Maternity Leave Policies and Labor Market Effects

by

Lucy Hansen

Christina DePasquale, Ph.D
Adviser

Economics

Christina DePasquale, Ph.D

Adviser

Stephen O'Connell, Ph.D

Committee Member

Suhas Sridharan, Ph.D

Committee Member

2019

Maternity Leave Policies and Labor Market Effects

By

Lucy Hansen

Christina DePasquale, Ph.D

Adviser

An abstract of
a thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Arts with Honors

Economics

2019

Abstract

Maternity Leave Policies and Labor Market Effects
By Lucy Hansen

Using legislative data from the National Partnership of Women and Families, this paper evaluates the effects of various family leave policies across all 50 states on female labor supply. I use three fixed effects models to estimate the impact of state-level legislation on labor force participation, weeks worked, and hours worked for new mothers. There is evidence that paid family and medical leave, currently in effect in California, New Jersey, New York, and Rhode Island, significantly increases work and labor force participation in the majority of the models. When legislated family leave is not necessarily paid, the strongest family leave policies are associated with increased labor force participation but reduced work. Results also suggest that the combined effect of a state's various leave and related policies for mothers has a positive, significant effect on work. While some types of legislation have opposing effects, there is evidence to suggest that overall more generous state-level family leave policies combine to create environments in certain states that lead to increased female labor supply.

Maternity Leave Policies and Labor Market Effects

By

Lucy Hansen

Christina DePasquale, Ph.D

Adviser

A thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Arts with Honors

Economics

2019

Acknowledgements

Thank you to my adviser, Dr. DePasquale, for responding to my many questions and guiding me throughout this process. Thank you to Dr. O'Connell for leading the economics honors seminar and preparing me to take on this project. Thank you to Dr. Sridharan for her encouragement throughout this process, her willingness to jump on to my committee, and for allowing me to learn from her as a research assistant in the past. Thank you Dr. Reinhardt and the Emory SIRE program for first getting me involved in research during my sophomore year. Thank you to the rest of the economics department for teaching me the background I needed on this topic and supporting me in all of my academic and professional decisions and goals. Lastly, thank you to my friends and family for listening to me say a million times over that I should have never done this thesis but were there for me through all of the stress anyway.

Table of Contents

I.   Introduction

The United States and Papua New Guinea are the only countries in the world that do not require any type of paid maternity leave (Addati et al. 2014; Rossin-Slater 2017). Theoretically, maternity leave may have either a positive or a negative effect on female labor supply. While women may use leave policies as an opportunity to avoid leaving the labor market altogether, legislated leave could also encourage women to take more time off (Rossin-Slater 2017).

The United States introduced its first national family leave policy in 1993 with the Family and Medical Leave Act (FMLA). Under the FMLA, the U.S. essentially combines maternity, parental, and other types of family leave. For mothers, the FMLA provides 12 weeks of unpaid maternity leave. However, small employers (fewer than 50 workers) are exempt from this requirement, and employers do not need to provide leave to workers who have been with the firm for less than one year (Rossin-Slater 2017). In fact, policy analysis research on the FMLA has shown that nearly 60 percent of American mothers in private sector jobs are not necessarily protected by FMLA maternity leave (Klerman et al. 2012; Rossin-Slater 2017). However, certain U.S. states have developed their own extensions of maternity leave coverage, leading to large differences for women living in different states. While a variety of studies have compared the effects of the FMLA with that of state-specific legislation, this work often relies on data from more than ten years ago (Baum 2003; Berger and Waldfogel 2004; Waldfogel 1999, for example). Other more recent work focuses on one state-specific program such as California paid family leave (Baum and Ruhm 2016; Rossin-Slater et al. 2013).

The empirical work on leave policies and labor supply is supported in the labor theory literature. Female labor supply is a widely studied issue.[1] One model of interest is Klerman and

---

[1] For an early review of the labor supply literature see Killingsworth and Heckman (1986).

Leibowitz's (1994) behavioral model of female labor supply (cited in Rossin-Slater 2017). In this model, "work" is distinct from labor force participation because a worker can be on leave but still in the labor force. According to Klerman and Leibowitz (1997; Baum 2003), "in a labor market with enduring employment relations", there is an "optimal leave" time for both employers and employees, with employers preferring a shorter leave (Klerman and Leibowitz 1997, 67-68). By modeling a mother's reservation wage and her decision to work over the early life of her child, Klerman and Leibowitz's theory concludes that fewer women quit their jobs when there is mandated leave, but more women take leave from work. Baum (2003) summarizes their theoretical findings: leave policies lead more women to take leave, even though they are more likely to return to their previous job after the leave period. Contrary to this theory, Klerman and Leibowitz's preferred empirical model does not find any significant results.

One motivation for analyzing maternity leave policies is their potential impact on gender wage disparities. There is a wide literature that finds a "motherhood wage penalty" and explains how leave policies might both help and hurt this wage gap. If mothers do not have to quit working because they can take leave instead, they have more tenure with their employer and are eligible for wages more comparable to their male coworkers. The downside is that maternity leave legislation may incentivize employers to discriminate in hiring against women or mothers because of the assumption that they will take leave. Further, any increased time away from work, including from family leave, can inhibit wage growth (Rossin-Slater 2017).

Specifically, the literature defines a "family gap" for mothers versus non-mothers. This "family gap" persists even though the traditional "gender gap" in wages has shrunk. The gender pay gap is larger in the U.S. than in other countries; although the U.S. has similar equal opportunity policies as its peers, it has fewer maternity leave policies. Waldfogel argues that

leave policies may help mothers earn higher wages, thus closing this gap, if they can stay with their employer over time (Waldfogel 1998).

In this paper, I exploit the variation in state-level maternity leave legislation and examine how family leave policies affect the labor supply of American mothers. Using legislative data from the National Partnership for Women and Families (NPWF) from 2005 to 2016 and American Community Survey (ACS) data from 2001 to 2017, I study the effects of state-wide legislation on the employment of mothers in each state. I employ a fixed-effects model to estimate the overall effects of a change in legislation in each particular state, which adds to the growing literature unraveling the effect of maternity leave legislation on women's labor supply. I find evidence that the overall combination of leave policies in a state increases work, though there are mixed positive and negative effects of the individual policies. Additionally, there is evidence of a positive association between paid family leave and labor force participation. When leave is not necessarily paid, the strongest type of family leave is positively associated with labor force participation but negatively associated with work.

Ultimately, this paper contributes to research on maternity leave effects by taking advantage of recent data from all U.S. states. Given that some policy changes have occurred in just the last few years, this study provides a fresh perspective on maternity leave. The following section reviews the literature on maternity leave legislation and female labor supply. Section three explains the methodology; section four describes the collection and use of data; sections five and six present and discuss the results; and section seven concludes.

II.   Background and Related Literature

Family Leave Policy in the United States

The United States offers 12 weeks of unpaid maternity leave under the FMLA. Before the FMLA, some protections were afforded to mothers under the 1978 Pregnancy Discrimination Act (PDA), which made it illegal to discriminate against pregnant workers. However, this restriction only applied to firms with 15 or more workers, and the PDA does not necessarily require that pregnant workers receive "reasonable accommodations" during work. In the 2015 decision *Young v. United Parcel Service*, the Supreme Court ruled that the PDA requires that any accommodations for other disabled workers should extend to pregnant workers (NPWF 2016).

More recently, the Affordable Care Act (2010) included a "Right to Pump" amendment to the Fair Labor Standards Act, ensuring nursing accommodations for hourly or overtime-eligible workers for one year after childbirth. Later, a September 2015 executive order provided paid sick time for employees of federal contractors. Current proposals in Congress include the issues of paid sick leave, paid family and medical leave, and stronger legislation to provide pregnancy accommodations in the workplace (NPWF 2016). In 2013, the FAMILY act was introduced in Congress, which would create an insurance fund to provide paid leave nationally, but has not been passed (Gault 2014).

While federal policy is at a standstill, there is more variation in family leave policies at the state level, allowing for comparisons within the United States. For example, California, Rhode Island, New Jersey, and New York currently offer paid maternity leave, and the District of Columbia and Washington state will be implementing paid maternity leave in 2020 (Rossin-Slater 2017). Other differences across states involve the extent of job-protected family or

medical leave in addition to the FMLA, pregnancy accommodations, and the ability to use sick days for maternity leave (NPWF 2016).

Related Literature

Rossin-Slater (2017) summarizes research on family leave policy and mothers' employment. Empirically, the lack of random assignment is a potential problem for causal inference in family leave research because higher-income women generally can obtain more family leave (Rossin-Slater 2017; Gault et al. 2014). In spite of this hurdle, the literature concludes that stronger leave programs generally mean that parents take more leave, justifying the assumption that mothers will actually utilize their leave options. Further, there seems to be a long-run positive impact on female labor force participation when leave is less than one year, but a negative impact when leave is more than one year (Rossin-Slater 2017).

Prior literature has exploited differences in leave policies across states, with early research on the impact of maternity leave predating the FMLA. For example, Klerman and Leibowitz (1997) studied exclusively state-level maternity leave legislation pre-1990. Their difference-in-differences analysis compared states with and without maternity leave legislation (MLL), finding a significant result that MLL increased both employment and work among mothers. However, their difference-in-difference-in-differences model that incorporated mothers with older children finds that MLL actually decreases employment. Overall, the authors' "preferred results (Difference-of-Difference-of-Difference with demographic controls) imply that the [Maternity Leave Statutes] have no statistically significant effect on employment, leave or work" (82). To explain such a finding, the authors speculate that some states may have instituted MLL as a result of an already strong labor market.

Another body of research focuses on the direct impact of the FMLA of 1993. For example, Waldfogel (1999) used a difference-in-differences approach to evaluate the FMLA by using control states that already had maternity leave legislation prior to 1993. The new federal leave policies led to more mothers taking leave, but did not contribute to any significant change in female wages or employment (Waldfogel 1999, cited in Rossin-Slater 2017). The research design considers that the parallel trends assumption may not be valid, so Waldfogel adds a difference-in-difference-in-differences model, where men, women without children, and older women are a control group. In this model, the FMLA led to employers offering more leave, whether they were offering leave before the FMLA or not. However, both of the design specifications produced insignificant effects regarding women's employment, but this may be due to the combined effect of leave both encouraging and discouraging work (Waldfogel 1999). Additionally, Han and Waldfogel (2003) evaluate the effects of the FMLA on whether parents take leave. They find that the legislation does not change fathers' leave-taking, while the results for mothers vary based on the specification. Overall, these results reveal "the limited impact of unpaid leave policies" (198).

Federal and state policies are also studied jointly. Combining state-level policies with federal policy, Berger and Waldfogel (2004) study the effects of 1988 state-level MLL as well as the FMLA. They find that women who have maternity leave with their employer are more likely to take leave, but only up to the 12 weeks provided under the FMLA. Similarly, Baum (2003) evaluates state-level MLL in the 1980s as well as the FMLA by using a natural experiment to compare mothers who are and are not covered by MLL. All of the empirical models show that MLL makes mothers more likely to take leave, but all coefficients are insignificant. Interestingly, mothers impacted by MLL are more likely to return to their previous jobs. Han et al. (2009) also

use state-by-state differences to evaluate the effects of maternity leave, comparing women with children with women who *will* have children in the next 11 to 12 months. Ultimately, MLL does increase leave, but does not affect the employment of mothers. Additionally, even after the passage of the FMLA, findings show that state-specific laws remain effective (Han et al. 2009).

