

SOCIETAL AND ECONOMIC IMPACTS OF PAID FAMILY LEAVE

By

Mariam Khan

Submitted to the

Faculty of the School of Public Affairs

of American University

in Partial Fulfillment of

the Requirements for the Degree of

Doctor of Philosophy

In

Public Administration

Chair:

*Taryn Morrissey*

Taryn Morrissey, Ph.D.

*D. Marcotte*

Dave Marcotte, Ph.D.

*Alison Jacknowitz*

Alison Jacknowitz, Ph.D.

DocuSigned by:

*Robert W. Bednarzik*

Robert Bednarzik, Ph.D.

*V. Wilkins*

Dean of the School of Public Affairs

October 28, 2020

Date

2020

American University

Washington, D.C. 20016

© COPYRIGHT

by

Mariam Khan

2020

ALL RIGHTS RESERVED

To my parents who encouraged and inspired me to pursue my doctoral program and supported me all the way along.

# SOCIETAL AND ECONOMIC IMPACTS OF PAID FAMILY LEAVE

BY

Mariam Khan

ABSTRACT

During the past several decades, paid family leave has emerged as a policy issue at the intersection of work and life, which is affecting many working families, particularly during the period of childbirth. According to U.S. Census Bureau data, 56 percent of women worked full-time during pregnancy from 2006 to 2008, and among women who worked during pregnancy, 64 percent were actively working less than one month before childbirth and 59 percent returned to work less than three months after childbirth. As the number of single parent households and the number of women participating in the labor force increased over the last three decades, the demand for paid family leave from employers or government has grown. Researchers have found that paid family leave has a number of health and economic benefits.

This dissertation builds upon an existing body of research by examining whether paid family leave improves two measures related to quality of life: child health and mothers' employment and work schedules. Further, this study examines a potential political precursor to the passage of paid family leave laws, namely the proportion of female legislative representation. Together, these studies enhance our understanding of how paid family leave affects the well-being of working families and the factors that predict its passage into law. One of the unique aspects of this research is that the effects of paid paternity leave are examined, which has not received adequate attention in the existing literature. The overarching theme and motivation of this dissertation is the availability of paid family leave and is introduced in Chapter 1.

Chapter 2 examines the effects of the availability of paid family leave on the health outcomes of children. This study uses country-level balanced panel data from the 35 OECD

countries from 1990 to 2016. Using an event study design, the study finds an approximately 1.9 to 5.2 percent decrease in country-level infant, neonatal, and under-five mortality rates following the adoption of paid maternity leave. However, the impact of the implementation of paid paternity leave was not as apparent as that of paid maternity leave, which may be attributed to its recency and amount that is much smaller than that of the more common maternity leave. An increase in the length of paid paternity leave was found to have a measurable impact on the health outcomes of children. An important finding of this study is that it takes at least two years for paid family leave to have an effect on the health outcomes of children, indicating that there is a delayed impact after the enactment of paid family leave legislation.

Chapter 3 examines the impact of the paid family leave on female labor market outcomes, including being employed, working full-time, number of hours worked, and whether mothers actually utilized the paid family leave program. The study uses individual-level, cross-sectional data in the United States from the 2000 to 2019 waves of the Current Population Survey's Annual Social and Economic Supplement (ASEC) and a triple difference-in-difference estimator. The results show that the adoption of state paid family leave improves the labor market outcomes for mothers with an infant. Mothers with infants in states with paid family leave are 0.6 percent more likely to be employed, 0.6 percent more likely to work full-time, and work 0.8 more hours compared to mothers with infants in states without paid family leave. However, the results also show that the adoption of state paid family leave decreases the labor market outcomes for mothers with both an infant and child. When mothers with both an infant and a child live in states with paid family leave, they are 3 percent less likely to be employed, 2.2 percent less likely to work full-time, and work 1.3 fewer hours compared to mothers with both an infant and a child in states without paid family leave. This may suggest that paid family leave is

inadvertently worsening the labor market outcomes for mothers with multiple children. From the results on the utilization of paid family leave, it appears that some mothers may be hesitant to use such leave, which may be attributed to fears associated with taking paid family leave.

Chapter 4 examines whether the female legislative representation has a measurable effect on the likelihood of whether a U.S. state adopts friendly work-family policies. The study examines 50 U.S. states from 2000 to 2016 using a linear probability model with data from the Michigan State University's Correlates of State Policy Project. The study finds that when states have more than 25 percent females in the state legislature and the governor is a female, they do not experience a statistically significant increase in the likelihood of passing friendly work-family laws. The results may suggest that an increase in the passive representation of women does not always result in active representation. According to representation theories in the literature, passive representation leading to active representation only occurs when three conditions are met: 1) the policy area needs to be salient for women; 2) women need to be the direct beneficiary of the policy; and 3) policy area needs to be gender-related. Two of these three conditions were not met in this study, which may explain the null findings. Another explanation is the extremely partisan political culture in the United States where even women-related issues are supported or opposed on party lines, regardless of the number of female legislators in any party.

A number of common and interrelated policy implications emerge from the studies included in chapters 2 through 4, which are presented in Chapter 5, Summary and Conclusion. The lagged impact of paid family leave suggests that both the employees and employers need to be educated with the availability of and access to paid family leave and both should be aware of their rights and responsibilities. Compliance of the employers with paid family leave has been an

issue with the Family and Medical Leave Act (FMLA), which is on a non-paid basis, and it can be expected to be even worse for paid family leave. Thus, the government would need to come up with better and effective enforcement mechanisms. Fears associated with the utilization of paid family leave, which include impediment to career advancement or even losing job, would need to be mitigated in order to realize the benefits of paid family leave. Finally, the lack of a linkage between female legislative representation and the adoption of friendly work-family legislation may indicate that merely large female legislative representation is not sufficient and the success of such legislation may depend on the buy-in of the public. It needs to be better communicated that paid family leave is beneficial to both employees and employer alike, and paid family leave is a value proposition to businesses and employers.

Overall, the findings of this research can be used to educate stakeholders on the need, justification, challenges, benefits, and a general framework for the development and implementation of paid family leave.

## PREFACE

In today's workforce, the balance between work and life is more important than it ever was. The face and structure of our workforce today is very different than it was 50 years ago, particularly from the standpoint of female participation. This is apparent in all walks of life, including academic institutions, public service, private businesses, and political and legislative bodies. The society has embraced this change, and the gender, wage, and associated income inequality is narrowing day-by-day. However, the traditional employment benefits structure has not changed much, and, certainly, it has not kept pace with this new workforce. Paid family leave is one of those employment benefits that is so desperately needed for dual household working parents, but has not been available to a significant population. The good news is that some states have already adopted paid family leave, others are moving towards it, and, this year, paid family leave was authorized for employees in the federal government. Thus, with a renewed focus and new initiatives, the path forward for paid family leave is bright and this study could not have come at a better time.

Mariam Khan



## ACKNOWLEDGMENTS

The financial support of the Department of Public Administration & Policy at American University is greatly appreciated.

## TABLE OF CONTENTS

ABSTRACT .....	ii
PREFACE.....	vi
ACKNOWLEDGMENTS .....	vii
LIST OF TABLES.....	xi
LIST OF ILLUSTRATIONS.....	xii
LIST OF ABBREVIATIONS .....	xiii
CHAPTER 1 INTRODUCTION.....	14
CHAPTER 2 PAID FAMILY LEAVE AND CHILDREN HEALTH OUTCOMES IN OECD COUNTRIES.....	18
Abstract.....	18
Introduction .....	19
Literature Review .....	20
Contribution.....	29
Hypotheses and Theoretical Framework .....	31
Data Source.....	33
Methods .....	36
Empirical Results.....	39
Discussion.....	45
CHAPTER 3 PAID FAMILY LEAVE AND ITS IMPACT ON MATERNAL LABOR MARKET OUTCOMES IN THE UNITED STATES .....	50
Abstract.....	50
Introduction .....	51
Economic Theory .....	62
Literature Review .....	65
Contribution.....	70

Hypotheses.....	71
Data Source.....	72
Method.....	73
Descriptive Findings.....	77
Empirical Results.....	78
Discussion.....	81
<b>CHAPTER 4 FEMALE LEGISLATIVE REPRESENTATION AND ITS IMPACT ON THE ADOPTION OF WORK-FAMILY POLICIES IN THE UNITED STATES.....</b>	
Abstract.....	86
Introduction .....	87
Literature Review .....	89
Hypothesis and Theoretical Framework.....	96
Data Source.....	97
Methods .....	103
Descriptive Findings.....	108
Empirical Results.....	109
Discussion.....	116
<b>CHAPTER 5 SUMMARY AND CONCLUSION.....</b>	
Summary.....	120
Implications of the Findings.....	121
Limitations .....	124
Future Research .....	126
Closing.....	128
APPENDIX A: MATERNITY LEAVE - COMMON YEAR TREND.....	129

APPENDIX B: LENGTH OF PAID MATERNITY LEAVE - COMMON YEAR TREND.....	130
APPENDIX C: PAID PATERNITY LEAVE - COMMON YEAR TREND.....	131
APPENDIX D: LENGTH OF PAID PATERNITY LEAVE - COMMON YEAR TREND.....	132
APPENDIX E: ROBUSTNESS CHECKS - PRIOR YEAR DUMMIES.....	133
APPENDIX F: ADOPTION OF PAID FAMILY LEAVE - WITHOUT FIXED EFFECTS.....	135
APPENDIX G: ADOPTION OF PAID SICK LEAVE - WITHOUT FIXED EFFECTS.....	137
APPENDIX H: ADOPTION OF BREASTFEEDING AT WORK - WITHOUT FIXED EFFECTS.....	139
APPENDIX I: CONTINUOUS VARIABLE - WITHOUT FIXED EFFECTS.....	141
APPENDIX J: ADOPTION OF PAID FAMILY LEAVE - WITHOUT POLICY CONTROL VARIABLES.....	143
APPENDIX K: ADOPTION OF PAID SICK LEAVE - WITHOUT POLICY CONTROL VARIABLES.....	145
APPENDIX L: ADOPTION OF BREASTFEEDING AT WORK - WITHOUT POLICY CONTROL VARIABLES.....	147
APPENDIX M: CONTINUOUS VARIABLES - WITHOUT POLICY CONTROL VARIABLES.....	149
APPENDIX N: STATE TRENDS IN THE PERCENT OF FEMALES IN STATE LEGISLATURE.....	150
REFERENCES.....	151

## LIST OF TABLES

Table 1. Paid Family Leave Programs in OECD Countries .....	22
Table 2. Summary Statistics .....	36
Table 3. Paid Maternity Leave .....	41
Table 4. Paid Paternity Leave.....	42
Table 5. Length of Paid Maternity Leave.....	43
Table 6. Length of Paid Paternity Leave .....	44
Table 7. U.S. State Paid Family Leave.....	59
Table 8. State Temporary Disability Insurance Program .....	61
Table 9. Summary Statistics .....	73
Table 10. Comparison of Mothers in States with and without Paid Family Leave.....	78
Table 11. Regression Results on the Impact of Paid Family Leave on Different Labor Market Outcomes .....	80
Table 12. State Paid Sick Leave Laws .....	99
Table 13. State Breastfeeding at Work Laws .....	99
Table 14. Summary Statistics .....	107
Table 15. Comparison of Female Legislators in States with and without Work-Family Policies.....	109
Table 16. Adoption of Paid Family Leave .....	111
Table 17. Adoption of Paid Sick Leave.....	112
Table 18. Adoption of Breastfeeding at Work Legislation .....	113
Table 19. Continuous Variable - Percent of Female Legislators.....	115

## LIST OF ILLUSTRATIONS

<i>Figure 1. Adoption of paid paternity leave.....</i>	<i>30</i>
<i>Figure 2. Adoption of paid maternity leave.....</i>	<i>30</i>
<i>Figure 3. Theoretical framework.....</i>	<i>33</i>
<i>Figure 4. Distribution of dependent variables .....</i>	<i>34</i>
<i>Figure 5. Distribution of women above the age of 18 reported taking and not taking paid maternity leave, by race.....</i>	<i>54</i>
<i>Figure 6. Distribution of women above the age of 18 reported taking and not taking paid maternity leave, by educational attainment.....</i>	<i>55</i>
<i>Figure 7. Distribution of women above the age of 18 reported taking and not taking paid maternity leave, by income .....</i>	<i>55</i>
<i>Figure 8. Effect of adoption of paid family leave (PFL) on the supply and demand of labor .....</i>	<i>64</i>
<i>Figure 9. Employment Rate of Women and Paid Family Leave .....</i>	<i>76</i>
<i>Figure 10. Adoption of state paid family leave .....</i>	<i>101</i>
<i>Figure 11. Adoption of state paid sick leave .....</i>	<i>101</i>
<i>Figure 12. Adoption of breastfeeding at work legislation.....</i>	<i>102</i>

## LIST OF ABBREVIATIONS

CA	California
CDC	Centers for Disease Control and Prevention
CT	Connecticut
COVID-19	Coronavirus Disease of 2019
EITC	Earned Income and Tax Credit
FAMILY Act	Family and Medical Insurance Leave Act
FMLA	Family and Medical Leave Act
i.i.d	Independent and Identically Distributed Variables
LPM	Linear Probability Model
MA	Massachusetts
OECD	Organisation for Economic Co-operation and Development
OR	Oregon
SIDs	Sudden Infant Death
TANF	Temporary Assistance for Needy Families
TDI	Temporary Disability Insurance
U.S.	United States

## CHAPTER 1

### INTRODUCTION

*Currently, the United States is virtually the only advanced industrialized country without a national family and medical leave policy. Now, with the signing of this bill, American workers in all 50 States will enjoy the same rights as workers in other nations.*

—President Bill Clinton, *On the Signing of Family and Medical Leave Act of 1993*

The passage of Family and Medical Leave Act of 1993 (FMLA) more than 25 years ago was a major milestone in the U.S. labor policy reform when American workers could legally take time off from work for family and medical reasons without jeopardizing or losing their jobs. This job protection was and still is at the cost of paychecks while away from work. The conversation has been going on, even since before the passage of the FMLA in 1993, for a family and medical leave that not only provides job protection but also a paycheck during the leave. When this happens, only then American workers would truly be at par with the workers in other advanced industrialized nations where paid family leave has been available before 1990s. In a Senate hearing in 2018, Senator Sherrod Brown said “Eighty-five percent of the workforce, 100 million people, have no paid family medical leave. If a mother has a baby, she gets zero paid time off—not a single day. If she is not back at work the day after she gives birth—something most of us would agree is cruel and absurd—she does not get a paycheck” (U.S. Senate Hearing, 2018).

When mothers return to work less than 12 weeks after giving birth, they are more likely to report stress and depression (Chatterji & Markowitz, 2008; Dagher, McGovern, & Dowd, 2014). These trends hold particularly true for unmarried mothers and mothers who do not have a college education (Chatterji & Markowitz, 2008). Some of the stress that new mothers



experience may stem from the large income decline that families experience surrounding the birth of a child (Stancysk, 2019).

When mothers return to work early, it can also decrease the likelihood that newborns receive the needed care (Berger, Hill, & Waldfogel, 2005; Lichtman-Sadot & Bell, 2017). Berger et al. (2005) found that children whose mothers returned to work within 12 weeks of childbirth were 7.5 percentage points less likely to be breastfed, 2.4 percentage points less likely to receive baby care, and 3.4 percentage points less likely to receive all of the required immunizations. Berger et al. (2005) also found that children are more likely to exhibit behavioral problems, such as aggressiveness, impulsivity, and defiance, at the age of four when mothers return to work within 12 weeks of childbirth.

The lack of access to paid family leave has exacerbated the health and economic disparities in the United States, particularly for families of color (National Partnership of Women, 2018). These disparities can be particularly seen during the coronavirus disease of 2019 (COVID-19) pandemic. The Centers for Disease Control and Prevention (CDC) released a report that analyzed 121 coronavirus-associated deaths among children from February to July 2020 (Bixler et al., 2020). Among the children who died, 78 percent were children of color (Bixler et al., 2020). Specifically, 45 percent of the children were Hispanic, 29 percent were Black, and 4 percent were non-Hispanic American Indian or Alaska Native (Bixler et al., 2020). The CDC attributed the disproportionate number of coronavirus deaths among children of color to “disparities in social determinants of health, such as crowded living conditions, food and housing insecurity, wealth and educational gaps, and racial discrimination” (Bixler, 2020). The CDC also attributed it to the “difficulty and delays in accessing health care services because of lack of insurance, child care, transportation, or paid sick leave” (Bixler, 2020). Thus, it is evident that a

national paid family and medical leave is one policy that can address a number of causes of these economic and health disparities.

The overarching theme of this dissertation is the availability of a national paid family and medical leave in the United States. Three distinct but interrelated empirical studies have been conducted, all around this theme, and each is presented as a chapter. In Chapter 2, a case has been made for paid family leave by examining the impact of paid family leave, both maternity and paternity, on the health outcomes of children in the 35 OECD countries. These health outcomes include neo-natal mortality, infant mortality, under-five mortality, and immunization rate. Particular focus is on paid paternity leave, which has received much less attention than paid maternity leave in the past. Access to paid paternity leave is limited in general in all the OECD countries but rare in the United States (U.S. Department of Labor, 2015).

Chapter 3 examines one of the important implications of paid family leave—the impact of paid family leave on maternal labor market outcomes. This chapter is motivated by the literature’s lack of consensus on the overall effect of paid family leave on the labor market outcomes for mothers. According to economic theory, paid family leave may preserve women’s ties to their jobs, and, as a result, this may increase the incentive of firms to invest in paid family leave for the long-term retention of the employees (Boushey, 2008). However, on the other hand, paid family leave may increase the duration that women temporarily withdraw from the workforce (Blau & Kahn, 2013). Furthermore, there is evidence in the past literature that female employees pay motherhood penalty in their jobs in terms of their career advancement, wages, and job retention (Lequien, 2012; Drange & Rege, 2013; Schönberg & Ludsteck, 2014; Rossin-Slater, 2017; Bailey et al., 2019)

Finally, Chapter 4 has examined if a conducive environment, in the form of large female legislative representation, can help the passage of friendly work-family laws, including paid family leave. Previous studies conducted in other countries and some in the United States at local and state government levels suggest that large female legislative representation helps the passage of friendly work-family policies and legislations (Kittilson, 2008; Schwindt-Bayer & Mishler, 2005; Atchison & Down, 2009; Fraga et. al., 2007; Lavariega, Orey, & Conroy, 2009; Budd, Myers, & Longoria, 2016). However, studies conducted in other countries and at state and local government levels cannot be generalized in the broader context of the United States due to differences in political culture, structure and belief. These differences are too large from one state to another here in the United States let alone other countries.

Chapters 2, 3, and 4 combined present the need, justification, benefits, and some potential unintended consequences, if not mitigated, for the adoption and implementation of paid family leave in the United States. Finally, Chapter 5 presents an integrated summary and conclusion of the three chapters. This chapter also includes the policy implications and limitations of the overall dissertation, which present opportunities and directions for future research.

## CHAPTER 2

### PAID FAMILY LEAVE AND CHILDREN HEALTH OUTCOMES IN OECD COUNTRIES<sup>1</sup>

*Our most important task as a nation is to make sure all our young people can achieve their dreams.*

— Barack Obama, *Presidential Tweet*

#### Abstract

In the past four decades, several Organization for Economic Co-operation and Development (OECD) countries have adopted or expanded paid family leave, which offers job-protected, partially paid leave to workers following the birth or adoption of a child as well as to care for the workers' own illness and their ill family members. The effects of paid maternity leave on child health have been the subject of a large body of research. Studies have found that maternity leave may improve child health by decreasing postpartum depression among mothers, improving maternal mental health, increasing the time spent with a child, and increasing the likelihood of child medical check-up. However, less is known about fathers' leave-taking and the effects of paid paternity leave. This is a limitation, since most of the recent expansion in paid family leave in OECD countries has been to expand leave benefits to fathers. When both mothers and fathers take leave, it can increase the time that both parents participate in childcare responsibilities, potentially reducing the burden of one parent to handle all the responsibilities. This study examines the effects of the availability of paid family leave on the health outcomes of children, extending what we know about the effects of maternity leave and establishing new evidence on paternity leave. I examine the effects of paid family leave expansions on country-

---

<sup>1</sup> This chapter has been published by the author in: Khan, M.S. (2020). Paid family leave and children health outcomes in OECD countries. *Children and Youth Services Review*, 105259. <https://doi.org/10.1016/j.chilyouth.2020.105259>.

level neonatal mortality rates, infant mortality rates, under-five mortality rates, and the measles immunization rates in 35 OECD countries, during the period of 1990 to 2016. Using an event study design, I find an approximately 1.9 to 5.2 percent decrease in country-level infant, neonatal, and under-five mortality rates following the adoption of paid maternity leave. However, the same trend does not hold true when publicly supported paid leave is extended to fathers. I discuss both the implications and potential reasons behind the larger protective effects of maternity leave over paternity leave on child health outcomes.

### Introduction

All OECD countries, except for the United States, have adopted paid family leave, which offers partially paid leave to workers following the birth or adoption of a child. Countries provide job-protected leave to employees, ensuring that employees return to the same job position after they take leave. A large body of literature has examined the effect of these leave policies on the health outcomes for children. There is consensus that when workers do not have access to such leave, they are less likely to accommodate the health needs of children, especially newborns (Clemans-Cope et al., 2008). Neuroscience and developmental research consistently show that the first two years of life are critical periods during which stable, responsive, warm caregiving is key to children's social, emotional, and intellectual development; a lack of these relationships contributes to stress and has life-long implications for health and development (Shonkoff & Phillips, 2000).

While the role of parents during the neonatal period is clear, most research has examined the impact of employment leave after birth for mothers—with little work focusing on the impact of paid paternity leave on health outcomes of children (Chen et al., 2017; Jackson, 2017). The impact of paid paternity leave is not nearly as discussed as the impact of paid maternity leave.

This may be attributed to the recency of the availability of paid paternity leave in several countries. To address this gap, this study examines the separate effects of paid maternity and paternity leave policies on the health outcomes of children in OECD countries during the period of 1990 to 2016. As paid paternity leave has been adopted during or following the implementation of paid maternity leave, there are no countries with only paternity leave. Thus, when this study examines paid paternity leave, it is examining extensions to paid maternity leave. The health outcome measures that the study examines include: the neonatal mortality rate, infant mortality rate, under-five mortality rate, and the percentage of children receiving measles vaccination. The neonatal mortality rate is particularly important considering that about two-third of the deaths that occur during the first year in life in OECD countries are neonatal deaths (OECD Health Statistics, 2019).

The chapter is structured in the following manner. First, the chapter reviews the current literature on the use of paid family leave among parents and on the impacts of paid family leave benefits on the health outcomes of children. Next, the chapter describes the research questions, data, and methods used in this study. Finally, the chapter concludes with a discussion of the findings.

### Literature Review

Paid family leave allows workers to take time off from work with full or partial wage replacement to engage in family caregiving (Lester, 2005). For workers who are unable to take time off for financial reasons, paid family leave makes it affordable to do so. More importantly, paid leave helps retain both male and female workers in the workforce, which is another purpose of paid family leave. According to economic theory, when employees are guaranteed job protection and paid during the time they take leave, it increases the likelihood that they will be in

the labor force prior to having children. Also, it provides women the ability to plan for their future (Gupta, Smith, & Verner, 2008; Summers, 1989; Sundström & Stafford, 1991).

Currently, the United States offers 12 weeks of job-protected unpaid leave for specified medical and family reasons through the Family and Medical and Leave Act (FMLA). Employees can use leave during the birth, adoption, or fostering of a child. It can also be used for the serious health condition that makes an employee unable to perform their job and similarly, it can be used to care for an employee's spouse, child, or parent who has a serious health condition.

Approximately 60 percent of U.S. workers are eligible for FMLA unpaid leave (Daley, Klerman, & Pozniak, 2014). The United States is the only country among the 35 OECD countries that does not offer paid maternity leave to parents. A detailed summary table of the paid family leave programs in the OECD countries can be found in Table 1. Among these countries, 28 countries guarantee at least 14 weeks of paid family leave to mothers of infants. Ironically, 14 weeks of maternity benefits have also been recommended by the 2000 International Labor Organization's Maternity Protection Convention. The first 14 weeks is considered to be important because during this time period, infants begin to form neural connections and recognize the voice, smell, and face of their caregiver (Schulte et al., 2017). In Australia, all workers, including full-time and part-time workers, have a guaranteed 18 weeks of paid parental leave at the level of federal minimum wage (Hewitt, Strazdins, & Martin, 2017).

