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## Mothers as Career Leaders: Do Maternity Leave Laws Make a Difference?

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# **Mothers as Career Leaders: Do Maternity Leave Laws Make a Difference?**



Honors Thesis

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Department: Economics

Advisor: Nancy Haskell, Ph.D.

April 2017

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## **Abstract**

On a national level, the Family and Medical Leave Act (FMLA) of 1993 is the only law that provides certain qualifying individuals with 12 weeks of unpaid, job protected maternity leave, although some states and private firms have implemented forms of paid maternity leave. Previous research indicates that female employees, regardless of their parental status, receive fewer promotions due to information asymmetry after the FMLA (Thomas 2015). In addition, some research finds that particular industries are more family friendly due to access to flexible work schedules for mothers (Goldin 2014). This thesis expands on both findings using data from the National Longitudinal Surveys beginning in 1979 to capture the effects of maternity leave type and length on promotions. Results from differences-in-differences models show that having a child after the passage of the FMLA results in decreased unpaid leave and increased paid leave. Contrary to prior literature, we find no evidence that employers are promoting female employees less frequently after passage of the FMLA. Other models suggest there are negative effects on promotion when having a child, regardless of industry. However, there is no statistically significant evidence to suggest the negative effects of motherhood differ after passage of the FMLA. Our findings differ from prior literature in that the negative effects of the FMLA on career advancement appear to be confined only to the sub-sample of mothers working jobs for which maternity leave benefits were not previously available. Taken together, these results suggest that the FMLA may have been largely reactive to family friendly changes already occurring in the workplace structure, thus having little effect on the majority of firms and working women.

## **Dedication and Acknowledgements**

Thank you to Dr. Nancy Haskell. Without her dedication of time and willingness to teach, completion of this honors thesis would not have been possible. Also, thank you to the University of Dayton Honors Program for both its support in this honors thesis and for shaping me personally, professionally, and academically.

I dedicate this thesis to the women who not only have the passion to be mothers, but the ambition to shatter glass ceilings.



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## **I. Introduction and Explanation of the Family and Medical Leave Act**

In 1993, the Family and Medical Leave Act (FMLA) was implemented which granted employees who met certain criteria 12 workweeks of unpaid, job-protected leave and ensured the protection of any health care benefits (United States Department of Labor 2016). A mother can use FMLA leave for pregnancy or after the birth of a child. There are four major requirements for eligibility. They are as followed: work for a covered employer; work 1,250 hours during the 12 months prior to the start of leave; work at a location where 50 or more employees work at that location or within 75 miles of it; and have worked for the employer for 12 months, not necessarily consecutive (United States Department of Labor 2016). On a national level, the FMLA is the only law that provides for a form of maternity leave, although some states and private firms have implemented forms of paid maternity leave. Since 2004, states such as California, New Jersey and Rhode Island have enacted expansions to the FMLA to provide working parents with the opportunity for paid leave (Gault et. al. 2014). The purpose of the FMLA and the state maternity leave laws is to help families, particularly mothers, adjust and bond with a new child, giving them some flexibility with work-life balance before returning to work.

Since the 1990s there has not been any significant increase in the labor force participation rate of women in the United States, and compared to other OECD countries, the participation rate is falling behind (Blau & Kahn 2013). On the other hand, women in the United States are more likely to engage in fulltime work and higher level positions than other countries, but still at a significantly lesser rate than men (Blau & Kahn 2013). One explanation of this phenomenon is the lack of comprehensive family friendly leave policies in the United States, and thus, there appears to be a tradeoff between maternity leave and women's ability to advance in the workforce. This research will examine the relationship between family leave policies in the United States and women's promotions in the workforce to gain better understanding as to the relationship between leave policies

and career advancement for women. This research will study both paid and unpaid maternity leave lengths as well as leave in various industries.

The next section discusses relevant literature, while the third section presents the empirical model. We discuss data and regression results in the fourth and fifth sections, respectively, and the sixth section concludes.

## II. Literature Review

### A. Challenges of Working Mothers

#### *Mothers Spend More Time Out of the Workforce*

Goldin (2006) determined that children were the number one factor resulting in non-working spells for women, which are defined as non-working periods larger than six months in the 15 years after completing a bachelor degree program. Having one child increased time away from work by 0.36 years on average, but having two children increased the time to 1.41 years, and having three or more children resulted in an average of 2.84 years away. What is most interesting is that men experienced the opposite trend; the more children men had, the less time they spent away from the workforce, suggesting that women may face the most responsibility when it comes to child caring (Goldin 2006).

Although mothers spend the greatest amount of time out of the labor force, Goldin and Katz (2008) have shown a trend that mothers may be spending less time out over the last few decades. Although their study only examines Harvard graduates, women in the 1970 graduating class spent an average of two years out of the labor force over a 15 year period; the 1980 class spent an average of 20 months out of the labor force; and the 1990 class spent 19 months out of the labor force. This study will observe whether or not this trend only applies to highly educated women or if it applies to women in general as it is important to understand who may be most impacted by maternity leave laws.

#### *Mothers Are Paid Less*

Though pay will not be the primary focus of this paper, it is important to recognize that pay and career advancement are related. Not only do mothers tend to spend more time out of the labor force, many also experience lower pay potentially related to the time they spend out of the labor force. Waldfogel (1998b) identified and defined the “family gap” as the wage difference between women with children and women without children. She found that the overall pay between men and women were growing closer together, but the opposite was true for the pay between women with

children and women without children. By age 30, non-mothers made 90 percent of men's pay, but mothers only earned 70 percent of men's pay (Waldfogel 1998a). A key reason explaining the family gap is the lack of human capital accumulation, yet after controlling for human capital, there still remains a significant gap. Other factors that explain this is unobserved heterogeneity including discrimination and institutional features of the labor market, which this research will explore further. Waldfogel (1998b) also stated that these factors and the family gap can be explained by the lack of policies that focus on the family pay gap such as maternity leave or child care policies. During the time of her research, policies primarily focused on narrowing the gender gap with equal opportunity laws, but failed to make legislative changes addressing the family gap. Even though the FMLA had been implemented at the time of her research, in comparison to other countries the FMLA gave shorter and unpaid leave and failed to address child care concerns, limiting its effectiveness. This researcher will continue to explore the effects of the FMLA, paying closer attention to career advancement of the women who were impacted by the legislation.

Budig and England (2001) expand upon Waldfogel's research and find that mothers' pay is seven percent less per child. One third of this can be attributed to less job experience in the form of employment gaps, part time jobs, and lack of senior positions. Controlling for job experience, they still find a five percent decrease in pay per child. Budig and England conclude that the remaining portion of decreased pay can be explained by lower productivity of mothers and potential discrimination, although these are difficult factors to measure and this paper will not study.

Adda, Dustmann, and Stevens (2011) studied the relationship between fertility and earnings in Germany and found that having children reduces lifetime earnings by 64 percent primarily due to lack of labor force participation, particularly in the form of part time work. They also observed that women in high-growth careers, although they seem to have a greater preference for children, have fewer children and that women make career choices based on expected fertility. Because these women in high-growth careers are more likely to be higher in ability, there is a greater loss in utility when they choose to have children.



### *Labor Market is Poorly Constructed for Mothers*

It is also important to recognize that particular occupational fields and workplace structures provide more challenging environments for working mothers. Goldin (2014) found that employees who work long hours during specific times during the day are recognized as better workers. Many mothers, who opt for flexible schedules if given the option, are disfavored for this reason. This flexible schedule comes at a high cost particularly in the corporate, financial and legal professions, but has less of an impact in the technology, science, and health segments. This paper will explore these occupational differences further. More generally, Goldin and Katz (2011) determine that the rest of the income differences within occupations between men and women after controlling for experience, weeks and hours worked, and other basic control variables, is due to the consequences of job gaps and flexibility needs of women. Similar to Goldin's (2014) other finding, the business-type jobs create the biggest gaps and technology jobs create the least. Goldin and Katz (2011) speculate this may be caused by the recent development of the technology sector in which women have been able to structure the work environment to better meet flexibility needs. Additional research by Goldin and Katz (2008) also found that physicians and medical professionals suffered the lowest pay consequences for time away, followed by JDs and PhDs. MBAs suffered the highest pay consequences.

## **B. Policies to Address Challenges of Working Mothers**

### *Part Time Work Schedules*

Due to these ranging challenges mothers face while balancing motherhood and employment, a wide variety of policies have been implemented in various countries which have yielded both positive and negative results. One such policy was the right to request a part time work schedule. Through the 1990s and early 2000s, Blau and Kahn (2013) studied the OECD countries, five of which enacted such laws. The authors found that the part time schedule policies had a significant, positive effect on the labor force participation rates for both men and women and helped lessen the gap between the labor force participation rates of men and women. In contrast to Blau and Kahn, Fagan and Hebson (2006) found that the right to a part time work schedule does not necessarily

promote better equality because an employer can reject the request, depending on the specific provisions in the legislation.

