THE EFFECT OF DIVORCE RISK ON THE LABOR FORCE PARTICIPATION OF WOMEN WITH AND WITHOUT CHILDREN

by

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Date April 4, 2005

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ABSTRACT

This paper examines the effects of divorce risk on the labor force participation responses of married women. The empirical analysis uses a difference-in-difference-in-difference estimator to compare changes in labor force participation associated with the passage of state-level divorce laws, focusing on the responses of married women with children relative to married women without children. The most important new finding is that married mothers have greater labor force participation responses to no-fault divorce laws than do married non-mothers in states with such laws, even after controlling for differences in labor force participation among married women with and without children in states without no-fault divorce laws. The results suggest that the probability of being in the labor force associated with no-fault divorce law is about 5 percent higher for women with children relative to women without children. Previous research has underestimated the effect of divorce laws on female labor force participation because it failed to account for differences between women with and without children.

CHAPTER 1

INTRODUCTION

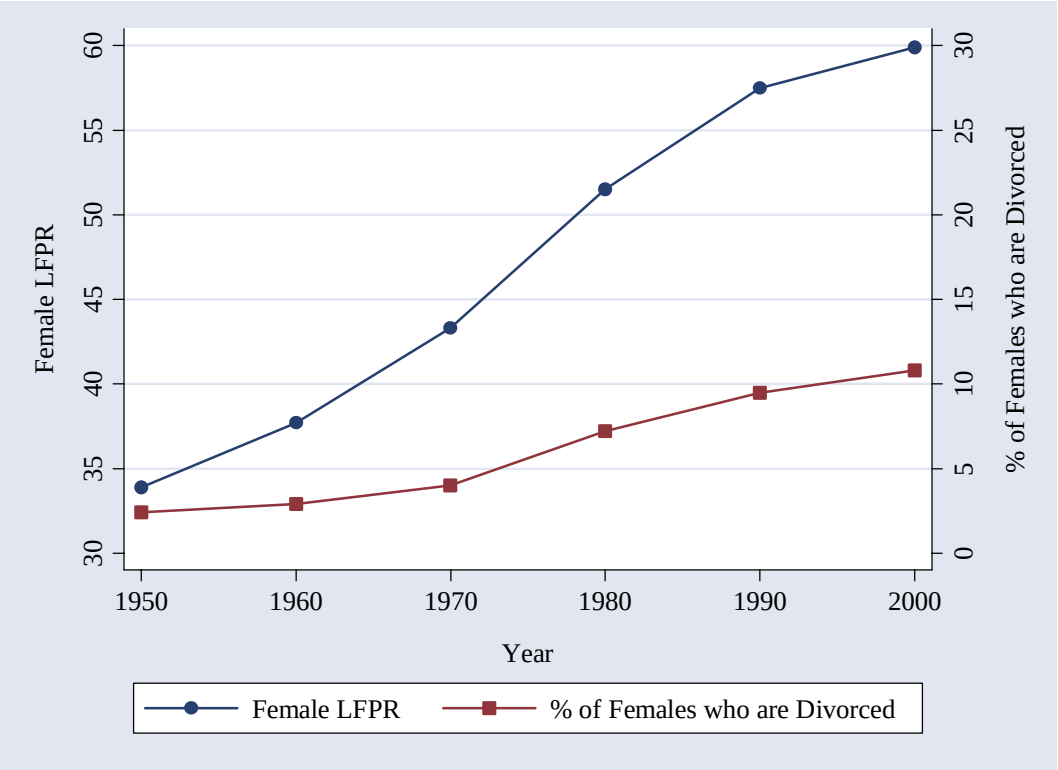
> "I feel somewhat foolish that I left myself without independent financial means. Why are so many young professional women – including just about all of my friends who are mothers, every one an heir to feminism and some the children of divorce – failing to take a hard-nosed view of what might happen down the line?" [Trubek 2004]

Post-World War II, female labor force participation (LFP) rates changed dramatically. As shown in Figure 1, between 1950 and 2000, the labor force participation rate (LFPR) among females aged 16 and over rose from 33.9 percent to 59.5 percent. Many hypotheses have been offered to explain the dramatic increase in female LFP rates, including changes in market wages, changes in labor-saving technology in home production activities, and reduced fertility among married women.

Fertility is strongly correlated with LFP among women, as illustrated in Figure 2. The higher rates of LFP among women without children and women with older relative to younger children make it clear that responsibilities associated with motherhood play important roles in LFP decisions. Spousal income, non-labor income, and expectations regarding marital stability are also important factors affecting the LFP decision of married women. Indeed, as Figure 1 also documents, the post-World War II period was one of dramatically rising divorce rates, and many researchers have examined the

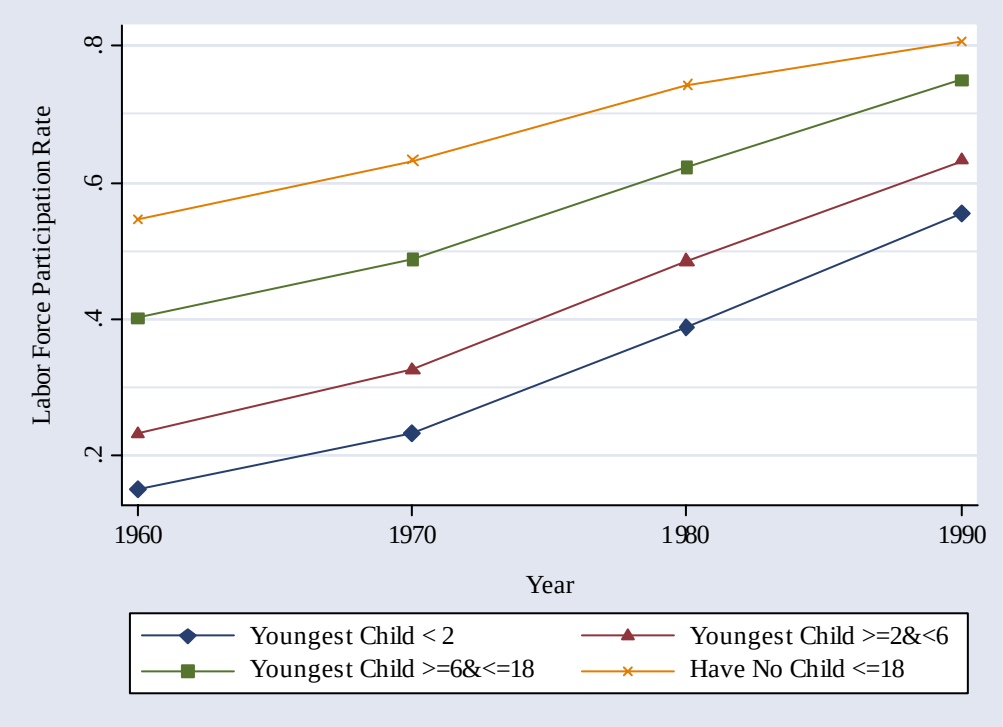
concurrent relationship between divorce and female LFP. Such research has not proved conclusive, however.

Figure 1. Female Labor Force Participation Rate and Percent of Females who are Divorced



Source: The left axis shows the LFPR for females age 16 and over. This was obtained from the Bureau of Labor Statistics, available online at http://www.bls.gov/data/. The right axis shows the percent of females who are 16 years old and over who are divorced and is from the U.S. Census Bureau, Statistical Abstract of the United States: 2003, Mini-Historical Statistics, No. HS-11. Marital Status of the Population by Sex: 1900-2002

Figure 2. Married Women's Labor Force Participation Rate
by Age of Youngest Child



Source: Authors' calculations based on 1960 – 1990 United States Census of Population, available from IPUMS-USA (Ruggles, et al. 2004). Data include married (spouse present) women aged 19-49.

