Essays on Family Law and the Family

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Abstract

Essays on Family Law and the Family

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Abstract: This dissertation consists of three essays on the effect of changes in family law in the United States since the divorce revolution in the 1970's on household outcomes.

Essay 1: "When Homemakers are Compensated: A Study of the Effects of Homemaking Provision in Property Division Following Divorce on Time Allocation of Married Couples"

In the first essay I examine the effects of the homemaking provision in family law that gives recognition to the contribution of homemakers in marriage in the division of properties accumulated during marriage. I develop a non-cooperative bargaining framework to analyze the effects of the provision on the time allocation in household public goods of spouses. The model suggests that the law would enhance gender specialization within the family in states under the unilateral divorce regime. The empirical findings are consistent with this hypothesis. Wives are found to increase the amount of housework they performed by more than 150 hours annually at least within the first 10 years under the unilateral divorce regime when the homemaking

provision has been introduced. This effect amounts to 10 percent of the sample mean for wives married prior to the reform.

Essay 2: "An Assessment of the Impact of Homemaking Provision in Property Division at Divorce on Investment in Household Public Goods, Marital Formation and Dissolution"

This chapter goes on to investigate whether the homemaking provision would enhance the marriage institution by assessing the extent to which the law affects marital formation and dissolution as well as households' investment in public goods such as child-rearing and housing. I find evidence that the homemaking provision stimulates marriage but alters the composition of the pool of individuals that marry. This selection effect tends to induce more divorce. On the net, marriage rates have been raised by at least 5.9 percent in states that have implemented the provision for over 26 year. There is also some evidence that the provision stimulates birth rates and home investment.

Essay 3: "The Effect of Child Custody Laws on Marriage"

Under the tender years doctrine child custody was virtually always awarded to the mother upon divorce. Gender-neutral custody laws introduced beginning in the 1970's provided married fathers, in principle, equal rights to custody. Subsequent marriage-neutral laws extended the rights to unmarried fathers. We develop a theoretical model of the effect of custody regimes on marriage and test the model's predictions using a unique data set that merges custody law data with data from the Current Population Survey and Vital Statistics. We find that, under marriage- and gender non-neutrality, the introduction of gender-neutral laws reduced marriage by at least 7.5 percent. There is no evidence that moving from marriage non-neutrality to marriage-neutrality affected marriage.

JEL Classification: D13, J12, J2

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Chapter 1

When Homemakers are Compensated: A Study of the Effects of Homemaking Provision in Property Division Following Divorce on Time Allocation of Married Couples

1.1 Introduction and Literature Review

The financial distress of divorced women in the United States since the no-fault divorce reform in the 1970s has been well documented (see Weitzman 1985). In particular, women who have withdrawn from the labor force or reduced their labor supply for the maintenance of their family as homemakers are especially hard-hit by divorce (Starnes 1993). The unilateral divorce law failed to recognize the lost job opportunities and impaired earning capacities these homemakers face as a result of their domestic duties. In the past when divorce was fault-based and required mutual consent, the settlement was typically negotiated so that women were in a better bargaining position. Unilateral divorce allows either spouse to terminate the marriage at will. The party wishing to leave the marriage no longer has to fully compensate the harmed spouse to make divorce possible. The removal of fault consideration in divorce results in a change in the nature of maintenance. Maintenance has become merely an aid to help the ex-wife, typically the vulnerable party at divorce, to rehabilitate herself instead of the long term duty of the ex-husband. This has given rise to substantial economic disparity between the husbands and wives at divorce. Partly as a response to the much less generous financial support from the ex-husbands and the increase in occurrences of divorce associated with the no-fault divorce reform, women invest more heavily in market-specific human capital and increase their attachment to the labor market as an insurance against the financial distress they foresee to encounter should their marriage fail (Johnson &

Skinner 1986; Parkman 1992). This has weakened household gender specialization as the incentive for couples to coordinate their investment in market- and marriage-specific human capital and time allocation is reduced. The willingness for couples to marry also falls as the value of marriage declines.

In the wake of these changes that are commonly believed to have produced destabilizing effect on marriage, policy makers have brought about reforms in other aspects of the traditional family law. For instance, the National Conference of Commissioners on Uniform State Law (NCCUSL) formulated the Uniform Marriage and Divorce Act (UMDA) in 1970 intended to serve as a model for state divorce laws and was a comprehensive effort to codify the family law across states. This includes recognizing the homemaking contribution in child care alimony award and property division (see Baer 2002). Although the UMDA has been only partly enacted in some states, it has created substantial impact on the development of marriage and divorce laws in all states upon its extensive amendment in 1973. Many states began to recognize homemaking contribution in their statutes or by established case law in the disposition of property at divorce. Jacob (1988) points out that more than twenty states have introduced the homemaking provision in property distribution by 1983 while none had it in their statutes in 1968.

The aspect of the change in divorce law of particular interest in this chapter is this homemaking provision for property division at divorce. To apply the term in precision, the homemaking provision at divorce under study refers to that in some states there are statutes or established case law stating that in making a property settlement at divorce, the court is expected to consider the contribution of a spouse as a homemaker.[1] Although ultimately it is the discretion

[1] The actual statute can vary slightly across states. The following are the relevant portions of the property division statutes from Arkansas and Montana to illustrate the homemaking provision in the statutes:
Arkansas

of the court to interpret such provision and to decide how much additional property would be assigned to the homemakers at divorce out of it, the homemakers are of no doubt better protected by the provision as the rights of the homemakers to the marital property become more clearly delineated than without it.

The homemaking provision in divorce law has been quite extensively discussed in the law literature in the past decades (see for instance, Fineman 1989; Brown & Viken 1990; Starnes 1993). Quite surprisingly, its social and economic impacts have rarely been studied by economists and sociologists. Stevenson (2008) hints at the potential economic impact of the homemaking provision in divorce law but to the best of my knowledge none had attempted to provide a comprehensive empirical investigation on the subject matter. Much is to be gained from an investigation of how and to what extent this provision influences household behavior. The unilateral divorce revolution has been blamed for making marriage more fragile (see Boyd 2006). The findings in this chapter are of considerable interest to policy makers who are concerned with marital stability and promoting marriage.

(A) At the time a divorce decree is entered:
(1) All marital property shall be distributed one-half (1/2) to each party unless the court finds such a division to be inequitable, in which event the court shall make some other division that the court deems equitable taking into consideration (1) the length of the marriage; (2) age. health, and station in life of the parties; (3) occupation of the parties; (4) amount and sources of income;(5) vocational skills; (6) employability; (7) estate, liabilities, and needs of each party and opportunity of each for further acquisition of capital assets and income;(8) contribution of each party in acquisition, preservation, or appreciation of marital property, including services as a homemaker, and (9) the federal income tax consequences of the Court's division of property. When property is divided pursuant to the foregoing considerations the court must state its basis and reasons for not dividing the marital property equally between the parties and such basis and reasons should be recited in the order entered in said matter.
Ark. Stat. Ann. § 34-1214(A)(1) (Cum. Supp. 1985)

Montana

In making apportionment, the court shall consider the duration of the marriage and prior marriage of either party; the age, health, station, occupation, amount and sources of income, vocational skills employability, estate liabilities, and needs of each of the parties; custodial provisions; whether the apportionment is in lieu of or in addition to maintenance; and the opportunity of each for future acquisition of capital assets and income. The court shall also consider the contribution or dissipation of value of the respective estates and the contribution of a spouse as a homemaker or to the family unit.
Mont. Code Ann. § 40-4-202(1) (1987)

This essay contributes to the literature on the change in divorce law on household behavior. The existing literature primarily focuses on the discussion on the impact of unilateral divorce on divorce rates (see Peters 1986; Allen 1993; Friedberg 1998; Wolfers 2006) and how the unilateral reform and changes in the rules governing property division at divorce affect family outcomes such as spousal labor supply, investment in marriage specific capital and home ownership. Stevenson (2007) finds that the adoption of unilateral divorce lowers marriage specific investment (see also Gray 1998; Stevenson 2008). In this chapter, I examine how the terms in ex-post divorce property division that recognize home production affect time allocation of spouses within marriages. It is unique in the sense that this provision directly targets the homemakers, whom have widely been conceived as the victims of the unilateral divorce reform. Even though such assessment is important in evaluating the effectiveness and impact of policies that serve to protect homeworkers, it has nevertheless been largely absent in the literature.

In addition, recent literature on families in the United States suggests that highly educated women are opting out of the labor force for their families (see for instance, Shang & Weinberg 2013; Hersch 2013). This trend has garnered a great deal of media attention in the 2000s. According to the U.S. Census, there are 5 million stay-at-home mothers with children under 15 in the United States in 2011. The homemaking provision for property division at divorce is one of the policy choices that can have an impact on the labor supply of these 5 million homemakers. This is especially true among the highly educated women who are more likely to have high-income husbands. These households typically have more marital assets to split at divorce. This study provides insights on the effect of this homemaking provision on the labor supply of women. Conjecturally the homemaking provision can play a role in the opt-out decision of married women. This law might also be beneficial to the well-being of children if it increases the time

mothers spend at home. By using a subsidy program that increases the incentives for parents to stay home and take care of young children instead of utilizing publicly subsidized daycare in Norway, Bettinger et al.(forthcoming) provides evidence that mother's reduced labor force participation improves the older children's 10th Grade GPA in families, which is a strong predictor of educational outcomes. It also appears that maternal time input in production of child quality does not have close market substitutes. If the homemaking provision indeed reduces the labor supply of women, it is likely to produce similar effects as this subsidy program, and thus be beneficial to child outcomes.

I make use of the time variation of the adoption of the provision across states to identify the causal effects of the homemaking law on spousal behavior. The empirical analysis makes use of variety sources of data. I collect data on the timing of the introduction of the homemaking provision across states based on the state statutes and established case law. I use 30 waves of *the Panel Study of Income Dynamics (PSID)* from 1968-1997 to perform the individual fixed-effect analyses.

My findings show that for households that reside in unilateral divorce states, this law has encouraged more home production and reduced labor supply on the side of the wives especially for couples that married prior to the reform based on the results of the individual fixed effect model. For husbands, their leisure increases which suggests that they might be discouraged from contributing to the family with the law. These stand in contrast to Parkman (1992), which finds no evidence that the lack of compensation for marriage-specific investment (such as being a good homemaker) at divorce gives rise to an increase in wife's labor supply. One major problem lies in his treatment for states under the equitable distribution property regime as though they all give recognition to the homemaking contribution of wives but not the reduction in a spouse's future

earnings. Such treatment raises concern as the factors to consider for equitable distribution varies from states to states within these equitable distribution regimes.[2] It is therefore important to focus on the homemaking statutes or established case law that recognize homemaking contribution in states instead of presuming equitable distribution to mean that the states under this regime must necessarily have taken into account of homemakers' contribution to the family in property division at divorce. The empirical results in this paper suggest that compensating wives' marriage-specific investment at divorce produces negative effect on their labor supply during marriage.

1.2 Theoretical Framework

Traditionally members within families have been assumed to behave cooperatively in the economics literature. This includes the Becker (1981) unitary model which assumes that individual family members pool their income to maximize one 'consensus' family utility function. The bargaining models of marriage (McElroy & Horney 1981; Manser & Brown 1980; Lundberg & Pollak 1993) and collective approach of Chiappori (1988;1992) move one step further to allow for spouses to have different utility functions; yet all these assume the outcomes of the decision process to be always efficient. Aside from the theoretical convenience in imposing Pareto efficiency in household models, the justification for adopting such assumption in marriage is that marriage is usually viewed as a long-lasting relationship between spouses and so they have every incentive to co-ordinate and communicate to achieve an efficient outcome.

[2] For instance, Mississippi requires the distribution of property at divorce to be equitable. But in deciding a fair and equitable distribution, the judge does not take the homemaking contribution of spouses into consideration. Kansas is also an equitable distribution state, but in dividing assets, the court does not explicitly consider homemakers' contribution but actually give recognition to spouses' present and future earning capacities. Kan. Stat. Ann. 60§-1610(b)(1) (2009): "Financial matters. (1) Division of property….. In making the division of property the court shall consider the age of the parties; the duration of the marriage; the property owned by the parties; their present and future earning capacities; the time, source and manner of acquisition of property; family ties and obligations; the allowance of maintenance or lack thereof; dissipation of assets; the tax consequences of the property division upon the respective economic circumstances of the parties; and such other factors as the court considers necessary to make a just and reasonable division of property."

This argument however is questionable when divorce becomes increasingly common and spouses are unable to make binding agreement related to future behavior and investments that are worth less outside marriage. Couples might behave strategically when for example their time allocation in marriage could affect their future earning opportunities (Lundberg 2008). Even for countries where divorce is rare, intra-household allocation might still not necessarily be Pareto efficient. Udry (1996) shows that allocation of resources within farming households in Burkina Faso does not achieve a Pareto-efficient allocation of resources.

Based on Grossman and Hart (1986) and Hart and Moore (1990) (henceforth GHM), I develop a simple model of marriage in which spouses choose their public goods investment decisions non-cooperatively. In the standard GHM setting, they study the optimal ownership allocation and investment decision under incomplete contracts: when it is costly to list all specific rights over assets in the contract. In situation when there exists some firm-specific investment that is non-verifiable by an outside party, ex-ante investment in firm-specific capital is lower than the first best level as firms renegotiate ex-ante over the surplus produced by such capital ex-post. In my model, the ex-ante non-verifiable investment includes two forms of public goods: One is home assets which have high market value and are non-marital specific. The other form is the performance of domestic duties, which are marital specific and have lower market value in singlehood.[3]

[3] The application of the GHM framework into the study of marriage has been adopted by Rasul (2006a) in optimal custody allocation. In his work spouses decide on investments in child quality during marriage based on the custody allocation that is assumed to be fixed before couples marry. The custody allocation under this setting would produce both distributional and efficiency consequences as it determines the share of marital surplus each spouse appropriates in marriage. Konrad and Lommerud (2003) also study the human capital investment decision of couples in a non-cooperative framework. Spouses first invest in their education non-cooperatively while the day-to-day allocation of time is determined at a later stage through Nash-bargaining with the non-cooperative behavior as the fall-back position.

One reason for the inefficiency in public good provisions in families is the limit in couples' ability in writing complete marital contracts that specify intra-household allocation of family resources contingent on their financial and non-financial contribution to the family. In addition, these contracts are non-binding and unenforceable in court as the state usually does not interfere with the private sphere of individuals unless the marriage actually dissolves. Conceivably married couples are especially less likely to behave cooperatively in their investment and time allocation decisions when divorce is unilateral and transaction cost in negotiation is high.

1.2.1 The Model

The utility of spouse in marriage is given by:

$$U_i^M = v_i(G_1) + G_2 \tag{1.1}$$

where $i \in \{m, f\}$ with m being the husband and f being the wife. G_1 represents home assets which are household public goods that are durable and have resale value. G_2 represents domestic duties that are assumed to be public goods within a household. v_i is concave and twice differentiable.[4]

It is assumed that the contribution of the wife and the husband are substitutes in the production of the public goods. The Production technology of the home assets and domestic public goods are given respectively by:

$$G_1 = g_m + g_f \tag{1.2}$$

[4] The main results do not rely on the assumption of linearity in G_2.

$$G_2 = \gamma_m f(l_m) + \gamma_f f(l_f)$$

(1.3)

where $g_i$denotes spouse i's investment in home assets; $\gamma_i$stands for the efficiency of spouse i in the production of the domestic public goods; $f'(l_i) > 0$ and $f''(l_i) < 0$.

Spouse i's time constraint:

$$l_i + h_i = 1$$

(1.4)

where l denotes time spent on domestic duties; h denotes market labor .The total amount of time available to each spouse is normalized to 1.

Spouse i's budget constraint:

$$w_i h_i = g_i$$

(1.5)

where w stands for the market wage; the price for the home assets is normalized to 1.

Utility of the wife in divorce:

$$U_f^D = v_f[\alpha(g_m + g_f)] + \theta\gamma_f f(l_f)$$

(1.6)

Utility of the husband in divorce:

$$U_m^D = v_m[(1-\alpha)(g_m + g_f)] + \theta\gamma_m f(l_m)$$

(1.7)

(1.6) assumes that domestic work is worth less in divorce state which is given by the condition $0 \leq \theta < 1$. One justification as suggested by Lundberg (2008) is that domestic skills are usually marriage-specific and have little value in single life. Also domestic work is not generously remunerated in the market (see England and Folbre 1999). α represents the portion of the home assets that is allocated to the wife at divorce. So under standard community property law and common law, $\alpha = \frac{1}{2}$ and $\frac{g_f}{(g_f+g_m)}$ respectively.

1.2.2 Timing of the Non-cooperative Game

With the possibility of divorce, which is taken as an exogenous event in this model for simplicity, couples behave non-cooperatively. The timing of events is as follows:

In period one, the spouses decide how much time to be allocated to domestic duties and labor work non-cooperatively. The domestic duties are public goods in marriage. The wage income they receive is spent on investment in home assets. To focus on how the decisions of these two major forms of public goods in families are affected by the homemaking law, I do not consider private consumption in my model. It is assumed that the cost for spouses to write a marital contract that specifies ex-ante the marital surplus each party would get based on their amount of contribution to homemaking and the home asset is prohibitively high.

This setting is particularly applicable to unilateral divorce regimes because divorce can be obtained on demand by either spouse which might impair the cooperative nature of marriage.[5]

In the second period, divorce occurs exogenously with probability β where $0 \leq \beta \leq 1$. In the state where couples remain married, they share the public goods. In the divorce state, they keep their own part of public goods generated from time allocated to domestic duties but the home asset will be split according to the law governing property division at divorce and the proportion shared by the wife is given by α.

When transaction cost in marital bargaining is high, which is typically the case for marriages that are on the verge of breaking up, the reluctant spouse will not be appropriately compensated. As a consequence, spouses are less likely to co-ordinate in decisions that will affect the payoff at divorce state.

[5] The first best benchmark case and the source of inefficiency of the model are discussed in Appendix 1.A.

1.2.3 The Non-cooperative Game

The payoff of the wife in marriage state is given by:

$$U_f^M = v_f(g_m + g_f) + \gamma_m f(l_m) + \gamma_f f(l_f)$$

(1.8)

And if divorce occurs, the wife gets:

$$U_f^D = v_f(\alpha(G_1)) + \theta\gamma_f f(l_f)$$

(1.10)

Therefore the total expected payoff for the wife is given by:

$$(1-\beta)\{v_f(g_m + g_f) + \gamma_m f(l_m) + \gamma_f f(l_f)\} + \beta[v_f(\alpha(G_1)) + \theta\gamma_f f(l_f)]$$

(1.11)

To focus on the effect of the homemaking provision on resource allocation, assume that the utility functions for the wife and husband are identical and are given by $v(G_1) + G_2$, so the total expected payoff of the wife becomes:

$$(1-\beta)\{v(g_m + g_f) + \gamma_m f(l_m) + \gamma_f f(l_f)\} + \beta[v((1-\alpha)(G_1)) + \theta\gamma_m f(l_m)]$$

(1.12)

Eliminating the market labor supply using the time constraint and then substituting out the home assets, the first order condition for the time the wife allocates to housework is given by:

$$(1-\beta)\gamma_f f'(l_f) + \beta[\theta\gamma_f f'(l_f)] = (1-\beta)[v'(g_m + g_f)w_f] + \beta[v'\left(\alpha(g_m + g_f)\right)\alpha w_f]$$

(1.13)

The left hand side captures the wife's marginal benefit of increasing l_f and the right hand side is the marginal cost associated with increasing l_f , which is the loss in marginal utility from not dedicating her time to market work which generates home assets. The first order condition of l_m operates in a similar fashion.

1.2.4 With the Homemaking Law

To analyze the impact of the homemaking provision law on family behavior, it is important to recognize that this law is implicitly non-gender neutral. The asymmetric treatment of the husband and wife in this model is justified by that the law serves to protect the ex-post divorce welfare of the homemaking wives. For one thing, housework has been predominantly a female task as a result of the long rooted gender specialization of labor within families. In 2009, 18.5 percent of married fathers with children under age 18 that are employed full time with wives also employed full time would do housework whilst 11.6 percent of these fathers would do housework when their wives are not employed. For married mothers, 78.9 percent would do housework when they are not employed and for those that are employed full time, 44.9 percent would still perform housework (Bureau of Labor Statistics 2012). These married fathers are much more likely to participate in the labor market than their wives. The labor force participation rate for men and women with own children under 18 are 93.3 and 70.5 respectively (Bureau of Labor Statistics 2013).It is possible that the husband can be recognized as the homemaker in families where the traditional roles of the husband and wife are reversed but no doubt that women shoulder the majority of domestic duties in general.

Assume now α is a function of the wife's household $\alpha(l_f)$ with $\alpha'(l_f) > 0$, so the homemaking law is gender non-neutral; the first order condition for the time the wife allocates to housework is given by:

$$(1-\beta)\gamma_f f'(l_f) + \beta[\theta\gamma_f f'(l_f)] + \beta[v'\left(\alpha(g_m+g_f)\right)\alpha'(l_f)(g_m+g_f)] = (1-\beta)[v'(g_m+g_f)w_f] + \beta[v'\left(\alpha(g_m+g_f)\right)\alpha w_f] \quad (1.14)$$

Compared to (1.13) there is one additional positive term on the left hand side of (1.14) that represents the marginal benefit of l_f. This additional term capture the increase in expected marginal utility which stems from the increase in proportion share going to the wife with the homemaking provision as she increases l_f.

Since the homemaking law is assumed to be positively related to the home production by the wife alone, the first order condition of the time of the husband is unchanged and therefore his time allocation is unaffected by the homemaking provision under the non-cooperative framework.

1.2.5 Discussion

Note that the above results differ from those derived from a cooperative setting in a number of aspects. First under a cooperative setting, the decision process of households always produces Pareto efficient outcomes. I show in Appendix 1.A that when spouses make decision non-cooperatively, the amount of housework performed is always below the efficient level without the homemaking provision. The non-cooperative setting better captures the phenomenon to be addressed in this paper: In anticipation of the possibility of divorce, specialization of labor within households has been weakened. Wives allocate less time to the provision of marriage-specific

public goods as they are worth less outside marriage. Such phenomenon has widely been conceived as socially sub-optimal or having impaired the traditional marriage institution.

Secondly the effect of the homemaking law on the amount of housework performed by the wives is ambiguous under a cooperative divorce-threat bargaining model (see Appendix 1.B for details). Conceptually the law would bring about two opposite effects on wives' supply of housework. With the homemaking law, the threat point of the wife will be higher when she supplies more housework. This tends to increase the amount of housework she performs. However the higher threat point will produce a positive income effect on the wife and this will lower the amount of housework she performs. In contrast, under a non-cooperative framework as shown in the above, the wife must increase her supply of housework with the homemaking law.