Table 1. Paid Family Leave Programs in OECD Countries

Country	Year Paid Maternity Leave Enacted	Maximum Length of Paid Maternity Leave as of 2018	Year Paid Paternity Leave Enacted	Maximum Length of Paid Paternity Leave as of 2018
Australia	2011	18 weeks	2013	2 weeks
Austria	Before 1990	16 weeks	None	0 weeks
Belgium	Before 1990	15 weeks	Before 1990	2 weeks
Canada	Before 1990	16 weeks (varies across provinces, from 15 to 18 weeks)	None	0 weeks
Chile	Before 1990	18 weeks	2005	1 week (5 working days)
Czech Republic	Before 1990	28 weeks	After 2016	1 week (7 calendar days)
Denmark	Before 1990	18 weeks	Before 1990	2 weeks
Estonia	2002	20 weeks	2002 (temporary suspended leave from 2009 to 2012)	2 weeks (10 working days)
Finland	Before 1990	17.5 weeks (105 working days)	1991	3 weeks
France	Before 1990	First or second child: 16 weeks; third or higher: 24 weeks.	2002	2 weeks
Germany	Before 1990	14 weeks	None	0 weeks
Greece	Before 1990	43 weeks (17 weeks basic maternity leave, and 26 weeks special maternity leave)	2000	0.4 weeks (2 days)
Hungary	Before 1990	24 weeks	2002	1 week (5 working days)
Iceland	Before 1990	13 weeks (3 months), embedded in parental leave scheme.	None	0 weeks
Israel	Before 1990	15 weeks	None	0 weeks
Ireland	Before 1990	26 weeks	After 2016	2 weeks
Italy	Before 1990	21.7 weeks	2013	0.8 weeks (4 days)
Japan	Before 1990	14 weeks	None	0 weeks
Korea	Before 1990	12.9 weeks	2008	1 week (5 working days)
Latvia	1995	16 weeks	2004	1.4 weeks (10 calendar days)
Luxembourg	Before 1990	20 weeks	Before 1990	2 weeks
Mexico	Before 1990	12 weeks	2012	1 week (5 working days)
Netherlands	Before 1990	16 weeks	2001	0.4 week (2 working days)
New Zealand	Before 1990	18 weeks	None	None



Norway	Before 1990	13 weeks	None	None
Poland	Before 1990	20 weeks	2010	2 weeks
Portugal	1995	6 weeks	1995	5 weeks
Slovak Republic	1993	34 weeks	None	None
Slovenia	2001	15 weeks	2003	4.3 weeks (30 calendar days)
Spain	Before 1990	16 weeks	Before 1990	4.3 weeks (30 calendar days)
Sweden	1995	12.9 weeks	Before 1990	1.4 weeks (10 calendar days)
Switzerland	2005	14 weeks	None	None
Turkey	Before 1990	16 weeks	2015	1 week (5 days)
United Kingdom	Before 1990	39 weeks	2003	2 weeks
United States	None	No weeks	None	None

Source: OECD Family Database (2019)

### Mechanisms Connecting Paid Maternity Leave and Child Outcomes

The availability and length of maternity leave coverage provided is correlated to the amount of time that a new mother takes off from work. When new mothers have access to paid leave, they are more likely to spend time at home with their newborns after giving birth (Rossin-Slater, Ruhm, & Waldfogel, 2013). For example, Baker and Milligan (2008a) analyzed provincial maternity leave mandates in Canada, where employers are required to allow mothers to take leave from their job. They found that paid job-protected maternity leave from six months to one year increased the time that new mothers spent away from work by about three months. Likewise, Baum and Ruhm (2016) used data from the 1997 cohort of the National Longitudinal Youth Survey to examine California's public paid family leave program, which began in 2004, finding that the usage of paid leave by mothers increased by three weeks following the birth of a child.

The literature also provides insights into the mechanisms through which additional post-childbirth maternal care yields health benefits for children. Paid leave may improve child health

via an increased likelihood of breastfeeding. Research has found breastfeeding to be associated with improved child and maternal health (Hamdan & Tamim, 2012; Ip et al., 2007; Lichtman-Sadot & Bell, 2017; Pac et al., 2019). Lichtman-Sadot and Bell (2017) and Pac et al. (2019), who analyzed the longer-term effects of California's Paid Leave Program, found that paid family leave increased the duration of breastfeeding respectively by two to twelve weeks after childbirth and the overall duration of breastfeeding by nearly 18 days. Some research suggests that breastfeeding has benefits for the health of both mothers and children. Breastfed infants are less likely to develop asthma, ear infection, gastrointestinal infection, childhood obesity, and type 1 and type 2 diabetes (Ip et al., 2007). Similarly, breastfeeding mothers, compared to non-breastfeeding mothers, are less prone to postpartum depression (Hamdan & Tamim, 2012).

Paid family leave may also operate through stronger family-health care connections. For example, Lichtman-Sadot and Bell (2017) found that paid family leave is associated with a greater likelihood of regular medical checkups at infancy, reduced prenatal stress, and reduced non-parental care during infancy. The improvement in these health outcomes were found to be driven by children from low socioeconomic households, suggesting that the paid family leave program had the greatest effect on mothers who could not afford to take unpaid leave (Lichtman-Sadot & Bell, 2017). Conversely, when mothers are pressured to return to work early, it can decrease the likelihood that newborns receive the needed care. Berger, Hill and Waldfogel (2005) found that children whose mothers returned to work within 12 weeks were 7.5 percentage points less likely to be breastfed, 2.4 percentage points less likely to receive baby care, and 3.4 percentage points less likely to receive all of the required immunizations.

Paid family leave may also improve child health via an improvement in mental health of mothers. Mothers who use paid family leave may experience an improvement in mental health,

since mothers receiving paid maternity leave have higher quality sleep and a lower likelihood of maternal depression (Chatterji & Markowitz, 2012; Heymann et al., 2017; Stanczyk, 2019). Chatterji and Markowitz (2012) estimate that increasing the length of leave to over 12 weeks reduces the maternal depressive symptoms on the CSED (Center for Epidemiologic Depression) scale by 15 percent and the probability of being classified as severely depressed by 2 percent. Likewise, Mandal (2018) found that the negative psychological effects of returning to work early after giving birth was alleviated when women received paid maternity leave.

Paid family leave may also improve child health via an increase in income. When mothers have access to paid family leave, it can prevent economically disadvantaged families from experiencing large income declines during the birth of a child (Stanczyk, 2019). Paid family leave can help smoothen income fluctuations that mothers experience during the birth of a child (Misra et al., 2012; Maldonado & Nieuwenhuis, 2015, Stanczyk, 2019). Stanczyk (2019) found that California's paid family leave program increased the total average household income of mothers with one-year-old children by \$3,407. Maldonado and Nieuwenhuis (2015) also found that paid family leave reduced the poverty of single-parent families by increasing the employment of single parents. Thus, paid family leave may increase long-term income and improve the labor force attachment of mothers, which would possibly reduce the need for social welfare programs (Rossin-Slater et al., 2013; Baum & Ruhm, 2016; Stanczyk, 2019).

Finally, there is some research on the use of unpaid family leave among mothers (Berger, Hill, & Waldfogel, 2005; Rossin-Slater, 2011). Berger, Hill, and Waldfogel (2005) found that children whose mothers return to work within 12 weeks were less likely to receive good quality baby care and receive all their immunizations, compared to mothers who use the full 12 weeks of FMLA. Rossin-Slater (2011) found that among infants of college-educated mothers, the FMLA

was associated with an increase in birthweight, a decrease in premature birth, and a substantial decrease in infant mortality.

### Mechanisms connecting Paid Paternity Leave and Child Health Outcomes

While we know a significant amount about maternity leave, we know less about paternity leave. Research shows that fathers are much less likely to take leave from their jobs but are more likely to do so when the leave is paid. For example, Cools, Fiva, and Kirkebøen (2015) analyzed the adoption of paid paternity leave in Norway in 1993 and found that the share of men taking paternity leave increased significantly compared to the time period before adoption of the mandate. In fact, in 1993, the share of men taking paternity leave was 24.6 percent and by 2006, it was 60 percent (Cools et al., 2015). Similarly, Marshall (2008) found that after Canada extended the Parental Benefits Program from 10 to 35 weeks in 2001, the proportion of fathers filing for parental leave benefits increased by approximately 10 percent.

Some evidence from the literature is suggestive that paid family leave increases the likelihood fathers are involved with the care of their children. Tanaka and Waldfogel (2007) found that fathers in the United Kingdom who took paid family leave were 19 percent more likely to feed their child as well as 19 percent more likely to attend their newborn at night. Haas and Hwang (2008) also found a positive correlation between the number of paternity leave days taken and the participation of fathers in childcare in Sweden. Fathers who took more days of leave were more likely to spend time with their child and participate in childcare tasks (Haas & Hwang, 2008). The lengthened time that fathers spend with their children has demonstrated to be beneficial for the health and well-being of the child. Such strong interactions can have positive effect on the cognitive and physical development of children (Allen & Daly, 2007). The infants

of highly involved fathers, on average, are more cognitively developed at six months of age compared to infants of not highly involved fathers (Pedersen, Rubenstein, & Yarrow, 1979).

Paid paternity leave may also improve the health of children via an improvement in the physical health of mothers. Persson and Rossin-Slater (2019) found that paid paternity leave improves the health of mothers in Swedish households. Specifically, the study found that in the first six months after birth, paid paternity leave is correlated with a 14 percent decrease in the likelihood of a mother having an inpatient or specialist outpatient visit for child-birth related complications, a 26 percent decrease in the likelihood of a mothers having anti-anxiety medication, and a 11 percent reduction in the likelihood of a mother having an antibiotic prescription drug. A decrease in prescriptions is important since it is indicative of fewer infections. This can be corroborated by Bratberg and Naz (2009), who found that Norway's paid paternity leave program reduced the sick absence rate of mothers who had recently given birth. Tikotzky et al. (2015) also found that greater paternal involvement, which may be encouraged by paternity leave, is associated with greater maternal sleep at six months after birth.

Finally, compared to the use of paid paternity leave, there is little research on the use of unpaid leave among fathers and its effect on child health outcomes. However, it is known that fathers are much less likely to use FMLA-leave compared to mothers (Seward, Yeatts, & Zoittarelli, 2002; Halverson, 2003). Two Department of Labor FMLA Surveys, one in 1995 and the other in 2000, found that men are less likely to take FMLA-leave to care for a newborn or ill child compared to women (Halverson, 2003). Most men who used FMLA-leave took it for personal health reasons (Halverson, 2003). About a decade later, a 2012 Department of Labor FMLA survey revealed that females are still more likely to take FMLA-leave (Klerman et al.,

2014). The 2012 survey also revealed that women are more likely to take longer leave for parental reasons, compared to men.

### Paid Family Leave and Children Health Outcomes

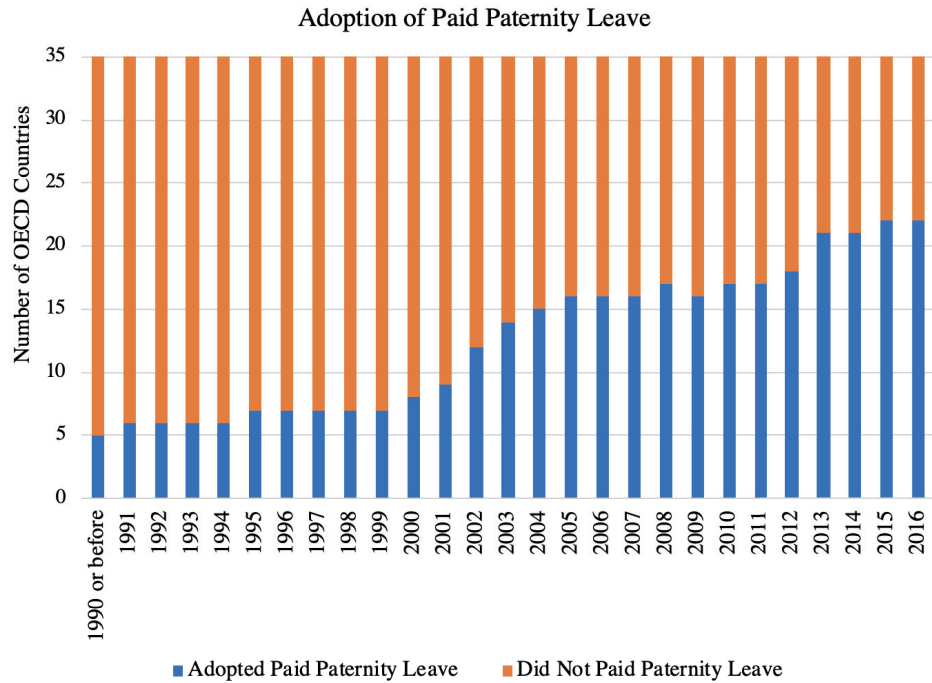
Overall, there is strong evidence that the increased time that both mothers and fathers have been afforded by paid family leave has improved the health outcomes of children. One important indicator is the immunization rate of children. There is a general consensus that paid family leave increases the likelihood of vaccination, since parents have more time to take their children to the doctor. A study of 185 countries found that a 10 percent increase in the number of weeks of paid maternity leave is associated with a 25.2 and 22.2 percent increase in measles and polio vaccinations, respectively (Daku, Raub, & Heymann, 2012).

Studies also indicate that paid family leave reduces the mortality of infants, which may partially be a result of immunizations. For instance, Winegarden and Bracy (1995) found that each week of paid maternity leave was associated with a decrease of approximately 0.5 deaths per 1,000 live births in 16 OECD countries (Winegarden & Bracy, 1995). Similarly, Ruhm (2000), using annual aggregate data for 16 European countries from 1969 to 1994, found that paid family leave decreased the mortality of infants and young children. More specifically, a 10-week increase in paid family leave was correlated with a 3.3 to 3.5 percent reduction in child mortality and a 2.5 to 3.4 percent reduction in infant mortality (Ruhm, 2000). Tanaka (2005) estimated that a 10-week increase in paid family leave would also reduce infant mortality by 2.6 percent. It is important to emphasize that the infant mortality rates in most OECD countries are currently low (OECD Health Statistics, 2019). The rates are much lower than when these programs were first implemented. Thus, there may be difficulty in finding an effect from a more recent paid family leave expansion.

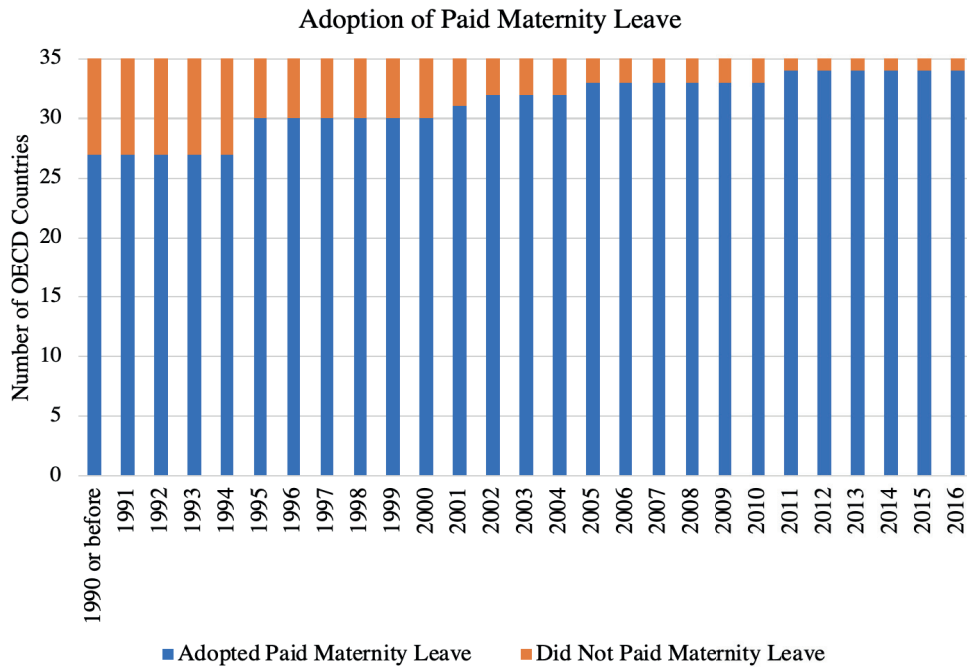
## Contribution

The previous literature on paid family leave provides evidence of benefits for child health, but much remains unclear. First, it is unclear whether the effect of paid maternity leave policies on child health outcomes provide reasonable approximation of the effects of paid paternity leave policies. The take-up rate of paid paternity leave is much less than the take-up rate of paid maternity leave, and thus, the effect of paid maternity leave may be different than the effect of paid paternity leave (Bartel et al., 2018). Second, much of the work on maternity leave examined reforms implemented in the 1980s. It is unclear whether the conclusions would change when taking into account more recent years, specifically from 1990 to 2016. This time period is one during which many OECD countries extended or expanded paid leave to fathers, as demonstrated by Figure 1. This reflects changing gender attitudes in that many countries began to understand the importance of the role fathers play in the development of a child. As in Figure 2, most countries had adopted paid maternity leave prior to 1990. This contemporary period is important to examine as it might shed light on how future expansions may affect child health and well-being. Additionally, it is important to note that during this time period, the economic crisis from 2008 to 2010 affected the benefits and tax revenues of OECD countries.

Finally, studies such as Cools et al. (2015) and Marshall (2008) primarily examined the effect of paid family leave within a specific country. The results from one country may not be applicable to another country given differing economic, social, cultural, and political structures. By conducting a cross-country analysis with the use of recent data, which takes paid paternity leave into consideration, this study addresses this gap in the literature.



*Figure 1. Adoption of paid paternity leave*  
 Note: Estonia temporarily suspended paid paternity leave from 2009 to 2012, due to an economic crisis in the country (European Foundation for the Living and Working Conditions, 2015).



*Figure 2. Adoption of paid maternity leave*  
 (Source: OECD Family Database)



## Hypotheses and Theoretical Framework

When paid family leave is available, it is expected that access to such leave has a beneficial impact on the health of children, considering paid family leave has been demonstrated to decrease postpartum depression among mothers, improve maternal mental health, and increase the rate of breastfeeding (Chatterji & Markowitz, 2012; Hamdan & Tamim, 2012; Lichtman-Sadot & Bell, 2017; Pac et al., 2019; Persson & Rossin-Slater, 2019). In particular, it is hypothesized that paid family leave decreases the neonatal and infant mortality, since research has found that the time that parents spend with their child during that period of a child's life is important for a child's cognitive, social, and emotional development (Kavanaugh et al., 1997; Schulte et al., 2017).

Paid family leave can be expected to reduce infant mortality, as breastfeeding has been found to decrease the likelihood of sudden infant death (Ip et al., 2007; Baker & Milligan, 2008; Vennemann et al., 2009). In particular, Vennemann et al. (2009) found that breastfeeding reduced the risk of sudden infant death throughout infancy by about 50 percent. About 3,500 infants die in their sleep every year from accidental suffocation or unknown causes, known as sudden infant deaths or SIDs and a significant number of these deaths occur in childcare facilities (Sole-Smith, 2016). The problem with childcare providers is that many of these service providers are unlicensed and have not received education or training in handling infants. For example, daycare providers are more likely to put babies on their stomach, since it can help them to go to asleep faster (Moon, Sprague, & Patel, 2005). However, this is a dangerous practice, considering it can increase the risk of SIDs. As research suggests, infants are better off when they are taken care of by a parent rather than by a childcare provider (Moon, Patel, & Shaefer, 2000; Moon et al., 2005; Sole-Smith, 2016). According to Alison Jacobson, the CEO of First Candle, which is a nonprofit organization that raises awareness of SIDs, "the longer that a mom

or dad can stay home with a baby, the better.” Thus, paid family leave may reduce infancy death, since it allows mothers to breastfeed their newborn and care for their newborns with an extensive amount of care and precision.

Additionally, it is expected that paid family leave decreases the under-five mortality rate and increases measles vaccination rate, since research has shown that parents who have paid family leave are more likely to take their child for a medical checkup, spend additional time with their child, and are more likely to have more household resources that can be spent on the needs of the child (Heymann et al., 2017; Rossin-Slater et al., 2013; Stanczyk, 2019; Tanaka & Waldfogel, 2007). When a child receives a medical checkup, they are more likely to receive their scheduled vaccination. It is estimated that that 42,000 deaths are prevented every year among children who receive their recommended childhood vaccinations, according to the National Prevention Council (2011).

Finally, paid family leave is not expected to have an immediate effect on child health outcomes. This is primarily because research has found that low-income parents who are eligible for paid family leave programs are not aware of its availability (Schuster et al., 2008; Appelbaum & Milkman, 2011). Governments may need a minimum of a year to increase the awareness of such programs. Thus, it is possible that paid family leave may improve child health outcomes after at least one year of the implementation of the paid family leave program.

The hypotheses discussed above are summarized as follows:

$H_1$  Paid family leave decreases the neonatal and infant mortality after at least one year of the implementation of paid family leave.

$H_2$  Paid family leave decreases child (under 5) mortality and increases measles immunization rate after at least one year of the implementation of paid family leave.

The theoretical framework for this study is shown in Figure 3.

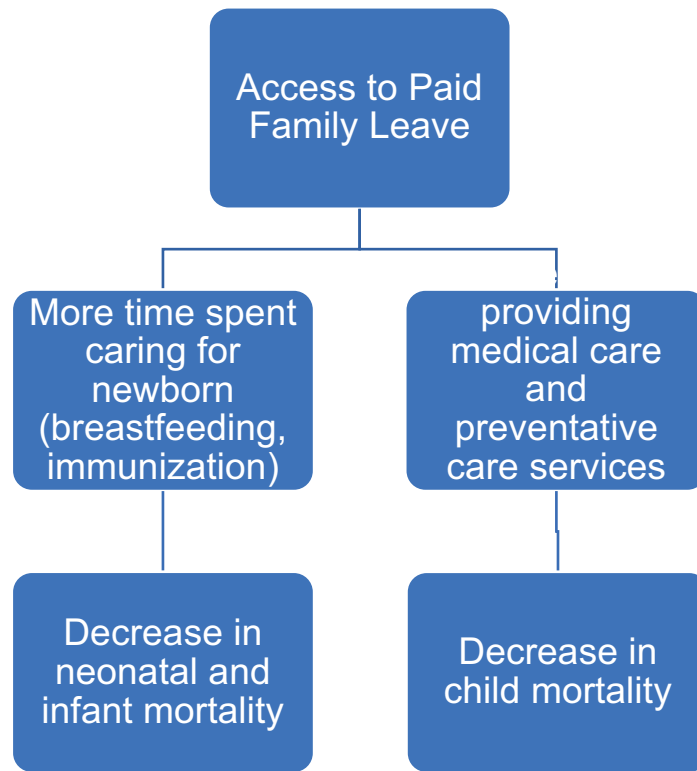


Figure 3. Theoretical framework

#### Data Source

This study uses country-level balanced panel data on 35 OECD countries from 1990 to 2016. The dataset was obtained from several publicly available sources, including the McGill University’s PROSPERED project, OECD Family Database, the World Bank Group, and the U.S. Central Intelligence Agency. The unit of analysis is country-year. In total, there are 945 country-year observations.

The primary independent variables of interest in this study are dummy variables measuring the availability of paid family leave, as reported by the OECD Family Database. I distinguish between paid maternity leave and paternity leave and have separate treatment indicators for country-years. Countries that never had paid maternity/paternity leave during this

time period are coded as zero, whereas countries that always had paid maternity/paternity leave or later adopted such leave are coded as one.

To measure the health outcomes of children, the neonatal mortality rate, infant mortality rate, under-five mortality rate, and the measles immunization rate are used as dependent variables in this study. The mortality rate and the measles immunization rate are logged because they have a positively and negatively skewed distribution, as shown in Figure 4.

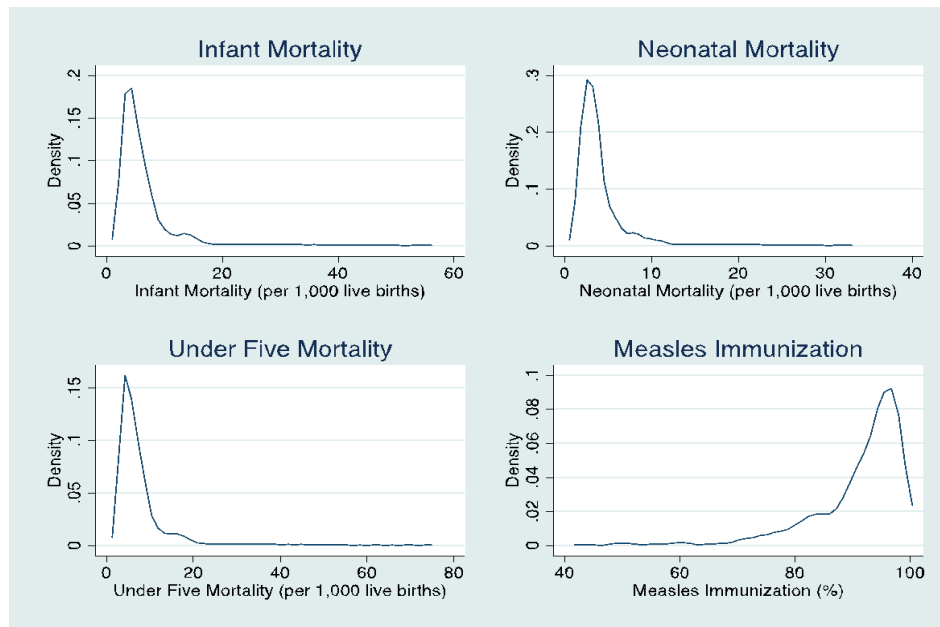


Figure 4. Distribution of dependent variables

I control for country-level health, socioeconomic, environmental, and infrastructure factors that affect the health of children, including the prevalence of anemia among women, and the labor force participation rate of women. Each of these factors are arguably justified to be included in the analysis. First, expenditures, such as health care expenditures of countries (percent of GDP), the public spending on family benefits (percent of GDP), and the gross national income (current U.S. dollars) is controlled for in the analysis, since they are found to be positively associated with the health outcomes of children (Ruhm, 2000). However, it is possible that greater health expenditure could be indicative that there is a significant proportion of that

population which is sick and is in need of particular health care services and programs. Second, the prevalence of anemia among pregnant women has been controlled, since women who are in poor health conditions are more likely to have birth-related problems. Third, environmental factors such as the amount of Carbon Dioxide (CO<sub>2</sub>) emissions and renewable electricity output were included in the analysis, as 1.7 million deaths in children under-five were attributable to the environment (World Health Organization, 2019). Pollution is a major contributor to childhood deaths, and thus, it is important to control for CO<sub>2</sub> emissions (Glinianaia et al., 2004). CO<sub>2</sub> itself does not create air particulates that negatively affect health, but high CO<sub>2</sub> emission is correlated with environmental factors, such as pollution and the burning of fossil fuels, which may negatively affect health. Finally, infrastructure factors such as the telephone subscription and the percent of individuals using internet, were also included since these can be considered critical modes of access to information relating to children's health (Martínez-Fernández et al., 2015). In addition, population size is also controlled in the analysis. Table 2 includes the summary statistics of the variables.