Looking at state-level leave exclusively, studies have shown that California's paid leave program increases work among mothers (Rossin-Slater et al. 2012; Baum and Ruhm 2016). Rossin-Slater et al. (2012) compare California mothers with mothers in other states, older women, and childless women, finding that California mothers' hours of work per week increased. Baum and Ruhm (2016) corroborate this prior study and provide stronger evidence of paid leave's causal effect.

Other research on maternity leave studies the effects of leave on employment but, as noted by Schonberg and Ludsteck (2014), does not connect the analysis to any particular maternity leave legislation. Higuchi, Waldfogel and Abe (1999) use survey and panel data in the U.S., Great Britain, and Japan to conclude that mothers covered by maternity leave are more likely to return to the same job post-childbirth. Hashimoto et al. (2004) find that after controlling for a variety of variables, maternity leave only affects the employment of mothers in the short term.

Outside of the United States, other research has focused on Canada or European countries, which generally have more generous family leave policies than the U.S. Such studies have produced mixed results regarding female employment (Rossin-Slater 2017). Ruhm's (1998) difference-in-difference-in-differences study across European countries finds that MLL increases employment but that long leaves may hurt wages. Baker and Milligan (2008) study job-protected maternity leave in Canadian provinces and conclude that short and long leaves lead to greater employment, but only the longer leaves increase time away from work. Lalive and Zweimuller

(2009) examine the effects of a 1990 increase in parental leave in Austria, finding that the longer leaves decreased the probability that mothers returned to work, but that this new leave policy only minimally impacted employment or wages in the long run. Schonberg and Ludsteck (2014) employ a difference-in-differences design in Germany to evaluate changes to MLL. Generally, an increase in MLL reduces short-run employment of mothers, and Germany's original policy goals of improving long-run employment and income for mothers were not realized.

As mentioned, European countries like the cases above often have longer leave policies than the U.S. Comparing the U.S. to its peers, Blau and Kahn (2013) use linear regression analysis to unravel why the U.S. has a lower female labor force participation rate than other developed countries, especially since this disparity largely appeared between 1990 and 2010 alongside changes in MLL. Cross-country differences in MLL contribute to the lower female labor force participation in the United States, but the data also show that U.S. women are more likely to be employed full-time. Further, compared to the other countries in the sample, there is a larger percentage of women in upper-level jobs in the U.S. In summary, when evaluating leave policies in different countries or states, the authors conclude that it is not sufficient to look at overall female employment as the one key outcome variable. One example is Schott's (2012) study on part-time work. Schott argues that indirectly, "family leave provides bargaining power for women with which to negotiate better terms of return" (3). The results indicate that women who worked full-time while pregnant are more likely under the FMLA to work part-time after childbirth. In light of Schott's and Blau and Kahn's findings, I incorporate hours and weeks worked as additional outcome variables in my analysis.

The current literature has taken advantage of natural experiments and difference-in-differences approaches to evaluate family leave policies both within the United States and across

other countries. The United States branch of the literature is especially focused on the FMLA and other state-level policy changes around the same time period. However, the FMLA is now 25 years old, and many states have made changes to their leave policies more recently than the current literature has studied. This paper will update the literature on family leave policies in the United States by widening the scope to include both more states and more types of legislation, as well as focusing the analysis on more recent years.

III.   Methodology

The primary method for my empirical analyses is a fixed effects model that accounts for differences both across states and over time to help uncover a causal relationship between MLL and female labor supply. Through this model, I study the relationship between MLL and female labor supply. Specifically, I exploit the staggered introduction of family leave legislation and examine the effect of family leave policies on labor force participation at the intensive and extensive margins.

My fixed effects approach is similar to the difference-in-differences studies in the literature (Waldfogel 1999; Klerman and Leibowitz 1997; Schonberg and Ludsteck 2014; Han et al. 2009; Baum and Ruhm 2016, for example). These studies take advantage of variation in both place and time because some states make changes in certain years while other states remain the same. In this paper, I use the same approach with data on all 50 states and the District of Columbia across four different benchmark years for changes in maternity leave legislation: 2005, 2012, 2014, and 2016.

I also test to see if MLL affects different groups in different ways. For example, Han et al. (2009) present a novel focus on how the effects of MLL vary for married versus single mothers

and more or less educated mothers. In this particular study, more educated mothers took more leave, and MLL was found to only impact the leave-taking of married mothers. However, Rossin-Slater et al. (2013) found that California's paid family leave actually helped "less advantaged mothers" (defined as "less educated, unmarried, or nonwhite") more, directly contradicting Han et al.'s findings regarding unpaid leave (225). The author's idea behind this finding is that unpaid leave is not an option financially for "less advantaged mothers" even if they are eligible for such leave. Klerman and Leibowitz (1994) summarize neo-classical labor supply theory by concluding that mothers' decision to work may be affected by wages, other family income, or the presence of other children, and find mixed empirical results. I include standard demographic controls as in the literature. My analysis follows from Waldfogel's 1999 paper in controlling for race, age, education, marital status, and the number of young children (which, in line with the ACS, I define as children under age five).

For the purposes of my analysis, I want to ensure that the legislation listed in each NPWF report is affecting all women for that year. If legislation goes into effect in the middle of a year, not all women who have children born in the last year will be impacted. To mitigate this concern, I match the 2005 NPWF data to the 2006 census, the 2012 NPWF data to the 2013 census, and so on.

The basic empirical model is given by:

$$Labor\ Outcome_{it} = \alpha_0 + \alpha_1 Legislation_{st} + \beta X_{it} + \gamma_s + \eta_t + \varepsilon_{ist},$$

where X is a vector of control variables, γ represents state fixed effects, η represents year fixed effects, and ε is an error term. I use the same empirical model for three different outcome

variables: labor force participation; weeks worked in the past year; and usual hours worked per week[2].

$$(1)\ Labforce_{it} = \alpha_0 + \alpha_1 Legislation_{st} + \beta X_{it} + \gamma_s + \eta_t + \varepsilon_{ist},$$

$$(2)\ Hoursworked_{it} = \alpha_0 + \alpha_1 Legislation_{st} + \beta X_{it} + \gamma_s + \eta_t + \varepsilon_{ist},$$

$$(3)\ Weeksworked_{it} = \alpha_0 + \alpha_1 Legislation_{st} + \beta X_{it} + \gamma_s + \eta_t + \varepsilon_{ist},$$

In model (1), I only consider women who have had children within the past year. Klerman and Leibowitz (1994; 1997) make the distinction that women who are on leave are still employed, but not currently working. Model (1) then will count women who are on leave as being in the labor force. I also include regression results for male labor force participation with the same control variables. Though not technically a difference-in-difference-in-differences model, these additional results can help provide evidence of causal effects (see Klerman and Leibowitz 1997; Waldfogel 1999; Ruhm 1998).

In models (2) and (3), I instead limit the dataset to women whose youngest child is a one-year-old. These women have had children recently, but not within the past year. For women who have had children within the past year, it can be misleading to study how much they have worked in the past year or how much they work per week because we do not know how much, if any, of the last year they spent on leave. I am instead interested in the extent to which leave policies encourage or discourage future work, after the time of leave itself. A caveat is that the weeks worked variable specifies weeks worked "last year", which might mean that a mother is answering that survey question based on a year where she was still partially on leave.

By focusing on women with slightly older children, I study the longer term effects of leave policy on female labor supply in these latter two models. However, I limit the ages of the

---

[2] I separately run regressions for hours worked conditional on working nonzero hours per week.

children to one-year-olds because I still need to assume that the policy of the current year (i.e. the year that the mother has a one-year-old child) impacted the mother when she actually gave birth to her child. Because I am already adding one year to each legislative variable, this is a reasonable assumption.

In the empirical model, I include the legislative variables in three different ways:

(a) using the main four legislative variables,

(b) using the main four legislative variables plus subcategories for job-protected family leave and job-protected medical leave,

(c) using the "total points" figure assigned by the NPWF (after standardization).

This additional specification leads to a total of nine regression results of interest (1a, 1b, 1c, and so on), plus additional results for male labor force participation and weekly hours worked conditional on work.

IV.   Data

Legislative Data

I have accumulated the legislative dataset based on reports from the National Partnership for Women and Families (NPWF). The NPWF compiles a report on each of the 50 states' family leave policies, assigning grades to each state. These grades are based on a numerical "score" that the researchers have also assigned to each state for that year. The report outlines its complete system of how it awards points to each state based on the presence of certain legislative protections for mothers.

The most recent edition of this report is from 2016, and the first edition was in 2005. The second and third editions were published in 2012 and 2014. This is a unique data source because

it is comprehensive across U.S. states and the District of Columbia. Unfortunately, there are only four years of the data with a big gap between 2005 and 2012. The 2012 edition of the report does highlight the major changes in some states between 2005 and 2012.

Each state receives an overall grade of A through F, and each letter grade corresponds to an underlying numerical "total points" figure. The reports explain how many points states receive for each type of family leave legislation in place. Further, each state is broken down by the legislation in place for private sector workers and state workers. Often, state workers have more legislated benefits than private sector workers.

I limit my analysis to private sector workers for two reasons. First, most workers in a given state are likely employed by the private sector, so the applications of this analysis apply mainly to this group. Second, this choice reduces the count of relevant independent variables by one-half, since separate variables do not need to be created for state workers and private sector workers.

I have assembled a dataset that, based on the NPWF data, records five relevant family leave variables for each state and the District of Columbia in each year. Thus, each variable has 204 observed values (51 states times 4 years). In order to capture the largest time frame in the analysis, I am only including the variables that were considered in all four reports. Variables for job-protected paid sick says and nursing mothers' workplace rights were added in 2012, and a variable for pregnancy accommodations was added in 2014. These variables are not included in the regressions, but are still studied indirectly since they contribute to the total points for each state. It is reasonable to exclude the pregnancy and nursing variables because, while helpful to mothers, they are not technically a form of leave. While job-protected paid sick days do constitute a type of leave from work, this policy is rare among states.

Most of the legislative variables are dummies, taking a value of either zero or one depending on whether the state is listed as having that particular legislated leave provision in that year. The variables, as defined by the 2016 NPWF report are: Paid Family Leave; Paid Medical Leave; Job-Protected Family Leave; Job-Protected Leave for Pregnancy, Childbirth or Related Medical Conditions; and Flexible Use of Sick Time. There is no variation in paid medical leave over the time period 2005 to 2016, so I do not include this variable in my model, although I discuss its meaning alongside the rest of the variables. Further, paid medical leave is a difficult variable to study on its own because Hawaii and New York are the only states that have paid medical leave without paid family leave over the entire span of this dataset, and Hawaii is omitted from many of the regressions.