Hypothetically if spouses behave cooperatively under the mutual consent regime, their time allocation would be either unaffected by the homemaking law under the unitary model or its effect on the amount of home production would be ambiguous under the cooperative model. The non-cooperative model will be rejected if the homemaking law produces negative effect on the housework performed by the wife. In contrast, the unitary model will be rejected if the homemaking provision increases the amount of housework performed by the wives. Although the cooperative model cannot be rejected under this setting, we will still expect to observe significant differential effects of the homemaking law under the two regimes if the unilateral divorce reform does alter the decision making process of couples which lead them to respond differently to the homemaking provision under the two divorce regimes. Recall that the unilateral divorce reform allows any spouse to exit the marriage without the other spouse's consent. This is likely to make couples behave less cooperatively in terms of investment and time allocation that will affect their payoff at divorce state. Therefore conjecturally we will observe

differences in the responsiveness to the homemaking law under two different divorce law regimes.

The next section aims to examine empirically whether the homemaking law produces positive effect on home production and to what extent it affects the time allocation of spouses in terms of their labor supply and leisure.

1.3 Empirical Specification:

By using the time variation of the adoption of the provision across states to identify the causal effects of the homemaking law on spousal behavior, the following individual fixed effect model is used to estimate the impact of the homemaking provision on spousal time allocation and home asset investment:

$$Q_{i,s,t} = \sum_{j=1(5)}^{11+} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{16+} \theta_k \, uni_{\ for\ k\ to\ (k+4) years_{s,t}} + \sum_{l=1(5)}^{11+} \phi_l \, pro_{\ for\ l\ to\ (l+4) years_{s,t}} * unilateral + \rho eqdist_{s,t} + f_i + \alpha_t + \gamma_s + \boldsymbol{X}'_{i,s,t}\boldsymbol{\delta} + \epsilon_{i,s,t} \quad (1.16)$$

where Q is the outcome variables under investigation including hours of housework and market work performed by the spouses, their labor force participation, leisure (nonworking hours); *pro* represents dummies for states that have introduced the provision for j to j+4 years where j starts from 1 and then 6 and so on; similarly *uni* stands for states having implemented unilateral divorce for k to k+4 years; *unilateral* is a dummy variable that takes one if the state is a unilateral divorce regime at time t and zero otherwise; *eqdist* denotes dummies for states with

equitable property division respectively; f, α and γ represent the individual, year and state fixed effect respectively and the vector **X** stands for demographic controls;[6] i, s and t denote the individual, state and year subscripts.

Based on the results derived from the theoretical model and the arguments in the discussion, if couples behave non-cooperatively regardless of whether divorce is mutual consent based or unilateral, β_j is positive on the amount of housework performed by the wife and negative on her market labor. However if the reason behind non-cooperation comes from the unilateral divorce law, the sign of β_j is ambiguous. ϕ_l captures that effect of the homemaking provision interacting with the unilateral divorce regime dummy. If the unilateral divorce law leads couples to behave less cooperatively, it will be positive on home production of the wife and negative on labor supply of the wife. The law should produce no effect on husband's home production if it is indeed gender non-neutral and if couples make their time allocation non-cooperatively as it does not enter into the homemaking decision process of husbands. However his labor supply might fall and leisure might increase due to the enhanced share of the home assets of wife at divorce through the increase in the amount of housework she performs, which produces disincentive effects. In this case, ϕ_l is negative for husbands' labor supply and positive for his leisure. I have not explicitly modeled leisure but it is easy to imagine that if leisure is one of the choice variables in the model, he will increase his leisure and lower his labor supply due to the exacerbated free-riding problem for home asset provision from the perspective of the husband.

1.4 The Data

[6] The benchmark regression model includes age and age squared of wives, dummies for education of the spouses as the demographic controls.

I obtained the information on the timing of implementation of the homemaking provisions from a variety of sources. In some states it is found in their statutes. A number of articles in the law literature such as Batts(1988) also provide information on the timing of implementation of the homemaking law for some states. I also traced out established case law and statutes related to the homemaking law from internet search engines for legal cases and codes such as www.findlaw.com and the case law finder provided by LexisNexis.

The primary empirical analysis makes use of data from *the Panel Study of Income Dynamics (PSID)* and a self-compiled state-level panel data. I use 30 waves of the PSID from 1968 to 1997. I also use data collected from 1% sample *of U.S. Census Data (Integrated Public Use Microdata Series)* in 1970 to perform the exogeneity test discussed above.

The PSID contains detailed information on marital events and status, housework time, labor force participation, income source and housing.[7] It also records the state of residence of the sample households, which is crucial to this study. Another very desirable feature of the PSID to this study is its long panel dimension which allows us to trace out the behavior of households in the course of marriage. It also makes investigating how individuals respond to the introduction of the homemaking provision over time possible by controlling for unobserved individual heterogeneity.

The PSID survey is no longer conducted on an annual basis after 1997. My analysis is based on data up to the 1997 wave. Married women (the spouse of the household head as reported in each survey year) aged between 18 and 55 and their husbands are included in the

[7] The exact questions appear in the questionnaire are: "About how much time does your (Wife/"WIFE") spend on housework in an average week? I mean time spent cooking, cleaning, and doing other work around the house." "About how much time do you (HEAD) spend on housework in an average week? (I mean time spent cooking, cleaning, and doing other work around the houses.)" The answers have been converted into annual hours.

sample. I have confined my analysis to individuals that are original sample members in the PSID to avoid potential endogeneity problems arising from non-random marital matching.

Examining couples that married prior to the introduction of the provision could isolate the selection and sorting issues that might arise out of the reform. I also perform the same analysis for the full sample. Comparing these results permits the analysis of the potential change in marital investment and sorting in response to the new provision although it is not the objective of this paper to provide a detailed investigation into the channels through which such changes occur. Such work will be left to future research.

To give an idea of the value of property settlements, consider the first three columns of Table 1.1 is reproduced from Rowe and Morrow (1998). It presents the categories and values assets to be divided of final divorce decrees granted between June 1983 and 1984 in Oregon for couples' marriage over 10 years. I compare the figure of housing with the PSID sample for couples that own houses in 1984. For home value alone, the average value amounts to $156,278 in 2011 dollars in the PSID sample and it does not differ significantly from the figure in Oregon. Indeed the average value of assets to be divided for propertied couples is not immaterial and therefore it is highly possible that the homemaking provision that alters the property rights of these assets at divorce will change behavior within marriages.

Table 1.2 provides the summary statistics in this study. The statistics shows that couples that married prior to the homemaking law tend to be slightly older and they are characterized by a higher degree of gender specialization. They are slightly less educated and are more likely to have children and own a home compared to the full sample. However the average home value of these couples is lower. This partially reflects that the traditional gender role of the family is less applicable to the younger cohort, which has been widely observed in the literature.

1.5 Exogeneity of the law

Following Voena (2012), I exploit the exogeneity of this quasi-natural experiment with respect to the state level household and economic characteristics. It might render the experiment invalid if the introduction of the law is found to be correlated with these state characteristics. Since the homemaking provision in divorce law across states follows the recommendation by the UMDA in 1974, I first examine whether there is any correlation between the timing of the adoption of the homemaking provision and the state level household and economic characteristics in 1970. The variables are constructed using the data from PSID and 1% sample of *1970 U.S. Census (Integrated Public Use Microdata Series)*. The samples are limited to individuals aged 18-50 as this group of marriageable people are the most likely to exhibit impact on the implementation of the law. Figures 1.2 a)-d) show that there is no correlation between the timing of enactment and these state variables.

Figures 1.3-1.5 and Tables 1.3 and 1.4 provide some further exogeneity tests of the quasi-natural experiment. In Table 1.3, I add a dummy variable that takes 1 for states that will implement the homemaking provision within 5 years to equation (1.16).

I also perform the following state-level fixed effect model to examine whether there is pre-existing trends in the state level marriage, divorce and birth rates:

$$Q_{st} = \sum_{j=-5(1)}^{4} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{j=5(5)}^{26+} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{26+} \theta_k \, uni_{\ for\ k\ to\ (k+4) years_{s,t}} + \kappa compro_{s,t} + \rho eqdist_{s,t} + \boldsymbol{\sigma}' \boldsymbol{x}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t}$$

(1.17)

where Q is the yearly state marriage, divorce and birth rates (details of these state-level variables are discussed in chapter 2). Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property, joint-custody and the marriage neutral custody regime; state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The first term on the right hand side represents a group of leading dummies for states that will implement the provision within 5 years. Figures 1.3-1.5 plot the estimated coefficients for the five years prior to the implementation of the homemaking law. The estimated coefficients should not be statistically discernible from zero if the casual effect indeed runs from the provision to the outcome variables. It is comforting to find that the estimated coefficients of these leading variables of the policy do not differ from zero statistically. This provides further support for that the effects of the homemaking provision found are unlikely to be driven by unobserved factors related to the provision.

1.6 The Results

1.6.1 The Effects on Couples Married Prior to the Provision

In the main analysis for the fixed individual effect model, I focus on the sub-sample that consists of spouses that married prior to the implementation of the homemaking provision. This allows us to focus on the effects of the law on spouses that have been shocked by the policy and isolate the potential selection effect induced by the law. I also present the results using the whole sample. A comparison between these results is helpful in understanding the selection effect at play. Tables 1.5-1.8 present the main results on a variety of outcome variables for couples married prior to the introduction of homemaking provision in the states where they reside.

Overall, the results from the individual fixed effect regressions confirm my hypotheses. The results of specification (1) in Tables 1.5 and 1.6 show that the provision evaluated alone produce no statistical significant effect on the time allocation and labor supply of wives. However once the interaction terms with the unilateral law are introduced in specification (2), it yields the expected result. In terms of the amount of housework performed by wives, the unitary model and cooperative model were not rejected for wives residing under the mutual consent regime. However the unitary model is rejected under the unilateral divorce regime. Wives are found to increase the amount of housework they performed by more than 150 hours annually at least within the first 10 years when the homemaking provision has been introduced under the unilateral divorce regime. This is a 10 percent of the sample mean for wives married prior to the reform.

In regard to their labor supply, the unitary model is rejected under both regimes. Table 1.6 shows that on the extensive margin, in states with unilateral divorce enforced, the law substantially reduces wives' incentives to participate in the labor market. The effect magnifies over time and exceeds 19 percent for unilateral divorce states that have implemented the homemaking law for over 10 years. On the intensive margin, the law also exhibits very profound impact on the annual hours of market work of wives. In the long term, the law reduces the annual work hours of wives by more than 300 hours in unilateral divorce regimes. This is a substantial 32 percent of the sample mean. The leisure of wives is not significantly affected. The differential responses of the wives under the two divorce regimes suggest that the unilateral divorce reform might have indeed changed the cooperative nature of marriage.

Tables 1.7-1.8 present the estimated effects of the provision on husbands. The effects are opposite to those on wives. This provides support for my claim that this homemaking provision is implicitly gender non-neutral. In general, the law produces no strong effect on annual hours of

housework performed by husbands except for states that have the provision in force for more than 10 years regardless of the divorce regime. Overall, the homemaking law is found to create disincentives for work for husbands in the unilateral divorce states. Table 1.7 shows that leisure by husbands has gone up especially those in unilateral divorce states that have implemented the law for the first 10 years based on specification (2). Table 1.8 suggests that husbands reduce their labor supply on both intensive and extensive margins under the unilateral divorce regime. On average the husbands under this regime lower their labor force participation by approximately 5 percent after the provision has been in force for 5 years. The annual work hours are also lower. All these are consistent with that husbands devote less to the family owing to that they anticipate more assets will go to the wives should the marriage dissolve with a higher probability.

1.6.2 The Effects of the Provision on All Couples

In this sub-section, I estimate the impact of the provision using the full sample. The goal is to examine whether the behavior of these individuals differ significantly from the restricted sample. According to Chiappori et al. (2005), redistributive divorce laws favoring a spouse would raise his or her intra-marital allocations but for couples marry after the new law, there will be offsetting intra-household transfers that tend to mitigate the effect of the law. Therefore conjecturally the long term impact of the law is weaker when we include couples that marry after the reform as its effect is at least partially undone in the marriage market. These post-reform couples can respond to the legal change by adjusting their pre-marital investment in market and home skills and this might also induce changes in marital sorting in the marriage market. The impact of the homemaking provision can also differ between couples that married prior to the changes in law and the newly-weds.

The results using the full sample are presented in Tables 1.9-1.12 and are mostly in line with the above conjecture. Overall the effects of the provision on the variety of household outcomes under study are of weaker magnitude. For instance, although the homemaking law increases the amount of housework performed by wives in the unilateral divorce states compared to the non-unilateral divorce states, the overall impact of the law is actually negative. This suggests that the law might have indeed changed the composition of the married mates. Similar patterns are observed for the labor supply of wives. The law actually increases labor participation of wives but the effect is weaker in unilateral divorce states. For the annual work hours of wives, the negative effect of the law in the unilateral states actually dominate the initial positive effect so that on the net, wives in the full sample reduce their annual hours of work in the unilateral divorce regime with the homemaking provision. The effect of the homemaking law on husbands in the full sample is also weaker than the pre-reform husbands. The only significant effect produced on them is that the law lowers the annual hour of work for husbands in unilateral states by about 13 hours.

1.7 Concluding Remarks

In the past when divorce was a very rare event the joint decision of spouses in the allocation of time and investment in public goods raises no incentive problems as spouses form a union to maximize the joint-marital surplus through specialization of their labor in home and the marketplace. When marital union is expected to be long lasting, couples do not perceive divorce as their "alternative scenario" in their decision making. In such situation, it is reasonable to presume that the decision process of these households to generate Pareto efficient outcomes. Such co-ordination becomes problematic when they foresee that their joint-partnership might fail.

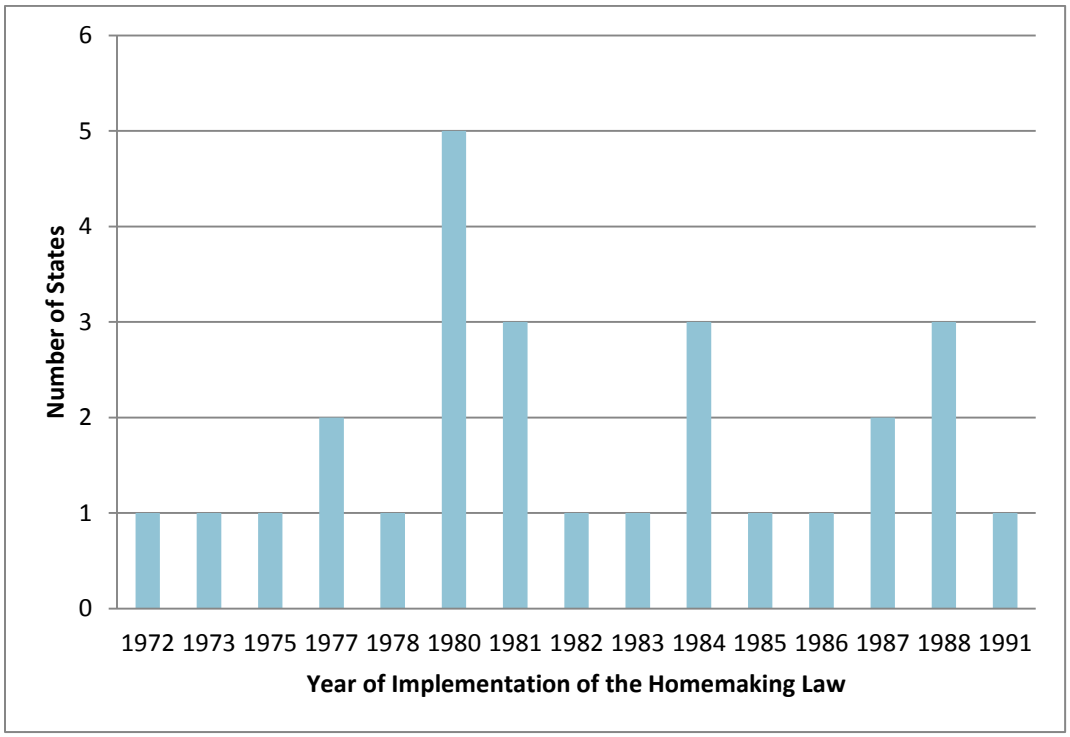
I use a non-cooperative bargaining model to analyze spousal time allocation and investment in public goods in a setting that accounts for the possibility of divorce. The setting is particularly relevant to societies like the United States where one-half of all new marriages are expected to end in divorce in the wake of the unilateral divorce reform. The empirical findings overall are consistent with the implications derived from the model. In particular wives that married prior to the introduction of the homemaking provision are found to increase their home production and decrease their labor supply in unilateral divorce regime where the probability of divorce is expected to be higher. In contrast, husbands are discouraged from contributing to the family in the unilateral divorce state as they are disfavored by the gender non-neutral homemaking provision. The evidence suggests that couples might have behaved more non-cooperatively as the likelihood of divorce increases and this can give rise to inefficiency in intra-household allocation of resources. This is an interesting finding that is worthy of further investigation. The existing literature typically assumes the outcomes of decision process within families to be always Pareto efficient (For instance Becker 1981; Chiappori 1988; 1992). This might not be appropriate if we are to study family behavior in the context of frequent marital dissolution.

A natural extension of this model is to endogenize divorce by introducing a random quality match so that the investment in household public goods would produce an additional effect that lowers the probability of divorce. This would conjecturally make the investment and time allocation decision of the husband to be dependent on the homemaking law as divorce is endogenized and depends of the amount of public good provision. The assumption that the two kinds of public goods home assets and domestic duties are additively separable in the utility

function of spouses can also be relaxed to investigate how, for instance, complementarity in their consumption would alter the implications of the model.

Admittedly in reality couples typically do not totally disregard each other in their time allocation and public good investment decision despite that a higher likelihood of divorce would hamper their co-ordination. The model I developed in this paper aims to provide a simplifying framework to analyze the effect of the homemaking law when couples behave non-cooperatively. One major drawback of the model is that it does not highlight the fact that co-ordination can by enhanced by the more intensified household specialization as encouraged by the homemaking law. A more realistic framework might be a hybrid of the cooperative and non-cooperative framework--by allowing for spousal coordination to depend on the probability of divorce. Such setting might better capture spousal behavior in contemporary marriage.

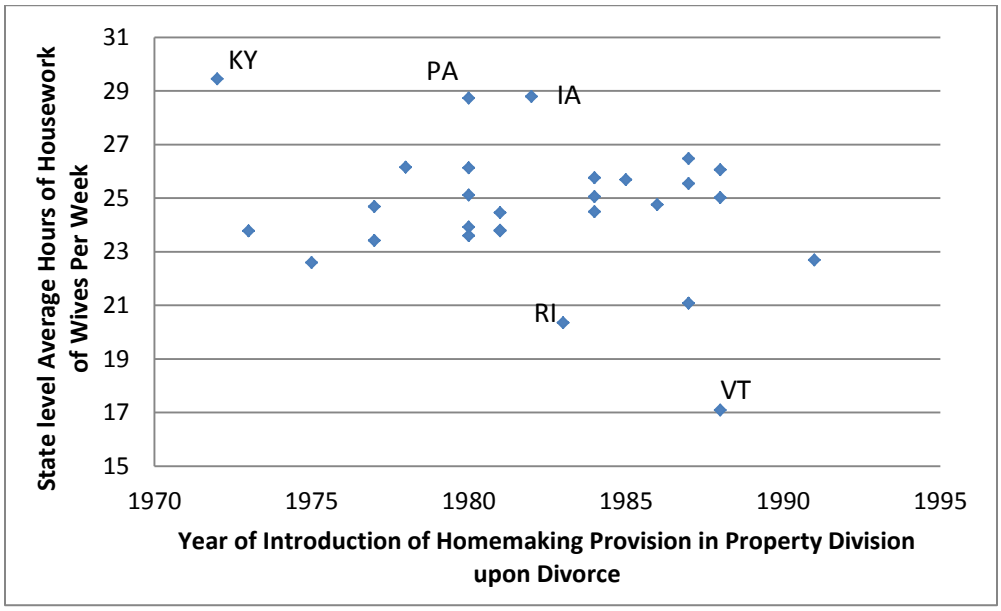
Figure 1.1: Year of Implementation for the Homemaking Provision Law across States



Notes: 27 states introduced the homemaking provision for property division at divorce before 2000. South Carolina actually introduced the law in 2008.