Although divorced women tend to work more than married women, the direction of causation between divorce and LFP is not clear. The obvious explanation for higher LFP rates among divorced women is the financial burden of being the sole family breadwinner. This conclusion masks more subtle sample selection issues however, because divorced women are a non-random sample of married women. That is, married women who work may be more likely than their non-working counterparts to get divorced, ceteris paribus, because LFP reduces their opportunity cost of divorce. Alternatively, working women may get divorced more than non-working women because

LFP generates more martial conflict than home production.[1] Finally, married women who anticipate divorce may engage in labor market work in order to maintain relative income stability given the losses in spousal income and other costs that occur with divorce. As should be clear from the discussion above, empirically measuring the impact of divorce on LFP choices is difficult because of its endogeneity in the LFP decision.

Given this endogeneity, researchers have exploited exogenous changes in divorce law across time and states to proxy for changes in divorce risk and thus utilize a "quasi-natural experiment" framework to study the effect of divorce on LFP. Divorce laws changed dramatically in the United States during the 1970s, when many states changed from laws based on fault and/or mutual agreement to laws based on no-fault and/or unilateral decisions. No-fault laws allow couples to divorce without the court placing blame on one party, and mutual agreement between the husband and wife is not needed to divorce. Thus, no-fault laws reduce the cost of divorce and, subsequently, should increase its incidence. Research regarding the effects of divorce law on the incidence of divorce has mixed findings, but most studies find a positive correlation between no-fault divorce regimes and divorce rates, especially in the years immediately following the legislative changes. Research examining the impact of no-fault divorce law on female LFP rates also has mixed conclusions. While Johnson and Skinner's (1986) study found that women in states with no-fault divorce have lower LFP rates than do women in other

[1] A further alternative is that female LFP increases opportunity costs of divorce for the *husband*, and as a result, generates more equal bargaining power between spouses which may reduce divorce, parallel to the "voice" hypothesis in labor union literature (Freeman and Medoff 1984).

states, later research consistently finds a positive, yet small effect of no-fault divorce law on female LFP. Peters (1986, 1992) and Parkman (1992) found about a 2 percent increase in married women's LFP in states with no-fault divorce laws, which Gray (1998) confirmed with his similar cross sectional analysis. Gray (1998) also estimated the impacts of no-fault divorce law across time, while controlling for state and year fixed effects. The impact of no-fault divorce laws on marred women's LFP in his analysis was positive, but insignificant and small.

One possible explanation for the consistently small impact of no-fault divorce laws on female LFP, and the negligible effect found in estimates using time series data, is that previous research did not allow for different relationships between laws and LFP of married women with and without children. Literature on the economics of the family indicates that children, particularly younger children, have negative impacts on women's LFP and are also negatively associated with divorce risk. Divorce risk is likely to be especially pertinent to married *mothers* relative to married women without children because of the added cost of potentially supporting a family in the event of divorce.[2]

This paper adds to the previous literature on the effects of divorce laws by examining whether married women with children respond differently to divorce risk than married women without children. The research uses a difference-in-difference-in-difference estimator to compare changes in LFP associated with the passage of divorce laws among married women with children relative to married women without children in

[2] Child support and alimony issues will be discussed in Chapter 4.

states where such laws pass. This approach also controls for similar changes in LFP over time among married women with and without children in states without changes in divorce laws. The expectation is that because no-fault laws generate an exogenous increase in divorce risk, ceteris paribus, married women with children will respond more strongly (i.e., be more likely to increase their LFP given such laws) than married women without children.

The findings are consistent with this hypothesis. Estimates indicate that married mothers have greater LFP responses to no-fault divorce laws than non-mothers in states with such laws, even after controlling for differences in LFP among married women with and without children in states without no-fault divorce laws. The results suggest that, for women without children, no-fault divorce law is associated with a 1 to 3 percent decrease in the probability of being in the labor force relative to childless women in states without no-fault divorce laws. The results also suggest that the probability of being in the labor force for women with children is about 5 percent higher in states with no-fault divorce law when compared to women without children in states with no-fault divorce laws.

The paper proceeds as follows. Chapter 2 documents changes in divorce law in the United States and summarizes research on the effects of these changes, while Chapter 3 summarizes the relevant literature on the relationships between divorce, fertility and labor force participation. The economic theory related to the impact of children and divorce on women's LFP is reviewed in Chapter 4, and the empirical model used to test the theoretical predictions is also explained in Chapter 4. Chapter 5 describes the data

used in the research, and Chapter 6 presents the results of the empirical analysis. Chapter 7 summarizes the conclusions that can be drawn from this research.

CHAPTER 2

DIVORCE LAWS IN THE UNITED STATES: EVOLUTION AND IMPACTS

The ease of obtaining a divorce varies across states and time. Some states have no-fault divorce laws, which allow couples to divorce without the court placing blame on either partner. In no-fault states, divorces are easier to obtain than in states where a mutual agreement between spouses is needed before the court will grant a divorce. This distinction is important because it results in higher divorce risk in no-fault states. As a result, the variation in divorce law is a useful proxy for divorce risk that is independent of the characteristics of individual couples. This chapter outlines the history of divorce law in the United States and discusses the differences in laws across states. It also reviews the previous literature on the relationship between divorce laws and divorce.

Evolution of Divorce Laws

Before the 1970s, divorce laws were primarily based on the English common law system and had little variation from one state to another. In the majority of states, a court was required to grant a divorce based on the guilty actions of a husband or wife and to allocate assets accordingly (Weitzman 1985). In 1969, however, California passed the first no-fault divorce law. Reasons cited for the legislative change are mixed; Weitzman (1985) suggests that the laws resulted from the desire for sexual equality, while Kay

(1987) argues that the purpose of no-fault laws was to facilitate decreased hostility and lying in divorce court. Kay (2000) suggests that the creation of no-fault law was in response to changes already occurring within the courts, and the new legislation simply reflected how judges were actually handling and ruling divorce cases. Though the exact origin of no-fault legislation is difficult to isolate, it was primarily the result of actions by law scholars and judges, rather than political lobbies or other affected groups. As such, it is likely exogenous for the purposes of measuring divorce risk.

After California's law was enacted, similar legislation was passed in other states, with many states adopting the Uniform Marriage and Divorce Act[3] (UMDA) version of no-fault divorce law or making variations to its proposed guidelines. These changes occurred throughout the 1970s, and by 1990 most states had some version of a no-fault divorce provision in place. Differences in the laws across states persist; some states require mutual agreement between parties before a divorce is granted, and many states require long separation periods before allowing a no-fault divorce. For example, Kay (1987) classifies only 15 states as having "pure" no-fault divorce laws, while Freed and Walker (1990) categorize 14 states as having sole no-fault grounds for divorce. The no-fault classification of states varies among research because of the complexity and ambiguity in state divorce laws.

[3] The National Conference of Commissioners on Uniform State Act used the California Family Law Act as a guideline for the creation of the Uniform Marriage and Divorce Act. The first version was published in 1970. It eliminated fault from marital dissolution, property allocation, and child placement decisions. It also established a set of rules for a court to use in deciding whether a marriage had broken down (Kay 1987).

Table 1 displays the divorce law classifications used in this paper. Each column reflects a different classification scheme, and the cells in the table denote the year in which the state passed a no-fault law according to the classification specified in the column. Column 1 denotes the primary no-fault variable used for this paper. It is derived from the no-fault classification used by Ellman and Lohr (1998), who classify as "no-fault" those states that have sole no-fault grounds for divorce or states that added a form of no-fault law to existing legislation. Column 1 differs from the original Ellman and Lohr (1998) classification, however, because it excludes states that require separation periods of one year or more before granting a no-fault divorce.[4] In addition, Vermont is classified as a no-fault state because it requires a separation period of only 6 months (Freed and Walker 1990; Friedberg 1998).

