Divorce Laws and Divorce Rate in the U.S.

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Abstract

At the end of 1960s, the U.S. divorce law underwent major changes and the divorce rate almost doubled in all of the states. This paper shows that changes in property division, alimony transfers, and child custody assignments account for a substantial share of the increase in the divorce rate, especially for young, college educated couples with children. I solve and calibrate a model where agents make decisions on their marital status, savings, and labor supply. Under the new financial settlements, divorced men gain from a higher share of property, while women gain from an increase in alimony and child support transfers. The introduction of the unilateral decision to divorce has limited effects.

Keywords: Age-specific divorce rate, unilateral and consensual divorce, divorce laws, property division, alimony and child support, child custody

JEL Classification: J12, D13, K36

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1 Introduction

The nature of the American family has dramatically changed in the last fifty years. In 1960, 88 percent of children lived with two parents; by 2009, only 69 percent did so. Even more telling, in 1960, 73 percent of all children lived with two natural parents both married only once. This figure dropped to 57 percent by 2009 (Popenoe (1993), Hernandez (1988), and Kreider and Reene (2009)). One of the main factors accounting for the increase in single-parents families is the growing incidence of divorces, especially those involving children. In number of divorces per 1,000 of existing marriages, the U.S. divorce rate in 1970 was 13. This rate had almost doubled to 23 by 1980.

It is relevant to understand the causes of this rise in divorce because the well-being of divorcees and their children could be lower than in marriage (Amato and Booth (1997)). In this respect, economists have focused mostly on the consequences of unilateral divorce. However, one aspect of the law has remained largely neglected in the economics literature: the adoption of the *Uniform Marriage and Divorce Act*, which sought to codify and reform procedures for handling the alimony payments, custody disputes, and the division of property upon divorce. The main contribution of this paper is to fill that void, and to show that once the changes of financial settlements are considered as possible causes for the increase in the divorce rate, the role of the unilateral decision to divorce is significantly smaller.

At the end of the Sixties, states substantially modified, liberalized, and simplified their divorce laws. Specifically, there are three dimensions along which the divorce laws changed: the introduction of unilateral divorce (vs. consensual divorce); the no-fault (vs. fault) based divorce; and, changes in financial settlements, more precisely property division, child custody, alimony and child support transfers.[1] While the unilateral and the no-fault based divorce have been introduced in some states, the new financial settlements involved all American states. In particular, before 1970, states had a

[1]Prior to the no-fault divorce revolution, a divorce could be obtained only through a showing of fault of one of the parties in a marriage. This meant that one spouse had to plead that the other had committed adultery, abandonment, felony, or other similarly culpable acts. In 1970, the *Uniform Marriage and Divorce Act* formally introduced "irreconcilable differences" as the sole ground for divorce (Weitzman (1985) and Jacob (1988)).

regime that typically led to an unequal division of property in divorce, mostly in favor of wives.[2] By the end of the Eighties, all of the states have moved to a regime where property was divided either equally or equitably between the spouses.[3]

Although the rule that favors mothers as the full custodial parents after divorce lost ground throughout the U.S., practice did not change much. Nowadays, husbands and wives have equal rights to custody in all states.[4] Yet, in a large number of cases, mothers are still the full custodial parents, but visitation rights to fathers are widely recognized.

Prior to 1984, the amount of alimony and child support awards were determined by the judges on a case-by-case basis. Judicial decisions were criticized for being inadequate, inconsistent, and unpredictable. Moreover, mothers often did not get paid the awarded amount and poor enforcement was blamed for the growing number of dependents on welfare programs. Census data show that from 1970, some years before the nationwide implementation of the Child Support Enforcement amendments of 1984, the percentage of divorced mothers receiving the child support awards, as well as the amount of the awards, increase. This raise in fathers' compliance has been attributed to the new divorce environment, especially to the introduction of the "irretrievable breakdown" as a ground for divorce, and to the increase in visitation rights.

The purpose of this paper is to evaluate the effect of changes in division of marital property, payments of alimony and child support, and child custody rights on the increase in the aggregate and age-specific divorce rates. I modify a standard dynamic life cycle model of household behavior to include divorce settlements. In every period, married couples with and without children, decide whether or not to divorce. They cooperate when making decisions while married, but do not cooperate as they get divorced. Consensual divorce occurs when a new draw of match quality makes both better off as single rather than married; unilateral divorce takes place if one spouse is worse off in marriage than in divorce. To analyze the impact of the new law on couples of different ages, the life cycle is divided into three parts: in the first part, agents make time allocation decisions about

[2]Table 12 shows that before 1970, in most cases, the highest fraction of marital property was assigned to the wife.
[3]The property division regimes are described in section 3.
[4]Table 11 reports the years in which the changes took place.

labor market, child care and leisure; in the second part, agents are childless and choose the amount of time to allocate between labor market and leisure; in the last period, all of the agents are retired. In every period they choose how much capital to accumulate.

I calibrate the model to U.S. data in 1970 and use it to simulate the impact of the legal reform on the divorce rate of married couples of different ages. In the benchmark economy representing the U.S. of the Seventies, spouses are assumed to divorce consensually. To measure the impact of the legal reforms, I run several experiments.

First, when divorce is consensual, I show that changes in divorce settlements increase the incentives of both spouses to agree on divorcing, but the size of these effects depends on the age of the spouses. The model explains about 31 percent of the increase in the aggregate divorce rate; 32 percent of the raise in divorce rate of young couples, and about 5 percent for mid age and older couples. Under the new regime, the gain from a higher percentage of marital property for husbands offsets the increase in child support payment requirements. Wives, mothers especially, gain from an increase in liquidity coming from a higher expected value of alimony and child support transfers. This outbalances the loss from the new rule on the reallocation of the marital property.

Those results are driven by the different composition of households after divorce. Women remain the main candidates to be sole custodial parents of the children, and take charge of their consumption expenditure. The lower wage rate and the altruistic preferences towards their offsprings increase their needs in current financial transfers, and decrease the relevance of their own (lower) future consumption (due to a lower percentage of inherited property). Divorced men benefit from a higher wage rate than their wives, and do not bear the child expenses. This implies that the increase in expected utility due to higher savings and hence future consumption overcome the higher alimony payments.

Second, I introduce the unilateral decision to divorce. In this environment, divorce occurs when no reallocation of resources within the household can make both individuals better off married than single. This means that household decisions are the solution of a Pareto problem which contains a set of participation constraints for each spouse in addition to the standard budget constraints.

I solve two different exercises: in the first one, the benchmark economy of the Seventies is modified to include the unilateral divorce decision; in the second one, the economy of the Eighties includes both the unilateral law and the new financial settlements. Results show that the implementation of the unilateral divorce law alone cannot explain the high increase in the divorce rate. In fact, the unilateral law explains only 6 percent of the increase in divorce rate, in line with the findings of the empirical literature (Wolfers (2006)). When the new financial settlements are added, the model explains about 35 percent of the increase in the rate, only 4 percentage points more than the consensual divorce model. Hence, in my framework, the contribution of the unilateral divorce law seems to be limited.

The modification of the legal framework has implications not only on the divorce rate, but also on the time allocations of the spouses. Changes in optimal allocations are analyzed through the proposed model. Moreover, I decompose the divorce rate to account for the presence of children and the education level of couples. The increase in the divorce rate in economies with new divorce financial settlements is led by young married couples with children, where husbands have a college degree.[5] Given the high proportion of asset share attributed to wives at time of divorce in 1970, wealthy husbands prefer to remain married and take advantage of the public good. In the new legal framework, when the sharing rule approaches the fifty percent, incentives to high earnings husbands increase as they take advantage of a bigger part of the marriage pie. This is true in both consensual and unilateral divorces. But in the latter, the impact on divorce rate is limited by the renegotiation between spouses. I also consider the increase in the absolute wages of men and women. This addition exacerbates the rise in the divorce rate of young couples. Moreover, it predicts an increase in market work time and a decrease in child care time for married women that is consistent with the observed changes in the data.

Lastly, I discuss the impact of the policies on the wellbeing of agents. I compare the welfare of several subgroups of agents in the baseline economy of the Seventies with consensual divorce, to the simulated economies with new financial settlement and unilateral divorce. Results show that the

[5]Husbands' earnings are used as a proxy for their education level.

level of lifetime utility is higher in the economies with consensual divorce decision, for both men and women. The change in the financial divorce settlements increases the wellbeing of mothers with a low Pareto weight in marriage. Childless women gain from a favorable renegotiation of marriage allocations if the only change is the decision to divorce. Men are generally better off when they are assigned a higher percentage of marital property.

The rest of the paper is organized as follows. Next section provides an overview of the related existing literature. In section 3 I document the legal modifications of divorce settlements. Preferences, resource constraints, divorcees' problem, and Pareto weight are defined in section 4. Section 5 describes the consensual divorce model. Section 6 explains how the model is parameterized and calibrated. Section 7 discusses the results of the experiment. In section 8 I describe the unilateral divorce problem. Section 9 examines the welfare effects of the policy changes. Section 10 concludes.

2 Literature Review

The empirical literature has focused on the switch from consensual to unilateral divorce, and attempts to test whether divorce law affects divorce rates have produced mixed results. Using U.S. cross section data, Peters (1986, 1992) finds the law to be neutral. Her results have been criticized by Allen (1990, 1992), mainly on the grounds that she misclassified some states as having fault-based laws. Using U.S. panel data, Zelder (1993) and Friedberg (1998) find a positive impact of the change to a unilateral law on divorce rates. In particular, Friedberg (1998) found that unilateral divorce laws were responsible for about 17 percent of the increase in divorce rates in the U.S. during the Seventies and Eighties. Her results were widely accepted until Wolfers (2006) found that the effect of unilateral divorce is small and short-lived.[6]

From a theoretical viewpoint, Clark (1999) argues that there is no basis for the argument that the

[6]Similar studies have been conducted for Europe. In particular, González and Viitanen (2009) use panel data on 18 European countries from 1950 to 2003 to analyze the effect of changes in divorce laws in the divorce rate. They exploit the variation across countries in the timing and nature of the reforms, and find that the effect of no-fault legislation was strong and permanent, while unilateral reforms had only a temporary effect on divorce rates.

law necessarily has no effect on the incidence of divorce, and that this does not imply that couples are missing mutually beneficial trades or that economic efficiency is compromised. My paper builds on his work, as it emphasizes the role of other aspects of the law apart from the right to dissolve a marriage. In particular, the allocation of assets and resources within a marriage, and on dissolution, plays a central role in the analysis as they determine both the gains and losses from divorce and whether divorce occurs.