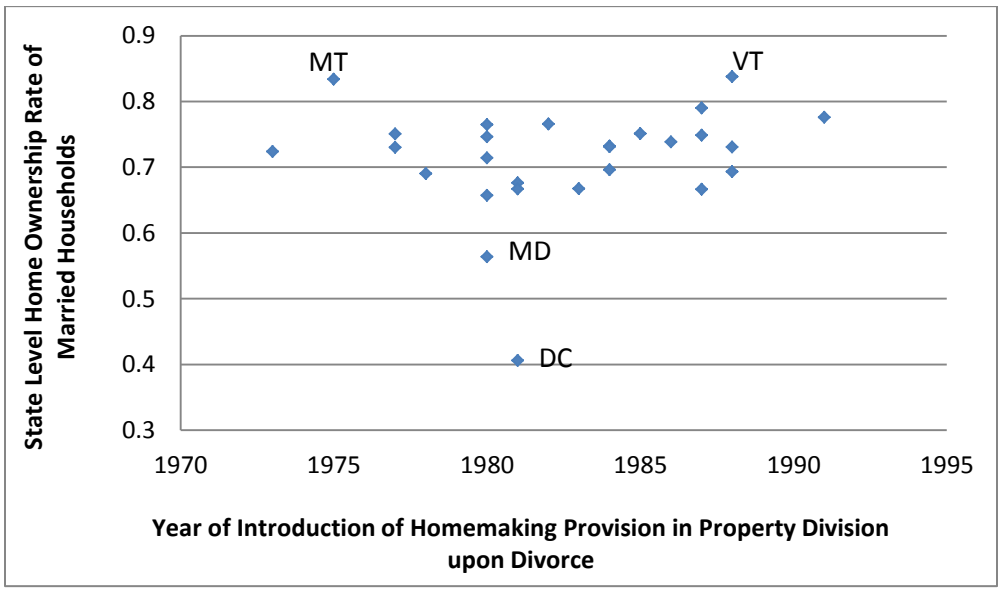
Figure 1.2: Exogeneity Tests-Timing of the introduction of homemaking provision and state characteristics in 1970

a) State level average hours of housework of wives per week



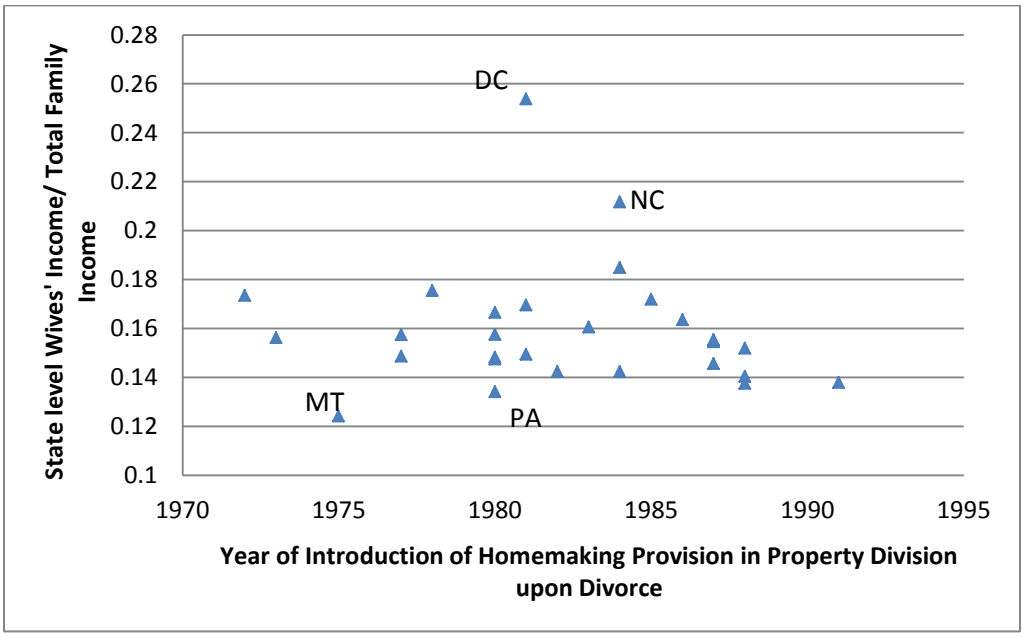
Source: Author's calculation. Data collected from the PSID.

b) State level home ownership rate of married households in 1970



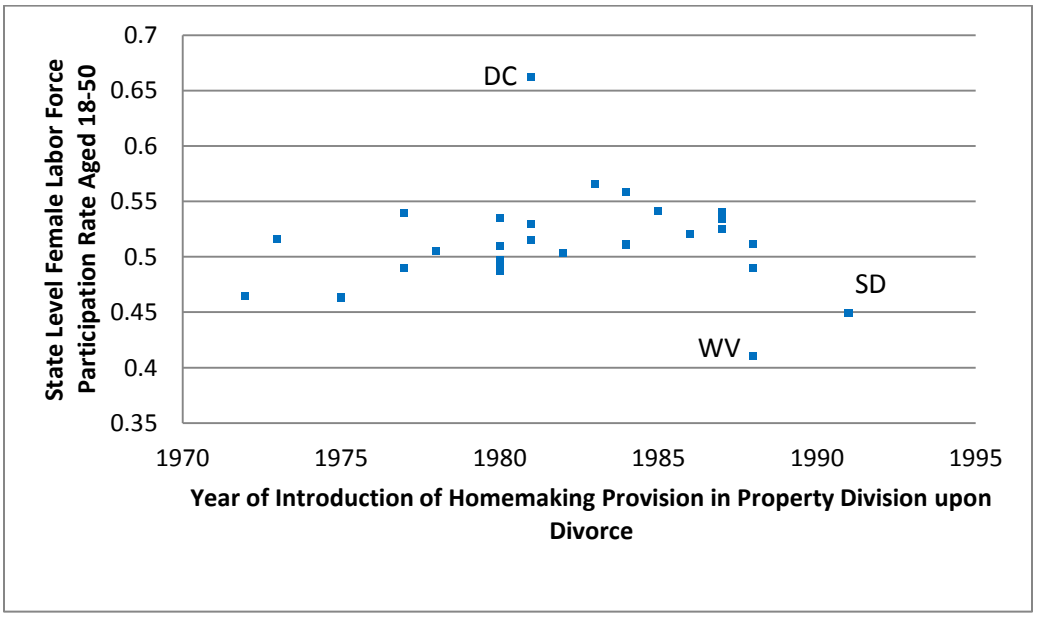
Source: Author's calculation. Data collected from 1% sample of U.S. Census (Integrated Public Use Microdata Series)

c) State level average share of wives' income in total family income in 1970



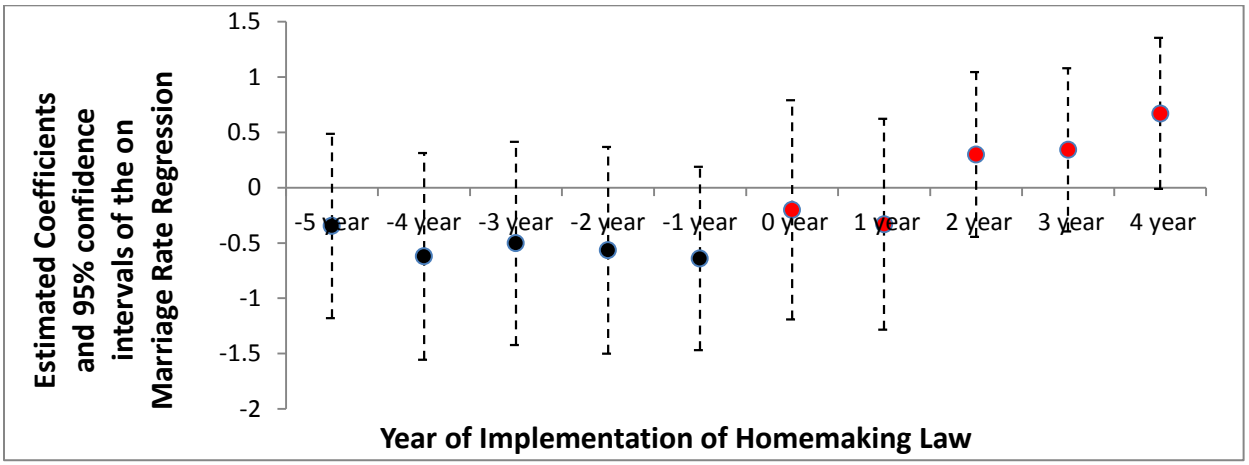
Source: Author's calculation. Data collected from 1% sample of U.S. Census (Integrated Public Use Microdata Series).

d) State level female labor force participation rate in 1970



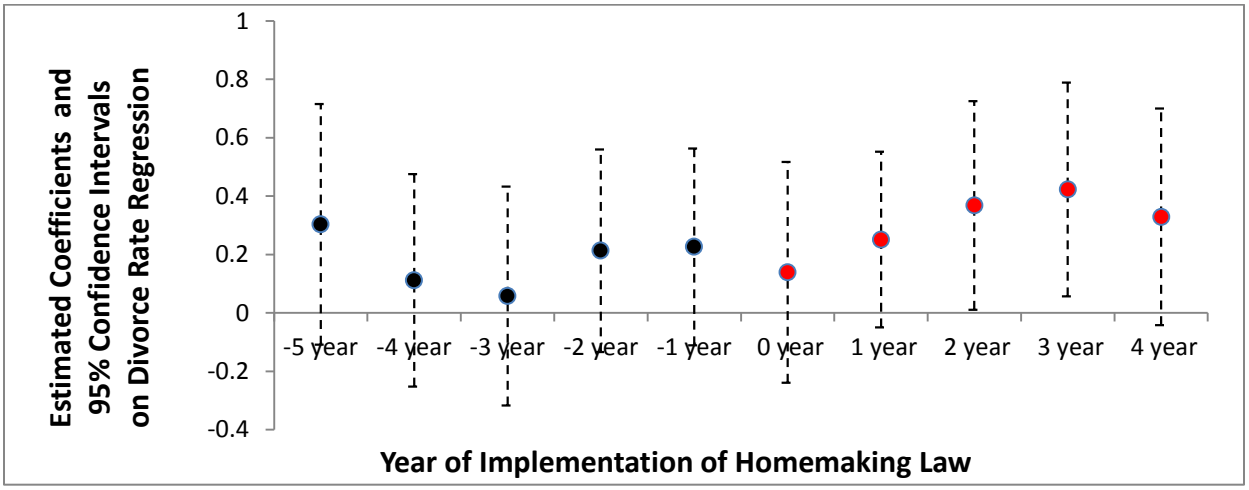
Source: Author's calculation. Data collected from 1% sample of U.S. Census (Integrated Public Use Microdata Series).

Figure 1.3: Check for Pre-existing Trends of Marriage Rates of the Homemaking Provision Policy



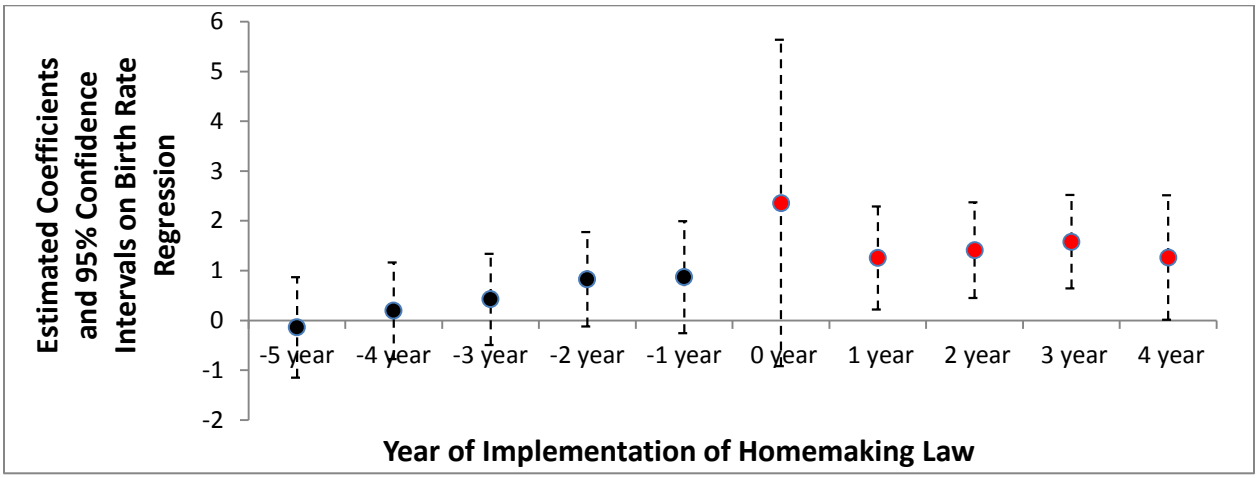
Notes: The above displays the estimated coefficients and the 95% confidence intervals in dashed bars using Equation 1.17 to check if there exists pre-existing trends in marriage rates prior to the implementation of the homemaking provision. The regression takes the form:
$Q_{st} = \sum_{j=-5(1)}^{4} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{j=5(5)}^{26+} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{26+} \theta_k \, uni_{\ for\ k\ to\ (k+4) years_{s,t}} + \kappa compro_{s,t} + \rho eqdist_{s,t} + \boldsymbol{\sigma}' \boldsymbol{x}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t}$, where Q_{st} is the yearly state marriage rate. . (uni dummies)

Figure 1.4: Check for Pre-existing Trends of Divorce Rates of the Homemaking Provision Policy



Notes: The above displays the estimated coefficients and the 95% confidence intervals in dashed bars using Equation 1.17 to check if there exists pre-existing trends in marriage rates prior to the implementation of the homemaking provision. The regression takes the form:
$Q_{st} = \sum_{j=-5(1)}^{4} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{j=5(5)}^{26+} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{26+} \theta_k \, uni_{\ for\ k\ to\ (k+4) years_{s,t}} + \kappa compro_{s,t} + \rho eqdist_{s,t} + \boldsymbol{\sigma}' \boldsymbol{x}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t}$, where Q_{st} is the yearly state divorce rate.

Figure 1.5: Check for Pre-existing Trends of Birth Rates of the Homemaking Provision Policy



Notes: The above displays the estimated coefficients and the 95% confidence intervals in dashed bars using Equation 1.17 to check if there exists pre-existing trends in marriage rates prior to the implementation of the homemaking provision. The regression takes the form:
$Q_{st} = \sum_{j=-5(1)}^{4} \beta_j \, pro_{for\ j\ to\ (j+4)years_{s,t}} + \sum_{j=5(5)}^{26+} \beta_j \, pro_{for\ j\ to\ (j+4)years_{s,t}} + \sum_{k=1(5)}^{26+} \theta_k \, uni_{\ for\ k\ to\ (k+4)years_{s,t}} + \kappa compro_{s,t} + \rho eqdist_{s,t} + \boldsymbol{\sigma}' \boldsymbol{x}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t}$, where Q_{st} is the yearly state birth rate.

Table 1.1: Values of Assets to be Divided: **Types and Dollar Values of Assets of Final Divorce Decrees Granted between June 1983 and June 1984 in Oregon for Marriages over Ten Years**

Asset	% of couples owing	Mean value (1984 dollar)	Mean value (converted to 2011dollar)	Mean value in PSID sample in 1984 (1984 dollar)	Mean value in PSID sample in 1984 2011 dollars
Family home	84.5	71,474.79	160,818.3	69,466.9	156,278
Other real property	31.9	127,241.43	286,293.2	-	-
Car(s)	99.1	5,578.67	12,552.01	-	-
Other vehicles	37.1	5,379.17	12,103.13	-	-
Household furnishings	100	8,136.95	18,308.14	-	-
Bank account(s)	92.2	5,263.28	11,842.38	-	-
Stocks/bonds/investments	31.9	14,422.53	32,450.69	-	-
Business/professional practice	29.3	30,109.65	67,746.71	-	-
Insurance	41.4	2,320.42	5,220.945	-	-
Pension	68.1	13,806.57	31,064.78	-	-
Any other asset	28.1	10,917.47	24,564.31	-	-
Debts (incl. mortgage debt)	92.2	36,439	81,987.75	-	-

First Four Columns Reproduced from Rowe and Morrow (1988)

Table 1.2: Descriptive Statistics of Data Used in the Individual Fixed Effect Model

Variables	All Sample Data			Married Prior to the Homemaking Provision		
	N[8]	Mean	Mean	N	Mean	Standard Error
Age (wives)	43,949	37.75	(9.424)	22,559	38.67	(9.413)
Age (husbands)	43,949	40.48	(10.25)	22,559	41.39	(10.15)
Proportion of households with co-residing children under 17	43,949	0.703	(0.457)	22,559	0.713	(0.453)
Years of education (wives)	43,949	12.66	(2.302)	22,559	12.47	(2.267)
Years of education (husbands)	43,949	12.90	(2.752)	22,559	12.70	(2.788)
Proportion of home ownership	43,949	0.789	(0.408)	22,559	0.808	(0.394)
Annual hours of work (wives)	43,949	983.3	(901.7)	22,559	927.9	(885.0)
Annual hours of work (husbands)	43,949	2,196.6	(766.5)	22,559	2,220.7	(773.8)
Annual hours of housework (wives)	38,840	1,401.1	(878.5)	19,579	1,499.2	(889.9)
Annual hours of housework (husbands)	38,849	301.75	(375.0)	19,579	284.05	(373.7)
Annual hours of leisure (wives)[9]	38,840	6,324.4	(902.6)	19,578	6,285.7	(903.9)
Annual hours of leisure (husbands)	38,849	6,240.4	(796.7)	19,579	6,235.4	(801.5)
Home value in 1982 dollars[10]	32,082	81,784	(215,299)	17,166	76,475	(178,198)

Data: Panel Study of Income Dynamics (1968-1997)

[8] The discrepancy comes from that some values were either missing or misreported in some variables.
[9] I define annual hours of leisure to be the annual non-working hours and is obtained by the annual hours available 8736- annual hours of work-annual housework.
[10] The mean is approximately $114,333 in 2011 dollars and this value is conditional on home ownership.

Table 1.3: Estimated Coefficients on Future Policy on Couples Married prior to the Reform

Independent variable:	Dependent variables (Wives): Annual work hours	Annual housework hours	Labor force participation
1-5 Years Prior to Implementation of Homemaking Provision	-23.68	-61.58	-0.003
	(66.04)	(54.02)	(0.003)
N	22,559	19,579	22,559
Individual Fixed Effects	2150	1948	2150

Notes: Legal regime controls include dummies for equitable property distribution and community property states. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.4: Exogeneity Test: Estimated Coefficients on Future Homemaking Provision Policy

	Dependent Variables:		
Independent Variables:	**Marriage rate**	**Divorce Rate**	**Birth rate**
10 years ago	-0.674	-0.547	-0.201
	(0.538)	(0.391)	(1.028)
9 years ago	-0.573	-0.391	-0.176
	(0.456)	(0.373)	(0.873)
8 years ago	0.261	-0.045	-0.164
	(0.577)	(0.425)	(0.727)
7 years ago	0.428	-0.096	-0.534
	(0.494)	(0.291)	(0.656)
6 years ago	0.333	0.139	-0.378
	(0.532)	(0.291)	(0.634)
5 years ago	0.316	0.136	-0.198
	(0.518)	(0.259)	(0.580)
4 years ago	0.464	0.015	-0.423
	(0.490)	(0.245)	(0.599)
3 years ago	0.390	-0.149	-0.241
	(0.535)	(0.218)	(0.563)
2 years ago	0.554	-0.194	0.006
	(0.524)	(0.232)	(0.560)
1 years ago	0.676	0.030	0.215
	(0.474)	(0.209)	(0.573)
N	1889	1766	1900

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level;*variable is statistically significant at 10% level.. Robust standard errors clustered at the state-year level are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property,state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The regressions are weighted by the state population. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Data: Freidberg (1998); Voena (2012).

Table 1.5: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Annual Hours of Housework and Leisure of Wives Married Prior to the Reform

	Dependent Variables: Wives'			
Independent Variables:	**Hours of Housework**		**Hours of Leisure**	
	(1)	(2)	(1)	(2)
Provision 1-5 years	48.40	-77.99	-12.41	-42.96
	(30.95)	(52.65)	(33.83)	(53.95)
Provision 6-10 years	1.380	-177.2	23.63	-84.73
	(47.10)	(76.77)	(53.67)	(75.61)
Provision 10+ years	3.999	-76.67	80.42	-59.87
	(69.91)	(101.0)	(77.92)	(108.6)
Provision 1-5 years*uni	-	163.1***	-	35.91
		(55.3)		(57.01)
Provision 6-10 years*uni	-	154.1**	-	127.2*
		(76.48)		(73.00)
Provision 10+ years*uni	-	117.4	-	174.7*
		(99.29)		(103.1)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	19,579	19,579	19,579	19,579
Individual Fixed Effects	1948	1948	1948	1948

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummy variables that indicate states that are under equitable property distribution and community property regime. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.6: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Labor Force Participation and Annual Hours of Market Work of Wives Married Prior to the Reform

	Dependent Variables:			
	Wives'			
Independent Variables:	**Labor Force Participation**		**Hours of Market Work**	
	(1)	(2)	(1)	(2)
Provision 1-5 years	-0.025	0.042	-43.97	121.3**
	(0.019)	(0.034)	(35.04)	(60.54)
Provision 6-10 years	-0.015	0.082*	-32.26	201.5**
	(0.030)	(0.046)	(57.36)	(83.08)
Provision 10+ years	-0.015	0.118**	-86.00	146.5
	(0.030)	(0.059)	(83.62)	(105.8)
Provision 1-5 years*uni	-	-0.083**	-	-209.6***
		(0.035)		(63.55)
Provision 6-10 years*uni	-	-0.115***	-	-287.0***
		(0.044)		(81.52)
Provision 10+ years*uni	-	-0.192***	-	-304.2***
		(0.058)		(101.0)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	22,559	22,559	22,559	22,559
Individual Fixed Effects	2150	2150	2150	2150

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummies for equitable property distribution and community property states. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.7: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Annual Hours of Housework and Leisure of Husbands Married Prior to the Reform

	Dependent Variables: Husbands'			
Independent Variables:	**Hours of Housework**		**Hours of Leisure**	
	(1)	(2)	(1)	(2)
Provision 1-5 years	-9.703	-26.35	23.26	-56.74
	(12.75)	(21.05)	(27.61)	(47.20)
Provision 6-10 years	-8.96	-15.00	55.90	-54.73
	(19.50)	(33.53)	(45.14)	(70.29)
Provision 10+ years	-56.63	-83.86**	141.1**	128.3
	(28.35)	(43.22)	(66.22)	(114.2)
Provision 1-5 years*uni	-	21.49	-	102.9**
		(23.35)		(51.17)
Provision 6-10 years*uni	-	7.455	-	143.7*
		(34.74)		(47.77)
Provision 10+ years*uni	-	36.18	-	26.17
		(42.90)		(122.6)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	19,579	19,579	19,579	19,579
Individual Fixed Effects	1947	1947	1947	1947

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummies for equitable property distribution and community property states. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.8: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Labor Force Participation and Annual Hours of Market Work of Husbands Married Prior to the Reform

Independent Variables:	Dependent Variables: Husbands' Labor Force Participation		Hours of Market Work	
	(1)	(2)	(1)	(2)
Provision 1-5 years	-0.004	0.012	-13.27	78.62*
	(0.007)	(0.011)	(26.51)	(43.67)
Provision 6-10 years	-0.010	0.025	-52.76	56.09
	(0.012)	(0.016)	(43.21)	(67.27)
Provision 10+ years	-0.019	0.028	-99.09	-67.13
	(0.020)	(0.026)	(64.18)	(100.9)
Provision 1-5 years*uni	-	-0.020	-	-118.8***
		(0.013)		(47.84)
Provision 6-10 years*uni	-	-0.042**	-	-139.9**
		(0.018)		(70.61)
Provision 10+ years*uni	-	-0.059**	-	-50.65
		(0.026)		(109.4)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	22,559	22,559	22,559	22,559
Individual Fixed Effects	2150	2150	2150	2150

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.9: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Annual Hours of Housework and Leisure of Wives

	Dependent Variables: Wives'			
Independent Variables:	**Hours of Housework**		**Hours of Leisure**	
	(1)	(2)	(1)	(2)
Provision 1-5 years	2.398	-123.2***	-25.47	-12.76
	(27.53)	(47.60)	(28.28)	(49.77)
Provision 6-10 years	-60.56*	-201.5***	-23.88	-65.34
	(35.49)	(62.31)	(37.83)	(60.84)
Provision 11-15 years	-72.70	-223.0***	39.21	14.92
	(45.85)	(74.32)	(51.09)	(81.73)
Provision 1-5 years*uni	-	151.5***	-	-17.79
		(51.47)		(53.21)
Provision 6-10 years*uni	-	164.9***	-	49.06
		(65.33)		(63.29)
Provision 11-15 years*uni	-	182.7**	-	28.09
		(79.43)		(84.79)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	38,840	38,840	38,840	38,840
Individual Fixed Effects	3571	3571	3571	3571

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.10: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Labor Force Participation and Annual Hours of Market Work Wives

	Dependent Variables: Wives'			
Independent Variables:	**Labor Force Participation**		**Hours of Market Work**	
	(1)	(2)	(1)	(2)
Provision 1-5 years	0.008	0.068**	4.749	130.0**
	(0.016)	(0.031)	(30.71)	(56.71)
Provision 6-10 years	0.034*	0.138***	63.88	257.9***
	(0.021)	(0.037)	(41.44)	(68.37)
Provision 10+ years	0.032	0.172***	10.59	206.3***
	(0.028)	(0.045)	(53.85)	(82.77)
Provision 1-5 years*uni	-	-0.072**	-	-149.8***
		(0.032)		(59.37)
Provision 6-10 years*uni	-	-0.119	-	-226.7***
		(0.037)		(71.72)
Provision 10+ years*uni	-	-0.170***	-	-235.9***
		(0.047)		(86.18)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	43,949	43,949	43,949	43,949
Individual Fixed Effects	3881	3881	3881	3881

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Table 1.11: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Annual Hours of Housework and Leisure of Husbands

Independent Variables:	Dependent Variables: Husbands' Hours of Housework		Husbands' Hours of Leisure	
	(1)	(2)	(1)	(2)
Provision 1-5 years	3.012	-11.93	-7.215	-88.61**
	(11.31)	(18.93)	(24.31)	(45.10)
Provision 6-10 years	5.071	-2.341	-4.117	-69.59
	(15.49)	(27.60)	(34.98)	(64.49)
Provision 10+ years	-6.40	-29.00	31.90	-20.96
	(21.19)	(34.68)	(44.50)	(88.97)
Provision 1-5 years*uni	-	18.28	-	99.60**
		(20.81)		(49.05)
Provision 6-10 years*uni	-	7.641	-	82.22
		(29.12)		(68.42)
Provision 10+ years*uni	-	27.87	-	64.43
		(36.64)		(92.36)
Controls for Unilateral and Equitable Distribution law	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	38,849	38,849	38,849	38,849
Individual Fixed Effects	3570	3570	3570	3570

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. .Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

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Table 1.12: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on Labor Force Participation and Annual Hours of Market Work Husbands

Independent Variables:	Dependent Variables: Husbands' Labor Force Participation		Hours of Market Work	
	(1)	(2)	(1)	(2)
Provision 1-5 years	-0.002	0.014	-1.544	94.04**
	(0.006)	(0.010)	(23.67)	(42.66)
Provision 6-10 years	-0.007	0.023**	-19.07	60.83
	(0.009)	(0.014)	(33.91)	(61.70)
Provision 10+ years	-0.011	0.038**	-43.07	36.23
	(0.013)	(0.019)	(43.96)	(88.11)
Provision 1-5 years*uni	-	-0.018	-	-117.9***
		(0.012)		(45.98)
Provision 6-10 years*uni	-	-0.034**	-	-93.65
		(0.016)		(64.91)
Provision 10+ years*uni	-	-0.059***	-	-96.39
		(0.021)		(91.29)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	43,949	43,949	43,949	43,949
Individual Fixed Effects	3881	3881	3881	3881

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics; Freidberg (1998); Voena (2012).