Column 2 displays the no-fault classification scheme used by Friedberg (1998). States are classified as having no-fault laws if they have a no-fault divorce law and there is no required separation period before the divorce is allowed. Friedberg (1998) also includes a classification that categorizes states as no-fault if separation periods are required; this specification is displayed in Column 3. The fourth column denotes the original no-fault classification used by Ellman and Lohr (1998).

The final column also shows a classification scheme used by Ellman and Lohr (1998), but it displays the year that states switched their marital property laws to no-fault. Similar to the no-fault divorce guidelines in the UMDA, the Act also specified that the

[4] These states are Illinois, Missouri, Pennsylvania, Tennessee, Utah, and West Virginia [Freed and Walker (1990), Weitzman (1985), Kay (1987) and Friedberg (1998)].

allocation of marital property and alimony be made “without regard to marital misconduct” (Ellman 1996). As with the adoption of no-fault divorce, some states used the UMDA guidelines, while others did not abolish fault from the allocation of marital property. Ellman (1996) classified states as fault and no-fault on the basis of marital property laws, which was used by Ellman and Lohr (1998) and is displayed in Column 5 of Table 1.

Table 1. Dates of Divorce Law Change by State.

	1	2	3	4	5
State	No Fault 1	No Fault 2	No Fault 3	No Fault 4	No Fault 5
Alabama	1971	1971	1971	1971	
Alaska	1974	pre-1968	pre-1968	1974	1974
Arizona	1973	1973	1973	1973	1973
Arkansas				1979	1979
California	1969	1970	1970	1969	1969
Colorado	1971	1971	1971	1971	1971
Connecticut	1973	1973	1973	1973	
Delaware	1974			1974	1974
Florida	1971	1971	1971	1971	1986
Georgia	1976	1973	1973	1976	
Hawaii	1972	1973	1973	1972	1960
Idaho	1971	1971	1971	1971	1990
Illinois			1984	1983	1977
Indiana	1973	1973	1973	1973	1973
Iowa	1970	1970	1970	1970	1972
Kansas		1969	1969		1990
Kentucky	1972	1972	1972	1972	
Louisiana					
Maine	1973	1973	1973	1973	1985
Maryland			pre-1968		
Massachusetts		1975	1975		
Michigan	1971	1972	1972	1971	
Minnesota	1974	1974	1974	1974	1974
Mississippi	1976			1976	
Missouri			1973	1973	
Montana	1975	1975	1975	1975	1975
Nebraska	1972	1972	1972	1972	1972
Nevada	1931	1973	1973	1931	
New Hampshire		1971	1971		
New Jersey			1971		1980
New Mexico		1973	1973		1976
New York					
North Carolina			pre-1968		
North Dakota	1971	1971	1971	1971	
Ohio	1974		1974	1974	
Oklahoma		pre-1968	pre-1968		1975
Oregon	1971	1973	1973	1971	1971
Pennsylvania			1980	1980	
Rhode Island	1975	1976	1976	1975	
South Carolina			1969		
South Dakota	1985	1985	1985	1985	
Tennessee	1977			1977	
Texas		1974	1974	1969	
Utah			pre-1968	1987	1987
Vermont	1941		pre-1968		
Virginia			pre-1968		
Washington	1973	1973	1973	1973	1973
West Virginia			pre-1968	1977	
Wisconsin	1977		1977	1977	1977
Wyoming	1977	1977	1977	1977	

No-Fault 1 is from *Irretrievable Breakdown* from Ellman and Lohr (1998) , altered to exclude Illinois, Missouri, Pennsylvania, Tennessee, Utah, and West Virginia and to include Virginia due to separation period requirement. These states were obtained from Friedberg (1998), Freed and Walker (1990), Weitzman (1985), and Kay (1987). No-Fault 2 is *Unilateral Divorce* from Friedberg (1998). No-Fault 3 is *Unilateral Divorce, Includes Separation* from Friedberg (1998). No-Fault 4 is *Irretrievable Breakdown* from Ellman and Lohr (1998). No-Fault 5 is *Property Division* from Ellman and Lohr (1998).

Divorce Laws and Divorce

In order to use divorce laws as a measure of divorce risk, the two must be correlated. If no-fault divorce does make obtaining a divorce easier, the divorce rate should be higher in states with no-fault divorce, ceteris paribus. The effects of no-fault divorce on divorce rates have been empirically tested in several previous studies.

The examination of divorce laws on divorce rates has been dominated by cross-sectional studies. Peters (1986) analyzed marriage and divorce using the 1979 Current Population Survey (CPS). Based on research by Freed and Foster (1979), Peters' (1986) classification of no-fault states is similar to what would be generated as of 1979 using Column 2 in Table 1. Based on logit analysis of the probability of becoming divorced, Peters (1986) concluded that changes in divorce law did not significantly affect divorce incidence. Using similar methodology but eliminating regional dummy variables and making slight changes to the legal classification, Allen (1992) found a positive relationship between no-fault divorce law and the occurrence of divorce.

The disagreement between Allen (1992) and Peters (1986, 1992) led to further examination of divorce laws and to the use of time-series testing methods. Friedberg (1998) used panel data including state and year fixed effects. After estimating regressions using several alternative classifications of the no-fault states, Friedberg (1998) found, not surprisingly, that variations in the law classification generated differing impacts. Her final assessment, however, was that all forms of no-fault laws were

associated with permanent increases in divorce rates. Using time-series data, Brinig and Buckley (1998) also found a positive relationship between divorce laws and divorce rates. Ellman and Lohr (1996) and Wolfers (2003) also found increases in divorce rates immediately following changes in state laws, but they found little evidence of the effect persisting over time.

To summarize, the literature examining divorce law generally finds a positive relationship between no-fault divorce law and divorce rates, at least in the short run. The longer-term impacts are less clear. In addition, the conflicting results generated by different classifications of the laws and their corresponding marital property rules highlights the need for the use of alternative law classification schemes to check the robustness of estimates of the laws' impacts.

CHAPTER 3

PREVIOUS RESEARCH: DIVORCE, FERTILITY AND LABOR FORCE PARTICIPATION

There is a substantial amount of research on the LFP decisions of women and the impacts of divorce and fertility on these decisions. Also relevant to this paper is previous work examining the relationship between fertility and divorce. The existing literature on divorce and labor force participation, labor force participation and fertility, and fertility and divorce are reviewed in this chapter.

Divorce and Labor Force Participation

As noted above and shown in Figure 1, a simultaneous rise in divorce rates and female LFP rates occurred during the post-World War II era. As noted by Becker, et al. (1977), one possible explanation for these trends is that wage increases and greater earnings ability among females increased the opportunity costs of being married. In addition, wives working outside the home may invest less in marriage-specific capital than their non-working counterparts, reducing the gains from marriage for both men and women. This interpretation of Figure 1 suggests that the increase in LFP among women was a causal factor that led to the increased divorce rate. However, it is also possible that the causality moves in the other direction. If a woman becomes divorced, she may need to enter the workforce to support herself and her family. The number of divorced women

working would naturally increase as divorce rates increase, thus raising the female LFPR. As more women observe the incidence and impacts of divorce among their mothers and peers, they may adjust their own expectations regarding divorce risk upward, and subsequently increase their own LFP while married to insure financial independence. Becker, et al. (1977, pg. 1181) state, "...the secular growth in wages, which contributed significantly to the growth in the labor force participation of women, especially married women, probably also contributed significantly to the growth in divorce rates. Again causation probably flows both ways: divorced women (and women who anticipate divorce) have higher wages because they spend more time in the labor force." To examine the relationship empirically, Michael (1985) included lagged divorce rates and lagged LFP rates as independent variables in time-series equations explaining subsequent divorce and LFP rates. He found that lagged divorce rates were positively correlated with subsequent LFP rates, but there was no significant relationship between lagged LFP rates and subsequent divorce rates.

