem. By increasing a woman’s value of divorce, divorce laws that favor women may lead to an increase in their share in household resources and a reduction in her likelihood of employment.

3 Data and Empirical Analysis of the Reforms

In this section, I illustrate how panel variation in U.S. divorce laws is correlated with a number of changes in the economic behavior of households. According to the dynamic model described above, the effect of divorce laws reforms on wealth accumulation and on female labor supply is closely tied to the structural parameters of the model. In this section, I will examine these two outcome variables. Appendix D illustrates more evidence on hours worked by husbands and hours devoted to housework by both husbands and wives, which are not included in the model but appear to also change in response to changes in divorce laws, in a way that is consistent with a change in intra-household allocations.

3.1 The Data

I use data from the Panel Study of Income Dynamics (PSID), the National Longitudinal Survey of Mature Women (NLS-MW), and the National Longitudinal Survey of Young Women (NLS-YW). These surveys provide longitudinal information on U.S. households from the end of the 1960s until the 2000s. In this paper, I use 26 waves of the PSID (between 1968 and 1993), 19 waves of NLS of Mature Women (between 1967 and 1999), and 20 waves of NLS of Young Women (between 1968 and 1999).

The PSID provides key information on labor force participation (in addition to hours of work

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10 This model does not consider alimony. Alimony in this context would imply a reduction in the scope for self-insurance for women and an increase in women’s bargaining power in marriage when unilateral divorce is allowed. Data on alimony payments show that these were generally infrequent transfers. For instance, in the National Longitudinal Survey of Young and Mature Women only 10% of divorced women ever report receiving alimony between 1977 and 1999, for a median payment is 4,000 real 2008 dollars, approximately 15% of the divorcee’s household income. Child support is usually a larger transfer from the non-custodial parent to the parent who is granted custody of the children. Del Boca and Flinn (1995) examine a sample of divorce cases in Wisconsin between 1980 and 1982, where the average child support transfer is about 20% of the father’s income.
and hours of housework examined in Appendix D). I use data until the 1993 wave, after which several questions were significantly modified in the survey. The NLSW provides uniquely rich data on household wealth. The NLS-MW and NLS-YW are part of the Original Cohorts of the National Longitudinal Surveys. The NLS-MW was administered from 1967 to 2003 on an initial sample of 5,083 women who were between 30 and 44 years of age in 1967. The NLS-YW was administered from 1967 to 2003 to an initial sample of 5,159 women who were between 14 and 24 years of age in 1968. These surveys provide rich data on household asset holdings, which is not available in other longitudinal surveys from the 1970s and 1980s. Since the NLS does not disclose state identifiers, I matched women to their state of residence using the geographical variables provided in the surveys.\textsuperscript{11}

Since the model takes household formation as exogenous, the empirical analysis only considers couples that married before the legal reforms took place: divorce laws may in fact also affect the decision to marry and the sorting in the marriage market. Thus, my sample includes couples in their first marriage married before the introduction of unilateral divorce in their state, before changes to divorce settlement laws were made.

The PSID provides detailed longitudinal information on female employment and divorce. Table 1 summarizes characteristics of the pooled sample of the 3,858 women I analyze. Average female employment in the sample is 54%.

In the NLSW, the women I analyze are slightly older than those in the PSID sample due to the sampling age of the initial cohort. Data on wealth is collected for a subset of years, leaving us with assets information for 4,538 couples.\textsuperscript{12} Assets include real estate, financial assets and business assets. Table 1 reports the average and median characteristics of this sample. Household assets average almost 70,000 and income averages approximately 38,000, both in real 1990 dollars. Asset holdings peak when women are 64 at a mean level of 127,000 real 1990 dollars. Seventeen

\textsuperscript{11}The variables that I use to match women to their state of residence are the size of the labor market in the 1960 Decennial Census in the area of residence, an index of the demand for female labor in the area of residence and the Census division of residence. A similar approach is used in Powers (1998) on the NLS-YM. I thank Jeff Gray for providing the list of geographical characteristics at the Primary Sampling Unit (PSU) level and the PSU-state matches. Since this information is only available for the waves between 1967 and 1971, I can only identify the state of residence for those survey respondents who did not move to another state after 1971. Thus, I match 10,086 women out of 10,242 at least once in the sample, but for a total of 2,856 women, the state of residence eventually becomes unavailable once they report having moved.

percent of households in the pooled sample hold zero or negative total assets at a point in time.

3.2 Empirical Analysis

I exploit the variation in divorce laws across states and over time, as summarized in Appendix Table 7. Unilateral divorce was introduced at different points in time in thirty-three states between 1967 and 1992. In the same period, all twenty-seven states that had a title-based property division system adopted equitable distribution. The sources of variation that I use are the introduction of unilateral divorce in different pre-existing property regimes (primarily community property and title-based regimes) and the adoption of equitable distribution under different legal grounds for divorce (mutual consent and unilateral divorce).

Variation in divorce laws is concentrated among the following cases:

a) households which experience the introduction of unilateral divorce while in a title-based regime (398 households in the NLSW, 290 households in the PSID) or while in a community property regime (653 households in the NLSW, 573 households in the PSID);

b) households which experience the introduction of equitable distribution in mutual consent states (1,149 households in the NLSW, 1,701 households in the PSID) or in unilateral divorce states (206 households in the NLSW, 249 households in the PSID);

c) households that experience the introduction of both equitable distribution and unilateral divorce in the same year (233 households in the NLSW, 178 households in the PSID).\textsuperscript{13}

Other combinations of legal changes affected only a small number of households. A few households experienced the transition into unilateral divorce as equitable distributions states (12 households in the NLSW and 87 households in the PSID). Finally, only a few households entered a community property regime during the sample period, since Wisconsin was the only state that changed from an equitable distribution to a community property regime in 1986. Such observations are insufficient to provide accurate data for such a quasi-experiment; thus, they will not be used for causal interpretation.

\textsuperscript{13}This group includes those states in which the two legal reforms occurred in two consecutive years.
3.2.1 Household Wealth

To examine the impact of divorce laws on couples’ accumulation of assets, I estimate the following equation for household $i$ in state $s$ and in year $t$:

$$assets_{i,s,t} = \beta_1 Unilateral_{s,t} + \beta_2 (Unilateral \cdot Com.Prop_{s,t}) + \beta_3 (Unilateral \cdot Eq.Distr_{s,t}) + \beta_4 Eq.Distr_{s,t} + \beta_5 Com.Prop_{s,t} + \gamma' Z_{i,t} + \delta_t + c_s + f_i + \epsilon_{i,s,t}. \quad (4)$$

The dependent variable $assets$ represents the total net assets of a married couple, reported in real 1990 dollars. Assets are measured in levels, to include households with net debt (negative assets).

The vector $Z$ contains a set of controls for spouses’ age, years since marriage and family structure; $\delta_t$ denote year fixed effects; $c_s$ state fixed effects and $f_i$ household fixed effects.

I consider a vector of property division and grounds for divorce regimes; the excluded category is a title-based mutual consent system:

- a) Coefficient $\beta_1$ ($Unilateral$) captures the effect of unilateral divorce with respect to mutual consent divorce in title-based states.

- b) Coefficient $\beta_2$ ($Unilateral \cdot Com.Prop$) captures the additional (interaction) effect of unilateral divorce in community property. The total effect of introducing unilateral divorce in such states is given by $\beta_1 + \beta_2$. The coefficient $\beta_2$ captures the impact of the change in individual returns on assets that occurs when unilateral divorce is introduced in this property division regimes.

- c) Coefficient $\beta_3$ ($Unilateral \cdot Eq.Distr$) captures a similar effect as $\beta_2$, plus the impact of uncertainty in the allocation of assets upon divorce, since in equitable distribution states judges have more discretion in the allocation of property and tend to favor the primary earner.

- d) Coefficient $\beta_4$ ($Com.Prop.$) measures the average difference in assets between title-based and community property states in mutual consent regimes. Since its estimation is not

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14 Because this analysis is conducted on a sample of married samples, I consider the possibility that the results may be driven by non-random attrition due to diverse characteristics of divorcing couples across legal regimes. I use Inverse Probability Weighting to ensure that this is not the case (Appendix C).

15 Because I restrict the sample to couples married before the reforms, it is important to control for life-cycle effects and for the duration of the marriage, to avoid mechanically attributing the impact of this feature of the sample to changes in divorce laws.
based on quasi-experimental variation, it has no plausible causal interpretation.\textsuperscript{16}

\e Coefficient $\beta_5$ (Eq.Distr.) measures the average difference in wealth due to the introduction of equitable distribution in mutual consent regimes. The total impact of the introduction of equitable distribution in unilateral divorce states is also captured by $\beta_3 + \beta_4$.

Table 6 reports the results of the estimation of Equation (4) using fixed-effect OLS regressions for different specifications. Column 1 is the baseline specification, which includes age dummies for the wife, year fixed-effects and individual fixed effects as controls. Column 2 controls for a polynomial in the husband’s age, which is missing for some couples of the sample. Column 3 adds state fixed effects. Column 4 also includes a 4th degree polynomial in the years of marriage. Appendix C presents a set of robustness checks on these results.