Appendix 1.A

The First Best Benchmark:

One primary gain of family formation is that it permits the sharing of public goods and specialization within households. Home production performed by wives is one of the major sources of such gain. There is no problem of under-provision of public goods including housework as the household in principle just operates like a firm that will never dissolve. Optimal cooperation within households can be achieved and spouses would act to maximize households' net gain irrespective of the distribution of the resources produced.

Consider the benchmark in which couples never divorce and they maximize their joint utilities by choosing the time they allocate to housework and market work and the amount they spend on home asset, which is given by:

$$U_m^M + U_f^M = \max_{(g_m, g_{f,} l_m, l_f, h_m, h_f)} \sum_{i=m,f} v_i(G_1) + 2G_2 \tag{1.A.1}$$

Subject to the budget constraint:

$$w_i h_i = g_i \tag{1.A.2}$$

The time constraint for $i = m, f$:

$$l_i + h_i = 1 \tag{1.A.3}$$

The first best amount of time spent on housework and investment in home assets are defined by the following first order conditions:

$$2[\gamma_i f'(l_i)] = w_i$$

(1.A.4)

These are the Samuelson condition for public good provision. (1.A.4) states that the joint marginal utility from the marginal product of the domestic labor is equal to the market wage of the spouse.

Proof of Proposition 1. Proposition 1. The optimal level of $l_f$in this non-cooperative setting must be below the first best level.

$$2[\gamma_i f'(l_i)] = w_i$$

(1.A.5)

Proof. When spouses allocate their time non-cooperatively, let the optimal level ofl_f

be $\widehat{l_\iota}$, the first order condition for l_f is given by:

$$(1-\beta)\gamma_f f'(\widehat{l_\iota}) + \frac{(\theta\gamma_i f'(\widehat{l_\iota})(1+\beta)}{2} = w_i$$

Simplifying we have:

$$\frac{(2-2\beta+\beta\theta+\theta)}{2}\gamma_f f'(\widehat{l_\iota}) = w_i$$

Since $0 \leq \theta \leq 1$and $0 \leq \beta \leq 1$,=>$\frac{(2-2\beta+\beta\theta+\theta)}{2} < 2$ and f is concave in l_i, $\therefore \widehat{l_\iota} \leq l_i^*$ ■

Appendix 1.B

The Cooperative Bargaining Model

If spouses behave cooperatively and maximize the Nash-Product with the payoffs at divorce state as spousal threat points, we have:

$$\max_{(g_m, g_{f,} l_m, l_f, h_m, h_f)} \{ v(G_1) + G_2 - [v[(1-\alpha)(g_m + g_f)] + \theta\gamma_m f(l_m)]\} \{v(G_1) + G_2 - [v[\alpha(g_m + g_f)] + \theta\gamma_f f(l_f)]\} \quad (1.B.1)$$

The Production technology of the home assets and domestic public goods are given respectively by: $G_1 = g_m + g_f$ (1.B.2)

$$G_2 = \gamma_m f(l_m) + \gamma_f f(l_f) \quad (1.B.3)$$

Where $f'(l_i) > 0$ and $f''(l_i) < 0$.

Subject to the budget constraint:

$$w_i h_i = g_i \quad (1.B.4)$$

The time constraint for $i = m, f$:

$$l_i + h_i = 1$$

(1.B.5)

Let $\{v(G_1) + G_2 - [v[(1-\alpha)(g_m + g_f)] + \theta\gamma_m f(l_m)]\}$ be A(l_f) and $\{v(G_1) + G_2 - [v(\alpha(g_m + g_f)) + \theta\gamma_f f(l_f)]\}$ be B(l_f). The first order condition of l_f is given by:

$$\mathrm{B}(l_f)\{v'(G_1){G_1}' - v'\left((1-\alpha)(g_m + g_f)\right)\left[(1-\alpha){G_1}' - [\alpha'(l_f)(g_m + g_f)]\right]\}$$

$$+\mathrm{A}(l_f)\{v'(G_1){G_1}' - v'\left(\alpha(g_m + g_f)\right)[\alpha'(g_m + g_f) + {G_1}'\alpha] + \theta\gamma_f f'(l_f)]\}=0$$

(1.B.6)

Where ${G_1}'=\frac{-w_f}{P}$ and without the homemaking provision $\alpha'(l_f) = 0$

Let $\{v'(G_1){G_1}' - v'\left((1-\alpha)(g_m + g_f)\right)\left[(1-\alpha){G_1}' - [\alpha'(l_f)(g_m + g_f)]\right]\}$ be C and let $\{v'(G_1){G_1}' - v'\left(\alpha(g_m + g_f)\right)[\alpha'(g_m + g_f) + {G_1}'\alpha] + \theta\gamma_f f'(l_f)]\}$ be D. The comparative statics with respect to α follows:

$$\frac{\partial FOC}{\partial \alpha} + \frac{\partial FOC}{\partial l_f}\frac{\partial l_f}{\partial \alpha} = 0$$

(1.B.7)

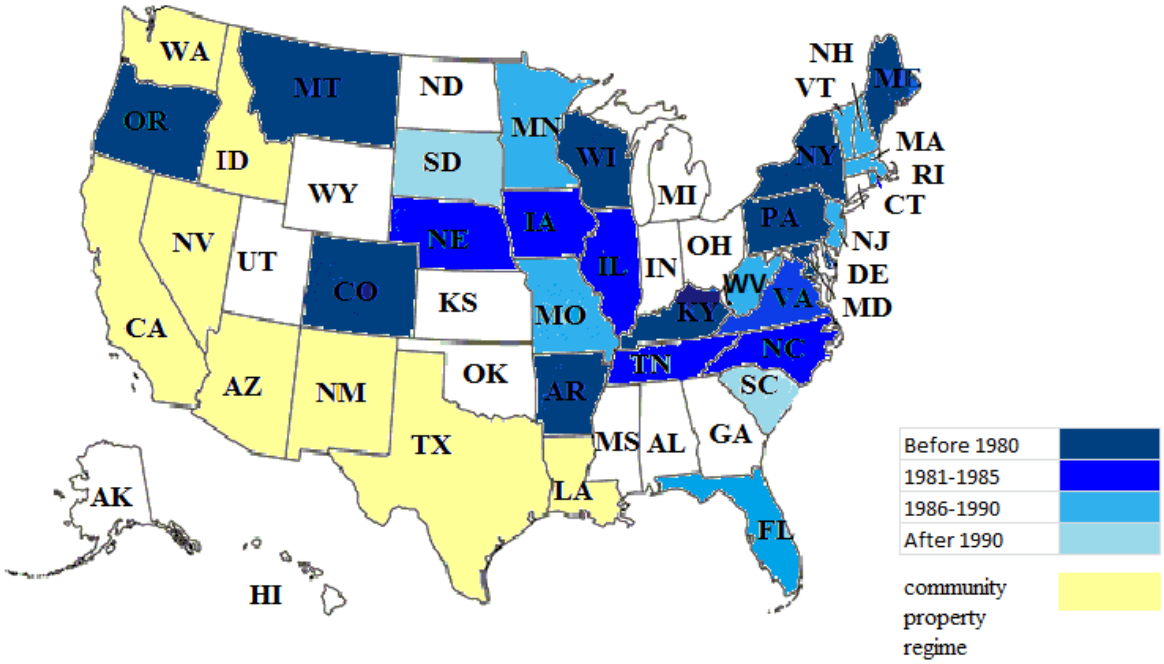
$$\frac{\partial l_f}{\partial \alpha} = \frac{-\frac{\partial FOC}{\partial \alpha}}{SOC}$$

(1.B.8)

Under the maximization problem the second order condition (SOC) must be negative so the sign of $\frac{\partial l_f}{\partial \alpha}$ depends on the direct effect: $\frac{\partial FOC}{\partial \alpha}$. The effect of the homemaking provision on l_f under the cooperative bargaining model is indeterminate because many forces work in opposite directions and without the exact functional form of v, f, α we cannot know the magnitude of these opposite forces. In the first place C and D cannot be signed. All we know is that they cannot be both negative or positive for (1.B.6) to hold because A and B are positive. The direct effect in (1.B.7) therefore cannot be signed also. The problem becomes more complicated under the cooperative bargaining framework because when l_f increases α because of the homemaking law, the wife has incentives to supply more housework. However a rise in α increases the threat point of the wife but lowers that of the husband. This income effect would reduce l_f. The intuition is that if the marginal utility of home assets is high compared to that of housework and that the marginal utility from home assets diminishes at a slower rate (that is the utility function of home assets is less concave), the wife would be more likely to supply more housework with the homemaking law and vice versa. In addition if $\alpha(l_f)$ is more concave, which means that increasing l_f would only increase α slightly, the wife would be more likely to supply less housework, holding other things constant.

Appendix 1.C: Years of Implementations of Divorce Reforms

Figure 1.3: Homemaking Provision in Divorce Law across States: Year of Enactment of the Homemaking Provision Established for Division of Marital Property in Divorce Law [11]



[11] Wisconsin became a community property regime in 1986.

Table 1.12: Homemaking Provision in Divorce Law across States: Year of Enactment of the Homemaking Provision Established for Division of Marital Property in Divorce Law

State	Year of Enactment of the Homemaking Provision in Property Division	State	Year of Enactment of the Homemaking Provision in Property Division
Alabama	-	New York	1980
Alaska	-	North Carolina	1984
Arizona	community property	North Dakota	-
Arkansas	1978	Ohio	-
California	community property	Oklahoma	-
Colorado	1973	Oregon	1977
Connecticut	-	Pennsylvania	1980
Delaware	1980	Rhode Island	1983
District of Columbia	1981	South Carolina	2008
Florida	1985	South Dakota	1991
Georgia	-	Tennessee	1984
Hawaii	-	Texas	community property
Idaho	community property	Utah	-
Illinois	1981	Vermont	1988
Indiana	--	Virginia	1981
Iowa	1982	Washington	community property
Kansas	-	West Virginia	1988
Kentucky	1972	Wisconsin	1977[12]
Louisiana	community property	Wyoming	-
Maine	1979		
Maryland	1980		
Massachusetts	1987		
Michigan	-		
Minnesota	1987		
Mississippi	-		
Missouri	1986		
Montana	1975		
Nebraska	1984		
Nevada	community property		
New Hampshire	1987		
New Jersey	1988		
New Mexico	community property		

Notes: Data from state-level sources and can be provided by the author upon request.

[1212] Wisconsin became a community property regime in 1986.

Table 1.13: Year of Enactment of Unilateral Divorce Law and Equitable Distribution

State	Unilateral Divorce	Equitable Distribution	State	Unilateral Divorce	Equitable Distribution
Alabama	1971	1984	North Carolina	1967	1981
Alaska	1967	pre-1967	North Dakota	1971	pre-1967
Arizona	1973	community property	Ohio	1974	1981
Arkansas	-	1977	Oklahoma	1967	1975
California	1970	community property	Oregon	1973	1971
Colorado	1973	1972	Pennsylvania	1980	1980
Connecticut	1973	1973	Rhode Island	1976	1981
Delaware	-	pre-1967	South Carolina	1969	1985
District of Columbia	1977		South Dakota	1985	pre-1967
Florida	1971	1980	Tennessee	-	pre-1967
Georgia	1973	1977	Texas	1974	community property
Hawaii	1973	pre-1967	Utah	1967	pre-1967
Idaho	1971	community property	Vermont	1967	pre-1967
Illinois	1981	1977	Virginia	1967	1982
Indiana	1973	pre-1967	Washington	1973	community property
Iowa	1970	pre-1967	West Virginia	1967	1985
Kansas	1969	pre-1967	Wisconsin	1977	community property
Kentucky	1972	1976	Wyoming	1977	pre-1967
Louisiana	1967	community property			
Maine	1973	1972			
Maryland	1967	1978			
Massachusetts	1975	1974			
Michigan	1972	pre-1967			
Minnesota	1974	pre-1967			
Mississippi	-	1989			
Missouri	1973	1977			
Montana	1975	1976			
Nebraska	1972	1972			
Nevada	1973	community property			
New Hampshire	1971	1977			
New Jersey	1988	1974			
New Mexico	1973	community property			
New York	-	1980			

Notes: The coding for unilateral divorce comes from Friedberg (1998).The coding for equitable distribution is from Voena (2012).

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Chapter 2

An Assessment of the Impact of Homemaking Provision in Property Division at Divorce on Investment in Household Public Goods, Marital Formation and Dissolution

In the previous chapter I find evidence that the homemaking provision in divorce law that gives recognition to the non-financial contribution of homemakers in property division at divorce enhances sexual division of labor within households. Based in this finding, I further investigate how this homemaking law might affect marital formation and investment in household public goods on the grounds that this law might have enhanced marital surplus in marriage, which will increase the incentive to marry and investment in household public goods such as housing and childrearing.

The liberalization of the divorce law in the United States that occurred predominately in the 1970's has been accompanied with the decline in marriage. One key finding is that the provision creates a considerable long term impact on marriage. Both marriage and divorce increase over time and the net impact on marriage is positive. On the net it increases marriage rate by at least 5.9% in states that have implemented the provision for over 26 years. The increase in divorce over time with the provision might be attributable to the presence of significant selection effect: more bad marriages might have occurred. There is also evidence that the provision stimulates birth rates and home investment, especially for couples residing under the mutual consent regime. This might suggest that the mutual consent divorce law is more effective in preventing opportunistic behavior of wives brought about by the provision.

2.1 Background

Marriage has reached its peak in the United States in the 1950's. This period has been well-known as "the golden age" that signifies a period of renewed emphasis on the family in the post-war period in the United States. Marriage rates reached a historical high. The age of marriage fell to a record low, family sizes increased, divorce rates stabilized. These patterns of family characteristics of the fifties in fact were sharply out of line with the long-term demographic trends of the United States during this abnormal postwar period (see Mintz & Kellog). The repercussions of these unnatural demographic trends were the subsequent skepticism over the traditional American family and its decline. Weiss (2000) describes the golden age as "the quiet before the storm of social, sexual, and gender role change that rocked the nation over the next four decades."

The American family life since then has undergone constant transformation. The post-golden age period is associated with women's stronger attachment to the labor market, the widespread availability of contraceptives and the radical liberalization of the divorce law across states. All these are asserted to have undermined marriage (see for instance Golden & Katz 2002; Golden 2006; Friedberg 1998). Beginning in the late 1960's, many states adopted the unilateral divorce law, whereby divorce can be obtained without the consent of the other spouse. Rasul (2003) found that the adoption of unilateral divorce laws accounts for 3.6% of the overall decline in the marriage rate in the United States and for states that also introduce an equitable division of property across spouses in divorce, they experienced further significant reduction in marriage rates. Marriage has experienced a secular decline in the United State since 1960's. Policy makers and the public have become increasingly concerned with the decline of the marriage institution.

The growing public concern about the decline in marriage arises out of the perception that marriage tends to enhance the well-beings of individuals. Indeed, there is ample empirical evidence supporting this common belief. Waite (1995) found that married men and women exhibited lower level of negative health behaviors than the unmarried. Married people are also found to have more satisfactory sex lives than single and cohabiting individuals (see also Waite & Gallagher 2000). Using the *Health and Retirement Survey (HRS)* and the *Panel Study of Income Dynamics (PSID)*, Lupton & Smith (2003) find that married couples have higher level of wealth than the non-married including the cohabited even after controlling for characteristics that affect savings and income. In spite of that self-selection into marriage is possible, the overall better well-beings of married individuals can at least be partially attributable to inter-monitoring, gains from household specialization, economies of scale in production and consumption, altruism and enhanced commitment within marriage. After all, the contractual nature of marriage encourages cooperation in production among spouses as well as investment in household public goods such as housing and children. In addition, Buckles and Price (2013) found that marriage premiums exist for infant health in terms of birth weight, prematurity and infant mortality even after accounting for selection into marriage. The above empirical evidence suggests that at least some of the better family outcomes are causal effects of marriage.

Indeed currently there are various state policies that aim at supporting and promoting traditional marriage, for instance the mandatory divorce education in Arizona, Arkansas and Florida. Also nowadays there are fifteen states that impose no marriage penalty in state income taxes and fifteen other states introduce tax schedules that eliminate or reduce the penalties. Louisiana(1997), Arizona(1998) and Arkansas(2001) have passed the covenant marriage law. In these states, couples have the choice between regular and covenant marriage. This is an attempt

to reestablish the traditional form of marriage under the common belief that the no-fault divorce has undermined marriage. Also there have been legal reforms that directly aim at protecting spouses' specific investments in their relationship. The homemaking provision I study is a policy that serves to protect the homemakers in marriage. In this chapter, I evaluate whether this provision encourages marriage and the extent to which it affects investment that would increase the gain to marriage such as child rearing and investment in housing. Although such evaluation is crucial in understanding the effects of the policy and how policies that aim to encourage household division of labor affect marital behavior, empirical studies on this subject have been rare.

2.2 Theoretical Consideration

On the premise that marriage generally enhances welfare of people, it is of great interest to social scientists and policy makers to assess to what extent the homemaking provision affects the formation and dissolution of marriage. Conjecturally if the law indeed increases the amount of housework performed by wife and the potential negative effect on total amount of investment by spouses in home asset is not of large magnitude, the law will enhance marital surplus and thus encourage couples to get married. The effect on the occurrences of divorce is less clear-cut. On the one hand based on the above argument if marital surplus increases, holding other things constant, couples will be less likely to divorce. On the other hand, the law might lower the quality of match in the marriage market and some couples who would not have been married without the homemaking law might get married as a result of the increase in marital surplus due to a higher degree of household specialization of labor induced by the law. This will change the composition of the pool of couples that get married and is expected to increase the occurrences of divorce. Also when homemakers are better compensated with the homemaking provision

under the unilateral divorce regime, they might be less likely to tolerate a misbehaving partner such as an abusive husband, along the same line as the argument made by Stevenson and Wolfers (2006).

Furthermore in the context of marriage as a form of long term contract, the provision serves to protect homemakers for homemaking contribution. Another interesting question would be to inquire whether relationship specific investment that requires intensive time input in the form of housework such as childrearing would be enhanced given the provision. It is also important to investigate how the new law would affect household public good provision such as housing. Theoretically its impact is ambiguous as the homemaking provision might discourage investment in housing especially on the side of the primary income earner, which is typically the husband. This is because when their marriage dissolves, a larger portion of the marital property would go to the homemaking wife with the homemaking provision. This tends to discourage investment in housing. However, if the law indeed enhances the commitment in marriage and gives rise to more intensified household specialization especially as in the case of mutual consent regimes, the gain to marriage will increase the incentive to invest in housing. As for marriage specific investment such as childrearing, its amount will be lower without the homemaking provision particularly under the unilateral law as the law creates more room for opportunistic behavior in a similar fashion as the "hold up" problem in firms when firm-specific investments are involved in production (Williamson 1971). The crucial difference between mutual consent and unilateral divorce is that in the latter case any spouse can terminate this long-term marital contract without the consent of the other.

2.3 Estimation Strategy

The following individual fixed effect model is used to estimate the impact of the homemaking provision on investment in public goods of spouses:

$$Q_{i,s,t} = \sum_{j=1(5)}^{11+} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{16+} \theta_k \, uni_{\ for\ k\ to\ (k+4) years_{s,t}} + \sum_{l=1(5)}^{11+} \phi_l \, pro_{\ for\ l\ to\ (l+4) years_{s,t}} * unilateral + \rho eqdist_{s,t} + f_i + \alpha_t + \gamma_s + \boldsymbol{X}'_{i,s,t}\boldsymbol{\delta} + \epsilon_{i,s,t} \quad (2.1)$$

where Q is the outcome variables under investigation including the natural logarithm of the home value in 1982 dollars and home ownership dummy; *pro* represents dummies for states that have introduced the provision for j to j+4 years where j starts from 1 and then 6 and so on; similarly *uni* stands for states having implemented unilateral divorce for k to k+4 years; *unilateral* is a dummy variable that takes one if the state is a unilateral divorce regime at time t and zero otherwise; *eqdist* denotes dummies for states with equitable property division respectively; f, α and γ represent the individual, year and state fixed effect respectively and the vector $\boldsymbol{X}$ stands for demographic controls;[13] i, s and t denote the individual, state and year subscripts.