Johnson and Skinner (1986) analyzed data from the Michigan Panel Study of Income Dynamics (PSID), which allowed them to estimate predicted divorce probabilities based on actual divorce. They then used this predicted probability of divorce and actual divorce in estimates of female LFP, and though both variables had positive coefficients, they were statistically insignificant. Green and Quester (1982) utilized U.S. Census' Survey of Economic Opportunity data to generate a predicted divorce probability based on the demographic characteristics of married women. They

found married women's labor supply increases with divorce risk. In addition, although it is often hypothesized that working could increase marital instability for married women, this relationship was found to be statistically insignificant in both papers (Becker, et al. 1977).

Haurin (1989) used a dynamic model to estimate the labor market reactions of women who experience a deviation in husband's actual work hours from the expected amount of work hours, as would occur when a husband loses his job, falls ill, passes away, or when a couple separates. He concluded that there is a significant increase in a woman's LFP following a divorce or separation. He also confirmed Johnson and Skinner's (1986) finding that increases in the likelihood of divorce lead to increases in married women's labor force activity.

More recent studies on divorce suggest that divorce risk may not be as influential on female labor supply as the earlier studies suggested. Sen (2000) compared responses to divorce risk among 1944-1954 and 1957-1964 birth-cohorts using sub-samples from the National Longitudinal Surveys (NLS). The panel structure of this data allowed Sen to proxy current divorce risk using actual divorce in the future, which was then included in an LFP regression. Age at the time of marriage was also used in the LFP estimation as an instrument for divorce risk because research suggests that divorce risk decreases with age at the time of marriage. The results indicated that the impact of divorce risk on labor supply is significantly smaller for the younger cohort than the older group. Though divorce had a positive effect on both cohorts by each measure, divorce risk had a

substantial impact on LFP for the older cohort while having a small (yet still significant) effect on the young cohort. Because having a female child is associated with higher divorce risk, Bedard and Deschenes (2003) used sex of first born child as an instrumental variable for divorce risk when testing for labor market outcomes of divorce. Though the estimates of person-adjusted household income without this variable indicated that the economic well-being of divorced women is lower than married women's economic well-being, the instrumental variable results refute this. They found that ever-divorced mothers have higher levels of income than never-divorced mothers and they concluded that divorce does not affect the decision to participate in the labor force, but does increase the hours and weeks worked by mothers.

As noted in the introduction, the potential endogeneity of using actual divorce or divorce rates to measure divorce risk makes research based on these variables somewhat suspect. In response, researchers have used exogenous changes in divorce law to examine the relationships between divorce and female LFP.[5]

Johnson and Skinner (1986) included residence in a state with no-fault divorce legislation in their predicted labor supply equations. They concluded that living in a state with a no-fault divorce law has a negative impact on women's labor supply. However, Johnson and Skinner's (1986) analysis used PSID data from 1972, when only a few states had changed their divorce laws to no-fault; this created a small comparison group and a limited amount of time for the laws' effects to occur. Alternatively, Peters (1986), using

[5] Such research, of course, hinges on a direct relationship between divorce laws and subsequent divorce outcomes, which was documented in Chapter 2.

1979 CPS data, found a higher probability of women participating in the labor force in no-fault states.

Parkman (1992) also used the 1979 CPS and a similar methodology to Peters (1986) to estimate the effect of no-fault divorce legislation on married women's labor supply. Consistent with Peters (1986), he also found about 2 percent higher rates of married women's LFP in no-fault states. However, he attributed this difference to lower compensation for women's marriage-specific investments in states with no-fault divorce law. In particular, he used differences in property division laws to illustrate that married women's LFP is greater in states with no-fault divorce because at the time of divorce, women's human capital losses from not engaging in market work are compensated at lower rates than in mutual consent states. In later research using the Time Use Longitudinal Panel Study, 1975-1981, Parkman (1998) again concluded that no-fault divorce laws were associated with a greater number of hours worked among married women. He suggested that women work to protect themselves from the potential costs of divorce.

Gray (1998) utilized Census and CPS data, and he tested for the effect of no-fault divorce law in 1980 across states. His results indicated that the probability that a married woman participates in the labor force is 1.6 percent higher in states with no-fault divorce law. He then used data from 1960 to 1980 to measure the change in married women's LFP in states with and without no-fault divorce laws. The results from this analysis found a small and insignificant impact of no-fault divorce law and Gray suggested that

without considering the marital property laws of a state, “divorce legislation has no significant impact on married women’s increasing labor-force participation rates during the 1970’s” (Gray 1998, pg. 634). Gray (1998) categorized states into three types of property law: common property, community property and equitable distribution. With the enactment of no-fault divorce laws, common property favors the husband in divorce settlements, community property tends to lead to redistribution of assets to the wife, and equitable distribution gives the court discretion on property division and thus does not favor either party. The property laws were accounted for in Gray’s (1998) analysis by interacting them with the no-fault variable. Consequently, the results from analyses using the Census, CPS and PSID all indicated that the adoption of a no-fault divorce law in a common property states is associated with decreases in married women’s LFP. In addition, married women in states with community property laws had significant increases in LFP after no-fault legislation was enacted.

Chiappori, et al. (2002) used PSID data from 1988 to test the effect of divorce and property legislation on married women’s labor supply. They created a “divorce index” comprised of four attributes associated with the favorability of each state’s divorce law towards women: no-fault divorce laws, property division laws, support order enforcement, and the settlement value of educational degrees. This index was then used in a regression of the hours worked by married women. In their analysis, the “divorce index” was negatively correlated with hours worked. In other words, in states where the

divorce laws are more favorable toward women, married women are likely to work fewer hours than in states where divorce law is less favorable towards married women.

The research presented in this subsection indicates the myriad of findings regarding the relationship between divorce rates and female LFP. Empirical results consistently show that increases in divorce rates are associated with increases in LFP rates for females. Though a causal relationship between female LFP and divorce is theoretically possible, empirical research has not found strong evidence for this; increases in female LFP do not appear to have led to increases in divorce rates. There has also been evidence suggesting that women's LFP response to divorce risk is not as strong for recent cohorts of women when compared to earlier cohorts.

Research addressing the effect of divorce law changes in the United States on the LFP of married women was also presented in this section. Though Johnson and Skinner's (1986) analysis suggested that no-fault divorce had a negative impact on married women's LFP, later research has consistently found that married women living in states with no-fault divorce laws are more likely to work, but the effects are small. Recent research in this area has also highlighted the complexity of the LFP decision for married women because marital property laws and other legal factors are found to be related to the effects of no-fault divorce laws on women's LFP. Previous research has ignored the possibility that the various laws have differential impacts among married women with and without children. The impact of no-fault divorce law on female LFP could be larger than suggested by previous research because the results reported were the

average effect for mothers and non-mothers. By separating married women into mothers and non-mothers, this paper allows for varying impacts of no-fault divorce law on the two groups.

Fertility and Labor Force Participation

Married women's decision to participate in the labor force is strongly influenced by their fertility and vice versa. The presence of children is usually associated with decreases in women's LFP, and this negative correlation was documented in early research by Mincer (1962). Browning (1992) summarized the findings in this area since Mincer's (1962) seminal study, asserting that while measurements of labor supply and fertility varied across studies, the negative correlation was consistently strong. As discussed in more detail in Chapter 4, the relationship between a woman's fertility and her LFP operates through both her market and reservation wages.

Studies have generally found that married women with children earn lower wages than married women without children. Hypotheses regarding sources of this gap in pay often point to lower human capital levels among mothers. Women often leave the labor force due to pregnancy during their late 20s and early 30s; at the same time, otherwise similar men and childless women are gaining experience and training that lead to higher earnings later in life (Fuchs 1989). Gronau (1988) used a simultaneous equations model to illustrate the reduction in on-the-job training and skill investment caused by time taken off for childbearing. Reaffirming this human capital hypothesis, Klerman and Leibowitz

(1990, 1994) showed that new mothers with higher wages and incomes were more likely to return to work soon after childbirth and were more likely to be labor force participants at the time their child was two years old. Finally, Korenman and Neumark (1992) argued that most cross-sectional analyses of motherhood and wages underestimate the direct effect of having children on wages by failing to control for fertility-related differences in labor market experience and tenure.