### *Publicly Funded Child Care*

One component of Fagan's and Hebson's (2006) report is the impact of publicly funded child care. They address that child care, in addition to several other policies aimed at gender equality in the labor force, would not be effective in isolation; it takes the right balance and combination of policies working together to achieve this end. For example, if child care services are limited, mothers may not exit the labor force right away, but ultimately they will leave the labor force if they do not have another alternative for child care. However, looking specifically at child care: availability, cost, whether child care services are adaptable to parent's work hours, and quality of care, determine whether or not a child care policy is effective in equalizing employment.

Blau and Kahn (2013) find something similar in their OECD study. Most of the countries in their study already had publicly funded child care and find that it has insignificant results for both men's and women's labor force participation rates. However, like Fagan and Hebson (2006), they state it takes a combination of policies to promote effective change.

Budig (2001) goes further to say mothers are facing a free-rider problem; society as a whole receives benefits from mothers who bear the cost of raising children. Thus, she makes the argument for publicly funded child care services which could come in the form of family allowances, standard child care, or medical care. She acknowledges that this solution would not be able to combat other factors that contribute to mother's lower wages, but may help to increase mother's employment.

### *Family and Maternity Leave*

Several researchers have also examined the impacts of various forms of maternity leave legislation, which will be the primary focus of this study. In the United States and Great Britain, Waldfogel (1998a) found that job-protected maternity leave has a positive and significant wage impact for mothers in both countries and also incentivizes women to return to their employers post-childbirth. Thus, this raises women's overall work

experience and job tenure (Waldfogel 1998b). Though expanding these maternity leave rights may lead to more equality between mothers, non-mothers, and men, there is also a risk that expanding these rights could result in a reduction in wages or employment for women overall due to the costs felt by private employers (Waldfogel 1998a). To lessen the risk of these adverse effects, Waldfogel recommends publicly funded maternity leave and child care benefits. Waldfogel (1998b) observes that the FMLA in the United States is minimal compared to maternity leave policies in other industrialized nations.

Fagan and Hebson (2006) studied European countries and find that if maternity or parental leave is offered, parents tend to work fulltime up until the birth of a child to maximize the leave benefit entitlement. Further, they caution against the negative effects long periods of leave can have on the parent on leave. Long leave can result in discrimination and reduction to a “second earner status” which can ultimately damage job mobility and lifetime earnings. On the other hand, if the leave entitlements are not long enough, it may prompt mothers, or fathers, to leave the labor force more permanently. Thus, Fagan and Hebson believe that the short term savings on child care costs are not worth the long term financial consequences due to the gaps in labor force participation. The authors further note that five primary factors determine the effects that parental leave has on reintegration into the work force. Those factors include: whether the leave was paid or unpaid, duration and flexibility of the entitlement, whether fathers could take the parental leave in addition to mothers, whether or not publicly funded child care was available after the period of leave, and overall culture.

Blau and Kahn (2013) find that leave policies are positively correlated with women’s and men’s labor force participation and help close the employment gender gap. Ruhm (1998) agreed with this finding, but also finds that leave policies are negatively associated with wages for women.

Though Blau and Kahn (2013) see benefits in leave policies, they also recognize a tradeoff. More substantial leave policies are correlated with greater part time work, so though it may be increasing employment for mothers, it is also decreasing wages and career prospects.

In the early 1980s, of women who selected a type of leave arrangement after the birth of their first child, Laughlin (2011) found that 35.7 percent opted to quit their jobs,

37.3 percent utilized paid leave, and 33.7 percent took unpaid leave. From 2006-2008, first-time mothers have been quitting their jobs less and instead opting for paid or unpaid leave. Only 21.9 percent quit their jobs, 50.8 percent take paid leave and 42.4 take unpaid leave. The study did not specify the options the women had in leave arrangements.

The state of California was the first to implement a paid family leave program in 2002. Rossin-Slater, Ruhm, and Waldfogel (2013) find that since its implementation, use of maternity leave has increased from three weeks to six or seven weeks with the largest increase from less educated, unmarried, nonwhite women, a group that has typically not benefitted from unpaid leave expansions such as the FMLA. Though the authors acknowledge that negative consequences may follow leave programs, they find that California's policy lacks negative effects and instead has increased work hours for women by six to nine percent, from one to three years after childbirth.

Thomas (2015) studies specifically the impacts of the FMLA on women's employment and promotions, which this research most closely builds upon. Thomas looks at employment outcomes for women hired before and after the FMLA using the Multi-City Study of Urban Inequality and the Panel Study of Income Dynamics. She finds that women hired after the enactment were five percent more likely to be employed, but likelihood for promotion decreased by eight percent. This impact is not felt by mothers alone; even women who never had children but were of childbearing age (under 40) were subject to this employment effect. Thomas also observed that the labor supply among mothers decreased by 10 percent after the enactment and that the gender gap in promotions was greatest where firm's training costs were greatest. Overall, Thomas points to information asymmetry as the driving factor of consequences of the maternity leave mandate and that although the wellbeing of women who may not have previously engaged in the labor force may improve, career-oriented women bare the highest costs in the form of reduced human capital accumulation and poorer wage growth and advancement opportunities.

### *Summary*

We see that there exists a complex relationship between maternity leave and other governmental policies and mother's ability to advance within the work force. California

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is not the only state that has instituted a paid family leave program and we could expect even more states may consider this type of policy to try and equalize workplace opportunities. Since these policies are so recent and their long term impacts cannot yet be fully studied, this study will examine how leave time, in general, impacts mother's career advancement, and can potentially be used as a factor in paid family leave programs' cost-benefit analyses. Unlike previous studies, this study will pay close attention to the FMLA impact on maternity leave length and type to determine if these choices impact career advancement. This researcher will also look at specific occupations to explore if there is a relationship between occupations and career advancement.

### III. Data Analysis

#### A. General Summary Statistics and Definitions

This research uses panel data from the Bureau of Labor Statistics National Longitudinal Survey of Youth 1979. These surveys tracked labor market activity as well as other life events and decisions for 12,686 men and women beginning in 1979 when the respondents were ages 14 through 22. Most questions in the survey were asked annually from 1979-1994 and biennially from 1996-2012.

This study uses both men and women from the NLSY79 data set, but focuses primarily on women in order to understand any relationship between maternity leave and career advancement for women. There are 6,283 women and 6,403 men in the data set. Of the sample of women, 1,352 (21.52 percent) never had children and 4,931 (78.48 percent) had at least one child between 1979 and 2012.<sup>1</sup> Also, 1,048 women (16.68 percent of women) took paid leave, 1,009 women (16.06 percent of women) took unpaid leave as a result of pregnancy or child care, and 271 women (4.31 percent of women) took both paid leave and unpaid leave.

##### 1. Dependent Variable

The key dependent variable of study is career advancement, which is measured by promotions. The promotion variable was created using three separate variables. The first<sup>2</sup> asks respondents if they received any promotion in their first job since their last interview in years 1988, 1989, and 1990. The second question<sup>3</sup> asks respondents if they had a position change in their primary job since their last interview, and the third question<sup>4</sup> follows up to ask if said position change was a promotion, demotion, or position change. These questions were asked biennially from 1996 to 2012.

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<sup>1</sup> The number of children here only include biological children. However, in measures of family size, step children and adopted children are included.

<sup>2</sup> ES-16\_1

<sup>3</sup> QES-PROMO38.01

<sup>4</sup> QES-PROMO39.01

Using promotions as a measure of career advancement is fairly reasonable. However, other measures such as pay increases could also indicate career advancement. Also, it is a concern that career advancement may not be fully captured by promotions. For example, a woman starting her own business, making a lateral move to a better organization, or receiving a bonus or more responsibility informally could be considered as career advancement, but would not be captured in this promotion variable. As such, income is also used as an alternative dependent variable in robustness checks.

## 2. Maternity Leave Variables

Key variables of interest in the models include whether or not a respondent took paid maternity leave or unpaid maternity leave<sup>5</sup> as well as total time away from a respondent's primary job for these two leave types. From years 1988-2012, "Took Any Paid Maternity Leave" asks if a respondent took any periods of paid maternity leave from their primary job and "Took Any Unpaid Maternity Leave" asks if a respondent took any periods of unpaid maternity leave. Variables measure the total amount of time taken for paid maternity leave<sup>6</sup> and the total amount of time taken for unpaid maternity leave.<sup>7</sup> We also capture "Total Leave Days" as the sum of total paid maternity leave days and total unpaid maternity leave days.

## 3. Demographic Control Variables

Key components that directly impact promotions, but are not related to maternity leave include if a candidate is hard working, smart and well qualified, and loyal to the company.

Hard working is measured by overtime hours, weekly work hours, and weeks worked in the past year. "Weekly Hours of Overtime" measures the overtime hours

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<sup>5</sup> We refer to unpaid leave due to pregnancy or child care as unpaid maternity leave throughout this research.

<sup>6</sup> "Total Paid Maternity Leave Days" (or "Total Paid Maternity Leave Months" for scaling purposes) calculates the total number of paid maternity leave days taken which is the sum of three periods of consecutive paid leave days.