The coefficient $\beta_1$, which represents the effect of unilateral divorce in title property states, is equal to -5,959 (Column 1) and is not statistically significant. In contrast, coefficients $\beta_2$ and $\beta_3$ are equal to 18,118 and 14,573 real dollars and are statistically significant at the 5% level, suggesting that the interaction effect of unilateral divorce in equitable distribution and community property states is the most relevant. The average increase in household assets in community property states and equitable distribution states when unilateral divorce is introduced ($\beta_1 + \beta_2$ and $\beta_1 + \beta_3$) is equal to 12,159 real dollars and 8,614 real dollars respectively.\textsuperscript{17} The effect of the transition from title-based regimes to equitable distribution ($\beta_5$) is equal to -13,898 real dollars but is generally not statistically significant. Figure 9, panel a, illustrates an the dynamic impact of unilateral divorce in community property states obtained from estimating, on the sample of households for which $Com.Pr. = 1$:

$$assets_{i,s,t} = \beta_{preUni.\ within\ 3\ yrs} + \sum_{\tau=0(3)}^{15+} \beta_{\tau\ Uni.\ for\ \tau\ to\ (\tau+2)\ yrs} s_{s,t} + \gamma' Z_{i,t} + \delta_t + f_i + c_s + \epsilon_{i,s,t} ,$$

where $Uni.\ within\ 3\ yrs$ is equal to 1 when household $i$ in year $t$ will experience the introduction of unilateral divorce within the subsequent 3 years and 0 otherwise, while $Uni.\ for\ \tau\ to\ (\tau+2)\ yrs$

\textsuperscript{16}The coefficient would be identified by households that change state of residence. As explained above, changes in the state of residence are not measured after 1971. Furthermore, only Wisconsin introduced community property in this sample period (1986), following the introduction of unilateral divorce.

\textsuperscript{17}Similar findings are confirmed from estimating Equation (4) using median regressions (without individual fixed effects), as shown in the Appendix. However, the coefficients estimated using median regression are substantially smaller than those obtained from the OLS, suggesting that wealthy households exhibit a greater response to the reforms.
equals 1 if unilateral divorce has been introduced in the past \( \tau \) to \( \tau + 2 \) years and 0 otherwise. The figure shows no increase in assets for the first 6 years since the reform nor for \( \beta_{\text{pre}} \), and then a smooth raise in the accumulation of assets over time.

The finding that households who live in community property states and equitable distribution states seem to modify their asset accumulation behavior in the presence of unilateral divorce, while no effect is observed in title-based states, is consistent with the hypothesis that the distribution of resources in divorce at baseline does not match the one in marriage in such states, leading to a change in the returns on savings once unilateral divorce is introduced in community property states. However, changes in total savings alone do not tell us which spouse obtains more resources in marriage.

### 3.2.2 Employment of Married Women

The likelihood of employment of married women may be affected by divorce laws, depending on the distribution of Pareto weights. To examine the impact of the legal regime on the female labor supply, I estimate the following equation using a linear fixed effects probability model:

\[
P(\text{employment}_{i,s,t} = 1) = \beta_1 \text{Unilateral} + \beta_2 (\text{Unilateral} \cdot \text{Com.Prop.}_{s,t}) + \beta_3 (\text{Unilateral} \cdot \text{Eq.Distr.}_{s,t}) + \beta_4 \text{Com.Prop.}_{s,t} + \beta_5 \text{Eq.Distr.}_{s,t} + \gamma'Z_{i,t} + \delta_t + f_i + c_s,
\]

where \( \text{employment} \) is equal to 1 if the woman is employed and to 0 otherwise. This equation is analogous to Equation (4). Coefficient \( \beta_1 \) is meant to capture the effect of the introduction of unilateral divorce that is common in all states. Coefficients \( \beta_2 \) and \( \beta_3 \) identify the interaction effect that unilateral divorce may have in states with community property or equitable distribution respectively. Thus, the total effect of introducing unilateral divorce in a community property state is given by \( \beta_1 + \beta_2 \), in equitable distribution \( \beta_1 + \beta_3 \). Coefficient \( \beta_4 \) is not identified by any source of exogenous variation. Finally, coefficient \( \beta_5 \) captures the impact of introducing equitable distribution while in a mutual consent regime.

The result of estimating equation (5) suggests that generally unilateral divorce has no statistically significant impact on female employment. However, in community property states women’s
employment declines by 5.8 percentage points when unilateral divorce is introduced; the effect is statistically significant at the 1% level (Table 6). This finding is robust to controlling for the number of children in the household (Columns 6, 7 and 8), for state fixed effects (Column 7 and 8) and for the time elapsed since marriage (Column 8). Appendix C illustrates a set of robustness checks.

Figure 6, panel a, illustrates an the dynamic impact of unilateral divorce in community property states obtained from estimating, on the sample of households that satisfy Com.Pr. = 1:

\[
P(employment_{i,s,t} = 1) = \beta_{pre}Uni.\ within\ 3\ yrs_{s,t} \\
+ \sum_{\tau=0(3)}^{15}\beta_{\tau} Uni.\ for\ \tau\ to\ (\tau + 2)\ yrs_{s,t} + \gamma'Z_{i,t} + \delta_t + f_i + c_s,
\]

where \(Uni.\ within\ 3\ yrs_{s,t}\) which is equal to 1 when household \(i\) in year \(t\) will experience the introduction of unilateral divorce within the subsequent 3 years. The figure shows no significant coefficient for \(\beta_{pre}\), and then an immediate drop in employment which dies off over time.

This findings suggests that unilateral divorce may have increased women’s allocations in marriage in those states where women received 50% of household assets upon divorce. As a result, women become less likely to work. This fact supports the hypothesis that women’s Pareto weight is low enough compared to their husband’s weight, so that unilateral divorce with equal division of property improves their condition with respect to the intra-household allocation. First, women benefit from the post-reform intra-household allocation thanks to the more favorable divorce outside option compared to the initial marriage allocation. Second, the additional assets awarded by courts reduce women’s need for accumulation of human capital as self-insurance against the risk of loss of consumption in the event of a divorce. Both channels contribute to reducing women’s employment.

This result is consistent with what described by Chiappori et al. (2002), who examine the labor supply of a cross-sectional sample of couples in the PSID and find that female labor supply is lower in community property states than in other states. Hence, Chiappori et al. (2002) focus on cross-sectional variation in property division rules as a distribution factor in a static model, without examining the impact of introducing unilateral divorce. The variation exploited
in this study allows to also identify interaction effects of property division laws and ground for divorce laws, since I observe both the introduction of unilateral divorce in community property or title-based states and the introduction of equitable distribution in mutual consent and unilateral divorce states. The theory suggest that such interaction effects are crucial to interpret the impact of changes in divorce laws for couples married before the reforms: as the model implies, the presence of unilateral divorce allows the divorce allocation to affect the one in marriage, while couples who live in a mutual-consent regime are unlikely to be affected by a change in property division rules.

Interpreting the decline in female employment as a shift in intra-household allocation in favor of women, while common in the literature (Chappori et al. 2002, Lafortune et al. 2012), requires assuming that women do not entirely substitute market work with housework, in particular if the utility cost of housework is as high as, or higher than, the cost of labor. In Appendix D, I use data on time use from multiple survey based on Aguiar and Hurst (2007) to document that the decline in female employment that we observe when unilateral divorce is introduced in states with an equal division of property regime is associated with a net increase in their leisure time, which was sizable and statistically significant, while only a small and statistically insignificant increase in home production is observed. The increase in the amount of leisure time enjoyed by women reinforces the hypothesis that the decline in female employment may be due to an increase in women’s weight in intra-households decision making, and hence in an increase in their wellbeing.

4 Structural Estimation

Divorce law reforms have two main effects on the outcomes analyzed in the Section 3. The presence of both community property (or equitable distribution, to a lesser extent) and of unilateral divorce is associated with more assets and lower female employment than when mutual consent divorce is in force. These changes are not observed when unilateral divorce is introduced in title-based states.

I exploit these facts to estimate the key structural parameters of the model, using indirect inference:
a) the Pareto weight of the husband $\theta$,

b) the standard deviation of the shocks to the taste for marriage $\sigma$,

c) the utility cost of working $\psi$.

In a first stage, I estimate the parameters of the income process using moments of spouses’ joint income distribution from the PSID (a two-step procedure makes the estimation computationally tractable, see Gourinchas and Parker 2002 and in De Nardi, French and Jones 2010). I account for the selection of women into the workforce using the divorce laws variables that affect women’s decision to work and are excluded from the offer wage equation conditional on their human capital, as illustrated in the model. The parameters estimated in this first step are the variance and covariance of spouse’s permanent income shocks ($\sigma^2_{\zeta j}$ for $j = H, W$ and $\sigma_{\zeta H \zeta W}$), the returns to labor market experience for each spouse ($\lambda^0_j$ and $\lambda^1_j$), the depreciation rate of the human capital of women ($\delta$) and the offer wage gender gap at the beginning of the spouses’ career ($y^1_W/y^1_H$).

I also select a set of pre-set parameters, as described in Table 3, to simulate the model and estimate the remaining structural parameters $\sigma, \psi, \theta$.