I also perform the following state fixed effect regression model to estimate the impact of the homemaking provision on marital formation and dissolution as well as fertility using a self-compiled state level panel data:

[13] The benchmark regression model includes age and age squared of wives, dummies for education of the spouses as the demographic controls.

$$Y_{st} = \sum_{j=1(5)}^{26+} \beta_j \, pro_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{26+} \theta_k \, uni_{\ for\ k\ to\ (k+4) years_{s,t}} + \kappa compro_{s,t} + \rho eqdist_{s,t}$$
$$+ \boldsymbol{\sigma}' \boldsymbol{X}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t}$$

(2.2)

where Y is the state level outcome variable (i.e. marriage, divorce and birth rates) in state s in year t; *pro* represents dummies for states that have introduced the provision for j to j+4 years where j starts from 1 and then 6 and so on; similarly *uni* stands for states having implemented unilateral divorce for k to k+4 years; $compro$ is a dummy variable that takes one if the state is a community property regime at time t and zero otherwise; $eqdist$ is a dummy variable that takes one if the state is an equitable distribution regime for marital properties at time t and zero otherwise $\boldsymbol{X}$ is a vector of state level control variables exogenous to the outcome variables such as state level disposable income per capita, and proportion of marriageable population ; α_t and γ_s represent year and state dummies and ϵ is an iid error term.

Also if the law does reinforce gender specialization of labor within marriage, marital surplus will go up in general. This will increase the propensity to marry and we will expect that β_j in equation (2.1) to yield a positive sign on marriage rates. An additional consideration is how this law affects the composition of the pool of married individuals. Suppose that this law does enhance marital surplus so that more people get married, there are two potential consequences: First some people who would not have married without the law now gets married and these marginal couples are more prone to divorce. In other words, more bad mates now get married. Also as a result of the increase in return from marriage, individuals might select less carefully for mates in the marriage market and these bad matches will produce more divorce. It is an

important empirical question to assess how this homemaking law affects net marriages as one of its major policy goals is to enhance the marriage institution apart from financially protecting the homemakers.

On top of the over-time impact of the homemaking provision, equation (2.1) and (2.2) control for states with unilateral divorce or equitable distribution as these laws might have impact on household behavior (Stevenson 2007) and might confound the results without properly controlling for these regimes if these variables are correlated with the introduction of the homemaking law.[14]

2.4 The Data

The number of yearly occurrence of marriages and divorces in states is collected from *the Vital Statistics of the United States*. One advantage of the data collected from *the Vital Statistics of the United States* is that it is based on marriage and divorce certificates issued in states and thus form very accurate measures for the actual number of marriages and divorces occurring each year in different states. Compared to the marriage rates estimated from data sets such as *Current Population Survey (CPS)* and *American Community Survey (ACS)*, these surveys are conducted based on random sampling of households. The marriage and divorce rates calculated by these data are based on the actual number of people that declared themselves as married or divorced. The year of marriage and divorce are mostly unavailable in these data which makes it impossible to compute the flow of marriages and divorces each year by using these data. The change in

[14] Initially, ex-post divorce property rights in common law regimes are titled based. Some common law states switch their law regarding property division at divorce to equitable which gives judges the discretion to distribute marital properties according to what the judge deems as fair and equitable. On top of these legal regime controls, equation 2.25 also controls for states that are community property regimes. It is excluded from the individual fixed effect model because Wisconsin is the only state that experienced a switch from the common law regime to the community property regime.

marriage rates based on these measures can be driven by changes in divorce pattern of the stock of married people. This makes these measures undesirable for interpreting how the law impacts individuals' marriage and divorce decisions. It might be misleading for instance to infer a higher marriage rate defined this way in one state when the homemaking provision has been introduced to be a result of it based on this measure as some of the individuals in the married and divorced group might well be married or divorced prior to the introduction of the law.

For the measure on birth, I collect the data recorded in *Volume I (Natality), Vital Statistics of the United States* from 1972-2009. The data includes all births occurring in a given calendar year within the United States and are based on information abstracted form birth certificates filed in vital statistics offices of each State and District of Columbia.

The statistics on state population comes from *the Reading Survey of Epidemiology and End Results (SEER) U.S. County Population Data.* It provides information on the population in the United States at the level of the state or county and by age and sex from1969-2009.

The state level data on disposable personal income per capita is supplied the *Bureau of Economic Analysis*. The statewide unemployment rate 1976 and onwards and CPI used to deflate the home value in *the Panel Study on Income Dynamics (PSID)* data and income are provided by *the Bureau of Labor Statistics*.

The data on the year of implementation of the mandatory income withholding for child support in the robustness test in Tables 2.4-2.6 comes from Case(1998). The proportion of Democrats in the House of Representatives is calculated from the data from the election section of *the Statistical Abstract of the United States* in various years.

By combing the above data, I construct a state level panel data that include accurate measures of actual occurrences of marriage, divorce and birth relative to the state population size of a variety of age groups as well as statewide demographic controls over a 38-year time span that are used to identify to causal impact of the law on marital behavior.

Also, to evaluate the effect of the provision on home ownership and on marital dissolution of couples married before the reform period, I make use of data from *the Panel Study of Income Dynamics (PSID)* from 1968-1997 in estimating the fixed effect model. Married women aged between 18-55 and their spouses are included in the sample as in Chapter 1. I have confined my analysis to individuals that are original sample members in the PSID to avoid potential endogeneity problems arising from non-random marital matching.

I define state level marriage and divorce rate in this paper to be the number of occurrence of marriages and divorces per 1000 people aged 15-54 in each state in any specific year since this is the marriage-prone population in the marriage market. The state level birth rate is defined to be the number of births occurred per 1000 people aged 15-44 in each state in any specific year as individuals from this age group are most "at risk" for childbearing. The results presented below however are robust to alternative definitions of these measures.[15]

Table 2.1 presents the summary statistics of the state level data. Figure 2.1 compares the trends of marriage and divorce in the United States from 1972-2009. It is evident that marriage has experienced a secular decline since early 80's and there is no sign that such trend will be reversed. This is in line with the widespread belief that the marriage institution is declining. Divorce rates upsurged in the 1970's, but slowly decreased afterwards. The two demographic

[15] For instance, I obtain very similar results when marriage, divorce and birth rates are defined based on the whole population.

trends together suggest that the liberalization of divorce law might have created some selection effect in mating in the marriage market. Individuals spend more effort on mate searching before they marry and some potentially "poor marriages" did not occur as a result of the reform, and this later on gives rise to the decline in divorce.

Figure 2.2 shows that birth rate peaks at 37 per 1000 people aged 15-44 in 1972 and it subsequently dropped to below 35. The trend afterwards fluctuates between 32 and 35 per 1000 people and there is no clear pattern of upward and downward trend. However, during the 1990's, the birth rate peaks at 35.2 in 1990 and then it plummets at 31.5 in 1997. The birth rate trend then starts to pick up again afterwards.

Figures 2.3 and 2.4 compare the average marriage and divorce rates of states with and without the homemaking provision by the years of implementation. The baseline group is states without the homemaking provision. Adopting the approach of Johnson and Skinner (1986), the averages of the baseline group were adjusted by the year weighting of the group with the provision in order make the comparison in line with the year composition of the group with the provision.[16] It is observed in the two figures the baseline group has both a higher marriage and divorce rate to start with. Without controlling for state demographics and the years of the introduction of the unilateral divorce law, both groups experience a decline in marriage rate but the average marriage rate of the provision group drops less quickly especially for the first 10 years of the introduction of the homemaking provision. Figure 2.4 shows that divorce rate drops more quickly over "implementation time" for the baseline group than the provision group,

[16] For example, if 60 percent of the observations of the group with the provision a year preceding divorce are from 1986 and 40 percent of them come from 1987, then the baseline averages will be computed with these weights.

especially for during the 6-20 years of the enactment of the provision. This indicates that the provision might have increased the propensity to divorce.

2.5 The Results

2.5.1 On Public Goods Investment

Table 2.2 presents the result of the effect of the homemaking provision on investment in home assets. Overall the homemaking law increases home ownership and home value but for the unilateral divorce states this effect is weakened. In fact its effect on home value in unilateral divorce states becomes negative when the provision has been in force for more than 6 years. This indicates that the probability of divorce is an important factor in determining the effect of the law on market specific public goods.

As child rearing is one of the major forms of marriage specific investment of which the value declines sharply when marriage dissolves. One aspect of the return of such investment is the companionship, love and pride they give their parents, which is nonrivalrous in nature within a marriage but not so upon its dissolution. Therefore we expect that such investment would drop if the contractual bonds of marriage are weakened and vice versa (Stevenson 2007). If the homemaking provision strengthens the contractual bond of marriage, fertility will go up. Therefore the homemaking law should produce similar effects on birth rates and the time wives allocate to housework. Columns 3 and 4 of Table 2.3 show that the state level results are roughly consistent with the above hypothesis. Overall the homemaking law tends to encourage fertility and the effect is mostly irrespective of the divorce regime as shown in specification (2).

2.5.2 On Marital Formation and Dissolution

The first two columns of Table 2.3 report the impact of the homemaking provision on the state level marriage, divorce and birth rates. The results present a very clear cut pattern that the provision increases the incentives to marry and the magnitude of the effect increases over time and levels off after the law has been implemented for over 21 years. The long term effect is 2.67 per 1000 people aged 15-54, which accounts for 12 percent of the sample mean. Figure 2.5 depicts the average effect of the homemaking provision on marital formation over time based on the results in Table 2.3. Loosely speaking, the net effect of the law on marriage creation (or destruction) is given by the difference between the marriage coefficient and the divorce coefficient. Considering that the mean marriage rate for the age group 15-54 is 15.28 per 1000 people and the long term net effect of marital creation is 0.9, the homemaking provision has a large impact on net marital creation.[17] It accounts for a substantial 5.9 percent of the average marriage rate of the United States in the sample period.

2.5.3 Robustness Checks for the Effects on Marriage, Divorce and Birth Rates

I conduct several robustness checks for the effects of the homemaking law on marriage, divorce and birth rates. The results are reported in Tables 2.4-2.6. Specification (1) is the baseline model. There are some other family law reforms apart from the unilateral divorce reform that might produce impact on marital behavior. If these reforms are correlated with the implementation of the homemaking law, excluding them from the regression might lead to spurious correlation which could produce misleading results. Specification (2) includes a dummy variable for the implementation of the joint custody law. Halla(2009) finds that the introduction of the joint custody law gives rise to a long run increase in marriage rates. Tables 2.4-2.6 show that the

[17] It is obtained by subtracting the estimated coefficient s of the implemented 26 yr+ on marriage and divorce and divide the amount by the sample mean of state marriage rates.

results are insensitive to its inclusion excepting that the effect for first 5 years of the introduction of the homemaking law on the state marriage rate becomes statistically insignificant.

Specification (3) includes a dummy variable for the introduction of mandatory state income withholding for child support. Conceivably this law would produce effect on marriage, divorce and birth rates. Table 2.4 shows that the impact of the homemaking law on marriage rates is slightly lowered by the inclusion of the mandatory state income withholding law and its inclusion increases the estimated coefficients for divorce rates excepting for the first 5 years of introduction of the homemaking provision. Birth rates overall are insensitive to its inclusion.

Specification (4) includes the proportion of Democrats in the House of Representatives as political attitude might play a role in the trend of marriage and it is also possible that it at the same time affects when the homemaking law is to be introduced in a state. The results from Tables 2.4-2.6 show that the estimated impact of the homemaking law is not significantly affected by the inclusion of this political variable.

Lastly I include state specific linear and quadratic time trends in specification (5) and (6) respectively. The effect of the homemaking law on marriage rates is partially captured by the linear time trend. The quadratic time trend captures less of the effect of the law with time. Overall the effect of the homemaking provision on marriage rates is robust to all the specification excepting the first five years of its introduction. As regards to the divorce and birth rates, most of the effect of the law has been captured by the state-specific time trends. The effect of the law on divorce rates disappears using the state specific linear time trends. However when state specific quadratic time trends are included instead, the homemaking provision is found to produce some positive effect on divorce rates for states that have introduced the law for 16-25

years although the magnitude of the effect is weakened by about one third. Despite that the effect of the law on state divorce rates is not robust to all the specifications examined, it is still reasonable to interpret from the results that the homemaking provision produces at least some positive effect on state divorce rates. Note that the state-specific quadratic time trends conceivably better capture the state specific time trends of states than the linear ones as the data covers a 37 year time span. It is not very reasonable to expect the time trend within a state to remain unchanged for almost 40 years. For state birth rates, most of the effect of the law are captured by the state specific-time trends and become statistically insignificant once they are introduced. The evidence for the positive effect of the law on birth rates is therefore inconclusive. Yet the above robustness test suggests that the effect of the law on net marriage rates might be larger than the estimate from the baseline specification. Using specification (6) for example, the average net increase in marriage rate amounts to 13.5 percent of the sample mean instead of 5.9 percent after the time trends have been accounted for.

2.6 Conclusion

The results in this chapter present clear evidence that the homemaking provision law encourages marital formation. On the net it increases marriage rate by at least 5.9 percent in states that have implemented the provision for over 26 years. The increase in divorce rate over time with the provision might be attributable to the presence of significant selection effect: more bad marriages might have occurred. There is also some evidence that the provision stimulates birth rates and home investment. Overall the results suggest that the homemaking provision enhances wives' home production, households' home investment and possibly childbearing. An important area for further investigation is to analyze the selection effect caused by these legal reforms.

In addition, the findings of the effect of the homemaking provision indicate that the unilateral divorce law that allows any spouse to terminate the marriage without the consent of the other spouse has impaired much of the commitment value in marriage that existed prior to the unilateral divorce reform. Consequently sexual division of labor within households and investment in marriage specific skills and public goods decline as partners protect themselves by investing less in their relationship. This has made marriage less attractive to many as the gain from marriage drop. I find that the homemaking provision for property division at divorce have at least partially restored the commitment value in marriage which has encouraged marriage specific investment as well as increased the incentives to marry.

Figure 2.1: Trends of Marriage and Divorce in the United States from 1972-2009

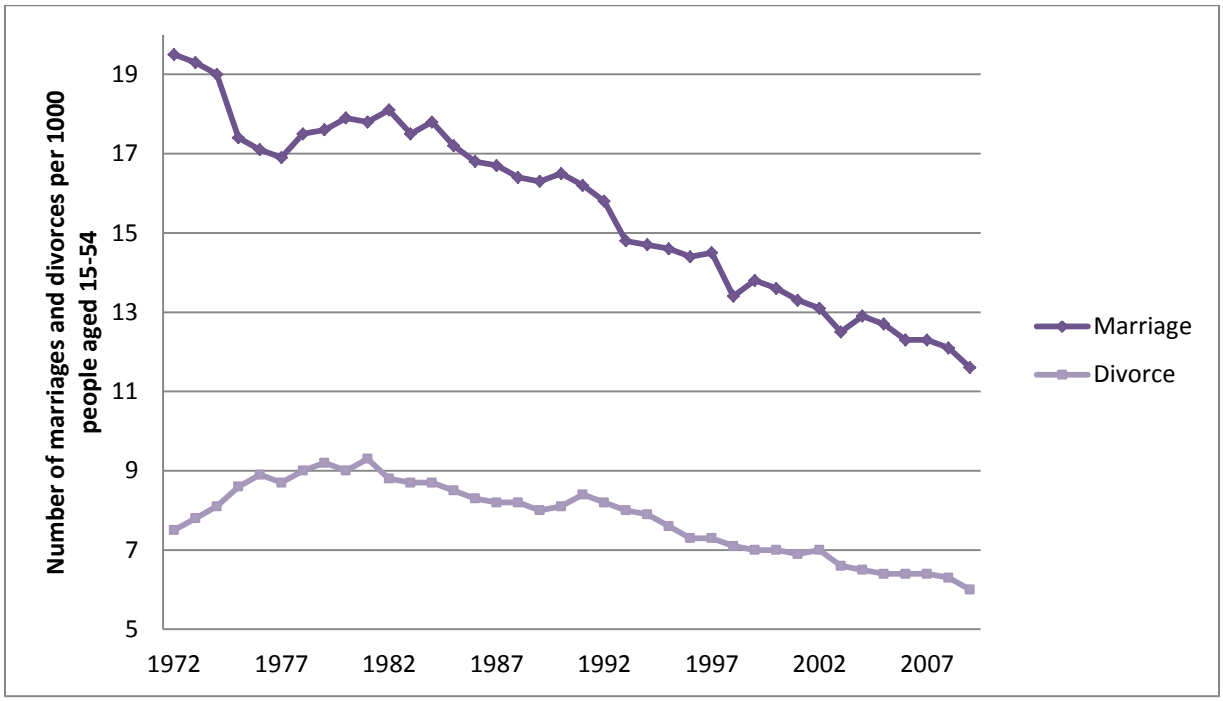


Figure 2.2: Trend of Births in the United States from 1972-2009

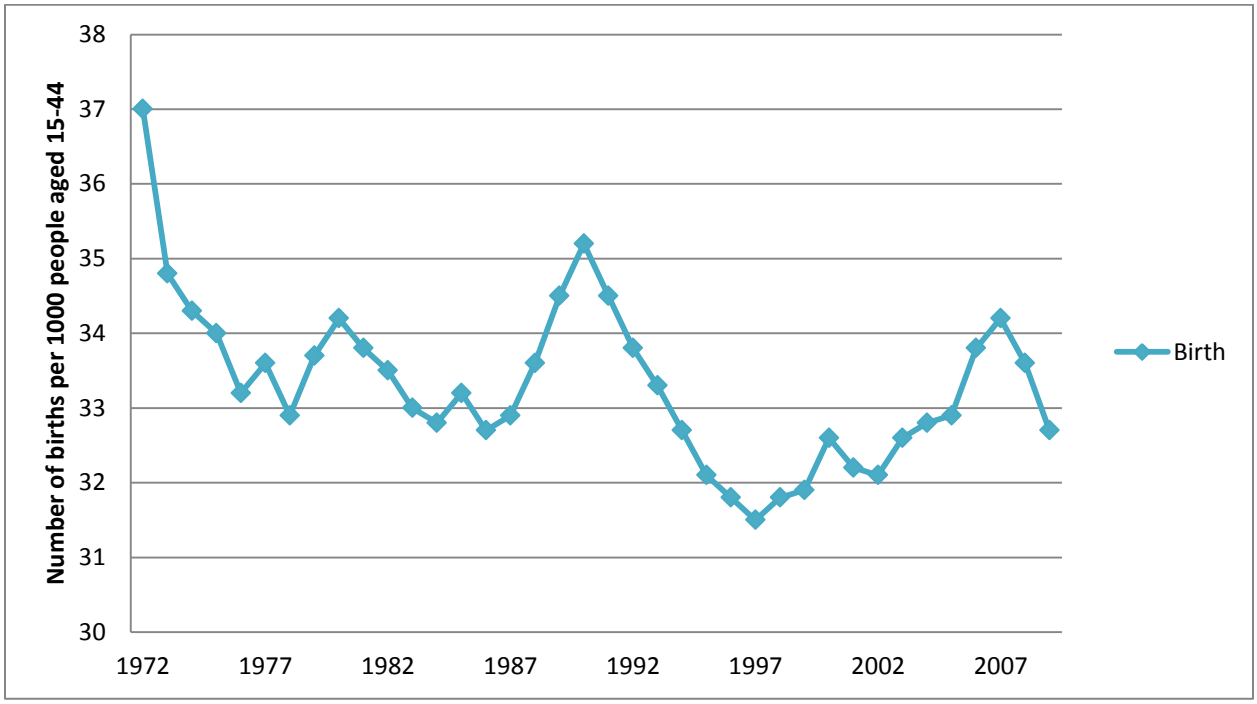


Figure 2.3: By years of implementation: Average Marriage Rates of States with and without the Homemaking provision[18]