The following variable descriptions are based on the methodology sections and state-by-state breakdowns in the reports from the National Partnership for Women and Families (Grant, Hatcher, and Patel 2005; NPWF 2012; NPWF 2014; NPWF 2016), along with any clarifying criteria that I have assigned[3]:

Paid Family Leave. In this case, paid family leave only applies to states that legislated paid family/medical leave in addition to pre-existing temporary disability insurance (TDI) or state disability insurance (SDI) policies. Paid family/medical leave must include paid leave that can be used to take care of a new child (i.e. "family leave") and not simply for post-birth recovery.

Job-Protected Family Leave. According to the NPWF, this variable refers to any state-wide family leave provisions that go beyond what the FMLA provides. The FMLA allows for 12 weeks of unpaid leave for mothers that have worked full-time (1250 hours per year) for at least

---

[3] See the NPWF 2016 report for their official definitions, available at http://www.nationalpartnership.org/our-work/resources/workplace/expecting-better-2016.pdf.

one year in firms with 50 or more workers (Rossin-Slater 2017). The NPWF defines multiple

ways that states extend this family leave: longer leave times; leave for shorter-tenured workers;

leave for workers at firms with fewer than 50 workers; and leave for workers who are taking care

of a domestic partner or the partner's child. According to the 2016 NPWF report, each of these

four types of family leave earns ten points, so states may collect more points based on the

comprehensiveness of their family leave policies. All states with some level of additional family

leave receive credit for this variable in my dataset. Following the NPWF's method of assigning

points for different dimensions, I add additional variables to my dataset to reflect these

distinctions. In the 2005 report, these subcategories are less clear, so I only make this distinction

for the 2012, 2014, and 2016 data. Thus, my expanded form of the model with family leave

subcategories only includes years 2013 and on. "Strong" job-protected family leave means that

the state extends federal family leave by 4 dimensions, "semi-strong" three dimensions, semi-

weak two dimensions, and weak one dimension. It should be noted that some states are only in

their assigned subcategory because they received points for the "expanded definition of 'family'"

which allows domestic partners to take family leave. This specific extension of the family leave

is of less interest to this study because it applies to leave that is not taken by the mother herself.

Additionally, the line between "family leave" and "medical leave" is not always clear,

largely because many laws combine both types of leave. Further, sometimes the NPWF uses

other language like "maternity leave" and "parental leave" in its descriptions of state legislation.

The NPWF defines parental leave as leave to be with a new child, so leave of this type clearly

belongs in the family leave category. However, the NPWF defines maternity leave as leave taken

by new mothers for medical reasons related to pregnancy and childbirth and/or leave taken to

bond with her new child, so the distinction between family and medical leave is less clear. In

cases when state legislation refers to maternity leave, I focus on the state-by-state descriptions of the legislation. In many other cases, the NPWF lists states as having "family and medical leave" or "medical and maternity leave" which make it unclear which variables to use for these states. In such cases, I also rely on the NPWF's description of the law. When the leave is clearly described as pertaining to a "disability" from pregnancy or childbirth, I consider it purely medical leave. Other times, leave is simply described as being for pregnancy, childbirth (or "recovery from childbirth") or nursing. Here, I have to define a line for the purposes of my data organization: "pregnancy" or "childbirth" leave is medical leave, but if this includes "nursing" leave, then it is family leave. For example, in 2005, Vermont is listed as having "Parental and Medical Leave" to be used for "pregnancy, to care for a newborn, or to care for a newly adopted child," which counts as both family and medical leave under these definitions. Tennessee's "Medical/Maternity Leave" is a similar situation.

Another complication is that the NPWF often combines family and medical leave when assigning points to states. As stated in the 2016 report, if family leave and medical leave policies are exactly the same for a state, the state only gets one set of points. This complicates my recording of these variables as separate, so states need to be added on to one of the two types of leave if they have both family and medical leave beyond the FMLA but are only grouped with one or the other in the report summary. Some states do not appear to be consistent across reports, so there are exceptions to the general rules of what constitutes "family" versus "medical" leave. Anomalies are discussed in Appendix A.

Job-Protected Medical Leave. Similar to job-protected family leave, the NPWF refers to job-protected medical leave as medical leave provisions beyond the FMLA. Again, I define additional medical leave variables based on how the NPWF assigns points to states based on the

comprehensiveness of their policy (for years 2013 and on). There is one fewer dimension than for family leave because the only ways that states can have medical leave beyond the FMLA are by offering longer leave, leave for shorter-tenured workers, and leave for workers at firms with fewer than 50 workers (since the definition of a family does not apply in this case). Here, I remove "semi-weak" from the variable list and use "strong" to represent three dimensions, "semi-strong" for two dimensions, and "weak" for one dimension.

One complication with this variable is that the NPWF includes leave for "pregnancy disability" under one section of its family leave category. As a result, some states that offer a total amount of leave to be used for caring for a child and/or for pregnancy disability only receive points for family leave. I consider the pregnancy leave to be medical leave, so I count such states in both categories.

Flexible Use of Sick Time. Some states allow workers to use their sick days to care for a sick child or partner, or a newborn (but otherwise healthy) child. All states with any flexible sick day accommodations earn credit.

Paid Medical Leave. This variable refers to states that provide paid medical leave through either Temporary Disability Insurance (TDI) or State Disability Insurance (SDI). This paid leave must be specific to the definitions of medical leave provided above. It so happens that states with paid family leave policies also always have a paid TDI policy for the more medical reasons that mothers take leave. The converse is not true: sometimes, states only have paid medical/pregnancy disability leave because the only paid leave provisions relate to pregnancy, disability, and childbirth, but not spending time with a new child. Paid medical leave is not included directly in the regressions.

Total Score. An additional legislative variable is the total number of points assigned by the NPWF for that state in that year. This variable assigns a numerical value to the overall extensiveness of family leave legislation. Adding this variable is useful because not all of the dummy variables are created equal. For example, the NWPF assigns 15 points for pregnancy accommodations or nursing rights, but can assign anywhere from 10 to 40 points for job-protected family leave, based on the extent of the coverage. According to the NWPF 2016 report, California scored the most points (155 points), while the following states earned zero points: Alabama, Arizona, Georgia, Idaho, Michigan, Mississippi, Missouri, Nevada, Oklahoma, South Carolina, South Dakota, and Wyoming. However, the 2014 NWPF report warns that one cannot compare state grades across 2005, 2012, and 2014 because the researchers updated the grading criteria between reports. I have found no such warning in the 2016 report, so I am comparing 2014 and 2016 grades. The total number of points assigned also reflects policies for public sector state workers, which are not included as variables in this analysis. However, the NPWF gives state-worker-specific policies less weight.

The total score includes the following variables that are not separated out in the regressions. These variables are defined below based on the NPWF methodology sections and state-by-state breakdowns (NPWF 2012; 2014; 2016)[4]:

Nursing Mothers' Workplace Rights. NPWF reports in 2012, 2014, and 2016 assign points for states that have legislated nursing accommodations for new mothers. These legislated accommodations are in addition to the 2010 "Right to Pump" amendment to the Fair Labor Standards Act. These nursing accommodations usually include a "private place" at work as well

---

[4] See the NPWF 2016 report for their official definitions, available at http://www.nationalpartnership.org/our-work/resources/workplace/expecting-better-2016.pdf.

as a "reasonable break time" for nursing or pumping. However, some states do not include the "reasonable break time" provision in their laws.

Pregnancy Accommodations. Beginning in 2014, the NPWF listed which states legislate certain accommodations for pregnant workers. Although these accommodations can vary, especially due to exemptions for employers, states with any accommodations receive credit for this variable.

Job-Protected Sick Days. In a few states, workers are afforded job-protected paid sick days. These laws may include details that pertain to the flexible sick days variable, as paid sick days often include flexible sick days.

Table 1: State Totals for Eight Legislative Variables

Year	Nursing	Paid FML	Job Prot. FL	Job Prot. ML	Job Prot. Sick Days	Flex. Sick Days	Preg. Accom.	Paid TDI (medical leave)	Avg. Score
2005	-	1	10	15	-	5	-	5	26.69
2012	15	2	14	16	2	10	-	5	27.45
2014	16	3	16	17	3	10	10	5	31.96
2016	19	3	16	17	6	12	17	5	37.91

Even after generating my own guidelines for how to code the above variables, the appropriate coding for some state-years is not always clear. One data issue is the flexible use of sick time variable. Some states with flexible sick leave laws do not specify that sick days can be used to care for an otherwise healthy newborn. In these cases, the flexible sick day policy applies less to the NPWF's actual reason for including flexible sick days as a quasi-maternity leave policy. Sometimes, the NPWF is specific about reducing the points awarded to states that have this limitation. As a result of these discrepancies, state-years that have only the less extensive

version of the sick leave law are coded separately so that I also run the regressions without those cases.[5]

Another significant data issue is cases where legislation goes into effect after the year of the report but the state still receives credit, or cases where the legislation goes into effect towards the end of the same year but the state does not receive credit. Sometimes the NPWF lists legislation with states even though the legislation is not in effect as of the report date. In these cases, the NWPF sometimes assigns points anyway, but sometimes does not. For example, in Delaware, the NPWF did not award points because the pregnancy accommodation law came into effect after the report was published, but before the end of the year. In both of these situations, I still count the state as having the assigned number of points, rerun the total score regressions without these observations.[6] In cases where the NPWF mentions piece a legislation that is not yet in effect, but *does not assign points*, I do not count that variable for that state in that year at all. Specific anomalies are listed in Appendix A.

Labor Market Data

The labor market data comes from the American Community Survey, years 2001 to 2017[7]. I reduced the dataset based on several key variables. First, I removed all males from the dataset. Following Waldfogel (1999), I limit the analysis to women aged 19 to 45.

---

[5] In the 2012 and 2014 reports, the state descriptions for flexible sick days specifically mention this anomaly. In 2016 however, these states do not list that their flexible sick days policy can be used for healthy newborns, but they do not specifically state otherwise. Here, I assume that the policy is just the same as 2014 and consider these states to have the limited version of the flexible sick days policy.

[6] An exception to this is New York—the NPWF gave points for paid family leave in 2016, even though the law was not in effect until 2018, which is entirely outside the scope of my data. I do not give New York credit for paid family leave here.

[7] This dataset was downloaded from IPUMS at the University of Minnesota.

Since the ACS is not a longitudinal dataset, I cannot follow women over time, as in Baum (2003), to determine if they meet the work requirements of the FMLA or of any state-level policies. However, I follow Waldfogel's (1999) assumption that self-employed workers are not eligible for state or federal leave and thus remove them from the dataset. Additionally, I drop all observations where the individual works in a different state than they live, in order to avoid confusion about which state-level policies will impact these workers.