On this issue, 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 may influence the impact of unilateral divorce on female labor supply (Gray (1998), Stevenson (2008)). Moreover, property division rules have been shown to impact both the accumulation of savings (Antony and Dnes (1999), Aura (2002)), and marital sorting (Chiappori et al. (2008)). Recent work by Voena (2012) provides a careful structural empirical analysis that focuses on the interaction of divorce reform with state laws on the division of property, in order to tease out the distortions in household intertemporal savings behavior. Here, I abstract from the geographical variations of laws and instead focus on the aggregate effects of changes in property division and alimony payments on divorce risk.

My paper bridges the above streams of literature. The macroeconomic analysis of the change in the divorce law shows that financial settlements alone may play an important role in providing incentives to dissolute a marriage. Moreover, the life cycle model allows to study an interesting set of behavioral implications of the divorce decision that have not been explored in the literature. Additionally, it provides a structural analysis of the unilateral divorce regime, showing that the sole introduction of this law cannot explain the raise in the divorce rate, which is in line with the existing empirical results.

3 The *Uniform Marriage and Divorce Act*

The *Uniform Marriage and Divorce Act* was drafted by the National Conference of Commissioners on Uniform State Laws, and by it approved and recommended for all the states enactment in August 1970.[7] The Act introduced changes to property division, alimony and child support awards, and child custody, aiming to a more gender neutral legislation.

The property division regimes adopted at the end of the Sixties by the states were two: the common law, or the community property system. Table 11, in Appendix B, shows that only nine states preserved a community property system. In these states, spouses are deemed to equally own all income and assets earned or acquired during marriage regardless of who purchased it, even if only one spouse is employed. In addition, equal ownership also applies to debts.

The rest of the country moved from a common law system to the equitable distribution law. Under the common law property system, the ownership of property acquired during marriage is determined through evidence of title and possession. In particular, the common law property system states that property acquired by one member of a married couple belongs solely to that person unless the property is specifically put in the names of both spouses.

From the reading of Weitzman (1985) and Jacob (1988), it emerges that before the Act, the Courts had some discretion in assigning the property rights to the divorcing spouses. In particular, traditional divorce law linked the financial terms of divorce to the determination of fault. Being proved guilty or innocent could have important financial consequences. Weitzman (1985) provides data from a random samples of court dockets in San Francisco County and Los Angeles County, California. In 1968 the wife, who was usually declared as the "innocent" party, was awarded with more than half of the total property value. Data in Table 12 in Appendix B show that in only 12 percent of the cases the property was divided equally in San Francisco. In general, showing the other's guilt might not only make one feel morally superior, but might also pay off in a better property settlement. This was true also in most common law property states, where the courts had

[7] A copy of the Act can be downloaded at http://www.uniformdivorce.com/UMDA.pdf. See also Jacob (1988) and Weitzman (1985).

the power to award property held by either spouse upon divorce and could therefore use property as a reward for virtue and a punishment for sin.

In Section 307 of the *Uniform Marriage and Divorce Act*, on *Disposition of Property*, we read:

> "In a proceeding for dissolution of a marriage, legal separation, or disposition of property following a decree of dissolution of marriage or legal separation by a court [...], the court, *without regard to marital misconduct*, shall, [...], finally **equitably** apportion between the parties the property and assets belonging to either or both however and whenever acquired, and whether the title thereto is in the name of the husband or wife or both."

With the introduction of the Act, most states adopted the equitable distribution laws. In these states, property acquired during the marriage belongs to the spouse who earned it. In case of divorce, the property will be divided between the spouses in a fair and equitable manner. There is no set rule in determining who receives what or how much. The court considers a variety of factors. For example, the court may look at the relative earning contributions of the spouses, the value of one spouse staying at home or raising the children, and the earning potential of each. By the end of the Seventies, the average percentage of wealth inherited by the wife after divorce in sample data from the National Longitudinal Study (NLS) of the High School Class of 1972 (Fifth Follow-up, 1986) amounted to about 58 percent.

Next, Section 308 says the following on *Maintenance*:

> "In a proceeding for dissolution of a marriage, legal separation, maintenance, or child support, the court may order either or both parents owing a duty support to a child to pay an amount reasonable or necessary for his support, *without regard to marital misconduct*, after considering all relevant factors including: (i) the financial resources of the child; (ii) the financial resources of the custodial parent; (iii) the standard of living the child would have enjoyed had the marriage not been dissolved; (vi) the physical and emotional condition of the child and his educational needs; and (v) the financial resources and needs of the noncustodial parent."

This disposition provides only a general guideline, and no details on the amount of transfers. This information can be deduced from commonly used data set. In particular, U.S. Census data show that the realized amount of transfers from husband to wife changed from 1970 to 1980. Data are in Table 1. It includes several descriptive statistics and information on the amount of alimony, child support transfers, and the percentage of receivers.

Table 1: Summary Statistics - Divorced Men and Women

	20-44 years old		45-59 years old		60-75 years old	
	Men	Women	Men	Women	Men	Women
1970						
% separated and divorced	4.56	7.59	5.79	8.07	5.00	5.66
% with children	12.37	73.53				
% in labor force	86.11	70.93	77.09	73.52		
Avg. Earnings[8]	18,318.55	11,213.49	16,662.99	12,421.94		
Alimony and child support	33.34	943.46	64.80	339.89	827.93	477.63
% receivers	0.69	28.09	1.81	8.75	17.79	14.83
without children	27.65	193.19				
% receivers	0.39	8.99				
with children	74.44	1,337.87				
% receivers	2.82	37.99				
1980						
% separated and divorced	8.69	12.59	8.81	11.64	5.91	7.10
% with children	12.59	65.88				
% in labor force	89.05	78.45	76.67	73.01		
Avg. Earnings	19,484.11	12,543.85	18.556.14	13,113.34		
Alimony and child support	40.72	1,171.64	46.84	194.04	19.49	189.43
% receivers	4.01	37.29	1.90	6.53	2.51	7.67
without children	35.24	315.65				
% receivers	3.90	12.90				
with children	76.68	1,579.86				
% receivers	4.71	49.07				

Source: Author's computations using data from IPUMS-CPS and IPUMS-USA.

The highest increase is registered for young divorced women with and without children. In particular, women with children were more likely to receive a higher amount of transfers.[9,10] Note

[8]Amounts deflated using the Consumer Price Index, 1982-84=100.

[9]In 1970, 21.12 percent of married couples of age 20 to 44 has no children; 18.75 percent has one child; 25.95 percent has two children; 17.84 percent has three children, and 16.34 percent has four or more children. There is no relevant change in the distribution of the number of children from 1970 to 1980.

[10]The availability of data for that time period is restricted to cross sectional data. It is not possible to deduce

that this increase took place before the nationwide implementation of the first reform on child support through the Child Support Enforcement amendments of 1984 (Neelakantan (2009)).

Section 402 says about *Custody*:

> "The court shall determine custody in accordance with the *best interest* of the child."

Even thought changes in divorce law aimed to increase the gender (or parental) neutrality of child custody assignments, the observed percentage of sole custodial fathers did not substantially increase. From Weitzman (1985) and Jacob (1988), we can infer that until 1970, the custody was assigned to mothers in almost 100 percent of the cases. In 1986, data from the National Longitudinal Survey of the High School Class of 1972 (Fifth Follow-up) show that mothers are still the sole custodial parents in the 90.2 percent of the cases; fathers are given sole custody in the 3.2 percent of the cases; and, joint custody is agreed in the remaining 6.6 percent of the cases. Moreover, in a large number of cases, the non-custodial parent is entitled to visitation rights.[11]

4 The Model

Consider an economy populated by two groups of agents, males and females. At any point in time, they are either married or divorced. The objective of a marriage is to raise children, and to increase total resources by division of labor and coordination of investment in capital, as in Becker (1981). These processes involve time and the outcome is not known when the decision to marry is made. In particular, the model includes an endogenous source of uncertainty. When the quality of the match is below a given threshold − which depends on the value each partner enjoys from remaining single − the marriage breaks down.

Family resources are divided among four uses: consumption of husband and wife, denoted by c^m and c^f, respectively, expenditure on children, k, and a risk-free asset (or savings) b. I abstract

whether divorced mothers are sole or joint custodial parents of the children present in the household at the time of the survey. Moreover, it is not possible to distinguish between biological or step children.

[11] See Appendix B for details on the sample considered.

from the fertility decision and assume that the number of children, n, is exogenously given.[12] Each spouse has preferences defined over his consumption level, child expenditure, leisure, and time spent with children. Within the family, child expenditures are treated as public goods. The consumption levels of husband and wife, on the other hand, are private goods.

The allocation of family resources between public and private uses differs in the divorce and marriage states. During marriage, consumption and saving decisions depend on the individual decision power prevailing at that point in time and on all the variables having an effect on it. Moreover, the interdependence of public and private consumption creates an incentive for the two parties to coordinate their actions in every period.

If, the marriage fails, then most likely, legal intervention is required. The possibility of divorce imposes a risk on the two parties with respect to the maintenance level of the family's stock of children. This problem arises because of difficulties in monitoring the allocation of the custodial parent's expenditures when the partners live separately. If, for example, the wife has custody, then the husband is unable to determine whether the custodial parent spends a dollar on herself or on the children. She in turns treats all sources of her income (i.e., earnings, alimony, child support) as fungible. Essentially, the father cannot monitor time and income allocations of his former spouse; thus, through his child support transfer, he tries to influence the mother to spend more money on child goods and substitute hours of parenting for hours of paid work. But because the mother only spends a fraction of the transfer received from the father on child goods, the father does not fully capture the return from his child support payment. In other words, noncooperative behavior implies that the ex-spouses cannot negotiate and then commit to binding and costless enforceable agreements.[13] Hence, the difficulty of the outsider, non-custodial spouse, to verify actions and outcomes, excludes or limits divorce settlements that include payments conditioned on child expenditure. For similar reasons, the divorce settlement is not conditioned on the match quality

[12] Alesina and Giuliano (2007) show that the introduction of unilateral divorce did not seem to have an impact on marital fertility, but it affected the selection into marriage. As the parameterization of the benchmark model only considers couples married before the reforms, my results are not affected by this selection effect (see also Matouschek and Rasul (2008), and Wolfers (2006)).

[13] This problem is discussed in detail by Weiss and Willis (1985).

variable, since a third party cannot easily verify whether the two spouses were well matched.

These considerations lead to limit the attention to marriage contracts that fully specified the allocation of resources within the marriage, but designate only a transfer payment and custody rights for the state of divorce.