Table 2. Summary Statistics

VARIABLES	(1) Observations	(2) Standard Deviation	(3) Mean	(4) Minimum	(5) Maximum
Paid Maternity Leave (Treatment)	945	0.309	0.893	0	1
Paid Paternity Leave (Treatment)	945	0.481	0.361	0	1
Length of Paid Maternity Leave (Weeks)	945	7.921	14.921	0	43
Length of Paid Paternity Leave (Weeks)	945	0.937	0.546	0	4
Infant Mortality (Logged)	945	0.573	1.669	0.470	4.018
Neonatal Mortality (Logged)	945	0.559	1.241	-0.105	3.487
Under 5 Mortality (Logged)	945	0.565	1.860	0.742	4.307
Measles Immunization (Logged)	931	0.101	4.509	3.761	4.595
Health Expenditure (% of GDP)	911	2.142	7.845	2.448	17.21
Family Benefits Public Spending (% of GDP)	899	1.023	1.919	0	4.454
GNI (current US dollars)	909	2.284e+12	9.722e+11	5.472e+09	1.905e+13
Female Labor Force Participation Rate	945	4.443	43.84	26.05	50.63
Prevalence of Anemia Among Pregnant Women (%)	945	4.651	24.86	11.70	39.60
CO2 Emissions (kt)	862	906,283	346,033	1,767	5.790e+06
Individuals Using the Internet (% of the population)	920	33.67	42.10	0	98.24
Fixed Telephone Subscription (per 100 people)	945	2.868e+07	1.433e+07	130,472	1.925e+08

### Methods

To estimate the impact of paid family leave on child health outcomes, a two-way fixed effects model has been used. As Goodman-Bacon (2018) demonstrates, the coefficient of a two-way fixed effects model is equal to the “weighted average of all possible simple difference-in-difference that compares one group that changes treatment status to another group that does not” (Goodman-Bacon, 2018). In other words, any two-way fixed effect model which relies on the variation in treatment timing can be decomposed into a weighted average of all the possible two-group two-period difference-in-difference estimators. The following two-way fixed effects model was estimated.

$$y_{c,t} = Treatment_{c,t-2} + Treatment_{c,t-1} + Treatment_{c,t} + Treatment_{c,t+1} + Treatment_{c,t+2} + \beta_2 X_{c,t} + \tau_c + \omega_{c,t} + \varepsilon_{c,t}$$

The indices,  $c$  and  $t$  are, respectively, country and year, and  $Treatment_{c,t}$  refer to the dummy variable, indicating whether country  $c$  has paid maternity leave or paid paternity leave in year  $t$ . The two lead variables,  $Treatment_{c,t-1}$  and  $Treatment_{c,t-2}$ , respectively refer to one year and two years before the adoption of paid family leave in country  $c$  in year  $t$ . The two lagged variables,  $Treatment_{c,t+1}$  and  $Treatment_{c,t+2}$ , respectively, refer to one year and two years after the adoption of paid family leave in country  $c$  in year  $t$ . It may take a few years for paid family leave to have a demonstrable effect on children health outcomes, particularly when examining the under-five child mortality. Thus, this study examines lagged variables up to two years in the analysis.

In addition,  $X_{c,t}$  is a set of control variables (e.g, health expenditure of countries (percent of GDP), public spending on family benefits (percent of GDP), gross national income (current U.S. dollars), life expectancy, prevalence of anemia among pregnant women, labor force participation rate of women (percent of female population, ages above 15), CO2 emissions (kt), fixed telephone subscription (per 100 people), the percent of individuals using internet (percent of population), and population size.

Furthermore,  $\tau_c$  and  $\omega_{c,t}$  are country-fixed effects and country-specific time trends, respectively. The benefit of controlling for country fixed effect is that it accounts for country-level characteristics that do not vary over time. However, the disadvantage of controlling for country-fixed effects is it only identifies countries that change over time. Country-fixed effects exploit within-country variation, meaning the results are only applicable to countries that have changed their status over time in terms of their paid family leave policies. In this study, there is within-country variation since there are countries that initially did not have any paid family leave

policy, but later adopted maternity and/or paternity leave. Specifically, 17 OECD countries adopted paid paternity leave during this period, as demonstrated in Figure 1, and 7 OECD countries adopted maternity leave during this period, as demonstrated in Figure 2.

In addition, the benefit of controlling for country-specific time trends is that changes within a country over time that may be associated with the implementation of parental leave policies are taken into account. For example, it may be that countries with atypical trends in child health trends are more or less likely to implement paid family leave policies. Country-specific time trends limit the threats to validity that are due to underlying health trends which may be contemporaneous with changes in leave policies. In contrast, common year trend assumes that all countries experience the same changes within a country over time in a given year.<sup>2</sup> The regressions with the common year trend can be found in Appendix A, Appendix B, Appendix C, and Appendix D. However, it does not account for other changes within a country that may be driving the estimates downward or upward, which could potentially bias the estimates.

Furthermore,  $\varepsilon_{c,t}$  is an error term, assumed to be independent and identically distributed (i.i.d.). Observations are unweighted. A Breusch-Pagan test finds no evidence of heteroscedasticity (Solon, Haider, & Wooldridge; 2015), and thus the standard errors are not clustered by country in this analysis.<sup>3</sup> Further, a country-level panel data has been used with no attempt to draw a causal inference for the general population. Estimates are weighted when the impact of treatment is heterogeneous. It is reasonable to expect that weighting would ensure that certain segments of the population are represented. Yet, as Solon et al. (2015) demonstrate, simply weighting the estimates by the population share of a particular attribute or characteristic

---

<sup>2</sup> The regressions with the common year trend can be found in Appendix A, Appendix B, Appendix C, and Appendix D.

<sup>3</sup> It should be noted that robust standard errors were still utilized to minimize standard errors.



will not yield the population averaged treatment effect. Instead of weighting, Solon et al. (2015) suggest that a regression model should include dummies for each characteristic and a set of interaction terms with treatment. Thus, in this study, rather than weighting by population size, it is controlled for in the model. The results have been clustered by country to minimize standard errors.

As an additional layer of analysis, this study also examines the effect of the length of paid maternity and paternity leave on child health outcomes. This is important to examine, since there is substantial variation in the length of leave across countries and over time. It is possible that longer leave is associated with better health outcomes. It is also possible that there are certain lower and upper thresholds of paid maternity leave and paternity leave under which or beyond which the benefits are marginal.

### Empirical Results

The results indicate that after two years following the adoption of paid maternity leave, there is a statistically significant decrease in neonatal mortality, infant mortality, and under-five mortality (Table 3). Paid maternity leave is associated with a 5.2 percent decrease in the neonatal mortality rate, a 2.4 percent decrease in the infant mortality rate, and 1.9 percent decrease in the under-five mortality rate after two years of adoption, when accounting for country-specific time trends. Such effects are relatively large, when considering the size of the population being affected. For example, a 2.4 percent decrease in the infant mortality rate means the number of infants dying would drop from 10 to 9.76 per thousand live births. These results are relatively similar to those found by Ruhm (2000) and Tanaka (2005). Ruhm (2000) finds that a 10-week extension in paid family leave reduces infant mortality by 2.5 percent. Tanaka (2005) also finds that a 10-week extension in job-protected paid leave decreases infant mortality by 2.6 percent. In

this analysis, a similar trend does not appear to hold true following the adoption of paid paternity leave, meaning that there is not a significant decrease in the child health outcomes (Table 4).

When examining the effect of the length of leave, the study finds that a one-week increase in paternity leave reduces the infant and under-five mortality (Table 6). However, longer length of paid maternity leave does not have a significant impact on child health outcomes (Table 5).

The variables controlled in this study also provide insight into the results. In all of the analyses (Table 3, Table 4, Table 5, and Table 6), it was found that an increase in health expenditure is associated with a decrease in the neonatal mortality, infant mortality, and under-five mortality. Similarly, all the analysis found that an increase in the prevalence of anemia among pregnant women is associated with an increase in these three child health outcomes (Table 3, Table 4, Table 5, and Table 6).

Table 3. Paid Maternity Leave

VARIABLES	(1) Neonatal Mortality	(2) Infant Mortality	(3) Under 5 Mortality	(4) Measles Immunization
Lead Treatment (2 years)	-0.00278 (0.0301)	0.0143 (0.0181)	0.0108 (0.0185)	0.0192 (0.0186)
Lead Treatment (1 year)	-0.00435 (0.0159)	-0.0125 (0.0164)	-0.0117 (0.0153)	-0.00655 (0.00935)
Treatment Year	-0.0114 (0.0211)	-0.0316* (0.0173)	-0.0295 (0.0178)	-0.0171 (0.0261)
Lagged Treatment (1 year)	-0.00752 (0.0119)	-0.00917 (0.0142)	-0.0116 (0.0132)	0.0254 (0.0258)
Lagged Treatment (2 years)	-0.0516*** (0.0169)	-0.0239** (0.00887)	-0.0188** (0.00916)	-0.00569 (0.0173)
GNI (current US dollars)	0 (0)	0** (0)	0*** (0)	0 (0)
Health Expenditure (% of GDP)	-0.0307** (0.0117)	-0.0253** (0.00943)	-0.0256*** (0.00875)	0.00362 (0.00533)
Family Benefits Public Spending (% of GDP)	0.00990 (0.0114)	0.00812 (0.00900)	0.00888 (0.00865)	0.00858 (0.00933)
Prevalence of Anemia Among Pregnant Women (%)	0.0294*** (0.00857)	0.0288*** (0.00625)	0.0283*** (0.00603)	-0.00453 (0.00576)
Female Labor Force Participation Rate	0.00838 (0.0114)	0.0125 (0.0112)	0.0118 (0.0108)	-0.00222 (0.00670)
CO2 Emissions (kt)	4.01e-07 (3.99e-07)	1.75e-07 (2.66e-07)	1.86e-07 (2.54e-07)	1.86e-07 (1.29e-07)
Fixed Telephone Subscription (per 100 people)	5.00e-09* (2.63e-09)	7.21e-10 (2.46e-09)	5.49e-10 (2.25e-09)	-4.97e-10 (1.51e-09)
Individuals Using the Internet (% of the population)	-0.000733 (0.000512)	0.000157 (0.000463)	0.000143 (0.000454)	0.000279 (0.000542)
Total Population	1.41e-08 (1.71e-08)	5.63e-09 (1.08e-08)	3.84e-09 (1.11e-08)	-1.09e-08 (1.76e-08)
Constant	25.32* (13.91)	38.26*** (10.06)	40.06*** (9.653)	-1.784 (8.619)
Observations	723	723	723	722
R-squared	0.992	0.996	0.996	0.849
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Country-Specific Time Trends	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 4. Paid Paternity Leave

VARIABLES	(1) Neonatal Mortality	(2) Infant Mortality	(3) Under 5 Mortality	(4) Measles Immunization
Lead Treatment (2 years)	-0.00470 (0.0234)	0.000316 (0.0154)	0.00454 (0.0148)	-0.00590 (0.0150)
Lead Treatment (1 year)	0.00148 (0.00609)	-0.00861 (0.00552)	-0.00645 (0.00534)	-0.00997 (0.00809)
Treatment Year	0.0123 (0.0168)	0.00533 (0.00963)	0.00166 (0.00856)	-0.00442 (0.00768)
Lagged Treatment (1 year)	0.00323 (0.00828)	-0.00588 (0.00496)	-0.00132 (0.00489)	-0.00744 (0.00869)
Lagged Treatment (2 years)	-0.0211 (0.0262)	-0.00707 (0.0138)	-0.00803 (0.0141)	0.00420 (0.0100)
GNI (current US dollars)	0 (0)	0 (0)	0 (0)	0 (0)
Health Expenditure (% of GDP)	-0.0292** (0.0123)	-0.0243** (0.00993)	-0.0243** (0.00925)	0.00213 (0.00542)
Family Benefits Public Spending (% of GDP)	0.0105 (0.0111)	0.00860 (0.00898)	0.00914 (0.00856)	0.00943 (0.00920)
Prevalence of Anemia Among Pregnant Women (%)	0.0295*** (0.00933)	0.0293*** (0.00685)	0.0286*** (0.00659)	-0.00385 (0.00567)
Female Labor Force Participation Rate	0.00713 (0.00998)	0.0127 (0.0108)	0.0123 (0.0105)	-0.00214 (0.00638)
CO2 Emissions (kt)	3.48e-07 (3.91e-07)	1.32e-07 (2.60e-07)	1.39e-07 (2.45e-07)	2.17e-07* (1.25e-07)
Fixed Telephone Subscription (per 100 people)	5.05e-09* (2.93e-09)	9.95e-10 (2.61e-09)	6.92e-10 (2.41e-09)	0 (1.56e-09)
Individuals Using the Internet (% of the population)	-0.000868 (0.000564)	0.000108 (0.000493)	8.48e-05 (0.000488)	0.000377 (0.000607)
Total Population	1.15e-08 (1.38e-08)	5.73e-09 (1.03e-08)	2.98e-09 (1.05e-08)	-6.39e-09 (1.51e-08)
Constant	26.04** (11.70)	40.08*** (9.382)	41.96*** (8.868)	-1.614 (7.996)
Observations	723	723	723	722
R-squared	0.992	0.996	0.996	0.850
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Country-Specific Time Trends	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 5. Length of Paid Maternity Leave

VARIABLES	(1) Infant Mortality	(2) Under 5 Mortality	(3) Measles Immunization	(4) Neonatal Mortality
Length of Paid Maternity Leave	-0.000302 (0.00319)	-0.00133 (0.00200)	-0.00127 (0.00211)	-0.000518 (0.00143)
GNI (current US dollars)	-0 (0)	0 (0)	0* (0)	0 (0)
Health Expenditure (% of GDP)	-0.0301** (0.0117)	-0.0243** (0.00973)	-0.0243** (0.00909)	0.00394 (0.00585)
Family Benefits Public Spending (% of GDP)	0.0103 (0.0111)	0.0106 (0.00916)	0.0110 (0.00884)	0.00810 (0.00948)
Prevalence of Anemia Among Pregnant Women (%)	0.0295*** (0.00776)	0.0305*** (0.00560)	0.0297*** (0.00539)	-0.00455 (0.00509)
Female Labor Force Participation Rate	0.00927 (0.0113)	0.0145 (0.0109)	0.0131 (0.0105)	-0.00110 (0.00764)
CO2 Emissions (kt)	2.69e-07 (4.08e-07)	1.90e-07 (2.88e-07)	1.89e-07 (2.75e-07)	2.26e-07* (1.33e-07)
Fixed Telephone Subscription (per 100 people)	4.87e-09* (2.72e-09)	6.71e-10 (2.61e-09)	4.00e-10 (2.39e-09)	-7.09e-10 (1.70e-09)
Individuals Using the Internet (% of the population)	-0.000798 (0.000536)	0.000176 (0.000455)	0.000164 (0.000450)	0.000406 (0.000497)
Total Population	1.94e-08 (1.34e-08)	5.28e-09 (9.61e-09)	3.33e-09 (9.08e-09)	4.32e-10 (1.70e-08)
Constant	27.97** (11.25)	40.50*** (8.864)	41.93*** (8.111)	4.599 (8.616)
Observations	764	764	764	761
R-squared	0.992	0.996	0.996	0.859
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Country-Specific Time Trends	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 6. Length of Paid Paternity Leave

VARIABLES	(1) Infant Mortality	(2) Under 5 Mortality	(3) Measles Immunization	(4) Neonatal Mortality
Length of Paid Paternity Leave	-0.0109	-0.00931*	-0.00808*	-0.00892
	(0.00994)	(0.00521)	(0.00476)	(0.00543)
GNI (current US dollars)	-0	0	0	0
	(0)	(0)	(0)	(0)
Health Expenditure (% of GDP)	-0.0307**	-0.0247**	-0.0247**	0.00340
	(0.0119)	(0.00995)	(0.00930)	(0.00583)
Family Benefits Public Spending (% of GDP)	0.0109	0.0104	0.0108	0.00841
	(0.0108)	(0.00889)	(0.00855)	(0.00951)
Prevalence of Anemia Among Pregnant Women (%)	0.0298***	0.0306***	0.0297***	-0.00433
	(0.00796)	(0.00570)	(0.00547)	(0.00517)
Female Labor Force Participation Rate	0.00993	0.0154	0.0139	-0.000441
	(0.0116)	(0.0111)	(0.0107)	(0.00738)
CO2 Emissions (kt)	2.76e-07	1.82e-07	1.81e-07	2.28e-07*
	(4.07e-07)	(2.79e-07)	(2.66e-07)	(1.35e-07)
Fixed Telephone Subscription (per 100 people)	5.17e-09*	9.50e-10	6.44e-10	-4.50e-10
	(2.74e-09)	(2.62e-09)	(2.40e-09)	(1.71e-09)
Individuals Using the Internet (% of the population)	-0.000744	0.000182	0.000165	0.000441
	(0.000504)	(0.000448)	(0.000444)	(0.000506)
Total Population	2.23e-08*	7.44e-09	5.16e-09	2.78e-09
	(1.21e-08)	(9.85e-09)	(9.20e-09)	(1.70e-08)
Constant	29.42**	42.44***	43.69***	5.967
	(11.00)	(9.104)	(8.378)	(8.294)
Observations	764	764	764	761
R-squared	0.992	0.996	0.996	0.860
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Country-Specific Time Trends	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## Discussion

Findings suggest that the availability of publicly supported paid maternity leave is associated with a significant decrease in the neonatal, infant, and under-five mortality rate, as expected and consistent with previous literature (Ruhm, 2000; Tanaka, 2005). The impacts of paid maternity leave on the mortality rates are apparent two years after the adoption of the leave policy, which supports the first hypothesis and partially supports the second hypothesis of the study. This may be as a result of roll-out delays or compliance lags. Governments need to increase the awareness of such leave to individuals who are eligible for the program. Schuster et al. (2008), who examined the implementation of California's paid family leave program, corroborates the lack of awareness among individuals. The study found that within one year of the implementation of California's paid family leave program, parents with children of special health care needs who were receiving care at California hospitals were generally unaware of the program and rarely utilized it (Schuster et al., 2008). Appelbaum and Milkman (2011) also found that there was a general lack of awareness of California's paid family leave program. Based on the survey utilized in the study, low-wage workers, immigrants, and Latinos were the least likely to be aware of the program (Appelbaum & Milkman, 2011).

In general, the impact of the adoption of paid paternity leave was not as visible as that of paid maternity leave. It is possible that it takes some years to observe a measurable impact of any policy, which is apparent here in the case of paid family leave. Paid maternity leave has been in place in many countries for many years, but paid paternity leave is relatively new even in those countries that had paid maternity leave for many years. Paid maternity leave was available in 27 of the 35 OECD countries even before 1990, which rose to 32 countries in 2004 and then to 34 countries by 2016 (Figure 2). In contrast, paid paternity leave was available only in five OECD

countries before 1990 and incrementally rose to 22 in 2016. During the time period of 2004 to 2016, countries with paid paternity leave increased from 15 to 22 (Figure 1). Thus, it is clear that it will take quite some time for paid paternity leave to be accepted even after several years of its adoption.

The length of paid paternity leave available also has an impact on the child health outcomes. As Table 6 demonstrates, a one-week increase in the length of paid paternity leave reduces the infant and under-five mortality. The reason that length of paid paternity leave has a significant effect is that the length of paid paternity leave offered is much smaller than that of paid maternity leave. The average paid paternity leave available in the OECD countries is about 0.6 weeks compared to about 15 weeks of paid maternity leave (Table 1). Thus, increasing paid paternity leave from one to two weeks may have a larger impact, compared to increasing paid maternity leave from 12 to 13 weeks. It is possible that there is an optimum level of paid maternity leave beyond which the gains in health outcomes of children are minimal. Table 1 also demonstrates that a one-week increase in paternity leave reduces the measles immunization rate. While past research has found that paid paternity leave increases the likelihood that fathers spend time with their child (Tanaka & Waldfogel, 2007; Haas & Hwang, 2008), past research has also found that fathers are less likely to attend a child health and wellness visit compared to mothers (Moore & Kotelchuck, 2004; Garfield & Isacco, 2006). Some fathers believe that it is the responsibility of the mother to attend a child medical checkup (Garfield & Isacco, 2006). Thus, it is possible that when fathers receive paid paternity leave, they may spend less time taking their child to a medical checkup and more time bonding with their child.

Overall, the findings of this study suggest that governments should provide businesses the time to adjust and comply with the regulation. According to a survey conducted by the



Bipartisan Policy Center of businesses with 50 or fewer employees, about half of small business executives stated that it is somewhat or very difficult for their business when employees take leave. They stated that they need some support in providing paid family leave (Shaw, 2019). At the same time, governments should also ensure that there is not a lack of compliance of the regulation. Governments need to realize that regulations do not always result in actual access and availability of a program. According to Armenia, Gerstel, and Wing (2013), it was estimated that about 54.3 percent of the firms with 50 or more employees in the U.S. private sector are compliant with the FMLA. This means that more than 45 percent of the employers are not compliant with FMLA, which is unpaid family and medical leave. If this is the non-compliance rate of unpaid family and medical leave, then the non-compliance rate of paid family leave can be expected to be even higher.

The delay in the utilization of paid family leave may also be attributed to the country culture. There may be a social stigma attached to taking time off, particularly for men. As studies have found, the take-up rate is not very high among fathers (Bartel et al., 2018). In Iceland, Portugal, and Sweden, the take-up rate is approximately 45 percent (OECD, 2019). In some countries, such as Denmark and Finland, the take-up rate is as low as about 10 percent (OECD, 2019). This is despite many advocating that paid family leave is not only beneficial for the health of children, it is also beneficial for the health of parents.

When paid family leave is not available, it may have social and economic costs on families as well as the society. When mothers return to work less than 12 weeks after giving birth, they are more likely to report stress and depression (Dagher, McGovern, & Dowd, 2014). They experience difficulty in handling the demands of work and family life, and, as a result, many choose to leave their job. Returning to work early may have a negative impact on the

productivity and turnover of the firm (Gault et al., 2014). When employers have to replace employees, it can be costly and time consuming. It is estimated that the average cost to replace an employee is approximately 21 percent of that employee's salary (Boushey, O'Leary, and Glynn, 2013).

Additionally, when parents do not have access to paid family leave, it may exacerbate their physical health conditions (Jou et al., 2018; Peipins, Berkowitz, & White, 2012). Furthermore, co-workers are exposed to infectious diseases, causing them to take time off from work. Similarly, sick children may expose other children to infectious diseases at schools and daycare centers. Employees with paid leave are more likely to receive preventive care, which can help reduce health care costs in the long term (Bartick et al., 2017). In general, when countries invest more in the health of individuals, it leads to a healthier workforce, which improves the productivity (Martin, Grant, & D'Agostino, 2012).

This study has some limitations. The first is data constraints, in that the data do not have information on the number or rate of people who use paid maternity leave and paid paternity leave in each country; rather it provides information on the availability of such leave. In other words, it estimates the intent-to-treat effect. It is possible that the treatment-on-the-treated effect is stronger compared to the intent-to-treat effect. This is important, considering access to leave does not necessarily equate to the uptake of leave. For example, in Sweden, about 80 percent of fathers and almost all mothers use paid family leave (Marynissen et al., 2019). In contrast, in Belgium, Marynissen et al. (2019) found that only 5.8 percent of Belgian fathers used paid family leave in the first two years following the birth of their first child between 2001 and 2010.

A second data limitation is the data did not indicate the wage replacement rate. The wage replacement rate may affect an individual's decision to utilize paid leave and length of paid leave

taken. For example, a low wage replacement may result in low-income mothers choosing not to take paid family leave. Low-income mothers are unable to forgo a significant portion of their pay for a long duration of time (Rossin-Slater et al., 2013).

The third data limitation is that the data do not indicate whether employers already offer their own paid family leave benefits. In the United States, only 16 percent of private-sector workers have access to paid family leave through their employer. This percentage of access might be lower or higher in OECD countries (U.S. Department of Labor, 2018). It is possible that in countries where only a few employers offer paid family leave benefits, the effect of a legislated paid family leave program is stronger in those countries. Finally, as previously mentioned, another limitation is that it is almost impossible to separate maternity and paternity leave because paternity leave is always paired with maternity leave. There are no countries where paternity leave is offered and maternity leave is not offered.