The table below summarizes some demographic data on ACS respondents over the years 2001 to 2017. Basic inspection of the data reveals that over these years the sample is becoming less white, more educated, slightly younger, and more likely to be single. Compared to the earlier years, fewer women have had children in recent years. One discrepancy is that the percent of women whose youngest child is a one-year-old is always slightly lower than the percent of women who have had children in the past year. If the sample is truly representative, it would follow that the percent of women who had children in the past year would be roughly the same as the percent who have a one-year-old child the next year. One possible reason for this difference is that mothers who have a one-year-old may also have a newborn, so their youngest child is not a one-year-old. Also, the ACS defines the youngest child variable as "age of youngest own child in household", which excludes women who gave children up for adoption or whose children live with other family members.

Table 2: Demographics of ACS Sample of Women Aged 19-45

Year	% With Children Born Last Year	% With Youngest Child Age 1	% With 4+ Years of College	% Non-white	Mean Age	% Married*	% in Labor Force
2001	7.22	5.83	27.57	22.01	33.08	55.52	74.04
2002	7.13	5.81	27.98	22.68	33.05	55.05	74.2
2003	6.86	5.48	28.67	22.83	32.99	54.63	73.69
2004	7.05	5.49	29.6	22.74	32.92	54.09	73.36
2005	7.28	5.65	29.32	24.9	32.93	53.64	72.84
2006	7.2	5.49	29.1	25.97	32.68	51.72	73.26
2007	7.31	5.89	30.1	26.1	32.54	51.15	73.1
2008	7.71	5.99	30.76	25.2	32.49	50.24	75.58
2009	7.52	5.99	31.02	25.62	32.34	49.06	75.31
2010	7.21	5.86	31.31	26.3	32.23	47.57	74.76
2011	7.04	5.52	29.96	27.09	31.85	44.46	73.02
2012	6.79	5.46	31.12	27.36	31.87	44.52	73.11
2013	6.79	5.41	32.53	27.34	31.88	44.43	73.43
2014	6.81	5.35	33.14	27.74	31.88	43.9	73.39
2015	6.71	5.36	33.92	27.72	31.82	43.69	73.61
2016	6.78	5.32	35.03	27.98	31.81	43.58	74.4
2017	6.84	5.31	35.88	27.94	31.81	43.71	74.62

*only includes married women whose spouses are present

I use three key labor variables from the ACS: labor force participation status, usual hours worked per week, and weeks worked last year. The idea of labor force participation of young mothers is indirectly incorporated into the models of hours and weeks worked, because women who are not in the labor force (who work zero hours and zero weeks) are included in those models.[8] To limit the observations in each analysis, I use one of two variables: "age of youngest own child in household" and "children born within the last year". The labor force participation regression only includes women with children born within the last year. The regressions for weeks and hours worked only include women with a one-year-old child.

---

[8] The ACS codes weeks worked last year in interval categories, so I recoded each category to equal the median number of weeks for that category.

V.   Results

I present the results based on the outcome variable of interest, starting with labor force participation, then hours worked, then weeks worked last year. In each of these three subsections, I first present the results for the basic regression with four legislative variables, then the regression with subcategories for family and medical leave, and then the total score regression.

Effects of Leave Legislation on Labor Force Participation

When using the standard four legislative variables as the regressors in model (1), there are mixed positive and negative effects on labor force participation depending on the type of legislation. These regressions suggest that paid family leave significantly increases female labor force participation. The effects on men are positive, but insignificant (see Appendix B). New mothers with paid family leave are about five percent more likely to be in the labor force, while men with paid family leave are only about one percent more likely.

When leave is not necessarily paid, the effects are weaker. Job-protected family leave has a positive, insignificant effect, changing to a negative, significant effect when states with weaker flexible sick days laws are omitted. Additionally, there is a small but significant positive effect of job-protected family leave for men, which is further evidence against a causal effect for mothers. While the effect of job-protected family leave is less clear, job-protected medical leave always has a negative, significant effect on mothers, but an insignificant effect on men, changing from positive to negative after omitting states.

Lastly, the flexible use of sick days variable is significantly positively associated with female labor force participation. When all states are included, there is a similar sized, significant positive effect on male labor force participation The effect on female labor force participation is

only slightly larger after omitting the states that have weaker flexible sick days laws. However, the effect is negative and significant for men after this omission. This finding suggests that only the stronger flexible sick days laws may increase female labor force participation relative to male labor force participation.

In all of my regressions, I run each model again omitting states that have weaker versions of a flexible sick days law. This change may mean that the effect or significance of the other variables has truly changed, because the effect of flexible sick days changes respectively. However, these omissions also mean that key states, like California, are removed from the regression altogether, and often even more states are omitted due to collinearity in the new regression. This understanding is important when evaluating why there are some counterintuitive changes to the other four legislative coefficients in all of the models when these states are omitted.

Table 3: Effects of Legislative Variables (standard) on Labor Force Participation

All Observations		Omissions Based on Flexible Sick Days	
Variables	Labor Force Participation	Variables	Labor Force Participation
Paid Family Leave	0.0574***	Paid Family Leave	0.0553***
	(0.0063)		(0.0074)
Job-Protected Family Leave	0.0127	Job-Protected Family Leave	-0.0209**
	(0.0107)		(0.0086)
Job-Protected Medical Leave	-0.0336***	Job-Protected Medical Leave	-0.0141*
	(0.0042)		(0.0078)
Flexible Sick Days	0.0374***	Flexible Sick Days	0.0425***
	(0.0119)		(0.0064)
Constant	0.3071***	Constant	0.3197***
	(0.0255)		(0.0215)
Observations	130,068	Observations	107,166
R-squared	0.0994	R-squared	0.0996
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

A further breakdown of the standard four legislative variables includes subcategories for job-protected family leave (strong, semi-strong, semi-weak, and weak) and job-protected medical leave (strong, semi-strong, weak). These subcategories only include data from 2013, 2015, and 2017. In this version of the model, there is again evidence that paid family leave again increases labor force participation, but the effect is smaller and no longer significant. This time, however, the effect on male labor force participation is both negative and significant.

Job-protected family leave is now a more significant variable after breaking down the categories. There is evidence that strong, semi-strong, and semi-weak leave policies increase labor force participation. Weak family leave has a positive but insignificant effect, which becomes negative and significant after omitting states that have weaker flexible sick days laws.

All types of family leave have a negative impact on male labor force participation, most of which are significant.

The effects of job-protected medical leave vary more based on the subcategory. Strong medical leave significantly positively impacts female labor force participation but significantly negatively impacts male labor force participation. For female labor force participation, semi-strong medical leave changes from having a significant negative effect to an insignificant positive effect based on which states are included. The effect on male labor force participation also depends on which states are included, switching from significantly positive to significantly negative. Weak medical leave has a positive effect on female labor force participation that loses significance after omitting states. For males, the effect is significantly negative.

Overall, there is more evidence that family leave is associated with female labor force participation than there is for medical leave. However, this observation must be only considered alongside the many assumptions about the difference between family and medical leave, especially when many states combine both types of leave. Further, one specification of the model omits Montana due to collinearity, which has medical leave but not family leave.

In the expanded model, there is evidence that the flexible use of sick days significantly increases female labor force participation when more states are included, but has the opposite effect when the states with weaker laws are omitted. Further, the effect is significantly positive for men in both specifications. This combination of results is evidence against the positive effect of these laws on labor force participation of mothers, contrary to the first version of this model. This inconsistency may be the result of the shorter time period of this version of the model or the omission of more states due to collinearity.

Table 4: Effects of Legislative Variables (expanded) on Labor Force Participation

All Observations		Omissions Based on Flexible Sick Days	
Variables	Labor Force Participation	Variables	Labor Force Participation
Paid Family Leave	0.0067	Paid Family Leave	0.0044
	(0.0041)		(0.0048)
Strong Job-Protected Family Leave	0.0315***	Strong Job-Protected Family Leave	0.0208***
	(0.0092)		(0.0050)
Semi-strong Job-Protected Family Leave	0.0261***	Semi-strong Job-Protected Family Leave	0.0163***
	(0.0090)		(0.0045)
Semi-weak Job-Protected Family Leave	0.0622***	Semi-weak Job-Protected Family Leave	0.0507***
	(0.0095)		(0.0055)
Weak Job-Protected Family Leave	0.0013	Weak Job-Protected Family Leave	-0.0122***
	(0.0092)		(0.0033)
Strong Job-Protected Medical Leave	0.0414***	Strong Job-Protected Medical Leave	0.0456***
	(0.0138)		(0.0138)
Semi-strong Job-Protected Medical Leave	-0.0102***	Semi-strong Job-Protected Medical Leave	0.0111
	(0.0028)		(0.0089)
Weak Job-Protected Medical Leave	0.0435**	Weak Job-Protected Medical Leave	-0.0145
	(0.0189)		(0.0123)
Flexible Use of Sick Days	0.0314***	Flexible Use of Sick Days	-0.0291**
	(0.0098)		(0.0120)
Constant	0.2124***	Constant	0.2846***
	(0.0359)		(0.0266)
Observations	96,088	Observations	77,410
R-squared	0.1051	R-squared	0.1065
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Hawaii and Tennessee omitted due to collinearity		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Alaska, Hawaii, Tennessee, Montana, omitted due to collinearity	

Based on the NPWF scoring system from 2014 to 2016, there is a positive effect of total points on female labor force participation, but the effect is insignificant. There is only a significant effect when states with weaker flexible sick days laws are omitted. However, there is

a significant negative effect on male labor force participation, so there is some evidence that female labor supply is increasing relative to male labor supply.

Table 5: Effects of Total Legislative Score on Labor Force Participation

All Observations		Omissions Based on Flexible Sick Days		Omissions Based on Timing	
Variables	Labor Force Participation	Variables	Labor Force Participation	Variables	Labor Force Participation
Total Score	0.0064	Total Score	0.0077**	Total Score	0.0100
	(0.0039)		(0.0036)		(0.0127)
Constant	0.3287***	Constant	0.3258***	Constant	0.3209***
	(0.0292)		(0.0312)		(0.0439)
Observations	63,917	Observations	51,255	Observations	56,714
R-squared	0.1066	R-squared	0.1076	R-squared	0.1079
Year FE	yes	Year FE	yes	Year FE	yes
State FE	yes	State FE	yes	State FE	yes
Controls	all	Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Effects of Leave Legislation on Hours Worked

The first version of model (2) uses the standard four legislative variables to estimate the usual weekly hours worked of a mother whose youngest child is a one-year-old. Results are presented for all women and then only for working women. The effects are again mixed positive and negative based on the type of legislation. Paid family leave has a significant, positive effect on hours worked when all women are included. However, when the results are conditional on work, the effect is negative and insignificant, suggesting that the effect on work is dependent on labor force participation.

When leave is not necessarily paid, job-protected family leave only insignificantly affects hours worked, changing from an almost zero to positive association after omitting states. The effects are more negative when hours are conditional on work. Job-protected medical leave also has an insignificant impact, changing from a negative to positive effect based on the omission of

states. Interestingly, there is a significant negative effect of medical leave on hours worked when the model only includes working women.

