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How unilateral divorce affects children

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ABSTRACT

How Unilateral Divorce Affects Children^{*}

Using U.S. Census data for the years 1960-1980, we study the impact of unilateral divorce on outcomes of children (age 6-15) and their mothers. We find that the reform increased mothers' divorce, decreased family income and increased the fraction of mothers below the poverty line. For children, we find not only negative results on investment, measured as the probability that a child goes to a private school, but also on child outcomes, measured by the likelihood of children aged 0-4 being held back in school at the time of the reform. We then analyze outcomes of the same cohorts of children 10 years later, by studying young men and women aged 16-25 using the 1970-1990 U.S. Census. We find an increase in marginality for these cohorts, measured as the probability of living in an institution (men) or the probability of being below the poverty line (women). We find that the impact in outcomes is particularly important for black children and young adults.

JEL Classification: J12, J13

Keywords: unilateral divorce, child outcomes

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1 Introduction

From the late 1960s to the early 1980s, the majority of U.S. states introduced important changes in divorce legislation to the extent that it has been called the “*Divorce Revolution*”. Among those changes, unilateral divorce, the right of one spouse to ask for a divorce without the consent of the other, is the aspect of the reform that has captured the greatest attention in the literature during the last twenty years.

After a long debate about the effect of unilateral divorce on divorce rates (Peters, 1986; Friedberg, 1998; Gruber, 2004), there is growing consensus in the literature regarding a short-term increase in divorce rates (Wolfers, 2006). This evidence has been related by scholars to a greater selection into and out of marriage in adopting states, and therefore to an increase in the average match-quality of new and surviving marriages. This interpretation has gained support from recent evidence about the lower divorce rate among couples married under unilateral divorce, compared with those married under mutual consent (Mechoulan, 2006). Additionally, evidence supports a reduction in the average duration of marriages that end in divorce (Matouschek and Rasul, 2006).

Despite the direct effects of unilateral divorce on divorce rates, recent research has focused on the role of the reform in several other aspects of individual behavior. Some examples are studies on family formation (Drewianka, 2004; Rasul, 2004; Alesina and Giuliano, 2007), female labor supply (Gray, 1998; Chiappori, Fortin and Lacroix, 2002; Stevenson, 2007 and 2007b) or domestic violence (Stevenson and Wolfers, 2006). Here the evidence also

points towards a change in behavior in those couples formed under the new legislation. Stevenson (2007), using a sample of newlywed couples in 1970 and 1980, finds that, in marriages formed under unilateral divorce laws there is less support of a spouse's education, fewer children, greater female labor force participation and an increase in households with both spouses engaged in full-time work.

Since divorce legislation acts as the dissolution clause of a marriage contract, the unilateral reform can be seen as a retroactive change in the dissolution clause for those marriage contracts already in place at the time of the reform. Therefore, the change in legislation should have produced different effects over those individuals who had taken marriage, fertility or investment decisions based on mutual consent divorce rules. Even though those effects are transitional overall, they may become permanent for children of those families “trapped” in the transition.

The literature on the effects of unilateral divorce on children is not extensive. Gruber (2004),¹ using a sample of adults (25 to 50 years old) from the US Census data for the period 1960-1990, finds that those who were exposed to the reform as children have lower educational attainments and lower family incomes, marry earlier but separate more often, and have higher odds of adult suicide.

¹ Another related paper is Johnson and Mazingo (2000). Using 1990 US Census data, they examine the amount of time individuals were exposed to unilateral divorce laws as children, finding results consistent with Gruber (2004).

We extend the current literature in several ways. First, instead of looking at outcomes of adults exposed as children to unilateral divorce laws as in Gruber (2004), we examine jointly children and their mothers during the period in which most states adopted unilateral divorce, using Census data for the period 1960-80. By linking children (between ages 6 and 15) with their mothers, we are able to go further down the causal chain and analyze how investment on children was affected by the change in legislation. Then, we study the same cohorts of children ten years later, using 1970-1990 Census data in order to analyze whether unilateral divorce has any effects on young men and women's marginality. Second, we study the heterogeneity in the impact of the reform among children and families exploiting the differences in age at which the child faced the reform. With this specification, we are also able to study potential differential effects at the family or at the child level, depending on at which point of the child's life the family has faced the reform. Our main results are the following. First, we find that, because of the reform, mothers are more likely to be below the poverty line, divorced and have lower family income. At the same time, we find that children are less likely to attend a private school and, in the case of black children, more likely to be repeating a grade (held-back). Third, analyzing the heterogeneity by timing of family formation, measured by the age of the eldest child, we find that families whose first child was five years old or older at the time of the reform are approximately 16% more likely to be below the poverty line. They also face a 4% to 6% decrease in family income, and children from those families are 16% to 24% less likely to attend a private school. In all of these cases, we find no effects for families whose first child was born after the reform. Nevertheless, when we analyze child outcomes we observe

that children of pre-school age at the time of the reform (age 0-4) are more likely to repeat a grade. Finally, for young people age 16-25 (1970-1990 Census), we find that men who were between 0 and 4 years old at the time of the reform are 27% more likely to live in an institution (50% for blacks), which is in line with our findings for children. Moreover, women who were between 5 and 15 years old are 9% more likely to be below the poverty line (12% for black women).

The paper is structured as follows. In Section 2, after providing a brief review of the characteristics of the divorce reform, we sketch some of the channels through which unilateral divorce might affect children (investment and well-being) and the sources of potential heterogeneity. In Sections 3 and 4 we describe our econometric specifications and the data used. In Section 5 we present the results and Section 6 concludes.