4.1 Preferences

Households consist of two individuals, a female f and a male m, with distinct utility functions. They are married at time 1, and live until time T. In every period of time $t \in \{1, \cdots, T\}$, the household's members choose how much to consume and to save. The working part of the life cycle goes from time 1 to time R (with $R < T$). During this active period, but for a shorter interval of time, from 1 to S (with $S < R$) only, parents allocate part of their time endowment to child care.[14] From time $R+1$ to time T, spouses are retired and thus make no labor market decisions.

Formally, let c^i and k denote member i's consumption of a private good and the amount of child's consumption, respectively. One unit of time endowment of spouse i is allocated between labor supply h^i, leisure l^i, and total child care nt^i, where n is the number of children. In this framework, member i's preferences are represented by some utility function separable across time and states of the world. Period utility for $i = f, m$ takes the following form:

$$U_t^{iMarried} = U(c_t^i, k_t, l_t^i, t_t^i) + q_t \quad (1)$$

$$U_t^{iDivorced} = U(c_t^i, k_t^i, l_t^i, t_t^i), \quad (2)$$

where $q_t \in [\underline{q}_t, \overline{q}_t]$ expresses the quality of the match and it is drawn at the beginning of every period from a uniform distribution. I assume that the utility function is logarithmic, as in Klaveren et al.

[14] This model differs from Aiyagari et al. (2000) because I assume that parents lose track of the children from time $S+1$ on. Not only the percentage of households older that 45 years old with children is negligible, but also, keeping track of the children would only scale up the utility level of married and divorced parents.

(2008)

$$U(c^i, k, l^i, t^i) = \log c^i + \log(nk+1) + \gamma_1^i \log l^i + \gamma_2^i \log(nt^i+1) \quad (3)$$

$$U(c^i, k^i, l^i, t^i) = \log c^i + \log(nk^i+1) + \gamma_1^i \log l^i + \gamma_2^i \log(nt^i+1) \quad (4)$$

with $\gamma_1^i, \gamma_2^i > 0$. The utility functions of married and divorcees differ in their definition over child's consumption, k. In intact households, we can expect cooperation between the spouses, and treat this kind of expenditure as a public good.[15] In non-intact households, the default behavior is non-cooperative, as in Del Boca and Flinn (1995). On one side, I assume that only the custodial parent takes charge of the expenses related to the children. This means that $k^i \geq 0$ if i is a custodial parent, but k^i is zero if she is not. On the other side, I assume that both parents may enjoy the time spent with the kids. Hence, $t^i \geq 0$ whenever the ex-spouses have children, and it is in compliance with their custody assignments.[16]

4.2 Resource Constraints

The budget constraint depends on the marital status. Let w_t^i denote wage rates at time t of spouse i. In marriage, the budget constraint is the following:

$$c_t^m + c_t^f + nk_t = w_t^m h_t^m + w_t^f h_t^f + (1+r)\, b_t - b_{t+1}, \quad (5)$$

where b is a risk-free asset accumulated during marriage and divided between the two spouses at the moment of divorce.

In divorce, spouses live off their individual income, assets, and possibly alimony and child support

[15] In intact households, resources are generally treated as indistinguishable and it is natural to assume that expenditure by parents are perfect substitutes for one another. Analysis that attempt to distinguish how resources are allocated across various items can be found in Chiappori (1992) and Del Boca (1998).

[16] This assumption becomes relevant when the visitation rights are included in the simulation of the model. Parents with rights to visit their children, but without full custody, may enjoy the time spent with them, pay child support transfers to the custodial parent, but do not bear the costs of their consumption.

transfers al. The custodial parent contributes to the consumption of the children. The budget constraint reads

$$c_t^i + nk_t^i = w_t^i h_t^i + (1+r)\, b_t^i - b_{t+1}^i + al_t^i \text{ where } \begin{cases} al_t^i > 0 & \text{if } i \text{ is a receiver} \\ al_t^i < 0 & \text{if } i \text{ is a payer} \\ nk_t^i > 0 & \text{if } i \text{ is a custodial parent} \\ nk_t^i = 0 & \text{if } i \text{ is not a custodial parent} \end{cases} \tag{6}$$

for $i = m, f$. In both (5) and (6), the term nk_t is zero when the household does not have any children. Each spouse's level of assets in the first period of divorce b_t^i depends on the percentage $x \in [0,1]$ of marital property assigned to spouse i at time t of divorce. The initial level of household assets b_1 at time of marriage is exogenously given; the final condition in both marital status is $b_{T+1} = b_{T+1}^i = 0$, for $i = f, m$.

4.3 Problem of the Divorcees

I now characterize the value of being divorced, given a vector of state variables ψ, where $\psi_t = (b_t, b_t^m, b_t^f, w_t^m, w_t^f, q_t, al_t^f, al_t^m)$. Divorce is an absorbing state. In each period, the divorcee chooses consumption, savings, labor supply, and child care time. The value of being a divorcee i at time t is

$$V_t^{iD}(\psi_t) = \max_{\{c_t^i, k_t^i, h_t^i, l_t^i, t_t^i, b_{t+1}^i\}} U_t^{iD} + \beta E\left[V_{t+1}^{iD}(\psi_{t+1})|\psi_t\right], \tag{7}$$

subject to the budget constraints (6), and the time feasibility constraint. The uncertainty of the future value function is due to the stochastic event of being a receiver (or a payer) of the alimony and child support transfers. At the beginning of each period, the realization takes place, but the future values remain unknown. Moreover, I assume that the probabilities of receiving or paying the transfers are positively correlated over time.[17]

[17] In section 6, I describe how the time persistence of the stochastic process is computed.

4.4 Specification of the Pareto Weight

Households maximize a Pareto weighted sum of the individual utility functions subject to the resource and time constraints. The Pareto weight represents the division of bargaining power between the household members, and it is a function of the hourly wages of the two spouses

$$\mu(w_t^m, w_t^f) = \Phi\left(\log\left(\frac{w_t^m}{w_t^f}\right)\right), \tag{8}$$

where Φ denotes the cumulative distribution function of the standard normal distribution, as in Klaveren et al. (2008). An advantage of this specification is that $\mu \in [0, 1]$ always holds.[18]

The dependency of the Pareto weight on wages requires some justifications. First, as mentioned by Browning et al. (2006), when the Pareto weight is not assumed to depend on wages then the model is equivalent to the standard unitary model. The inadequacy of the unitary model to analyze the household decision process has been emphasized in the literature (e.g., Alderman et al. (1995)). Second, as empirically established by Schultz (1990) and Duncan (1990), wages affect allocation choices not only through the aggregate resource constraint, but also through their impact on the decision process. That is, saving, consumption, and labor supply behavior change over time not only because of variation in wages, but also because of changes in the relative decision power of each individual.

Another remark is in order. The Pareto weight changes every period in line with the wage profiles of the spouses. This implies that couples implicitly re-contract every period over the allocations according to each member's bargaining power. This assumption makes the model different from a full-commitment problem where the Pareto weights are constant over time, and allocations are negotiated once and for all at the moment of the household formation. Here, the implicit renegotiation of allocations takes place at the beginning of every period, but before the decision to divorce is made.

[18] In the rest of the paper μ will correspond to the bargaining power of the husband. For the wife it will be equal to $(1 - \mu)$.

5 Consensual Divorce - Household's Program

Let $\psi_t = (b_t, b_t^m, b_t^f, w_t^m, w_t^f, q_t, al_t^f, al_t^m)$ and $o_t = (c_t^f, c_t^m, k_t, l_t^f, l_t^m, t_t^f, t_t^m, h_t^f, h_t^m, b_{t+1})$ denote the set of state variables and feasible allocations, respectively. For any given (w_t^m, w_t^f) and Pareto weighting factor $\mu_t = \mu(w_t^m, w_t^f) \in [0,1]$, there exists a feasible allocation $o_t^* \in o_t$ that solves the following program at the beginning of period t

$$V_t(\psi_t) = \max_{\{o_t\}} \left\{ \mu_t U_t^{mM} + (1-\mu_t) U_t^{fM} + \beta E[\mu_{t+1} W_{t+1}^m(\psi_{t+1}) + (1-\mu_{t+1}) W_{t+1}^f(\psi_{t+1}) | \psi_t] \right\}, \tag{9}$$

subject to the budget constraint (5) and the time feasibility constraints for both $i = m, f$. The continuation value $W_\tau^i(\psi_\tau)$, for any $\tau > t$ is defined as follows:

$$W_\tau^i(\psi_\tau) = \begin{cases} V_\tau^{iD}(\psi_\tau) & \text{if } V_\tau^{iD}(\psi_\tau) > V_\tau^{iM}(\psi_\tau) \text{ for } \textbf{\textit{both}}\ i = f, m; \\ V_\tau^{iM}(\psi_\tau) & \text{otherwise.} \end{cases} \tag{10}$$

The value of being a divorcee $V_\tau^{iD}(\psi_\tau)$ results from the solution of problem (7). The value for spouse i of remaining married $V_\tau^{iM}(\psi_\tau)$ is

$$V_\tau^{iM}(\psi_\tau) = U(c_\tau^{i*}, k_\tau^*, l_\tau^{i*}, t_\tau^{i*}) + q_\tau + \beta \left\{ E\left[W_{\tau+1}^i(\psi_{\tau+1}) | \psi_\tau \right] \right\}, \tag{11}$$

where $(c_\tau^{i*}, k_\tau^*, l_\tau^{i*}, t_\tau^{i*})$ belongs to the allocations o_t^* that solve problem (9).

The model is solved by backward induction from the terminal node. To clarify the solution method, consider any arbitrary period $t < T$. Each couple enters the period with a stock of assets, and a certain match quality. They draw a new match quality, and choose allocations for the case they divorce and the case they remain married, as solutions to problems (7) and (9), respectively. These allocations are then used by each one of the spouses to evaluate the level of current and future utilities associated with the two marital status, that are given by (7) and (11). Afterwards, they select the one that yields the highest level of utility. If at least one of them prefers to stay married, the household remains intact; if *both* of them prefer to divorce, the couple will split. Thenceforth,

they spend the rest of the period consistently with their marital status choice.[19]

One important implication of this model is that the number of divorces may be inefficiently low. In this environment, the desire of one spouse to remain married is sufficient to avoid separation, and side payments among partners in the attempt to obtain divorce are ruled out. The only compensations allowed are those established by law, i.e., alimony and child support transfers.[20] Hence, there may be spouses that are forced to remain married even when one of the them would agree to dissolve the household in exchange for post-marriage transfers.