In addition to generating differences in market wages among working mothers and non-mothers, fertility also impacts mothers' take-home wages because of child care. The cost of caring for children, especially young children, has repeatedly been found to be an important factor in the LFP decisions of mothers. Results from Blau and Robins (1988), Connelly (1992) and Kimmel (1998) support the hypothesis that the probability of mothers entering the labor force decreases when child care costs increase. Their research also attributed the lower rates of LFP among mothers of preschoolers, relative to mothers of school-aged children, to the high child care costs for preschool-aged children. Thus, the previous literature generally indicates a negative relationship between fertility and wages.

On the other hand, fertility is likely positively related to reservation wages. Fertility-related increases in reservation wages can reflect changes in a mother's preferences or her increased opportunity costs of working (Leibowitz, et al. 1992). These increases in reservation wage would generate lower LFP among mothers.

As was the case with divorce, fertility decisions are likely endogenous in the LFP decisions of women. The decision to have children is often made simultaneously with the decision to work and the causal relationship between the two is not clear. Willis (1987, pg. 74) stated, "…it has proven difficult to find well-measured exogenous variables to permit cause and effect relationships to be extracted from correlations among factors such as the delay of marriage, decline of childbearing, growth of divorce and increased female labor participation … ." Because a woman's attachment to the labor force also impacts her reservation wage, it will also be a factor in her decision to enter the labor force after childbirth (Korenman and Neumark 1992; Shapiro and Mott 1994). For example, women who are less attached to the labor force will be more likely to have children, and those planning on having children may invest less in labor-market-related human capital, resulting in lower market wages.

To deal with the endogeneity of fertility, researchers have again looked for exogenous variation in childbearing to examine the relationship between fertility and LFP. Exogenous variation in fertility can come from twin births or the sex-mix of children. Jacobsen, et al. (1999), for example, found small negative effects of unplanned births (as would come from twins) on female labor supply and earnings. Angrist and Evans (1998) also found that the decrease in female LFP associated with children was smaller when they included the instrumental variables in their estimations of female LFP when compared to their findings from estimates without the sex-mix instruments.

Though the causal relationship between fertility and labor force participation is difficult to isolate, the robust negative correlation between the two variables is important for the distinction between mothers and non-mothers in this paper's analysis.

Fertility and Divorce

Economic theories of marriage suggest that as investment in marriage-specific capital increases, the costs of divorce or dissolving the relationship increase (Becker et al. 1977). Because having children is an example of investment in marriage-specific capital, children should decrease the probability of divorce. Alternatively, couples with higher probabilities of divorce may choose to invest less in marriage-specific capital, including children (Becker, et al. 1977). Empirical studies testing the prediction that divorce rates should be lower among couples with children have mixed results, but recent work has suggested that young children decrease the probability of divorce, and as the probability of divorce increases, fertility decreases (Fan 2001).

Although Becker, et al. (1977) treated children of all ages as marriage-specific capital, because young children are more costly to care for, they represent a relatively larger investment in marriage-specific capital than older children. As a result, when children get older and their care costs decrease, the associated marriage-specific capital depreciates and the resulting costs of divorce fall. Cherlin's (1977) empirical analysis supported this hypothesis. He found that the presence of children under the age of six was correlated with a decreased probability of getting divorced, but children older than

six did not have a significant effect on the divorce probabilities of their parents. Weiss and Willis (1977) also found that children stabilize marriages, especially when they are between the ages three and six. Koo, et al. (1984) found that couples with children of preschool age had longer durations of separation before actual divorce occurred and the age of the youngest child had a significant effect on the probability of divorce post-separation. Morgan and Rindfuss (1985) found that a couple's first child decreases the probability of getting a divorce across cohorts and marriage durations. Finally, Waite and Lillard (1991) found that the first child within a marriage does increase the stability of the marriage, but the impact lasts only through the child's preschool years. Their results also suggested that older-aged children are associated with marital disruptions.

Conflicting research includes Hannan, et al. (1977) and Mott and Moore (1979) who found no evidence of a negative effect of children on divorce. Rankin and Maneker (1985) found that although the presence of *any* children is associated with longer marriages, having children under age two does not have a differential impact on marriage duration.

Similar to the relationships between divorce and LFP, and fertility and LFP, endogeneity plagues the research on fertility and divorce. The anticipation of divorce is likely a factor in the choice to have children. Lillard and Waite (1993) addressed this endogenous relationship using a calculated "hazard of disruption" in their estimation of the likelihood of conception and the timing of conception. They found that the probability of marital disruption had strong negative effects on child-bearing. Couples in

unstable marriages were less likely to have children than those in more stable relationships, and the unstable couples also have greater lengths of time between births.

Thus, although not unanimous, there is a large body of evidence suggesting a stabilizing effect of children on marriages, particularly when children are young. Building on this research, this paper examines the hypothesis that women with children respond differently to divorce laws than women without children, and this is especially prominent for women with young children.

To summarize, previous research has established that the relationship between divorce and LFP is generally positive, while fertility and LFP are negatively associated. Fertility and divorce are also shown to have a generally negative relationship.

CHAPTER 4

THEORETICAL AND EMPIRICAL FRAMEWORK

This chapter discusses the theory regarding married women's LFP decisions and the implications of including divorce in these decisions. This chapter also presents an empirical framework for examining these labor force decisions.

Theoretical Framework

To analyze the effect of divorce on mothers, consider the standard utility maximization model of a woman's LFP decision. This model is based on theory developed by Mincer (1962) and Heckman (1974). If a woman chooses to enter the labor force, she forgoes leisure and/or home production activities, including time spent caring for children. This choice between labor and leisure[6] is a function of the market wage, w, and the reservation wage, w_r.

(1) $\textit{labor force participation} = f(w, w_r)$

The market wage (w) reflects the value of time spent in the market and the reservation wage (w_r) reflects the value of non-market time. A woman will enter the labor force when the market wage is greater than her reservation wage. Factors that raise the market wage will raise the probability that a woman engages in market work.

[6] The standard assumption that "leisure" denotes all time not spent in the paid labor force is used throughout this analysis.

Alternatively, factors that raise the reservation wage lower the probability of LFP. The market wage depends on a woman's educational attainment (*Ed*), work experience (*Exp*), job characteristics (*J*), and other personal attributes (*PA*).[7]

(2) $w = f(Ed, Exp, J, PA)$

The reservation wage (w_r) reflects the value of leisure and is determined by an individual's preferences (*Pref*) and non-labor income (*NI*).

(3) $w_r = f(Pref, NI)$

Non-labor income is any income not earned from market work. Endowments (*End*), assets (*A*), government payments (*GP*), and spousal income (*SI*) are all included in non-labor income.

(4) $non\text{-}labor\ income = f(End, A, GP, SI)$

Non-labor income has a positive effect on the reservation wage because people prefer leisure to work: leisure is a normal good. High non-labor income creates a high opportunity cost of working, thus a woman with high non-labor income will be less likely to participate in the labor force. Expectations of spousal income will likely constitute a large part of a married woman's non-labor income. These expectations are based on characteristics that influence the stream of the husband's future wages, w_h, such as his

[7] Wage is not observed for women not participating in the labor force. Some researchers have used estimated wages in their LFP models (Heckman 1974). However, the data used for this analysis does not include any obvious instruments to identify these wages in the LFP equation estimated here.

current earnings, personal attributes, and education. The likelihood of divorce will also affect expectations of spousal income.