2 Background

2.1 The Divorce Reform

Even though the most significant part of the divorce reform occurred during the 1970's, the process started before 1950 in a number of states, by removing fault grounds in order for spouses to ask for a divorce (Gruber, 2004).² However, while this earlier reform allowed

² This "fault" regime required proof of marital fault, such as adultery, desertion, physical abuse, for example. For a careful review of the characteristics of the reform, see Mechoulam (2005).

divorce without needing to cite a fault of the other spouse³ it still required that both spouses mutually agree to divorce. In the early 1970's some states started introducing not only no-fault grounds in the legislation but also allowed one spouse to ask for a divorce without the consent of the other spouse, what is called "Unilateral divorce". Another important aspect of the divorce revolution is related to the division of property and assets in the case of divorce. Except for a few states (among them the states that follow community property laws for classifying assets), before 1970 states had a regime that typically led to an unequal division of property in divorce (Rasul 2004).⁴ However, by the end of 1970's the majority of states had moved to a regime where property was more equally divided. Simultaneously with the unilateral divorce reform, many states also eliminated fault in asset division and spousal support settlement. For a detail on the coding of the laws used in this paper, see Table 1.⁵

Despite the benefits that unilateral divorce may have brought to those who are married under the unilateral regime, there is growing concern among some scholars, policy makers and interest groups regarding potential negative consequences of this reform, related to the

³ That is, irreconcilable differences, irretrievable breakdown or incompatibility.

⁴ Rasul (2004) notes that in those "common law" regimes spouses were only entitled to the property that they owned before marriage, or fault was to play a role in the division of assets, or some states had explicit "two third" rules for property division.

⁵ This paper focuses on the effects of the unilateral divorce. However, since the way in which assets are divided in the case of divorce can play a key role either on divorce propensity or in resource allocation within marriage, we will account for both the equitable division and the "no fault for property division" laws in our analysis.

benefits that have been traditionally associated with marriage⁶. One example of this concern is the range of state-level pro-family policies recently introduced in the United States, including the introduction of covenant marriages, a legal scheme that allows couples to choose to marry either under a unilateral divorce regime or under a stricter set of rules regarding divorce.⁷ This legal experiment is interesting because the optimal degree of commitment (and therefore the optimal marriage contract) may vary with the characteristics of the sides involved. Excepting those covenant states, only one type of marriage contract regarding dissolution clauses is available in each state. Since people cannot tailor the exit clause to their needs, a reduction in the exit costs from marriage implied by unilateral divorce may affect the composition of the married population under the new rules. Furthermore, the change in legislation may have produced retroactive effects over those people who had signed a contract with a different dissolution clause (mutual consent), made decisions accordingly, and then faced the change in legislation.

⁶ Waite and Gallagher (2000) summarize a large body of literature that shows a robust correlation between being married and being healthy, earning higher wages, and accumulating more wealth. Similarly, Akerlof (1998) shows that men who delay marriage or remain single are less likely to be employed, tend to have lower incomes and are more prone to crime and drug use.

⁷ Three states have passed such laws: Louisiana (1997), Arizona (1998), and Arkansas (2001). Covenant marriage generally requires pre-marital counseling, and an agreement to seek additional counseling if marital problems surface. Divorce is granted for specific “fault-based” reasons, including adultery, domestic violence, commission of a felony, and alcohol or drug abuse. Couples that seek a divorce based on mutual consent (e.g., no-fault) must wait a specified amount of time (e.g., two years in Louisiana). For a detailed review of these policies, see Gardiner et al. (2002).

2.2 The Role of Unilateral Divorce on Children's Well-Being

Unilateral divorce may have affected children's well-being through different channels⁸. The most obvious candidate is parental divorce per se. A higher incidence of divorce implies that a higher proportion of children have faced this event and are therefore forced to live under nontraditional family structure. Empirical evidence has long shown that children of divorced parents have lower achievements than children from intact families (Manski et al., 1992; Haveman and Wolfe, 1995; Ginther and Pollak, 2003). Furthermore, Sampson (1987) finds that family disruption increases the rates of black murder and robbery, especially among juveniles. It is also known that divorce decreases the resources available for children (McLanahan and Sandefur, 1994; Page and Stevens, 2004).⁹ Therefore, if growing up in a two-parent household is beneficial for children, and the reform, at least in the short run, increased the incidence of divorce in the adopting states (Friedberg, 1998; Gruber, 2004; Wolfers, 2006), we should expect a worsening both in family economic conditions and in child outcomes.

Second, the reform may have produced a change in the bargaining position of household members (Chiappori, Fortin and Lacroix, 2002). There is vast literature on development that has documented that the amount of resources allocated to children depends on the relative bargaining position between husband and wife (Strauss and Thomas, 1995; Beegle,

⁸ A more in-depth discussion of some of these channels can be found in Gruber (2004).

⁹ For example, Page and Stevens (2004), find that, in the year following a divorce, family income falls by 41 percent and family food consumption falls by 18 percent. Six or more years later, the family income of the average child whose parent remains unmarried is 45 percent lower than it would have been if the divorce had not occurred.

Frankenberg and Thomas, 2000). In fact, this evidence shows that more resources in the hands of women tend to benefit children and specifically girls. Therefore, if unilateral divorce weakens the bargaining position of women within marriage, children may have been negatively affected, independently of the occurrence of a divorce. Although the change of the bargaining position within the household is unobservable in the data, we can find out if the resources available for children in the family are affected by the presence of unilateral divorce laws, either through a change in the bargaining position of the wife or through divorce itself.

A third potential channel comes from the changes in incentives for relationship-specific investments. Several scholars have analyzed marriage as a commitment device that fosters cooperation and induces partners to make relationship-specific investments (Brinig and Crafton, 1994; Matouschek and Rasul, 2006; Stevenson, 2007). As the unilateral divorce undermines this commitment device, it also affects couples' incentives to make investments in their marriage. Thus, changes in family laws potentially affect the incentives to make investments whose returns are partly marriage-specific. Children (quantity) and child investment (quality) can be considered marriage-specific and therefore the reform would directly reduce the incentive to allocate resources to children.¹⁰ However, a higher incentive

¹⁰ Alesina and Giuliano (2007) find that total fertility and out-of-wedlock fertility decline after the introduction of unilateral divorce, with marital fertility rates remaining constant. Drewianka (2004) finds also a reduction in non-marital birth rates. However, he finds that unilateral divorce seems to increase aggregate and marital birth rates, and all of those effects seem to grow the longer the law is in effect.