4.1 Spouses’ Income Processes

The spouses’ income processes parameters allow the model to account for spouses’ incentives to share income risk and for spouses’ wage difference over the life cycle. I estimate the parameters using non-linear least squares (Table 2). Identification of such parameters is described in detail in Appendix E. The estimated offer wage gender ratio at age 23 is 81%. The wage gap first grows and then shrinks over the life cycle, due to a higher $\lambda^0_j$ and a lower $\lambda^1_j$ for men.\footnote{My estimates for the returns to labor market experience for women $\lambda^0_W$ is larger than others reported in the literature (Eckstein and Wolpin 1989, Attanasio et al. 2008); however, the profile of women’s wages is more concave ($\lambda^1_W$ is smaller than in the literature). Such estimates imply that the average yearly returns to experience over 30 years of career is 3.4%, compared to 2.7% calibrated in Attanasio et al. (2008). Olivetti estimates the returns to a year of full-time work in a 3% to 5% range. The estimates in this study lie between those by Attanasio et al. (2009) and by Olivetti (2006). The estimate for the depreciation rate $\delta$ is roughly comparable to the 7.4% calibrated in Attanasio et al. (2008).}

Third, based on the estimated variances, the income of men is more variable than that of women. Finally, the estimates reveal a positive covariance in the shocks to the permanent wage of the husband and the wife (the implied correlation is equal to 15%).
4.2 Pre-set Parameters

A group of parameters of the model are set to values drawn from the literature. Table 3 presents the pre-set parameters. To reduce the dimensionality of the problem, I set each period to correspond to 3 years of life. Spouses have the same life cycle: they are 23 years old at time 1; they retire at age 62 (end of period 13) and die with certainty at age 79 (end of period 18).

I calibrate the economies of scale parameter $\rho$ to match the McClements scale, according to which a person living alone spends 61% of what a childless couple spends to achieve the same level of consumption. Such a scale is an intermediate value for the magnitude of economies of scale in the family estimated in the literature (see Fernandez-Villaverde and Krueger 2007). This calibration leads to a parameter value of $\rho = 1.4023$\textsuperscript{19}. The McClements scale is also used to calculate the consumption of the children as a fraction of their parents’ consumption\textsuperscript{20}.

The relative risk aversion parameter $\gamma$ is set to 1.5 (e.g. Attanasio et al., 2008). I set the annual market rate of return on assets $r$ to 3% and the annual discount factor $\beta$ to 0.98.

4.3 Indirect Inference

I use indirect inference (Gourieroux et al. 1993) to estimate the key parameters of the model, exploiting the variation provided by the divorce law reforms as the primary source of identification.

First, I solve the dynamic model under mutual consent divorce for vectors of possible values of structural parameters $\Pi = (\sigma \ \psi \ \theta)'$, given the realizations of the income and taste shocks. Couples are assumed to have no assets at the time of marriage (age 23). I simulate income and taste shocks and use the policy functions to obtain the corresponding profiles of pre-reform household assets, female labor participation and marital status before retirement\textsuperscript{21}.

Second, I solve for the introduction of unilateral divorce at various stages of the life cycle.

\textsuperscript{19}Based on to the McClements scale, $0.61x = c^j$. Under the assumption that spouses have identical consumption levels, the household inverse production function becomes $x = 2^\frac{1}{\rho}c^j$. Thus $\rho = \frac{\log(2)}{\log(1.61)} = 1.4023$.

\textsuperscript{20}A couple with a child aged 0-1 consumes 109% of what a childless couple consumes. The additional fraction is 18% for each child between 2 and 4 years, 21% between 5 and 7 years, 23% between 8 and 10, 25% between 11 and 12, 27% between 13 and 15 and 38% between 16 and 18 years.

\textsuperscript{21}I focus on the pre-retirement period for two reasons. First, my estimates in Section 3 are based on a sample of couples under the age of 65. Second, since attrition for death in my sample is higher after age 65 and it is not taken into account by the model, excluding retired people minimizes the potential impact of attrition.
I again simulate the post-reform behavior of household assets, female labor participation and divorce, at ages that match those observed in PSID data. The underlying assumption is that couples do not change their state of residence in response to or in anticipation of divorce law reforms. This hypothesis appears especially plausible if one considers that most states in the U.S. have relatively long residency requirements before spouses can divorce in the state where they live.

I estimate the same auxiliary model on the simulated data and obtain a vector of auxiliary parameters \( \phi_{\text{sim}}(\Pi) \). The optimal choice of \( \hat{\Pi} \) minimizes the distance between the auxiliary parameters estimated on the actual data and the auxiliary parameters estimated on the simulated data. I choose \( \hat{\Pi} = (\hat{\sigma}_\epsilon^2 \quad \hat{\psi} \quad \hat{\theta})' \) such that:

\[
\hat{\Pi} = \text{Argmin}_\Pi (\hat{\phi}_{\text{data}} - \phi_{\text{sim}}(\Pi)) G^{-1} (\hat{\phi}_{\text{data}} - \phi_{\text{sim}}(\Pi))'
\]  

where \( G \) is a weighting matrix set to be equal to the estimated variance-covariance matrix of the parameters of the auxiliary model.

The auxiliary model includes the two difference-in-differences estimators for the introduction of unilateral divorce in different states at different points in time. To ease the computation and focus on the states that show the sharpest responses, I estimate the parameters on the sample of couples living in community property states.

The auxiliary parameters are \( \{\phi_1, \phi_2, \phi_3, \phi_4\} \) from the following model:

a) the relative change in household assets when unilateral divorce is introduced

\[
\text{assets}_{i,s,t} = \beta \text{Unilateral}_{s,t} + \gamma' Z_{i,t} + \delta_t + f_i + v_{1,i,s,t}
\]

\[
\phi_1 = \frac{\beta}{\text{average assets}}
\]  

where \( \hat{\phi}_{1,\text{data}} = 16\% \);

b) the response of female participation when unilateral divorce is introduced

\[
\text{employment}_{i,s,t} = \phi_2 \text{Unilateral}_{s,t} + \gamma' Z_{i,t} + \delta_t + f_i + v_{2,i,s,t}
\]  

where \( \hat{\phi}_{2,\text{data}} = -4.6 \) percentage points;
c) the average female participation rate in mutual consent regimes of the pooled sample of women between 23 and 50 years old (to avoid the confounding effect of retirement)

\[ employment_{i,s,t} = \phi_3 + \nu_{3,i,s,t} \]  

(9)

where \( \hat{\phi}_{3,\text{data}} = 57\% \);

d) the average divorce rate in mutual consent regimes of the pooled sample of couples in which women are between 23 and 64 years old

\[ \text{ever divorced}_{i,s} = \phi_4 + \nu_{4,i,s} \]  

(10)

where \( \hat{\phi}_{4,\text{data}} = 19\% \).

Equations (7) and (8) are analogous to the reduced-form Equations (4) and (5) from Section 3, estimated on the subsample of households living in community property states.

### 4.4 Identification

The choice of the auxiliary parameters allows a rather transparent identification of the structural parameters of the model. All parameters of the auxiliary model contribute to the estimation of the structural parameters. However, in some cases, the theoretical link between a structural parameter and an auxiliary parameter is strong and crucial for identification.

The response of wives’ likelihood of employment to changes in such laws provides the information to identify the parameter \( \theta \). Such moment is decreasing in the Pareto weight of men for values of \( \theta \) that are sufficiently large, namely larger than the husbands’ relative share in household permanent income (and therefore at least larger than \( \frac{1}{2} \)). If the wife’s Pareto weight is not substantially smaller than the Pareto weight of the husband compared to the relative permanent incomes, the introduction of unilateral divorce in community property has little effect on her labor supply; such an effect would be positive, in that case, because women may want to accumulate human capital in case divorce occurs. On the contrary, for values of \( \theta \) sufficiently

---

\[ ^{22} \text{For example, the asset equation } assets_{i,t} = \beta_1 Unilateral_{s,t} + \beta_2 (Unilateral \cdot Com.Prop_{s,t}) + \beta_3 (Unilateral \cdot Eq.Distr_{s,t}) + \beta_4 Eq.Distr_{s,t} + \beta_5 Com.Prop_{s,t} + \gamma’ Z_{i,t} + \delta_t + f_i + \epsilon_{i,t} \text{ when } Com.Prop_{s} = 1 \text{ becomes } assets_{i,t} = \beta Unilateral_{s,t} + \gamma’ Z_{i,t} + \delta_t + f_i + \nu_{i,t} \text{ where } \beta = \beta_1 + \beta_2. \]
larger than \( \frac{1}{2} \) (i.e. when the husband has more decision power) the participation of women drops following the introduction of unilateral divorce. The introduction of unilateral divorce leads to a transfer of resources (consumption of goods and leisure) from the husband to the wife, because the divorce outside options are more favorable to women with respect to their share of resources in marriage at baseline. It follows that the estimated value of \( \theta \) will need to be sufficiently larger than \( \frac{1}{2} \) to match an auxiliary parameter \( \phi_2 = -4.6 \) percentage points (Figure 1, Panels a and b).

The primary role of the utility cost of participation (\( \psi \)) in the model is determining a woman’s labor market participation decision. Since, ceteris paribus, a woman is more likely to participate in the labor market the lower her utility cost of working, the average female employment rate provides information for the structural parameter \( \psi \) (Figure 1, panel c). Similarly, the standard deviation of the preference shock parameter (\( \sigma \)) influences the likelihood of divorce. For low values of \( \sigma \), divorce is an unlikely phenomenon, since few spouses receive negative shocks \( \xi_j \) sufficiently high to counteract the benefits of marriage that derive from the economies of scale. As \( \sigma \) increases, the likelihood that a spouse would prefer divorce increases. Therefore, identification of the parameter \( \sigma \) stems from the average divorce rate in mutual consent states (Figure 1, Panel d).