(5) $E(\text{spousal income}) = f(w_h, \text{divorce})$

Increases in the probability of divorce will have a negative effect on expected spousal income, which reduces the reservation wage for a married woman. The lower reservation wage in turn increases the likelihood of LFP. Thus, the hypothesis of this paper is that as expectations of divorce increase, women's LFP increases. In addition, if a woman has a child, the impact of divorce on LFP will be greater than if she is childless. Ceteris paribus, the non-labor income losses associated with divorce will have a larger effect on mothers because of the high opportunity and monetary costs of raising children. This effect will be more pronounced when children are younger than six, because the cost of care is substantially higher for children not in school. Because the care costs for infants and children under age two are the largest, new mothers' LFP should be affected the most by divorce risk.

It is possible that expectations about child support also influence the LFP of mothers. The differencing approach described in the empirical strategy section below compares mothers in states with and without divorce laws. If child support policies and divorce laws change together, this estimator would not separately identify each effect on married mothers' LFP.[8] The estimated coefficients presented below, would then reflect

[8] Though the federal Office of Child Support Enforcement was established in 1975 and federal child support policies were enacted throughout the 1980s, Case, et al. (2003) found that actual child support

both the changes in divorce risk and the possible changes in child support payments associated with no-fault divorce laws.

Using Divorce Laws

Ideally, testing the hypothesis that increases in divorce risk will have significant impacts on married mothers' LFP would involve an experiment that consisted of two groups of randomly selected married mothers. The treatment group would face an exogenous change in the expected probability of divorce, ceteris paribus, while the comparison group would experience no such change. The resulting variation in LFP rates between the groups would show the effect of changes in divorce risk on married mothers' LFP.

One problem with simulating this experiment is identifying an individual's perceived divorce risk. This is essential to determining LFP changes caused by divorce, but measuring divorce risk is difficult because of its potential endogeneity. Current divorce rates will affect divorce expectations and, as discussed in Chapter 3, more women will likely work in response to rising divorce rates. Also discussed in Chapter 3 was the possibility that women's participation in the labor force will influence the likelihood of divorcing; the divorce rate may be a function of female LFP. Though the previous research suggests that causality does not move in that direction, the possible

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legislation at the state-level did not substantially change between 1970 and 1990 nor did the amount of people receiving child support change. Note, however, that some research has found evidence that divorced mothers receive less child support in no-fault states (Peters 1986; Case, et al. 2003).

endogeneity between LFP and divorce rates still raises doubts about the use of divorce rates as an independent variable in LFP estimates.

To approximate this experiment, an indicator of divorce risk independent of labor supply must be included in the estimation. As noted above, previous research found that divorce law has a positive impact on the divorce rate, particularly after the law changes. The research outlined in Chapter 2 lends support to the assertion that divorce risk is higher for married women in states with no-fault divorce laws. Divorce legislation is also independent of LFP; consequently, it can be used as an exogenous variable in the estimation of LFP. Because the laws changed differently across time and states, the changes in divorce legislation through the 1970s and 1980s create a useful natural experiment.

The influence of no-fault divorce laws, and thus increased divorce risk, can be assessed by comparing mothers in states with and without no-fault divorce laws to women without children in these states between 1960 and 1990. The differences across time in LFP between mothers and non-mothers compared across states with and without no-fault laws will identify the effect of divorce risk on mothers. This differencing method also addresses the endogeneity issues raised in previous literature. Comparing mothers across states will control for the possible endogenous relationship between fertility and LFP, and the endogenous relationships between divorce, fertility and LFP will be mitigated by the use of exogenous law changes.

Empirical Strategy

Estimating the effect of changing divorce laws on mothers' LFP requires a difference-in-difference-in-difference estimator. This estimator measures the differential impact of the laws on married women's LFP with children relative to women without children while controlling for similar differences in LFP among married women with and without children in states without no-fault laws. Empirically estimating the differences in the LFP of married women with and without children across states is done for the years 1960, 1970, 1980, and 1990. Labor force participation, lfp_{ist}, is a binary dependent variable for individual i in state s in year t. Demographic and income control variables for the individual are included in the estimation and denoted by the vector X_{ist}. This vector includes non-labor income, non-labor income squared, age, age-squared, race, urban residence, and education level. The variables I_s and I_t are state-specific and time-specific dummy variables and are also included in the estimation.[9]

Equation 6 is the specification used to estimate the relationships between no-fault divorce and married women's LFP. Each of the three $child_{ist}$ variables is equal to one if a woman has a child in the age range specified in the parenthesis, and the variable $nofault_{st}$ indicates whether the individual resides in a state with a no-fault divorce law at time t.

[9] Estimations were also performed that included interaction terms between the state-specific and time-specific dummy variables. When these variables were included, the variable $no\text{-}fault_{st}$ was excluded and the coefficients on the remaining variables did not significantly change.

(6) $$lfp_{ist} = \alpha + \beta_1 nofault_{st} + \beta_2 child(u2)_{ist} * nofault_{st} + \beta_3 child(2\text{-}5)_{ist} * nofault_{st} + \beta_4 child(6\text{-}18)_{ist} * nofault_{st} + \beta_5 child(u2)_{ist} + \beta_6 child(2\text{-}5)_{ist} + \beta_7 child(6\text{-}18)_{ist} + \beta_X X_{ist} + \beta_s I_s + \beta_t I_t + e_{ist}$$

The coefficient on $nofault_{st}$ (β_1) estimates the difference in the probability of being in the labor force between married women without children in no-fault states compared to childless married women in other states. As outlined in Chapter 3, if increasing divorce probabilities generate increases in married women's LFP, women living in no-fault states will have a higher probability of divorce, and β_1 will be positive.

In addition, β_5, β_6 and β_7, the coefficients on the $child_{ist}$ variables, are predicted to be negative because children decrease the likelihood that a woman will participate in the labor force; β_5 is the difference in LFP between married women with children under age 2 and otherwise similar married women without children under age 19. Because the relationship between fertility and LFP may differ for women with older versus younger children, the three $child_{ist}$ variables allow for varied LFP effects by the age of youngest child. Having a child under age two should have a greater negative impact on LFP than having a child between the ages of two and five, and children between two and five should have a greater negative impact on mothers' LFP than children greater than age six (Blau and Robins 1988).

Finally, the differential impacts of the divorce laws among married women with children are measured by β_2, β_3 and β_4, which are the coefficients on the interaction terms between $nofault_{st}$ and the three $child_{ist}$ variables. The coefficients denote the difference in

LFP for mothers whose youngest child is in the specified age range and non-mothers living in no-fault states. If the impact of living in a no-fault state is larger for women with children than for women without children, the estimates of β_2, β_3 and β_4 will be positive. Again, if divorce risk affects mothers of young children more than mothers of older children, these effects may vary with the age of the youngest child, similar to the variation in the coefficients of the $child_{ist}$ variables. The specification above is also used to allow for differential impacts of the divorce law on women with children under age six and between the ages of six and eighteen. Other specifications are discussed in Chapter 6.

CHAPTER 5

DATA

The data used for the estimation comes from the IPUMS-USA 1960 – 1990 United States Census of Population.[10] The 1960 General sample and the 1970 Form 1 State sample are 1-in-100 random samples of the United States population and are used for the 1960 and 1970 data sets in the analysis. For the years 1980 and 1990, the 5% State samples are available with state-level variables and include a 1-in-20 random sample of the population.

The variable of interest is LFP of married women, so the sample is restricted to include only married, spouse present women between the ages of 18 and 49. Women living in Washington D.C. are not included because Washington D.C. is not specified by Ellman and Lohr (1998), from which much of the law coding for this paper is derived.

Most of the variables used in the analysis are comparable across the years. Exceptions include income top-codes, which varied and are changed to common real values by imposing the real value of the most restrictive top code each year. The variable that classified a household as urban or rural is not available for the 1980 sample. The *metro* variable, which categorized households by their location relative to the central city, is available for all years except 1990. To create a universal *urban* variable, the 1980

[10] The University of Minnesota Population Research Center publishes United States Census data on the internet at http://www.ipums.org (Ruggles, et al. 2004).

observations are classified as urban and rural based on the *metro* variable.[11] Spousal income is not explicitly available for the women in the sample. Instead, *non-labor income* is measured as the difference between total family income and an individual's own annual earnings.