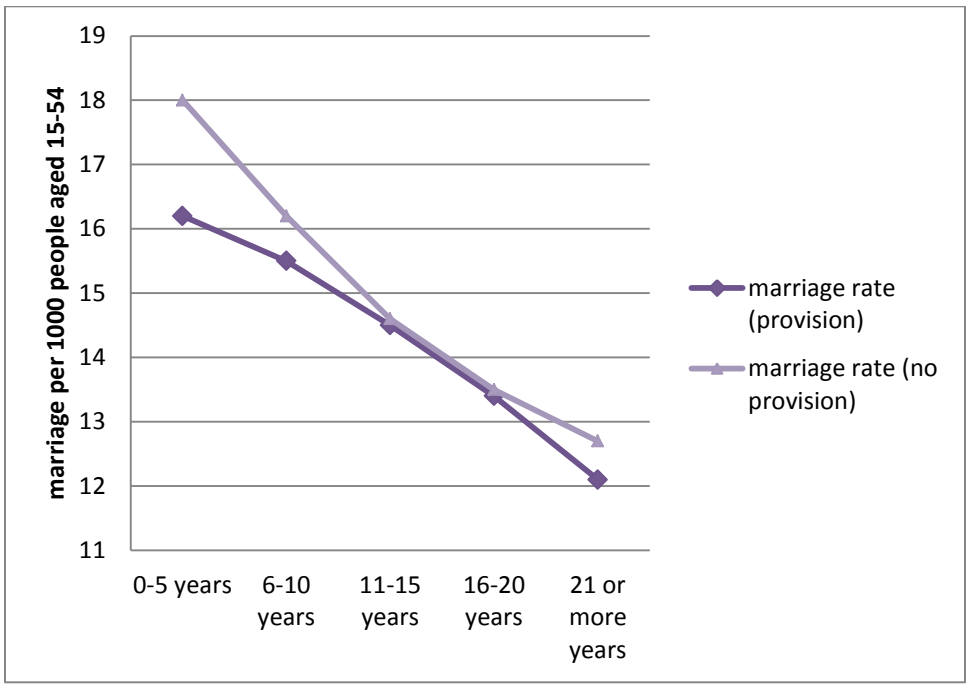
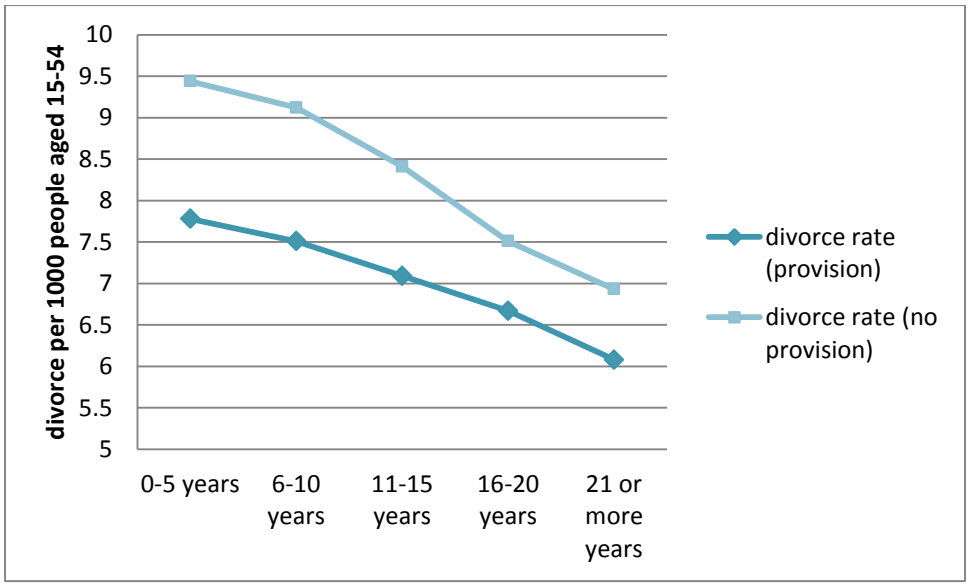
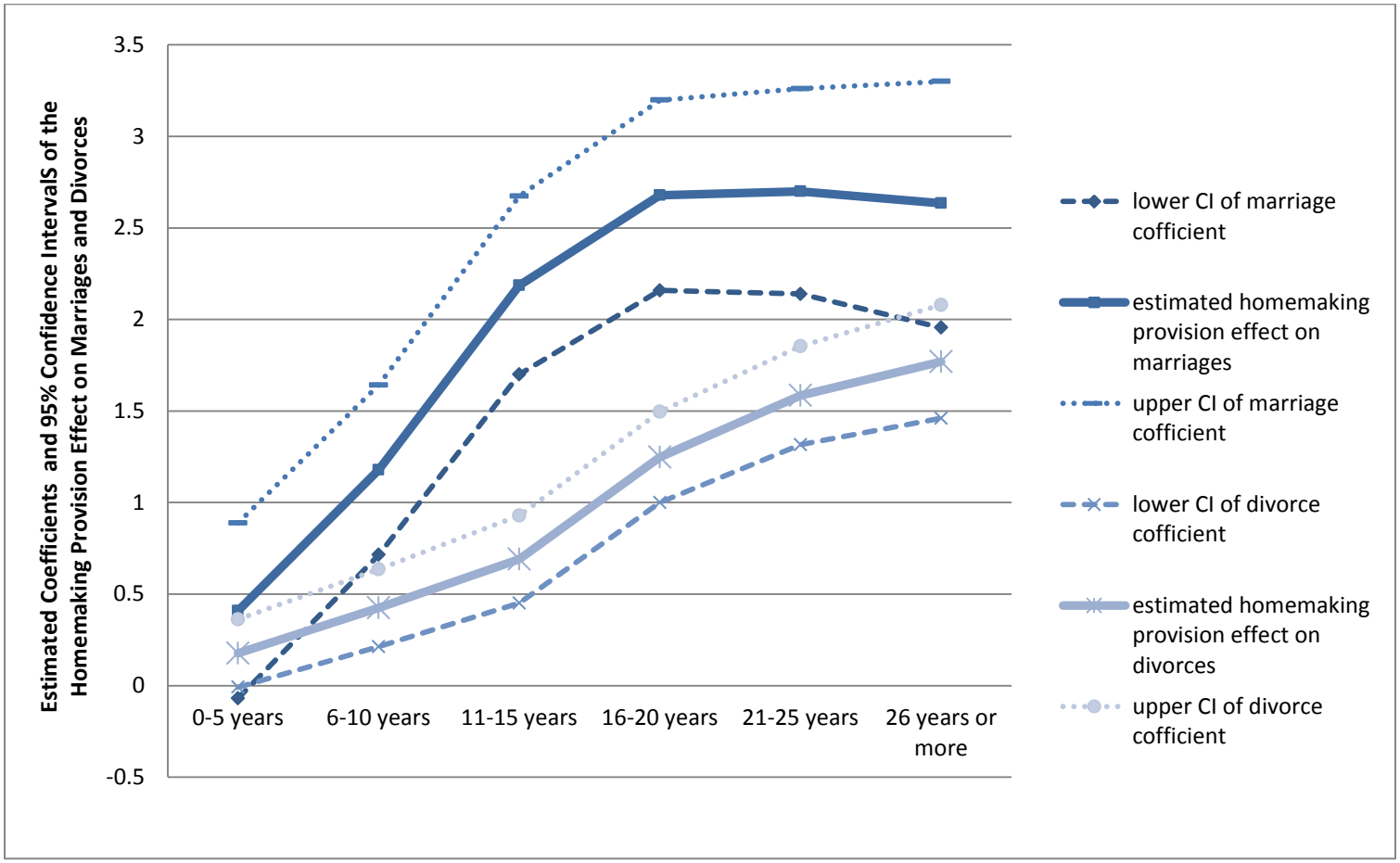


Figure 2.4: By years of implementation: Average Divorce Rates of States with and without the Homemaking



[18] The averages of the baseline group (no provision) in Figures 2.3 and 2.4 were adjusted by the year weighting of the group with the provision in order make the comparison in line with the year composition of the group with the provision.

Figure 2.5: Estimate of Net Effect of the Introduction of Homemaking Provision on Marital Formation[19]



[19] I used specification (1) to construct this figure.

Table 2.1--Descriptive Statistics

Variables	N	Mean	Standard Error
State Demographics			
State level number of marriages per 1000 population aged 15-54	1,890	16.45	(4.77)
Average state number of divorces per 1000 population aged 15-54	1,766	7.75	(1.52)
State level proportion of population age 15-54	1,901	56.54	(2.20)
State level proportion of black population	1,901	27.98	(0.08)
State level per capita disposable personal income in 1982 dollars	1,901	12,709	(2833)
Legal Regimes			
Homemaking provision regime	1,901	0.382	(0.486)
Unilateral divorce regime	1,901	0.556	(0.497)
Equitable distribution regime	1,901	0.693	(0.461)
Community property regime	1,901	0.153	(0.360)
Joint custody regime	1,901	0.645	(0.479)
Gender and marriage non-neutral custody regime (regime 1)	1,901	0.233	(0.423)
Gender neutral custody regime (regime 2)	1,901	0.251	(0.434)
Gender and marriage neutral custody regime (regime 3)	1,901	0.274	(0.446)
Marriage neutral custody regime (regime 4)	1,901	0.242	(0.428)

Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Freidberg (1998); Halla(2013), Voena (2012).

Table 2.2: Individual Fixed Effect Estimates of the Effect of the Homemaking Provision on House Value and Home Ownership for Households Married Prior to the Reform

Dependent Variables:				
Independent Variables:				
	ln home value		**Home Ownership**	
	(1)	(2)	(1)	(2)
Provision 1-5 years	0.018	-0.093***	0.030**	0.034*
	(0.021)	(0.031)	(0.013)	(0.021)
Provision 6-10 years	-0.019	0.150***	0.058**	0.119***
	(0.033)	(0.050)	(0.023)	(0.039)
Provision 10+ years	-0.076	0.049	0.056*	0.064
	(0.048)	(0.066)	(0.034)	(0.049)
Provision 1-5 years*uni	-	0.155***	-	-0.003
		(0.034)		(0.023)
Provision 6-10 years*uni	-	-0.189***	-	-0.074**
		(0.052)		(0.038)
Provision 10+ years*uni	-	-0.133**	-	-0.006
		(0.068)		(0.048)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	17,166	17,166	22,556	22,556
Individual Fixed Effects	1677	1677	2150	2150

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors are in brackets. Legal regime controls include dummy variables that indicate the state is under the equitable property distribution and community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Panel Study of Income Dynamics. Freidberg (1998); Voena (2012).

Table 2.3: State Fixed Effect Estimates of the Effect of Homemaking Provision on State Level Marriage, Divorce and Birth Rate[20]

	Dependent Variables:			
Independent Variables:	**Marriage Rate**	**Divorce Rate**	**Birth Rate**	
			(1)	(2)
Provision 1-5 years	0.428*	0.176*	1.240***	0.875
	(0.249)	(0.094)	(0.489)	(0.590)
Provision 6-10 years	1.198***	0.424***	1.572***	2.006***
	(0.237)	(0.108)	(0.305)	(0.547)
Provision 11-15 years	2.201***	0.691***	1.651***	2.057***
	(0.247)	(0.122)	(0.303)	(0.646)
Provision 16-20 years	2.690***	1.248***	1.523***	1.138*
	(0.262)	(0.127)	(0.280)	(0.620)
Provision 21-25 years	2.725***	1.585***	1.703***	0.691
	(0.282)	(0.137)	(0.285)	(0.578)
Provision 26+ years	2.666***	1.770***	2.045***	1.022
	(0.340)	(0.158)	(0.334)	(0.765)
Provision 10+ years*uni	-	-	-	0.541
				(0.666)
Provision 15+ years*uni	-	-	-	-0.629
				(0.567)
Provision 11-15 years*uni	-	-	-	-0.605
				(0.679)
Provision 16-20 years*uni	-	-	-	0.425
				(0.661)
Provision 21-25 years*uni	-	-	-	1.281**
				(0.624)
Provision 26+ years*uni	-	-	-	1.270
				(0.871)
Legal Regime Controls	X	X	X	X
Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Year Fixed Effects	X	X	X	X
N	1890	1767	1901	1901

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level;*variable is statistically significant at 10% level.. Robust standard errors clustered at the state-year level are in brackets Legal regime controls include dummy variables that indicate the state is under the equitable property distribution and community property state. Demographic controls include age and age squared of wives, dummies for education of spouses. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Freidberg (1998); Voena (2012).

[20] Marriage rate is defined to be to occurrence of marriage per 1000 people aged 15-54 in any specified year.; divorce rate is defined to be to occurrence of divorce per 1000 people aged 15-54 in any specified year.

Table 2.4: Robustness Check for the Effect of Homemaking Provision on State Level Marriage Rate

	Dependent Variables: Marriage Rate					
Independent Variables:						
	(1)	(2)	(3)	(4)	(5)	(6)
Provision 1-5 years	0.428*	0.408	0.432*	0.042*	0.052***	0.252
	(0.249)	(0.252)	(0.249)	(0.246)	(0.186)	(0.188)
Provision 6-10 years	1.198***	1.211***	1.177***	1.184***	1.090***	0.820***
	(0.237)	(0.239)	(0.239)	(0.238)	(0.267)	(0.286)
Provision 11-15 years	2.201***	2.185***	2.131***	2.093***	1.866***	1.837***
	(0.247)	(0.249)	(0.250)	(0.248)	(0.356)	(0.308)
Provision 16-20 years	2.690***	2.658***	2.602***	2.493***	2.032***	2.373***
	(0.262)	(2.620)	(0.264)	(0.262)	(0.452)	(0.535)
Provision 21-25 years	2.725***	2.694***	2.629***	2.492***	1.659***	2.495***
	(0.282)	(0.280)	(0.283)	(0.277)	(0.542)	(0.651)
Provision 26+ years	2.666***	2.664***	2.583***	2.398***	1.139***	2.337***
	(0.340)	(0.336)	(0.340)	(0.335)	(0.678)	(0.742)
Controls for Unilateral, Community Property and Equitable Distribution law	X	X	X	X	X	X
Demographics	X	X	X	X	X	X
State Fixed Effects	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X
Joint Custody Law Implementation		X	X	X	X	X
Mandatory Income Withholding for Child Support			X	X	X	X
Proportion of Democrats in House				X	X	X
State-Specific Linear Time Trends					X	
State-Specific Quaratic Time Trends						X
N	1890	1890	1890	1852	1852	1852
R-squared	0.849	0.850	0.851	0.854	0.939	0.956

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level;*variable is statistically significant at 10% level.. Robust standard errors clustered at the state-year level are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property,state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The regressions are weighted by the state population. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Statistical Abstract of the United States; Case(1998); Freidberg (1998); Halla(2013), Voena (2012).

Table 2.5: Robustness Check for the Effect of Homemaking Provision on State Level Divorce Rate

	Dependent Variables: Divorce Rate					
Independent Variables:						
	(1)	(2)	(3)	(4)	(5)	(6)
Provision 1-5 years	0.176*	0.176*	0.166*	0.170*	-0.016	0.078
	(0.094)	(0.095)	(0.094)	(0.094)	(0.086)	(0.093)
Provision 6-10 years	0.424***	0.424***	0.438***	0.435***	-0.031	0.127
	(0.108)	(0.108)	(0.108)	(0.107)	(0.136)	(0.151)
Provision 11-15 years	0.691***	0.687***	0.711***	0.694***	-0.004	0.214
	(0.122)	(0.122)	(0.122)	(0.121)	(0.175)	(0.196)
Provision 16-20 years	1.248***	1.243***	1.270***	1.228***	0.150	0.427*
	(0.127)	(0.126)	(0.127)	(0.128)	(0.216)	(0.243)
Provision 21-25 years	1.585***	1.580***	1.611***	1.562***	0.218	0.529*
	(0.137)	(0.137)	(0.138)	(0.141)	(0.267)	(0.295)
Provision 26+ years	1.770***	1.766***	1.802***	1.737***	0.008	0.273
	(0.158)	(0.158)	(0.161)	(0.165)	(0.325)	(0.339)
Controls for Unilateral, Community Property and Equitable Distribution law	X	X	X	X	X	X
Demographics	X	X	X	X	X	X
State Fixed Effects	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X
Joint Custody Law Implementation		X	X	X	X	X
Mandatory Income Withholding for Child Support			X	X	X	X
Proportion of Democrats in House				X	X	X
State-Specific Linear Time Trends					X	
State-Specific Quaratic Time Trends						X
N	1767	1767	1767	1729	1729	1729
R-squared	0.901	0.901	0.902	0.904	0.953	0.961

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level;*variable is statistically significant at 10% level.. Robust standard errors clustered at the state-year level are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property,state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The regressions are weighted by the state population. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Statistical Abstract of the United States; Case(1998); Freidberg (1998); Halla(2013), Voena (2012).

Table 2.6: Robustness Check for the Effect of Homemaking Provision on State Level Birth Rate

	Dependent Variables: Birth Rate					
Independent Variables:						
	(1)	(2)	(3)	(4)	(5)	(6)
Provision 1-5 years	1.240***	1.233***	1.253***	1.291***	0.887*	0.571
	(0.489)	(0.490)	(0.490)	(0.485)	(0.508)	(0.550)
Provision 6-10 years	1.572***	1.577***	1.548***	1.516***	0.636	0.733
	(0.305)	(0.307)	(0.306)	(0.306)	(0.419)	(0.498)
Provision 11-15 years	1.651***	1.646***	1.602***	1.595***	0.178	0.698
	(0.303)	(0.303)	(0.304)	(0.301)	(0.545)	(0.635)
Provision 16-20 years	1.523***	1.512***	1.465***	1.536***	-0.441	0.490
	(0.280)	(0.281)	(0.283)	(0.279)	(0.643)	(0.784)
Provision 21-25 years	1.703***	1.692***	1.638***	1.735***	-0.714	0.428
	(0.285)	(0.286)	(0.289)	(0.289)	(0.747)	(0.952)
Provision 26+ years	2.045***	2.044***	1.978***	2.090***	-0.885	0.288
	(0.334)	(0.334)	(0.342)	(0.357)	(0.910)	(1.117)
Controls for Unilateral, Community Property and Equitable Distribution law	X	X	X	X	X	X
Demographics	X	X	X	X	X	X
State Fixed Effects	X	X	X	X	X	X
Year Fixed Effects	X	X	X	X	X	X
Joint Custody Law Implementation		X	X	X	X	X
Mandatory Income Withholding for Child Support			X	X	X	X
Proportion of Democrats in House				X	X	X
State-Specific Linear Time Trends					X	
State-Specific Quaratic Time Trends						X
N	1901	1901	1901	1863	1863	1863
R-squared	0.580	0.580	0.580	0.585	0.668	0.722

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level;*variable is statistically significant at 10% level.. Robust standard errors clustered at the state-year level are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property,state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The regressions are weighted by the state population. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis; Statistical Abstract of the United States; Case(1998); Freidberg (1998); Halla(2013), Voena (2012).

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Chapter 3

The Effect of Child Custody Laws on Marriage[21]

with Elaina Rose

Joanna Kramer: "I'm not saying he doesn't need his father but I really believe he needs me more. I'm his mother."

Ted Kramer: "What law is it that says that a woman is a better parent simply by virtue of her sex?"

(Kramer vs. Kramer, Columbia 1979)

3.1 Introduction

The divorce revolution of the 1960's and 1970's entailed major changes in family law. Prior to the revolution, divorce could only be obtained with consent of both parties, or with proof of fault. The conditions relaxed substantially throughout the revolution. By 2010, no-fault divorce prevailed in all states. Property distribution and custody laws changed along with the new unilateral divorce laws in order to protect spouses disadvantaged by the loss of a marriage.

The legal changes were accompanied by a dramatic transformation in family structure. Divorce, non-marriage, cohabitation and women's labor force participation rates have all increased. Non-marital childbearing has skyrocketed. The question for researchers is whether the relationships are causal.

[21] We would like to thank Neil Bruce, Rachel Heath, Nick Huntington-Klein, Marieka Klawitter, Tak-Yuen Wong for their very useful comments.

Many studies conclude that the introduction of unilateral divorce caused at least some part of the increase in the divorce rate (Peters 1986, Allen 1993, Friedberg 1998 and Wolfers 2006). Others report an increase in female labor force participation and a decline in marriage-specific human capital investment in response to the new laws (Johnson & Skinner 1986, Stevenson 2007). Unilateral divorce led to a decline in the likelihood of that a woman would become a victim of suicide or spousal homicide (Parkman 1992; Stevenson and Wolfers 2006). Clearly, some women were made better off by access to unilateral divorce.

However, the increased ease of divorce left other women worse off. Many women's economic well-being deteriorated as husbands generally had more labor market human capital and greater control over household assets. Recognition of wives' economic vulnerability spurred changes in marital property distribution laws to transfer resources to divorcing wives. Under the new equitable distribution regimes the issues became: (1) what assets are considered marital property, and (2) how the property is to be divided.

In terms of custody rights, fathers were the vulnerable partners. Under the traditional tender years doctrine in effect prior to the revolution, custody virtually always went to the mother in the event of divorce. Fathers' rights groups argued that the maternal preference in child custody violated their rights to due process and equal rights protection. In response, new laws recognizing fathers' rights were introduced. Gender-neutral laws granted courts greater latitude to grant custody to married fathers. Subsequent marriage neutrality laws granted similar rights to unmarried fathers. At this time, custody laws in at least 21 states are both marriage and gender neutral.[22]

[22] Although many claim that courts remain biased towards mothers (see Buehler and Gerard 1995; Selfridge 2005).

Fathers are now far more likely to gain custody relative to the pre-divorce revolution era. While most custodial parents are still mothers, between 1958 and 1989 the number of father-only families increased by almost 300 percent, with most of the growth occurring after 1973 (Meyer and Garasky 1991). In 2009, there were almost 2.5 million custodial fathers in the United States, with 1 in 6 custodial parents being fathers. And among these custodial fathers, 24.7 percent of them had never been married (U.S. Census Bureau 2011). These trends are likely to continue as fathers are increasingly treated as equals in custody rulings.

Despite the importance of custody laws for shaping family structure, there has been very little research on the topic. One exception is Halla (2013), who uses state-level data to examine the effect of joint custody on a variety of family outcomes. The major findings are that the introduction of joint custody gave rise to an increase in marriage and fertility, a decline in domestic violence and suicide, and a shift from non-marital to marital births.

The other exception is Chen (2013), who finds that gender-neutral custody laws increased the likelihood of divorce and separation in the United States. Her interpretation is that gender neutrality increased men's post-divorce welfare in terms of contact with their children. As a result, they became more willing to terminate unsatisfactory marriages.

This paper is also about custody laws. In particular, we ask how custody laws affect the likelihood a couple will marry in the first place. We extend the literature one important respect: We consider the effects of marriage neutrality as well as gender neutrality, and examine the interaction between the two.

Our theoretical model compares marital surplus under three regimes – tender years, gender-neutrality with marriage non-neutrality, and gender and marriage non-neutrality – to

generate a set of predictions about the effects of custody regime on marriage. The results of the model are that marriage is most likely under the tender years doctrine, and least likely when custody is marriage non-neutral and gender neutral. The marriage-neutral and gender-neutral regime is a (weakly) intermediate case.

The empirical analysis requires data on custody laws and marriage outcomes. We have compiled a unique custody law data set from a variety of sources. They include the Uniform Matrimonial and Family Laws Locator at the Legal Information Institute at Cornell University Law School and legal documents setting forth statutes and case law.

The custody data were merged with two data sets for two independent analyses. First, we use individual level data from the *Fertility and Marital History Supplement of the Current Population Survey (CPS) of June 1995* to estimate Cox proportional hazard models. Second, we use state level vital statistics data to estimate state-level fixed effects models.

Both approaches give similar results. There are statistically and quantitatively significant effects of moving from tender years doctrine to gender neutrality. There is no evidence that a subsequent move towards marriage neutrality affected the outcomes.

Section 2 of this paper tracks the evolution of custody laws throughout American history. Section 3 presents the model and Section 4 outlines the empirical strategy. The data are described in Section 5 and the results are presented in Section 6. Section 7 concludes.

3.2 Background

3.2.1 The Birth of the Tender Years Doctrine

In colonial America, fathers had almost unlimited authority over custody of their legitimate children and neither the mother nor the father held custodial rights of a children born out of wedlock. Under the old English common law, these illegitimate children are *filius nullius*: the child and heir of no one. They bear no legally recognized relations with either parent. The "tender years doctrine" evolved circa 1800 to replace the old English common law standard that gave preference to the father. Under this doctrine, maternal nurture was deemed the most prominent factor in the best interests of children of tender years (Mason 1994). This gave rise to maternal custody preference. Also by the end of the nineteenth century, an unwed mother by default was the sole custodian of her child. After the 1960s, the tender years doctrine has been gradually replaced by the" best interest of the child" standard in many states. The determination of custody rights for legitimate children in these states, at least in principle, had become gender neutral.

3.2.2 The Abolition of the Tender Years Doctrine

Family gender roles became more equal as women's labor force attachment grew in the 1970s. The tender years doctrine began to lose support as some fathers' rights groups challenged the constitutionality of the law. In Watts v. Watts (1973), the Family Court of New York declared that "application of the 'tender years presumption' would deprive respondent of his right to equal protection of the law under the Fourteenth Amendment to the United States Constitution." [23] In the years that followed, several other states took the same path to declare the tender years doctrine as unconstitutional and abolished it in their family law. Custody determinations in these states were replaced by the gender-neutral "best interests of the child" standard. Note however the United States Supreme Court never decided the doctrine's constitutionality and this doctrine

[23] See Watts v. Watts, 350 N.Y.S.2d 285, 290 (NY Fam. Ct. 1973)

is not completely abolished in the United States (see Zapata 2003). Some states still maintain maternal preference in their ruling. For instance, Mississippi applies the maternal preference to custody determination unless the mother is unfit.

Instead of completely abolishing maternal preference in custody determinations, some states replaced the tender years doctrine with the "primary caretaker presumption." Despite the fact that the terminology being adopted was seemingly gender neutral, this presumption in practice operates in a very gender biased manner as the overwhelming majority of primary caretakers for young children are the mothers. Consequently, this presumption has been widely criticized especially by fathers' rights group as a maternal preference disguised as a gender-neutral rule (Smith 2000).