to make market-specific investments such as labor employment (Stevenson, 2007), may increase the amount of resources available for children

Fourth, the divorce law reform may have affected selection into marriage. Unilateral divorce, as a decrease in the exit cost of marriage, may affect the composition of those couples who want to marry in the first place, and it can have either a positive or a negative effect on the probability of divorce depending on why people initially get married. On the one hand, it may lead to a negative selection into marriage; a reduction in the divorce costs mitigates the costs of marriage without affecting its benefits. Consequently, couples of relatively low match quality are now willing to “try” marriage, reducing the average match quality of married couples and therefore increasing their marriage and divorce propensity (Alesina and Giuliano, 2007). On the other hand, as unilateral divorce undermines the role of marriage as a commitment device, couples with relatively low match quality no longer marry, which increases the average quality of married couples and, therefore, decreases the marriage and the divorce propensity (Matouschek and Rasul, 2006). Negative or positive selection into marriage could also play a crucial role in the early stages of those children born after unilateral divorce took effect. Empirically, evidence on divorce rates supports the idea of a positive selection in marriage (Matouschek and Rasul, 2006; Wolfers, 2006).¹¹

¹¹ Matouschek and Rasul (2006) find supporting evidence of marriage as a commitment device; couples married after unilateral divorce took place are less likely to divorce during marriage. Weiss and Willis (1997), using data from the National Study of the High School Class of 1972, find that couples married under unilateral divorce are less likely to divorce than those who married under mutual consent. Mechoulam (2005) presents similar evidence from CPS data, and his results specifically hold for the law governing property division and spousal support.

However, the studies on marriage rates deliver mixed results (Drewianka (2004); Rasul, 2004; Alesina and Giuliano, 2007)¹².

2.3 Sources of Potential Heterogeneity

The factors described above may have affected mothers and children with different intensity depending on how old they were at the time of the reform. For example, current evidence on divorce rates (Matouschek and Rasul, 2006; Wolfers, 2006) points to a decrease in the divorce rate for couples married after the reform. Therefore, we should expect that children born into families formed under unilateral divorce would be less affected by the reform than those children who were born under mutual consent in adopting states.

Second, in the case where unilateral divorce increases the perceived risk of divorce, and therefore changes the incentives of market-oriented investment with respect to relationship-specific investments (Stevenson, 2007), the timing of family formation becomes relevant. Couples who married under mutual consent in adopting states could have made home (market) specialization decisions under dissolution rules that were later modified. Therefore, those families who were married and already had children when the reform took

¹² Drewianka (2004) finds no effects on marriage rates. Rasul (2004) provides evidence that after the adoption of unilateral divorce, marriage rates fell significantly and permanently in adopting states. Alesina and Giuliano (2007) have lately challenged this evidence finding that the number of women who have never married actually goes down with unilateral divorce.

place had some specific investment which reduced their degrees of freedom under the new regime incentives. For example, women who at the time of the reform had already completed their desired parity or had already spent time out of the labor force would face a tougher setting than those who were able to consider the new information when they made their supply/marriage/fertility decisions. Therefore, we would expect that those women who were unaware that the rules regarding marital dissolution would eventually change at the time they started a family would be more likely to be affected by the reform than those who internalized the new rules.

When analyzing child outcomes we should also take into account the fraction of their lives during which they were exposed to unilateral divorce laws. Specifically we would like to know at which stage of their development they faced the reform. Literature on child development has provided evidence that the impact of parents' divorce depends on the state of development (Wolf, 1998). Since part of this development is chronologically determined, we would expect that children who faced the reform at an early age were affected differently than those who, at the time unilateral divorce "hit", had already completed their education or were old enough to understand the eventual changes occurring at the family level.

3 Data and Variables

The data for this study come from the US Census PUMS 1% data for the years 1960, 1970 Form 2, 1980 and 1990.¹³ We construct two primary samples for our analysis. The first sample contains data on children and their (non-stepmother) mothers for the period 1960-1980.¹⁴ The sample is restricted to ever married, U.S born mothers between 25 and 50 years old, the number of children living at home equal to the number of children ever born to the woman and with the eldest child being no older than 18.¹⁵ With this data, we construct two subsamples. In order to study child outcomes, the first subsample contains information on children between 6 and 15 years old. For mother outcomes, we construct a second subsample with one observation per household. Finally, in order to study the outcomes of the same cohorts of children ten years later we construct a sample with young men and women aged 16-25, using Census data for the period 1970-1990.

We define three groups of outcomes. The first group has three outcomes at the family level or related to the child's mother. First, “Currently Divorced” is a dummy variable that takes a value of one if the child's mother is divorced, and zero otherwise.¹⁶ The second

¹³ Information on private school attendance, one of our outcomes of interest, is only available in Form 2 for the 1970 Census. Therefore, using Form 2 implies losing the information about age of first marriage and marriage number of the mother, available only in Form 1.

¹⁴ We exclude from the sample children whose mother is identified as a stepmother.

¹⁵ We make those restrictions in order to make sure that the eldest child at home is the mother's first child, in order to analyze mothers' heterogeneity.

¹⁶ We use “Currently Divorced” instead of “Ever Divorced” because in order to construct the latter variable we would need information on marriage number that is not available in Form 2 of the 1970 US Census data.

variable is “Poverty”, a dummy variable that equals one if the mother’s income is below the poverty line and zero otherwise and the third variable is the log of family income.

The second group of variables consists in outcomes at child level. The first variable, defined for the census sample, "Private School" is a dummy variable that takes a value equal to one if a child between 6 and 15 years of age attends a private institution or church related school, and zero otherwise. Several authors have shown that educational outcomes are better for students that attend private school. Although there is some question about whether this impact is causation or correlation, there is no question that parents who enroll their children in private schools are those with higher income. Despite those concerns, this variable is useful as a measure of parents’ investment on children’s human capital. The second variable, "Behind," is a dummy variable that equals one if the child's year of education is lower than the mode by age and year, and zero otherwise. "Behind" identifies whether children are progressing in school with their cohorts and is a measure of educational attainment.