4.5 Results

Table 4 illustrates the solution to Problem (6). When unilateral divorce is introduced in the sample, women’s weight in household decision is a third of their husband’s weight. The estimated disutility of working is equal to 0.0033 and the estimated standard deviation of preference shocks is equal to 0.06. This corresponds to a baseline participation rate of 55%, which decreases by 7.2 percentage points after the introduction of unilateral divorce (Table 4). The increase is assets after the reform is equal to 17% in the simulations. Finally, the baseline divorce probability in the estimated model is equal to 21%.

Like in the data, in simulations from the model the accumulation of assets responds slowly to unilateral divorce, while the probability of female employment exhibits a sharp drop (Figures 6 and 7). In the data, the effect of the reforms on employment disappears after 15 years since the reform, while in the model more periods are needed (after 27 years since the reform). This pattern may be explained by the fact that a large stock of women had binding participation constraints.
when unilateral divorce was introduced. Thus, they experienced a rapid renegotiation in their favor and a decrease in their employment. After that, subsequent renegotiations and especially retirement may have blurred the initial effect, as suggested by the model.

In addition, unilateral divorce in the simulations lead to an increase in the likelihood of divorce for couples married before the reform. In the simulated data, the probability of divorcing within the first 25 years of marriage is equal to 34%. In the data, such probability is equal to 30% for cohort married in the 1950s, 40% for cohorts married in the 1960s and about 50% for those married in the 1970s (Stevenson and Wolfers, 2007).  

5 Welfare and Counterfactual Analysis

Having estimated the structural model, and in particular the intra-household allocation parameters, I can now examine household welfare and behavior under different legal scenarios.

Both equal division of property and the introduction of unilateral divorce influence the welfare of secondary earners. The former affects the allocation of resources at divorce, the latter affects the allocation in marriage. In particular, I use the estimated structural parameters to compare the share of household resources awarded to women in community property, in equitable distribution and in title-based regimes. This exercise suggests that community property and equitable distribution grant a larger share of assets to women compared to title-based division: according to the simulation, when $\theta = 0.75$, divorced women obtain a 35% share in a title-based regime (in community property, women’s share of property is 50%, in equitable distribution it is, in expectation, 58%).

In the sample period, the introduction of unilateral divorce increases wives’ share of resources within the marriage in states that imposes an equal division of property. The simulation indicates that in mutual consent, the share of household expenditures that goes to the wife is equal to 36% (share implied by $\theta = 0.75$). After unilateral divorce is introduced, the wife’s average share of resources becomes equal to 38%, combined with a decline in the likelihood of working equal

---

23 The model is likely to underestimate the risk of divorce compared to historical rates, since it is estimated using panel data from the PSID, in which attrition may be higher among divorcees.

24 Using time use and wages data from the PSID in a static framework, Knowles 2007 calibrates a share of 34% in 1970. Similarly, Lise and Seitz (2011) estimate a share for women’s consumption equal to 40% in UK survey data.
to 7.2 percentage points. Such changes are driven by the fact that in 12% of households, one spouse has a binding participation constraints once unilateral divorce is introduced: in 83% of these cases, that spouse is the wife. Conditional on a reallocation taking place, the wife’s share increases to an average of 40%. In 5% of households in the simulation, the wife’s share becomes larger than a half.

5.1 Counterfactual Exercises

The simulation exercise illustrated above indicates that women in the sample benefit from the equal division of assets, because they have a lower Pareto weight in their household planning problem compared to their husband. However, women’s Pareto weight in their household planning problem may evolve over time, for new cohorts of couples, as a results of cultural and economic changes. For instance, it may be argued that new cohorts of women married after these reforms may have higher weight in their household problem, for example because of the rapid growth in the wages of women in the 1980s and 1990s, both in terms of the gender wage gap and of improvements in women’s education and “attachment” to their profession (Goldin 2006). The counterfactual exercises illustrate below indicate that women who have the same Pareto weight as their husband (i.e. the same consumption share), but lower permanent income, may be better able to self-insure the marginal utility of their consumption by signing prenuptial agreements or by opting for a title-based regime.

5.1.1 Prenuptial Agreements: Choosing a Division Rule at the Time of Marriage

The first counterfactual exercise examines the impact on spouses’ wellbeing of removing the default community property in favor of an alternate sharing rule $\alpha^*$ (share of household assets granted to the husband upon divorce). In particular, I ask what value of $\alpha^*$ spouses would choose at the time marriage to maximize the sum of their future discounted utilities, given the Pareto weights $\theta$ and $1 - \theta$. We can interpret $\alpha^*$ as the sharing rule that spouses would choose if they could write a prenuptial agreement without transaction costs or stigma, and with certainty about

25Historically, U.S. women are also more likely than men to file for divorce (about two-thirds of the times), and are even more likely to file under no-fault divorce laws, which are associated with unilateral divorce (Brinig and Allen 2000).
its enforcement. Such a rule solves

\[ \alpha^* = \text{Argmax}_\alpha \theta V_1^{HM}(\alpha, \theta) + (1 - \theta) V_1^{WM}(\alpha, \theta). \]

I compute the welfare gains from choosing \( \alpha^* \) compared with equal division of property as a share \( \Delta \) of additional consumption that would make spouses indifferent between \( \alpha^* \) and community property.\(^{26}\)

Table (5) indicates that the optimal sharing rule \( \alpha^* \) is increasing in the husband’s Pareto weight. For very low values of the husbands’ weight (\( \theta \) between 0.1 and 0.3), three quarters of household assets are awarded to the wife and just one quarter to the husband. In a household in which man and woman are equally weighted in household decision (\( \theta = 0.5 \)), a division rule that favors the wife would still be chosen, since she has lower permanent income, leading to a welfare gain for the household equivalent to 1.32% of yearly consumption with respect to the community property case. Even with \( \theta = 0.7 \), the chosen \( \alpha^* \) would be slightly below 50%, while if \( \theta = 0.9 \), the household prefers granting three quarters of marital assets to the husband in case of divorce.

5.1.2 Title-based Regime and Pareto Weights

Title-based regimes were abandoned in the United States with the intent of increasing the share of savings granted to secondary earners (Turner 1998), who had higher marginal utility of consumption upon divorce. Figure 2 illustrates the relationship between the average fraction of assets granted to women aged 23 to 54 across legal regimes and the Pareto weight distribution in the household, based on simulations from the model. Unlike the case examined in the estimated model (in which \( \theta = 0.75 \)), when the Pareto weight of the secondary earner is close to a half (i.e., spouses split consumption approximately equally), community property grants a lower fraction of assets to the secondary earner compared to what the household would choose under a title-based system, in which women obtain on average 66% of household savings. In these cases, community property may lead secondary earners to experience a drop in consumption upon divorce, while still inducing a distortion in household intertemporal behavior. For such households, re-introducing a title-based system may both increase household wellbeing and ensure that more resources are

\(^{26}\)The welfare gain \( \Delta \) solves:

\[ \sum_{t=1}^{T} \beta^{t-1} [u((1 + \Delta) \cdot c) - u(c)] = \theta [V_1^{HM}(\alpha^*) - V_1^{HM}(\alpha = 0.5)] + (1 - \theta) [V_1^{WM}(\alpha^*) - V_1^{WM}(\alpha = 0.5)]. \]
assigned to the spouse with lower permanent income.\footnote{Title-based regimes remain common in European countries such as Italy, France and Switzerland. For instance, according to the national institute of statistics (ISTAT), 64% of Italian newlyweds chose a separate property regime in 2009, forgoing the default community property regime.}

6 Concluding Remarks

In this paper, I show that spouses’ individual property rights have a significant effect on couples’ intertemporal behavior during marriage: divorce laws that govern the decision to divorce and the division of property influence both the couples’ accumulation of assets and the labor supply of married women. In particular, I use data from the PSID and NLSW to estimate household responses to divorce law reforms that occurred in the 1970s and ’80s. My regression results suggest that introducing unilateral divorce in states where assets are divided equally is associated with more assets accumulated compared to title-based regimes. In addition, following the introduction of unilateral divorce in states with equal division of property, the labor force participation of women declines by about 5 percentage points.

To examine the welfare implications of these legal changes, I build a stochastic dynamic model that incorporates features of the U.S. divorce system. I use the regression results from survey data to estimate by indirect inference the key parameters of the model at the time of the divorce law reforms. The structural estimation indicates that, at the time of marriage, women in the sample (women married before the reforms are enacted) have a lower weight in the household planning problem compared to their husband, and hence a lower share in household resources. Because the introduction of unilateral divorce leads to renegotiating the intra-household allocation based on the divorce threat-points, women’s share of intra-household resources increases when assets are divided equally in divorce. This finding explains why we observe a decline in wives’ employment after the introduction of unilateral divorce. Moreover, the increase in the accumulation of assets in community property states is consistent with the presence of an income effect for husbands, who saved to self-insure against the loss of half of their assets to their wives in case of divorce.