<sup>7</sup> "Total Unpaid Maternity Leave Days" (or "Total Unpaid Maternity Leave Months" for scaling purposes) calculates the total number of unpaid maternity leave days taken which is the sum of the four periods of consecutive unpaid leave days.

respondents reported if they answered yes to working overtime.<sup>8</sup> “Weekly Hours” measures the number of hours a respondent typically works in a week.<sup>9</sup> The number of weeks a respondent worked in the past calendar year is measured by “Weeks Worked” and is also reported in all years the survey took place.

Intelligence and qualification are measured by a respondent’s AFQT score and highest degree attained. AFQT scores were recorded in 1981.<sup>10</sup> Highest degree variables for this study are a set of dummy variables.<sup>11</sup>

Loyalty to a company is represented by tenure which is the total time in years the respondent has spent with their current, primary employer since their interview date. This question is available in all survey years.<sup>12</sup>

Other control variables include age, family size, personal income, total net family income, marital status, race, class of employment, industry, and occupation. The variables age and family size are reported in every year of the survey. Income measures how much the respondent received from wages, salary, commissions, or tips from all jobs in the past calendar year before deductions or taxes and is asked in all survey years. Total net family income is measured similarly. The variable reporting marital status is split into five dummy variables and is reported in all survey years.<sup>13</sup> The variable reporting race/ethnicity is split into five dummy variables and is recorded in 1979.<sup>14</sup> Worker class

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<sup>8</sup> “Weekly Hours of Overtime” combines responses from questions CPS-Q6-15 and Q5-39. Weekly hours of overtime is recorded as zero if a respondent said they did not work any overtime hours.

<sup>9</sup> “Weekly Hours” combines responses from questions QES\_52A\_01\_ and EMPLOYERS\_ALL\_HOURSWEK\_.

<sup>10</sup> This study uses AFQT-3, which was revised in 2006. The AFQT-3 score was revised in 2006 to account for inconsistencies in tests and completion rates, as well as controlling for age to be comparable with the NLSY97 dataset. The NLS staff recommends using AFQT-3. AFQT-3 was originally based on a 100 point ranking system, but this research adjusts AFQT scores to a 10 point ranking system for scaling purposes.

<sup>11</sup> The categories for highest degree include high school diploma, associate’s degree, bachelor’s degree, master’s degree, and doctoral degree. In this study, a bachelor of arts degree and a bachelor of science degree are combined under bachelor’s degree, and all doctoral degrees, including PhD, MD, LLD, and DDS, are combined under doctoral degree. There was no one in the survey whose highest degree was no degree, and those who responded “Other” were marked as missing for this study.

<sup>12</sup> Tenure was originally measured in weeks, but has been adjusted to years for scaling purposes.

<sup>13</sup> The categories for marital status include married, never married (single), separated, divorced, and widowed.

<sup>14</sup> The categories for race/ethnicity include Hispanic, Black, White, Asian, and Other Race. Other Race consists of those who selected one of the following as their race/ethnicity: None, Other, American, Indian-American or Native American, or Native Hawaiian or Pacific Islander. The NLSY also warns that the “Indian-American or Native American” category may have been overstated. This data, in general, over represents minorities in comparison to the U.S. population.



combines two variables<sup>15</sup> to determine the respondent's class of employment and is split into three dummy variables<sup>16</sup>. Industry is split into 12 categories using one digit codes.<sup>17</sup> Occupation is split into 11 categories using one digit codes.<sup>18</sup> Previous literature by Goldin (2014) finds that flexible “family friendly” work schedules in the corporate, financial, and legal professions are perceived poorly, whereas flexible schedules in technology, science, and health fields may not have the same negative effects. Furthermore, Goldin and Katz (2011) hypothesize that newer occupations may have been constructed to be better family friendly environments and older industries may have been left behind. For these reasons, the occupation variables are grouped into four categories: family friendly, non-family friendly, old, and other.<sup>19</sup> The unique division in occupation allows further exploration into differences in career advancement based upon specific fields.

There are statistically significant, negative correlations between promotions and the following variables: age, number of children, and family size. There is no significant correlation between promotions and taking any unpaid maternity leave. However, there is a statistically significant, positive and weak relationship between promotions and taking paid maternity leave.

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<sup>15</sup> COWALL\_EMP\_01\_ and CPS\_QES\_56C\_. There was a coding change in class between 1993 and 1994. This study accounts for that coding change.

<sup>16</sup> The dummy variables include government employment, private sector employment which includes nonprofit employment, and self or family employment.

<sup>17</sup> The 12 categories for industry are labeled as followed: agriculture, mining, construction, manufacturing, transportation, wholesale, finance, business, personal services, entertainment, professional services, and public administration. There was a coding change between 2000 and 2002. Prior to 2002, the 1970 census codes were used and beginning in 2002, the 2000 census codes were used. This study accounts for that coding change.

<sup>18</sup> The 11 categories for occupation are labeled as followed: STEM, healthcare, legal, education, business, arts, transportation, craftsmanship, manufacturing, private services, and public services. There was a coding change between 2000 and 2002. Prior to 2002, the 1970 census codes were used and beginning in 2002, the 2000 census codes were used. This study accounts for that coding change.

<sup>19</sup> “Family Friendly Occupation” captures the effects of employment in STEM or healthcare fields, “Non-Family Friendly Occupation” captures the effects of employment in the business or legal fields, “Old Occupation” captures the effects of employment in the craftsmanship or manufacturing fields, and “Other Occupations” include education, arts, transportation, private services, and public services.

Table 1: Summary Statistics<sup>20</sup>

Variable	Mean	Std. Dev.	10th Percentile	90th Percentile
Promotion	0.18	0.39	0	1
Paid Maternity Leave	0.03	0.17	0	0
Unpaid Maternity Leave	0.007	0.08	0	0
Total Paid Maternity Leave Days	2.04	14.23	0	0
Total Leave Days	2.77	21.26	0	0
Total Unpaid Maternity Leave Days	0.73	13.9	0	0
Weekly Hours	26.53	19.01	0	44
Weekly Hours of Overtime	1.33	4.12	0	5
Weeks Worked	47.34	11.58	34	52
Tenure	5.2	5.31	0.4	12.83
Fringe Benefits	0.96	0.2	1	1
Single	0.23	0.42	0	1
Married	0.56	0.5	0	1
Family Size	3.03	1.46	1	5
High School Diploma	0.6	0.49	0	1
Associate's Degree	0.18	0.32	0	1
Bachelor's Degree	0.19	0.39	0	1
Master's Degree	0.08	0.27	0	0
Doctoral Degree	0.01	0.1	0	0
Family Friendly Industries	0.16	0.36	0	1
Non-Family Friendly Industries	0.44	0.5	0	1
Old Industries	0.12	0.32	0	1
White	0.47	0.5	0	1
Hispanic	0.14	0.34	0	1
Black	0.27	0.45	0	1
Asian	0.01	0.1	0	0
Other Race	0.1	0.3	0	0
Self or Family Employment	0.016	0.13	0	0
Government Employment	0.2	0.4	0	1
Private Sector Employment	0.78	0.41	0	1

<sup>20</sup> Based on 7,329 observations, only including women.

## B. Differences Pre-FMLA and Post-FMLA

From table 2 and figure 1, we see that post FMLA, total leave decreases significantly. On average, time taken for paid leave is reduced by one third and time taken for unpaid leave is nearly 12 times less. In contrast, weekly hours increase by 35 hours, on average, and weeks worked remains fairly constant. This suggests that after the FMLA, women are working substantially more hours and prioritizing maternity less leave. This may be in part due the age of the NLSY79 sample, as these women would be ages 28-36 in 1993.

Figure 2 shows that over time, the average promotion rate between mothers and non-mothers converges, but promotions overall decrease. This indicates that individuals, on average, are promoted earlier in their careers. However, since the rates between mothers and non-mothers become more similar as the population ages, this may suggest caring for a young child may have a greater impact on promotions than caring for a child who has reached school-age or adolescence.

Table 2: Leave and Work Variables Pre and Post FMLA<sup>21</sup>

Variables	Pre-FMLA	Post-FMLA
Promotions	0.25 (0.43)	0.15 (0.36)
Total Paid Maternity Leave Days	2.66 (14.32)	1.77 (14.19)
Total Unpaid Maternity Leave Days	2.01 (22.76)	0.17 (6.98)
Total Leave Days	4.67 (30.11)	1.93 (15.79)
Weekly Hours	1.94 (8.57)	37.38 (10.18)
Weeks Worked	47.01 (11.40)	47.48 (11.65)

<sup>21</sup> Standard deviations are listed below the means in parenthesis.