6 Calibration of the Baseline Economy

The calibration strategy consists of two stages. First, some parameters are assigned numerical values from the data. Second, the remaining parameters are estimated using the method of simulated moments based on cross-sectional patterns of age-specific divorce rate, average time spent in the market and in child care by married agents in the U.S. in 1970. Table 2 summarizes the parameters which are calculated directly from the data.

The annual gross interest rate is set to $(1 + r) = 1.03$. Consequently, the discount rate is $[1/(1 + r)]^t$, where t is equal to 25 years for the first period of the life cycle, and it is equal to 15 in the second and third period. The average age-profile for wages, w_t^i, is computed from the 1970 IPUMS-USA by dividing the individual labor income by the total hours worked. The age-profile of wages is smoothed using a cubic polynomial in age (Figure 3 in Appendix B). Households retire at the age of 60, consume their savings, and do not receive any pension transfer. The percentage of married households with children is computed from the 1970 IPUMS-USA. I only distinguish between married households of age between 20 and 44 with children (82 percent), and married households without children (18 percent). The initial distribution of assets matches the distribution of assets of married households of age 20-44 in 1962 in the U.S. According to Bossons (1973): 93

[19] A detailed description of the algorithm used to solve the model can be found in Appendix A.

[20] It is reasonable to believe that post-marriage payments, are difficult to be enforced. Moreover, before the introduction of the Uniform Marriage and Divorce Act, prenuptial agreements were not enforceable by the law.

percent of these households owned assets for a value lower than $15,000 (1962 U.S. dollars); 4.7 percent had assets for a value between 15 and $30,000; 1.7 percent owned assets valued between 30 and $60,000; the remaining 0.6 percent had assets valued more than $60,000.

Table 2: Exogenous Parameters

Parameter	Value	Reference
Initial age	20	
Age at retirement	60	
Age at death	75	
Years in first period	25	
Years in other periods	15	
Gross interest rate (1+r)	1.03	Attanasio et al. (2008)
Period discount factor β	$[1/(1+r)]^t$	
Age-profile of wages w_t^i		1970 IPUMS-USA
Percentage of married households with children	82.47%	1970 IPUMS-USA
Households' asset distribution		Bossons (1973)
Divorce Financial Settlements:		
Alimony transfers		1970 IPUMS-CPS
Percentage of marital property to wife $x \in (0,1)$		Weitzman (1985), Table 12
Percentage of parents with full custody		Weitzman (1985)

The divorce settlements that characterize the baseline economy are the following: (i) the amount of alimony and child support transfers are calculated from the 1970 IPUMS-CPS.[21] They are fed in as a fixed proportion of the household income; (ii) the property division rule is set according to Weitzman (1985), as shown in Table 12. That is, in 1970, at time of divorce, only 2 percent of husbands were entitled to receive 80 percent of the property; 12 percent of husbands were inheriting 50 percent of the marital property; and, the remaining 86 percent were obtaining 20 percent of the property; (iii) following Weitzman (1985), divorced women are the full custodial parents.

[21] This information is not available in the IPUMS-USA.

6.1 Moment Conditions

In order to characterize the household preferences described in section 4.1, several parameters are needed: four which identify the utility function $(\gamma_1^f, \gamma_1^m, \gamma_2^f, \gamma_2^m)$, the upper and lower bounds of the uniform distributions of q_t for $t = 1, 2, 3$, and the discount factor β. The eight structural parameters that are calibrated are the following: the lower bound on the match quality distribution at $t = 1$, $\underline{q}_1$; the lower bound on the match quality distribution at $t = 2$, $\underline{q}_2$; the lower bound on the match quality distribution at $t = 3$, $\underline{q}_3$; the females' preference parameter on leisure γ_1^f; the males' preference parameter on leisure γ_1^m; the mother's preference parameter on child care time γ_2^f; the father's preference parameter on child care time γ_2^m; and, the persistence parameter ρ that characterizes the conditional probability of receiving alimony and child support transfers. It is assumed to be constant over time. They are listed in Table 3.

Table 3: Calibrated Parameters

Parameter		Value
Lower bound on distribution of q_1	$\underline{q}_1$	-0.20
Lower bound on distribution of q_2	$\underline{q}_2$	-9.69
Lower bound on distribution of q_3	$\underline{q}_3$	-2.17
Preference parameter on leisure	γ_1^f	3.21
Preference parameter on leisure	γ_1^m	2.02
Preference parameter on child care time	γ_2^f	0.97
Preference parameter on child care time	γ_2^m	0.62
Conditional probability of al_t	ρ	0.76

Let $\Theta = (\underline{q}_1; \underline{q}_2; \underline{q}_3; \gamma_1^f; \gamma_1^m; \gamma_2^f; \gamma_2^m; \rho)$ define the vector of structural parameters to calibrate.[22] The parameter values Θ are identified so that the resulting statistics in the model economy $G_j(\Theta)$ are determined by the eight specified targets G_j for $j = 1, \cdots, 8$ measured in the U.S. cross-section (in Table 4). In particular, I solve the dynamic model under consensual divorce for vectors of possible values of structural parameters $\Theta = (\underline{q}_1; \underline{q}_2; \underline{q}_3; \gamma_1^f; \gamma_1^m; \gamma_2^f; \gamma_2^m; \rho)$, given the realizations of the match quality shocks. I then draw the shocks and use the policy functions to obtain the simulated patterns

[22] The upper bounds of the distributions of q are all set to 5.0. Robustness checks are run.

for household assets, time allocation choices, and marital status. I obtain a vector of coefficients $G_j(\Theta)$. The optimal choice of $\hat{\Theta}$ minimizes the difference between the moments from the actual data and moments from the simulated data.

The data for the eight targets come from three different sources: Kunz and England (1988), the IPUMS-USA, and the American's Time Use Survey. Data from Kunz and England (1988) are used to compute the average age-specific divorce rate per 1,000 of married females in each age group (23.10 for the young couples, 5.9 for the mid-age, and 1.8 for the elder couples). The IPUMS-USA is used to estimate the average number of hours worked by married women (17 percent of the total time), the average number of hours worked by married men (33 percent of total number of hours), and the divorce rate of young couples with children (17.10 per 1,000 of married females).[23] The American's Use of Time Survey is used to estimate the average amount of yearly hours that married mothers and fathers spent in child care (2,540 and 525, respectively).[24]

Table 4: Moments targeted in the estimation

Calibration target	Data	Model	Data Source
Divorce rate young couples 20-44	23.1	23.0	Kunz and England (1988)
Divorce rate mid-age couples 45-59	5.9	5.9	Kunz and England (1988)
Divorce rate elder couples 60-75	1.8	1.8	Kunz and England (1988)
Hours worked by married females	0.17	0.17	1970 IPUMS-USA
Hours worked by married males	0.33	0.33	1970 IPUMS-USA
Child care hours by married mothers	0.29	0.29	Time Use Survey, 1965-1966
Child care hours by married fathers	0.06	0.06	Time Use Survey, 1965-1966
Divorce rate of young couples with children	17.10	17.0	1970 IPUMS-USA

7 Changing the Financial Settlements

The quantitative importance of the mechanism built into the model can be assessed by its ability to generate an increase in divorce rate. In this experiment, I *simultaneously* introduce the three

[23] Consequently, the divorce rate of young couples without children is about 6 per 1,000 of married females.
[24] More details about the dataset are in Appendix B.

following changes: (i) alimony and child support transfers and probability of paying/receiving them changed as in Table 1; (ii) property division rule: husbands get a percentage of property that varies between 48 percent and 51 percent of the marital property; (iii) child custody: mothers have full custody with a probability of 90.2 percent; fathers are sole custodial parents with a probability of 3.2 percent; and, joint custody occurs in the remaining 6.6 percent of the cases. Moreover, when only one of the parents is the sole custodial, the ex-spouse is assigned with visitation rights in the 90 percent of the cases. The source is the National Longitudinal Study (NLS) of the High School Class of 1972 (Fifth Follow-up, 1986). I assume that the household income or the age-wage profile did not change form 1970 to 1980.

Table 5 reports the results of the experiment.[25] The model explains about 32 percent of the increase in divorce rate of the young couples, and about 5 percent of the increase in divorce rate of mid age and elder couples. In aggregate terms, it accounts for about 31 percent of the increase in the divorce rate from 1970 to 1980.

The divorces taking place in the baseline economy calibrated to 1970 are mainly generated by low draws of match qualities in the three periods of the life cycle. Analyzing the divorce policies of young men and women, it emerges that the number of women (with children) willing to divorce is higher than that of men.[26] In other words, once hit by a bad matching shock, women are more willing to divorce and leave with the children than their husbands. This can be explained by the highly unequal rule of assets division at the time of divorce.

In the simulated economy that represents the Eighties, the willingness to divorce of husbands increases as they receive a higher share of assets that compensates for the higher values of alimony and child support transfers. At the same time, wives gain from trading a share of assets against an increase in liquidity means. The positive net gain of both spouses is driven by the fact that, at time of divorce, husband and wife have different preferences and needs. In particular, the wife will have to bear the entire cost of her current child's consumption and to allocate part of her time

[25] It is important to underline that all these changes are implemented in the model where the structural parameters and the various shocks are those of the baseline economy calibrated to the 1970.

[26] Recall that divorce is consensual, hence it takes place only if both of the spouses agree to divorce.

in child care. The husband will have to provide for his own consumption and for the current and future transfers to the wife. Hence, wives (and especially mothers) weight higher the increase in (current) transfers than the decrease in assets (and hence, on the discounted value of own future consumption). Viceversa for husbands.

Table 5: Results

Age		1970	1980	Change	% of Actual
20-44	Data	23.10	31.0	7.90	
	Model	23.0	25.54	2.54	32.15
45-59	Data	5.90	7.0	2.10	
	Model	5.40	5.50	0.10	4.76
60+	Data	1.80	2.0	0.20	
	Model	1.80	1.81	0.01	5.0
All	Data	13.90	22.60	8.70	
	Model	13.71	16.39	2.68	30.80

To better understand the mechanism at work, consider a simple one-shot version of the model where spouses are married and have children. Their intra-household allocations in marriage are functions of the Pareto weights, and not on the divorce settlements. The divorce allocations depends on the share of property inherited from marriage and on the amount of alimony paid or received. Since the Pareto weights would remain the same in the simulated economy of the Eighties, it is enough to analyze how the divorce allocations are going to differ. Before the change of the divorce settlements, the low Pareto weight of the wives provides them the incentive to leave the household. After the change of the law, the Pareto weights do not change, and while the average share of property assets decreases in favor to men, the expected value of alimony transfers increases. Hence, those mothers who were willing to divorce in the Seventies, are still willing to divorce in the Eighties. Moreover, we have to add the fraction of women with a low Pareto weight that will be willing to divorce because the average decrease in assets' value is smaller than the expected increase in alimony. Husbands have a higher weight in marriage and are entitled to a low share of assets in the Seventies.