3.2.3 Movement Towards Recognizing the Rights of Unwed Fathers

Along the same lines as in the gender-equality movement for custody awards, increasingly more unwed fathers became concerned about their parental rights in the 1970s. In Stanley v. Illinois (1972), the U.S. Supreme Court considered the custodial right of an unwed father to retain custody of his children upon the death of their mother.[24] The Court held that:

> We have concluded that all Illinois parents are constitutionally entitled to a hearing on their fitness before their children are removed from their custody. It follows that denying such a hearing to Stanley and those like him while granting it to other Illinois parents is inescapably contrary to the Equal Protection Clause.

[24] See Stanley v. Illinois, 405 US 645 (1972)

This case marks the beginning of the "long but sporadically fought campaign to treat illegitimate children as natural children before the law greatly advanced in the last part of the twentieth century through a combination of Supreme Court decisions and statutory law" (Mason 1994, 145).[25]

3.2.4 The Uniform Parentage Act 1973

Following a series of Supreme Court decisions that recognized the rights of unmarried fathers, the National Conference of Commissioners on Uniform State Law promulgated the Uniform Parentage Act in 1973. The Act proposes to extend the parent and child relationship equally to every child and every parent, regardless of the marital status of the parent. It contains provisions for setting the level of child support and deals with natural father's right to obtain visitation, custody, and to withhold his consent to adoption. For states that adopt the Uniform Parentage Act, custody determinations are marriage neutral once paternity has been established. Upon its approval, the Uniform Parentage Act 1973 has subsequently been adopted by nineteen states in full or in parts.

For states that have not adopted the Uniform Parentage Act, some declare in their statutes or through established case law that nonmarital children's rights are equal to those born within marriages and the father of an illegitimate child is deemed on an equal footing with the mother as to parental and custodial rights to the child once paternity has been established.[26] In these states, custody allocations are also considered marriage neutral.

[25] See also Gomez v. Perez, 409 U.S. 535, 538 (1973) ; Quilloin v. Walcott, 434 U.S. 246, 256 (1978).

[26] For instance, Texas Family Code Section 153.003 specifically states that "The court shall consider the qualifications of the parties without regard to their marital status or to the sex of the party or the child in determining (1) which party to appoint as sole managing conservator; (2) whether to appoint a party as joint managing conservator; and (3) the terms and conditions of conservatorship and possession of and access to the child. Also for example, Kentucky has not adopted the Uniform Parentage Act, but custody allocation is nonetheless

3.3 Theory

3.3.1 Literature

Theoretical work on non-marital unions and unwed parenthood has been quite scanty. Traditional household models do not distinguish marital and non-marital unions. In Becker (1973, 815) for instance, " 'marriage' simply means that they share the same household." Subsequent household bargaining models primarily focused on analyzing the behavior of legally married unions (Manser & Brown 1980; McElroy & Horney 1981; Weiss & Willis 1985). As the behavior of individuals in marital and *de facto* unions are driven by very different legal constraints, such theoretical treatment would limit our understanding of the behavior of the non-marital unions gaining prominence over the past decades.

More recent theoretical developments that explicitly incorporate non-marital unions and children born outside of marriage include Willis (1999). He develops a theoretical framework that attempts to integrate theories of fertility and marriage to understand the interaction between the two decisions. The model characterizes the conditions under which non-marital equilibrium could occur. The results suggest that imbalances between number of marriageable women and men (more marriageable women than men) might be one underlying force for unwed parenthood.

Akerlof et al. (1996) develop a game theoretic framework to understand how the legalization of abortion and the advent of female contraception would result in a decline in shotgun marriage and an increase in non-marital births. In their model, men place no value on custodial rights for their children - they merely derive utility from sexual pleasure.

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marriage neutral based on Basham v. Wilkins, 851 S.W.2d 491 (Ky. Ct. App. 1993). The court held that "the "best interests of the child" standard applies in determining custody of children born out of wedlock and gone is our preference for the mother of the illegitimate child".

Most closely related to our work is Edlund (2013). The paper presents a matching model to explain for the rising trend in out of wedlock birth and the decline in marriage. Her model is based on the assumption that formal marriage transfers a fixed fraction of custodial rights from the wife to the husband that would otherwise be vested with the woman. Parental rights of fathers in her model are largely confined to those in marital unions. In contrast to her model that emphasizes the role of marriage in designating paternity presumption and allocating custodial rights, our model provides additional insights into decisions when paternal custody rights are not exclusive to fathers in marital unions.

3.3.2 The Model

Figure 3.1 illustrates our two-period model of the effect of custody regime on marriage. At the outset a couple forms a union that produces a child. A union could be anything ranging from a one-night stand to formal marriage and the child may be born before or after marriage. Custody probabilities in the event the union dissolves depend on marital status and custody regime. The decision to marry in period 1 is based on the probability of being granted custody in period 2.

Formally, the probability the mother is granted custody when the union dissolves is p^R_S where $R \in \{1, 2, 3\}$ indicates the custody regime and $S \in \{M, N\}$ indicates the couple's marital status. S=M when the parents marry and S=N when they do not. The probability the father is granted custody by marital status/regime is $(1 - p^R_S)$.

Table 3.1 outlines the probability custody is granted to the mother by regime and marital status. The three custody regimes are:

Regime 1: Parental gender non-neutral, marriage non-neutral. Custody is granted to the mother regardless of the parents' marital status.

Regime 2: Parental gender neutral, marriage non-neutral. If the parents are married the mother is granted custody with probability $p^2_M \in (0,1)$ and the father is granted custody with probability $1 - p^2_M \in (0,1)$. Custody is granted to the mother if the couple is not married.[27]

Regime 3: Parental gender neutral, marriage neutral. If the couple is married the mother receives custody with probability $p^3_M \in (0,1)$. If she is not married she receives custody with probability $p^3_N \in (0,1)$. Because in practice, marriage may provide some advantage to fathers even under marriage neutrality, $p^3_N \geq p^3_M$.[28] If there is no such advantage, $p^3_N = p^3_M$.

Each parent is willing to marry under Regime R when his or her expected utility from marriage under that regime outweighs his or her expected utility of remaining single. The mother's expected utility under Regime R when married is:

$$EU^R_{Mom,M} = \alpha_{Mom} + p^R_M \varphi_{Mom}(\gamma + \delta) + (1-p^R_M) \varphi_{Mom}(\gamma) \quad (3.1)$$

[27] Even with the "gender-neutral custody law", the neutrality law is not completely neutral in reality. The courts tend to be biased in favor of mothers (see for instance, Buehler and Gerard 1995; Selfridge 2005) .The significance of these neutrality laws is that without these laws that grant more custody rights to the fathers, the custody would almost with certainty be vested with the mothers. We therefore would expect that $p^2_M > ½$. Similarly, p^3_M and $p^3_N \geq ½$. However our results do not depend on these restrictions.

[28] Mason and Quirk (1997) suggests that the marriage-neutral custody law marks unwed fathers "appreciable strides toward achieving equal footing" with that of unmarried mothers in securing custody of their children." Although a substantial number of unwed fathers had been awarded with custody, they are still typically disfavored by the court. Based on the CPS data in 2009, there are 11,237 female custodians and 2,435 male custodians. Among the male custodians, 24.7 percent of them have never been married, which implies that there are approximately 600 unmarried male custodians. And in total there are 4747 never-married custodians. Using our data, currently there are 84.3% of states that are under marriage-neutral custody regime. Roughly speaking, if the court treats married and unmarried men equally, the number of unmarried male custodians should be about the same as the average (i.e. about 1 out of 6 custodians or 17.8% of the total custodians are men), the number would be 712 (4747*0.843*0.178), but from the calculation based on the CPS data, the actual number of unmarried male custodians is just 600. However, one might also argue that unmarried fathers might be less fit fathers.

If she does not marry her expected utility is:

$$EU^{R}_{Mom,N} = p^{R}_{N}\ \varphi_{Mom}(\gamma + \delta) + (1-p^{R}_{N})\ \varphi_{Mom}(\gamma) \tag{3.2}$$

where α_{Mom} is her utility from marriage *per se* . Her utility from contact with the child is $\varphi_{Mom}(.)$. If she is granted custody she has $\gamma + \delta$ time with the child, otherwise she has γ.[29] $\varphi_{Mom}(.)$ is increasing and concave.[30]

The expressions for father's utility are similar:

$$EU^{R}_{Dad,M} = \alpha_{Dad} + (1-p^{R}_{M})\ \varphi_{Dad}(\gamma + \delta) + p^{R}_{M}\ \varphi_{Dad}(\gamma) \tag{3.3}$$

$$EU^{R}_{Dad,N} = (1-p^{R}_{N})\ \varphi_{Dad}(\gamma + \delta) + p^{R}_{N}\ \varphi_{Dad}(\gamma) \tag{3.4}$$

Each parent's marital surplus is the difference between his or her expected utility from marriage relative to non-marriage. That is,

$$EU^{R}_{Mom,M} - EU^{R}_{Mom,N} = \alpha_{Mom} + (p^{R}_{M} - p^{R}_{N})[\varphi_{Mom}(\gamma + \delta) - \varphi_{Mom}(\gamma)] > 0 \tag{3.5}$$

and

$$EU^{R}_{Dad,M} - EU^{R}_{Dad,N} = \alpha_{Dad} + (p^{R}_{N} - p^{R}_{M})[\varphi_{Dad}(\gamma + \delta) - \varphi_{Dad}(\gamma)] > 0 \tag{3.6}$$

[29] For instance, suppose that if she has custody she sees the child 6 days per week and if she doesn't have custody she sees the child 1 day per week. Then $\gamma = 1$ and $\delta = 5$.

[30] In a more general version of the model, utility would depend on the divorce probability, her utility in the first period from full contact with the child, and her utility in the second period if she is granted custody. We suppress these parameters as they do not affect the results as long as they do not vary with marital status.

Assuming transferable utility, total marital surplus in regime R, S^R, is the sum of (3.5) and (3.6). S^R depends on custody probabilities by marital status, utility of marriage *per se* and incremental utility from δ contact:

$$S^R\ (p^R_M, p^R_N) = \alpha_{Mom} + \alpha_{Dad} + (p^R_M - p^R_N)\,[(\varphi_{Mom}(\gamma + \delta) - \varphi_{Mom}(\gamma)) - (\varphi_{Dad}(\gamma + \delta) - \varphi_{Dad}(\gamma))] \tag{3.7}$$

The couple will be more likely to marry under regime r relative to regime q when the surplus under regime r is greater:

$$Pr(Mar^r) - PR(Mar^q) = Pr(S^r\ (p^r_M, p^r_N) - (S^q\ (p^q_M, p^1_N)) > 0 \tag{3.8}$$

where

$$S^r\ (p^r_M, p^r_N) - (S^q\ (p^q_M, p^1_N) = [(p^r_M - p^q_M) - (p^r_N - p^q_N)]\,[(U_{Mom}(\gamma+\delta) - U_{Mom}(\gamma)) - (U_{Dad}(\gamma+\delta)) - U_{Dad}(\gamma))] > 0 \tag{3.9}$$

The second term within square brackets in (3.9):

$$(U_{Mom}(\gamma+\delta) - U_{Mom}(\gamma)) - (U_{Dad}(\gamma+\delta)) - U_{Dad}(\gamma)) \tag{3.10}$$

is the difference in the mother's and father's incremental utility from having the additional δ with the child. Consistent with theoretical work (e.g., Weiss and Willis, 1985) and a large body of empirical work we assume that mothers have stronger preferences than fathers for children; i.e., that (3.10) is positive.[31]

The sign of the first term:

$$(p^{r}_{M} - p^{q}_{M}) - (p^{r}_{N} - p^{q}_{N}) \tag{3.11}$$

This determines the effect of custody regime on the likelihood of marriage. Applying the probabilities described in Table 3.1 to (3.11) generates the predictions:

$H_{1,2}$: Pr(Marriage|Regime 1) > Pr(Marriage|Regime 2)

$H_{1,3}$: Pr(Marriage|Regime 1) ≥ Pr(Marriage|Regime 3)

$H_{2,3}$: Pr(Marriage|Regime 3) > Pr(Marriage|Regime 2)

Intuitively, $H_{1,2}$ means that moving from tender years to gender neutrality disadvantages married relative to single mothers and, as mothers' preferences weigh more heavily than fathers', marriage is less likely under gender neutrality. $H_{2,3}$ means that introducing marriage neutrality mitigates the effect of the initial change. $H_{1,3}$ compares the outcome under complete neutrality relative to tender years. When it is satisfied with equality the move towards marriage neutrality completely eliminates that negative effect of gender neutrality and the likelihood of marriage under Regime 3 is the same as under Regime 1.

[31] Fathers might have more utilities from older sons as opposed to baby girls. (See for example Dahl & Moretti 2008). The qualitative prediction will not be affected by the differential in utilities from additional contact with children between the mother and the father as long as the differential remains positive. The prediction will be reversed if the father actually has a stronger preference than the mother for the child.

3.4 Estimation Strategy

3.4.1 The Hazard Model

Our individual-level analysis uses a hazard model of the form:

$$h\left(t, GenNeutReg_{\boldsymbol{i,s,t}}, GenMarrNeutReg_{i,s,t}, \boldsymbol{L}_{i,s,t}, \boldsymbol{X_{it}}; \beta_2, \beta_3, \boldsymbol{\sigma}, \boldsymbol{\rho}\right)$$
$$= h_0(t) \exp(\beta_2 GenNeutReg_{\boldsymbol{i,s,t}} + \beta_3 GenMarrNeutReg_{i,s,t} + \boldsymbol{\sigma'} \boldsymbol{L_{i,s,t}} + \boldsymbol{\rho'} \boldsymbol{X_{it}}) \quad (3.13)$$

where i denotes individual; s denotes state and t takes value in {13,…,40} corresponding to a subject's age. $h_0(t)$ is the baseline hazard which indicates the likelihood a subject will "fail" (i.e., marry) at age t, given that she has not married yet. In the Cox proportional hazard model the baseline hazard function conditions out and the expression:

$$\exp(\beta_2 GenNeutReg_{\boldsymbol{i,s,t}} + \beta_3 GenMarrNeutReg_{i,s,t} + \boldsymbol{\sigma'} \boldsymbol{L}_{i,s,t} + \boldsymbol{\rho'} \boldsymbol{X_{it}}) \quad (3.14)$$

shifts the baseline multiplicatively. $GenNeutReg_{\boldsymbol{i,s,t}}$ is a dummy variable indicating that respondent i lived in a states under Regime 2 at age t. $GenMarrNeutReg_{\boldsymbol{i,s,t}}$ refers similarly to Regime 3. $\boldsymbol{L}$ is a vector of legal regime dummies including states having introduced unilateral divorce, equitable property distribution, and joint custody, along with a control for the marriage-neutral and gender non-neutral regime. We also include a dummy variable corresponding to the cases where custody was marriage neutral and gender non-neutral. $\boldsymbol{X}$ is a vector of time-variant and invariant covariates including cohort dummies, race and whether the individual was at least a high school graduate.

Hazard model results are typically interpreted as ratios. The hazard ratio with respect to variable k, $e^{\beta k}$, is interpreted as a percentage change. A ratio of (1 + ψ) indicates that the

respective variable shifts the hazard up by ψ percent; a ratio of (1 - ψ) means the variable shifts the hazard down by ψ percent.

3.4.2 The State-Level Fixed Effect Model

Our individual-level analysis is complemented by a state-level fixed effect model of the form:

$$Y_{st} = \beta_2 GenNeutReg_{\boldsymbol{s,t}} + \beta_3 GenMarrNeutReg_{,s,t} + \boldsymbol{\mu'} \boldsymbol{L}_{s,t} + \boldsymbol{\sigma'} \boldsymbol{X}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t} \quad (3.15)$$

where Y_{st} is the marriage rate in state s in year t, $\boldsymbol{L}$ is the same vector of legal regime dummies used in (3.13), and $\boldsymbol{X}$ is a vector of state level control variables exogenous to the outcome variables that includes the percent of the state's population that is black and the log of disposable income per capita. α_t and γ_s represent year and state dummies and ϵ_{st} is an iid error term.

The time-series and cross-section variation, along with the set of controls, allows us to obtain estimates of the effects of custody laws on marriage rates free from bias due to state-level heterogeneity and common time effects.

3.5 The Data

The analysis requires data on custody laws by state and year, individual- and state-level marriage outcomes, and controls at the individual and state levels.

3.5.1 Custody Laws

Data on the timing of the changes in custody laws by state were derived from a variety of sources. For some states, the year of the introduction of marriage neutral laws is based on the passage of the Uniform Parentage Act, which extends the parent and child relationship equally to every child and every parent, regardless of the marital status of the parent including the unmarried

fathers' rights to custody and visitation. The information is available on the Uniform Marital and Family Laws Locator, housed at the Legal Information Institute at the Cornell University Law School.[32] Custody law in states that maintain primary caretaker presumption is considered gender non-neutral. Marriage-neutral custody laws do not just pertain to the enactment of the Uniform Parentage Act: some states might not have the Uniform Parentage Act in their statutes but there are provisions in their codes or statutes that govern the custody rights of unmarried fathers. Also some states have the marriage-neutral custody rights of unmarried fathers established through case law under the common law system. We therefore also traced out established case law and statutes related to these custody laws from internet search engines for legal cases and state codes such as www.findlaw.com and the case law finder provided by *LexisNexis*. Custody laws by year and state are reported in Table 3.B.1 in Appendix 3.B.

Figure 3.2 shows that the very majority of states in 1970 were under the traditional, tender years law- of which custody is both gender and marriage non-neutral. By 1995, the distribution of states under the gender-neutral, marriage-neutral regimes and those with both neutrality custody laws was quite even. 13 states (25.5 percent) have switched from the traditional custody regime to the gender-neutral but marriage non-neutral regime; 16 states (31.4 percent) have switched to the marriage-neutral custody law regimes and 17 states (33.3 percent) have both neutrality custody laws in place. Only 5 states (9.8 percent) remain in the traditional custody regimes namely Idaho, Massachusetts, New York, South Carolina and Tennessee. This cross-state variation in the changes in custody regimes is the source of identification of the causal effect of the changes in custody laws on marriage.

3.5.2 Individual Level Data

[32] The data is available at: http://www.law.cornell.edu/uniform/vol9#paren .

Individual level data for the hazard models are from the *Fertility and Marital History Supplement of Current Population Survey (CPS) of June 1995*. The supplement contains retrospective information on the marital histories of the female respondents from age 15-65. This allows us to identify their age and year of first marriage. The marital histories are only available from this one-time CPS supplement.

We need to map subjects to states to assign the divorce laws in effect for each individual at each age. One limitation is that only the current state of residence is reported in the CPS Supplement data. Therefore we use the state of residence of individuals in 1995. This means that the assignment for legal regimes for women that moved prior to 1995 will contain errors. If their moves were uncorrelated with the introduction of these measurement errors will tend to bias the coefficients towards zero.

We control for education with a measure based on respondents' highest grade completed as of the 1995 supplement. We interpret the education level of individuals by age 40 to be a proxy for their abilities that are positively correlated with their market productivity. Other time-invariant individual covariates include dummies that indicate whether the individual is black, the state of residence of the respondent in 1995 and five-year dummies for birth cohorts from 1950-1974.[33]

Our estimates are based on the marital histories of 27,359 women born in 1950-1975 from when they were 13 until they reach age 40.[34]

3.5.3 State Level Data

[33] Using year of birth dummies does not affect our results.

[34] Not all individuals in the sample reach 40 by 1995. We treat these individuals who have not married by 1995 as fixed-right censored. As this censoring mechanism is unrelated to survival time, it is uninformative and should not bias the estimates.

For the state level analysis, the numbers of new marriages by state for the years 1972-2009 were collected from *the Vital Statistics of the United States*. The advantage of the data collected from the *Vital Statistics of the United States* is that it is based on marriage certificates issued in states and thus form very accurate measures for the actual number of marriages occurring each year in different states. The statistics on state population comes from the *Reading Survey of Epidemiology and End Results (SEER) U.S. County Population Data.* It provides information on the population in the United States at the level of the state or county by age groups, sex and race from 1969-2009. The state level data on disposable personal income per capita is supplied by the *Bureau of Economic Analysis*.

Both the hazard model and the state level analysis use state-level controls for other dimensions of family law regimes. Dummy variables indicating unilateral divorce, equitable property distribution, and enactment of joint custody are from Friedberg (1998) Voena (2012), and Halla, (2013), respectively.[35]

Additional controls include the state-level proportion of black population and the logarithm of state level disposable personal real income per capita.

By combing the above data, we construct a state level panel data over a 38-year time span that contains accurate measures of actual occurrences of marriage relative to the state population size of the age group 15-54 and a variety of statewide demographic and legal regime controls.

[35] Except for joint custody in Washington State. Our search suggests that joint custody (known as "parenting plan" in Washington State) was enacted in 1987 (see Harrington (2009), which is available at http://seattletimes.com/html/opinion/2008786615_opinb26harrington.html). However our results are unaffected by the alternation.

Similar to Halla (2009) we have excluded Nevada from the state fixed effect regression analysis due to the fact that the marriage practices in this state is very different compared to other states.[36]

3.6 The Results

3.6.1 The Individual-Level Hazard Model

The results of the hazard model are presented in Table 3.2. There are three specifications. (1) includes the vector of legal regime variables, $\boldsymbol{L}$, the vector of individual-level covariates, $\boldsymbol{X}$, cohort controls and state fixed effects. Specification (2) adds a linear time trend. In specification (3) the time trends are state specific.

Our first prediction is that the shift towards gender-neutral custody reduces marriage; i.e., that $\beta_2 < 0$, or $\exp(\beta_2) < 1$. This is what we find. Estimates of $\exp(\beta_2)$ are between .848 and .925, depending on specification. In all cases the ratios are highly significant. When custody laws are marriage neutral, gender neutrality is associated with a decline in the likelihood of marriage of between 11.9 and 15.1 percent.

Our model predicts that, given gender neutrality, the switch from marriage non-neutrality to marriage neutrality will increase marriage. That is, we expect $\beta_3 - \beta_2 > 0$. There is no evidence that this is the case. The two coefficients are very similar and the differences are very insignificant.

3.6.2 The State-Level Fixed Effects Model

[36] According to Halla(2009), the average marriage rate of Nevada is about 12 times higher than the average of all other states.

The results of the state-level analysis are reported in Table 3.3. The specifications are similar to the hazard model specifications. Because this is a linear model the coefficients here are interpreted as relative to zero.

Consistent with our first and third hypothesis, marriage rates overall both Regime 2 and Regime 3 are lower than in Regime 1. In particular, the baseline model suggests that the introduction of the gender-neutral custody law reduced the state marriage rate by 1.036 per 1000 people aged 15-54. This is 6.3 percent of the sample mean. The introduction of both the gender and marriage-neutral laws on average lowered the state marriage rate by 1.791, which is almost 11 percent of the sample mean. While the coefficients attenuate after controlling for the state-specific time trend the effect remains negative. According to specification (3), even after controlling for the state specific time trends, the state marriage rate is 0.681 and 0.897 under Regime 2 and Regime 3 respectively, relative to the baseline Regime 1. This accounts for a substantial 4.1 and 5.5 percent of the sample mean. However, we do not find strong support for our second hypothesis. The null hypothesis that $\beta_2 = \beta_3$ in specification (3) is not rejected. In fact, the baseline model suggests that β_2 is statistically significantly larger than β_3 in real terms before controlling for the state-specific time trend.