Figure 1: Average Paid and Unpaid Leave Lengths

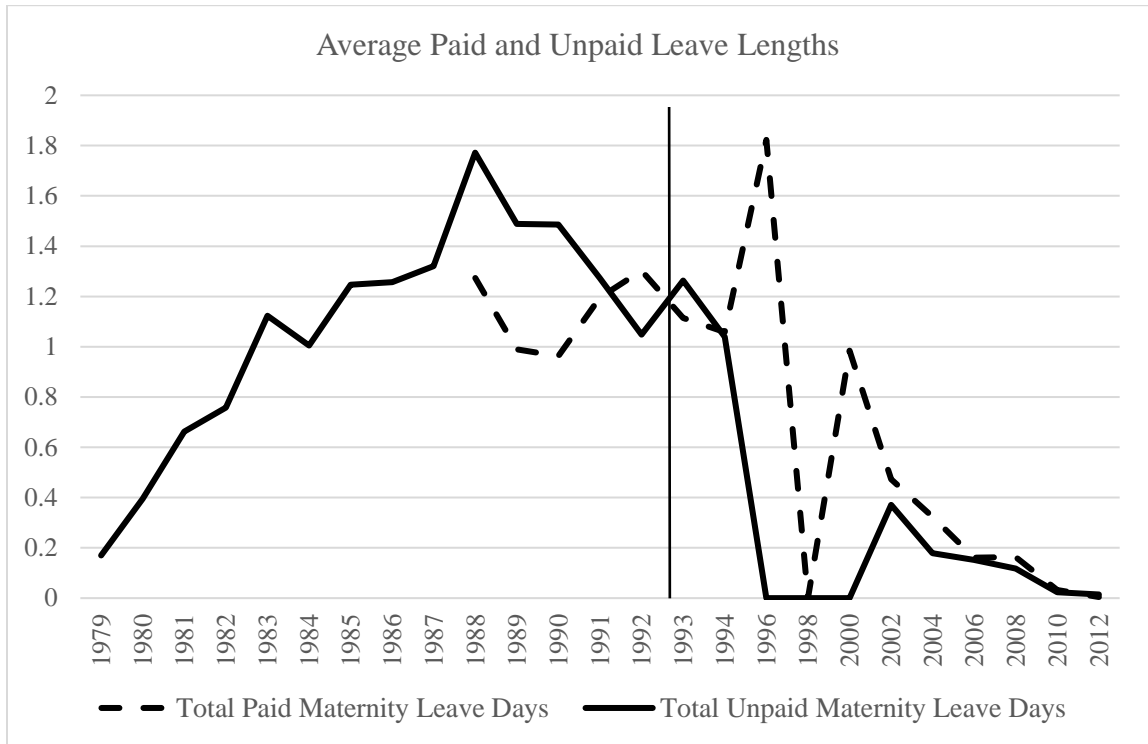
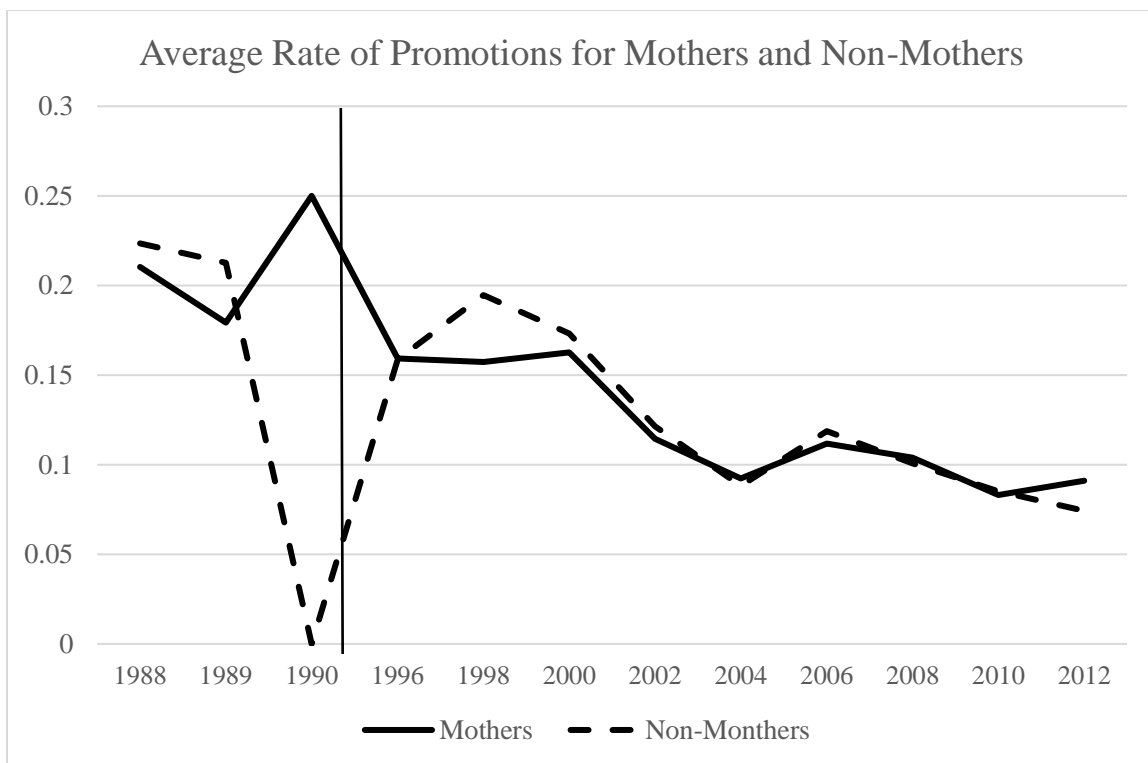


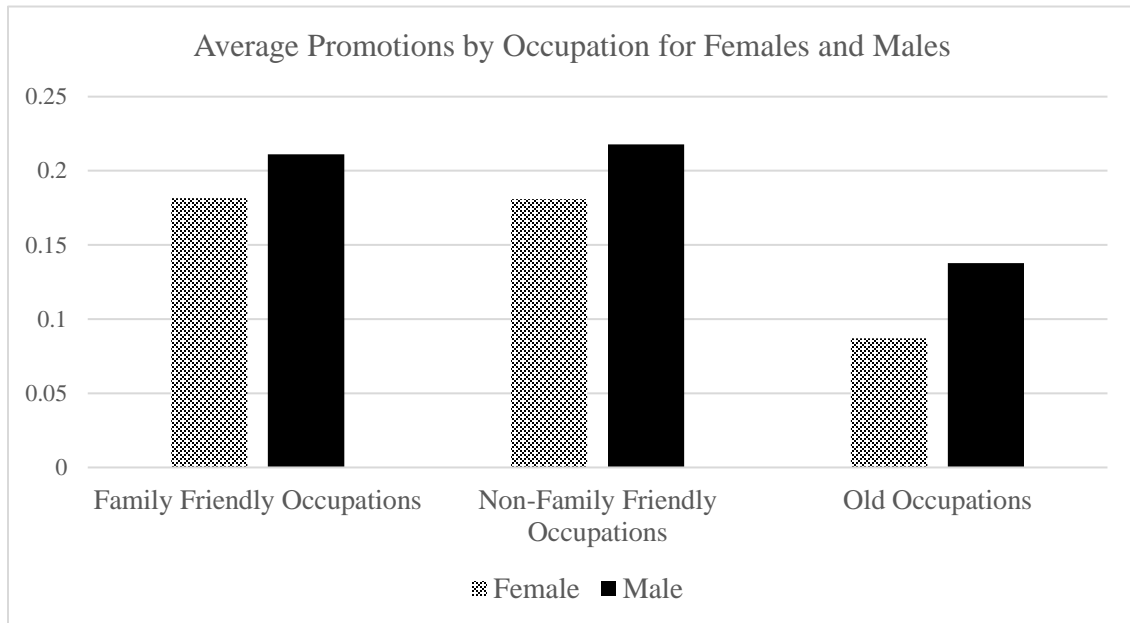
Figure 2: Average Rate of Promotions for Mothers and Non-Mothers



### C. Differences by Occupation

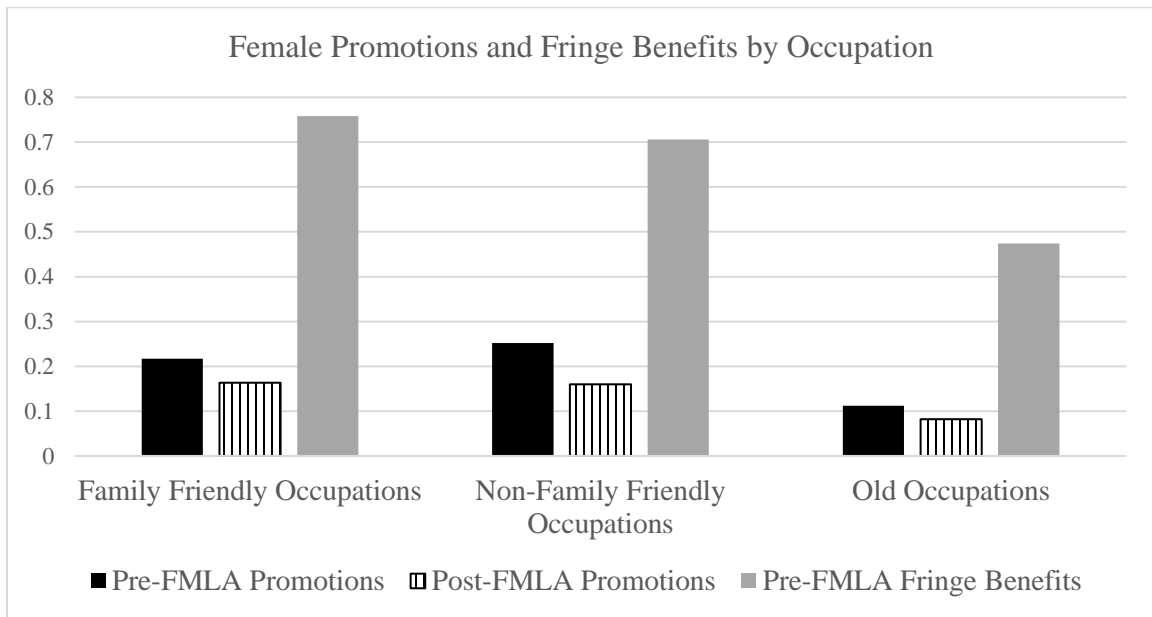
Figure 3 shows that on average, regardless of occupation, women are promoted less than men. However, we see that in family friendly occupations, this promotion gap is only a 3 percentage point difference whereas the gaps in non-family friendly occupations and old occupations are 4 percentage points and 5 percentage points, respectively.