Their utility in divorce in the Eighties raises if the average increase in assets' value is (even slightly) higher than the increase in alimony transfers. Finally, the number of couples divorcing in the new simulated economy will be equal to the number of divorces that took place in the Seventies plus the number of couples where men are rewarded by an average net increase in asset value and wives have a very low Pareto weight in marriage.

The mechanism is different for couples in the later stage of the life cycle, because of the negligible change in alimony transfers. In particular, in the baseline economy, for some low levels of match qualities, mid age wives are more willing to step out of the marriage than their husbands. Changing the legal system, only in couples hit by a very bad match quality shock, wives are still willing to separate and transfer a share of assets to their husbands.

7.1 Who Drives These Quantitative Predictions?

In order to understand which subgroup of the population drives the results, I disentangle the increase in the divorce rate among couples with or without children, and couples with high or low education level. Since the model does not take into account the accumulation of years of schooling, I use the earnings of the husband as a proxy for the education level. In the data, the divorce rates by number of children and education level are my computations using the percentage of divorced with or without children, and of different education levels in the IPUMS-USA. The computation takes into account the general increase in the percentage of young women without children of 0.7 percentage points, and the increase in the percentage of young men with some college degree of 6.5 percentage points.

As we can see from Table 6, the model predicts a satisfying increase in the rates.[27] In particular, the model generates a higher change in the rate of divorce of couples with children, than of childless couples. As explained above, only young couples where wives benefit from an increase in average alimony payments were possible candidates to divorce in the simulated economy of the Eighties. Data show that such increase is mostly affecting women with children.

[27]Note that the divorce rate by presence of children is a matched moment of the baseline economy. On the contrary, the divorce rates reported in Table 6 for the 1980 are predictions of the model.

Table 6: Divorce Rate by Number of Children

		1970	1980	Change
With Children	Data	17.10	22.70	5.60
	Model	17.0	19.54	2.54
Without Children	Data	6.0	8.30	2.30
	Model	6.0	6.0	0

The fact that couples with children were more likely to divorce than those without is also documented by the National Center for Health Statistics (1989). They report data on petitioner (or the party that first files for divorce). On average, among childless couples, the wife was the petitioner in 57 percent of the cases and the husband was the petitioner in 37 percent of the cases. Among couples with children, the wife was the petitioner in 66 percent of the cases, and the husband in 29 percent of the cases. To explain this phenomenon, four hypotheses are suggested: (i) husbands, facing the prospect of child support payments, may be reluctant to file for divorce when there are children; (ii) remarriage rates for older women are lower than remarriage rates for older men. Generally, childless women are older on average than women with children; (iii) as women are granted custody in most cases, divorce may mean separation from children to fathers that refuse to file for divorce; (iv) wives are first to file for divorce if they feel that the petitioner has a higher probability to get custody. This last hypothesis is also supported by reports from divorce attorneys cited by Weitzman (1985). The model has nothing to say about hypothesis (ii), but it may be thought of a rationalization of the other three hypotheses.

In terms of education level (or husband's hourly earnings), the model replicates the higher level of divorces among the low educated couples, and the higher increase in divorces experienced by high educated couples. Note that none of these moments is a matched moment in the baseline economy.

Results are shown in Table 7. In both the benchmark and the experiment economy, the probability of divorcing is higher for lower educated (earnings) households. Given the high proportion of asset share attributed to wives at time of divorce in 1970, husbands in wealthy households will prefer to remain married and take advantage of the public good. In the new legal framework, when

the sharing rule approaches the fifty percent, incentives to high earnings husbands increase as they take advantage of a bigger part of the marriage pie.

The change in marital property law does not have a relevant impact on lower educated families. In 1970, the divorce rate of lower educated couples is driven by fathers that, hit by a bad match quality, preferred to step out of the marriage. In 1980, wives of those same fathers are also provided with cash incentives to leave the households. In both cases, the decision to divorce is only weakly correlated to the amount of marital savings to split.

Table 7: Divorce Rate by Education Level

		1970	1980	Change
Less than College	Data	17.30	20.10	2.80
	Model	21.34	22.45	1.11
Some College and More	Data	5.80	10.90	5.10
	Model	1.65	3.09	1.44

7.2 Change in Earnings and Implications on Allocations

In this section I add the change in wages that took place from 1970 to 1980 to the previous experiment. From Figure 3, we can observe an increase of wage starting from the age of forty. Ex-ante, the effects of these wage changes on the divorce rate are hard to predict: an increase in the spouse's wage raises women's gains from marriage, while an increase in women's wages reduces these gains, two opposing effects. It turns out that the second effect prevails over the first, so that the predicted aggregate divorce rate in 1980 is 17.7 per thousands of married women (versus 16.39 obtained above). The highest change is experienced by young couples, followed by mid age couples. The mechanism through which this works is by increasing the expected continuation value of divorcees, especially of women who are characterized by a flatter age-wage profile than men.

The exercise predicts changes of child care and market time allocations in line with those observed in the data. The changes mostly regard the time spent in child care. In the baseline experiment,

married women decrease it by 3 percentage points, and married men increase it by 50 percentage points. These results are stronger when including the increase in absolute wages. In particular, this change leads to an increase of market time allocation by married women of 6 percent, and to a decrease in child care time of 22 percent.[28]

8 Unilateral Divorce

8.1 Household's Program

So far, the decision to divorce was conditional on *both* spouses' willingness to dissolve the household, without possibility of renegotiation. In this section, a spouse may divorce without the consent of the partner. But, the latter has the possibility to offer a side payment to the former in order to preserve their marriage.

In this environment, household decisions are the solution of a Pareto problem which contains a set of participation constraints for each spouse, the standard budget constraint, and the time feasibility constraints for both $i = m, f$. The sets of state variables and feasible allocations are defined as in section 5, that is $\psi_t = (b_t, b_t^m, b_t^f, w_t^m, w_t^f, q_t, al_t^f, al_t^m)$ and $o_t = (c_t^f, c_t^m, k_t, l_t^f, l_t^m, t_t^f, t_t^m, h_t^f, h_t^m, b_{t+1})$, respectively. This problem can be solved using a two-step approach. In the first step, optimal allocations are computed without taking into account the participation constraints. The bargaining power $\mu_t = \mu(w_t^m, w_t^f)$ is specified in section 4.4, and in every period, its default value is the same as the one in the consensual divorce model.

The maximization problem is the following:

$$V_t(\psi_t) = \max_{\{o_t\}} \left\{ \mu_t U_t^{mM} + (1-\mu_t) U_t^{fM} + \beta E[\mu_{t+1} W_{t+1}^m(\psi_{t+1}) + (1-\mu_{t+1}) W_{t+1}^f(\psi_{t+1}) | \psi_t] \right\} \tag{12}$$

subject to the budget constraint (5), and the time feasibility constraints for both $i = m, f$. W_{t+1}^i is

[28] In the data, market hours increase by 12 percent, and child care time by 31 percent.

the value function of agent i at time $t+1$. The value of remaining married is

$$V_t^{iM}(\psi_t) = U(c_t^{i*}, k_t^*, l_t^{i*}, t_t^{i*}) + q_t + \beta E\left[W_{t+1}^i(\psi_{t+1})|\psi_t\right] \text{ for } i = f, m, \tag{13}$$

where $(c_t^{i*}, k_t^*, l_t^{i*}, t_t^{i*})$ are solutions to problem (12). In the second step, it is verified whether the participation constraints of both agents are satisfied, that is

$$V_t^{iM}(\psi_t) \geq V_t^{iD}(\psi_t) \text{ for } i = f, m, \tag{14}$$

where $V_t^{iD}(\psi_t)$ is the solution of the already seen problem (7). If both participation constraints are satisfied, the spouses stay married. If both agents are constrained, there is no feasible renegotiation that makes both spouses better off relative to being single, and the household dissolves. If only spouse i is constrained, the couple renegotiates the allocation so that the constrained spouse is indifferent between being single and married. This goal is achieved by increasing the Pareto weight assigned to the preferences of the spouse with a binding participation constraint i. This implies to find allocations and a Pareto weight μ_t' that are the solutions to the following problem:

$$V_t(\psi_t) = \max_{\{o_t, \mu_t'\}} \left\{\mu_t' U_t^{mM} + (1-\mu_t') U_t^{fM} + \beta E[\mu_{t+1} W_{t+1}^m(\psi_{t+1})|\psi_t + (1-\mu_{t+1}) W_{t+1}^f(\psi_{t+1})|\psi_t]\right\} \tag{15}$$

subject to

$$U_t^{iM} + \beta E\left[W_{t+1}^i(\psi_{t+1})|\psi_t\right] = V_t^{iD}(\psi_t), \tag{16}$$

to the usual budget constraint (5), and the time feasibility constraints for both $i = m, f$. If the participation constraint of spouse j is also satisfied, the couple remains married, and the value of agent i of remaining married reads

$$V_t^{iM}(\psi_t) = U(c_t^{i**}, k_t^{**}, l_t^{i**}, t_t^{i**}) + q_t + \beta E\left[W_{t+1}^i(\psi_{t+1})|\psi_t\right] \text{ for } i = f, m, \tag{17}$$

where $(c_t^{i**}, k_t^{**}, l_t^{i**}, t_t^{i**})$ are solutions of problem (15). Otherwise, they divorce. Hence, the contin-

uation value is defined as follows:

$$W_t^i(\psi_t) = \max\{V_t^{iM}(\psi_t), V_t^{iD}(\psi_t)\} \text{ for } i = f, m. \tag{18}$$

The functioning of the model can be summarized as follows. In every period, the household determines the optimal allocation of resources by weighting individual preferences using the decision power that prevails in that period. At this allocation, it may happen that for one of the two spouses it is optimal to choose the alternative of divorce. At that point, the spouse who prefers to remain married, can persuade the other by offering him a larger fraction of the intra-household resources than the one established by the initial household planning problem. This renegotiation corresponds to the intra-household allocation at which the constrained agent is indifferent between being single or married in period t. If at this allocation the spouse is also better off being married, the couple will remain married with a new decision power μ_t'. The couple then consumes and saves according to the new allocation until one of the participation constraints binds once again and the process is repeated.