Finally, the third group of variables includes two outcomes of young men and women aged 16-25. The first outcome, “Institution” is a dummy variable that takes a value equal to one if the individual lives in an Institution, and zero otherwise¹⁷. The second outcome is “Poverty”, as defined above.

¹⁷ US Census samples provide detailed information about group quarters. Specifically, we are able to know if an individual is living in a correctional or a mental institution. Nevertheless, from 1990 onwards, this detailed information on institutions is no longer available.

4 Econometric Specifications

The following expression represents the first specification of interest,

$$y_{ist} = \alpha_s + \eta_t + \beta X_{ist} + \delta Z_{st} + \gamma U_{st-1} + \varepsilon_{ist},$$

with y_{ist} representing a specific outcome for individual i , living in state s at time t , α_s and η_t , represent state and year fixed effects, respectively. Additionally, X_{ist} is a vector of individual characteristics: age, race, year of birth, sex and birth order (for children) and education of the mother (for both mothers and children). Finally, Z_{st} denotes time-varying aggregate and policy state variables. Among these time-varying state covariates, we distinguish two groups of variables: State Aggregate variables and State Policy variables. State Aggregate variables include the fraction of people born outside the U.S. living in the state, the log of state per capita income and the state unemployment rate. Finally, State-Policy variables include a dummy indicating the existence of the Aid to Families with Dependent Children Unemployed Parent Program (AFDC-UP), the food stamp guarantee for a family of four with no other income and the maximum AFDC rate for a family of four.¹⁸ We also include a dummy for the requirement of fault for property division, a dummy for separation requirements and a dummy for the existence of norms regarding the equitable division of property in the case of divorce.

¹⁸ Welfare benefits, unemployment and per capita income variables were taken from the Moffitt Welfare Benefits File, available at Robert Moffitt's webpage: <http://www.econ.jhu.edu/People/Moffitt/datasets.html>.

The variable of interest is U_{st-1} , which is a dummy variable that takes a value of one for those states that had already adopted the unilateral reform the year before the census year. We use Friedberg (1998) coding to define the existence of the unilateral divorce regime.¹⁹ To estimate the impact of the reform, γ , we rely on the standard source of identification that is usual in the literature on unilateral divorce, a Dif-in-Dif approach; not all states moved to the unilateral regime and those that adopted these new divorce laws did not move simultaneously to the new regime. Finally, since the error term, ε_{ist} , could be serially correlated, we cluster the standard errors by the state of residence, following Bertrand, Duflo, and Mullainathan (2004).

In addition to the specification described above, we introduce a second specification that will allow us not only to identify whether the individual outcomes were affected by the passage of the law, but also to study the heterogeneity of the effects depending on how old the children were at the time of the reform. Then, in order to take advantage of this second source of variation we estimate the following specification,

$$y_{ist} = \delta_s + \eta_t + \beta X_{ist} + \delta Z_{st} + \sum_j \gamma^j 1\{U_{st-1} = 1\} * 1\{a_j \leq (YB_{ist} - YUni_s) \leq b_j\} + \varepsilon_{ist}, \quad (2)$$

with y_{ist} representing a specific outcome for the individual i , living in state s at time t . $1\{*\}$ is an indicator function that takes a value of one when the logic statement $*$ is true, and zero

¹⁹ Our results are robust to alternative coding such as the one from Gruber (2004). The crucial difference with Gruber (2004) coding comes from the fact that Gruber considers as mutual consent those states with unilateral divorce also having separation requirements. Nevertheless, we define an additional dummy variable that captures whether or not a state has separation requirements. Coding on equitable property division and on fault for property division is from Rasul (2004). See Table 1 for details.

otherwise. YB_{ist} is the year of birth for individuals i living in the state s at time t ; $YUni_s$ is the year of adoption of unilateral divorce in the state s . That is, $YB_{ist} - YUni_s$ represents the child's age at the time of introduction of unilateral divorce. Then γ^j is understood as the ceteris paribus contribution of unilateral divorce for those children whose age at the time of the reform was in the range $[a_j, b_j]$, in relationship to those individuals living in states that have not adopted unilateral divorce ($U_{st-1} = 0$). Three age groups at the time of the introduction of unilateral divorce are defined: Born after the reform, $YBirth_{ist} - YUni_s > 0$; between 0 and 4, and aged 5 or more at the time of the reform. Here we concentrate, in the changes of the divorce law occurred since 1968.²⁰ In this last specification, three are the source of variation which we rely on to identify the parameter γ^j . In addition to the differences in the timing of adoption of unilateral divorce and the fact that not all states introduced it, we use in the specification the fact that the reform might have affected individuals (children and families) at different points in their lives.

²⁰ Therefore, states that adopted some kind of reform before 1968 ("Pre-1968" in Columns 1 and 4 of Table 1) are considered as "non-adopting" in this part of the analysis.

This specification is similar to considering time of exposure to the law, but it has two advantages. First, it allows us to identify a potential selection mechanism that makes children (or families whose first child was) born after the law different. Second, since all children born before the law in the same state have the same time exposure to the law, we can test whether there are differential effects depending on their age at the time of the reform.²¹

5 Results

5.1 Mothers and Children (1960-1980)

Table 2 shows the results of Equation (1) for mothers aged 25-50 (top panel) and for children aged 6-15 (bottom panel). Column 1 shows the results for the basic specification (state, year age, race, year of birth, sex and birth order fixed effects); in Column 2, we add state aggregate variables and in Column 3 state policy variables as defined above. In Column 4, we use an alternative divorce coding (Gruber, 2004). In Columns 5 and 6, we restrict the samples of mothers and children to African-American and to individuals living in adopting states, respectively. Finally, in Column 7 we restrict the sample of mothers to those whose eldest child is aged six and over, in line with the children's sample. Mothers' results (top panel) show robustness across specifications. Our preferred specification (controlling for state aggregate and policy variables), presented in Column 3, shows an

²¹ As we show later, our results are robust to the time of exposure as well as the source of variation.

increase in the probability of being a divorced mother of 7.8 percentage points (14.4% of the sample mean), a 12% increase in the likelihood of being below the poverty line and a 2.9% decrease in family income. Coefficients for black mothers are of the same sign but statistically insignificant. The bottom panel shows the results for children. In line with a decrease in family income, we observe that the reform decreases the likelihood of going to a private school by 1.93 percentage points (15% decrease). In the case of Behind we find a significant increase when controlling by state aggregate variables, but the results are not robust to the inclusion of state policy variables. However, for the sample of black children the coefficient of Behind is indeed significant, with an increase of 9.2% of the sample mean.