Figure 3: Average Promotions by Occupation for Females and Males



Across all three occupation types, figure 4 shows that promotions for women are less likely after 1993. However, this could be due to the aging sample. Family friendly occupations offered the greatest maternity leave fringe benefits to women before the FMLA passage, covering over 75 percent of female employees. Non-family friendly occupations, on average, provided 71 percent of female employees maternity leave fringe benefits before the FMLA, and old occupations provided benefits for only 47 percent of female employees. Pre-FMLA, promotions were most likely to occur in non-family friendly occupations for women at a rate of 25 percent. Post-FMLA, promotions were equally likely to occur in family friendly occupations and non-family friendly occupations at rate of 16 percent. There was only an 11 percent chance of being promoted in an old occupation pre-FMLA and this decreases to 8 percent post-FMLA.

Figure 4: Female Promotions and Fringe Benefits by Occupation



## IV. Empirical Model

### A. Fixed Effects, Linear Probability, and Probit Models

This research initially uses a fixed effects models to understand the relationship between promotions and length of leave. The preliminary regression is presented in equation (1).

$$A_{it} = \beta_0 + \beta_1 P_{it} + \beta_2 U_{it} + \beta_3 S_{it} + \beta_4 T_{it} + \beta_5 E_{it} + \beta_6 O_{it} + \gamma X_{it} + \delta_t + \xi_i + \varepsilon_{it} \quad (1)$$

The dependent variable is career advancement, measured in the form of promotion ( $A_{it}$ ) for a given individual  $i$ , in year  $t$ . We are primarily interested in promotions as it relates to the independent variables of total time of paid maternity leave ( $P_{it}$ ) and total time of unpaid maternity leave ( $U_{it}$ ). Other independent variables include whether or not paid maternity leave was taken ( $S_{it}$ ), whether or not unpaid maternity leave was taken ( $T_{it}$ ), whether or not any type of unpaid leave was taken ( $E_{it}$ ), and total time of unpaid leave, not related to maternity leave. ( $O_{it}$ ). Other control variables are represented in a vector of characteristics ( $X_{it}$ ). The vector includes weekly work hours, hours of overtime work, weeks worked during the past year, whether or not fringe benefits were available, gender,<sup>22</sup> marital status,<sup>23</sup> education,<sup>24</sup> occupation,<sup>25</sup> industry,<sup>26</sup> race,<sup>27</sup> class of employment,<sup>28</sup> AFQT score, family size, income, tenure, family income, and age. We use

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<sup>22</sup> Gender consists of a dummy variable equal to 1 for females and 0 for males.

<sup>23</sup> Marital status consists of four dummy variables: married, separated, divorced, and widowed, with never married as the omitted category.

<sup>24</sup> Education consists of four dummy variables: associate's degree, bachelor's degree, master's degree, and doctoral degree, with high school diploma as the omitted category.

<sup>25</sup> Occupation consists of 10 dummy variables: STEM, healthcare, legal, education, business, arts, transportation, craftsmanship, manufacturing, and private services, with public services as the omitted category.

<sup>26</sup> Industry consists of 11 dummy variables: agriculture, mining, construction, manufacturing, transportation, wholesale, finance, business, personal services, entertainment, and professional services, with public administration as the omitted category.

<sup>27</sup> Race consists of four dummy variables: Black, Hispanic, Asian, and other race, with White as the omitted category.

<sup>28</sup> Class of employment consists of two dummy variables: government and private sector, with self or family employment as the omitted category.

years fixed effects ( $\delta_t$ ) to control for any country-wide factors or time-trends that affect all individuals and individual fixed effects ( $\xi_i$ ) to control for any individual characteristics that do not change with time. We first estimate equation (1) as a linear probability model using Ordinary Least Squares. For robustness, we then estimate a probit model as shown in equation (2) below.

$$A_{it} = \begin{cases} 1 & \text{if } A_{it}^* > \tau \\ 0 & \text{if } A_{it}^* \leq \tau \end{cases} \quad (2)$$

In this model,  $A_{it}^*$  is the underlying latent propensity to receive a promotion generated by the components listed in equation (1) above. We might think of  $A_{it}^*$  as “worker quality” or “value to the firm,” which results in a promotion ( $A_{it}$ ) if the underlying worker quality exceeds some threshold level,  $\tau$ .

### **B. Differences-in-Differences Models using the FMLA Law Change**

There is some concern over endogeneity with this model. The potential for promotions may affect women’s decisions about the length of maternity leave. To address this problem, we make use of differences-in-differences models surrounding the 1993 FMLA law change. This law exogenously changed access to maternity leave for working women in the United States.

In order to study specific impacts of the FMLA, we utilize three models. The first differences-in-differences model, represented by equation (3), studies the effect of having a child on promotions before and after the FMLA.

$$A_{it} = \beta_0 + \beta_1 HadChild_{it} + \beta_2 PostFMLA_t + \beta_3 HadChild_{it} * PostFMLA_t + \gamma X_{it} + \delta_t + \varepsilon_{it} \quad (3)$$

We are particularly interested in  $\beta_3$  which represents the effect of having a child after the passage of the FMLA on promotions. We also estimate equation (3) with total unpaid maternity leave days and total paid maternity leave days as dependent variables, in order to better understand how the FMLA affects the lengths of various types of maternity leave.



One potential endogeneity concern is that women who choose not to have children could do so as a response to high career aspirations. Thus, having children may adversely impact career advancement, but this impact could be overrepresented in the data if women who choose not to have children do so in response to career aspirations. The second differences-in-differences model studies being a female and the FMLA and is presented in equation (4).

$$A_{it} = \beta_0 + \beta_1 Female_i + \beta_2 PostFMLA_t + \beta_3 Female_i * PostFMLA_t + \gamma X_{it} + \delta_t + \varepsilon_{it} \quad (4)$$

While the decision regarding timing of having a child surrounding the FMLA law change continues to raise some endogeneity concerns in equations (3), the coefficient estimate  $\beta_3$  from equation (4) represents the causal effect on promotions of being a female after the passage of the FMLA.

To build upon equations (3) and (4), we add interaction variables to exploit the effect of the FMLA on those who did not have access to maternity leave fringe benefits before the FMLA. Equation (5) shown below looks at this effect for those who had children.

$$A_{it} = \beta_0 + \beta_1 HadChild_{it} * NoFringeBenefitPrior_{it} * PostFMLA_t + \eta Y_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it} \quad (5)$$

$Y_{it}$  includes all pairwise interactions and linear terms for  $HadChild_{it}$ ,  $NoFringeBenefitPrior_{it}$ , and  $PostFMLA_t$ . We are particularly interested in  $\beta_1$  which measures the effect on promotions of having a child after the passage of the FMLA for individuals that did not have maternity leave fringe benefits before the FMLA. Similar to equation (5), equation (6) substitutes having children for being female and is shown below.

$$A_{it} = \beta_0 + \beta_1 Female_i * NoFringeBenefitPrior_{it} * PostFMLA_t + \eta Z_{it} + \gamma X_{it} + \delta_t + \varepsilon_{it} \quad (6)$$

$Z_{it}$  includes all pairwise interactions and linear terms for  $Female_{it}$ ,  $NoFringeBenefitPrior_{it}$ , and  $PostFMLA_t$ . We look specifically to  $\beta_1$  to see the causal

effect on promotions of being a female after the passage of the FMLA among those who did not have maternity leave fringe benefits before the FMLA.

### C. Occupation-Specific Effects

We add interaction terms between leave and type of occupation to equation (1) in order to explore whether the effects motherhood on promotions, paid and unpaid maternity leave differ by type of occupation. We split the occupations into family friendly occupations, non-family friendly occupations, and old occupations. Goldin (2014) finds that certain occupations support greater flexibility for mothers, namely occupations in STEM and healthcare, and some professions, particularly business and legal, react negatively towards those opting for flexible schedules. Goldin and Katz (2011) state that newer professions, along with STEM and healthcare, may also be more mother-friendly. As such, we classify STEM and healthcare as family friendly occupations, business and legal as non-family friendly occupations, and craftsmanship and manufacturing as old occupations. We interact these three broader occupation types with took any unpaid leave, took any paid leave, and took any leave. We interpret these results as the effects of taking maternity leave in one of the three types of occupations relative to all remaining occupations.<sup>29</sup>

Finally, we split our sample by family friendly occupations, non-family friendly occupations, and old occupations. We estimate equation (1), (3), and (4) within each occupation type to compare leave effects on promotion.