The consensual and unilateral models differ in two main aspects. First, the decision to divorce depends on either both or one of the spouses, respectively. Second, the renegotiation of the household allocation is feasible only in the unilateral divorce model. Note that a simple change of the decision to divorce in the model of section 5, from consensual to unilateral, would generate a spike in the number of divorces. To limit this effect, within-marriage transfers are permitted once the willingness to divorce is expressed by one spouse.[29]

8.2 Discussion

In this section I discuss the results produced by the simulation of the model presented above. First, I solve the unilateral divorce problem where agents live in an economy parameterized as in the

[29]It is also reasonable to think that, while post-marriage transfers are not easily enforceable, within-marriage payments are more realistic.

Seventies. This allows me to compare the predictions of the structural model to the results produced by the empirical literature. Second, I add to this economy, the changes in financial settlements. In the latter case, the simulated economy has all the features of the legal system of the Eighties.[30] Table 8 summarizes the results in terms of divorce raters.

Table 8: Results

Age		1970	1970 Unilateral	1980 Consensual	1980 Unilateral
20-44	Data	23.10			31.0
	Model	23.0	23.72	25.54	25.94
45-59	Data	5.90			7.0
	Model	5.40	5.36	5.50	5.50
60+	Data	1.80			2.0
	Model	1.80	1.80	1.81	1.81
All	Data	13.92			22.60
	Model	13.53	14.07	16.39	16.62

The first column is the result of the calibration in section 6. In the second column, I report the divorce rates predicted by the unilateral divorce model where the parameters are those of the Seventies. The third and forth columns show the divorce rate in the Eighties with consensual and unilateral divorce decisions, respectively.

The numbers illustrate that the introduction of the unilateral divorce law alone accounts for about 6 percent of the total increase in the aggregate divorce rate, from 13.53 to 14.07. Adding the unilateral divorce decision to the change in financial settlements does not substantially improve the results found in section 7, predicting an increase in the rate from 16.39 to 16.62.

The renegotiation process involved in the unilateral divorce model, implies that one happy spouse can redistribute the spoils of marriage to keep the couple together. The fact that the observed rise in divorce is so small relative to the one generated by the consensual divorce problem suggests that, through bargaining, couples are able to effect sufficient transfers to stay married even when the

[30] In both exercises, the parameters are those estimated in section 6, Table 3.

law would allow the unhappy spouse to exit the marriage unilaterally. Moreover, the increase in the divorce rate due to the sole unilateral decision to divorce is mainly driven by low educated (or low wage) couples, where the happy spouse is not willing to maintain the relationship after the concession of a higher Pareto weight to the unhappy spouse.

9 Welfare Analysis

In order to assess the behavioral effects of the experiments, I compute the average utility of individuals during their life cycle. Each agent is identifiable by several indexes assigned in the simulation of the baseline economy: wage rate, initial asset endowment, presence of children, and match quality shocks. These characteristics make it possible to compare the deviation of welfare from the baseline economy for several subgroups of agents, distinguishing by gender, marital status, wage profile, and presence of children. This means that the reference groups will be those of an economy of the Seventies with consensual divorce. For each group of interest, I discuss the change in welfare in the other economies, even if the individuals do not necessarily belong to the same subgroup in the new exercise.[31] I assume that the wage rate is perfectly correlated with the education level, and distinguish between agents having or not a college degree, based on their wage profile.

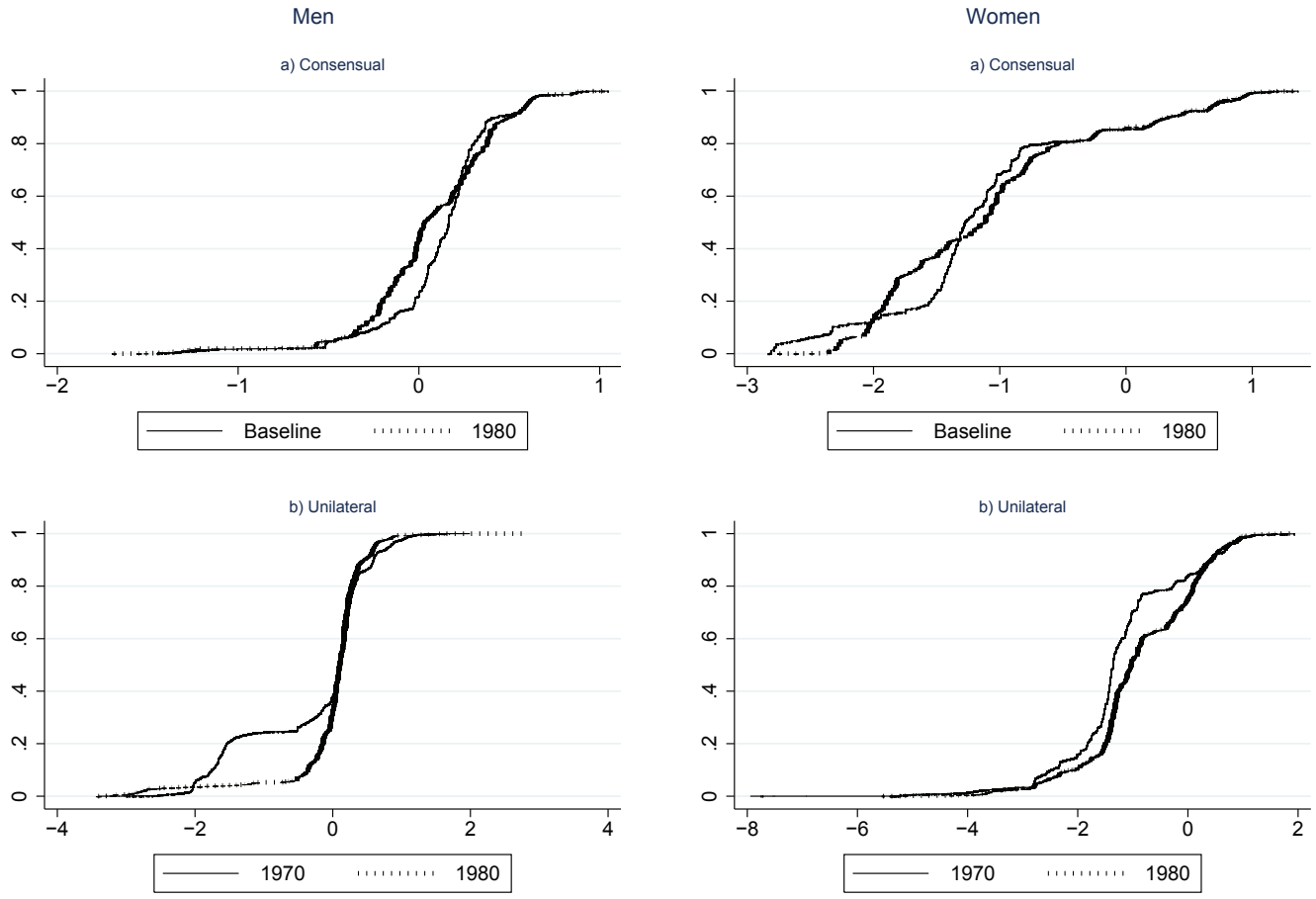
Figure 1 plots the cumulative distribution function of welfare by gender in the four different simulated economies. In both panels a) and b), the economy of the Eighties is characterized by the new divorce financial settlements. The difference between panel a) and b) is the divorce decision, which is consensual in the former and unilateral in the latter.

We can observe that both the introduction of the new financial settlements and the unilateral decision to divorce have some effects on agents' welfare. The former impacts the allocations in divorce, the latter modifies the allocations in marriage. In general, agents are better off when the decision to divorce is consensual, but the change in divorce settlements decreases their welfare. The

[31] The positive or negative changes in welfare have not to be confused with the decision to divorce. Note that in each experiments the allocations are different depending on the policy changes, and the decision to divorce depends on the current value of marriage and the respective outside option.

results are asymmetric for men and women. In the consensual case, the introduction of the new financial settlements increases the wellbeing of women by 1 percent, and decreases that of men. In the unilateral case, the welfare of men is higher in the economy with new financial settlements.

Figure 1: Welfare by Gender



Source: Computations from model simulation

As shown in Table 9, women who experience an increase in welfare in the consensual economy of the Eighties are generally mothers with a low Pareto weight in marriage (or low educated) in the Seventies.[32] The group of men experiencing an increase in welfare is composed by those who do not have children, especially if they do not have a college degree. On one side, the increase in alimony

[32]Recall that the utility function is logarithmic, hence welfare can take negative values.

and child support increases the average value of allocation of low educated mothers compared to the Seventies. On the other side, the more fair division of property of the Eighties favors men increasing their average allocation value in divorce.

Adding the possibility of divorcing unilaterally, and hence of bargaining over the marriage allocations, increases the wellbeing of women without children, especially if highly educated. The result is again different for men. The intra-household renegotiation increases the welfare of fathers of any education level.

Table 9: Average Welfare by Gender, Presence of Children, and Education Level

		less than college		college and more	
		with children	no children	with children	no children
		WOMEN			
Consensual	1970	-1.659	0.121	-1.191	0.473
	1980	-1.589	0.102	-1.252	0.455
Unilateral	1970	-1.197	-0.225	-0.870	-0.217
	1980	-1.671	-0.066	-1.363	-0.208
		MEN			
Consensual	1970	-0.049	0.398	0.210	0.302
	1980	-0.085	0.408	0.078	0.311
Unilateral	1970	-0.613	0.521	-0.264	0.528
	1980	-0.146	0.438	-0.077	0.305

Source: Computations from model simulation

10 Conclusions

At the end of Sixties, the divorce law underwent major modifications. This paper assesses the quantitative impact of the changes introduced by the *Uniform Marriage and Divorce Act* on the divorce rate. Unlike the existing empirical literature, I do not restrain the analysis to the unilateral divorce law, but I study the change in divorce settlements in combination with the change of divorce

decision.

First, when divorce is consensual, I find that new divorce financial settlements contribute to a substantial increase in divorce rate. In particular, changes in child custody assignments, alimony transfers and division of property account for 32 percent of the rise in the divorce rate of couples in the age group 20 to 44 years old, and for 5 percent of the increase in divorce rate of elder couples. Moreover, consistently with the data, the model predicts a higher increase in the divorce rate of young couples who have children and are college educated. The simulated divorce rates are closer to the observed rates when the raise in the absolute wages of men and women is added to the baseline experiment. Accounting for this change in the labor market allows to explain the shift in the allocation of time from child care to market activity that has been experienced by married women from 1970 to 1980.