My counterfactual exercises suggests that an equal division of property only benefits women who have lower weight compared to their husband in their household ’s decision, such as the women married before the divorce law reforms that I examine. However, as women gain equality
in their marriage, well-defined property rights allow them to be better insured against a drop in consumption at divorce. Despite its centrality in intra-household analysis and for policy purposes, we know little about how consumption is allocated in marriage or about where the decision power in marriage stands. The role of women in the economy has changed radically in the past decades (Goldin 2002), but to what extent their position within marriage has been affected is still an open question.

References


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Tables

Table 1: Summary statistics

<table>
<thead>
<tr>
<th></th>
<th>Obs.</th>
<th>Mean</th>
<th>Median</th>
<th>St. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PSID</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (women)</td>
<td>44,799</td>
<td>40</td>
<td>41</td>
<td>11.2</td>
</tr>
<tr>
<td>Number of children</td>
<td>44,799</td>
<td>1.7</td>
<td>1</td>
<td>1.69</td>
</tr>
<tr>
<td>Years since marriage</td>
<td>39,815</td>
<td>19</td>
<td>17</td>
<td>11.5</td>
</tr>
<tr>
<td>Woman is employed</td>
<td>44,799</td>
<td>0.58</td>
<td>1</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>NLSW</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>15,399</td>
<td>40</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Number of children</td>
<td>15,399</td>
<td>2</td>
<td>2</td>
<td>1.79</td>
</tr>
<tr>
<td>Years since marriage</td>
<td>12,022</td>
<td>21</td>
<td>21</td>
<td>10</td>
</tr>
<tr>
<td>Assets (1990 dollars)</td>
<td>15,399</td>
<td>70,573</td>
<td>32,658</td>
<td>136,870</td>
</tr>
</tbody>
</table>


Table 2: Parameters of the income process

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Estimate</th>
<th>Std. error</th>
</tr>
</thead>
<tbody>
<tr>
<td>W’s returns to experience (constant)</td>
<td>$\lambda^{W}_0$</td>
<td>0.065</td>
<td>(0.045)</td>
</tr>
<tr>
<td>W’s returns to experience (age)</td>
<td>$\lambda^{W}_1$</td>
<td>-0.002</td>
<td>(0.000)</td>
</tr>
<tr>
<td>W’s human capital depreciation</td>
<td>$\delta$</td>
<td>0.064</td>
<td>(0.021)</td>
</tr>
<tr>
<td>H’s returns to experience (constant)</td>
<td>$\lambda^{H}_0$</td>
<td>0.097</td>
<td>(0.009)</td>
</tr>
<tr>
<td>H’s returns to experience (age)</td>
<td>$\lambda^{H}_1$</td>
<td>-0.004</td>
<td>(0.0003)</td>
</tr>
<tr>
<td>Initial offer wage gender gap</td>
<td>$y^{W}_H - y^{H}_W$</td>
<td>0.805</td>
<td>(0.068)</td>
</tr>
<tr>
<td>Variance of W’s income shock</td>
<td>$\sigma^2_{\zeta^{W}}$</td>
<td>0.023</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Variance of H’s income shock</td>
<td>$\sigma^2_{\zeta^{H}}$</td>
<td>0.067</td>
<td>(0.017)</td>
</tr>
<tr>
<td>Covariance of H’s and W’s income shocks</td>
<td>$\sigma_{\zeta^{H} \zeta^{W}}$</td>
<td>0.006</td>
<td>(0.002)</td>
</tr>
</tbody>
</table>

Notes: Income process parameters estimated by non-linear least squares using PSID data of couples married before divorce law reforms. Standard errors in parentheses computed by bootstrap to account for first-stage estimation errors.
Table 3: **Exogenous parameters of the model**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial age</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Years in each period</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Age at death</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Retirement age</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Economies of scale in couple ($\rho$)</td>
<td>1.4023</td>
<td>McClements scale</td>
</tr>
<tr>
<td>Economies of scale for children ($e(k)$)</td>
<td>1.5</td>
<td>Attanasio <em>et al.</em> (2008)</td>
</tr>
<tr>
<td>RRA ($\gamma$)</td>
<td>1.5</td>
<td>Attanasio <em>et al.</em> (2008)</td>
</tr>
<tr>
<td>Market returns on assets ($r$)</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Discount factor ($\beta$)</td>
<td>0.98</td>
<td>Attanasio <em>et al.</em> (2008)</td>
</tr>
<tr>
<td>W’s age at childbearing</td>
<td>26 and 29</td>
<td>PSID</td>
</tr>
<tr>
<td>Childcare costs ($g_k$)</td>
<td></td>
<td>Attanasio <em>et al.</em> (2008)</td>
</tr>
<tr>
<td>Remarriage probabilities $\pi_t^{\Omega}$</td>
<td></td>
<td>PSID</td>
</tr>
</tbody>
</table>

Table 4: **Estimated structural parameters and auxiliary model match**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Estimate</th>
<th>Std. error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard deviation of preference shocks</td>
<td>$\sigma$</td>
<td>0.06007</td>
<td>0.0005</td>
</tr>
<tr>
<td>Disutility from labor mkt participation</td>
<td>$\psi$</td>
<td>0.00332</td>
<td>0.0001</td>
</tr>
<tr>
<td>Husbands’ Pareto weight</td>
<td>$\theta$</td>
<td>0.75</td>
<td>0.06</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Moment</th>
<th>Symbol</th>
<th>Target</th>
<th>Simulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect of uni. divorce on savings in CP</td>
<td>$\phi_1$</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>Effect of uni. divorce on participation in CP</td>
<td>$\phi_2$</td>
<td>-4.6 pcpt</td>
<td>-7.2 pcpt</td>
</tr>
<tr>
<td>Baseline participation rate in CP</td>
<td>$\phi_3$</td>
<td>57%</td>
<td>55%</td>
</tr>
<tr>
<td>Baseline divorce probability in CP</td>
<td>$\phi_4$</td>
<td>19%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Notes: Parameters of the dynamic model \{\sigma, \psi, \theta\} estimated by indirect inference. The parameters of the auxiliary model are \{\phi_1, \phi_2, \phi_3, \phi_4\}.

Table 5: **Counterfactual simulation: choice of division rule**

<table>
<thead>
<tr>
<th>Husband’s Pareto weight ($\theta$)</th>
<th>0.1</th>
<th>0.3</th>
<th>0.5</th>
<th>0.7</th>
<th>0.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband’ share of assets $\alpha^*$</td>
<td>0.25</td>
<td>0.25</td>
<td>0.30</td>
<td>0.45</td>
<td>0.75</td>
</tr>
<tr>
<td>Welfare gain compared to equal division</td>
<td>8.4%</td>
<td>1.4%</td>
<td>1.32%</td>
<td>0.13%</td>
<td>9.7%</td>
</tr>
</tbody>
</table>

Notes: \$\alpha^*$ denotes the husband’s share of property that maximizes the weighted sum of spouses’ discounted utility at the time of marriage. Welfare gain from selecting $\alpha^*$ instead of $\alpha = 0.5$ is expressed as a percentage consumption equivalent. With the exception of the Pareto weights, all other parameters in the simulation are reported in tables 2, 3 and 4.
Table 6: Household Assets and Female Employment: Fixed Effects Regressions