3.6.3 Long Run Effects

Friedberg (1998) and Wolfers (2006) showed in a dynamic model that the effects of divorce laws depend on time since adoption. Similarly, we examine the long term effect of the gender-neutral and marriage-neutral custody laws by estimating the following state-level fixed effect model:

$$Y_{st} = \sum_{j=1(5)}^{16+} \beta_j \, GenNeut_{for\ j\ to\ (j+4) years_{s,t}} + \sum_{k=1(5)}^{16+} \theta_k \, MarNeut_{for\ k\ to\ (k+4) years_{s,t}} + \boldsymbol{\mu}' \boldsymbol{L}_{s,t} + \boldsymbol{\sigma}' \boldsymbol{x}_{s,t} + \alpha_t + \gamma_s + \epsilon_{s,t} \quad (3.16)$$

where $GenNeut$ and $MarNeut$ represent dummies for states that have introduced, respectively, a gender- or marriage-neutral custody law for j to j+4, where j starts from 1 and then 6. The results are provided in Table 3.4. One major limitation of this analysis is that the time variation in the adoption of the gender-and marriage-neutral custody laws across states makes estimation of the long-term effect of gender-and marriage-neutral custody regime (i.e. Regime 3) problematic due to the non-linear over-time effects of the gender-and marriage-neutral custody law assumed in the model.

3.6.4 Potential Endogeneity of Laws

Estimates will be biased if marriage patterns induce changes in the laws, or if unobservable factors are correlated with both marriage patterns and legal regimes. In both of these cases the laws are endogenous and causal inference drawn from the results will be misleading.

In order to test whether the laws are endogenous we introduce dummy variables corresponding to leads of the introduction of the new laws into Equation (3.16), corresponding to specification 3 of Table 3.3. The coefficients of the dummy variables are plotted in Figures 3.3 and 3.4. If policy is endogenous the estimated coefficients of the leading variables of the laws will be different from zero. They are not. We cannot reject that the dummy variables are jointly significant. The relationship between the custody laws and marriage outcomes are unlikely to be driven by pre-existing trends in the marriage rate.

3.7 Conclusion

This paper is about the effect of marriage- and gender-neutral custody laws on marriage. The most striking result is that the switch from the tender years doctrine to gender neutrality reduced the likelihood a woman would marry by over 7.5 percent. The finding is robust to a variety of empirical models, data sets, and specifications.

This analysis has limitations that can be addressed in future work. First, we treat fertility as exogenous but it is likely that the changes in custody laws would affect the decision to have children in the first place. One extension would be to endogenize the fertility decision in the theoretical model and treat fertility as endogenous in the empirical analysis.

Second, in our current model the likelihood of union dissolution does not vary with custody regime. Chen (2013) found that the switch to the gender-neutral custody regime increased the probability of divorce. Another extension would be to integrate union dissolution into our model.

Social scientists have closely examined the consequences of changes in the divorce and property distribution laws associated with the divorce revolution. Many have concluded that the news laws did play a part in shaping the demographic shifts over the last 50 years. Our results show that the new custody laws had similar effects on marriage.

Figure 3.1: Timeline of Events

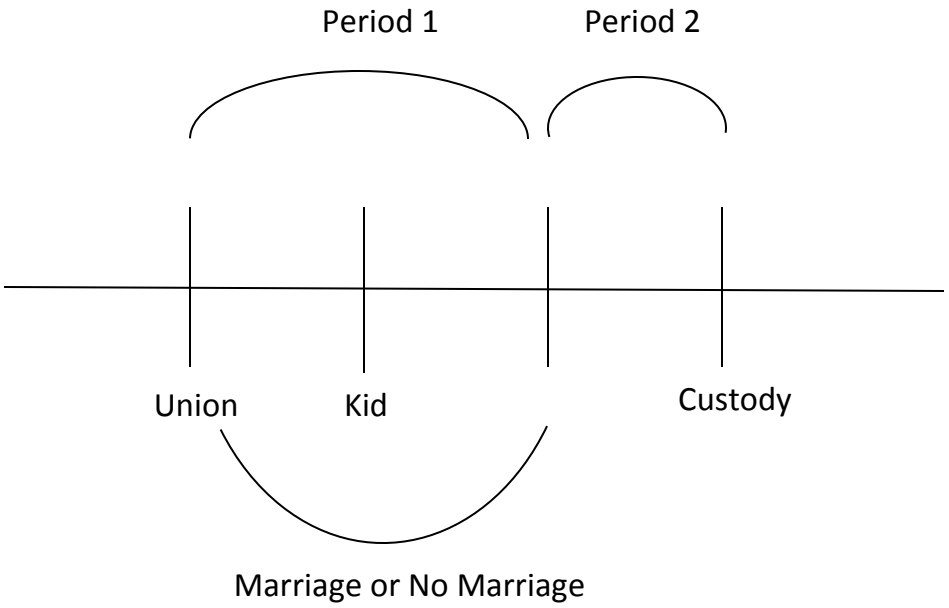

Figure 3.2: Custodial Regime Distribution of States as at Year 1970 and 1995

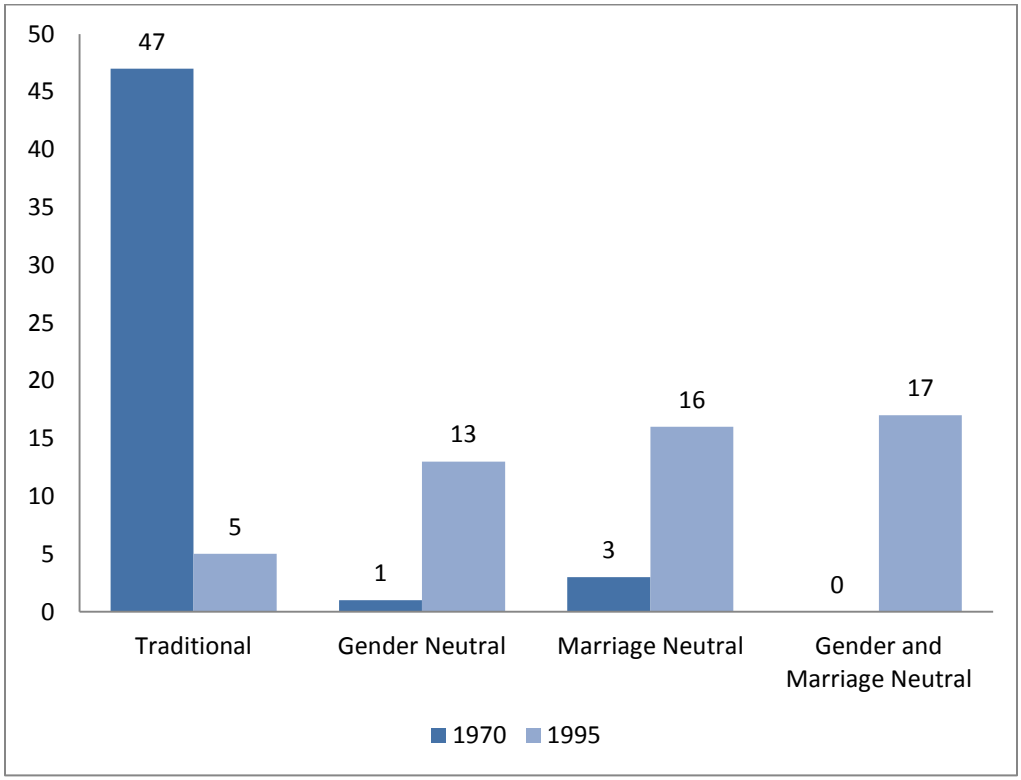

Figure 3.3: Check for Pre-Existing Trends in Marriages Rates for the Gender-Neutral Custody Law

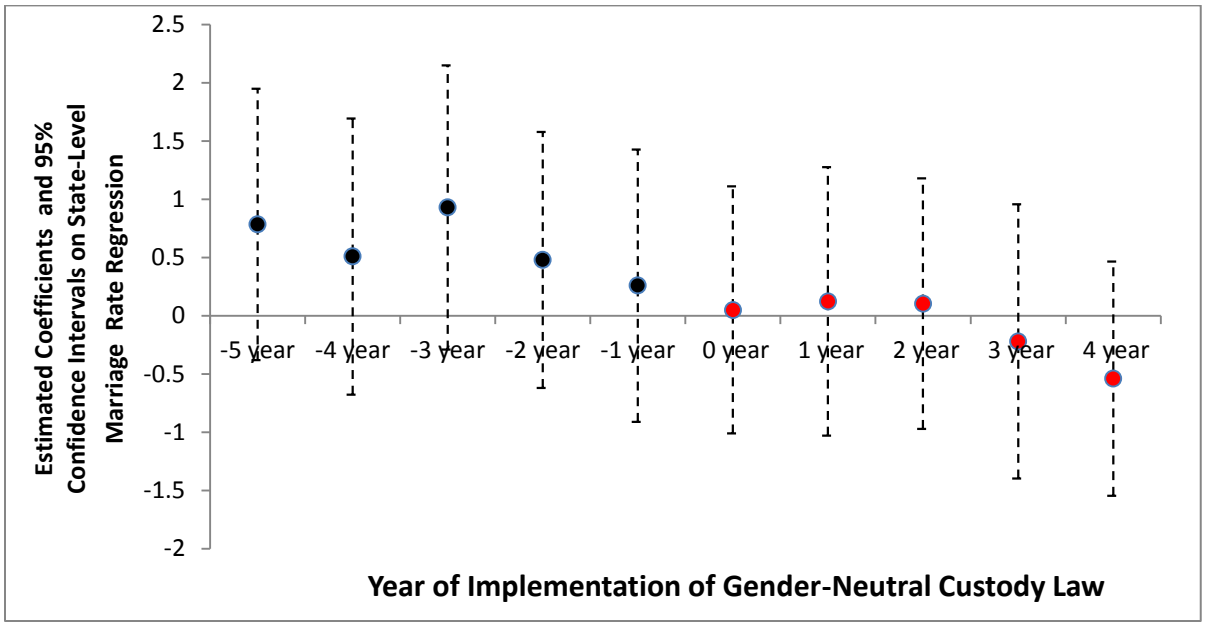

Figure 3.4: Check for Pre-Existing Trends in Marriages Rates for the Marriage-Neutral Custody Law

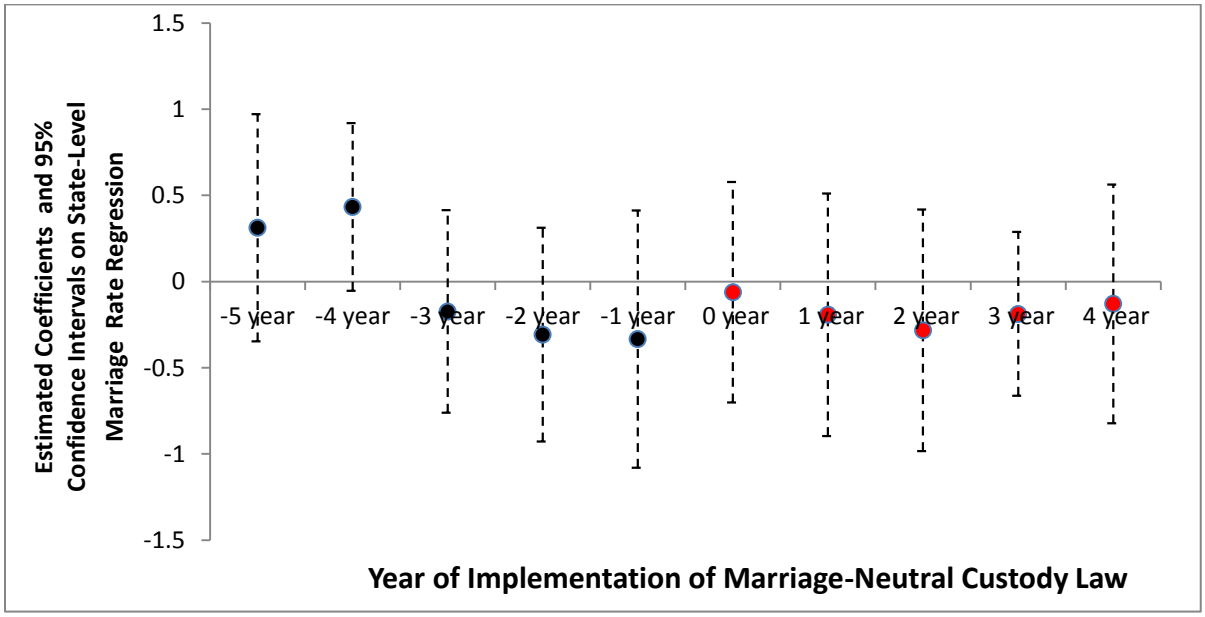

Table 3.1: Custody Probabilities by Regime

Custody Probabilities by Regime			
	Probability Custody Granted to Mother		
Regime	Married (p^R_M)	Not Married (p^R_N)	Difference
(1) Both Non-Neutral	$p^1_M = 1$	$p^1_N = 1$	$p^1_M - p^1_N = 0$
(2) Gender Neutral, Marriage Non-Neutral	$p^2_M \in (0,1)$	$p^2_N = 1$	$p^2_M - p^2_N = p^2_M - 1 < 0$
(3) Both Neutral	$p^3_M \in (0,1)$	$p^3_N \in (0,1)$	$p^3_M - p^3_N \leq 0$

Table 3.2: Hazard Models for Marriage and Birth of Women Born in 1950-1974

Covariates	Marry Coefficient β_j	Hazard Ratio e^{β_j}	Coefficient β_j	Hazard Ratio e^{β_j}	Coefficient β_j	Hazard Ratio e^{β_j}
	(1)		(2)		(3)	
Regime 2 (Gender Neutral Custody)	-0.164***	0.848***	-0.139***	0.870***	-0.078**	0.925**
	(0.034)	(0.029)	(0.034)	(0.029)	(0.040)	(0.037)
Regime 3(Gender and Marriage Neutral Custody)	-0.159***	0.853***	-0.127***	0.881***	-0.164***	0.849***
	(0.047)	(0.040)	(0.047)	(0.042)	(0.066)	(0.056)
Cohort Controls	X		X		X	
High School Graduates or Above	X		X		X	
Black	X		X		X	
Legal Regime Controls	X		X		X	
State Fixed Effects	X		X		X	
Linear Time Trend			X			
State-Specific Time Trend					X	
p-value for $H_0: \beta_2 = 0$	0.000		0.000		0.051	
p-value for $H_0: \beta_2 - \beta_3 = 0$	0.906		0.761		0.136	
p-value for $H_0: \beta_2 - \beta_3 \leq 0$	0.547		0.620		0.073	
Number of Subjects	27,359		27,359		27,359	
Number of Failure	20,717		20,717		20,717	
Log Likelihood	-196063		-196,043		-195,995.9	
LR χ^2	2321.0		2344.1		2603.8	

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard are in brackets. The time-invariant covariates include dummies for respondents born in 1950-54,1955-1959,1960-1964,1965-1969,1970-1974, a dummy for black, state of residence for respondents and high school graduates or above. Time-variant covariates include dummy variables that indicate the state of residence of the respondent is under the unilateral divorce, equitable property distribution, community property, joint-custody and marriage neutral custody regime. Data source: Current Population Survey Marital and Fertility History Supplement June 1995.

Table 3.3: The Effect of Gender and Marriage Neutral Custody Laws on the State Level Marriage Rates

	Dependent Variables: Marriage Rate		
Independent Variables:			
	(1)	(2)	(3)
Regime 2 (Gender-Neutral Custody)	-1.036***	-1.371***	-0.681***
	(0.299)	(0.315)	(0.215)
Regime 3(Gender-and Marriage-Neutral Custody)	-1.781***	-2.102***	-0.897***
	(0.351)	(0.344)	(0.258)
Legal Regime Controls	X	X	X
State Demographics	X	X	X
State Fixed Effects	X	X	X
Linear Time Trend	X		
Time Dummies		X	
State-Specific Time Trend			X
p-value for H_0: $\beta_2 = 0$	0.0009	0.000	0.002
p-value for H_0: $\beta_2 - \beta_3 = 0$	0.0002	0.0005	0.285
p-value for H_0: $\beta_2 - \beta_3 \leq 0$	0.0004	0.0002	0.142
N	1,890	1,890	1,890
R-squared	0.824	0.839	0.923

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors clustered at the state-year level are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property, joint-custody and the marriage neutral custody regime; state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The regressions are weighted by the state population. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis.

Table 3.4: The Effect of Gender and Marriage Neutral Custody Laws on the State Level Marriage Rates over Time

	Dependent Variables: Marriage Rate			
Independent Variables:				
	(1)	(2)	(3)	(4)
Gender Neutral 1-5 years	-0.314	-	-0.386	-0.161
	(0.296)		(0.297)	(0.204)
Gender Neutral 6-10 years	-1.195***	-	-1.322***	-0.720***
	(0.300)		(0.309)	(0.240)
Gender Neutral 11-15 years	-1.697***	-	-1.865***	-0.927***
	(0.315)		(0.327)	(0.317)
Gender Neutral 16+ years	-1.973***	-	-2.143***	-0.609
	(0.278)		(0.291)	(0.380)
Marriage Neutral 1-5 years	-	-0.070	-0.148	-0.228
		(0.197)	(0.175)	(0.148)
Marriage Neutral 6-10 years	-	-0.022	-0.186	-0.330*
		(0.205)	(0.198)	(0.199)
Marriage Neutral 11-15 years	-	-0.368	-0.648***	-0.799***
		(0.235)	(0.221)	(0.244)
Marriage Neutral 16+ years	-	-0.097	-0.691***	-1.246***
		(0.284)	(0.261)	(0.317)
Legal Regime Controls	X	X	X	X
State Demographics	X	X	X	X
State Fixed Effects	X	X	X	X
Time Dummies	X	X	X	X
State-Specific Time Trend				X
N	1,890	1,890	1,890	1,890
R-squared	0.841	0.831	0.842	0.935

Notes: ***variable is statistically significant at 1% level; **variable is statistically significant at 5% level; *variable is statistically significant at 10% level. Robust standard errors clustered at the state-year level are in brackets. Legal regime controls include dummy variables that indicate the state is under the unilateral divorce, equitable property distribution, community property and joint-custody regimes; state demographics include the state-level proportion of black population and the logarithm form of state level disposable personal real income per capita. The regressions are weighted by the state population. Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis.

Appendix 3.A: Summary Statistics

Table 3.A.1: Descriptive Statistics[37]: State Level Analysis (1972-2009)

Variables	N	Min	Mean	Max	Standard Error
State Demographics					
State level number of marriages per 1000 population aged 15-54	1,890	5.14	16.45	41.09	(4.77)
State level proportion of population age 15-54	1,901	50.00	56.54	65.03	(2.20)
State level proportion of black population	1,901	5.705	27.98	41.20	(0.08)
State level per capita disposable personal income in 1982 dollars	1,901	6928	12,709	28,784	(2833)
Legal Regimes					
Unilateral divorce regime	1,901	0	0.556	1	(0.497)
Equitable distribution regime	1,901	0	0.693	1	(0.461)
Community property regime	1,901	0	0.153	1	(0.360)
Joint custody regime	1,901	0	0.645	1	(0.479)
Gender- and marriage non-neutral custody regime (Regime 1)	1,901	0	0.233	1	(0.423)
Gender-neutral custody regime (Regime 2)	1,901	0	0.251	1	(0.434)
Gender- and marriage-neutral custody regime (Regime 3)	1,901	0	0.274	1	(0.446)
Marriage-neutral custody regime (Regime 4)	1,901	0	0.242	1	(0.428)

Data: Vital Statistics of the United States; the Reading Survey of Epidemiology and End Results (SEER) U.S.County Population Data; Bureau of Labor Statistics; Bureau of Economic Analysis.

[37] Weighted by state population size.

Table 3.A.2: Descriptive Statistics: CPS Marital and Fertility History Supplement 1995

Co-variates	N	Min	Mean	Max	Standard Error
Individual Characteristics					
Age of first marriage conditional on number of marriage>=1	20,756	11	21.8	45	(4.422)
High school or above education	27,359	0	0.894	1	(0.307)
Less than high school graduates	27,359	0	0.106	1	(0.307)
High school graduates only	27,359	0	0.643	1	(0.479)
Degree or above education	27,359	0	0.251	1	(0.434)
Black	27,359	0	0.115	1	(0.319)
Legal Regimes					
Unilateral divorce regime by age 20	20,158	0	0.713	1	(0.453)
Equitable distribution regime by age 20	20,158	0	0.577	1	(0.494)
Community property regime by age 20	20,158	0	0.186	1	(0.389)
Joint custody regime by age 20	20,158	0	0.477	1	(0.499)
Under gender-and marriage non-neutral custody regime (regime 1) by age 20	20,158	0	0.408	1	(0.492)
Under gender-neutral custody regime (Regime 2) by age 20	20,158	0	0.245	1	(0.476)
Under gender-and marriage neutral custody regime (Regime 3) by age 20	20,158	0	0.108	1	(0.311)
Under marriage-neutral custody regime (Regime 4) by age 20	20,158	0	0.239	1	(0.426)

Appendix 3.B: Years of the Introduction of the Neutrality Custody Laws

Table 3.B.1: Years of the Introduction of the Neutrality Custody Laws

State	Gender Neutral	Marriage Neutral	State	Gender Neutral	Marriage Neutral
Alabama	1981	1984	North Carolina	1977	2003
Alaska	1977	1989	North Dakota	-	1979
Arizona	1973	-	Ohio	-	1982
Arkansas	1987	-	Oklahoma	1986	2006
California	-	1975	Oregon	-	1975
Colorado	1983	1962	Pennsylvania	-	1977
Connecticut	1970	1985	Rhode Island	-	1975
Delaware	-	1983	South Carolina	1996	-
District of Columbia	1972	1996	South Dakota	1979	-
Florida	-	1988	Tennessee	1997	-
Georgia	1975	1973	Texas	1974	1995
Hawaii	1976	1975	Utah	-	2005
Idaho	-	1996	Vermont	-	1989
Illinois	1975	1984	Virginia	1982	-
Indiana	1977	-	Washington	1981	1980
Iowa	-	1988	West Virginia	-	1973
Kansas	1977	1985	Wisconsin	1981	1995
Kentucky	1974	1993	Wyoming	1977	1965
Louisiana	1979	1994			
Maine	1981	1995			
Maryland	1978	1952			
Massachusetts	-	-			
Michigan	1971	2003			
Minnesota	-	1980			
Mississippi	-	1983			
Missouri	-	1982			
Montana	-	1977			
Nebraska	1976	-			
Nevada	1979	1979			
New Hampshire	1975	2005			
New Jersey	-	1983			
New Mexico	1971	1978			
New York	-	2006			

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