Although specific policy recommendations cannot be made from the limited data, the findings of this study are beneficial in understanding the lagged impact of paid family leave, including maternity and paternity leave, on the health outcomes of children. The timing of the effect of the availability of paid family leave is of particular significance in this study. This study shows that it takes at least two years for the paid family leave to have an effect on the health outcomes of children, indicating that there is a delayed impact after the enactment of paid family leave legislation. Overall, this study adds to the body of work suggesting health benefits stemming from paid family leave, particularly paid paternity leave.

## CHAPTER 3

### PAID FAMILY LEAVE AND ITS IMPACT ON MATERNAL LABOR MARKET OUTCOMES IN THE UNITED STATES

*No country can ever truly flourish if it stifles the potential of its women and deprives itself of the contributions of half of its citizens.*

—Michelle Obama, *Former First Lady of the United States*

#### Abstract

For decades, the female labor force participation rate in the United States has been significantly lower than their male counterparts. From 1990 to 2010, the United States experienced a 5 percent decrease on average in the gender gap in the labor force participation rate among adults of the ages of 25 and 54, whereas in other OECD countries the gender gap experienced a 14 percent decrease on average. The gender gap in employment may be partly attributed to family friendly workplace policies, including paid family leave. Paid family leave may narrow the gender gap in the labor force participation rate. While several U.S. states have implemented paid family and medical leave laws during the past several years, paid family leave is still not available nationally. Economic theory suggests that paid family leave would increase the likelihood that women will be in the labor force prior to having children, because it improves the ability of women to plan and start a family in the future. Paid family leave should also increase the likelihood and speed that women return to their job, since it allows mothers to recover from childbirth and spend quality time with their newborn. Thus, paid family leave should increase the overall supply of female workers in the labor market. The research question in this study is whether the availability of paid family and medical leave in states, where laws were enacted during the past 5 to 15 years, has improved the labor market outcomes for mothers.

These include being employed, working full-time, the number of hours worked, and the utilization of the paid family leave program. The study uses individual-level, cross-sectional data in the United States from the 2000 to 2019 waves of the Current Population Survey's Annual Social and Economic Supplement (ASEC) and a triple difference-in-difference estimator. The results show that the adoption of state paid family leave improves the labor market outcomes for mothers with an infant. Specifically, mothers with infants who live in states with paid family leave are 0.6 percent more likely to be employed, 0.6 percent more likely to work full-time, and work 0.8 more hours, compared to mothers with infants who live in states without paid family leave. However, the results also show that the adoption of state paid family leave decreases the labor market outcomes for mothers with both an infant and child. When mothers with both an infant and a child live in states with paid family leave, they are 3 percent less likely to be employed, 2.2 percent less likely to work full-time, and work 1.3 fewer hours, compared to mothers with both an infant and a child who live in states without paid family leave. This may suggest that there are some employers who are averse toward the usage of paid family leave by mothers. Some mothers may also be hesitant to use such leave.

### Introduction

For decades, the labor force participation rate among females in the United States has been significantly lower than their male counterparts. For example, among adults between 25 and 54, the female labor force participation rate was 75.2 percent in 2010, whereas the male labor force participation rate was 89.2 percent (Blau & Kahn, 2013). While the United States experienced a 5 percent decrease on average in the gender gap from 1990 to 2010, other OECD (Organisation for Economic Co-operation and Development) countries experienced a 14 percent decrease on average (Blau & Kahn, 2013). The gender gap in the United States can be attributed

to several factors, including the lack of childcare and universal health coverage, however, part of it is attributed to the lack of family-friendly workplace legislation relating to paid family leave, flexible employment, and gender discrimination (Winkler, 2016).

The only federal family leave available to certain employees, on an unpaid basis, is job-protected leave for those eligible for the Family and Medical Leave Act of 1993 (FMLA). While most leaves are taken following the birth of a child, many workers take leave for their own illness or injury or for a family member's illness or injury (Klerman et al., 2014). Many workers also take leave to take care of their aging family members. According to Klerman et al. (2014), 18 percent of FMLA leave was related to the illness of a qualifying relative, 21 percent was taken for pregnancy or a new child, 55 percent was taken for an employee's own illness or medical need, and 2 percent was taken for other qualifying events.

Overall, only 60 percent of workers in the U.S. are eligible for FMLA's protections (Daley, Klerman, & Pozniack, 2014). Among new mothers, less than 20 percent are eligible for FMLA-leave, according to a 2014 report by the Council of Economic Advisors. This is primarily because many workers, including new mothers, are unable to meet the 1,250-hour requirement (Klerman et al., 2014). In order to be eligible for FMLA, employees need to be with an employer for at least one year and must have worked with that employer for at least 1,250 hours during the past 12 months (Ruhm, 1997). Thus, part-time employees and employees who work in industries which have high turnover rates, seasonal fluctuations, and contingent work assignments are generally excluded since they are unable to meet the 1,250-hour requirement (O'Leary, 2007). In addition, some employees work multiple jobs, arguably working more hours per year than a full-time employee working for one employer (Boushey & Glynn, 2012). However, since eligibility is determined at the firm level, it is possible that none of the hours

worked in each of these jobs meet the 1,250-hour requirement (Boushey & Glynn, 2012).

Finally, an employer must have at least 50 employees within 75-mile radius of its operation to be obligated to grant FMLA-leave (Ruhm, 1997). Thus, small firm employees and the self-employed lack the FMLA protections (O’Leary, 2007). Combined, the employee eligibility and employer obligation mean that generally very few employees are eligible for the benefits of FMLA.

Consequentially, on average, employees with lower levels of educational attainment (i.e., those with a high school diploma or less) are less likely to be eligible for FMLA unpaid leave (O’Leary, 2007). Studies have shown that the unpaid leave and job protection provided by the FMLA led to increased leave-taking; however, these positive effects are largely confined to married and college-educated employees, exacerbating socioeconomic inequalities in the availability, use, and benefits of leave (Han & Waldfogel, 2003).

In general, the socioeconomic disparity in the access to paid leave, including sick, vacation, or family and medical leave, is large. According to the Bureau of Labor Statistics, 17 percent of civilian employees had access to paid leave in 2018 (DOL, 2018). Approximately 39 percent of workers in the top 10 percent of the wage distribution have access to paid leave, compared to 35 percent of workers in the bottom 25 percent of the wage distribution (DOL, 2018). In addition, only 25 percent of Latino workers and 43 percent of Black workers reported having any access to paid or partially paid family leave, compared to 50 percent of White workers (Glynn & Farrell, 2012).

The level of socioeconomic disparity in the use of paid family leave is also apparent in the economic data, particularly when examining the level of educational attainment. In the 2000 to 2019 Current Population Survey’s Annual Social and Economic Supplement (CPS ASEC),

among women who reported taking paid maternity leave, 82 percent were white, 60 percent had a bachelor’s degree or higher, and 25 percent had an income of \$60,000 or more (Figure 5, Figure 6, Figure 7). In contrast, among women who did not report taking paid maternity leave, 81 percent of women were white and 27 percent had a bachelor’s degree or higher, and 8 percent had an income of \$60,000 or more (Figure 5, Figure 6, Figure 7).

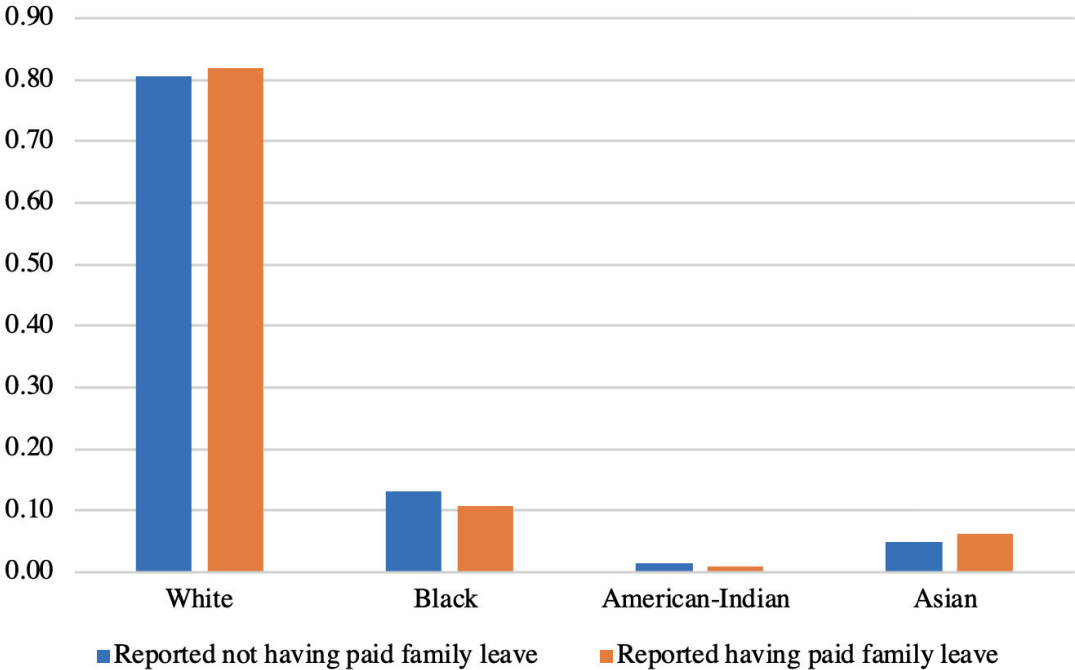


Figure 5. Distribution of women above the age of 18 reported taking and not taking paid maternity leave, by race (2000 to 2019, Current Population Survey’s Annual Social and Economic Supplement, Has paid family leave: N=1,662; Does not have paid family leave: N=1,447,166)



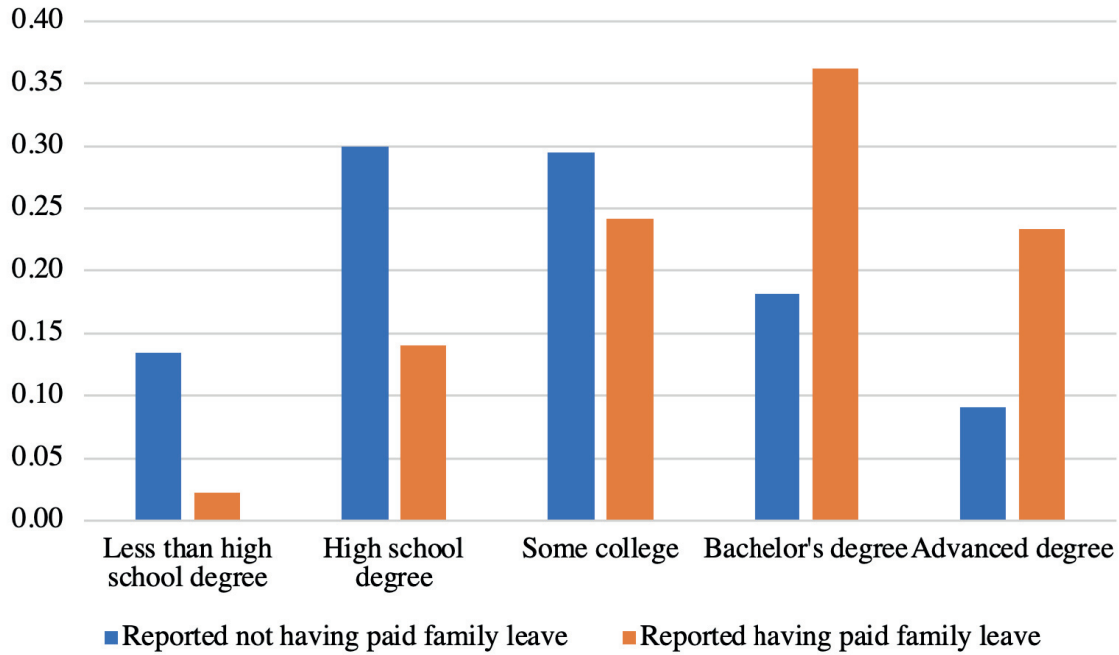


Figure 6. Distribution of women above the age of 18 reported taking and not taking paid maternity leave, by educational attainment (2000 to 2019, Current Population Survey's Annual Social and Economic Supplement, Has paid family leave: N=1,716; Does not have paid family leave: N= 1,481,639)

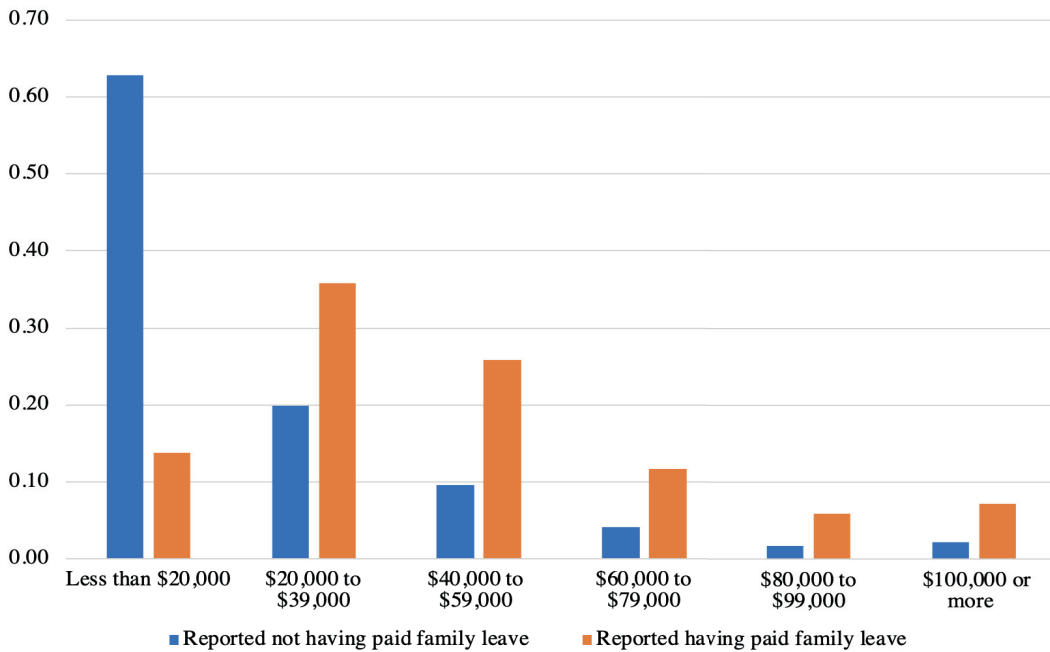


Figure 7. Distribution of women above the age of 18 reported taking and not taking paid maternity leave, by income (2000 to 2019, Current Population Survey's Annual Social and Economic Supplement, Has paid family leave: N=1,716; Does not have paid family leave: N= 1,487,755)

This lack of equity in access to paid family leave forces many employees to choose between their jobs with income and the health needs of themselves and their families (Clemans-Cope et al., 2008). Black and Hispanic women are more likely to leave or lose their job before giving birth, compared to white women (Laughlin, 2011). According to the Census Bureau, from 2006 to 2008, about 26 and 24 percent of Black and Hispanic women quit their job before their first birth, compared to 22 percent of white women (Laughlin, 2011). During the same time period, about 6 and 8 percent of Black and Hispanic women were let go from their job compared to 5 percent of white women (Laughlin, 2011). In addition, approximately 50 percent of women with less than a high school degree quit their job upon the birth of their first child, while only 13 percent of women with a bachelor's degree quit their job (Laughlin, 2011). When families do not have access to paid family leave during the birth of a child, it can push families further into poverty (Stanczyk, 2019). In general, economically disadvantaged families experience large income declines during the birth of a child (Stanczyk, 2019). However, when families do have access to such leave, it can smooth family resources and income. This would allow families to better utilize their resources in addressing the need of their newborns.

Thus, it is apparent that the United States needs a paid family and medical leave policy, which can cover most of the Americans. This is in contrast to other OECD countries, which have paid family leave laws in place for more than four decades (OECD Family Database, 2019). At the state level, a few states have enacted paid family leave laws, including California, New Jersey, Rhode Island, New York, District of Columbia, and Washington. California was the first state to enact the paid family leave legislation in 2003, while Washington and District of Columbia enacted the legislation in 2017. Only California and New York provide job protection

beyond the FMLA. A detailed summary table of the state paid family leave programs can be found in Table 7.

While state temporary disability insurance programs have existed long before the paid family leave program, they are not as effective as paid family leave programs. For decades, state temporary disability insurance programs have partially replaced the wages of mothers during pregnancy and post-childbirth recovery in a handful of states. A summary of the state mandatory temporary disability programs, reflecting the latest benefits and wage replacement rates can be found in Table 8. However, the problem with these programs is that they can only be utilized for an employee's own injury or illness, not to care for a relative or a child. In addition, during the birth of a child, these programs can only be used by birth mothers, and cannot be used by the adoptive parents or the fathers. Since temporary disability insurance cannot be utilized for the care of other individuals, it does not provide as strong of an incentive for mothers to stay attached to the labor force as in case of paid family leave. As a common belief, to most, any disability program, long-term or short-term, is not associated with pregnancy or childbirth. Generally, these programs are associated with accidents or serious illnesses.

There is a growing realization of the need for paid family leave and more states are moving towards the adoption of paid family leave policies. Even at the federal level, the interest and desire for a nationwide paid family leave law is there, but it has not fully materialized yet. This is evident from the passage of the Federal Employee Paid Leave Act in December 2019, which granted Federal employees 12 weeks of paid parental leave for the birth, adoption, or fostering of a child, and Families First Coronavirus Response Act in March 2020, which covers those affected by the on-going Coronavirus Disease (COVID-19) pandemic. There have been other legislative efforts for paid family leave in the past few years. In May of 2019, the New

Parents Act was introduced in the U.S. Senate, which would allow new parents to take one to three months off in exchange for three to six months of delay in retirement. Similarly, in 2019, multiple congressional members introduced the FAMILY Act, which was endorsed by many presidential candidates. If passed, the legislation would provide new parents with up to 12 weeks off at 66 percent of their monthly wages, paid for by a 0.2 percent payroll tax paid by both employers and employees. The need for a nationwide paid family leave policy today is more than ever.

Table 7. U.S. State Paid Family Leave

State	California	New Jersey	Rhode Island	New York	District of Columbia	Washington
Year Enacted	2002	2008	2013	2016	2017	2017
Year Benefits Effective	2004	2009	2014	2018	2020	2019
Job Protection	No	No	Yes	Yes	No	No
Covered Individuals	Child Parent Parent-in-law Grandparent Grandchild Sibling Spouse Registered domestic partner	Newborn Newly adopted child Newly placed foster child Seriously ill or injured family member	New child within 12 months of birth or placement via adoption or foster care Child Spouse Domestic Partner Parent Parent in-law Grandparent	Child within 12 months of child's birth, adoption or foster placement Spouse Domestic partner (including same and different gender couples; legal registration not required) Child/stepchild and anyone for whom the parent has legal custody Parent Stepparent Parent-in-law Grandparent Grandchild	Self New child Family member with serious health condition	Self Spouse Domestic partners Children (biological, adopted, foster, or stepchild) Parents and legal guardians Spouse's Parents Siblings Grandchildren Grandparents
Job Protection beyond FMLA	No	No	Yes	Yes	No	No
Funding	Payroll deduction	Payroll deduction	Payroll deduction	Payroll deduction	Payroll deduction	Premium paid by both employee and employer

Maximum Length of Leave	Six weeks for family leave, increasing to eight weeks on July 1, 2020	Six weeks for family leave, increasing to 12 weeks on July 1, 2020  26 weeks for own disability	Four weeks for family leave	For family leave, eight weeks in 2018; increasing to 10 weeks in 2019 and to 12 weeks in 2021  26 weeks for own disability	Eight weeks for parental leave, six weeks for family care, two weeks for own serious health condition  No more than eight weeks total/year for combined family and medical leave	12 weeks for family leave 12 weeks for own serious health condition (14 if employee experiences pregnancy-related serious health condition that results in incapacity)
Wage Replacement	Weekly Benefit rate is 60 to 70 percent of salary	Weekly Benefit rate is 66 percent of salary	Average weekly benefit is 4.62 percent of wages paid during the highest quarter of worker's base period, (About 60 percent of salary)	Weekly benefit rate is 50 percent in 2018. Weekly benefit increased to 55 percent in 2019.	For workers paid less than or equal to 150 percent of D.C. minimum wage multiplied by 40, the weekly benefit rate is 90 percent.  The weekly benefit rate for workers above 150% of DC minimum wage is 50%.	The maximum weekly benefit is \$1000 in the program's first year, and will be adjusted annually to an amount equaling 90 percent of the state's average weekly wage.

Source: National Partnership for Women and Families (2019)

Table 8. State Temporary Disability Insurance Program

States	California	New Jersey	Rhode Island	New York	Hawaii
Year Benefits were Enacted	1946	1948	1942	1949	1946
Maximum Length of Leave	52 weeks	26 weeks	30 weeks	26 weeks	26 weeks
Maximum Wage Replacement	\$1,300 per week	\$667 per week	\$867 per week	\$170 per week	\$650 per week

Source: State Government Websites

The purpose of this study is to determine whether the availability of state paid family leave improves the labor market outcomes for women with both an infant and child.<sup>4</sup> Specifically, the study examines whether the paid family leave increases the likelihood of being employed, the number of hours worked, and the likelihood of working full-time, meaning whether employees work more than 35 hours per week. These elements of labor market outcomes have been examined by others in the past, as indicators of labor market outcomes, in general labor market studies and also a few studies related to paid family leave. Rossin-Slater et al. (2013) define the labor market outcomes as the number of hours worked and the employment status of the mother. In turn, this study examines both the extensive margin, meaning whether women participate in the labor force and the intensive margin, meaning the number of hours or intensity of work on job (Saez, 2002; Blundell, Bozio, & Laroque, 2011). This study examines both the short-term, as short as about one year, and long-term, as long as about 15 years, impacts of state paid family leave. Specifically, I estimate the effect of states' paid family leave programs on the female labor market outcomes using the 2000 to 2019 Current Population Survey's Annual Social and Economic Supplement's Current Population Survey.

Importantly, I also examine whether paid family leave improves the actual utilization of paid maternity leave. The CPS ASEC survey reports the reason for the absence of employed

<sup>4</sup> In this study, infants are below the age of 1. In addition, children are between the ages of 5 and 10.

respondent who were not working during the preceding week. One reason that respondents can select is maternity leave. The survey also asks employed respondents whether they received wages or salaries for the time that they were absent from work during the preceding week. Thus, if respondents indicate that their time off was paid and they were absent from work for maternity leave, it indicates that they reported using paid maternity leave.

It is important to examine the utilization of paid maternity leave, since the take-up rate for paid family leave programs is quite low (Pihl & Basso, 2016), and a low take-up may account for null effects. For example, after ten years California's paid family leave program was implemented, the take-up rate among eligible women ranged from 25 to 40 percent (Pihl & Basso, 2016). When examining the utilization of the paid family leave program among low-income mothers, the take-up rate is even lower due to their lack of awareness of the existence of the program, providing even greater justification for conducting a treatment-on-treated analysis (Appelbaum & Milkman, 2011).

The chapter is structured in the following manner. First, I discuss the economic theory and review the current literature on the impact of paid family leave on employees and employers. Then, I discuss the data utilized, the methodology, and the results. Finally, the study concludes with a discussion of the results.

### Economic Theory

Some economists posit that paid family leave may increase the overall supply of female workers in the labor market. This is primarily because of two reasons. First, when women are guaranteed payment and job protection during leave, it increases the likelihood that they will be in the labor force prior to having children, since it improves the ability of women to plan and start a family in the future (Summers, 1989; Hegewisch & Gornick, 2011). Paid family leave also



increases the likelihood and speed at which they return to work after the birth of a child, since it allows mothers to recover from childbirth and spend quality time with their newborn (Summers, 1989; Baum & Ruhm, 2016). Thus, the adoption of paid family leave may result in an increase in the overall net supply of women in the labor market, as depicted in Figure 8. According to Ruhm (1998), the magnitude of increase would depend on the preference of women for paid family leave. If a significant number of women are willing to accept slightly lower wages in return for paid family leave, then there would be a large increase in the labor supply. Conversely, if a few number of women are willing to make this tradeoff, then there would be small increase in the labor supply.

Some economists also posit that mandating such benefits may increase the labor costs for businesses, which can cause employers to adopt cost cutting measures (Boots, Martinson, & Danziger, 2009; Summers, 1989). Businesses may pass any increased cost to their employees by reducing wages or benefits. In order to minimize the costs of paid family leave, employers may also reduce the number of hours worked by employees, which would result in a decrease in earnings (Boots et al., 2009). Therefore, the adoption of paid family leave may result in a decrease in the demand for labor, as depicted in Figure 8. Ruhm (1998) states that the magnitude of decrease would depend on the amount of cost borne by the employer. If paid family leave benefits are financed by a social insurance program, such as in California and New Jersey, then the employer's demand for labor will decrease only slightly (Ruhm, 1998).