The flexible use of sick days has a positive effect on hours worked, but actually is only significant before omitting states with weaker laws. Keeping all states, even those with less generous sick days laws, shows that mothers with these policies work about one hour per more week. When the effects are estimated conditional on work, however, there is only an insignificant effect on hours worked. Further, the effect (conditional on work) is negative and significant when only the states with stronger laws are included. This result is logical: when mothers have more opportunities to use sick days, as in the states with stronger sick days laws, they will work fewer hours per week if they are already working.

Table 6a: Effects of Legislative Variables (standard) on Usual Weekly Hours (includes nonworking women)

All Observations		**Omissions Based on Flexible Sick Days**	
Variables	Usual Weekly Hours	Variables	Usual Weekly Hours
Paid Family Leave	1.6288***	Paid Family Leave	1.5617***
	(0.2834)		(0.3032)
Job-Protected Family Leave	-0.0001	Job-Protected Family Leave	0.3158
	(0.4049)		(0.5146)
Job-Protected Medical Leave	-0.2271	Job-Protected Medical Leave	0.1628
	(0.4250)		(0.3448)
Flexible Sick Days	0.9786***	Flexible Sick Days	0.0982
	(0.3463)		(0.2847)
Constant	9.0145***	Constant	10.3640***
	(1.1188)		(1.1415)
Observations	101,891	Observations	83,936
R-squared	0.0965	R-squared	0.0988
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Table 6b: Effects of Legislative Variables (standard) on Usual Weekly Hours (conditional on work)

All Observations		Omissions Based on Flexible Sick Days	
Variables	Usual Weekly Hours	Variables	Usual Weekly Hours
Paid Family Leave	-0.3789	Paid Family Leave	-0.4264
	(0.3258)		(0.3264)
Job-Protected Family Leave	-0.2098	Job-Protected Family Leave	-0.1864
	(0.2290)		(0.4978)
Job-Protected Medical Leave	0.4588***	Job-Protected Medical Leave	0.5639*
	(0.1411)		(0.3325)
Flexible Sick Days	0.3347	Flexible Sick Days	-0.8297***
	(0.2720)		(0.1430)
Constant	28.7014***	Constant	29.7707***
	(0.8930)		(1.0767)
Observations	66,625	Observations	55,231
R-squared	0.0416	R-squared	0.0419
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Next I include the subcategories for job-protected family leave and job-protected medical leave. As in the shorter version of the model, paid family leave has a significant positive impact on hours worked when all women are included. This time, the effect is still significantly positive when the effects are measured conditional on work.

After breaking down the originally insignificant effect of job-protected family leave, the different types of leave show significant negative impacts. Strong, semi-strong, and semi-weak job-protected family leave have a significant negative effect, both when all women are included and when only working women are included. When effects are not conditional on work, weak

job-protected family leave has a significant positive effect. Among only working women, the effect of weak family leave changes directions (from an insignificant positive to a significant negative effect), based on which states are omitted. When hours are conditional on already working, strong family leave policies are associated with a decrease in work of about two hours per week. While the weakest type of leave is sometimes associated with increased work, the overarching effect is that job-protected family leave is associated with less work.

The effects of the subcategories of job-protected medical leave tend to change signs based on which states are omitted. When all women are included, strong job-protected medical leave has a negative but insignificant impact. The effect is the same for the sample of working women until additional states are omitted due to flexible sick days laws. Then, the effect is significantly positive. For the sample of all women, the effect of semi-strong medical leave is first significantly negative, but loses significance and changes signs after those states are omitted. However, the effect is significantly positive for the sample of working women. The effect of weak medical leave changes from negative to positive in both samples of women based on which states are omitted. The results for weak medical leave are significant except in the case where all women are included but some states are omitted due to weaker sick days laws.

Lastly, as in the shorter version of the model, there is evidence that flexible sick days policies increase work in the sample of all women. In this version, however, the effect becomes larger and more significant after omitting states that have the weaker sick days policies. Under this specification, flexible sick days laws are associated with an almost three-hour per week increase in work among the sample of all women. This change from the previous finding may be explained by the shorter time frame of the expanded model or because additional states were omitted from the regression due to collinearity. When the sample is limited to working women,

the effect is negative but insignificant when states with weaker policies are included. However, when such states are omitted, flexible sick days policies are associated with a five-hour increase in work per week for working women whose youngest child is a one-year-old.

Table 7a: Effects of Legislative Variables (expanded) on Usual Weekly Hours (includes nonworking women)

All Observations		Omissions Based on Flexible Sick Days	
Variables	Usual Weekly Hours	Variables	Usual Weekly Hours
Paid Family Leave	0.7873***	Paid Family Leave	0.8728***
	(0.1614)		(0.1816)
Strong Job-Protected Family Leave	-2.6973***	Strong Job-Protected Family Leave	-3.4755***
	(0.5907)		(0.2613)
Semi-strong Job-Protected Family Leave	-2.1063***	Semi-strong Job-Protected Family Leave	-3.0064***
	(0.5763)		(0.1663)
Semi-weak Job-Protected Family Leave	-2.1159***	Semi-weak Job-Protected Family Leave	-3.0089***
	(0.5867)		(0.2252)
Weak Job-Protected Family Leave	0.9914*	Weak Job-Protected Family Leave	0.2910**
	(0.5821)		(0.1436)
Strong Job-Protected Medical Leave	-0.4805	Strong Job-Protected Medical Leave	-0.1858
	(0.4819)		(0.5584)
Semi-strong Job-Protected Medical Leave	-0.8669***	Semi-strong Job-Protected Medical Leave	0.1177
	(0.1266)		(0.3053)
Weak Job-Protected Medical Leave	-2.0769**	Weak Job-Protected Medical Leave	0.2719
	(0.7783)		(0.4273)
Flexible Use of Sick Days	0.3189	Flexible Use of Sick Days	2.7197***
	(0.3164)		(0.4708)
Constant	11.1419***	Constant	10.4303***
	(1.6802)		(1.4190)
Observations	75,967	Observations	61,284
R-squared	0.1057	R-squared	0.1082
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Hawaii, Tennessee omitted due to collinearity.		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Alaska, Hawaii, Tennessee, Montana omitted due to collinearity.	

Table 7b: Effects of Legislative Variables (expanded) on Usual Weekly Hours (conditional on work)

All Observations		Omissions Based on Flexible Sick Days	
Variables	Usual Weekly Hours	Variables	Usual Weekly Hours
Paid Family Leave	1.4989***	Paid Family Leave	1.5444***
	(0.1478)		(0.1727)
Strong Job-Protected Family Leave	-1.9698***	Strong Job-Protected Family Leave	-2.5677***
	(0.4432)		(0.2126)
Semi-strong Job-Protected Family Leave	-2.1142***	Semi-strong Job-Protected Family Leave	-2.7167***
	(0.4265)		(0.1871)
Semi-weak Job-Protected Family Leave	-3.4449***	Semi-weak Job-Protected Family Leave	-4.0220***
	(0.4392)		(0.2275)
Weak Job-Protected Family Leave	0.1768	Weak Job-Protected Family Leave	-0.3771***
	(0.4409)		(0.1104)
Strong Job-Protected Medical Leave	-0.2291	Strong Job-Protected Medical Leave	1.0740***
	(0.1891)		(0.3062)
Semi-strong Job-Protected Medical Leave	0.4502***	Semi-strong Job-Protected Medical Leave	1.7807***
	(0.1068)		(0.2213)
Weak Job-Protected Medical Leave	-1.9094***	Weak Job-Protected Medical Leave	4.4046***
	(0.4162)		(0.2598)
Flexible Use of Sick Days	-0.0374	Flexible Use of Sick Days	5.0019***
	(0.3228)		(0.2550)
Constant	32.0418***	Constant	26.1311***
	(1.2608)		(1.1749)
Observations	49,810	Observations	40,375
R-squared	0.0494	R-squared	0.0499
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Hawaii, Tennessee omitted due to collinearity.		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Alaska, Hawaii, Tennessee, Montana omitted due to collinearity.	

The estimation of the impact of total points on usual weekly hours yields a significant result at the one percent level, but only when all states are included. The significant level falls to five percent after omitting states with weaker flexible sick days laws, and disappears entirely after

omitting states with a timing issue. Based on the NPWF scoring system from 2014 to 2016, there is a positive effect of total points on weekly hours worked. When the sample is restricted to women that work more than zero hours, the effect is weaker and only significant at the five percent level. When states are omitted based on a problem with timing, the effect is actually negative, but insignificant. Overall, higher scores are usually significantly associated with increased work.

One caveat to these findings is that the total score includes the pregnancy accommodation and nursing rights variables. As a result, some results may be misleading because for the mother of a one-year-old, her pregnancy may have occurred before the year of the legislation. In other words, a mother may be counted as benefitting from pregnancy accommodations that were not in place at the time of her pregnancy.

Table 8a: Effects of Total Legislative Score on Usual Weekly Hours (includes nonworking women)

All Observations		Omissions Based on Flexible Sick Days		Omissions Based on Timing	
Variables	Usual Weekly Hours	Variables	Usual Weekly Hours	Variables	Usual Weekly Hours
Total Score	0.8182***	Total Score	0.6886**	Total Score	0.0626
	(0.2275)		(0.3053)		(0.5553)
Constant	8.4448***	Constant	10.4122***	Constant	11.3007***
	(1.8084)		(2.1275)		(1.9590)
Observations	50,345	Observations	40,444	Observations	44,648
R-squared	0.1053	R-squared	0.1065	R-squared	0.1052
Year FE	yes	Year FE	yes	Year FE	yes
State FE	yes	State FE	yes	State FE	yes
Controls	all	Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Table 8b: Effects of Total Legislative Score on Usual Weekly Hours (conditional on work)

All Observations		Omissions Based on Flexible Sick Days		Omissions Based on Timing	
Variables	Usual Weekly Hours	Variables	Usual Weekly Hours	Variables	Usual Weekly Hours
Total Score	0.5213**	Total Score	0.5480**	Total Score	-0.0970
	(0.2095)		(0.2179)		(0.5947)
Constant	27.2374***	Constant	27.5105***	Constant	29.3745***
	(1.9249)		(2.3179)		(2.6251)
Observations	33,312	Observations	26,841	Observations	29,606
R-squared	0.0479	R-squared	0.0485	R-squared	0.0478
Year FE	yes	Year FE	yes	Year FE	yes
State FE	yes	State FE	yes	State FE	yes
Controls	all	Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Effects of Leave on Weeks Worked

Model (3) estimates the weeks worked in the previous year by the same subset of mothers used in model (2). This time the sample always includes non-working mothers, meaning that labor force participation effects are incorporated into the findings. The main finding in the first version of model (3) is that paid family leave has a significant positive impact on weeks worked, associated with about two more weeks of work per year. When leave is not necessarily paid, job-protected family leave has a positive effect on weeks worked while the effect of job-protected medical leave changes, but none of these effects are significant.

There is evidence that the flexible use of sick days significantly increases weeks worked, but by less than one week per year. Further, the effect weakens and becomes insignificant after omitting states that have a weaker policy. It is thus likely that the more generous sick days policies may encourage more time off work.