Descriptive statistics presented in Table 2 are consistent with Figure 2; women in the sample who have children participate in the labor force less than women without children. Also consistent with Figures 1 and 2, the mean values in Table 2 show increased LFP rates among the women in the sample over time.

[11] Though the *urban* variable created for this analysis is comparable across the years, there are states that were not given *urban* or *metro* classifications from the census. Including the *urban* variable in the empirical estimation creates a problem because the observations from the states without *urban* classifications are dropped from the analysis. The *urban* variable does not have a significant impact on the results of the empirical tests and is excluded throughout the analysis.

Table 2. Summary Statistics for Married Women With and Without Children under 19 by Year.

	1960		**1970**		**1980**		**1990**		**All Years**	
Percent with Child under 19	79.05%		78.06%		74.51%		71.72%		73.88%	
	NC*	C	NC	C	NC	C	NC	C	NC	C
In the Labor Force	0.546	0.278	0.632	0.382	0.743	0.536	0.807	0.677	0.755	0.564
Family Income	7049.14	6851.84	11642.12	11721.42	30010.26	28718.76	49094.96	44524.25	36619.67	32423.88
Nonlabor Income	5554.53	6277.70	8780.30	10360.29	23198.24	24817.82	34493.84	34681.88	26646.37	26438.82
Age	36.67	34.07	34.33	34.18	33.24	33.88	36.72	34.93	35.18	34.37
Urban Residence	0.746	0.696	0.764	0.719	0.790	0.762	0.657	0.626	0.719	0.691
White	0.880	0.921	0.903	0.910	0.911	0.890	0.913	0.895	0.910	0.896
Black	0.113	0.071	0.083	0.077	0.061	0.078	0.052	0.061	0.061	0.070
Other Race	0.007	0.009	0.014	0.013	0.028	0.032	0.036	0.044	0.029	0.034
Less than High School	0.482	0.437	0.303	0.323	0.176	0.212	0.103	0.118	0.167	0.198
High School	0.359	0.404	0.435	0.474	0.430	0.474	0.352	0.376	0.389	0.427
Some College	0.098	0.101	0.145	0.121	0.205	0.181	0.310	0.306	0.245	0.224
College Degree	0.061	0.057	0.118	0.082	0.189	0.132	0.236	0.200	0.199	0.151
Infant	–	0.162	–	0.123	–	0.118	–	0.095	–	0.112
Child Under 2	–	0.295	–	0.228	–	0.218	–	0.207	–	0.220
Child Age 2 to 5	–	0.294	–	0.291	–	0.259	–	0.278	–	0.273
Child Under 6	–	0.589	–	0.519	–	0.478	–	0.484	–	0.493
No Fault 1**	0.004	0.004	0.177	0.159	0.569	0.563	0.577	0.581	0.515	0.495
No Fault 2	–	–	0.028	0.026	0.546	0.535	0.559	0.559	0.487	0.463
No Fault 3	–	–	0.132	0.124	0.770	0.763	0.875	0.874	0.735	0.700
No Fault 4	0.002	0.002	0.175	0.156	0.632	0.625	0.731	0.740	0.613	0.588
No Fault 5	–	–	0.116	0.101	0.341	0.337	0.433	0.434	0.351	0.333
Number of Observations	59,484	224,482	64,871	230,758	405,806	1,186,162	485,875	1,232,409	1,016,036	2,873,811

Source: Authors' calculations based on 1960 – 1990 United States Census of Population. Data include married (spouse present) women aged 19-49.
*NC=No child under age 19; C=Have one or more children under age 19.
**See Table 1 for definitions.

CHAPTER 6

RESULTS

Table 3 presents the Probit estimates of the LFP estimation of Equation 6, focusing on the primary coefficients of interest, β_1 through β_7, which denote the effect of no-fault divorce law, children, and the two variables interacted.[12] The first column in Table 3 is denoted No-Fault 1, and corresponds to the *Law* variable in the table and $nofault_{st}$ in Equation 6, which includes the states with no-fault law as designated by No-Fault 1 in Table 1. The *Law* variable has a coefficient of -0.030, which implies a 3 percent lower probability of LFP at the mean of the sample for non-mothers in states with no-fault divorce laws relative to non-mothers in states without no-fault divorce laws. This result is statistically significant and suggests that women without children do not respond to increased divorce risk by entering the labor force. Although, this is somewhat contradictory to what the theory presented in Chapter 4 suggested and differs from results found in previous literature, the exclusion of mothers from this group could explain this result.[13] It also reaffirms the importance of separating the effect of divorce laws for mothers and non-mothers.

[12] Logit and Ordinary Least Squares produced qualitatively similar results.

[13] Regressions replicating previous literature excluded the interaction between children and the no-fault variable and had positive, insignificant, and small coefficients on the law variable. These findings were similar to what Gray (1998) found when using a time series analysis of LFP while controlling for state and year fixed effects.

Table 3. Effects of No-Fault Divorce Law and Children of Various Ages on Married Women's Labor Force Participation, Probit Results*.

	1 No-Fault 1	2 No-Fault 2	3 No-Fault 3	4 No-Fault 4	5 No-Fault 5
Law	-0.030	-0.029	-0.021	-0.033	-0.003
	(.009)	(.010)	(.010)	(.009)	(.011)
Child(u2)*Law	0.055	0.050	0.066	0.072	0.027
	(.010)	(.010)	(.011)	(.009)	(.011)
Child(2-5)*Law	0.051	0.049	0.059	0.065	0.024
	(.010)	(.010)	(.011)	(.010)	(.011)
Child(6-18)*Law	0.026	0.029	0.034	0.032	0.018
	(.009)	(.009)	(.009)	(.008)	(.010)
Child Under 2	-0.415	-0.412	-0.432	-0.429	-0.398
	(.007)	(.007)	(.009)	(.008)	(.007)
Child Age 2-5	-0.314	-0.311	-0.329	-0.326	-0.295
	(.008)	(.007)	(.010)	(.008)	(.008)
Child Age 6-18	-0.103	-0.104	-0.114	-0.109	-0.096
	(.006)	(.006)	(.008)	(.007)	(.006)
Pseudo R-squared	0.117	0.117	0.117	0.117	0.117

Note: N= 3,889,847 and includes all married women in the sample. The standard errors are reported in the parenthesis, and allow for non-independent regression errors within groups defined by state, year and child age group. The regression also includes non-labor income, non-labor income-squared, age, age-squared, race, educational attainment, state dummy variables and year dummy variables. No-Fault 1 is based on *Irretrievable Breakdown* from Ellman and Lohr (1998) with Illinois, Missouri, Pennsylvania, Tennessee, Utah, and West Virginia excluded and Virginia added due to separation period requirement. No-Fault 2 is *Unilateral Divorce* from Friedberg (1998). No-Fault 3 is *Unilateral Divorce, Includes Separation* from Friedberg (1998). No-Fault 4 is *Irretrievable Breakdown* from Ellman and Lohr (1998). No-Fault 5 is *Property Division* from Ellman and Lohr (1998).

*The coefficients reported here are not Probit coefficients, but rather they are the change in probability associated with a change the discrete independent variable at the mean of the sample.

The coefficients on the three $child_{ist}$ variables are negative, statistically significant at the 1 percent level, and consistent with previous research. The coefficient on *Child Under 2* is equal to -0.415, indicating 42 percent lower probability of LFP among mothers in states without no-fault laws relative to non-mothers in these same states. The

Child Age 2-5 variable has a coefficient of -0.314, while the coefficient on the *Child Age 6-18* variable is equal to -0.103. The varied impacts for the child age categories is consistent with previous research and reaffirms the assertion that young children have a greater negative impact on mothers' LFP than children of older ages.