In the top panel of Table 3 we show the results of Equation (2). In addition to the controls described above, here we add state-age interaction dummies. The bottom panel shows the results considering time of exposure to the law as the source of variation. Columns 1 to 3 show the results for Private and Columns 4 to 6 those for Behind. Columns 1 and 4 show the results for the whole sample; Columns 2 and 5 those for Black children and finally Columns 3 and 6 display the results for the whole sample using Gruber (2004) coding. The results of the top panel (Age at the Time of Reform) are consistent across the subsamples and show heterogeneity across the different ages at which children faced the reform. In the case of Private, we see that children born before the reform are less likely to attend private school, while the coefficient for children born after unilateral divorce is not statistically distinguishable from zero. For the whole sample (Column 1), we find that private school attendance decreases by 1.71 percentage points (around 13% of the sample mean and

significant at a 10% level) for children that were aged 0-4 at the year of the reform and around 17% for children aged 5 or more. In the sample of black children, this coefficient shows a decrease of around 48% of the sample mean (2.41 percentage points). The results for Behind also display heterogeneity but in this case it appears that the unaffected group is that of children who were aged 5 or more at the time of the reform.

When we consider exposure to the law as the source of variation (bottom panel), the results are significant for those children with 1 to 6 years of exposure (Private) and for those whose exposure to the law was 9-11 years (Behind). These results are harder to interpret but, in the case of Behind, suggest that the affected group is composed of those who were either younger than age 4 or unborn in states that adopted the law in 1971 or earlier (see Table 1). A potential reading for these findings is that unilateral divorce in the short run is associated with a reduction in child investment (private) but it takes time for the impact to manifest itself on child outcomes such as “Behind.”

In order to study mother and child outcomes, we estimate our second specification using one observation per family and the age of the eldest child to define in which point of life the family faced the reform. In this specification, we add additional individual controls to those contained in vector X_{ist} : age of eldest child fixed effects and state-age of eldest child interaction dummies. We also consider four categories: Eldest child born after the reform, aged 0-4 at the time of the reform, aged 5-9 and aged 10 or more.

Columns 1 to 3 of Table 4 show the results for mothers whose eldest child is aged six or older (in order to compare them with children results), which show heterogeneity

depending on the difference between the year of birth of their first child and the year that the reform took place. We find that mothers in unilateral states whose first child was born before the reform are 12% to 16% more likely to be below the poverty line. The coefficient for mothers whose eldest child was born after the reform is statistically indistinguishable from zero, and significantly lower than the one for mothers whose eldest child was aged 0-4 at the time of the reform. The pattern for Currently Divorced is similar but in this case, even though the only coefficient that is not statistically significant is the one associated to families in which the oldest child is born after the reform, we cannot ensure that it is significantly different from the others. Finally, we find that mothers whose eldest child was aged five and older faced a decrease from 4% to 6% in family income.

Columns 4 and 5 of Table 4 show the results for child outcomes. The pattern for Private school, which can be considered an investment variable, is similar to that of mother's economic variables (Poverty and Family Income). Children whose eldest sibling was aged 5-9 at the time of the reform were 16 % less likely to attend a private school (2.08 percentage points) while if the eldest child at home was 10 or older the decrease in Private reaches 24%. The pattern for Behind is different. As can be observed in Column 5, we observe significant increases for children whose eldest sibling was either too young to attend school (aged 0-4) or not yet born when unilateral law was passed. This last result is surprising, as we would have expected no effects in families whose first child was born after the reform (because of selection into marriage and the evidence that the increase in divorce rates was only in the short run). However, given that our sample ends in 1980 we cannot be conclusive about what happened with mothers' divorce rates. As stated above,

the coefficient of Currently Divorced for mothers whose eldest child was born after the reform (Column 1) is statistically indistinguishable from the others. Additionally, evidence supports a reduction in the average duration of marriages that end in divorce (Matouschek and Rasul, 2006), which may be a potential factor indicating that children whose parents end up divorcing might start living in a single-parent household earlier in life.

5.2 Young Adults (1970-1990)

Next we analyze outcomes of the same cohorts of children ten years later. Tables 5 and 6 show the results of several specifications of Equation (2) for young men and women aged 16-25 using the 1970, 1980 and 1990 Census data. Table 5 shows the results for Institutions for several specifications applied to a sample of men (Columns 1 to 5) and women (Columns 6 to 10). The first column shows the results for the basic specification (individual controls only), the second also includes time varying state variables and the third includes state-age interaction dummies. The fourth column shows the results for a sample of blacks only. Finally, the fifth column considers an alternative specification where the source of variation (age at the time of the reform) is constructed using the state of birth instead of the state of residence. The first three columns of Table 5 show that young men who were younger than age five at the time of the reform were 24% to 27.5% more likely to live in an Institution at the time of the Census. When we include state-age interactions as covariates (Column 3), we also find that the coefficient for children born after the law is also significant. When we restrict the sample to black men aged 16-25, we find a striking 50% increase in Institutions for those who were aged 0-4 at the time of the reform.

Nevertheless, the impact on institutions is associated not only to changes in incarceration but also to the likelihood of being confined to a mental institution; our findings are consistent with a positive impact of unilateral divorce on crime rates (Caceres-Delpiano and Giolito, 2008).²² For women (Columns 6 to 10) the pattern is similar, although the results are not robust to the specification where the dependent variables are constructed using state of birth.