Table 9: Effects of Legislative Variables (standard) on Weeks Worked (previous year)

All Observations		Omissions Based on Flexible Sick Days	
Variables	Weeks Worked Last Year	Variables	Weeks Worked Last Year
Paid Family Leave	2.0815***	Paid Family Leave	2.0373***
	(0.4431)		(0.4840)
Job-Protected Family Leave	0.1556	Job-Protected Family Leave	0.0635
	(0.2953)		(0.5555)
Job-Protected Medical Leave	-0.3069	Job-Protected Medical Leave	0.1118
	(0.3714)		(0.5776)
Flexible Sick Days	0.8783**	Flexible Sick Days	0.1185
	(0.4368)		(0.2668)
Constant	8.1197***	Constant	10.2095***
	(1.3848)		(1.2620)
Observations	101,891	Observations	83,936
R-squared	0.1062	R-squared	0.1069
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

In the more thorough version of model (3) I expand job-protected family leave and job-protected medical leave into subcategories. For the first time, paid family leave now has a significant negative effect on weeks worked, associated with a decrease in work of about two weeks per year. One possible explanation is that the omission of additional states due to collinearity affected the results. Another possibility is that the expanded model applies to a much shorter time frame (only using legislation from 2012 to 2016 and survey data from 2013 to 2017). There was less variation in paid family leave during this time because New Jersey enacted paid family leave in 2008 (Rossin-Slater 2017).

For job-protected family leave, the strongest type of leave always has a significant negative effect on weeks worked. The other categories are insignificant, except for that semi-strong family leave has a significant effect after removing states with weaker flexible sick days laws. Opposite of family leave, strong job-protected medical leave has a significant positive impact on weeks worked. The effects of semi-strong medical leave change directions based on which states are omitted, and the coefficients are insignificant. Weak job-protected medical leave has a positive effect, but is only significant when states with weaker flexible sick days laws are included. Flexible sick days laws only have a significant positive effect on weeks worked when more states are included. The effect is negative but insignificant after removing the states with the weaker laws.

Table 10: Effects of Legislative Variables (expanded) on Weeks Worked (previous year)

All Observations		**Omissions Based on Flexible Sick Days**	
Variables	Weeks Worked Last Year	Variables	Weeks Worked Last Year
Paid Family Leave	-2.1659***	Paid Family Leave	-2.1541***
	(0.1933)		(0.2267)
Strong Job-Protected Family Leave	-1.3684**	Strong Job-Protected Family Leave	-2.1523***
	(0.5937)		(0.3398)
Semi-strong Job-Protected Family Leave	-0.2915	Semi-strong Job-Protected Family Leave	-1.1467***
	(0.5481)		(0.1764)
Semi-weak Job-Protected Family Leave	0.5719	Semi-weak Job-Protected Family Leave	-0.3306
	(0.5952)		(0.3051)
Weak Job-Protected Family Leave	0.6194	Weak Job-Protected Family Leave	-0.0646
	(0.5423)		(0.2220)
Strong Job-Protected Medical Leave	2.1355***	Strong Job-Protected Medical Leave	1.3641*
	(0.7169)		(0.7587)
Semi-strong Job-Protected Medical Leave	-0.1294	Semi-strong Job-Protected Medical Leave	0.0202
	(0.1818)		(0.4562)
Weak Job-Protected Medical Leave	2.5699**	Weak Job-Protected Medical Leave	0.0452
	(1.0257)		(0.6284)
Flexible Use of Sick Days	0.6092**	Flexible Use of Sick Days	-0.7334
	(0.2311)		(0.6749)
Constant	6.1952***	Constant	10.9347***
	(1.5243)		(1.6696)
Observations	75,967	Observations	61,284
R-squared	0.1106	R-squared	0.1118
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Hawaii, Tennessee omitted due to collinearity		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Alaska, Hawaii, Tennessee, Montana omitted due to collinearity.	

The estimation of the impact of total points on the weeks worked yields a significant result at

the one percent level. Based on the NPWF scoring system from 2014 to 2016, there is a positive

effect of total points on weeks worked. When omitting states that have weaker flexible sick days laws or that have a timing issue, there is still a positive effect, but it is no longer significant. Since the pregnancy and nursing laws are included in the total score variable, it should be noted that when the mother of a one-year-old is providing the number of weeks she worked in the previous year, she was likely not a nursing mother for the entirety of that year, nor was she pregnant for the entirety of that year, which complicates the results.

Table 11: Effects of Total Legislative Score on Weeks Worked (previous year)

All Observations		Omissions Based on Flexible Sick Days		Omissions Based on Timing	
Variables	Weeks Worked Last Year	Variables	Weeks Worked Last Year	Variables	Weeks Worked Last Year
Total Score	0.7815***	Total Score	0.5801	Total Score	0.0897
	(0.2556)		(0.3523)		(0.7619)
Constant	9.9710***	Constant	12.3861***	Constant	12.7731***
	(1.8544)		(2.0662)		(2.5653)
Observations	50,345	Observations	40,444	Observations	44,648
R-squared	0.1106	R-squared	0.1105	R-squared	0.1108
Year FE	yes	Year FE	yes	Year FE	yes
State FE	yes	State FE	yes	State FE	yes
Controls	all	Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

VI.   Discussion

One consistency across all of these models is the positive effect of the total points variable on work. When all states are included, women who have had a child in the past year are only insignificantly more likely to participate in the labor force if they come from a state with more points, or a better grade for family leave policies, in that year. However, when all states are included, women with a one-year-old child work significantly more each week and worked significantly more in the past year if they come from higher-scoring state-years. These findings suggest that it is a combination of many policies that contribute to mothers' labor market

decisions, which is essentially the objective of the NPWF reports on state-wide legislation. It seems to be the case that the NPWF has correctly identified key policies for family leave and has weighted such policies appropriately in its scoring system. The models yield a mix of positive and negative effects for different legislative variables, suggesting that there is an aggregate effect of more generous leave policies even when some of the individual effects cancel out.

Additionally, the NPWF includes policies specific to state workers, while the other legislative variables do not. Since the ACS sample includes all workers, the inclusion of public sector employees in both the independent and dependent variables may be contributing to the significance of these results. Another consideration is that the total points variable is being measured over a much shorter period of time than the other variables, because the NPWF warned against comparing 2014 grades with 2012 or 2005 grades. This timing difference may have also contributed to the difference in results between the total score variable and the other legislative variables.

There are additional precautions to take when interpreting the results of the total points variable because it includes the other legislative variables of job-protected paid sick days, pregnancy accommodations, and nursing rights. The effects of nursing and pregnancy laws can be difficult to interpret because these laws affect women several months before and after childbirth. These laws also vary greatly across states due to specific accommodations and exemptions for some employers (NPWF 2016).

While the total points variable has a positive association with work, this positive impact comes from a mix of opposing effects of different legislative variables. This mix of effects is reminiscent of one of Waldfogel's (1999) conclusions that leave's insignificant employment effects may be a combination of leave both encouraging and discouraging work at the same time.

Some of the legislative variables are more consistent across models than others. Paid family leave has a significant positive effect on labor force participation, hours worked, and weeks worked in the most basic form of all three models, though the effect is negative and insignificant when hours worked is conditional on working. Since California was the only state to have paid leave over all years 2005 to 2016, it was likely a driver of this result which corroborates prior studies (Rossin-Slater et al. 2012; Baum and Ruhm 2016). In the expanded versions of the models, the effect on labor force participation is insignificant, and the effect on weeks worked actually becomes negative and significant.

When considered as one all-encompassing variable, job-protected family leave has mixed, usually insignificant effects on both labor force participation and work. However, there is evidence that strong family leave increases labor force participation but decreases work. These findings suggest that strong family leave policies may encourage women to stay in or rejoin the labor force, but may encourage them to take more time off of work. Other subcategories show mixed positive and negative impacts on labor force participation and work. Paid family leave has an overall more positive effect, in line with prior literature suggesting that unpaid leave's effects are quite small (Han and Waldfogel 2003) and that paid leave has a greater impact on labor supply (Rossin-Slater 2017).

When analyzed distinctly from job-protected family leave, job-protected medical leave has mixed effects. While medical leave is important to the discussion of mothers' labor supply because it is used in relation to pregnancy and birth, it has a much wider scope. In some states, this leave cannot be taken for a healthy pregnancy, so most mothers would likely not be eligible (Grant, Hatcher and Patel 2005; NPWF 2012; NPWF 2014; NPWF 2016). Since medical leave

laws are more limited for new mothers, it is logical that the effects are less clear than what we see for family leave.

The last legislative variable considered in the models is the flexible use of sick days. In most cases, allowing this flexibility with how employees use their sick days is associated with a significant increase in labor force participation. The effect on work is more mixed. Sometimes omitting states with weaker sick days laws makes the effect on work more significant, but sometimes the opposite. One consideration in interpreting this variable is the overlap with the job-protected paid sick days variable, which is not included in the regressions. Some states receive credit from the NPWF for flexible sick days laws that seem to be implicitly embedded in their paid sick days laws (see Appendix A). It is possible that the few states with paid sick days laws are carrying the weight of these results.

In addition to the irregularities in the flexible sick days variable, there are a few other measurement issues worth addressing. While I had to infer certain standards for separating family leave and medical leave, the line between the two is still sometimes unclear, especially because many states combine the leaves into one law but then only receive the family leave points from the NPWF. The resulting issue may be that my regressions created a distinction between the two types of leave that is not reflective of reality, thus leading to irregular results. There are other anomalies I encountered in coding the data that could change the results (see Appendix A). Another source for measurement error is in the ACS survey itself. While Klerman and Leibowitz (1994) make the distinction that women who are on leave are in the labor force, mothers answering the survey may have counted themselves as out of the labor force when they were simply on maternity leave.

Another potential for error arose when actually estimating the models with linear regression. Due to a likely lack of variation in some states, up to four states would be omitted by the statistical software from the regression: Alaska, Hawaii, Montana, and Tennessee. Hawaii's omission is unfortunate because it has a unique combination of family and medical leave policies. Tennessee, which was omitted less often, also has somewhat unique policies, and is also much larger than the other three states. It is possible that the results would be significantly different had I been able to include all states in all regressions.

In spite of these considerations, this paper's legislative dataset sets up a promising avenue for future work. Further research on this topic should merge this MLL data with a longitudinal dataset of mothers. Prior work has been able to take advantage of longitudinal data to study effects such as the length of leave (Baum 2003, for example). Due to the lack of longitudinal data, this analysis was limited in its ability to study effects of leave legislation over time. Additionally, this data did not allow me to study mothers' leave and employment status week-by-week as in Baum's paper. By combining all women who had a child within one year of each other, some of the specifics of new mothers' labor supply decisions are lost. Another promising avenue for future work would be to add a formal difference-in-difference-in-differences model with a control group, as has been done in earlier studies of leave legislation (Klerman and Leibowitz 1997; Waldfogel 1999; Ruhm 1998).