Overall, when the supply and demand effects are combined, the market equilibrium wage would decrease and the market equilibrium level of employment would increase, as depicted in Figure 8. This makes sense, since mothers may have to pay price for such workplace flexibility perks (Boushey, 2008; Summers, 1989). Paid family leave also may result in

employers engaging in discriminatory actions against mothers. If employers anticipate that mothers will frequently use paid family leave benefits to care for their newborn or child, they may be less likely to promote mothers to high-level managerial positions. Employers may perceive that these benefits would prevent mothers from fully prioritizing their work. While it is true that fathers also use paid family leave, but they use it at a relatively lower rate and shorter duration compared to mothers (Klerman et al., 2014). Thus, paid family leave may inadvertently worsen the position of mothers in the labor market. As mothers spend more time away from work, it will increase the depreciation of their human capital.

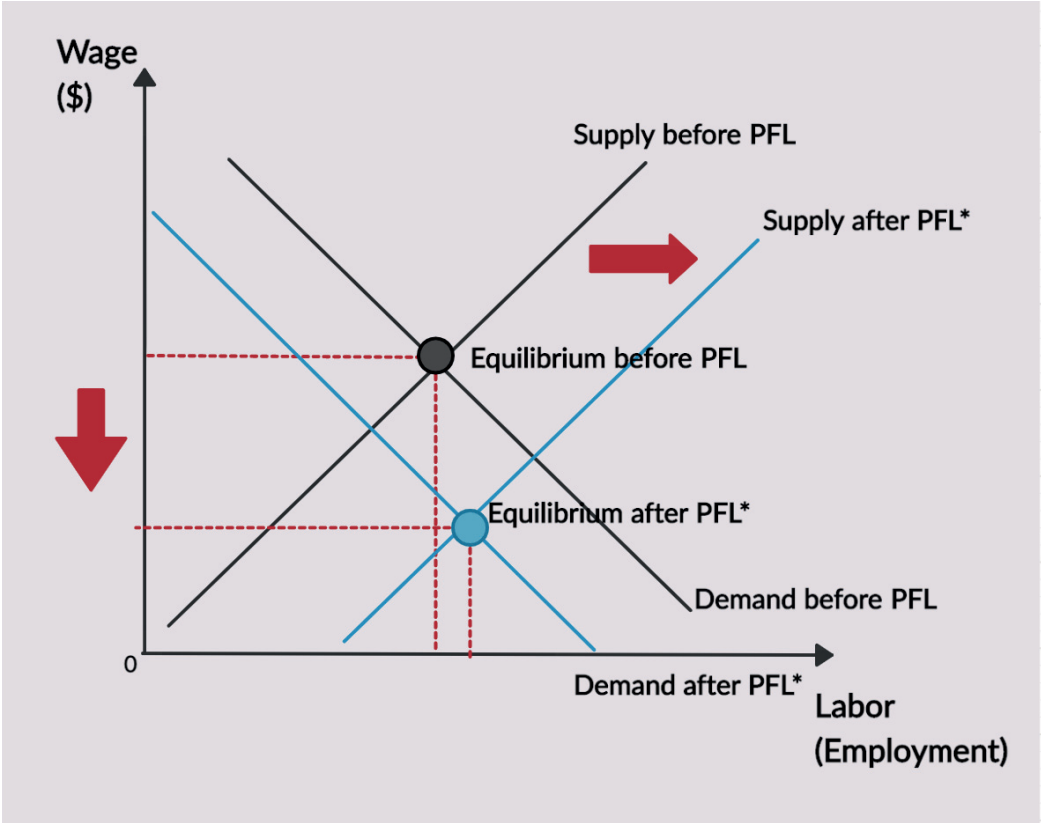


Figure 8. Effect of adoption of paid family leave (PFL) on the supply and demand of labor

## Literature Review

A growing body of empirical evidence suggests that paid family leave improves the labor market outcomes for mothers (Bailey et al., 2019; Gupta, Smith, & Verner, 2008). For example, Sundström and Stafford (1992) concluded that the high female labor force participation rate in Sweden in the late 1980s and early 1990s was primarily due to the generous family-friendly workplace policies. Despite the favorable evidence that paid family leave improves the motivation and productivity of mothers, there is a growing body of evidence suggesting that paid family leave can have some adverse effects on the labor market outcomes, particularly when examining short-term employment. The evidence supporting and not supporting paid family leave is presented and discussed here.

### Empirical Evidence Supporting Paid Family Leave

#### *Improves Labor Force Attachment*

There is some evidence that paid family leave reduces the likelihood that women quit their job because of arising childcare responsibilities (Berger & Waldfogel, 2004). For example, Berger and Waldfogel (2004) find that women with maternity leave coverage are more likely to take a leave of 6 to 12 weeks after childbirth, and then go back to work. Similarly, Baum and Ruhm (2016) found that California's paid family leave program increases the likelihood that mothers return to work within nine to twelve months after giving birth by 18 percentage points. Appelbaum and Milkman (2011) also found that California's paid family leave program increased the retention of workers in low-quality jobs. Specifically, the study found that 83 percent of workers who utilized the program returned to their same employer, compared to 74 percent of workers who did not utilize the program. Finally, Ruhm (2000) estimated that three

months of paid leave in the United States would increase the female labor supply by at least 10 percent prior to childbirth. Second, when women are guaranteed payment and job protection during leave, paid family leave increases the likelihood and speed at which they return to work after the birth of a child (Summers, 1989).

#### *Increases Employment in the Long-Term*

There is a body of literature which indicates that paid family leave retains mothers in the workforce in the long-term. According to Boushey (2008), women who received paid maternity leave for the birth of the first child had a higher probability of being employed for several years later. Specifically, women who received paid maternity leave had a 95.1 percent probability of being employed 16 years after the birth of the first child. In contrast, women who did not receive paid maternity leave had an 89.2 percent probability of being employed (Boushey, 2008). In Germany, Bergemann and Riphahn (2015) found that paid family leave had a positive effect on employment three to five years after childbirth for women with high levels of education.

#### *Increases Number of Hours Worked*

Some studies have found a positive correlation between paid family leave and the number of hours worked. Rossin-Slater et al. (2013) found that the California's paid family leave program increased the number of weekly hours worked by employed mothers of one to three-year-old children by six to nine percent. Baum and Ruhm (2016) also found that the California's paid family leave program increased the average weekly work hours during the child's second year of life by 4.2 hours.

### *Increases Wages of Mothers*

Some empirical studies have found paid family leave to increase the productivity and wages of mothers (Gariety & Shaffer, 2001; Boushey, 2008; Houser & Vartanian, 2012). Houser and Vartanian (2012) found that women who report leave of 30 days or more are 54 percent more likely to report raises in the year following the birth of a child, compared to women who report not taking any leave. Boushey (2008) also found that post-birth wages are nine percent higher for women who received pay during their maternity leave, compared to mothers who did not take such leave.

### *Minimal Burden on Employers*

The literature suggests that paid family leave has little to minimal effect on businesses. Bartel et al. (2017) surveyed employers in New Jersey and New York, finding that about two-third of employers were supportive of their state-mandated family leave programs. Employers indicated that they used several strategies to cope with employees taking family leave. About 84 percent of employers in New Jersey and about 87 percent of employers in New York stated that when the female employee took leave, they assigned the work to other employees. Additionally, majority of employers (61 percent of employers in New Jersey and 56 percent in New York) stated it was not difficult to cover the work of the employee in their absence. Similarly, Appelbaum and Milkman (2011) in a California survey found that the state paid family leave program had minimal impact on the business operations of employers. Most employers stated that the program had a positive effect or no noticeable effect on productivity (89 percent), performance (91 percent), and employee morale (99 percent). The vast majority of employers (91 percent) also stated that they were not aware of employees abusing the paid family leave system.

## Empirical Evidence Not Supporting Paid Family Leave

### *Motherhood Wage Penalty*

Other studies find evidence that mothers pay a “motherhood wage penalty,” where they earn lower wages as a result of the paid family leave policy (Rossin-Slater, 2017). Some employers may find it costly to hire a female employee with children, and thus they may be less likely to hire them or they may offer lower wages. (Rossin-Slater, 2017). Bailey et al. (2019) used IRS data and found that California’s paid family leave program decreased annual wages by eight percent for mothers after six to ten years of giving birth (Bailey et al., 2019). In Germany, long periods of maternity leave adversely affected mothers’ wages for up to eight years after returning to work (Schönberg & Ludsteck, 2014). Lequien (2012) also found that an extension of three years of paid family leave in France adversely affected maternal wages for up to 10 years. Specifically, the study found that each additional year of interruption or career break decreased the average daily wage by 10 percent after returning to work (Lequien, 2012). This is consistent with Ruhm (2000), who analyzed several European countries from 1969 to 1993, and found that wages decrease as the length of the career interruption increases.

### *Decreases Employment in Short-Term*

There is also literature suggesting that paid family leave may have a short-term negative impact on maternal employment, in that it keeps mothers away from their work due to their caregiving responsibilities. Studies have shown that women temporarily exit the labor force when offered paid family leave, which may temporarily reduce their employment rate. Reed and Vandegrift (2016) found that New Jersey’s paid family leave program reduced the employment rate for women, 22 to 34 years old, by 8 to 9 percent. In Norway, Drange and Rege (2013) found

that an increase in the number of weeks of maternity leave was associated with a decrease in the labor force participation of mothers with children, one to two years old, but there was no longer any negative effect when the child was at least six years old (Drange & Rege, 2013). Similarly, Schönberg and Ludsteck (2014), who examined maternity leave legislation in Germany, since the 1970s, found that an expansion in maternity leave induces women to delay their return to work.

Finally, it should be acknowledged that there is at least one study, Bailey et al. (2019), which found that paid family leave decreased even long-term employment. Specifically, the study found that California's paid family leave program decreased employment by seven percent for mothers after six to ten years of giving birth (Bailey et al., 2019).

#### *Increases Part-Time Work*

Empirical research has found that paid family leave may increase the likelihood of women to work part-time (European Commission, 2013; Saad-Lessler & Bahn, 2017). As Blau and Kahn (2013) discuss that generous paid family leave mandates may encourage women, who would otherwise have a strong labor force commitment, to take a part-time job. The study found that women in OECD countries were less likely to work full-time and work as managers and professionals, compared to women in the United States (Blau & Kahn, 2013). Likewise, Saad-Lessler and Bahn (2017) found that shortly after the adoption of California's paid family leave program, low-income and high-income family caregivers were less likely to work fulltime (decrease of 20 and 15 percentage points, respectively). Likewise, Evertsson and Duvander (2011) found that Swedish women who took long lengths of paid parental leave were more likely to work part-time.

## Contribution

Although there is theory and empirical research on the effect of paid family leave on whether paid family leave increases labor force outcomes, the overall effect is still unclear. Paid family leave may preserve women's ties to their jobs, and, as a result, this may increase the incentive of firms to invest in paid family leave for the long term (Boushey, 2008). However, on the other hand, paid family leave may increase the duration that women temporarily withdraw from the workforce (Blau & Kahn, 2013).

In addition, it is unclear whether many studies that have been conducted in other countries can be generalized in the United States since previous studies have examined other countries that have a different political, economic, and institutional structure. It is arguably important to examine the United States, since federal legislation is currently being considered in Congress, such as the New Parents Act and the FAMILY Act. Thus, there is a strong motivation to examine the impacts of paid family leave in the context of the United States.

It is true that there are studies such as Rossin-Slater et al. (2013), Appelbaum and Milkman (2011), Baum and Ruhm (2016), and Bailey et al. (2019), which have examined the impacts of paid family leave on the labor market outcomes in California. However, there are not many studies that have examined the labor market outcomes of the other U.S. states that adopted paid family leave, such as Rhode Island, New York, and New Jersey. It is important to examine the other states' paid family leave programs since their programs may have a different effect on the maternal labor force outcome. Since there is a lack of external validity by focusing on California's paid family leave program, it is unclear whether the results from California are applicable to other states. This is primarily because states vary in several distinctive ways such as their demographics, societal and political beliefs, the strength of the economy, and the social and economic policies that are implemented in the state. In general, California has a diverse



population. According to the 2018 American Community Survey, 39 percent of the population was Latino, whereas 37 percent of the population was White (Johnson, McGhee, & Mejia, 2020). The 2018 American Community Survey also found that California has the largest foreign-born population, such that 27 percent of Californians are foreign-born (Johnson, et al. 2020). Similarly, California's population is younger compared to other states. The median age in California is 36.7, whereas the median age in the entire country is 38.2, according to the 2018 U.S. Census Bureau (Johnson, et al. 2020). In addition, California is not only the largest economy in the nation compared to any other state, it is also one of the largest economies in the world (Malas, 2018). California has a high median annual household income, primarily due to the state's several dominant sectors, such as telecommunications and biotechnology (Malas, 2018). By examining all the current states that offer paid family leave and comparing with states that do not offer paid family leave, this study will be a filling a missing gap in the literature.

### Hypotheses

Paid family leave is intended to allow mothers to recover from childbirth, which would improve their condition to be in the labor market (Rossin-Slater et al., 2013). Paid family leave would also result in more mothers caring for their child when they are sick as well as more fathers taking leave, which would improve the labor force attachment of mothers (Isaacs, Healy, & Peters, 2017). When paid family leave improves the mother's health and child wellbeing, it may allow women to retain their human capital and expertise, which would aid them in their career advancement (Isaacs et al., 2017).

Based on the previous research, theory, and the anticipated benefits of paid family leave, the following is hypothesized.

*H1.* The access of the state paid family leave program will increase employment, wages, and the number of hours worked for mothers with both an infant and child, since it improves the labor force attachment of mothers.

*H2.* The access of the state paid family leave program would increase the utilization of paid maternity leave with both an infant and child, since state paid family leave would result in more employers offering such leave to their employees.

### Data Source

This study uses pooled cross-section data from the 2000 to 2019 Current Population Survey's Annual Social and Economic Supplement (CPS ASEC). For the purpose of this study, the sample is restricted to female respondents. The unit of analysis is individual/state/year. In total, there are 1,489,471 observations. Summary statistics of the data is presented in Table 9. In this study, there are four U.S. states where paid family leave took effect during this time period—California in 2004, New Jersey in 2009, Rhode Island in 2014, and New York in 2018. (National Partnership for Women and Families, 2019).

It should be noted that this study included California in the analysis, even though previous studies have heavily examined California. The purpose of this study is to examine all the current states that offer paid family leave and compare them with states that do not offer paid family leave. Thus, this study does not exclude or distinguish any particular state. Previous studies may have focused on California because this was the first state to adopt a paid family leave program and data on the state was readily available at the time. Now that more data is available and more states have adopted paid family leave, a cross-state analysis should be conducted.

Table 9. Summary Statistics

VARIABLES	(1) Number of Observations	(2) Mean	(3) Standard Deviation	(4) Minimum	(5) Maximum
State Paid Family Leave	1,489,471	0.0949	0.293	0	1
Infant	1,489,471	0.0312	0.174	0	1
Child	1,489,471	0.119	0.323	0	1
Age	1,489,471	45.89	17.34	18	90
Number of Children	1,489,471	0.938	1.173	0	9
Age of Youngest Child	1,489,471	67.258	43.22	0	99
Black	1,489,471	0.127	0.333	0	1
Hispanic	1,489,471	0.152	0.359	0	1
Married	1,489,471	0.548	0.498	0	1
College	1,489,471	0.271	0.444	0	1
\$60,000 or more	1,489,471	0.0793	0.270	0	1
Lives in the Metropolitan Area	1,489,471	0.630	0.483	0	1
State Paid Family Leave's Wage Replacement Rate	1,489,471	0.0511	0.163	0	0.660
State Paid Family Leave's Length of Leave (Weeks)	1,489,471	0.539	1.742	0	10

### Method

In order to estimate the effect of the availability of paid family leave on female labor market outcomes, I estimate the following triple difference-in-difference estimator below. Respondents with an infant are compared to respondents with a child between the ages of 5 and 10 in states with paid family leave.<sup>5</sup> Mothers and fathers with infants in states with paid family leave programs are presumably eligible for the state paid family leave program. In contrast, the children of respondents between the age of 5 and 10 have aged out of the paid family leave program. It is true that some mothers with children are receiving paid family leave benefits for the purpose of taking care of their sick child. However, the majority of mothers who use paid family leave use it for the purpose of taking care of their newborn. According to the California

<sup>5</sup> In this analysis, infants are below the age of one.

Employment Development Department data, about 90 percent of California's paid family leave claims are for child bonding after birth or adoption (CAEDD, 2013a; CAEDD, 2013b).

It is important to compare these two groups of mothers, since mothers who have infants behave differently in the labor market compared to mothers with children. Mothers with infants are physically recovering from childbirth and will thus need to take some time off from work. In contrast, mothers with children between the age of 5 and 10 may have a higher labor force participation, since they have the opportunity to send their child to school, resulting in a lower childcare burden (Gelbach, 2002; Datar, 2006). As Gelbach (2002) found, among single women whose youngest child is the age of five, public schooling increased the probability of being employed by 6 percent.

$$Y_{ist} = \beta_0 X_{ist} + \beta_1 \text{Infant}_{ist} + \beta_2 \text{Child}_{ist} + \beta_3 \text{PFL}_{ist} + \delta_1 (\text{Infant}_{ist} * \text{PFL}_{ist}) + \delta_2 (\text{Child}_{ist} * \text{PFL}_{ist}) + \delta_3 (\text{Infant}_{ist} * \text{Child}_{ist}) + \delta_{DDD} (\text{Infant}_{ist} * \text{PFL}_{ist} * \text{Child}_{ist}) + \beta_4 X_{ist} + \mu_s + \mu_t + \varepsilon_{ist}$$

The index, *i*, *s*, and *t*, respectively, refer to respondent, state and year. The dependent variable,  $y_{i,s,t}$ , refers to a set of dummy variables, including whether respondent *i* is employed, whether respondent *i* works full-time, and whether paid family leave was actually used in state *s* in year *t*. It also includes a continuous variable of the number of hours worked. The independent variable,  $\text{Infant}_{ist}$ , is a dummy variable equal to one if respondent *i* has an infant in state *s* in year *t*. The variable,  $\text{Child}_{ist}$ , is a dummy variable equal to one if respondent *i* has a child between the age of 5 and 10 in state *s* in year *t*. The independent variable,  $\text{PFL}_{ist}$ , is a dummy variable equal to one if respondent *i* lives in state *s* where paid family leave is available in year *t*. The main variable of interest is  $\text{Infant}_{ist} * \text{PFL}_{ist} * \text{Child}_{ist}$ , which is equal to one if respondent *i* has both an infant and child in state *s* where paid family leave is available in year *t*. In this analysis,  $\delta_{DDD}$  is equal to the difference between the change in the labor market outcomes from

states having no paid family leave to states having paid family leave for respondents with a child and the change in the labor market outcomes from states having no paid family leave to states having paid family leave for respondents with an infant ( $\delta_2 - \delta_1$ ).

This study considered comparing respondents in states with a temporary disability insurance program (TDI) to respondents in states without a TDI program. However, such a comparison is not possible, since the states that currently have the program adopted it during the 1940s and 1960s (Table 8). As a result, there is no variation in the adoption of the program during this time period and it is already accounted for in the state-fixed effects. Additionally, all the U.S. states where paid family leave took effect during this time period (California, New Jersey, Rhode Island, and New York) also have a TDI program (Table 8). Thus, it is not possible to conduct a test and compare respondents in states with paid family leave and no TDI program to respondents in states with both a paid family leave and TDI program.

The control variable,  $X_{ist}$ , is a vector of characteristics for respondent  $i$  in state  $s$  and year  $t$ . Controls include the women's age, marital status, ethnicity, number of children, age of the youngest child, level of educational attainment, household income, and whether the respondent lives in a metropolitan area. The wage replacement rate and the length of leave of the state paid family leave program is also controlled for in the analysis.

In addition,  $\mu_s$  and  $\omega_t$ , respectively, refer to state and year fixed effects, which can help account for time-invariant characteristics and reduce omitted variable bias. The standard errors are clustered by state, since the Breusch-Pagan test finds evidence of heteroscedasticity (Solon et al., 2015).  $\varepsilon_{i,s,t}$  refers to the error term.

Overall, this model meets the parallel trend assumption. As Figure 9 demonstrates, the change in the mean employment rate for adult women in all states that adopt paid family leave in

the years leading up to adoption is similar to the change in the mean employment rate for women in all other states. The parallel trend assumption can also be validated by a robustness check. In the robustness check, dummy variables for up to four years prior to the implementation of the state paid family leave programs were included in the base model. The robustness check finds that there is no statistically significant effect one year or two years prior to the implementation of the programs.<sup>6</sup> Since the parallel trend assumption is satisfied, this model provides causal estimates and will mitigate certain biases, such as reverse causality and omitted variable bias.

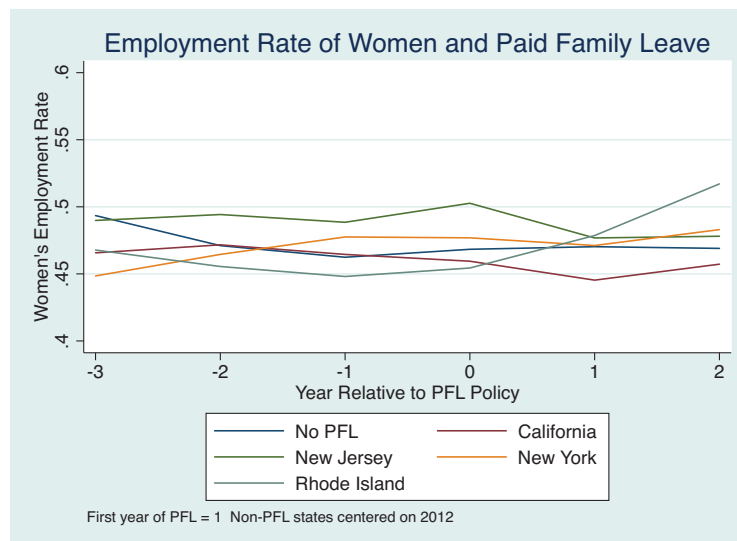


Figure 9. Employment Rate of Women and Paid Family Leave  
(Source: Author's calculations based off the 2000 to 2019 CPS ASEC)

Overall, the regression estimates of the model answer the following questions on the impact of paid family leave on labor market outcomes for different group of mothers:

- (1) In all states, how do mothers with an infant compare to mothers without an infant?
- (2) When mothers with an infant have state paid family leave, how do they compare to mothers with an infant who live in a state without paid family leave?
- (3) In all states, how do mothers with a child compare to mothers without a child?

<sup>6</sup> This robustness check can be found in Appendix E.

- (4) When mothers with a child have state paid family leave, how do they compare to mothers with a child who live in a state without paid family leave?
- (5) When mothers with an infant and child have state paid family leave, how do they compare to mothers with an infant and child who live in a state without paid family leave?

### Descriptive Findings

Descriptive statistics are provided in Table 10. The following statistically significant descriptive results were found. Among mothers with an infant, 54 percent were employed and 27 percent worked full-time in states without paid family leave, whereas 48 percent were employed and 24 percent worked full-time in states with paid family leave. Similarly, mothers with an infant worked more hours in states without paid family leave, compared to states with paid family leave.

Among mothers with a child between the age of 5 and 10, 72 percent were employed and 46 percent worked full-time in states without paid family leave, whereas 64 percent were employed and 42 percent worked full-time in states with paid family leave. Likewise, mothers with a child between the age of 5 and 10 worked more hours in states without paid family leave, compared to states with paid family leave.

Thus, according to descriptive statistics, paid family leave appears to have a negative impact on labor market outcomes for both groups of mothers, mothers with an infant and mothers with a child.

Table 10. Comparison of Mothers in States with and without Paid Family Leave

	Employment	Full-time Status	Number of Hours	Utilization of Paid Maternity Leave
Mothers with an Infant				
States without Paid Family Leave	0.54***	0.27***	19.40***	0.03
Number of Observations	42,682	42,682	38,387	42,682
States with Paid Family Leave	0.48***	0.24***	17.58***	0.03
Number of Observations	3,859	3,859	3,512	3,859
Mothers with a Child between the ages of 5 and 10				
States without Paid Family Leave	0.72***	0.46***	26.19**	0.0004
Number of Observations	160,240	160,240	149,396	160,240
States with Paid Family Leave	0.64***	0.42***	23.22***	0.0005
Number of Observations	16,539	16,539	15,264	16,539

Note: \*\*\* p < 0.01, \*\*p<0.05, \*p<0.1

### Empirical Results

The findings of the regression are shown in Table 11. A major finding is that in all states, mothers with infants are 25 percent less likely to be employed, 25 percent less likely to work full-time, and work 8.7 fewer hours, compared to mothers without an infant. When mothers with infants live in states with paid family leave, they are 0.6 percent more likely to be employed, 0.6 percent more likely to work full-time, and work 0.8 more hours compared to mothers with infants who live in states without paid family leave.<sup>7</sup>

The results also indicate that in all states, mothers with a child are 1.4 percent more likely to be employed, but 0.7 percent less likely to work full-time compared to mothers without a child. When mothers with a child live in states with paid family leave, they are 2.3 percent less

<sup>7</sup> The coefficient estimates were retrieved from Table 11 and calculated in the following manner:

Employment:  $0.00837 - 0.00222 = 0.00615$ , rounded to 0.6 percent

Full-time:  $-0.00326 + 0.00936 = 0.0061$ , rounded to 0.6 percent.