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<sup>29</sup> Remaining occupations include: education, arts, transportation, private services, and public services.

## V. Empirical Results

### A. Baseline Determinants of Promotion

In basic OLS and fixed effects models shown in table 5, estimating equation (1), we find positive and significant effects of weekly hours, average weekly hours of overtime, weeks worked, and fringe benefits on promotions. We observe that on average, one month of paid maternity leave results in a 2 percentage point decrease in the likelihood of promotion, but this effect is only observed in one fixed effects model.

We also find that women in STEM occupations are almost twice as likely to be promoted as women in business occupations, relative to public service occupations. The difference in promotion rates between STEM and business occupations is substantially less when considering both men and women in column (4) of table 5. Furthermore, women employed by the government or in the private sector are 11.5 percentage points and 12.6 percentage points, respectively, more likely to be promoted than those who are self-employed or work for a family business. These values increase to 15.1 and 14.6, respectively, when considering both men and women.

We find that job tenure has a small negative impact on promotions, suggesting that one may need to leave their current job or place of employment in order to be promoted. The OLS models report that age negatively impacts promotions, although the results are not statistically significant after controlling for individual fixed effects.

We also find, as expected, that one additional month of work in a year results in a 0.8 to 1.2 percentage point increase in the likelihood of promotion. Likewise, an additional 8 hours of work per week results in a 1.6 percentage point increase in the likelihood of promotion and an additional 8 hours of overtime work per week results in a 2.4 to 3.2 percentage point increase in the likelihood of promotion.

All models indicate that accessibility to maternity leave fringe benefits have a positive impact on promotions, but for women this benefit increases the likelihood of promotion by 8 to 10 percentage points. This may point to the idea that employers who offer family friendly benefits cultivate more supportive working environments which result in more career growth opportunities for their female employees.

Table 5: Baseline OLS and Fixed Effects Models

VARIABLES	Women Only		Men & Women	
	Promotions	Promotions	Promotions	Promotions
Took Any Paid Maternity Leave	0.030 [0.044]	0.060 [0.051]	0.029 [0.043]	0.056 [0.051]
Took Any Unpaid Maternity Leave	0.017 [0.081]	0.067 [0.090]	0.018 [0.080]	0.055 [0.087]
Total Paid Maternity Leave Months	-0.017 [0.012]	-0.024* [0.014]	-0.017 [0.012]	-0.021 [0.014]
Total Unpaid Maternity Leave Months	-0.007 [0.012]	0.003 [0.011]	-0.010 [0.012]	-0.001 [0.010]
Weekly Hours	0.002*** [0.000]	0.002*** [0.001]	0.001*** [0.000]	0.001*** [0.001]
Weekly Hours of Overtime	0.004*** [0.001]	0.003** [0.002]	0.004*** [0.001]	0.003*** [0.001]
Weeks Worked	0.002*** [0.000]	0.003*** [0.001]	0.002*** [0.000]	0.002*** [0.000]
Fringe Benefits	0.099*** [0.023]	0.077** [0.032]	0.060*** [0.015]	0.033* [0.019]
Female			-0.021*** [0.008]	
Doctoral Degree	-0.080** [0.038]		-0.041 [0.026]	
STEM Occupation	0.159*** [0.035]	0.150*** [0.058]	0.132*** [0.020]	0.028 [0.035]
Business Occupation	0.090*** [0.026]	0.086* [0.045]	0.106*** [0.017]	0.034 [0.029]
Government Employment	0.115*** [0.026]		0.151*** [0.018]	
Private Sector Employment	0.126*** [0.023]		0.146*** [0.015]	
Family Size	0.002 [0.003]	0.006 [0.006]	0.001 [0.002]	0.002 [0.004]
Tenure in Years	-0.003*** [0.001]	-0.003* [0.001]	-0.003*** [0.001]	0.000 [0.001]
Age	-0.004** [0.002]	0.026 [0.020]	-0.006*** [0.001]	0.036** [0.014]
Constant	0.015 [0.073]	-0.696 [0.542]	0.092* [0.050]	-0.806** [0.390]
Demographic Control Variables	Y	Y	Y	Y
Year Dummy Variables	Y	Y	Y	Y
Individual FE	N	Y	N	Y
Observations	7,329	7,378	14,948	15,031
R-squared	0.065	0.053	0.058	0.049
Number of id		3,217		6,363

The probit models represented by equation (2) yield very similar results, which are available upon request. The results are also robust to using income instead of promotions as the dependent variable, and results are available upon request.

## B. Differences-in-Differences Results for the FMLA Law Change

### 1. Maternity Leave and Maternity Leave Time

Table 6a: Differences-in-Differences on Unpaid Leave

Dependent Variables	Women Only			
	Unpaid Maternity Leave			
	Taking Any	Taking Any	Total Days	Total Days
Had Child	0.067*** [0.003]	0.131*** [0.014]	6.190*** [0.408]	12.161*** [2.169]
Had Child*PostFMLA	-0.010 [0.006]	-0.095*** [0.019]	-0.197 [0.985]	-9.158*** [2.486]
Post FMLA	0.014*** [0.002]	0.035* [0.019]	1.088*** [0.285]	6.045** [2.783]
Constant	-0.015*** [0.002]	-0.050 [0.033]	-1.098*** [0.285]	9.419 [8.088]
Demographic Control Variables	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y
Observations	31,911	5,066	31,903	5,066
R-squared	0.058	0.121	0.025	0.059

Table 6b: Differences-in-Differences on Paid Leave

Dependent Variables	Women Only			
	Paid Maternity Leave			
	Taking Any	Taking Any	Total Days	Total Days
Had Child	0.180*** [0.008]	0.234*** [0.023]	11.745*** [0.760]	14.058*** [1.632]
Had Child*PostFMLA	0.106*** [0.013]	0.157*** [0.033]	6.293*** [1.332]	8.815*** [2.810]
Post FMLA	-0.003 [0.005]	-0.039 [0.032]	0.078 [0.483]	-4.230* [2.480]
Constant	0.003 [0.005]	-0.247*** [0.058]	-0.109 [0.482]	-13.840*** [5.289]
Demographic Control Variables	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y
Observations	15,613	3,923	15,484	3,859
R-squared	0.185	0.369	0.095	0.237

Table 6c: Differences-in-Differences on Total Leave

Dependent Variables	Women Only	
	Total Leave	
	Total Days	Total Days
Had Child	23.840*** [1.354]	29.661*** [3.539]
Had Child*PostFMLA	0.201 [1.980]	-3.095 [4.458]
Post FMLA	-0.338 [0.896]	-1.776 [3.340]
Constant	0.297 [0.895]	-6.383 [10.832]
Demographic Control Variables	N	Y
Year Dummy Variables	Y	Y
Observations	15,480	3,859
R-squared	0.099	0.215

Results from the differences-in-differences models, estimating equation (3), show that having a child has a significant and positive impact on both unpaid and paid family leave days. As expected, having a child increases maternity leave days substantially. In tables 6a, 6b, and 6c, we observe that having a child increases total unpaid maternity leave by up to 12 days compared to an average of 1.5 days, increases total paid maternity leave by 14 days compared to an average of 1.5 days, and increases total maternity leave days by 30 days compared to an average of 3 days.

After passage of the FMLA, we observe that total unpaid maternity leave days increase by up to 6 days and total paid maternity leave days decrease by 4 days. However, when we observe the effect of having a child post FMLA, total unpaid leave decreases by 9 days and paid leave increases by nearly 9 days. Thus, we observe no statistically significant evidence that total maternity leave days change post FMLA or for women who gave birth post FMLA. On average it appears that women who had a child post FMLA did not take a significantly different amount of leave, but the law merely changed the distribution of types of leave taken. This suggests that the FMLA, instead of increasing unpaid leave for new mothers as expected, actually resulted in greater days of paid leave.

One hypothesis is that the FMLA itself did not necessarily expand coverage, but rather created a push for some private firms to invest in more family friendly policies. Because the FMLA has certain qualification restrictions (i.e. an employee must have worked 1,250 hours during the 12 months prior to the leave start date, work at a location with more than 50 employees, and have worked for the employer for 12 months) (United States Department of Labor 2016), it is possible that the FMLA did not necessarily expand coverage. In fact, at the 20<sup>th</sup> anniversary mark, the Department of Labor (2013) reported that the FMLA covered nearly 60 percent of employees. In the NLSY data, one year before passage of the FMLA, 60.70 percent of individuals already reported having fringe benefits that provided some quantity of paid or unpaid maternity leave. Along these lines, another hypothesis is that firms were already trending towards offering paid leave and family friendly options and the FMLA was a reactive response to an already-changing work environment.