Second, I introduce the unilateral divorce decision alone and obtain results that are in line with the existing empirical literature. When this law is combined to the changes in financial settlements, the increase in divorce rate is similar to that predicted by the same model with consensual decision to divorce.

The model provides a framework where changes in the components of a divorce agreement can be analyzed. The experiment shows that alterations of the institutional setup of the divorce impact different categories of the population, depending on the nature itself of the changes.

A Numerical Solution and Algorithm

The household model is solved numerically by backward induction from the terminal node, under the condition that $b_{T+1} = b^m_{T+1} = b^f_{T+1} = 0$. At each state, I solve for the value function and the optimal policy rules, given the current state variables and the solution to the value function in the next period $t < T$. Consider any arbitrary period. Each couple enters the period with a stock of assets, and a certain match quality. They draw a new match quality, and choose allocations for the case they remain married, and the case they get divorced.

More specifically, consider the terminal node at time T, when agents are not employed and have not children. The value of being a divorcee i is computed by solving the following problem:

$$\begin{aligned} V^{iD}_T(\psi_T) &= \max_{\{c^i_T, l^i_T\}} U^{iD}_T && (19) \\ \text{s.t.} \quad & c^i_T = (1+r)\, b^i_T. && (20) \end{aligned}$$

To determine the value of marriage and the decision to divorce, it is necessary distinguish the two divorce law regimes: consensual and unilateral.

Consensual Divorce. The intertemporal behavior of a couple in period T is characterized by a Pareto problem, as discussed in section 5. First, optimal allocations are computed solving the following problem:

$$\begin{aligned} V_T(\psi_T) &= \max_{\{c^i_T, l^i_T\}_{i=f,m}} \left\{ \mu_T U^{mM}_T + (1-\mu_T) U^{fM}_T \right\} && (21) \\ \text{s.t.} \quad & c^m_T + c^f_T = (1+r)\, b_T. && (22) \end{aligned}$$

Let c^{i*}_T and l^{i*}_T for $i = f, m$, be the solutions of the couple's problem. Agent i's value of being married at the current bargaining power μ_T is

$$V^{iM}_T(\psi_T) = U(c^{i*}_T, l^{i*}_T) + q_T, \quad (23)$$

Two possible cases may arise. First, for *both* spouses it is true that $V_T^{iD}(\psi_T) > V_T^{iM}(\psi_T)$, then they divorce. Second, if *at least one* spouse prefers marriage to divorce, they remain married with a value equal to $V_T^{iM}(\psi_T)$. Given spouse i's value in period T, the decision process in any arbitrary period $t < T$ can be outlined, as in section 5.

Unilateral Divorce. The intertemporal behavior of a couple in period T is characterized by a Pareto problem with participation constraints. As explained in section 8.1, the problem is solved in two steps. In the first step, optimal allocations are computed, disregarding the participation constraints and using the bargaining power μ_T. The problem is

$$V_T(\psi_T) = \max_{\{c_T^i, l_T^i\}_{i=f,m}} \left\{ \mu_T U_T^{mM} + (1-\mu_T) U_T^{fM} \right\} \tag{24}$$

$$\text{s.t.} \quad c_T^m + c_T^f = (1+r)\, b_T. \tag{25}$$

Let c_T^{i*} and l_T^{i*} for $i = f, m$, be the solutions of the couple's problem. Agent i's value of being married at the current bargaining power μ_T is

$$V_T^{iM}(\psi_T) = U(c_T^{i*}, l_T^{i*}) + q_T, \tag{26}$$

In the second step, it is verified whether the individual participation constraints are satisfied, i.e.,

$$V_T^{iM}(\psi_T) \geq V_T^{iD}(\psi_T) \text{ for } i = f, m. \tag{27}$$

Three possible cases may arise. First, the participation constraints are satisfied for both agents, hence they remain married with a value equal to $V_T^{iM}(\psi_T)$. Second, the participation constraints are binding for both agents. In this case, both agents are better off as single, and they divorce. Third, only one agent is constrained. Assume that agent f's participation constraint is binding. The optimal allocation is such that the wife is indifferent between being single and married. This allocation is determined by choosing individual consumption, leisure, and the new bargaining power

μ'_T that solve the following problem:

$$V_T(\psi_T) = \max_{\{c_T^i, l_T^i, \mu'_T\}_{i=f,m}} \left\{ \mu'_T U_T^{mM} + (1-\mu'_T) U_T^{fM} \right\} \tag{28}$$

$$\text{s.t.} \quad c_T^m + c_T^f = (1+r)\, b_T \tag{29}$$

$$U_T^{fM} = V_T^{fD}(\psi_T). \tag{30}$$

Let (c_T^{f**}, l_T^{f**}, c_T^{m**}, l_T^{m**}, $\mu_T^{'**}$) be the solution to this problem. If the participation constraint of agent m is also satisfied, then the spouses remain married with

$$V_T^{iM}(\psi_T) = U(c_T^{i**}, l_T^{i**}) + q_T, \text{ for } i = f, m. \tag{31}$$

Otherwise they divorce. Given spouse i's value in period T, the decision process in any arbitrary period $t < T$ can be outlined, as in section 8.1.

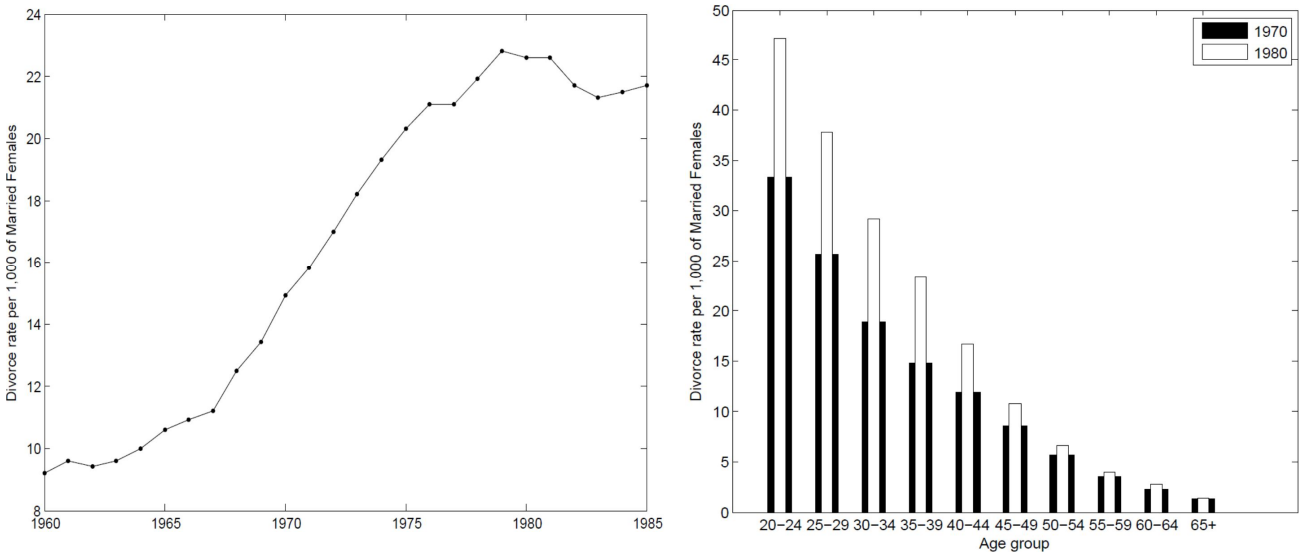
The presence of a discrete choice (decision to divorce) and several continuous decision variables like labor supply, time spent with children and saving implies that the value function of the married agents is not necessarily concave or differentiable. To solve the problem, I use a finite dynamic programming method and approximate the solution to the households' problems by solving them on a grid. The algorithm used to solve the problem is the following. First, I guess the values of the parameters to be estimated. Given the guesses, I use finite dynamic programming to solve for optimal decision rules for marital status, savings, and time in the market and with children. Next, I simulate the shock histories of 100,000 households. Using the simulated histories and the optimal decision rules, I compute the targeted moments to pin down the values for estimated parameters which produce moments summarized in Table 3. Since the differentiability of the objective function in the estimated parameters is not guaranteed, I use a minimization procedure that does not rely on the existence of the gradient (simplex). Once the estimated parameters are identified, I solve the household problem one more time and save the optimal decision rules. Next, I use the resulting distribution of the match quality shock to run the experiments.

B Data

Aggregate and Age-specific Divorce Rate. From the end of the Sixties to the beginning of the Eighties, the divorce rate increased from about 13 to 23 divorces per thousands of married females of 15 years and older.[33]

The left panel of Figure 2 shows the increase in the divorce rate. This aggregate measure does not reveal age differences in the divorce rate, and it assumes a standardized age structure of women at risk. A more precise measure is given by the age-specific divorce rate, and data are shown in the right panel of Figure 2. The data show that rates increased from 1970 to 1980 with the most dramatic increase occurring in the 20 to 44 age groups. The 50 years old and over groups show no relevant change in this decade.

Figure 2: Aggregate and Age-Specific Divorce Rates per 1,000 of Married Females



Source: National Center for Health Statistics and Kunz and England (1988)

Kunz and England (1988) and Table 10 report the age-specific divorce rates for the states for which the data were available in both 1970 and 1980. Note that these data include the entire U.S. population without distinction between race or country of origin.

[33]The divorce rate is computed as the ratio between the total number of divorces in a given year and the total number of married females that are 15 years and over in the same year.