Number of Hours:  $0.405 + 0.364 = 0.769$ , rounded to 0.8 hours



likely to be employed, 1.6 percent less likely to work full-time, and work 0.6 fewer hours compared to mothers with a child who live in states without paid family leave.<sup>8</sup>

Furthermore, the results indicate that when mothers with both an infant and a child live in states with paid family leave, they are 3 percent less likely to be employed, 2.2 percent less likely to work full-time, and work 1.3 fewer hours compared to mothers with both an infant and a child who live in states without paid family leave.<sup>9</sup> This negative effect is primarily being driven by mothers with children who live in states with paid family leave. As the t-test in Table 11 indicates, there is a statistically significant difference between mothers with an infant and mothers with a child who live in states with paid family leave. However, in terms of the actual utilization of paid maternity leave, there is no statistically significant difference between the two groups.

The variables controlled for in the analysis also provide significant insights. A higher wage replacement or a longer length of leave, which are elements of a progressive paid family leave program, is not associated with an improvement in the labor market outcomes. In addition, the results in Table 11 indicate that having more children is associated with a decrease in the labor market outcomes. It is also worth noting that being black is associated with an increase in the labor market outcomes, while being Hispanic is associated with a decrease in all the labor outcomes. Having a college degree or higher and earning \$60,000 or more is associated with an increase in the labor market outcomes.

---

<sup>8</sup> The coefficient estimates were retrieved from Table 11 and calculated in the following manner:

Employment:  $0.00837 - 0.0319 = -0.02353$ , rounded to 2.3 percent

Full-time:  $-0.00326 - 0.0126 = -0.01586$ , rounded to 1.6 percent

Number of Hours:  $0.405 - 0.961 = -0.556$ , rounded to 0.6 hours

<sup>9</sup> The coefficient estimates were retrieved from Table 11 and calculated in the following manner:

Employment:  $-0.0319 - (-0.00222) = -0.02968$ , rounded to 3 percent

Full-time:  $-0.0126 - 0.00936 = -0.02196$ , rounded to 2.2 percent

Number of Hours:  $-0.961 - 0.364 = -1.325$ , rounded to 1.3 hours

Table 11. Regression Results on the Impact of Paid Family Leave on Different Labor Market Outcomes

VARIABLES	(1) Employed	(2) Full-time	(3) Number of Hours	(4) Utilization of Paid Maternity Leave
Mothers with Infants	-0.252*** (0.00458)	-0.250*** (0.00377)	-8.692*** (0.177)	0.0288*** (0.00137)
State Paid Family Leave	0.00837*** (0.00309)	-0.00326 (0.00553)	0.405 (0.296)	0.000941*** (0.000181)
Mothers with Children	0.0141*** (0.00288)	-0.00678** (0.00278)	-0.0210 (0.108)	0.000243*** (8.35e-05)
Mothers with Infants in States with Paid Family Leave	-0.00222 (0.00628)	0.00936* (0.00556)	0.364* (0.198)	0.00167 (0.00211)
Mothers with Children in States with Paid Family Leave	-0.0319*** (0.00399)	-0.0126*** (0.00412)	-0.961*** (0.172)	-9.61e-05 (0.000149)
Black	0.00170 (0.00514)	0.0435*** (0.00403)	1.031*** (0.188)	0.000165** (7.94e-05)
Hispanic	-0.0412*** (0.00520)	0.00662 (0.00420)	-0.493*** (0.164)	-0.000445*** (9.90e-05)
Married	0.0300*** (0.00658)	0.0157*** (0.00486)	1.011*** (0.226)	0.000515*** (5.13e-05)
Number of Children	-0.0308*** (0.00111)	-0.0329*** (0.00196)	-1.364*** (0.0655)	-0.000639*** (7.16e-05)
Age of Youngest Child	-0.00142*** (3.67e-05)	-0.00133*** (4.84e-05)	-0.0595*** (0.00177)	-1.28e-05*** (1.47e-06)
College-Educated	0.110*** (0.00367)	0.0999*** (0.00321)	4.318*** (0.137)	0.00105*** (9.02e-05)
\$60,000 or more	0.349*** (0.00736)	0.419*** (0.00611)	15.59*** (0.274)	0.00201*** (0.000233)
Lives in Metropolitan Area	-0.00559 (0.00477)	0.00179 (0.00321)	-0.0671 (0.161)	7.94e-05 (8.07e-05)
State Paid Family Leave's Wage Replacement Rate	-0.00380 (0.00706)	0.0169 (0.0211)	-1.108 (0.962)	-0.000717 (0.000491)
State Paid Family Leave's Length of Leave	-1.39e-05 (0.000686)	-0.00177 (0.00207)	-0.0307 (0.112)	-5.51e-05 (3.99e-05)
Constant	1.012*** (0.00736)	0.679*** (0.00839)	47.37*** (0.287)	0.000728*** (0.000207)
Observations	1,489,471	1,489,471	1,336,431	1,489,471
R-squared	0.177	0.124	0.219	0.023
State Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
P-value: Mothers with Infants in States with Paid Family Leave = Mothers with Children in States with Paid Family Leave	0.0000	0.0010	0.0000	0.4224

## Discussion

As the results indicate, mothers who have an infant experience a negative impact in the labor market. In all states, mothers with an infant are 25 percent less likely to be employed and working full time, compared to mothers without an infant. This probably occurs because mothers are taking time off to physically recover from childbirth and bond with their child. However, when mothers of infants live in a state with paid family leave, the large negative impact on labor market outcomes diminishes and the impact becomes slightly positive. Specifically, mothers of infants who live in states with paid family leave are 0.6 percent more likely of being employed and 0.6 percent more likely working full time, compared to mothers with an infant who live in states without paid family leave. This suggests that in states with paid family leave, mothers with an infant are more likely to have favorable labor market outcomes. This may validate the notion that after mothers return to work from paid family leave, they are more energized and motivated to continue their work. The positive impact that paid family leave has on mothers with infants can be corroborated by Baum and Ruhm (2016), who found that California's paid family leave program is associated with a higher probability of employment for mothers nine to twelve months after childbirth.

The results also indicate that mothers with a child between the age of 5 and 10 have mixed labor market outcomes. In all states, mother with a child are 1.4 percent more likely to be employed and 0.7 percent less likely to work full-time compared to mothers without a child. When examining states with paid family leave, all the three labor market outcomes are negative for mothers with a child. For example, mothers with a child who live in states with paid family leave are 2.3 percent less likely to be employed compared to mothers with a child who live in states without paid family leave. This does not support the notion that mothers with school-age

children would have better labor market outcomes. A possible explanation is that an extended leave associated with childbirth is more accepted than an extended leave associated with the care of a child.

Finally, when examining mothers with both an infant and a child, it appears that state paid family leave has a negative impact on the likelihood of employment, the likelihood of working full-time, and the number of hours worked. Specifically, mothers with both an infant and a child who live in states with paid family leave are 3 percent less likely of being employed and 2.2 percent less likely working full time, compared to mothers with an infant and child who live in states without paid family leave. Thus, the results do not support the first hypothesis of the study. This may partly be explained by the negativity that some employers have toward the usage of paid family leave, particularly by employees with multiple children. Employers may believe that employees with multiple children have more childcare responsibilities and would need to take longer lengths of paid family leave compared to employees with only one child. Thus, employers may perceive employees with multiple children to be a liability.

As Bailey et al. (2019) discusses, paid family leave legislation may be responsible for discrimination-induced labor practices. Employers may not directly deny paid leave to eligible employees, but employers might find other reasons to penalize the employees, including termination. For example, reduction in workforce is a valid reason for termination under the FMLA. Even if it does not come to the point of termination, employees might fear that it would impede their career advancement. Employers may also choose to convert their employees from full-time to part-time employment (Blau & Kahn, 2013; Evertsson & Duvander, 2011; Saad-Lessler & Bahn, 2017). Some employers might find the extended absence of the employee disruptive and they might negotiate other arrangements with the employee, for example,

changing their status from a salaried employee to an hourly employee, which might be mutually beneficial.

Similarly, some employees may fear using paid family leave will lead to potential adversarial consequences. The fear of using leave may be corroborated by the results. Table 11 shows that living in a state with paid family leave does not improve the utilization of paid maternity leave benefits among mothers who have both an infant and a child. This rejects the second hypothesis of the paper that the access to the state paid family leave program would increase the utilization of paid maternity leave with both an infant and child. Thus, it appears that paid family leave may be inadvertently hurting the labor market position of women. They may be losing valuable on-the-job skills, which may prevent them from being promoted or advanced to higher positions.

The results in this study indicate governments need to mitigate the fears associated with the utilization of paid family leave, such as losing a job or experiencing impediments in career advancement. The government needs to come up with a better and effective enforcement mechanisms to ensure that employers are complying with the paid family leave laws. The adversarial attitude of employers towards paid family leave has been addressed by other countries where paid family leave has been in place for many years. For example, Iceland has come up with an innovative way to mitigate this issue (Wharton, 2019). They have mandated that the allowable paid family leave must be shared by the father and mother and the share of one is not transferrable to the other (Wharton, 2019). This has served two purposes. First, it lessens the burden on mothers since fathers are sharing the childcare responsibilities. Second, the mothers are no longer the target of employer reprisal. Essentially, it levels the playing field for men and women at the workplace when it comes to the utilization of paid family leave. Another

benefit of this mandated shared paid family leave policy is that it would eliminate the stigma attached to fathers taking paid family leave and also the fear from both fathers and mothers on losing their competitive edge at the workplace due to being away for an extended period of time. In a study conducted on four weeks of non-transferrable paid paternity leave in Norway, it is found that workers do not lose any competitive edge when a large proportion of their colleagues use the leave due to a policy mandate (Johnsen, Ku, & Salvanes, 2020).

It is important to acknowledge that there were some limitations of data in this study. First, while the data indicates whether mothers used paid family leave benefits, it does not indicate for how long the mother utilized the benefits. It is possible that mothers with multiple children are taking longer length of leave, compared to those with only one child, which may explain for the results. Second, the study does not indicate how long a mother has worked with a particular employer. It is possible that mothers who have worked with an employer for several years feel more comfortable taking leave compared to mothers who have only worked with an employer for a year or two. Third, the data in this study does not indicate the purpose of mothers using paid family leave. While majority of mothers use paid family following the birth of a child, many workers take leave for a personal or family member illness (Klerman et al., 2014). Had this data been available, it would have been possible to distinguish paid family leave associated with child birth from that used for other purposes. Finally, this study is based on paid family leave data from four states, which have enacted paid family leave laws during the past two decades. Had there been data from a sizeable number of states with paid family leave laws in place for a reasonable length of time, the picture might have been clearer.

The triple difference-in-difference model used in this study has brought an aspect of the impact of paid family leave on maternal labor market outcomes to light that might not have been

possible with other empirical models. From the descriptive statistics of the data utilized in this study, the logical conclusion would have been that when mothers with an infant or child live in a state with paid family leave, their labor market outcomes are worse compared to those living in states without paid family leave. However, the regression results clearly indicate that mothers with an infant have better labor market outcomes when the mothers live in states with paid family leave compared to those who live in states without paid family leave.

## CHAPTER 4

### FEMALE LEGISLATIVE REPRESENTATION AND ITS IMPACT ON THE ADOPTION OF WORK-FAMILY POLICIES IN THE UNITED STATES

*Women belong in all places where decisions are being made.*

—Ruth Bader Ginsberg, *Associate Justice of Supreme Court of the United States*

#### Abstract

Female legislators have historically been strong proponents of social policies that directly affect the well-being of children and mothers. Compared to male legislators, female legislators may have an internal motivation to advocate for these policies, considering personal experiences and adversities, such as gender discrimination, they might have experienced. These experiences may influence female legislators to promote legislation which ameliorates the economic and social condition of women, who disproportionately face economic and other hardships. The purpose of this study is to examine whether the female legislative representation has a measurable effect on the likelihood of a U.S. state adopting friendly work-family policies. Specifically, I examine whether there is a relationship between the percent of state legislators that are female (a measure of passive representation) and whether friendly work-family policies were enacted into law (a measure of active representation). The work-family policies examined in this study include state paid family leave, paid sick leave, and breastfeeding at work legislation. Passive representation is concerned with whether the demographic characteristics of a governing body reflect the demographic characteristics of the general population, whereas active representation is concerned with legislators using their discretion to advance the interest of a particular group. This study is motivated by whether female legislators are using their power to advance friendly work-family policies in the state legislature. The study examines 50 U.S. states



from 2000 to 2016 using a linear probability model with data from the Michigan State University's Correlates of State Policy Project. The study finds that when states have more than 25 percent females in the state legislature and the governor is a female, the states do not experience a statistically significant increase in the likelihood of passing the three work-family laws. This trend also holds true for other female legislative representation thresholds of 15 percent, 20 percent, 30 percent, and 35 percent. The results may suggest that an increase in the passive representation of women does not always result in active representation.

### Introduction

Studies have shown that female legislators, compared to their male counterparts, are more likely to promote legislation which ameliorates the economic and social conditions of women (Lawless, 2004; Flammang, 1985). Previous research has found that female and male legislators prioritize issues differently, particularly work-family issues. While it is true that most legislators who serve in public office tend to come from privileged backgrounds, males and females are likely to have different experiences in their lives, which ultimately shape their political interests and beliefs (Krook, 2010). These experiences differ in a biological sense, in that only women can become biologically pregnant and give birth. Cultural or social experiences may also differ. Women may be more likely to face gender discrimination and pressure to uphold societal expectations. At home, women shoulder time pressures relating to childbearing and household responsibilities (Craig, 2006; Krook, 2010; Argyrous & Rahman, 2017). For example, Argyrous and Rahman (2017), who used data from the Australian Time Use Survey, found that mothers spend more time performing childcare tasks, irrespective of their earnings or their partner's availability to help with the tasks. Women, are also more likely to have different experiences in the workplace, compared to men. (Ortiz & Roscigno, 2009; Hill & Bible, 2007). Women are

more likely to encounter discrimination and lower pay at workplaces (Fortin, 2005; Waldfogel, 1998).

Overall, the tendency of female legislators to address work-family issues may stem from their own experiences. Thus, female legislators are often perceived to be “champions” of women issues in the workplace (Smooth, 2011). Female legislators have historically spent more time on poverty, gender equity, and family related issues, such as access to paid family leave (Thomas, 1991, Lawless, 2004, Alvarez & McCaffery, 2000; Kittilson, 2008).

This study examines whether 25 percent or more female legislators in a state legislative body has a measurable effect on the likelihood of whether a U.S. state adopts friendly work-family legislation.<sup>10</sup> A 25 percent threshold was utilized since there are only a few states during this period that had 50 percent or more female legislators.<sup>11</sup> While previous studies have not used the 25 percent threshold, this threshold is comparable to the percent of women currently serving in the U.S. Congress. In November 2019, approximately 23 percent women served in the U.S. House of Representatives (Center for American Women and Politics, 2019).<sup>12</sup> The study also examines scenarios when there are more than 15 percent, 20 percent, 30 percent, and 35 percent female legislators in a state government. It is possible that a minimum percentage threshold of female legislators is needed in order to successfully pass friendly work-family legislation.

This study uses the lens of representative bureaucracy, including passive and active representation. In addition to examining the percentage of state female legislators, this study also accounts for whether the governor is a female as a measure of representative bureaucracy. This

---

<sup>10</sup> The female legislators examined in this study are self-identified females.

<sup>11</sup> Specifically, Connecticut, District of Columbia, Mississippi, and Wyoming at certain periods of time had 50 percent or more female state legislators.

<sup>12</sup> Rutgers University’s Center for American Women and Politics, 2019.

helps account for the fact that female leadership at the top level of state government may have a discernable impact on the policy implementation.

The paper is structured in the following manner. First, the study reviews the current literature on representative bureaucracy, which includes both active representation and passive representation. Then, the paper describes the data and methodology. Finally, the paper concludes with a discussion of the results.

### Literature Review

#### Theory of Representative Bureaucracy: Active and Passive Representation

There are two forms of representation: passive and active. Passive representation is concerned with whether the demographic characteristics of a bureaucracy reflect the demographic characteristics of the general population (Ricucci & Meyers, 2004). In contrast, active representation is concerned with bureaucrats using their discretion to advance the interest of a particular group (Wilkins & Keiser, 2004). For example, bureaucrats may try to eliminate the discrimination that their clients may typically encounter with the agency. The concept of active representation is similar to the concept of identity politics, which refers to the political mobilization and promotion of certain identities based on race, gender, and ethnicity (Béland, 2017). While many of these studies primarily focus on street-level bureaucrats, they offer insight into the impact of gendered representation on policy implementation.

Research finds that passive representation can lead to active representation (Wilkins & Keiser, 2004; Ricucci & Meyers, 2004; Meier & Nicholson-Crotty, 2006). In other words, when more individuals share the demographic characteristics of their clients or constituents, there is a possibility that they are more likely to address these issues. For example, Meier and Nicholson-Crotty (2006), who examined police officers in sixty urban areas, found that the percentage of

female police officers is positively associated with the number of reports and arrests for sexual assaults. In addition, Riccucci and Meyers (2004) found that the gender of frontline welfare workers can explain for how workers perceive and interact their clients. Specifically, they found that female welfare workers are more likely to have a positive interaction with their female clients and are more likely to agree with the situation of mothers choosing to be stay-home mothers (Riccucci & Meyers, 2004). Finally, Wilkins and Keiser (2004) examined female bureaucrats in child enforcement agencies and found that an increase in the number of female caseworkers is associated with an increase in child support collections. Specifically, the study found that in non-TANF (Temporary Assistance for Needy Families) cases, a one percent increase in the number of female supervisors is correlated with a two-dollar increase in child support collections. This is logical considering improved child support enforcement has been on the agenda of women's interest groups for decades. Female supervisors understand the importance of child support collections and will strongly enforce such collections to ensure that the financial needs of a child are met. However, the study did not find a link between the number of female supervisors and child support collections in TANF cases. (Wilkins & Keiser, 2004). This is primarily because non-custodial parents of children on TANF are more likely to be unemployed in the long-term (Wilkins & Keiser, 2004). Thus, it may be difficult for supervisors to enforce child support collections in these cases.

When examining legislative bodies, there is evidence that passive representation can lead to active representation (Meier & Funk, 2017; Thomas, 1991, Berkman & O'Connor, 1993). There is evidence that greater number of elected officials who identify themselves with a particular demographic group can advocate and pass beneficial legislation relating to that demographic group. For instance, Meier and Funk (2017) discovered that an increase in the

percent of women elected officials in the Brazilian local government increased the probability of a woman being appointed to head a public agency. There is considerable amount of literature on how female legislators are more likely to pursue favorable legislations for women, particularly legislations which ameliorate the economic conditions of women. For instance, Saltzstein (1986) found that the presence of a female mayor is associated with an improvement in the employment outcomes of women in municipal government. Similarly, Tam (2017) found that female legislators in Hong Kong were more likely to propose legislation relating to education, healthcare, social welfare, and children and families compared to male legislators.

However, passive representation does not always result in active representation (Wilkins & Kesier, 2004; Keiser et. al., 2002). As Wilkins and Keiser (2004) discussed in their study, passive representation leading to active representation only occurs when the policy area is salient for the demographic characteristic in question. In order for the wellbeing of women to be a salient issue for bureaucrats, there are three conditions that need to be met.

The first condition is the policy area must benefit women as a class (Keiser et. al., 2002; Wilkins & Keiser, 2004). In other words, female clients must directly benefit from the implementation of a policy (Keiser et. al., 2002).

The second condition is that the gender of the bureaucrat must affect the relationship of the client and the bureaucrat (Keiser et. al., 2002). For the purpose of this study, the impact of the gender of the elected official will be examined. It can be expected that elected officials who share similar demographic characteristics as of their constituents, are more likely to share a life experience similar to that of their constituents (Thielemann & Stewart, 1996; Keiser et. al., 2002). When elected officials share similar life experiences as their constituents, it gives them an internal motivation to provide more time and resources on a particular issue, which can lead to

better performance results. This may help explain why Gade and Wilkins (2012) found that veterans reported a higher level of satisfaction when their assigned counselor was also a veteran.

The third condition is that the policy issue being examined must be a gender-related issue (Keiser et. al., 2002). Though it is empirically difficult to prove this condition, there are two indirect measures. One indicator is that that men and women should have significantly different public opinion on the issue (Keiser et. al., 2002). It is possible that certain policies are more widely supported by women, compared to men. Another possible indicator that the policy issue is a gender-related issue is that the policy issue is being addressed by organizations, which advance the concerns and causes of women (Keiser et. al., 2002).

It should be emphasized that passive representation is not necessary for active representation to occur. Individuals can still raise and address issues, which are pertinent to a particular group, even if they do not belong to that group (Swain, 1993). For instance, Swain (1993) found that the race of members in Congress is not essential for the representation of African-American interests. White Congressional members were argued to be equally as effective in advocating the interest of African-American constituents.

Finally, there is some research on the lack of support of males for female-benefitting legislation with large female representation. Höhmann (2020), which examined the German parliament, found that male MPs (Members of Parliament) are less likely to push for the representation of women's interests when there is a high proportion of female MPs. Similarly, Kokkonen and Wängnerud (2017), who surveyed locally elected politicians in Sweden, found that the proportion of female politicians had a negative effect on male politicians' willingness to advocate for women issues. Kathlene (1994), who analyzed the Colorado State House, also found that an increase in female legislators had a negative effect on the support of male

legislators. Specifically, male legislators became more hostile and verbally aggressive during committee hearings (Kathlene, 1994). These studies suggest that a large number of female representatives does not always result in the adoption of women-friendly policies.

#### Theory of Representative Bureaucracy: Symbolic Representation

Several studies that examined female legislative representation have focused on symbolic representation. In contrast to active and passive representation, symbolic representation focuses upon the empowering effect of representation (Theobald & Haider-Markel, 2008). When examining female legislators, it focuses on how the presence of female representatives can influence the attitude and behaviors of women as well as men. Lawless (2004), for instance, found that female constituents are more likely to have a favorable approval of Congress when their representative is a female, compared to when their representative is a male. Karp and Banducci (2011) examined 35 countries and also found that female representation was positively associated with attitudes about the political process. Likewise, Atkeson and Carrillo (2007) found that an increase in female representation in the U.S. state legislative and executive government can improve the perception that female citizens have about the efficiency and responsiveness of their state government. In addition, from a broader perspective, female legislators can have a significant social and cultural impact. Burnet (2011) discusses how the increase in the number of female legislators in Rwanda resulted in an increase in societal benefits for women. Women in Rwanda experienced greater respect from family and community members, greater autonomy in family decision-making, greater confidence to speak in public forums, and an increase in access to education (Burnet, 2011).

## Family Leave Policies and Female Legislative Representation

A growing body of research has investigated whether female representation has an effect in adopting paid family leave entitlements. For example, Kittilson (2008) examined 19 democratic and industrialized OECD countries from 1970 to 2008, and found that the female representation, specifically, the proportion of women in parliament, significantly influenced the duration of maternity and childcare leave that was publicly provided or offered. Similarly, Schwindt-Bayer and Mishler (2005) examined 31 countries in 1995, finding that an increase in the percent of women in parliament increased the legislative responsiveness to women's policy concerns on issues such as access to maternity leave. Finally, Atchison and Down (2009) examined 18 parliamentary democracies from 1980 to 2003 and found that the proportion of women in cabinet positions is a positive predictor of whether a country has guaranteed leave entitlements.

## Gap in the Literature

Overall, although previous studies have indicated there is a positive relationship between female legislative representation and female-oriented policies, it is still unclear whether female legislative representation makes a difference in the context of the United States. Specifically, it is unclear whether the results of these studies conducted in other countries, can be generalized to the United States, considering the social, historical, and economic differences. The United States differs from other countries in terms of its political beliefs, electoral system, and its level of gender and income inequality. In particular, the United States has higher levels of gender inequalities compared to several other countries. According to the 2020 World Economic Forum



report, the United States ranked 53rd in the Global Gender Index Gap among 153 countries.<sup>13</sup>

While women in the United States have a strong presence in the skilled labor market, they are still underrepresented in political leadership roles (World Economic Forum, 2020). In addition, the United States never had a female president, whereas many countries had their first female head of state during the 1960s and 1970s.

It is acknowledged that there have been some studies, which have examined the effect of female representation on the adoption of social policies in the United States, but these studies are at the city and state level (Fraga et. al., 2007; Lavariega, Orey, & Conroy, 2009; Budd, Myers, & Longoria, 2016). For example, Budd et al. (2016) found that female city council members in Texas were more likely than male members to advocate a gendered policy, which are policies that alleviate the inequitable gender differences in the society (World Health Organization, 2002). However, it is questionable whether the findings of one U.S. city or state can be extended to another city, state, or the nation, due to their differing political and socioeconomic conditions. For example, the adoption of paid family leave may be less feasible in one state compared to another state, due to the political climate and the political composition of the State House and Senate. Thus, this study fills in a missing gap in the literature by conducting a quasi-experimental study to estimate the plausibly causal effect of the proportion of female legislative representation on the adoption of friendly work-family policies in the context of U.S. at the national level. Specifically, the research question of this study is whether the percent of female legislators improves the adoption of friendly work-family policies. The hypothesis is presented in the next section.

---

<sup>13</sup> The Global Gender Gap Index measures the gender-based gap in the following areas: economic participation and opportunity, educational attainment, health and survival, and political participation (World Economic Forum, 2020).