Finally, Columns 2 and 3 of Table 6 show that there is a significant increase in the probability that women who were aged 5-9 or 10-15 at the time of the reform are below the poverty line (8.75 and 6.5% increase over the sample mean, respectively). In the case of black women, the coefficient is only significant for those women whose age at the time of the reform was between 5 and 9 years old, but the increase in this case is around 12% of the sample mean (4.46 percentage points).

6 Conclusion

In this paper, we study the effects of unilateral divorce on mothers and children. Unlike previous literature, we jointly examine children and their mothers during the period that most states adopted unilateral divorce, using Census data for the period 1960-80. Therefore, we are able to study outcomes related to investment on children that have not

²² Caceres-Delpiano and Giolito (2008), using data from the FBI's Uniform Crime Report program for the period 1965-1998, find that unilateral divorce has a positive and long-run impact on violent crime rates, with 8% to 12% average increase for the period under consideration.

previously been examined. We are also able to study different potential effects at the family or child level depending on at which point of the child's life (or the "family life" using the year of birth of the first child) the family faced the reform.

We find that, because of the reform, mothers are more likely to be below the poverty line and have lower family income. At the same time, we find that children are less likely to attend a private school and in the case of black children, more likely to be repeating a grade. In general, we find that the effect of unilateral divorce on investment variables (family income, mother's poverty, private school attendance) mostly affect families whose first child was born five or more years before the reform. However, when we study child outcomes (the likelihood of repeating a class), the children affected are those who were younger (or where the eldest child was younger) at the time of the enactment of the law.

We also study the cohorts of these same children ten years later (1970-1990 Census), finding that men who were between 0 and 4 years old at the time of the reform are more likely to live in an institution., in line with child outcomes. Moreover, women who were between 5 and 15 years old are more likely to be below the poverty line (in line with the pattern of investment variables). We find that the impact in outcomes is particularly important for black children and young adults.

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Table 1
Divorce Regulations In the United States

	(1)	(2)	(3)	(4)	(5)		(1)	(2)	(3)	(4)	(5)
	Unilateral Divorce (Friedberg, 1998)	Unilateral Divorce (Gruber, 2004)	Equitable Division of Property and Assets	Separation Requirements for Unilateral Divorce	No Fault for Property division and Alimony		Unilateral Divorce (Friedberg, 1998)	Unilateral Divorce (Gruber, 2004)	Equitable Division of Property and Assets	Separation Requirements for Unilateral Divorce	No Fault for Property division and Alimony
Alabama	1971	1971	1980	No	Fault	Montana	1975	1973	1976	No	1975
Alaska	1950	1935	pre 1950	No	1974	Nebraska	1972	1972	1972	No	1972
Arizona	1973	1973	pre 1950	No	1973	Nevada	1973	1967	pre 1950	No	1973
Arkansas			1979	No	1979	New Hampshire	1971	1971	1988	No	Fault
California	1970	1970	pre 1950		1970	New Jersey	1971		1971	18 Months	1980
Colorado	1971	1972	1972	No	1971	New Mexico	1973	1933	pre 1950	No	1976
Connecticut	1973	1973	1973	No	Fault	New York			1962		Fault
Delaware		1968	pre 1950		1974	North Carolina	Pre-1968		1981	1 Year	Fault
District of Columbia	1977		1977	1 Year	Fault	North Dakota	1971	1971	pre 1950	No	Fault
Florida	1971	1971	1988	No	1986	Ohio	1974		1990	1 Year	Fault
Georgia	1973	1973	1980	No	Fault	Oklahoma	Pre-1968	1953	1975	No	1975
Hawaii	1973	1972	1955	No	1960	Oregon	1973	1971	1971	No	1971
Idaho	1971	1971	pre 1950	No	1990	Pennsylvania	1980		1979	3 Years	Fault
Illinois	1984		1977	2 Years	1977	Rhode Island	1976	1975	1979	No	Fault
Indiana	1973	1973	1958	No	1973	South Carolina	1969		1979	1	Fault
Iowa	1970	1970	pre 1950	No	1972	South Dakota	1985	1985	pre 1950	No	Fault
Kansas	1969	1969	pre 1950	No	1990	Tennessee			1959		Fault
Kentucky	1972	1972	1972	No	Fault	Texas	1974	1970	pre 1950	No	Fault
Louisiana	Pre-1968		1978	1 Year	Fault	Utah	Pre-1968	1987	pre 1950	1	1987
Maine	1973	1973	1972	No	1985	Vermont	Pre-1968		pre 1950	1	Fault
Maryland	Pre-1968		1969	1	Fault	Virginia	Pre-1968		1982	No	Fault
Massachusetts	1975	1975	1974	No	Fault	Washington	1973	1973	pre 1950	No	1973
Michigan	1972	1972	1983	No	Fault	West Virginia	Pre-1968		1984	1	Fault
Minnesota	1974	1974	1951	No	1974	Wisconsin	1977	1978	1978	No	1977
Mississippi			pre 1950		Fault	Wyoming	1977	1977	pre 1950	No	Fault
Missouri	1973		1974	2 Years	Fault						

Note: Columns (1) and (4) are from Friedberg (1998). Column (2) is from Gruber (2004): Column (3) is from Rasul (2004). Column (5) is from Mechoulam (2005).

Table 2
Effects of Unilateral Divorce on Mother's and Child Outcomes. US Census 1960-1980.