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) assets</th>
<th>(2) assets</th>
<th>(3) assets</th>
<th>(4) assets</th>
<th>(5) employed</th>
<th>(6) employed</th>
<th>(7) employed</th>
<th>(8) employed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NLSW</td>
<td>NLSW</td>
<td>NLSW</td>
<td>NLSW</td>
<td>PSID</td>
<td>PSID</td>
<td>PSID</td>
<td>PSID</td>
</tr>
<tr>
<td>Unilateral ((\beta_1))</td>
<td>-5959</td>
<td>-5853</td>
<td>-5472</td>
<td>-3300</td>
<td>-0.0235</td>
<td>-0.0215</td>
<td>-0.0231</td>
<td>-0.0125</td>
</tr>
<tr>
<td></td>
<td>(6737)</td>
<td>(6788)</td>
<td>(6883)</td>
<td>(7279)</td>
<td>(0.0273)</td>
<td>(0.0258)</td>
<td>(0.0251)</td>
<td>(0.0301)</td>
</tr>
<tr>
<td>Uni*Com.Pr. ((\beta_2))</td>
<td>18118</td>
<td>17535</td>
<td>16974</td>
<td>20167</td>
<td>-0.0142</td>
<td>-0.0174</td>
<td>-0.0345</td>
<td>-0.0363</td>
</tr>
<tr>
<td></td>
<td>(8612)</td>
<td>(8556)</td>
<td>(8592)</td>
<td>(8626)</td>
<td>(0.0276)</td>
<td>(0.0271)</td>
<td>(0.0255)</td>
<td>(0.0311)</td>
</tr>
<tr>
<td>Uni*Eq.Distr. ((\beta_3))</td>
<td>14573</td>
<td>15199</td>
<td>14916</td>
<td>15952</td>
<td>-0.00437</td>
<td>-0.00482</td>
<td>-0.0035</td>
<td>-0.0174</td>
</tr>
<tr>
<td></td>
<td>(7927)</td>
<td>(7474)</td>
<td>(7554)</td>
<td>(6603)</td>
<td>(0.0416)</td>
<td>(0.0405)</td>
<td>(0.0415)</td>
<td>(0.0456)</td>
</tr>
<tr>
<td>Com.Pr. ((\beta_4))</td>
<td>13944</td>
<td>14387</td>
<td>-43949</td>
<td>-19918</td>
<td>0.0340</td>
<td>0.0382</td>
<td>0.151</td>
<td>0.167</td>
</tr>
<tr>
<td></td>
<td>(14520)</td>
<td>(14699)</td>
<td>(32843)</td>
<td>(37208)</td>
<td>(0.0272)</td>
<td>(0.0255)</td>
<td>(0.0544)</td>
<td>(0.0559)</td>
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<tr>
<td>Eq.Distr. ((\beta_5))</td>
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<td>-14687</td>
<td>-14833</td>
<td>-17576</td>
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<td>0.00274</td>
<td>0.00258</td>
<td>0.00805</td>
</tr>
<tr>
<td></td>
<td>(9166)</td>
<td>(8876)</td>
<td>(8938)</td>
<td>(10733)</td>
<td>(0.0172)</td>
<td>(0.0174)</td>
<td>(0.0173)</td>
<td>(0.0178)</td>
</tr>
<tr>
<td>Year f.e.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Age dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Children dummies</td>
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<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State f.e.</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Polyn yrs. married</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>P-value (\beta_1 + \beta_2 = 0)</td>
<td>0.034</td>
<td>0.034</td>
<td>0.037</td>
<td>0.001</td>
<td>0.021</td>
<td>0.025</td>
<td>0.001</td>
<td>0.006</td>
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<tr>
<td>P-value (\beta_1 + \beta_3 = 0)</td>
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<td>0.271</td>
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<td>4,538</td>
<td>4,538</td>
<td>3,516</td>
<td>3,438</td>
<td>3,438</td>
<td>3,438</td>
<td>2,608</td>
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Notes: Columns 1-4: Data from the NLS of Young and Mature Women. Sample of couples married before legal reforms. Dependent variable is real total household net assets. Columns 5-8: Linear Probability Models. Data from the PSID. Sample of couples married before legal reforms. Dependent variable is female employment status. Excluded category for divorce laws: title-based mutual consent regime.
Figures

Figure 1: Identification of the parameters

(a) $\phi_2$ and $\theta$

(b) $\phi_3$ and $\theta$

(c) $\phi_3$ and $\psi$

(d) $\phi_4$ and $\sigma$

Notes: Relationship between a parameter of the structural model and a parameter of the auxiliary model obtained by simulation, for random values of the other structural parameters.

Figure 2: Allocation of assets at divorce by legal regime and husband's Pareto weight

Notes: Average share of assets awarded to women aged 23-64 by divorce law regime and Pareto weight of the husbands in simulations from the dynamic model. With the exception of the Pareto weights, all other parameters in the simulation are reported in tables 2, 3 and 4.
Figure 3: Dynamic response of assets accumulation to the introduction of unilateral divorce in community property states

Notes: Coefficients $\beta$ and 95% confidence intervals of obtained from estimating $assets_{i,s,t} = \beta_{pre Uni. within 3 yrs} + \sum_{\tau=0}^{15} \beta_{Uni. for \tau to (\tau+2) yrs} + \gamma^*Z_{i,t} + \delta_t + f_i + c_s + \epsilon_{i,s,t}$. Standard errors clustered at the state level. Panel (a) estimated from NLSW data, panel (b) from data obtained from model simulations.

Figure 4: Dynamic response of female employment to the introduction of unilateral divorce in community property states

Notes: Coefficients $\beta$ and 95% confidence intervals of obtained from estimating $employment_{i,s,t} = \beta_{pre Uni. within 3 yrs} + \sum_{\tau=0}^{15} \beta_{Uni. for \tau to (\tau+2) yrs} + \gamma^*Z_{i,t} + \delta_t + f_i + c_s + \epsilon_{i,s,t}$. Standard errors clustered at the state level. Panel (a) estimated from PSID data, panel (b) from data obtained from model simulations.
APPENDIX - NOT FOR PUBLICATION

Appendix A: Timing of the property division law reforms

Although a large body of economic literature has documented and exploited the exogeneity of the introduction of unilateral divorce with respect to household economic behavior (among others, Gruber 2004, Stevenson 2007, Gray 1998), no research has shown how the timing of introduction of equitable distribution may be correlated with state-level and state-level trends. Specifically, I examine here how the timing of the changes relates to the share of women employed in the labor market and their income and find no correlation (Figure 5).

Figure 5: Timing of the introduction of equitable distribution and state characteristics


Appendix B: Solution method

The problem of the female divorcee W has three state variables: \( A^W \), \( h^W \) and the offer labor income \( y^W \) and two choice variables, \( c^W \) and \( P^W \). The model is solved by backward induction

---

28 I regress: \( (\text{year of reform}-1967)_s = \alpha + \beta \text{Female employment rate in 1960}_s + \epsilon_{1s} \), the coefficient for \( \beta \) is -8.79 (p-value 0.640) while \( \hat{\alpha} = 14.12 \) (p-value 0.031).
I also regress (graph not shown but available upon request) \( (\text{year of reform}-1967)_s = \gamma + \delta \text{Female employment rate in 1960-Female employment rate in 1950}_s + \epsilon_{2s} \), the coefficient for \( \delta \) is -1.417 (p-value 0.979) while \( \hat{\gamma} = 11.311 \) (p-value 0.007).
Finally, from \( (\text{year of reform}-1967)_s = \zeta + \eta (\text{Share of wives’ income in 1960})_s + \epsilon_{3s} \), the coefficient for \( \eta \) is -26.67 (p-value 0.515) while \( \hat{\zeta} = 7.555 \) (p-value 0.190).
(Adda and Cooper 2003) under the terminal condition that \( A_{T+1}^W = 0 \) for a discrete vector of possible values for \( A_t^W \). The solution leads to a sequence of values \( V_t^{WD}(A_t^W, y_t^W, h_t^W) \) that represent the wife’s valuation of the divorce. For the male divorcee, the problem is identical with the exception that the working is not a choice variable.

The married couple’s problem has eleven state variables: spouses’ assets level \( A^j \), the wife’s human capital \( h^W \), spouses’ preferences for marriage \( \xi^j \), the income level for each spouse \( y_t^j \), the spouses’ renegotiation parameters \( M_t^j \) and the divorce laws vector \( \Omega_t \) (which represents two state variables: grounds for divorce law and property division rule). The household takes the divorce laws \( \Omega_t \) as given and assumes that they are going to persist in time: changes in \( \Omega_t \) are thus unanticipated and exogenous to household behavior.\(^{29}\) The problem is again solved numerically by backward induction with the terminal condition \( A_{T+1}^j = 0 \).\(^{30}\)

I describe the problem of the couple in the last period \( T \), when spouses are retired. The couple solves:

\[
\max_{c_T^H, c_T^W, A_{T+1}^H, A_{T+1}^W} \quad \theta \ u(c_T^H; \xi_T^H) + (1 - \theta) \ u(c_T^W; \xi_T^W) \\
\text{s.t. budget constraint in marriage} \\
A_{T+1}^j \geq 0 \quad j = H, W.
\]

Define \( V_T^{jM}(\omega_T) = u(c_T^j; \xi_T^j) \) at the optimal values of \( c_T \) and \( A_{T+1} \) (where \( A_{T+1}^j = 0 \) given the solution of the Pareto problem for state variables \( \omega_T \). For each regime, there are three possible cases:

**Mutual consent divorce**

1. if \( V_T^{jM}(\omega_T) \geq V_T^{jD}(\omega_T) \) for both \( j = H, W \), then \( V_T^j(\omega_T) = V_T^{jM}(\omega_T) \) and the couple remains married.

2. if \( V_T^{jM}(\omega_T) < V_T^{jD}(\omega_T) \) for both \( j = H, W \), then \( V_T^j = V_T^{jD}(\omega_T) \) and the couple divorces.

\(^{29}\)Divorce laws impose restrictions on the state variables. In community property, \( A_t^H = A_t^W \) \( \forall t \) and in equitable distribution \( (1 - \alpha)A_t^H = \alpha A_t^W \) \( \forall t \). In mutual consent divorce, \( M_t^j = 0 \) \( \forall t \) and \( j = H, W \).

\(^{30}\)To obtain the numerical solution I discretize the vector of assets \( A \) and the vector of \( h_t^W, y_t^j \) and of \( \xi_t^j \). I solve the value function for a subset of the vector of discrete values of \( A \) and then use a linear interpolation method to increase the computational speed. The random walk processes are discretized into Markov chains (Adda and Cooper 2003).
3. \( V^j_{TM}(\omega_T) < V^j_{TD}(\omega_T) \) and \( V^j_{TM}(\omega_T) \geq V^j_{TD}(\omega_T) \)

In the third case, the allocation of assets shifts. The spouse who wants to divorce \((j)\) can persuade the other by offering her (him) a larger fraction of the household assets than that dictated by the law. I will call this share \( \kappa \in [0, 1] \). Assume the spouse who wants to remain married is the husband; then, the household finds \( \kappa_T \in [0, 1] \) where the husband’s share of assets becomes \( \kappa_T(A^H_T + A^W_T) \) such that: \( V^H_{TD}(\omega_T, \kappa_T) = V^H_{TM}(\omega_T) \).