## Hypothesis and Theoretical Framework

I hypothesize that when there is a significant number of state female legislators, meaning when more than 25 percent of state legislators are female, and there is a female governor, I expect it would increase the likelihood of friendly work-family policy legislation being adopted. Specifically, it would increase the likelihood of state paid family leave, paid sick leave, and breastfeeding at work legislations being adopted. The primary reason is that research has demonstrated that female legislators, in general, are more likely to understand and acknowledge issues that are being experienced by their female constituents (Wilkins & Keiser, 2004, Riccucci & Meyers, 2004). For example, female legislators may be able to empathize with new, younger mothers who are having trouble balancing time between work and bonding with their newborn during the first few months of life, which are considered to be critical for a child's psychological, emotional, and physical well-being. This is not to imply that male legislators are not likely to acknowledge these issues, however, certain female-oriented policies, such as breastfeeding at work, may be a priority or high in their list for female legislators. As a result, female legislators would be more likely to introduce and vote on bills and legislations relating to work-family policies. As Swers (2005) found, liberal congressional female legislators in the 1990s were predicted to cosponsor 5.3 more women health bills compared to liberal male legislators (Swers, 2005). The study also found that moderate republican women were also more likely to be active cosponsors of social welfare bills, compared to conservative Democrat men (Swers, 2005).

In general, having a female governor is beneficial, considering they can set the policy agenda for the legislators to be working on in the state legislature. When these aspects are combined, there should be a rise in the number of states adopting friendly work-family policies, which is consistent with the theory that passive representation can lead to active representation.

Based on the above discussion, I hypothesize the following.

$H_1$  When more than 25 percent of legislators are female and there is a female governor in the state, it increases the likelihood of the passage of work-family policy legislations, such as state paid family leave, paid sick leave, and breastfeeding at work, being adopted.

### Data Source

This study uses yearly, state-level panel data of 50 U.S. states from 2000 to 2016 collected by Michigan State University's Correlates of State Policy Project (Jordan & Grossmann, 2020). This dataset provides comprehensive information on female representation at different levels of state government. It also provides information on state demographics and the policy perspectives of the state. This study also uses data from the University of Kentucky Center for Poverty Research National Welfare (UKCPR) Database, which provides annual political and economic information on the state (University of Kentucky Center for Poverty Research, 2020). Finally, the study uses data from the Census Bureau's American Factfinder, which provides information on the demographic characteristics of the state (U.S. Census Bureau, 2020). Both of these data sources are annual and at the state-level. These data sources were merged using state identifiers.

The units of analysis in the observations are state-year. In total, there are 850 state-year observations. The independent variable is whether 25 percent or more of state legislators are female, which is the means through which passive representation is measured.

The dependent variables are three separate dummy variables indicating whether the states have adopted three types of work-family polices: paid family leave, paid sick leave, and breastfeeding at work legislation. In this study, there are four U.S. states, where paid family leave legislation was enacted into law during this time period. These include California, New

Jersey, Rhode Island, and New York. The paid family leave laws for these states, respectively, were enacted in 2002, 2008, 2013, and 2016 (National Partnership for Women and Families, 2019). These are the years that states signed paid family leave into law, but benefits began in later years (Table 7). This is important to note because this study examines which characteristics of the states enabled the adoption of the paid family leave in a given year.

Additionally, there are five U.S. states where paid sick leave legislations were enacted into law. These include the District of Columbia, Connecticut, California, Massachusetts, and Oregon. The paid sick leave laws for these states, respectively, were enacted in 2008, 2012, 2015, 2015, and 2016, respectively. More information about these paid sick leave laws can be found in Table 12.

Finally, there are twenty-eight states that adopted laws relating to breastfeeding at the workplace (National Conference of State Legislatures, 2020). From 2000 to 2016, 21 states adopted breastfeeding at work legislation. For example, in Connecticut, the law requires employers to provide female employees reasonable break time to breastfeed their child for up to two years after childbirth. It also requires employers to make a reasonable effort to provide a place, other than a toilet stall, that would allow a mother to breastfeed their child. More information about which states adopted these laws and the year these laws were implemented is shown in Table 13. The implementation of these state work-family legislations over time can be seen in Figure 10, Figure 11, and Figure 12.

Table 12. State Paid Sick Leave Laws

States	CA	CT	MA	OR	Washington, D.C.
Year	2015	2012	2015	2016	2008
Accrual Rate	Employees earn one hour of paid sick leave for every 30 hours of work.	Employees earn at least one hour of paid leave for every 40 hours worked.	Employees earn one hour of paid sick leave for every 30 hours of work.	Employees earn one hour of paid sick leave for every 30 hours of work.	Employers with fewer than 25 employees: Employees accrue one hour per 87 hours worked.  Employers with 25 – 99 employees: Employees accrue one hour per 43 hours worked.  Employers with 100 or more employees: Employees accrue one hour per 37 hours worked.

Source: State Government Websites

Table 13. State Breastfeeding at Work Laws

States	Year	Law
Arkansas	2009	Requires employers to provide reasonable unpaid break and make a reasonable effort to provide a room, other than a toilet room, to breastfeed
California	2001	Requires employers to provide a break and provide a room to breastfeed
Colorado	2008	Requires employers to provide reasonable break time for an employee to breastfeed a child for up to two years after child birth and make a reasonable effort to provide a room, other than a toilet room, to breastfeed
Connecticut	2001	Requires employers to provide a break and provide accommodations where employee can breastfeed
Delaware	1997	Entitles a mother to breastfeed her child in any location of a place of public accommodation wherein the mother is otherwise permitted
Georgia	1999	Requires employers to provide reasonable unpaid break and make a reasonable effort to provide a room, other than a toilet room, to breastfeed
Hawaii	2013	Requires employers to provide reasonable break and make a reasonable effort to provide a room, other than a bathroom, to breastfeed
Illinois	2001	Requires employers to provide reasonable unpaid break and make a reasonable effort to provide a room, other than a bathroom, to breastfeed
Indiana	2008	Requires state and political divisions to provide reasonable paid break and make a reasonable effort to provide a room, other than a bathroom, to breastfeed. Also requires employers with more than 25 employees, to make a reasonable effort to provide private location, other than a bathroom, to breastfeed and if possible to provide a refrigerator to store breast milk.
Louisiana	2013	Requires public school boards to adopt a policy to require each school to provide an appropriate, private room, other than a restroom, that may be used by an employee to express breast milk
Maine	2009	Requires employers to provide reasonable unpaid or paid break time for an employee to breastfeed a child for up to three years after child birth and make a reasonable effort to provide a room, other than a bathroom, to breastfeed

Minnesota	1998	Requires employers to provide reasonable unpaid break time for an employee to breastfeed a infant and make a reasonable effort to provide a room, other than a toilet room, to breastfeed
Mississippi	2006	Prohibits against discrimination towards breastfeeding mothers who use lawful break time to express milk
Montana	1999	Requires employers to provide reasonable unpaid break time for an employee to breastfeed a infant and make a reasonable effort to provide a room, other than a toilet room, to breastfeed
New Hampshire	1999	Breastfeeding does not constitute indecent exposure and that limiting or restricting a mother's right to breastfeed is discriminatory
New Mexico	2007	Requires employers make a reasonable effort to provide a room, other than a bathroom, to breastfeed
New York	2007	Requires employers to provide reasonable unpaid break time for an employee to breastfeed a child and make a reasonable effort to provide a private location to breastfeed
North Dakota	2009	Allows a woman to breastfeed her child in any location, public or private, where the woman and child are otherwise authorized to be.
Oklahoma	2006	Requires employers to provide reasonable unpaid break time for an employee to breastfeed a child
Oregon	2007	Allow women to have unpaid 30-minute breaks during each four-hour shift to breastfeed or pump.
Rhode Island	2003	Requires employers to provide reasonable unpaid break time for an employee to breastfeed a child
Tennessee	1999	Requires employers to provide reasonable unpaid break time for an employee to breastfeed an infant and make a reasonable effort to provide a room, other than a toilet stall, to breastfeed
Texas	1995	Authorizes a woman to breastfeed her child in any location
Utah	2012	Requires employers to provide reasonable unpaid break time for an employee to breastfeed a child
Vermont	2008	Requires employers to provide reasonable break time for an employee to breastfeed an infant and make a reasonable effort to provide a room, other than a bathroom stall, to breastfeed
Virginia	2002	Encourages employers to provide reasonable unpaid break time for an employee to breastfeed a child
Washington	2001	Act of breastfeeding or expressing breast milk is not indecent exposure
Wyoming	2003	Encourages breastfeeding and commends employers, both in the public and private sectors, who provide accommodations for breastfeeding mothers.

Source: National Conference of State Legislatures (2020)

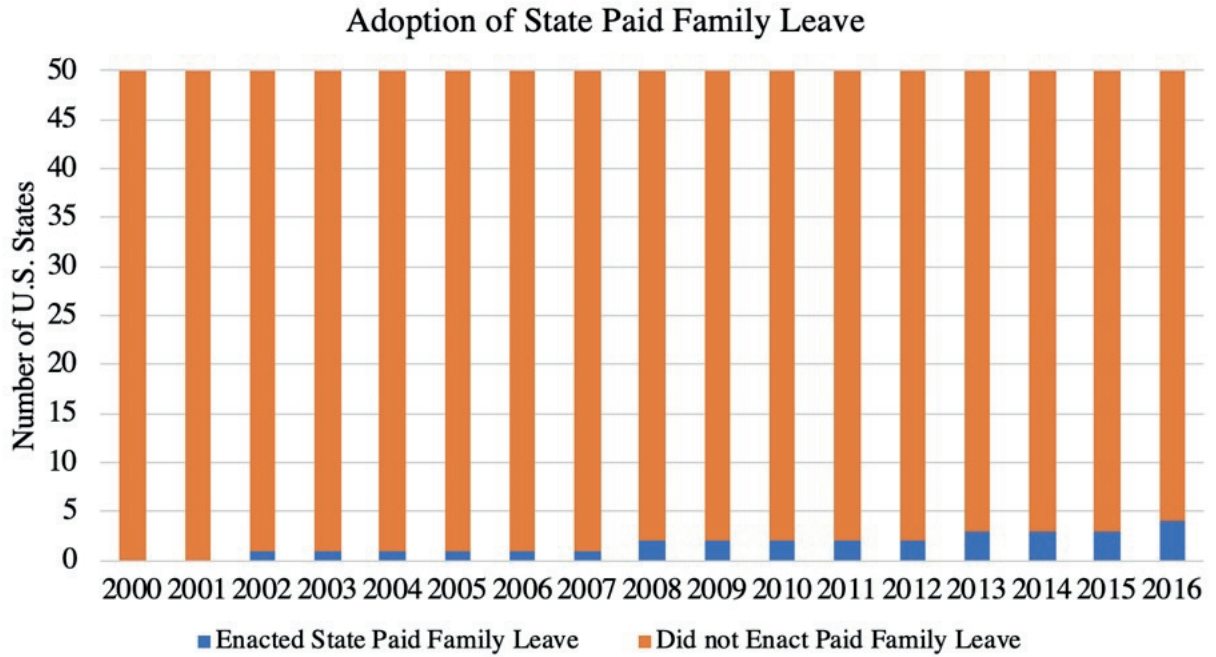


Figure 10. Adoption of state paid family leave

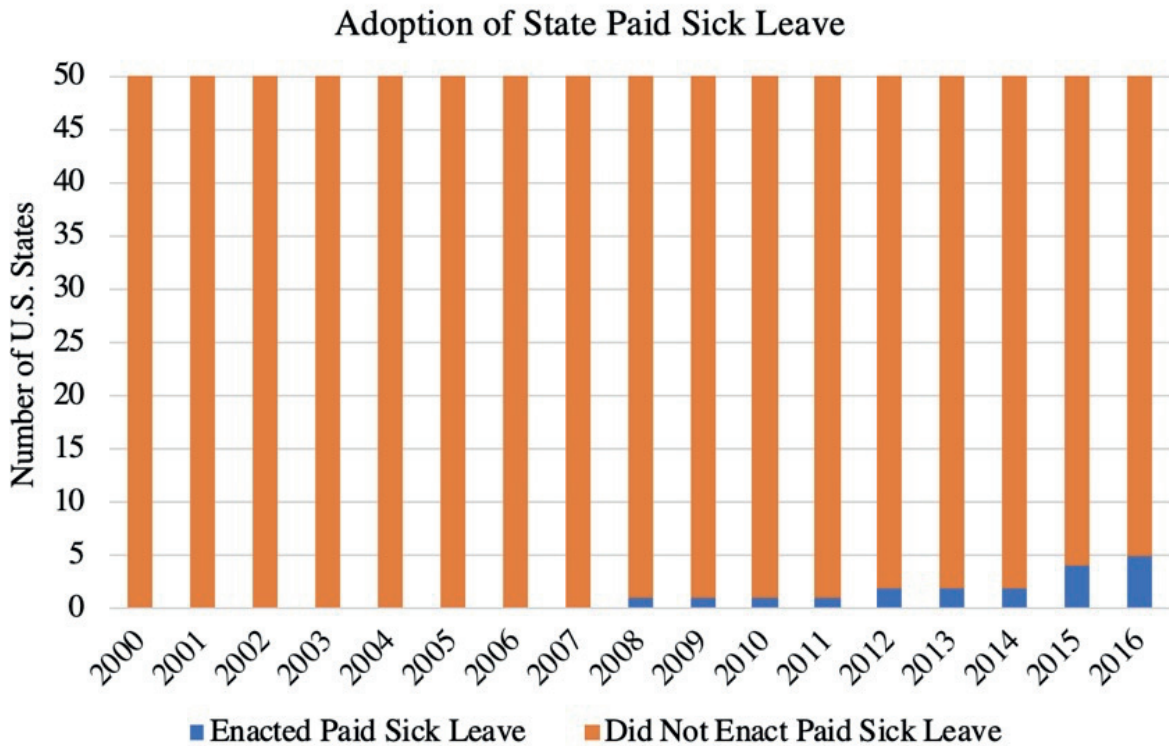


Figure 11. Adoption of state paid sick leave



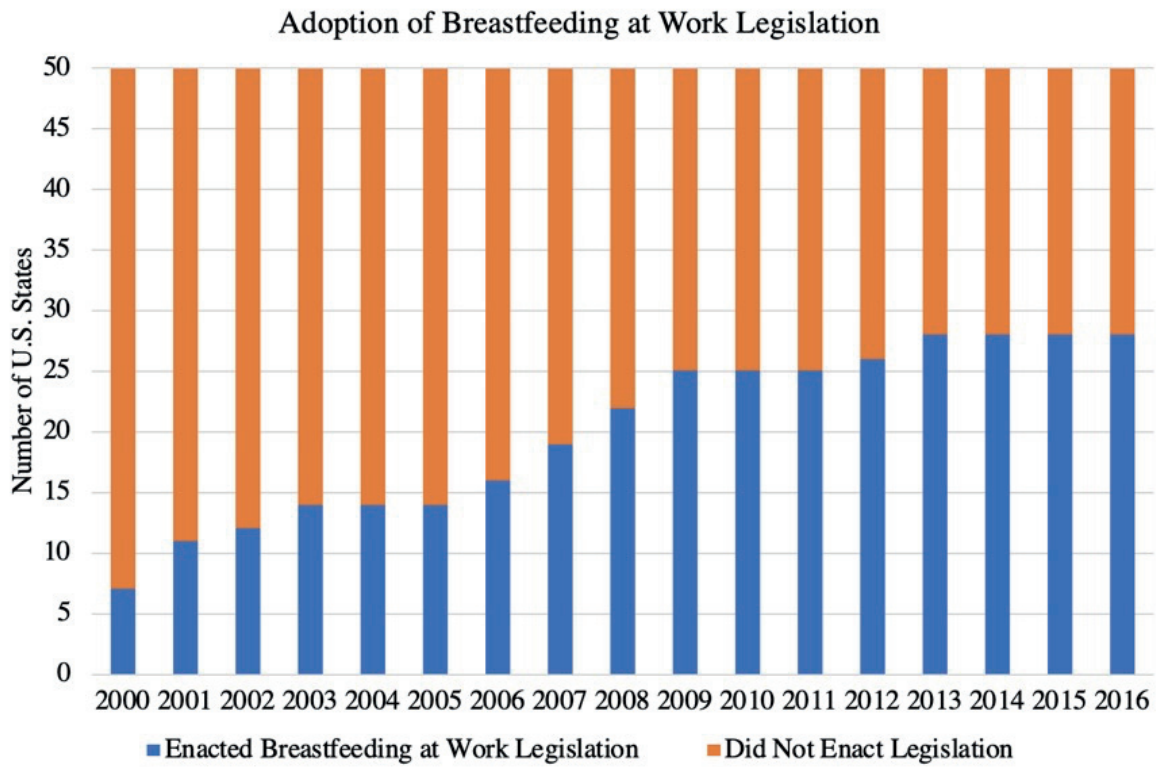


Figure 12. Adoption of breastfeeding at work legislation



## Methods

To estimate the impact of female legislative representation on the adoption of work-family policies, I used a linear probability model (LPM). The advantage of the LPM model is that it provides a straightforward interpretation of the regression estimates (Holm, Ejrnæs, & Karlson, 2015). However, a disadvantage of the LPM model is that it may predict values outside the range of 0 and 1 (Angrist & Pischke, 2008). The LPM model may also result in heteroskedastic error terms (Angrist & Pischke, 2008). This would violate the assumption of LPM model that the error terms are homoscedastic (Alexopoulos, 2010). Thus, this analysis was clustered by state to adjust for standard errors, which may mitigate concerns of heteroskedasticity. The following effects model has been estimated:

$$y_{s,t} = FemaleLegislators_{s,t} + FemaleGovernor_{s,t} + FemaleLegislators_{s,t} \times FemaleGovernor_{s,t} + PolicyAreas_{s,t} + StateInstitutions_{s,t} + Demographics_{s,t} + \tau_s + \omega_{s,t} + \epsilon_{s,t}$$

The index, *s* and *t*, respectively refer to state and year. The dependent variable,  $y_{s,t}$ , is a dummy variable, indicating whether paid family leave is enacted in state *s* in year *t*. The first independent variable,  $FemaleLegislators_{s,t}$ , is a dummy variable indicating whether there are more than 25 percent of female legislators in state *s* in year *t*. It should be noted that a series of sensitivity analyses were conducted in this study. The study tests different thresholds of female representation by examining when there are more than 15 percent, 20 percent, 30 percent, and 35 percent female legislators in a state government. It is possible that a minimum percentage of female legislators is needed to successfully pass work-family legislation. This study also examines the percent of female legislators as a continuous variable.

The second independent variable,  $FemaleGovernor_{s,t}$ , is also a dummy variable indicating whether the governor of state *s* in year *t* is a female. These two variables have been

interacted,  $FemaleLegislators_{s,t} \times FemaleGovernor_{s,t}$ . The interaction variable indicates the effect of states having a female governor and 25 percent of female state legislators on the likelihood of adopting work-family legislation.

The first control variable,  $PolicyAreas_{s,t}$ , is a set of variables indicating the policy positions of state  $s$  in year  $t$ . These policy positions relate to labor standards, gun control, drug usage, and environmental protection. Specifically, the study controls for whether the state has a higher minimum wage than the federal wage, whether it has a general right-to-work law, and whether it has required background checks during private sales at gun shows. It also controls for whether the state has legalized some marijuana sale and whether it has an active cap on greenhouse gas emissions from electric power producers. These variables were specifically chosen because generally they are not perceived as bipartisan policies in the political arena. These policies tend to be either associated with liberal or conservative views. As Masket (2019) discusses, the level of polarization in the state legislatures has grown in the past twenty years. In particular, the level of polarization has grown at an accelerating rate since 2010 (Masket, 2019). Thus, it is possible that knowing the state policy position on one particular issue can help infer the policy position on another issue. For example, if a state has a minimum wage higher than the federal wage, it is possible that the state considers friendly work-family policies to be important. While it is possible that governors might deviate from the party's platform, they tend to agree with the party's platform in most circumstances (Pew's Research Center, 2016). According to the Pew's Research Center (2016), 70 percent of Republicans and 70 percent of Democrats generally agree with their party's position almost always or more than half of the time. Overall, it is important to account for policy perspective variables in the analysis.

The second control variable, *StateInstitutions<sub>s,t</sub>*, is a set of variables relating to the structure of state government of state *s* in year *t*. The study controls for the proportion of state House and Senate seats that are Democrat. The study also controls for whether the state governor is a female, since it is possible that a governor could veto legislation passed by the state legislature. The correlation between the proportion of state House seats that are Democrat and whether the state governor is female is 0.02. The correlation between the proportion of state Senate seats that are Democrat and whether the state governor is female is 0.07. Thus, the correlation between these variables is low, which may indicate that collinearity is not an issue. It should be emphasized that while collinearity may affect the standard errors, it does not bias the estimates (Lindner, Puck, & Verbeke, 2020).

The study also controls for whether the governor is a Democrat. It is important to account for the party ideology of the governor, since it is possible that legislators from a particular party are more likely to introduce bills and vote in favor of work-family legislation. As Caiazza (2004) discusses, Democrats are more likely to support stronger social programs relating to the concerns of women.

The final control variable, *Demographics<sub>s,t</sub>*, is a set of variables relating to a set of state population characteristics in state *s* in year *t*. Specifically, the proportion of the population that has a high school degree and the proportion of the population that is Hispanic is controlled for in the analysis. Likewise, the study controls for the proportion of children that live in poverty and the proportion of children that live in single-parent homes. This is primarily because it is important to examine whether states that have a significant minority and/or low-income population are more likely to adopt these policies. As previous studies have found, the FMLA, which provides job-protected leave on an unpaid basis, primarily benefits white, educated and

married women, since they have the ability to utilize unpaid leave without much adverse effect on their financial resources. In general, these demographics were included since individuals with these population characteristics have a high demand for friendly work-family policies. For example, Hispanic women are more likely to leave or lose their job before giving birth compared to white women (Laughlin, 2011). In addition, approximately 50 percent of women with less than a high school degree quit their job upon the birth of their first child, while only 13 percent of women with a bachelor's degree quit their job (Laughlin, 2011). However, friendly work-family policies can ameliorate these economic conditions. Table 14 provides summary statistics of the variables included in this study.

It is noted that this study considered controlling for whether a state has temporary disability insurance program. However, it was not included in the analysis since there is lack of variation in the adoption of this program during this time period. As Table 8 indicates, the states that currently have the program adopted it during the 1940s and 1960s.

Finally,  $\mu_s$ ,  $\omega_t$ , and  $\mathcal{E}_{s,t}$  respectively refer to the state fixed effects and state-specific time trends. By accounting for state fixed effects, it is possible to account for time-invariant state-level characteristics. The disadvantage of controlling for state-fixed effects is it only identifies states that change over time. In other words, this model examines the effect of the change from not having a work-family legislation to having a work-family legislation. There are no states which have repealed a work-family legislation. The states which have not changed, meaning those that have no work-family legislation, are arguably different compared to states which have changed. According to Table 15, the states which have adopted paid sick leave and breastfeeding at work legislation have a higher percentage of governors that are Democrat compared to states

that do not have paid sick leave. Thus, the inclusion of state-fixed effects is a limitation of this study.

In order to check for robustness, this study runs the model with and without the state fixed effects and state-specific time trends. The regression results for without the state fixed effects and state-specific time trends can be found in Appendix F, Appendix G, Appendix H, and Appendix I. This study also checks for robustness by examining the model without the policy perspective variables. These results can be found in Appendix J, Appendix K, Appendix L, and Appendix M.

This study also controlled for state-specific time trends. The benefit of controlling for state-specific time trends is that it controls for changes within a state over time that may be associated with the implementation of work-family policies.

Finally, the analysis has also been clustered by state to adjust for standard errors, since the Breusch-Pagan test finds evidence of heteroscedasticity (Solon, Haider, and Wooldridge, 2013).

Table 14. Summary Statistics

VARIABLES	(1) Observations	(2) Standard Deviation	(3) Mean	(4) Minimum	(5) Maximum
Paid Family Leave	850	0.182	0.0341	0	1
Paid Sick Leave	850	0.108	0.0118	0	1
Breastfeeding at Work	850	0.491	0.402	0	1
Whether 25% or more of State Legislature is Female	846	0.494	0.418	0	1
Governor is Female	835	0.346	0.139	0	1
Some Marijuana Sales Legal	850	0.113	0.0129	0	1
General Right-to-Work Law	850	0.498	0.455	0	1
Affirmative Action Ban	850	0.306	0.105	0	1
Background Checks Required at Private Sales or Gun Shows	850	0.437	0.256	0	1
Active Cap on Greenhouse Gas Emissions from Electric Power	850	0.308	0.106	0	1

Producers					
Minimum Wage is Greater than Federal Wage	850	0.479	0.356	0	1
Unemployment Rate	850	1.986	5.780	2.300	13.70
Governor is Democrat	850	0.497	0.441	0	1
Fraction of State House that is Democrat	833	0.163	0.503	0.130	0.920
Fraction of State Senate that is Democrat	833	0.177	0.492	0.0882	0.960
State EITC Rate	850	0.0973	0.0574	0	0.850
WIC Participation	850	225,959	159,022	10,757	1.472e+06
Population	850	6.690e+06	6.057e+06	494,300	3.925e+07
Hispanic Population (%)	850	0.0878	0.0860	0.0100	0.450
Infant Mortality	849	1.366	6.568	3.700	11.30
High School Degree (%)	850	0.0510	0.508	0.290	0.610
Children in Single Families (%)	850	0.0661	0.327	0.170	0.680
Children in Poverty (%)	850	0.0540	0.186	0.0600	0.360

### Descriptive Findings

Descriptive statistics are provided in Table 15. The following statistically significant descriptive results were found. In states which have enacted paid family leave, 28 percent of state legislators were female. On the other hand, in states without paid family leave, 23 percent of state legislators were female. Likewise, in states with and without paid sick leave, 28 percent and 23 percent of state legislators were female. The same trend holds true in case of breastfeeding at work laws. In states with breastfeeding at work legislation, 25 percent state legislators were female. On the other hand, in states without breastfeeding at work legislation, 22 percent of state legislators were female.