VII.   Conclusion

This paper combines four years of legislative data and 17 years of ACS data to evaluate the effects of maternity leave legislation on female labor supply. I use three fixed effects models to estimate the impact of state-level legislation on labor force participation, weeks worked, and

hours worked for new mothers. While some types of legislation yield significant results in some models, the direction of the effects vary. Paid family leave, currently in effect in California, New Jersey, New York, and Rhode Island, is significantly associated with work and labor force participation in the majority of models. When legislated family leave is not necessarily paid, there is evidence that the strongest family leave policies increase labor force participation but reduce work.

There is a myriad of other policies related to family leave, such as the flexible use of sick days, that impact labor supply choices for mothers alongside traditional leave. Between 2015 and 2017, the overall score of the extent a state's family leave policy has a positive, significant effect on work. While some types of legislation have opposing effects on work and labor force participation, the total points for each state suggest that generous family leave policies combine to create environments in certain states that lead to increased female labor supply.

References

Addati, Laura, Naomi Cassirer, and Katherine Gilchrist. "Maternity and Paternity at Work: Law and Practice across the World." Geneva, Switzerland: International Labour Office, 2014. http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_242615.pdf.

Baker, Michael, and Kevin Milligan. "How Does Job-Protected Maternity Leave Affect Mothers' Employment?" *Journal of Labor Economics* 26, no. 4 (October 2008): 655–91.

Baum, Charles. "The Effects of Maternity Leave Legislation on Mothers' Labor Supply after Childbirth." *Southern Economic Journal* 69, no. 4 (April 2003): 772–99.

Baum, Charles L., and Christopher J. Ruhm. "The Effects of Paid Family Leave in California on Labor Market Outcomes." *Journal of Policy Analysis and Management* 35, no. 3 (2016): 333–56.

Berger, Lawrence, and Jane Waldfogel. "Maternity Leave and the Employment of New Mothers in the United States." *Journal of Population Economics* 17, no. 4 (June 2004): 331–49.

Blau, Francine D., and Lawrence M. Kahn. "Female Labor Supply: Why Is the United States Falling Behind?" *The American Economic Review: Papers and Proceedings 2013* 103, no. 3 (May 2013): 251–56. https://doi.org/10.1267/aer.103.3.251.

"Expecting Better: A State-by-State Analysis of Laws That Help Expecting and New Parents." National Partnership for Women and Families, August 2016.

"Expecting Better: A State-by-State Analysis of Laws That Help New Parents," May 2012.

"Expecting Better: A State-by-State Analysis of Laws That Help New Parents." National Partnership for Women and Families, June 2014.

Gault, Barbara, Heidi Hartmann, Ariane Hegewisch, Jessica Milli, and Lindsey Reichlin. "Paid Parental Leave in the United States: What the Data Tell Us about Access, Usage, and Economic and Health Benefits." Institute for Women's Policy Research, March 2014. https://iwpr.org/wp-content/uploads/wpallimport/files/iwpr-export/publications/B334-Paid%20Parental%20Leave%20in%20the%20United%20States.pdf.

Grant, Jodi, Taylor Hatcher, and Nirali Patel. "Expecting Better: A State-by-State Analysis of Parental Leave Programs." National Partnership for Women and Families, 2005.

Han, Wen-Jui, Christopher Ruhm, and Jane Waldfogel. "Parental Leave Policies and Parents' Employment and Leave-Taking." *Journal of Policy Analysis and Management* 28, no. 1 (2009): 29–54.

Han, Wen-Jui, and Jane Waldfogel. "Parental Leave: The Impact of Recent Legislation on Parents' Leave Taking." *Demography* 40, no. 1 (February 2003): 191–200.

Hashimoto, Masanori, Rick Percy, Rick Schoellner, and Bruce A. Weinberg. "The Long and Short of It: Maternity Leave Coverage and Women's Labor Market Outcomes." *Institute for the Study of Labor, Bonn.* IZA Discussion Papers, no. No. 1207 (2004). https://www.econstor.eu/bitstream/10419/20460/1/dp1207.pdf.

Higuchi, Yoshio, Jane Waldfogel, and Masahiro Abe. "Family Leave Policies and Women's Retention after Childbirth: Evidence from the United States, Britain, and Japan." *Journal of Population Economics* 12, no. 4 (1999): 523–45.

Killingsworth, Mark, and James J. Heckman. "Female Labor Supply: A Survey." In *Handbook of Labor Economics*, edited by Orley Ashenfelter and Richard Layard. Amsterdam: North-Holland Publishing Company, 1986.

Klerman, Jacob, Kelly Daley, and Alyssa Pozniak. "Family and Medical Leave in 2012: Technical Report." Technical Report. Abt Associates, Prepared for the US Department of Labor, September 7, 2012. https://www.dol.gov/asp/evaluation/fmla/FMLA-2012-Technical-Report.pdf.

Klerman, Jacob, and Arleen Leibowitz. "Labor Supply Effects of State Maternity Leave Legislation." In *Gender and Family Issues in the Workplace*, edited by Francine D. Blau and Ronald D. Ehrenberg, 65–85. New York: Russell Sage Foundation, 1997.

———. "The Work-Employment Distinction among New Mothers." *The Journal of Human Resources* 29, no. 2, Special Issue: Women's Work, Wages, and Well-Being (Spring 1994): 277–303.

Lalive, Rafael, and Josef Zweimuller. "How Does Parental Leave Affect Fertility and Return to Work? Evidence from Two Natural Experiments." *The Quarterly Journal of Economics* 124, no. 3 (August 2009): 1363–1402.

Rossin-Slater, Maya. "Maternity and Family Leave Policy." In *The Oxford Handbook of Women and the Economy*. Oxford University Press, 2017. http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190628963.001.0001/oxfordhb-9780190628963-e-23.

Rossin-Slater, Maya, Christopher J. Ruhm, and Jane Waldfogel. "The Effects of California's Paid Family Leave Program on Mothers' Leave-Taking and Subsequent Labor Market Outcomes." *Journal of Policy Analysis and Management* 32, no. 2 (2013): 224–345.

Ruggles, Steven, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek, *American Community Survey,* IPUMS USA: Version 9.0 [dataset], 2019, distributed by IPUMS, Minneapolis, MN, https://doi.org/10.18128/D010.V9.0.

Ruhm, Christopher J. "The Economic Consequences of Parental Leave Mandates: Lessons from Europe." *The Quarterly Journal of Economics* 113, no. 1 (February 1, 1998): 285–317.

Schonberg, Uta, and Johannes Ludsteck. "Expansions in Maternity Leave Coverage and Mothers' Labor Market Outcomes after Childbirth." *Journal of Labor Economics* 32, no. 3 (July 2014): 469–505.

Schott, Whitney. "Going Back Part-Time: Family Leave Legislation and Women's Return to Work." *Population Research and Policy Review* 31, no. 1 (February 2012): 1–30.

Waldfogel, Jane. "The Impact of the Family and Medical Leave Act." *Journal of Policy Analysis and Management* 18, no. 2 (Spring 1999): 281–302.

———. "Understanding the 'Family Gap' in Pay for Women with Children." *The Journal of Economic Perspectives* 12, no. 1 (Winter 1998): 137–56.

Appendix A – Specific Anomalies in Coding Legislative Variables

Variable Codes

Paid Family Leave: paid_FML

Paid Medical Leave: paid_TDI (dropped from regressions)

Job-Protected Family Leave: job_protFL

Job-Protected Medical Leave: job_protML

Flexible Use of Sick Days: flex_sick

Code for weaker flexible sick days laws: problem_fs

Code for problem with the timing of legislation: problem_timing

2005 Report General Notes

1.) States with paid_TDI=1 were assigned NPWF points for "Medical/Maternity Leave Benefits". If the state-by-state description does not also include a section for "Job-Protected Medical Leave", I leave job_protML=0.

2005 Report State-Specific Notes

1.) **California** has paid FML (for 6 weeks), but not additional family leave job-protection, so job_protFL=0.

2.) **Louisiana** is listed in its description as having "Job-Protected Medical Maternity Leave", and is listed in the methodology section as having "Expanded Job-Protected Medical/Maternity Leave" and "Extended length of Job-Protected Family and Medical Leave". Since the state description refers only to disability leave, I leave job_protFL=0.

3.) **Massachusetts** does not refer to medical leave at all in description but receives points for it, so I leave job_protML=1.

4.) **South Carolina** only received any credit for job-protected medical leave in 2005. It seems like the legislative provision to which the researchers refer does not "count" in later years. I am keeping job_protML=1 in 2005 but not in later years.

5.) **Washington's** description refers to "Job-Protected Medical/Maternity Leave". The methodology section assigns points to Washington for "Extended Length of Job-

Protected Family and Medical Leave" and "State Family and Medical Leave Laws". The description states:

> Employees in Washington are entitled to job protection for the period of disability due to pregnancy and childbirth. This law covers employers with eight or more employees. Employees in Washington are entitled to job-protected leave for sickness and temporary disability as a result of pregnancy or childbirth in addition to 12 weeks of family leave to care for a new child. The law covers employers with more than 100 workers, and employees who work a minimum of 35 hours a week.

The mention of "12 weeks of family leave" may just be referring to federal benefits that workers already get from the FMLA. The description for Washington in later sections of the report suggests that this is the case. So, I code job_protFL=0 for Washington in 2005.

2012 Report State-Specific Notes

1.) **Washington** received ten points from the NPWF for its unfunded paid family leave program. I code paid_FML=0 in my data.

2.) **California** and **Washington** only received credit for job_protFL because of their Expanded Definition of "Family".

3.) **Massachusetts:** the methodology section does not say that there is any increased Job-Protected Family Leave for Massachusetts. However, the description for Massachusetts says:

> Women in the private sector have greater access to 'maternity leave' rights (defined as leave for giving birth or leave to care for an adopted child) under commonwealth law than under the federal FMLA. The Massachusetts leave law applies to employers with six or more workers and provides up to eight weeks of job-protected leave; workers with three months' tenure are eligible.

The NPWF only assigns points for medical leave here, but this description fits my definition of family leave as well. Thus, I code job_protFL=1 for Massachusetts. Based on the description, this law fits two of the four dimensions for how state law can go beyond the FMLA. Thus, I code semiweak_jobFL=1.

4.) **Minnesota'**s flexible sick leave law is even more restrictive than the other states with problem_fs=1 because it does not allow for sick leave to be used to care for a healthy newborn or a sick spouse. The NPWF gave Minnesota no points for flexible sick days, while states like California (where sick days can be used to care for a sick spouse or sick child, but not a healthy newborn) still received points. This difference between Minnesota and other states where problem_fs=1 is trivial, so Minnesota is treated like the rest of these states in my analysis.

5.) **Maine, Rhode Island, Tennessee, Vermont,** and **Wisconsin** combine family and medical leave, but the laws are the same for both types of leave. The NPWF only assigns points for family leave, but, based on the description of the laws, I code job_protML=1 as well. For the purposes of my analysis, I derive the other variables for medical leave:
- **Maine**: semistrong_jobML=1
- **Rhode Island**: weak_jobML=1
- **Tennessee**: weak_jobML=1
- **Vermont**: weak_jobML=1

- **Wisconsin**: weak_jobML=1

The **<u>Rhode Island</u>** description only specifically refers to leave "for parental or family care", but says that "Private sector workers have access to a slightly longer family and pregnancy disability leave under state law than under the federal FMLA." Further, there was no mention of job-protected medical leave in the 2005 report.