After this reallocation, consider the following two possible cases:

1. if \( V^W_{WM}(\omega_T, \kappa_T) < V^W_{WD}(\omega_T) \), then \( V^j_T = V^j_{TD}(\omega_T) \) and the couple divorces.
2. if \( V^W_{WM}(\omega_T, \kappa_T) \geq V^W_{WD}(\omega_T) \), then \( V^j_T = V^j_{TM}(\omega_T, \kappa_T) \) and the couple remains married.

Unilateral divorce

1. if \( V^j_{TM}(\omega_T) \geq V^j_{TD}(\omega_T) \) for both \( j = H, W \), then \( V^j_T(\omega_T) = V^j_{TM}(\omega_T) \) and the couple remains married.
2. if \( V^j_{TM}(\omega_T) < V^j_{TD}(\omega_T) \) for both \( j = H, W \), then \( V^j_T = V^j_{TD}(\omega_T) \) and the couple divorces.
3. \( V^j_{TM}(\omega_T) < V^j_{TD}(\omega_T) \) and \( V^j_{TM}(\omega_T) \geq V^j_{TD}(\omega_T) \)

In case 3, the allocation shifts. Assume the spouse who wants to divorce is the husband; then, I find \( \mu^H_T \) such that solving:

\[
\max_{c^H_T, c^W_T, a^H_T, a^W_T} \quad (\theta + M^H_T + \mu^H_T) u(c^H_T, \xi^H_T) + (1 - \theta + M^W_T) u(c^W_T, \xi^W_T)
\]

s.t. budget constraint

\[ A^j_{T+1} \geq 0 \quad j = H, W. \]

leads to \( V^H_{TM}(\omega_T, \mu^H_T) = V^H_{TD}(\omega_T) \).

3. \textbf{Third step} Consider the following two possible cases, which depends on how the other spouse responds to the reallocation:

1. if \( V^W_{WM}(\omega_T, \mu^H_T) \geq V^W_{WD}(\omega_T) \), then \( V^j_T = V^j_{TM}(\omega_T, \mu^H_T) \) for \( j = H, W \): the couple remains married.
2. if $V_{WM}^T(\omega_T, \mu_T^H) < V_{WD}^T$, then $V_T^j = V_T^{jD}$ for $j = H, W$: the couple divorces.

Once the continuation values have been defined, for an arbitrary period $t$ the allocation in marriage follows an analogous algorithm.

**Appendix C: Robustness checks**

In this Appendix, I present a series of robustness checks to the results described in section 3. First, I show that the results on both assets and female employment are not driven by changes in the two largest community property states (California and Texas: Table 8, columns 1, 2, 5 and 6). Second, I show that results are not driven by non-random attrition due to different likelihood of divorce between groups of states. In particular, remember that each main equation is estimated based on a sample of married couples. To address this concern on the assets regression, I use Inverse Probability Weighting (IPW, Wooldridge 2002) and re-weight observations based on the inverse of their likelihood to be included in the sample (i.e. the likelihood of remaining married: Table 8, column 7).

**Appendix D: Additional evidence on household time use**

To examine how changes in divorce laws affected the time use of American couples, I use data from the American’s Use of Time Surveys (1965), the Time use in Economics and Social Account survey (1975) and the National Human Activity Pattern survey (1992-1994), based on the sample examined in Aguiar and Hurst (2007).

I focus on three outcome variables. The variable *work hours* refers to the sum of the weekly hours devoted to work and work-related activities and to commuting, as defined by Aguiar and Hurst. The variable *home production* refers to the sum of weekly hours devoted to meals preparation, housework, home and car maintenance, care of garden and pets, again as defined by Aguiar and Hurst. The outcome variable *leisure hours* refers to the sum of weekly hours devoted to leisure activities such as sports, watching TV, gardening, reading, traveling for leisure and so

---

31 The standard errors do not account for first-stage estimation. Ignoring the first stage in the computation of the standard errors leads to a conservative estimate of the variance-covariance matrix: adjusting for the first stage would lead to smaller standard errors (Wooldridge 2002).
on, as defined by Aguiar and Hurst\textsuperscript{32}

For each of these outcome variables, I generate separate samples by gender and marital status and estimate the following equation:

\begin{equation}
    y_{i,s,t} = \beta_1 Unilateral_{s,t} + \beta_2 (Unilateral \cdot Com.Prop_{s,t}) \\
    + \beta_3 (Unilateral \cdot Eq.Distr_{s,t}) + \beta_4 Eq.Distr_{s,t} + \beta_5 Com.Prop_{s,t} \\
    + \gamma' Z_{i,t} + \delta_t + c_s + \epsilon_{i,s,t}.
\end{equation}

where vector $Z$ contains a set of controls for person $i$’s age, education and number of children, $\delta_t$ denote year fixed effects and $c_s$ state fixed effects. Lack of information on the year of marriage prevents conditioning on $\delta_t$, although on separate robustness checks I have confirmed that conditioning on being at least 30 in 1968 does not qualitatively affect results.

Appendix table\textsuperscript{9} reports the outcomes of estimating equation\textsuperscript{11} on three separate samples: all women, married women and married men. The results confirm the interpretation outlined in this paper: the decline in the labor supply of women when unilateral divorce was introduced in community property states was associated with an increase in the time women could devote to leisure (6 more hours per week on average, with a p-value of 0.072, column 6), with only a small corresponding increase in housework, which is not statistically significant for married women. Married men do not exhibit similar changes.

\section*{Appendix E: Spouses’ Income Processes}

Parameters $\lambda_0^H$ and $\lambda_1^H$, which represent men’s income gains from experience, are estimated using the PSID income dataset for all working men under the age of 65\textsuperscript{33}:

\[ \Delta \ln(y_t^H) = \lambda_0^H + \lambda_1^H \cdot t + \Delta u_t \]

\textsuperscript{32}I thank Mark Aguiar and Erik Hurst for making the data available at \url{http://www.markaguiar.com/papers/timeuse_data/datapage.html}.

\textsuperscript{33}See Meghir and Pistaferri (2004) and Low, Meghir and Pistaferri (2010) for examples of the estimation of men’s income process parameters.
Define unexplained growth of log-earnings as:

\[
\Delta u^j_t = z^j_{t-1} + \zeta^j_t - z^j_{t-1} + \epsilon^j_t - \epsilon^j_{t-1} = \zeta_t^j + \epsilon_t^j - \epsilon_{t-1}^j
\]  

(12)

for j=H,W.

The variance of the husband’s permanent income shocks is identified by the moment

\[
E[\Delta u^H_t (\Delta u^H_t + \Delta u^H_{t-1} + \Delta u^H_{t+1})] = \sigma^2_H.
\]

Identification of the income process parameters for women requires controlling for the selection of women into employment. Assume that a wife participates in the labor market \((P^W_t)\) if \(Z'_t \delta + M'_t \gamma + \eta_t > 0\), where \(M_t\) are exogenous variables excluded from the earnings equation (divorce laws) and \(Z_t\) are variables in the earning equations (in this model age and past employment).

Assume that the income shocks of husbands and wives are correlated. Income shocks and participation shocks in each period are distributed as a multivariate normal which is serially uncorrelated:

\[
\begin{pmatrix}
\zeta^H_t \\
\zeta^W_t \\
\eta_t
\end{pmatrix}
\text{is distributed } MVN
\begin{pmatrix}
0, \\
\sigma^2_{\zeta^H} & \sigma_{\zeta^H \zeta^W} & \sigma^2_{\zeta^W} \\
\sigma_{\zeta^H \eta} & \sigma_{\zeta^W \eta} & 1
\end{pmatrix}
\]

Define \(\alpha_t = -Z'_t \delta - M'_t \gamma\). I estimate the probability of female participation in the labor market as

\[
P(P^W = 1) = P(\eta_t > -Z'_t \delta - M'_t \gamma) = P(\eta_t > \alpha_t)
\]

using a probit model. Then:

\[
E[\Delta \log y^W_t | P^W_t = 1, P^W_{t-1} = 1] = \lambda_0^W + \lambda_1^W \cdot t + \sigma \Delta u^W_t | P^W_t = 1, P^W_{t-1} = 1
\]

(13)

\[
= \lambda_0^W + \lambda_1^W \cdot t + \sigma \Delta u^W_t | P^W_t = 1, P^W_{t-1} = 1
\]

The parameters of the income process are the solutions to the system:
\[ E[\Delta u_t^W | P_t^W=1, P_{t-1}^W = 1] = \sigma_{\xi W} \eta \frac{\phi(\alpha_t)}{1 - \Phi(\alpha_t)} \] (14)

\[ E[\Delta u_t^W (\Delta u_t^W + \Delta u_{t-1}^W + \Delta u_{t+1}^W) | P_t^W=1, P_{t-1}^W = 1, P_{t+1}^W = 1, P_{t-2}^W = 1] = \sigma_{\xi W}^2 + \sigma_{\xi W}^2 \eta \frac{\phi(\alpha_t)}{1 - \Phi(\alpha_t)} \alpha_t \] (15)

\[ E[\Delta u_t^H | P_t^W=1, P_{t-1}^W = 1] = \sigma_{\xi H} \eta \frac{\phi(\alpha_t)}{1 - \Phi(\alpha_t)} \] (16)

\[ E[\Delta u_t^W \Delta u_t^H | P_t^W=1, P_{t-1}^W = 1] = \sigma_{\xi u \xi} + \sigma_{\xi u \eta} \sigma_{\xi W} \eta \frac{\phi(\alpha_t)}{1 - \Phi(\alpha_t)} \alpha_t \]

\[ E[\log y_t^W - \log y_{t-2}^W | P_t^W=1, P_{t-2}^W = 1] = \sigma_{\Delta^2 u} \eta \left[ \frac{\phi(\alpha_t)}{1 - \Phi(\alpha_t)} + \frac{\phi(\alpha_{t-2})}{1 - \Phi(\alpha_{t-2})} \right]. \]
Appendix F: Tables