## 2. Overall Promotions

Additional differences-in-differences models, estimating equations (3) and (4), measure the impact on promotions before and after passage of the FMLA. We observe in table 7 that females are 3 to 5 percentage points less likely to be promoted compared to men. After the FMLA, in general, promotions are 16.4 to 19.8 percentage points less likely for both genders in this sample.<sup>30</sup>

Unlike Thomas's (2015) conclusions, we find that there is not a negative impact on promotions associated with being a female after the passage of the FMLA. In other words, this research does not suggest employers are discriminating against or not investing in female employees. This may be partially due to the fact that a large amount of women already had maternity leave coverage prior to 1993, so employers were not likely to react negatively towards women after the law change. The effect of being female post FMLA is positive and both statistically and economically significant. Compared to a mean of 12 percent, females are 2.9 to 4.1 percentage points more likely to be promoted.

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<sup>30</sup> The sample, due to construction, is older post-1993, thus likely explaining the lower rate of promotion.

Table 7: Differences-in-Differences on Promotions

VARIABLES	Women Only		Men & Women			
	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions
Fringe Benefits	0.115*** [0.019]	0.124*** [0.045]	0.073*** [0.012]	0.023 [0.026]		0.071*** [0.015]
Female				-0.030** [0.014]	-0.034*** [0.006]	-0.051*** [0.014]
Had Child	-0.064*** [0.018]	-0.044 [0.043]	-0.022* [0.013]	0.017 [0.028]		
Had Child * Post FMLA	0.019 [0.023]	0.026 [0.048]	0.018 [0.016]	-0.011 [0.032]		
Post FMLA	-0.187*** [0.020]	-0.121 [0.082]	-0.187*** [0.015]	-0.085 [0.056]	-0.164*** [0.007]	-0.198*** [0.031]
Female * Post FMLA					0.029*** [0.007]	0.041*** [0.016]
Constant	0.147*** [0.020]	0.087 [0.139]	0.200*** [0.012]	0.217** [0.096]	0.253*** [0.006]	0.102** [0.050]
Demographic Control Variables	N	Y	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y	Y	Y
Observations	7,423	1,875	16,940	4,284	70,653	15,096
R-squared	0.025	0.080	0.025	0.060	0.021	0.058

For women, we find that on average, having a child reduces the likelihood of promotion, but the effect disappears after controlling for demographic variables. We further observe that there is no negative effect of being a mother after the FMLA on promotions. We also find a significant and positive relationship between having fringe benefits and promotions, indicating that employers that offer maternity leave or family friendly benefits may also cultivate better work environments for career growth.

### 3. Promotions for Individuals without Prior Maternity Leave Fringe Benefits

To better understand the impact of the FMLA, we specifically look at the effects of the law on the individuals that did not have maternity leave fringe benefits before 1993 by estimating equations (5) and (6). We find that without fringe benefits, both men and women are less likely to be promoted, again indicating that work environments with greater benefits are better places for career growth as well.

We find the effects of motherhood on promotions after the FMLA among jobs that did not previously offer maternity leave is negative, although the results are only statistically significant in one specification.



Importantly, we still find no statistically significant loss in the likelihood of promotions for females after passage of the FMLA, even in jobs that previously did not offer maternity leave fringe benefits. Thus, contrary to Thomas (2015), even among employers whose employment costs were likely affected by the FMLA, we fail to find negative effects of the FMLA on the career advancement of women. These results are displayed in table 8.

Table 8: Differences-in-Differences on Promotions for Individuals without Prior Maternity Leave Fringe Benefits

VARIABLES	Women Only		Men & Women			
	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions
Post FMLA	-0.190*** [0.022]	-0.092 [0.100]	-0.196*** [0.017]	-0.005 [0.067]	-0.234*** [0.011]	-0.155*** [0.038]
No Fringe Benefits Before FMLA	-0.108*** [0.024]	-0.099* [0.053]	-0.097*** [0.015]	-0.055* [0.031]	-0.102*** [0.010]	-0.058*** [0.020]
No Fringe Benefits Before FMLA * Post FMLA	0.102*** [0.028]	0.119* [0.063]	0.082*** [0.017]	0.060* [0.036]	0.092*** [0.012]	0.072*** [0.023]
Had Child	-0.060*** [0.022]	-0.032 [0.047]	-0.050*** [0.017]	-0.016 [0.034]		
Had Child * Post FMLA	0.016 [0.030]	-0.023 [0.057]	0.043* [0.022]	-0.004 [0.041]		
No Fringe Benefits Before FMLA * Had Child	-0.021 [0.037]	-0.102 [0.071]	0.075*** [0.027]	0.106* [0.058]		
No Fringe Benefits Before FMLA * Had Child * Post FMLA	-0.011 [0.050]	0.161 [0.102]	-0.073** [0.034]	-0.060 [0.071]		
Female				-0.037** [0.017]	-0.055*** [0.010]	-0.042** [0.017]
Female * Post FMLA					0.055*** [0.011]	0.045** [0.020]
No Fringe Benefits Before FMLA * Female					-0.010 [0.015]	-0.040 [0.030]
No Fringe Benefits Before FMLA * Female * Post FMLA					0.015 [0.017]	0.023 [0.036]
Constant	0.260*** [0.016]	0.265 [0.162]	0.282*** [0.012]	0.323*** [0.114]	0.320*** [0.009]	0.235*** [0.061]
Demographic Control Variables	N	Y	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y	Y	Y
Observations	5,702	1,529	12,328	3,299	46,220	11,252
R-squared	0.026	0.085	0.026	0.064	0.031	0.054

## C. Occupation-Specific Results

### 1. Occupation Interactions

Goldin and Katz suggest that certain professions may be better suited for women who desire to serve dual roles as caretakers and employees. Our paper finds some similar conclusions, but also some alternative conclusions. Consistent with Goldin (2014), we define “family friendly” occupations as those in STEM and healthcare and “non-family friendly” occupations as those in the business and legal fields. Consistent with Goldin and Katz (2011), we define old occupations as craftsmanship and manufacturing. Other occupations refers to education, arts, transportation, private services, and public services.

We find that for an old occupation, females are 1.2 to 4.1 percentage points less likely to be promoted than in other occupations and compared to an already low mean of 8.7 percent, which is consistent with Goldin and Katz’s (2011) hypothesis that newer occupations may be more mother-friendly.

We find that a female working in a family friendly occupation or a non-family friendly occupation are 4.6 to 5.2 percentage points and 4.6 to 7 percentage points, respectively, more likely to be promoted than in other occupations and compared to a mean of about 18 percent. Contrary to Goldin (2014), we observe that women are up to 1.3 times more likely to be promoted in a non-family friendly occupation than in a family friendly occupation. One reason these findings may contradict is that Goldin specifically observes pay, not promotions, as the dependent variable. She observes that schedule flexibility in science, technology, and healthcare does not monetarily penalize employees, but does not explore the effect on promotions. Thus a “family friendly” occupation may be one in which pay is not adversely affected, but promotions are.

Additionally, we find no statistically significant evidence that the impact of taking any type of maternity leave on promotions differs across the three types of occupations. These occupation-specific results are displayed in table 9.

Table 9: OLS Occupation Impacts and Interactions on Promotions

VARIABLES	Women Only		Men & Women	
	Promotions	Promotions	Promotions	Promotions
Female				-0.022*** [0.008]
Family Friendly Occupation	0.052*** [0.008]	0.046*** [0.016]	0.065*** [0.005]	0.060*** [0.012]
Non-Family Friendly Occupation	0.070*** [0.004]	0.046*** [0.012]	0.077*** [0.003]	0.066*** [0.009]
Old Occupation	-0.012*** [0.005]	-0.041*** [0.016]	0.007** [0.003]	0.000 [0.010]
Took Any Type of Leave	0.006 [0.076]	-0.294 [0.406]	-0.003 [0.075]	-0.295 [0.408]
Family Friendly Occupation * Took Any Type of Leave	-0.035 [0.112]	-0.174 [0.528]	-0.048 [0.111]	-0.187 [0.533]
Non-Family Friendly Occupation * Took Any Type of Leave	-0.095 [0.113]	0.559 [0.440]	-0.101 [0.112]	0.584 [0.442]
Old Occupation * Took Any Type of Leave	-0.053 [0.126]	0.488 [0.425]	-0.081 [0.123]	0.328 [0.439]
Took Any Unpaid Maternity Leave	-0.015 [0.062]	0.265 [0.393]	-0.020 [0.062]	0.261 [0.395]
Family Friendly Occupation * Took Any Unpaid Maternity Leave	-0.105 [0.092]	-0.035 [0.516]	-0.108 [0.092]	-0.035 [0.521]
Non-Family Friendly Occupation * Took Any Unpaid Maternity Leave	0.068 [0.093]	-0.397 [0.410]	0.069 [0.093]	-0.386 [0.412]
Old Occupation * Took Any Unpaid Maternity Leave	-0.037 [0.111]	-0.389 [0.409]	-0.037 [0.110]	-0.363 [0.411]
Took Any Paid Maternity Leave	-0.016 [0.073]	0.318 [0.402]	-0.018 [0.072]	0.338 [0.404]
Family Friendly Occupation * Took Any Paid Maternity Leave	0.040 [0.105]	0.186 [0.521]	0.041 [0.104]	0.179 [0.526]
Non-Family Friendly Occupation * Took Any Paid Maternity Leave	0.151 [0.108]	-0.548 [0.434]	0.149 [0.107]	-0.595 [0.436]
Old Occupation * Took Any Paid Maternity Leave	0.072 [0.118]	-0.523 [0.413]	0.083 [0.115]	-0.412 [0.428]
Constant	0.180*** [0.007]	0.058 [0.069]	0.206*** [0.005]	0.115** [0.049]
Demographic Control Variables	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y
Observations	34,834	7,357	69,849	15,003
R-squared	0.027	0.062	0.030	0.054

## 2. Sample Split – Family Friendly Occupations

To further explore the effects of occupational fields on promotions, we split the sample into family friendly occupations, non-family friendly occupations, and old occupations. These results can be found in tables 10a, 10b, and 10c, respectively. Across all three occupation types, we find similar results with varying degrees of statistical significance. For all occupations, promotions are less likely for women and in years after 1993.