In **<u>Tennessee</u>** and **<u>Maine</u>**, the language is unclear as to whether the provisions for family leave apply to medical leave as well, so I had to make the assumption that they do.

6.) **<u>Oregon</u>** only received points for one dimension of medical leave, but based on the description, it seems likely that the other two dimensions of family leave in Oregon also apply to medical leave. This is somewhat unclear in 2012 and 2014, but more explicit in 2016. Thus, I code strong_jobML=1 for Oregon.

7.) **<u>District of Columbia</u>**: the description for D.C. does not include a section for flexible sick days, but points were still awarded. It seems that flexible sick days are part of the paid sick days provision. However, that section does not mention using the sick days for taking care of a healthy newborn, so I code problem_fs=1 in addition to flex_sick=1.

8.) **<u>Connecticut</u>** only received points for two dimensions of medical leave, but based on the description, it seems likely that another dimension of family leave also applies to medical leave. Thus, I code strong_jobML=1 for Connecticut.

2014 Report State-Specific Notes

1.) **<u>Illinois</u>** received points for a pregnancy accommodation law that did not take effect until 2015. I code problem_timing=1.

2.) **<u>California</u>** added a paid sick days law in September 2014 (effective July 2015). No points were awarded. I code problem_timing=1.

3.) **<u>Delaware</u>** did not receive points for its pregnancy accommodation law because it was not signed until September 2014. I code problem_timing=1.

4.) **<u>Washington</u>** has the same situation as in 2012.

5.) **<u>California, Colorado</u>** and **<u>Washington</u>** only received credit for job_protFL because of their Expanded Definition of "Family".

6.) **<u>Massachusetts</u>** has the same situation as in 2012.

7.) **<u>Maine, Minnesota, Rhode Island, and</u> <u>Wisconsin</u>** combine family and medical leave, but the laws are the same for both types of leave. The NPWF only assigns points for family leave, but, based on the description of the laws, I code job_protML=1 as well. For the purposes of this analysis, I derive the other variables for medical leave:
- **Maine**: semistrong_jobML=1

- **Minnesota**: semistrong_jobML=1
- **Rhode Island**: weak_jobML=1
- **Wisconsin**: weak_jobML=1

The **Rhode Island** description only specifically refers to leave "for parental or family care", but says that "Private sector workers have access to a slightly longer family and pregnancy disability leave under state law than under the federal FMLA." Further, there was no mention of job-protected medical leave in the 2005 report.

In **Maine**, the language is unclear as to whether the provisions for family leave apply to medical leave as well, so I had to make the assumption that they do.

8.) **Tennessee**: the description for Tennessee only refers to "Job Protected Family Leave" and points are only awarded for family leave. However, the law refers to leave for pregnancy, which I define as medical, so I will code Tennessee as job_protML=1 as well. Based on the description, I code weak_jobML=1. The language is unclear as to whether the provisions for family leave apply to medical leave as well, so I had to make the assumption that they do. Tennessee is notably omitted from the expanded-form regressions due to collinearity.

9.) **Oregon** has the same situation as in 2012.

10.) **Colorado**'s "family and medical leave" law only goes beyond the FMLA because it includes leave to take care of domestic partners. Colorado earns points for family leave here (and I code job_protFL=1). However, it does not seem logical to consider this one provision as applicable to medical leave, since the pregnant woman herself is the one taking medical leave in this context (and thus her marital status is irrelevant). So, I code job_protML=0.

11.) **Connecticut** has the same situation as in 2012.

12.) The **District of Columbia** has the same situation as in 2012.

13.) **New Jersey** has the same situation as in 2012.

2016 Report State-Specific Notes

1.) **California, Colorado** and **Washington** only received credit for job_protFL because of their Expanded Definition of "Family".

2.) **New York** received points for its paid FML program that will begin in 2018. This is far out in the future enough that I code paid_FML=0 and include problem_timing=1. Additionally, New York received points for three dimensions of Job-Protected Family Leave. Based on the description, I do not see where these points are coming from. Perhaps the additional provisions for Job-Protected Family Leave are embedded in the new Paid Family Leave laws. If so, these laws are not in effect until 2018. So, I am leaving job_protFL=0 for New York.

3.) The **District of Columbia** has the same situation as in 2012 and 2014.

4.) **Massachusetts**: the description does not include a section for flexible sick days, but points were still awarded. It seems that flexible sick days are part of the paid sick days provision. However, that section does not mention using sick leave for taking care of a healthy newborn, so I include problem_fs=1 along with flex_sick=1. In 2016, Massachusetts is listed with the states that provide Job-Protected Family leave instead of with the states that provide Job-Protected Medical Leave (as it was in 2012 and 2014). In 2012 and 2014, I interpreted the Massachusetts law to mean that both job_protML=1 and job_protFL=1. In 2016, the description states" "Workers in the private sector have greater access to to parental leave rights (leave for giving birth or caring for an adopted or newly placed child) under commonwealth law than under the FMLA." This seems inconsistent with previous descriptions of Massachusetts law, so I am keeping both job_protML=1 and job_protFL=1 as I do not believe the state has cut back its legislative provisions for family and medical leave.

5.) **Maine, Minnesota,** and **Wisconsin** have the same situation as in 2014. In **Maine**, the language is unclear as to whether the provisions for family leave apply to medical leave as well, so I had to make the assumption that they do.

6.) **Rhode Island**: as in 2012 and 2014, Rhode Island does not receive points for job-protected medical leave. In prior years, the description of "Job-Protected Family and Medical Leave" allowed me to consider job_protML=1. However, in 2016, the description specifically refers to "Job-Protected Family Leave", though it does mention Rhode Island's "family and medical leave law". In addition, the description of the TDI program says: "The law does not provide job protection for workers while they are on TDI leave." In spite of this issue, I am keeping job_protML=1 as I do not believe Rhode Island has cut back its legislative provisions for family and medical leave. Additionally, for the first time, Rhode Island received points for four dimensions of Job-Protected Family Leave, instead of the usual one dimension. Based on the description, I am not sure where these additional points are coming from. Perhaps the additional provisions for Job-Protected Family Leave are embedded in the Paid Family Leave laws. I will follow what the NPWF report says here and count all four dimensions, so I code strong_jobFL=1 for Rhode Island in 2016.

7.) **Tennessee**: the description for Tennessee only refers to "Job Protected Parental Leave" and points are only awarded for family leave. However, the law refers to leave for pregnancy, which I define as medical, so I code job_protML=1 as well. Based on the description, I code weak_jobML=1. The language is unclear as to whether the provisions for family leave apply to medical leave as well, so I had to make the assumption that they do. Tennessee is omitted from the expanded-form regressions due to collinearity.

8.) **Vermont**: the report states that Vermont's law for job-protected paid sick days "will soon" go into effect. Vermont did receive points for job protected sick days, as well as for flexible use of sick days. It seems that flexible sick days are part of the paid sick days provision. I am coding Vermont with flex_sick=1 and problem_timing=1. However, the

description of the job-protected sick days section does not mention using sick days for taking care of a healthy newborn, so I also code problem_fs=1.

9.) **Connecticut** has the same situation as in 2012 and 2014.

Appendix B – Additional Tables

Table 12: Effects of Legislative Variables (standard) on Male Labor Force Participation

All Observations		Omissions Based on Flexible Sick Days	
Variables	Labor Force Participation	Variables	Labor Force Participation
Paid Family Leave	0.0127	Paid Family Leave	0.0134
	(0.0105)		(0.0097)
Job-Protected Family Leave	0.0121*	Job-Protected Family Leave	0.0098*
	(0.0064)		(0.0049)
Job-Protected Medical Leave	0.0107	Job-Protected Medical Leave	-0.0059
	(0.0136)		(0.0035)
Flexible Sick Days	0.0351**	Flexible Sick Days	-0.0172***
	(0.0148)		(0.0053)
Constant	1.5561***	Constant	1.6203***
	(0.0375)		(0.0409)
Observations	1,894,033	Observations	1,550,439
R-squared	0.1400	R-squared	0.1417
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Table 13: Effects of Legislative Variables (expanded) on Male Labor Force Participation

All Observations		**Omissions Based on Flexible Sick Days**	
Variables	Labor Force Participation	Variables	Labor Force Participation
Paid Family Leave	-0.0127***	Paid Family Leave	-0.0123***
	(0.0033)		(0.0039)
Strong Job-Protected Family Leave	-0.0566***	Strong Job-Protected Family Leave	-0.0469***
	(0.0075)		(0.0052)
Semi-strong Job-Protected Family Leave	-0.0782***	Semi-strong Job-Protected Family Leave	-0.0697***
	(0.0072)		(0.0046)
Semi-weak Job-Protected Family Leave	-0.1178***	Semi-weak Job-Protected Family Leave	-0.1069***
	(0.0082)		(0.0063)
Weak Job-Protected Family Leave	-0.0028	Weak Job-Protected Family Leave	0.0068**
	(0.0067)		(0.0033)
Strong Job-Protected Medical Leave	-0.0214***	Strong Job-Protected Medical Leave	-0.1079***
	(0.0052)		(0.0063)
Semi-strong Job-Protected Medical Leave	0.0352***	Semi-strong Job-Protected Medical Leave	-0.0520***
	(0.0028)		(0.0036)
Weak Job-Protected Medical Leave	-0.1163***	Weak Job-Protected Medical Leave	-0.0523***
	(0.0094)		(0.0049)
Flexible Use of Sick Days	0.0298***	Flexible Use of Sick Days	0.1795***
	(0.0030)		(0.0091)
Constant	1.6864***	Constant	1.6066***
	(0.0402)		(0.0426)
Observations	1,421,770	Observations	1,136,513
R-squared	0.1486	R-squared	0.1517
Year FE	yes	Year FE	yes
State FE	yes	State FE	yes
Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Hawaii and Tennessee omitted due to collinearity		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 Alaska, Hawaii, Tennessee, Montana, omitted due to collinearity	

Table 14: Effects of Total Legislative Score on Male Labor Force Participation

All Observations		**Omissions Based on Flexible Sick Days**		**Omissions Based on Timing**	
Variables	Labor Force Participation	Variables	Labor Force Participation	Variables	Labor Force Participation
Total Score	-0.0158***	Total Score	-0.0176***	Total Score	-0.0126*
	(0.0022)		(0.0020)		(0.0066)
Constant	1.5996***	Constant	1.5919***	Constant	1.6179***
	(0.0375)		(0.0486)		(0.0267)
Observations	947,309	Observations	752,374	Observations	833,802
R-squared	0.1500	R-squared	0.1540	R-squared	0.1478
Year FE	yes	Year FE	yes	Year FE	yes
State FE	yes	State FE	yes	State FE	yes
Controls	all	Controls	all	Controls	all
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	