Table 7: Divorce law reforms in the sample period

<table>
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<tr>
<th>State</th>
<th>Unilateral divorce</th>
<th>Equitable distribution</th>
<th>State</th>
<th>Unilateral divorce</th>
<th>Equitable distribution</th>
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<tr>
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<td>pre-1967</td>
<td>pre-1967</td>
<td>Nebraska</td>
<td>1972</td>
<td>1972</td>
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<tr>
<td>Arizona</td>
<td>1973</td>
<td>community property</td>
<td>Nevada</td>
<td>1967</td>
<td>community property</td>
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<td>Arkansas</td>
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<td>1977</td>
<td>New Hampshire</td>
<td>1971</td>
<td>1977</td>
</tr>
<tr>
<td>California</td>
<td>1970</td>
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<td>New Jersey</td>
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<td>1974</td>
</tr>
<tr>
<td>Colorado</td>
<td>1972</td>
<td>1972</td>
<td>New Mexico</td>
<td>pre-1967</td>
<td>community property</td>
</tr>
<tr>
<td>District of Columbia</td>
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<td>1977</td>
<td>North Dakota</td>
<td>1971</td>
<td>pre-1967</td>
</tr>
<tr>
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<td>Pennsylvania</td>
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<td>1980</td>
</tr>
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<td>1973</td>
<td>pre-1967</td>
<td>South Carolina</td>
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<td>1985</td>
</tr>
<tr>
<td>Kansas</td>
<td>1969</td>
<td>pre-1967</td>
<td>Tennessee</td>
<td>no</td>
<td>pre-1967</td>
</tr>
<tr>
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<td>1972</td>
<td>1976</td>
<td>Texas</td>
<td>1970</td>
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</tr>
<tr>
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<td>Utah</td>
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<tr>
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<td>1973</td>
<td>1972</td>
<td>Vermont</td>
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<td>pre-1967</td>
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<td>1978</td>
<td>Virginia</td>
<td>no</td>
<td>1982</td>
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<tr>
<td>Mississippi</td>
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<td>1989</td>
<td>Wyoming</td>
<td>1977</td>
<td>pre-1967</td>
</tr>
<tr>
<td>Missouri</td>
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### Table 8: Household Assets and Female Employment: Robustness Checks

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<td>NLSW</td>
<td>NLSW</td>
<td>NLSW</td>
<td>PSID</td>
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<td>PSID</td>
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<td>(0.0302)</td>
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<td>-0.0140</td>
<td>-0.0126</td>
<td>-0.0183</td>
</tr>
<tr>
<td>(6399)</td>
<td>(6680)</td>
<td>(2889)</td>
<td>(8809)</td>
<td>(0.0464)</td>
<td>(0.0473)</td>
<td>(0.0434)</td>
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<tr>
<td>Linear Com.Pr.</td>
<td>-117362</td>
<td>-235885</td>
<td>-26643</td>
<td>-25050</td>
<td>0.196</td>
<td>0.159</td>
<td>0.169</td>
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<tr>
<td>(59523)</td>
<td>(85033)</td>
<td>(28991)</td>
<td>(13062)</td>
<td>(0.0557)</td>
<td>(0.0631)</td>
<td>(0.0545)</td>
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<tr>
<td>Linear Eq.Distr.</td>
<td>-6303</td>
<td>-18914</td>
<td>-5005</td>
<td>-24366</td>
<td>0.00777</td>
<td>0.00622</td>
<td>0.00438</td>
</tr>
<tr>
<td>(7259)</td>
<td>(11486)</td>
<td>(1703)</td>
<td>(13213)</td>
<td>(0.0179)</td>
<td>(0.0175)</td>
<td>(0.0190)</td>
<td></td>
</tr>
<tr>
<td>Year f.e.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Age dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>State f.e.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Children dummies</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Exclude CA</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Exclude TX</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Include non-married</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>P-value $\beta_1 + \beta_2 = 0$</td>
<td>0.093</td>
<td>0.000</td>
<td>0.008</td>
<td>0.025</td>
<td>0.001</td>
<td>0.014</td>
<td>0.013</td>
</tr>
<tr>
<td>P-value $\beta_1 + \beta_3 = 0$</td>
<td>0.132</td>
<td>0.150</td>
<td>0.003</td>
<td>0.044</td>
<td>0.508</td>
<td>0.476</td>
<td>0.459</td>
</tr>
<tr>
<td>Observations</td>
<td>10,725</td>
<td>11,431</td>
<td>12,022</td>
<td>12,022</td>
<td>41,498</td>
<td>42,701</td>
<td>42,486</td>
</tr>
<tr>
<td>Individual f.e.</td>
<td>3,158</td>
<td>3,351</td>
<td>-</td>
<td>3,516</td>
<td>3,232</td>
<td>3,307</td>
<td>2,656</td>
</tr>
</tbody>
</table>

Note: Standard errors in parentheses, clustered at the state level.

Notes: Columns 1-4: Data from the NLS of Young and Mature Women. Dependent variable is real total family net assets. Columns 5-7: Linear Probability Models. Data from the PSID. Sample of couples married before legal reforms. Dependent variable is female employment status. Excluded category for divorce laws: title-based mutual consent regime.
Table 9: **Time use: regressions**

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>work</td>
<td>-2.523</td>
<td>4.119</td>
<td>-5.839</td>
<td>-1.849</td>
<td>5.253</td>
<td>-4.590</td>
<td>-7.262</td>
<td>0.438</td>
<td>-0.656</td>
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<tr>
<td>home</td>
<td>(3.308)</td>
<td>(3.131)</td>
<td>(2.760)</td>
<td>(4.367)</td>
<td>(3.938)</td>
<td>(3.896)</td>
<td>(5.780)</td>
<td>(1.238)</td>
<td>(5.283)</td>
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<tr>
<td></td>
<td>(5.320)</td>
<td>(3.044)</td>
<td>(3.538)</td>
<td>(5.140)</td>
<td>(3.792)</td>
<td>(4.214)</td>
<td>(5.562)</td>
<td>(1.330)</td>
<td>(5.203)</td>
</tr>
<tr>
<td>Uni*Com.Pr. (β2)</td>
<td>-1.327</td>
<td>-0.960</td>
<td>10.39</td>
<td>-0.823</td>
<td>-2.370</td>
<td>8.382</td>
<td>1.623</td>
<td>-1.313</td>
<td>6.715</td>
</tr>
<tr>
<td>Uni*Eq.Distr. (β3)</td>
<td>0.291</td>
<td>-0.494</td>
<td>-9.697</td>
<td>-7.397</td>
<td>5.563</td>
<td>-4.213</td>
<td>-16.49</td>
<td>-1.649</td>
<td>6.092</td>
</tr>
<tr>
<td></td>
<td>(4.354)</td>
<td>(2.723)</td>
<td>(2.653)</td>
<td>(4.138)</td>
<td>(2.985)</td>
<td>(3.082)</td>
<td>(3.676)</td>
<td>(1.188)</td>
<td>(3.130)</td>
</tr>
<tr>
<td>Com.Pr. (β4)</td>
<td>-10.42</td>
<td>1.501</td>
<td>1.790</td>
<td>-10.41</td>
<td>2.085</td>
<td>0.348</td>
<td>6.289</td>
<td>0.966</td>
<td>-1.752</td>
</tr>
<tr>
<td></td>
<td>(3.303)</td>
<td>(1.825)</td>
<td>(3.204)</td>
<td>(4.907)</td>
<td>(3.499)</td>
<td>(4.331)</td>
<td>(9.798)</td>
<td>(1.887)</td>
<td>(5.915)</td>
</tr>
</tbody>
</table>

| Year f.e.            | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    |
| State f.e.           | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    |
| Age dummies          | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    |
| Education dummies    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    |
| Children dummies     | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    | Yes    |
| P-value β1 + β2 = 0  | 0.014  | 0.821  | 0.091  | 0.035  | 0.492  | 0.072  | 0.991  | 0.011  | 0.866  |
| P-value β1 + β3 = 0  | 0.337  | 0.060  | 0.194  | 0.566  | 0.255  | 0.238  | 0.336  | 0.428  | 0.227  |
| Observations         | 4,826  | 4,826  | 4,826  | 1,467  | 1,467  | 1,467  | 1,374  | 1,374  | 1,374  |

Notes: Data from multiple cross-sectional time use surveys based on Aguiar and Hurst (2007). Columns 1-3 include years 1965, 1975 and 1993. Columns 4-9 restrict information to married couples, and drops the data from 1993, when marital status was not asked. Excluded category for divorce laws: title-based mutual consent regime.