Furthermore, evidence suggests that compared to women who did not have a child, women who did were less likely to be promoted in all three occupation types, however the results are not statistically significant when controlling for demographic factors. Though not significant, when controlling for demographic variables, having a child in a family friendly occupation produces a positive effect on promotions and a negative effect in non-family friendly or older occupations.

Table 10a: Family Friendly Occupation Sample Split on Promotions

VARIABLES	Family Friendly Occupations							
	Women Only			Men & Women				
	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions
Took Any Paid Maternity Leave	0.158 [0.122]			0.173 [0.119]				
Took Any Unpaid Maternity Leave	0.230 [0.268]			0.147 [0.303]				
Total Paid Maternity Leave Months	-0.029 [0.027]			-0.025 [0.026]				
Total Unpaid Maternity Leave Months	-0.101 [0.128]			-0.082 [0.131]				
Female						-0.045 [0.038]	-0.068*** [0.020]	-0.032 [0.039]
Had Child		-0.089** [0.041]	0.082 [0.121]		-0.047 [0.036]	0.067 [0.081]		
Had Child * Post FMLA		0.016 [0.053]	-0.061 [0.128]		0.011 [0.043]	-0.068 [0.089]		
Post FMLA		-0.178*** [0.068]	-0.268 [0.233]		-0.115** [0.054]	-0.327** [0.160]	-0.171*** [0.028]	-0.265*** [0.093]
Female * Post FMLA							0.031 [0.023]	0.015 [0.043]
Constant	-0.350 [2.006]	0.237*** [0.036]	0.405 [0.411]	-0.052 [1.344]	0.257*** [0.027]	0.108 [0.279]	0.292*** [0.019]	0.323** [0.143]
Demographic Control Variables	Y	N	Y	Y	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y	Y	Y	Y	Y
Individual Fixed Effects	Y	N	N	Y	N	N	N	N
Observations	1,150	949	317	2,104	1,919	648	6,620	2,135
R-squared	0.095	0.029	0.177	0.065	0.017	0.112	0.014	0.063
Number of id	700			1,245				

Table 10b: Non-Family Friendly Occupation Sample Split on Promotions

VARIABLES	Non-Family Friendly Occupations							
	Women Only			Men & Women				
	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions
Took Any Paid Maternity Leave	-0.026 [0.098]			-0.019 [0.095]				
Took Any Unpaid Maternity Leave	0.082 [0.155]			0.134 [0.152]				
Total Paid Maternity Leave Months	0.021 [0.043]			0.015 [0.042]				
Total Unpaid Maternity Leave Months	0.016 [0.021]			0.001 [0.020]				
Female						-0.040 [0.025]	-0.059*** [0.013]	-0.039 [0.027]
Had Child		-0.065** [0.029]	-0.037 [0.063]		-0.029 [0.023]	0.010 [0.049]		
Had Child * Post FMLA		0.044 [0.038]	0.037 [0.073]		0.021 [0.029]	0.026 [0.056]		
Post FMLA		-0.192*** [0.031]	-0.059 [0.141]		-0.189*** [0.025]	-0.124 [0.103]	-0.200*** [0.016]	-0.270*** [0.060]
Female * Post FMLA							0.034** [0.015]	0.038 [0.031]
Constant	-1.418 [1.032]	0.282*** [0.022]	0.298 [0.245]	-1.374* [0.824]	0.291*** [0.017]	0.294* [0.170]	0.335*** [0.013]	0.039 [0.093]
Demographic Control Variables	Y	N	Y	Y	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y	Y	Y	Y	Y
Individual Fixed Effects	Y	N	N	Y	N	N	N	N
Observations	3,225	3,240	893	5,146	5,658	1,567	21,471	5,195
R-squared	0.078	0.021	0.095	0.070	0.021	0.070	0.025	0.060
Number of id	1,745			2,845				

Table 10c: Old Occupation Sample Split on Promotions

VARIABLES	Old Occupations							
	Women Only			Men & Women				
	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions	Promotions
Took Any Paid Maternity Leave	0.169 [0.133]			0.139 [0.119]				
Took Any Unpaid Maternity Leave	-0.094 [0.158]			-0.177* [0.100]				
Total Paid Maternity Leave Months	-0.024 [0.022]			-0.013 [0.016]				
Total Unpaid Maternity Leave Months	-0.038 [0.028]			-0.001 [0.007]				
Female						-0.056* [0.032]	-0.099*** [0.012]	-0.150*** [0.031]
Had Child		-0.068* [0.037]	-0.059 [0.149]		-0.007 [0.021]	0.088 [0.055]		
Had Child * Post FMLA		0.061 [0.048]	-0.055 [0.175]		0.020 [0.026]	-0.102 [0.062]		
Post FMLA		-0.096** [0.043]	0.008 [0.292]		-0.120*** [0.025]	0.033 [0.126]	-0.155*** [0.012]	-0.163*** [0.059]
Female * Post FMLA							0.080*** [0.013]	0.115*** [0.034]
Constant	-0.727 [1.698]	0.156*** [0.034]	0.579 [0.558]	-2.223** [0.970]	0.216*** [0.017]	0.478** [0.226]	0.233*** [0.009]	0.187* [0.102]
Demographic Control Variables	Y	N	Y	Y	N	Y	N	Y
Year Dummy Variables	Y	Y	Y	Y	Y	Y	Y	Y
Individual Fixed Effects	Y	N	N	Y	N	N	N	N
Observations	879	1,069	145	3,587	4,712	900	19,974	3,615
R-squared	0.158	0.030	0.240	0.061	0.021	0.083	0.025	0.063
Number of id	644			2,133				

There are no statistically significant results for understanding the impact of having a child after the passage of the FMLA. For family friendly occupations, effects are mixed; for non-family friendly occupations effects are positive; and for older occupations, results are mixed.

Overall, there is little evidence that the split samples dramatically differ from the overall sample.

## VI. Conclusion

Our research finds that having a child after the passage of the FMLA decreased unpaid maternity leave by 9 days and increased paid maternity leave by 9 days. This response could be explained in various ways. One possibility is that the FMLA did little to expand maternity leave benefits as 60.70 percent of the individuals in our sample already had maternity leave fringe benefits prior to the passage of the FMLA in 1993. Instead of expanding benefits, the FMLA may have been a reaction to an already-changing workplace trend. Another possibility is that the FMLA set a baseline for employee benefits, so in order for firms to compete for employees, they began offering better benefits including paid maternity leave. Furthermore, we observe that there is no negative impact on promotions for women after the passage of the FMLA, indicating that the FMLA may not have done much to expand coverage and increase employer costs.

When we isolate the effect of the FMLA on those who did not have maternity leave fringe benefits beforehand, we find that promotions increase by about 10 percentage points among women after the law change. Although we see an overall decrease in promotions post-FMLA for the entire sample, for those who gained the maternity leave fringe benefit from the FMLA, we find the opposite. This may indicate that the FMLA marked a shift in better workforce environments and career opportunities for women. However, we do find weak evidence of the FMLA negatively affecting promotions for those who chose to have children after the law change in these jobs that previously did not offer maternity leave benefits.

Consistent with prior literature, we find that in older occupations, women are less likely to be promoted than in other occupations. However, in contrast, we find that women in non-family friendly occupations are up to 1.8 percentage points more likely to be promoted than women in family friendly occupations relative to other occupations.

Overall, we find no evidence that promotions decreased for mothers or for women in general after passage of the FMLA. We see that the FMLA did have a positive effect on promotions for women who previously did not have access to maternity leave fringe

benefits, although perhaps not among new mothers. These findings run contrary to the concerns raised by Thomas (2015).

This discrepancy in findings may be a function of the fact that Thomas (2015) focuses on women who are newly hired, while our sample is somewhat older and more established in their careers (although still well within child-bearing years) at the time of the FMLA law change. Additionally, the majority of individuals in our sample already had maternity leave fringe benefits prior to the 1993 law change. Future research should perhaps explore whether the FMLA law change differently affects women at different stages in their careers. Or, whether other factors such as the general workplace environment play a larger role in promotions among women.



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