	(1) Basic	(2) (1) + State Aggregate	(3) (2) + State Policy	(4) Gruber Coding	(5) Black	(6) Adopting States	(7) Eldest>=6
Mothers Age 25-50							
Currently Divorced	0.0080*** [0.0024] {0.0542}	0.0068*** [0.0020]	0.0078*** [0.0022]	0.0075*** [0.0022]	0.0119 [0.0103] {0.1050}	0.0076*** [0.0023]	0.0086*** [0.0030]
Poverty	0.0088 [0.0170] {0.1126}	0.0170** [0.0069]	0.0133** [0.0064]	0.0129** [0.0064]	0.0071 [0.0249] {0.3191}	0.0066 [0.0074]	0.0146** [0.0069] {0.1220}
Real Family Income (log)	-0.0225 [0.0344]	-0.0285*** [0.0090]	-0.0292*** [0.0100]	-0.0290*** [0.0099]	-0.0204 [0.0483]	-0.0281** [0.0112]	-0.0327*** [0.0119]
<i>Observations</i>	416,471	416,471	416,471	416,471	35,416	364,702	330,977
Children Age 6-15							
Private School	-0.0021 [0.0114] {0.1291}	-0.0131* [0.0071]	-0.0193** [0.0084]	-0.0165* [0.0083]	-0.0095 [0.0069] {0.0504}	-0.0156* [0.0086]	
<i>Observations</i>	629,918	629,918	629,918	629,918	58,605	550,905	
Behind (Age 7 and over)	0.0178 [0.0155] {0.441}	0.0271** [0.0129]	0.0189 [0.0131]	0.0164 [0.0117]	0.0463*** [0.0152] {0.4608}	0.0228 [0.0163]	
<i>Observations</i>	557,534	557,534	557,534	557,534	52,100	487,629	

Robust standard errors, clustered by state of residence, in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. All Specifications include state of residence, year, race, sex and year of birth fixed effects, age of eldest child in the house, state*age of eldest child's and age*year interactions and a dummy indicating whether abortion was already legalized in the state of birth at the year of birth. They also include dummies for equitable division of property upon divorce, separation requirements for unilateral divorce and the consideration of fault in property division state aggregate and policy variables. State Aggregate and Policy variables include: existence of the AFDC unemployed parent program, the maximum AFDC rate for a family of four, the log of personal income per capita and the aggregate unemployment rate.

Table 3

**Effects of Unilateral Divorce on Children's Outcomes by Age at the Time of the reform and by Law Exposition.
Children Age 6-15. US Census 1960-1980.**

Sample Means	Private School			Behind (age 7-15)		
	0.1291	0.0504		0.4408	0.4608	
	(1)	(2)	(3)	(4)	(5)	(6)
	All	Black	Gruber Coding	All	Black	Gruber Coding
Age at the time of the Reform						
Born after the Reform	-0.0073 [0.0097]	-0.0104 [0.0164]	-0.0131 [0.0113]	0.0433* [0.0254]	0.0618*** [0.0228]	0.0218 [0.0208]
Age 0-4 when the reform	-0.0171* [0.0094]	-0.0241** [0.0091]	-0.0114 [0.0089]	0.0300** [0.0148]	0.0468*** [0.0169]	0.0276** [0.0137]
Age 5 or more when the reform	-0.0220** [0.0085]	-0.0043 [0.0069]	-0.0224*** [0.0079]	0.0052 [0.0127]	0.0363* [0.0214]	0.0025 [0.0126]
Law Exposition						
1-6 Years of Exposition	-0.0244*** [0.0082]	-0.0085 [0.0086]	-0.0227*** [0.0080]	0.0190 [0.0156]	0.0408* [0.0203]	0.0110 [0.0233]
7-8 Years of Exposition	-0.0055 [0.0073]	-0.0191* [0.0096]	-0.0102 [0.0090]	0.0121 [0.0143]	0.0485*** [0.0157]	0.0128 [0.0136]
9-11 Years of Exposition	-0.0126 [0.0107]	-0.0157* [0.0087]	-0.0169 [0.0119]	0.0496*** [0.0180]	0.0341* [0.0200]	0.0360** [0.0174]
<i>Observations</i>	629,918	58,605	629,918	557,534	52,100	557,534

Robust standard errors, clustered by state of residence, in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. All Specifications include state of residence, year, race, sex and year of birth fixed effects, age of eldest child in the house, state*age of eldest child's and age*year interactions and a dummy indicating whether abortion was already legalized in the state of birth at the year of birth. They also include dummies for equitable division of property upon divorce, separation requirements for unilateral divorce and the consideration of fault in property division state aggregate and policy variables. State Aggregate and Policy variables include: existence of the AFDC unemployed parent program, the maximum AFDC rate for a family of four, the log of personal income per capita and the aggregate unemployment rate.

Table 4
Effects of Unilateral Divorce on Mother's and Child Outcomes by Age of Eldest Child at the Time of the Reform. US Census 1960-1980.

	Mothers Age 25-50 (Eldest Child 6 or Older)			Children Age 6-15	
	(1)	(2)	(3)	(4)	(5)
Sample Means	0.0596	0.1220		0.1291	0.4408
	Currently Divorced	Poverty	Real Family Income (log)	Private School	Behind
Eldest Child Born after the Reform	0.0035 [0.0060]	0.0041 [0.0083]	0.0153 [0.0200]	0.0067 [0.0088]	0.0527** [0.0227]
Eldest Child Age 0-4 when the reform	0.0093** [0.0039]	0.0153* [0.0076]	-0.0221 [0.0146]	-0.011 [0.0093]	0.0317** [0.0146]
Eldest Child Age 5-9 when the reform	0.0096*** [0.0034]	0.0148** [0.0072]	-0.0418** [0.0157]	-0.0205** [0.0086]	0.0191 [0.0126]
Age 10 or more when the reform	0.0102** [0.0046]	0.0199** [0.0090]	-0.0602** [0.0256]	-0.0313*** [0.0093]	-0.0095 [0.0149]
<i>Observations</i>	330,977	330,977	330,977	629,918	557,534

Robust standard errors, clustered by state of residence, in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

All Specifications include state of residence, year, race, sex and year of birth fixed effects, age of eldest child in the house, state*age of eldest child's and age*year interactions and a dummy indicating whether abortion was already legalized in the state of birth at the year of birth. They also include dummies for equitable division of property upon divorce, separation requirements for unilateral divorce and the consideration of fault in property division state aggregate and policy variables. State Aggregate and Policy variables include: existence of the AFDC unemployed parent program, the maximum AFDC rate for a family of four, the log of personal income per capita and the aggregate unemployment rate.

Table 5
Effects of Unilateral Divorce on on Young Adults' Outcomes by Age at the Time of the Reform. Men and Women Age 16-25.
US Census 1970-1990.