Table 10: Age-specific Divorce Rates

State	Year	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+
HA	1970	28.6	24.8	19.5	16.5	12.8	10.2	7.5	3.8	3.3	2.2
	1980	45.5	40.2	30.1	23.2	16.2	11.0	5.2	4.0	2.9	1.2
IL	1970	34.5	25.6	19.2	15.3	11.7	8.2	5.6	3.5	2.1	1.1
	1980	50.5	37.6	27.7	22.0	16.1	9.9	6.9	3.5	2.3	1.2
KA	1970	42.5	30.5	20.1	16.5	11.8	8.9	6.2	3.7	2.3	1.4
	1980	54.6	42.1	32.6	25.9	18.8	11.4	6.3	3.9	2.5	1.7
MD	1970	19.8	18.1	13.2	10.9	8.4	6.3	4.7	2.6	2.1	0.9
	1980	36.4	35.2	26.0	19.7	15.0	9.9	6.4	3.7	2.5	1.1
MT	1970	52.3	32.4	22.3	19.6	16.1	9.9	5.9	5.0	4.7	1.5
	1980	58.0	43.5	35.4	29.4	23.4	16.3	9.6	11.8	0.9	0.0
NE	1970	30.5	18.3	13.5	10.2	8.8	6.5	3.5	1.9	1.3	0.8
	1980	40.1	31.3	24.2	20.1	15.8	9.3	5.3	3.6	1.9	1.0
OR	1970	46.7	31.6	25.3	21.4	16.5	10.2	7.6	5.4	3.2	1.6
	1980	63.4	50.1	38.9	33.9	24.6	15.4	9.6	6.9	4.1	2.7
RI	1970	19.3	16.5	11.6	9.9	7.1	5.1	2.6	2.3	1.4	0.6
	1980	39.2	32.8	26.7	22.3	15.3	9.7	5.3	3.6	2.2	0.6
SC	1970	20.2	16.5	12.5	9.8	7.4	5.5	3.6	1.8	1.8	0.1
	1980	39.9	33.1	24.7	20.2	13.6	9.7	6.4	3.9	2.6	1.3
TN	1970	42.2	29.5	21.1	17.1	12.6	9.9	7.4	4.0	3.2	1.6
	1980	66.0	48.8	35.5	27.8	19.9	12.8	8.4	5.2	3.9	3.6
TX	1970	43.5	30.8	22.0	19.4	14.7	11.6	7.9	5.3	3.8	2.2
	1980	61.1	48.6	36.7	29.8	21.8	14.5	9.4	6.3	4.1	2.5
UT	1970	32.8	27.1	17.8	15.8	10.5	8.2	6.8	3.8	1.9	1.3
	1980	40.7	34.0	27.7	8.6	17.2	11.8	6.7	4.3	2.7	2.5
VT	1970	24.6	19.6	15.7	11.6	8.3	8.1	3.7	2.8	1.4	0.7
	1980	45.0	42.7	35.1	29.7	20.3	14.4	6.5	4.3	2.8	1.4
VA	1970	22.1	18.4	14.1	10.9	8.9	6.5	5.0	3.1	2.2	1.2
	1980	36.5	35.4	26.5	20.6	15.8	10.7	6.9	4.2	2.6	1.3
WV	1970	28.1	27.1	16.8	13.8	12.1	9.8	8.5	5.9	5.5	2.8
	1980	47.1	32.7	25.8	20.3	14.2	10.1	5.8	3.7	4.9	0.0
Total	1970	33.1	24.2	17.6	14.5	11.2	8.2	5.7	3.7	3.7	3.1
	1980	47.0	39.0	29.0	21.0	17.0	10.0	6.0	3.9	2.5	1.1

Source: Kunz and England (1988)

Years of Divorce Law Changes. The following Table reports the dates in which the unilateral divorce, the equitable distribution of property, and the joint-child custody have been introduced in each state.

Table 11: Divorce Law Changes

State	Unilateral Divorce*	Equitable Distribution*	Joint Custody**	State	Unilateral Divorce*	Equitable Distribution*	Joint Custody**
Alabama	1971	1984	1997	Montana	1973	1976	1981
Alaska	pre-1967	pre-1967	1982	Nebraska	1972	1972	1983
Arizona	1973	Community Property	1991	Nevada	1967	Community Property	1981
Arkansas	no	1977	1982	New Hampshire	1971	1977	1974
California	1970	Community Property	1979	New Jersey	no	1974	1981
Colorado	1972	1972	1983	New Mexico	pre-1967	Community Property	1982
Connecticut	1973	1973	1981	New York	no	1980	1981
Delaware	1968	pre-1967	1981	North-Carolina	no	1981	1979
District of Columbia	no	1977	1996	North Dakota	1971	pre-1967	1993
Florida	1971	1980	1979	Ohio	1992	1981	1981
Georgia	1973	1984	1990	Oklahoma	pre-1967	1975	1990
Hawaii	1972	pre-1967	1980	Oregon	1971	1971	1987
Idaho	1971	Community Property	1982	Pennsylvania	no	1980	1981
Illinois	no	1977	1986	Rhode Island	1975	1981	1992
Indiana	1973	pre-1967	1973	South-Carolina	no	1985	1996
Iowa	1970	pre-1967	1977	South Dakota	1985	pre-1967	1989
Kansas	1969	pre-1967	1979	Tennessee	no	pre-1967	1986
Kentucky	1972	1976	1979	Texas	1970	Community Property	1987
Louisiana	no	Community Property	1981	Utah	1987	pre-1967	1988
Maine	1973	1972	1981	Vermont	no	pre-1967	1992
Maryland	no	1978	1984	Virginia	no	1982	1987
Massachusetts	1975	1974	1983	Washington	1973	Community Property	1985
Michigan	1972	pre-1967	1981	West Virginia	1984	1985	1995
Minnesota	1974	pre-1967	1981	Wisconsin	1978	Community Property	1979
Mississippi	no	1989	1983	Wyoming	1977	pre-1967	1993
Missouri	no	1977	1983				

Source: *Freed and Walker (1986), **Brining, and Bukley (1998), and **Buehler, and Gerard (1995).

Division of Property. Table 12 reports the share of property assigned to spouses from a random sample of court dockets of California.

Table 12: Division of Property in San Francisco County - Evidence from a random sample of court dockets

	San Francisco		Los Angeles		
Fraction of Property	Fault 1968	No-fault 1972	Fault 1968	No-fault 1972	No-fault 1977
Majority to Husband (over 60%)	2%	7%	6%	21%	10%
Approx. Equal Division (40 to 60%)	12%	59%	26%	44%	64%
Majority to Wife (over 60%)	86%	34%	58%	35%	26%
Mean percentage to Wife	**91**%	**62**%	**78**%	**54**%	...

Source: Weitzman (1985), p.74

Americans' Use of Time, 1965-1966. This dataset includes adults between 19 and 65 years of age living in cities in the United States with a population between 30,000 and 280,000, and in households that had at least one adult employed in a non-farming occupation. Questions related to caring or helping household children are asked in the survey. I use data on "primary child care activity". This activities include minutes spent providing physical care to children under 5 years and older (including meals, dressing, general supervision, getting up); helping with or supervising schoolwork; reading stories to or talking with children under 19 years old; indoor games or manual instruction; outdoor games or walk; medical care and other child care; trips related to child care. I only include married women with own children in the household.

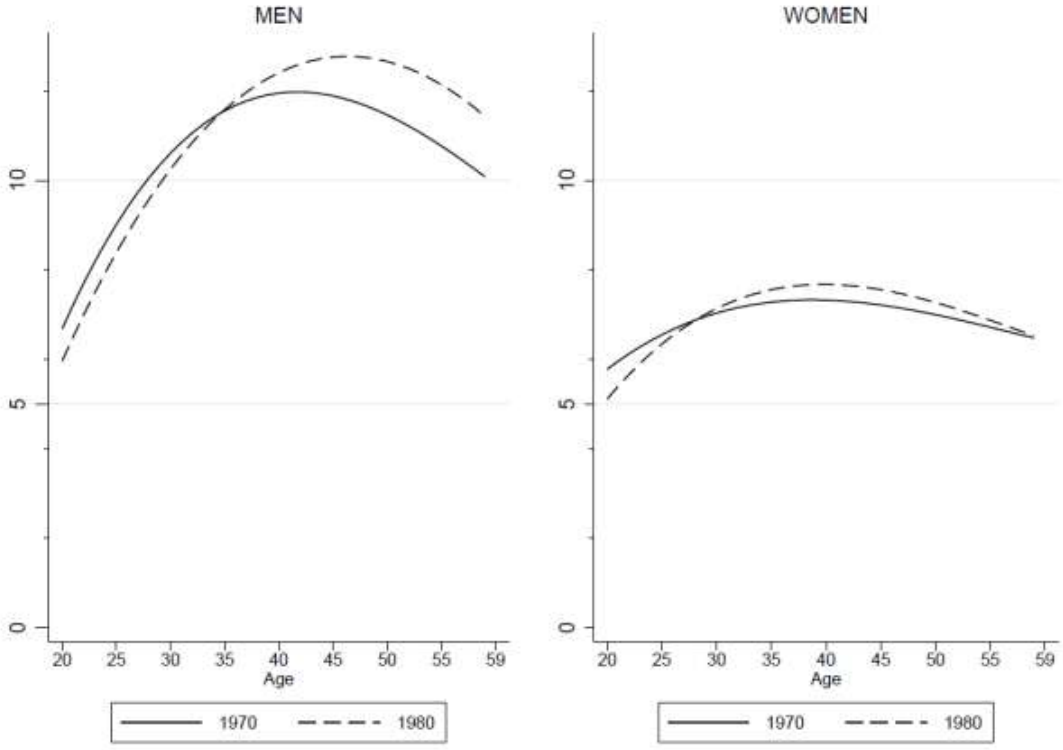
NLS-72. The fifth follow-up survey of the National Longitudinal Study of the High School Class of 1972 (NLS-72) took place during spring and summer of 1986. The sample members averaged 32 years of age and had been out of high school for 14 years. I consider mothers who have been married and divorced at least once. All of them are in the age group 30 to 40 by construction of the data set itself. In questions 67 and 68 of the survey (variable FI167 and FI168), respondents are asked to provide information about child custody and visitation agreements. Moreover, I analyze the answers given in question 62A (var. FI62A) and question 62B (var. FI162B) to compute the percentage of property inherited at the time of divorce. For each respondent, those variables provide the (intervalled) amount of properties received by themselves and by the spouse.

IPUMS-CPS. IPUMS-CPS is an integrated set of data from 48 years (1962-2009) of the March Current Population Survey (CPS), and is publicly available for download at the IPUMS-CPS website (King et al. (2004)). I concentrate on divorced (and separated) men and women of age 20 to 75. Alimony and child support payments are deflated using the Consumer Price Index (1982-1984=100). The variable used for the alimony and child support transfer is *incaloth*.

IPUMS-USA. IPUMS-USA is an Integrated Public Use Microdata Series (IPUMS-USA) consists of more than fifty high-precision samples of the American population drawn from fifteen federal

censuses and from the American Community Surveys of 2000-2010, and it is publicly available for download at the IPUMS-USA website (Ruggles et al. (2010)). I concentrate on married couples and divorced (and separated) men and women of age 20 to 75. I only consider men and women who worked a positive number of hours in the year preceding the interview. Labor income is deflated using the Consumer Price Index (1982-1984=100). I compute hourly wage by dividing the total yearly earnings by the total hours worked. Figure 3 shows fitted wages in 1970 and 1980.

Figure 3: Fitted Wage Age-Profile, 1970 and 1980



Source: IPUMS-USA

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