Finally all three of the primary coefficients of interest, β_5, β_6 and β_7 from Equation 6, are positive and statistically significant at the one percent level. This illustrates the difference in the impact of the divorce laws on the LFP of mothers relative to non-mothers. The positive 0.055 on the *Child(u2)*Law* variable indicates that mothers of children under two living in states with no-fault law are almost 6 percent more likely to participate in the labor force relative to women without children in no-fault states, even after controlling for the underlying differences in their LFP arising from fertility differences. The coefficient on *Child(2-5)*Law* is also statistically significant and equal to 0.051. These results are consistent with the theory presented in Chapter 4 and support the hypothesis that women with children have different LFP responses to divorce risk than their childless counterparts. The coefficient on the interaction between *Child(6-18)*Law* also supports the hypothesis, and the differential impact of the law on LFP for those with children between the ages of six and eighteen is smaller than for those with younger children.[14]

[14] The coefficients on *Child(u2)*Law* and *Child(2-5)*Law* are not statistically different from each other, though the coefficients on *Child(u2)*Law* and *Child(6-18)*Law*, as well as the coefficients on *Child(2-5)*Law* and *Child(6-18)*Law*, are statistically different from one another at the 1 percent significance level.

Columns 2 through 5 in Table 3 present estimates using the different law specifications listed in Table 1. The results for these variations in the law "coding" are similar to the initial results; the coefficients have the same signs, similar magnitudes and are statistically significant. Using the various no-fault classification schemes provides further evidence that no-fault laws affect mothers and non-mothers differently.

Column 5 specifies states that have no-fault property laws, and the findings for this classification are different from first four columns. Unlike the results of the regressions for No-Fault 1 through No-Fault 4, the coefficient on the *Law* variable in the No-Fault 5 regression is not significant. Though previous research has found significant impacts of property laws on married women's LFP, the coefficient on the *Law* variable in this empirical specification only measures the effect of no-fault property laws on women without children. Property laws are likely to have smaller effects on married women without children relative to women with children. Indeed, the coefficients on the interaction terms of the $child_{ist}$ variables and the $nofault_{st}$ variable are positive and significant. This suggests that women with children have greater LFP responses to no-fault property laws than women without children, which supports robustness of the results across the no-fault classifications, as the signs of coefficients are consistent with the rest of the table.

The results are also robust across several specifications. As Table 4 reports, changing the child age categories does not change the results. Column 1 of Table 4 includes only two age categories, children under six and children ages six to eighteen,

effectively pooling the effect of the law for all women with children under age six. Both age categories have positive and significant coefficients when they are interacted with the *Law* variable. Columns 2 through 4 also present the results of different child age specifications, where only one category for children under the specified age is included. The results of these regressions are also consistent with the findings in Table 3; women with children have a greater probability of participating in the labor force in response to no-fault divorce laws than women without children in no-fault states, whose LFP response to no-fault divorce is consistently small and negative.

Table 4. Estimation of Married Women's LFP,
Total Sample Comparison, Probit Results*.

	1	2	3	4
	No-Fault 1	No-Fault 1	No-Fault 1	No-Fault 1
Law	-0.029	0.002	-0.001	-0.012
	(.010)	(.006)	(.006)	(.008)
Child(u1)*Law		0.023		
		(.007)		
Child(u2)*Law			0.027	
			(.007)	
Child(u6)*Law	0.053			0.036
	(.010)			(.007)
Child(6-18)*Law	0.026			
	(.009)			
Child Under 1		-0.262		
		(.006)		
Child Under 2			-0.272	
			(.006)	
Child Under 6	-0.353			-0.292
	(.008)			(.006)
Child Age 6-18	-0.110			
	(.006)			
Pseudo R-squared	0.114	0.084	0.094	0.111

Note: N= 3,889,847 and includes all married women in the sample. The standard errors are reported in the parenthesis, and allow for non-independent regression errors within groups defined by state, year and child age group. The regression also includes non-labor income, non-labor income-squared, age, age-squared, race, educational attainment, state dummy variables and year dummy variables. No-Fault 1 is from *Irretrievable Breakdown* from Ellman and Lohr (1998) with Illinois, Missouri, Pennsylvania, Tennessee, Utah, and West Virginia excluded and Virginia added due to separation period requirement.

*The coefficients reported here are not Probit coefficients, but rather they are the change in probability associated with a change the discrete independent variable at the mean of the sample.

Table 5 also presents findings for various specifications. In these empirical equations, again only one child category is used, but the comparison group is married women without children under age 19 as opposed to all married women without children in the specified age group. This specification creates a more restrictive comparison than the comparisons in Column 2 through Column 4 of Table 4, and the resulting coefficients have the same signs and are similar in magnitude to the original results presented in Table 3.

Table 5. Estimation of Married Women's LFP,
Varied Sample Comparison, Probit Results*.

	1 No-Fault 1	2 No-Fault 1	3 No-Fault 1	4 No-Fault 1
Law	-0.010 (.010)	-0.019 (.012)	-0.030 (.013)	-0.028 (.011)
Child(u1)*Law	0.053 (.009)			
Child(u2)*Law		0.056 (.009)		
Child(u6)*Law			0.054 (.010)	
Child(u19)*Law				0.040 (.010)
Child Under 1	-0.449 (.008)			
Child Under 2		-0.419 (.007)		
Child Under 6			-0.353 (.007)	
Child Under 19				-0.213 (.006)
Pseudo R-squared	0.164	0.164	0.137	0.092

Note: N=1,337,729 in Column 1 and includes married women with children under age one and married women without children under age 19. N=1,648,457 in Column 2 and includes married women with children under age two and married women without children under age 19. N=2,431,653 in Column 3 and includes married women with children under age six and married women without children under age 19. N=3,889,847 in Column 4 and includes married women. The standard errors are reported in the parenthesis, and allow for non-independent regression errors within groups defined by state, year and child age group. The regression also includes non-labor income, non-labor income-squared, age, age-squared, race, educational attainment, state dummy variables and year dummy variables. No-Fault 1 is from *Irretrievable Breakdown* from Ellman and Lohr (1998) with Illinois, Missouri, Pennsylvania, Tennessee, Utah, and West Virginia excluded and Virginia added due to separation period requirement.

*The coefficients reported here are not Probit coefficients, but rather they are the change in probability associated with a change the discrete independent variable at the mean of the sample.

The analysis presented suggests that the results are not sensitive to changing the no-fault classifications, nor are they sensitive to changing the child age specification. They provide evidence that the effect of divorce laws is different for women with and without children. The LFP response of women without children to no-fault divorce is actually found to be negative and small when compared to women without children in states without no-fault divorce. On the other hand, women with children are more likely to respond to no-fault divorce laws by participating in the labor force than women without children.

CHAPTER 7

CONCLUSION

This paper adds to the previous literature on the effects of divorce laws by examining whether married women with children respond differently to divorce risk than married women without children. A difference-in-difference-in-difference estimator is used to compare changes in LFP associated with no-fault divorce laws among married women with children relative to married women without children in states where no-fault divorce laws were passed, while controlling for similar changes in LFP over time among married women with and without children in states without changes in divorce laws.

The findings suggest that married mothers are more likely to participate in the labor force in response to no-fault divorce laws than married women without children. The results also indicate that divorce risk has a greater effect on women with young children compared to women with older children. These findings are not sensitive to multiple robustness tests, which included changing the divorce law classification and changing the child age specification.

Though the results indicate that there is a strong positive relationship between the divorce risk of mothers and their LFP, there are issues that should be addressed for a more thorough examination of this topic. Further research could address the effect of child support on the LFP decisions of mothers and the relationship between child support and no-fault divorce. The data here did not provide a measure of child support, or an

instrument to estimate prospective child support amounts, and not controlling for child support may influence the outcome of the analysis.

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