Sample Means	Institutions									
	Men Age 16-25					Women Age 16-25				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Basic	Controls	State*Age	Black	State of Birth Variation	Basic	Controls	State*Age	Black	State of Birth Variation
Born after the change	0.0042 [0.0026]	0.0023 [0.0024]	0.0045** [0.0022]	0.0167* [0.0091]	0.0038 [0.0024]	-0.0008 [0.0007]	-0.0004 [0.0008]	0.0004 [0.0008]	0.0046 [0.0029]	0.001 [0.0009]
Age 0-4 at the change	0.0053*** [0.0018]	0.0044** [0.0016]	0.0047*** [0.0017]	0.0257*** [0.0060]	0.0040** [0.0019]	0.0010* [0.0006]	0.0014** [0.0006]	0.0015** [0.0006]	0.0028 [0.0019]	0.0004 [0.0006]
Age 5-9 at the change	0.0023 [0.0017]	0.0026 [0.0019]	0.0027 [0.0018]	0.0053 [0.0065]	0.0024 [0.0015]	0.0008* [0.0004]	0.0010** [0.0004]	0.0012*** [0.0004]	0.0024* [0.0014]	0.0008 [0.0005]
Age 10-15 at the change	0.0005 [0.0010]	0.0009 [0.0014]	0.0006 [0.0014]	0.0069 [0.0051]	0.0001 [0.0011]	0 [0.0004]	0.0002 [0.0004]	0.0001 [0.0005]	-0.0025 [0.0017]	-0.0003 [0.0005]
Age 16 or more at the change	-0.0005 [0.0015]	-0.0002 [0.0016]	0 [0.0015]	-0.0013 [0.0061]	0.0003 [0.0014]	0.0006 [0.0004]	0.0007 [0.0005]	0.0006 [0.0005]	-0.002 [0.0020]	0.0006 [0.0005]
State of Residence Fixed Effects	x	x	x	x	x	x	x	x	x	x
State of Birth Fixed Effects					x					x
State aggregate and policy variables		x	x	x	x		x	x	x	x
State of Residence *Age Interactions			x	x						
State of Birth *Age Interactions			x		x			x	x	x
Observations	500,868	500,868	500,868	61,210	500,868	504,983	504,983	504,983	66,460	504,983

Robust standard errors, clustered by state of residence in brackets. In columns (5) and (10) estándar errors are clustered by state of birth. * significant at 10%; ** significant at 5%; *** significant at 1% All Specifications include state of residence, year, race and year of birth fixed effects, age*year interactions and a dummy indicating whether abortion was already legalized in the state of birth at the year of birth. State Aggregate and Policy variables include: existence of the AFDC unemployed parent program, the maximum AFDC rate for a family of four, the log of personal income per capita and the aggregate unemployment rate. They also include dummies for equitable division of property upon divorce, separation requirements for unilateral divorce and the consideration of fault in property division state aggregate and policy variables.

Table 6
Effects of Unilateral Divorce on on Young Adults' Outcomes by Age at the Time of the Reform. Men and Women Age 16-25.
US Census 1970-1990.

Poverty										
Sample Means	Men Age 16-25					Women Age 16-25				
		0.2142		0.3653			0.2114		0.3760	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Basic	Controls	State*Age	Black	State of Birth Variation	Basic	Controls	State*Age	Black	State of Birth Variation
Born after the change	-0.0129 [0.0215]	-0.0193 [0.0213]	-0.0112 [0.0178]	-0.0034 [0.0177]	-0.0014 [0.0081]	-0.0072 [0.0114]	-0.003 [0.0097]	0.0033 [0.0100]	0.0206 [0.0256]	0.0039 [0.0084]
Age 0-4 at the change	0.0035 [0.0191]	-0.006 [0.0173]	0.0011 [0.0141]	0.003 [0.0164]	0.0055 [0.0061]	0.0046 [0.0123]	0.0048 [0.0086]	0.0073 [0.0094]	0.0311 [0.0191]	0.0100* [0.0053]
Age 5-9 at the change	0.0107 [0.0174]	0.0037 [0.0126]	0.0102 [0.0111]	0.0118 [0.0095]	0.0115* [0.0067]	0.0171 [0.0115]	0.0177** [0.0071]	0.0185** [0.0070]	0.0446** [0.0205]	0.0129** [0.0052]
Age 10-15 at the change	0.0071 [0.0137]	0.0054 [0.0092]	0.0099 [0.0095]	0.009 [0.0099]	0.0067 [0.0045]	0.0104 [0.0095]	0.0150** [0.0073]	0.0138** [0.0060]	0.0223 [0.0227]	0.0078 [0.0049]
Age 16 or more at the change	0.0161 [0.0167]	0.0138 [0.0107]	0.0163 [0.0117]	0.0142 [0.0108]	0.0084 [0.0054]	0.0079 [0.0120]	0.0116 [0.0077]	0.01 [0.0065]	0.0414 [0.0264]	0.0086 [0.0058]
State of Residence Fixed Effects	x	x	x	x	x	x	x	x	x	x
State of Birth Fixed Effects					x					x
State aggregate and policy variables		x	x	x	x		x	x	x	x
State of Residence *Age Interactions			x	x				x	x	
State of Birth *Age Interactions					x					x
Observations	500,868	500,868	500,868	61,210	500,868	504,983	504,983	504,983	66,460	504,983

Robust standard errors, clustered by state of residence in brackets. In columns (5) and (10) standard errors are clustered by state of birth. * significant at 10%; ** significant at 5%; *** significant at 1%. All Specifications include state of residence, year, race and year of birth fixed effects, age*year interactions and a dummy indicating whether abortion was already legalized in the state of birth at the year of birth. State Aggregate and Policy variables include: existence of the AFDC unemployed parent program, the maximum AFDC rate for a family of four, the log of personal income per capita and the aggregate unemployment rate. They also include dummies for equitable division of property upon divorce, separation requirements for unilateral divorce and the consideration of fault in property division state aggregate and policy variables.