It also worth emphasizing that in states which have enacted paid sick leave, 80 percent have a Democrat governor. In contrast, in states without paid sick leave, 44 percent have a Democrat governor. Similarly, in states with and without breastfeeding at work legislation, 52 percent and 39 percent, respectively have a Democrat governor.

Table 15. Comparison of Female Legislators in States with and without Work-Family Policies

	Percent of Female State Legislators	Governor is Female	Governor is Democrat	Children in Poverty (%)
States without Paid Family Leave	23.25***	0.14	0.44	0.19
Number of Observations	817	806	821	821
States with Paid Family Leave	28.25***	0.97	0.48	0.18
Number of Observations	29	29	29	29
States without Paid Sick Leave Law	23.37*	0.14	0.44**	0.19
Number of Observations	836	825	840	840
States with Paid Sick Leave Law	27.67*	0.1	0.80**	0.17
Number of Observations	10	10	10	10
States without Breastfeeding at Work Law	22.33***	0.12*	0.39***	0.18
Number of Observations	507	493	508	508
States with Breastfeeding at Work Law	25.04***	0.16*	0.52***	0.19
Number of Observations	339	342	342	342

Note: \*\*\*  $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$

### Empirical Results

The results of the regression are presented in Table 16, Table 17, and Table 18. When states have more than 25 percent females in the state legislature and the governor is a female, there is not a statistically significant effect on any of the three work-family policies included in the study (Table 16, Table 17, and Table 18). Thus, the results do not support the hypothesis of this study that when more than 25 percent legislators are female and there is a female governor in the state, it increases the likelihood of work-family policy legislations (Table 16, Table 17, and Table 18). In addition, there is no statistically significant effect when there are more than 15 percent, 20 percent, 30 percent, and 35 percent female state legislators. These trends hold true when not controlling for state fixed effects (Appendix F, Appendix G, Appendix H, and

Appendix I) and not controlling for the policy perspective variables (Appendix J, Appendix K, Appendix L, and Appendix M).

However, this study found a one percent increase in female state legislators is associated with a one percent increase in the likelihood of adopting paid family leave (Table 19).

Finally, most of the control variables are not statistically significant predictors of states' work-family law adoption.



Table 16. Adoption of Paid Family Leave

VARIABLES	(1) 15 percent female legislators	(2) 20 percent female legislators	(3) 25 percent female legislators	(4) 30 percent female legislators	(5) 35 percent female legislators
X percent of female legislators	-0.000278 (0.00520)	0.0407 (0.0262)	0.0693 (0.0431)	0.0305 (0.0283)	0.00662 (0.0110)
Governor is Female	-0.0114 (0.0113)	0.0418 (0.0391)	0.0192 (0.0165)	0.0269 (0.0178)	0.0157 (0.0140)
Interaction term- X percent of female legislators and Governor is a Female	0.0278 (0.0195)	-0.0328 (0.0410)	-0.0165 (0.0250)	-0.0434 (0.0286)	-0.00792 (0.0219)
Governor is Democrat	-0.00705 (0.0164)	-0.00770 (0.0168)	-0.00575 (0.0166)	-0.00586 (0.0151)	-0.00666 (0.0165)
Background Checks Required at Private Sales or Gun Shows	-0.00394 (0.0210)	-0.00569 (0.0204)	0.000783 (0.0272)	-0.00143 (0.0184)	-0.00377 (0.0209)
Some Marijuana Sales Legal	-0.00788 (0.0155)	-0.0101 (0.0145)	-0.0102 (0.0133)	-0.0253 (0.0210)	-0.00814 (0.0155)
General Right-to-Work Law	-0.00788 (0.00946)	-0.00681 (0.0102)	-0.00457 (0.0121)	-0.00406 (0.00962)	-0.00693 (0.00944)
Affirmative Action Ban	0.00375 (0.0183)	-0.00403 (0.0268)	0.00396 (0.0188)	-0.00144 (0.0186)	0.00169 (0.0214)
Minimum Wage is Greater than Federal Wage	-0.0206 (0.0181)	-0.0202 (0.0178)	-0.0195 (0.0169)	-0.0190 (0.0179)	-0.0205 (0.0180)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	0.0115 (0.110)	0.00713 (0.107)	0.00431 (0.103)	0.0126 (0.108)	0.0108 (0.110)
Fraction of State House that is Democrat	0.0121 (0.0728)	0.00129 (0.0707)	-0.0163 (0.0745)	-0.00317 (0.0687)	0.0101 (0.0727)
Fraction of State Senate that is Democrat	0.00702 (0.0482)	0.0102 (0.0513)	0.0301 (0.0584)	0.00841 (0.0449)	0.00626 (0.0451)
WIC Participation	3.38e-07 (3.23e-07)	3.34e-07 (3.26e-07)	3.39e-07 (3.13e-07)	3.43e-07 (3.25e-07)	3.38e-07 (3.24e-07)
State EITC Rate	-0.116 (0.0896)	-0.120 (0.0801)	-0.151 (0.0939)	-0.118 (0.0898)	-0.115 (0.0896)
Unemployment Rate	-0.00597 (0.00570)	-0.00619 (0.00596)	-0.00580 (0.00567)	-0.00573 (0.00564)	-0.00590 (0.00568)
Population	5.93e-08	7.63e-08	6.06e-08	4.82e-08	5.92e-08

	(7.85e-08)	(7.96e-08)	(8.03e-08)	(6.39e-08)	(7.91e-08)
Hispanic Population (%)	0.129 (0.809)	0.206 (0.855)	-0.0417 (0.773)	0.243 (0.806)	0.186 (0.799)
High School Degree (%)	0.0557 (0.0379)	0.0642 (0.0410)	0.0730* (0.0415)	0.0611 (0.0404)	0.0558 (0.0375)
Children in Single Families (%)	-0.0805 (0.0905)	-0.0837 (0.0948)	-0.0723 (0.0842)	-0.0642 (0.0869)	-0.0790 (0.0921)
Children in Poverty (%)	0.0213 (0.0714)	0.0227 (0.0710)	0.0202 (0.0684)	-0.00200 (0.0754)	0.0198 (0.0728)
Infant Mortality (%)	-0.00462 (0.00542)	-0.00521 (0.00484)	-0.00369 (0.00515)	-0.00574 (0.00574)	-0.00481 (0.00558)
Constant	-0.354 (3.353)	-0.0246 (3.647)	-1.255 (3.428)	0.0561 (3.256)	-0.143 (3.147)
Observations	817	817	813	817	817
R-squared	0.845	0.847	0.851	0.847	0.845
State Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
State-Specific Time Trends	YES	YES	YES	YES	YES

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 17. Adoption of Paid Sick Leave

VARIABLES	(1) 15 percent female legislators	(2) 20 percent female legislators	(3) 25 percent female legislators	(4) 30 percent female legislators	(5) 35 percent female legislators
X percent of female legislators	0.00146 (0.00459)	0.00727 (0.00936)	-0.0207 (0.0146)	-0.0207 (0.0146)	0.000802 (0.0153)
Governor is Female	-0.00224 (0.00718)	0.00896 (0.0129)	0.0112 (0.0124)	-0.0273 (0.0401)	-0.0208 (0.0418)
Interaction term- X percent of female legislators and Governor is a Female	-0.0196 (0.0429)	-0.0350 (0.0400)	-0.0511 (0.0583)	0.0244 (0.0314)	-0.0296 (0.0343)
Governor is Democrat	-0.00131 (0.0188)	-0.00216 (0.0183)	-0.00254 (0.0179)	-0.00235 (0.0187)	-0.00205 (0.0183)
Background Checks Required at Private Sales or Gun Shows	0.0398 (0.0251)	0.0398 (0.0250)	0.0383 (0.0258)	0.0374 (0.0237)	0.0398 (0.0254)
Some Marijuana Sales Legal	0.0578 (0.118)	0.0572 (0.119)	0.0580 (0.123)	0.0692 (0.117)	0.0572 (0.118)
General Right-to-Work Law	-0.0130 (0.0179)	-0.0115 (0.0167)	-0.00616 (0.0140)	-0.0151 (0.0175)	-0.0129 (0.0185)
Affirmative Action Ban	0.00279 (0.0109)	-0.00281 (0.00985)	0.00308 (0.0153)	0.00566 (0.0176)	0.00942 (0.0172)
Minimum Wage is Greater than Federal Wage	-0.00946	-0.00936	-0.00810	-0.0105	-0.00963

Active Cap on Greenhouse Gas Emissions from Electric Power Producers	(0.00823) -0.0410	(0.00819) -0.0417	(0.00703) -0.0464	(0.00873) -0.0416	(0.00847) -0.0413
Fraction of State House that is Democrat	(0.0298) -0.0686	(0.0299) -0.0669	(0.0340) -0.0623	(0.0296) -0.0549	(0.0303) -0.0663
Fraction of State Senate that is Democrat	(0.0679) -0.0162	(0.0642) -0.0174	(0.0605) -0.00344	(0.0515) -0.0180	(0.0645) -0.0123
WIC Participation	(0.0340) -5.20e-07	(0.0349) -5.21e-07	(0.0309) -5.21e-07	(0.0400) -5.22e-07	(0.0319) -5.21e-07
State EITC Rate	(5.33e-07) 0.700***	(5.31e-07) 0.703***	(5.36e-07) 0.695***	(5.33e-07) 0.701***	(5.34e-07) 0.698***
Unemployment Rate	(0.206) -0.00407	(0.207) -0.00406	(0.194) -0.00400	(0.205) -0.00427	(0.203) -0.00416
Population	(0.00392) 1.44e-07	(0.00391) 1.51e-07	(0.00378) 1.47e-07	(0.00405) 1.52e-07	(0.00396) 1.42e-07
Hispanic Population (%)	(1.09e-07) 0.819	(1.11e-07) 0.909	(1.08e-07) 0.950	(1.14e-07) 0.742	(1.09e-07) 0.765
High School Degree (%)	(1.209) -0.0427	(1.210) -0.0427	(1.167) -0.0424	(1.238) -0.0460	(1.244) -0.0440
Children in Single Families (%)	(0.0612) 0.0349	(0.0618) 0.0318	(0.0630) 0.0439	(0.0619) 0.0248	(0.0612) 0.0355
Children in Poverty (%)	(0.0496) -0.103	(0.0468) -0.102	(0.0565) -0.109	(0.0476) -0.0886	(0.0487) -0.102
Infant Mortality (%)	(0.0929) -0.00104	(0.0915) -0.00157	(0.0955) -0.000994	(0.0841) -0.000362	(0.0908) -0.00105
Constant	(0.00281) 4.780	(0.00266) 5.319	(0.00280) 4.938	(0.00280) 4.575	(0.00292) 4.556
	(5.799)	(5.809)	(5.578)	(5.811)	(5.892)
Observations	817	817	813	817	817
R-squared	0.633	0.633	0.637	0.634	0.633
State Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
State-Specific Time Trends	YES	YES	YES	YES	YES

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 18. Adoption of Breastfeeding at Work Legislation

VARIABLES	(1) 15 percent female legislators	(2) 20 percent female legislators	(3) 25 percent female legislators	(4) 30 percent female legislators	(5) 35 percent female legislators
X percent of female legislators	-0.0975** (0.0439)	-0.0235 (0.0530)	0.00936 (0.0389)	0.0171 (0.0407)	0.0731 (0.112)
Governor is Female	-0.170 (0.121)	-0.104* (0.0546)	-0.0712** (0.0315)	-0.0522* (0.0292)	-0.0616 (0.0411)
Interaction term- X	0.107	0.0427	0.00162	-0.0527	0.0380

percent of female  
legislators and Governor  
is a Female

	(0.126)	(0.0634)	(0.0579)	(0.0629)	(0.125)
Governor is Democrat	0.0530 (0.0342)	0.0544 (0.0343)	0.0526 (0.0335)	0.0527 (0.0345)	0.0573* (0.0339)
Background Checks Required at Private Sales or Gun Shows	-0.108 (0.0803)	-0.110 (0.0790)	-0.110 (0.0815)	-0.113 (0.0798)	-0.107 (0.0732)
Some Marijuana Sales Legal	-0.221*** (0.0466)	-0.223*** (0.0474)	-0.223*** (0.0468)	-0.238*** (0.0524)	-0.227*** (0.0471)
General Right-to-Work Law	-0.0737 (0.0598)	-0.0663 (0.0603)	-0.0643 (0.0598)	-0.0596 (0.0593)	-0.0628 (0.0620)
Affirmative Action Ban	-0.0788 (0.0839)	-0.0880 (0.0963)	-0.0963 (0.102)	-0.102 (0.107)	-0.0896 (0.113)
Minimum Wage is Greater than Federal Wage	0.00663 (0.0285)	0.00973 (0.0285)	0.0119 (0.0293)	0.0112 (0.0291)	0.00843 (0.0288)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	0.0623 (0.115)	0.0656 (0.115)	0.0660 (0.116)	0.0648 (0.115)	0.0620 (0.112)
Fraction of State House that is Democrat	-0.156 (0.220)	-0.147 (0.224)	-0.186 (0.224)	-0.139 (0.241)	-0.161 (0.230)
Fraction of State Senate that is Democrat	0.0524 (0.187)	0.0108 (0.205)	0.0291 (0.209)	0.00300 (0.206)	-0.0330 (0.210)
WIC Participation	1.80e-07 (3.77e-07)	1.93e-07 (3.78e-07)	1.64e-07 (3.78e-07)	1.98e-07 (3.82e-07)	2.09e-07 (3.77e-07)
State EITC Rate	-0.346 (0.381)	-0.348 (0.375)	-0.342 (0.376)	-0.351 (0.385)	-0.335 (0.381)
Unemployment Rate	0.00805 (0.00650)	0.00819 (0.00659)	0.00911 (0.00662)	0.00798 (0.00676)	0.00814 (0.00639)
Population	1.78e-07 (1.96e-07)	1.70e-07 (2.01e-07)	1.79e-07 (2.02e-07)	1.79e-07 (2.02e-07)	2.04e-07 (2.05e-07)
Hispanic Population (%)	-0.492 (2.515)	-0.900 (2.618)	-0.662 (2.565)	-0.787 (2.558)	-0.639 (2.538)
High School Degree (%)	-0.0161 (0.147)	-0.0277 (0.153)	-0.0263 (0.149)	-0.0195 (0.152)	-0.0213 (0.147)
Children in Single Families (%)	0.0646 (0.137)	0.0739 (0.134)	0.0891 (0.137)	0.0855 (0.137)	0.0859 (0.133)
Children in Poverty (%)	0.166 (0.182)	0.157 (0.178)	0.128 (0.173)	0.138 (0.179)	0.141 (0.175)
Infant Mortality (%)	0.00156 (0.0108)	0.00125 (0.0108)	0.00162 (0.0106)	-0.000528 (0.0106)	-0.000212 (0.0113)

Constant	-94.69*** (9.843)	-102.1*** (8.319)	-102.1*** (8.073)	-101.5*** (8.202)	-99.77*** (8.094)
Observations	817	817	813	817	817
R-squared	0.891	0.890	0.892	0.890	0.891
State Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES
State-Specific Time Trends	YES	YES	YES	YES	YES

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 19. Continuous Variable - Percent of Female Legislators

VARIABLES	(1) Paid Family Leave	(2) Paid Sick Leave	(3) Breastfeeding at Work
Percent of female legislators	0.00949* (0.00505)	-0.000802 (0.00107)	-0.00628 (0.00730)
Governor is female	0.00948 (0.0116)	-0.0192 (0.0409)	-0.0656** (0.0326)
Governor is Democrat	-0.00444 (0.0161)	-0.00188 (0.0185)	0.0508 (0.0339)
Background Checks Required at Private Sales or Gun Shows	0.00859 (0.0228)	0.0384 (0.0249)	-0.119 (0.0797)
Some Marijuana Sales Legal	-0.0421 (0.0263)	0.0613 (0.118)	-0.200*** (0.0539)
General Right-to-Work Law	-0.00839 (0.0107)	-0.0128 (0.0184)	-0.0634 (0.0592)
Affirmative Action Ban	0.0192 (0.0258)	0.00429 (0.0167)	-0.110 (0.100)
Minimum Wage is Greater than Federal Wage	-0.0208 (0.0178)	-0.00991 (0.00873)	0.0122 (0.0283)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	7.82e-05 (0.103)	-0.0432 (0.0324)	0.0739 (0.116)
Fraction of State House that is Democrat	-0.0404 (0.0837)	-0.0603 (0.0660)	-0.148 (0.226)
Fraction of State Senate that is Democrat	-0.0248 (0.0555)	-0.0119 (0.0341)	0.0487 (0.203)
WIC Participation	3.10e-07 (3.04e-07)	-5.20e-07 (5.33e-07)	1.81e-07 (3.75e-07)
State EITC Rate	-0.146* (0.0849)	0.695*** (0.199)	-0.316 (0.354)
Unemployment Rate	-0.00579 (0.00556)	-0.00412 (0.00393)	0.00904 (0.00670)
Population	7.48e-08 (7.47e-08)	1.44e-07 (1.09e-07)	1.68e-07 (2.05e-07)

Hispanic Population (%)	-0.0192 (0.716)	0.779 (1.239)	-0.487 (2.541)
High School Degree (%)	0.0674 (0.0410)	-0.0431 (0.0613)	-0.0362 (0.151)
Children in Single Families (%)	-0.0669 (0.0837)	0.0379 (0.0529)	0.0791 (0.136)
Children in Poverty (%)	0.0111 (0.0676)	-0.103 (0.0927)	0.135 (0.174)
Infant Mortality (%)	-0.00438 (0.00551)	-0.000790 (0.00294)	0.00118 (0.0108)
Constant	-2.413 (3.322)	4.782 (5.811)	-100.5*** (8.479)
Observations	813	813	813
R-squared	0.853	0.634	0.892
State Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
State-Specific Time Trends	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### Discussion

Overall, the results of this study indicated that female legislative representation did not predict the adoption of work-family policies. There was not a statistically significant relationship between state female legislative representation and the passage of work-family laws. The results of this study differ from those of some previous studies (Caiazza, 2004, Thomas, 1991), who found that women in state legislatures help women-friendly workplace policies. While the results differ, it should be noted that though the variables used in these previous studies were related to family-friendly workplace policies, they were not necessarily the family-friendly workplace policies included in this study. For example, Caiazza (2004) examined women-friendly policies relating to welfare, domestic violence, child support, and employment and unemployment benefits. Furthermore, these studies used historical data. Caizza (2004) used state-level data from 1996 and Thomas (1991) used individual-level data from 1988.

There are several possible explanations for the results in this study. The results could be explained by the theories of passive and active representation. Wilkins and Keiser (2004) discussed that the relationship between passive and active representation of women only occurs under certain conditions. It should be noted that while these conditions were discussed in the context of bureaucracies, they are applicable to legislators as well. The first condition for this relationship to hold true is that the policy area must be salient for the demographic group (Wilkins & Keiser, 2004). While it is true that paid family leave and breastfeeding at work are important issues for women, there may be other issues that may be more pertinent, such as affordable childcare, equal pay, and sexual harassment. Based on this example, this condition would be violated.

The second condition discussed is that women, as a class, should directly benefit from the particular policy (Wilkins & Keiser, 2004). As Wilkins and Keiser (2004) discuss, policies that benefit women through the child or spouse do not count and are deemed to be an indirect benefit. Paid sick leave could be argued to directly benefit women, as it allows them to recover from their illness. Paid family leave could also be argued to directly benefit mothers, since it allows mothers the time to recover following childbirth and hospitalization. However, it should be realized that paid family leave is also used for other purposes, such as employees taking care of themselves or their family members when they are sick, particularly for an extended period of time. Breastfeeding at the workplace directly benefits women, as a class, however, it could be argued that it only benefits women who have a very young child. Thus, it can be argued that friendly work-family policies included in this study may not solely benefit a particular group, in this case women as a class, and the second condition may be partly violated.

The last condition is that the policy issue must be perceived as a gender-related issue (Wilkins & Keiser, 2004). While breastfeeding at work could be argued as a women-oriented issue, it could also be argued that paid sick leave and paid family leave are not solely women-related issues. These legislations could be framed as an issue which affect children and families. At the same time, these legislations could also be framed as a business and economic issue, since they affect the productivity and profit of firms, though, contrary to the common belief, they might not hurt the profit and productivity of the firms. Thus, the third condition is arguably violated.

Since two out of the three conditions were violated in this study, it may explain why female legislative representation thresholds, at least those included in this study, did not have a statistically significant effect on the likelihood that work-family policies are adopted.

The second explanation for not having a positive relationship between female legislative representation and friendly work-family policies is that there a number of states which experienced a decline in female representation during this time period, for example, Washington and Kansas. State trends in the percent of females in state legislation are shown in Appendix N. It is possible that when there is a decline in representation, female legislators have a lower likelihood of successfully passing friendly work-family legislation.

Finally, the results can be explained by the limitations of the model. As previously mentioned, the disadvantage of controlling for state-fixed effects is it only identifies states that change over time. During this time period, 28 states adopted breastfeeding at the workplace legislation. However, only four states adopted paid family leave and five states adopted paid sick leave, which is arguably a small number of states. Additionally, while state fixed effects account for omitted factors that vary across state, there may be other unobserved factors which are not



being accounted for in the model (Hessel et al., 2020). For example, the model does not account for factors that vary over time, such as the level of political polarization in the U.S. Congress. It is possible that when the U.S. Congress becomes more polarized, state legislatures become more polarized too. The political culture in the United States can be characterized as extremely partisan and polarizing, without any blame or praise to one party or another. During the past two decades, it has been seen that many legislations are introduced, and, ultimately, pass or fail primarily on party lines. Even if the issues are women-related, they would be supported or opposed based on party lines, regardless of the number of female legislators in any party. Probably, an exception is the passage of Families First Coronavirus Response Act, which was introduced, went through the entire legislative process, and signed into law by the President on March 18, 2020, within a span of just two weeks. This level of cooperation and legislative speed, which was in the wake of ongoing Coronavirus (COVID-19) is rare.

Despite some limitations, this study provides insight on the role that state female legislators have on the adoption of friendly work-family legislation. The findings of this study may suggest that the adoption of such legislation is not solely dependent on the percent of female legislators, but rather on a multitude of political factors. Thus, female legislators may need to collaborate with other stakeholders to effectively pass such legislation.

## CHAPTER 5

### SUMMARY AND CONCLUSION

*When you put more money in the pockets of working families, they spend it on groceries, gas, school supplies, and other goods and services. And that helps businesses grow and create jobs. So many forward-looking employers, large and small, understand this.*

—Tom Perez, *Former U.S. Secretary of Labor*

#### Summary

The overarching theme of this dissertation is the availability of national paid family and medical leave in the United States. In this dissertation, three distinct but interrelated empirical studies have been conducted as three different chapters, all around this theme, and each study presents the theoretical framework, methodology, and policy implications underlying a national paid family leave policy. Chapter 1 is an introduction chapter highlighting the need and justification for a national paid family leave, followed by three empirical chapters addressing different aspects of the paid family leave. In Chapter 2, the impact of paid family leave on health outcomes of children has been examined, based on data from 35 OECD countries, demonstrating the need for paid family leave in the United States. Chapter 3 examines the impact of paid family leave on female labor market outcomes, which is one of the most important implications of a paid family leave policy. Chapter 4 addresses the development and implementation of paid family leave policy by examining whether more female legislative representation in a state has a better likelihood of the state adopting paid family leave and other family-friendly workplace policies.

The overarching goal of the studies presented in Chapter 2, Chapter 3, and Chapter 4 is to test the hypotheses that paid family leave has positive impacts on the health outcomes of children and on mothers' labor force outcomes, and that female legislative representation facilitates the adoption of friendly work-family policies. In general, the hypotheses for Chapter 2 are supported, adding to the evidence that paid family leave positively affects children and parents. The study in Chapter 3 finds that paid family leave has a negative impact on labor market outcomes for mothers with an infant and child, which does not support the hypothesis of Chapter 3. This is an intended consequence of paid family leave and measures have been identified to mitigate this. However, it was found that paid family leave has a positive impact on the labor market outcomes for mothers with just an infant, which is an important segment of today's American workforce. In Chapter 4, no linkage was found between female legislative representation and the adoption of friendly work-family policies, and, thus, the hypothesis of this chapter is not supported. Collaboration with other stakeholders and buy-in of the public during the legislative process would make female legislative representation more effective.

Overall, the findings of this study suggest that paid family leave is beneficial to working families, particularly young families, considering the better health outcomes for children and better labor market outcomes for mothers with just an infant.

### Implications of the Findings

The results of these studies provide important policy and research implications. In Chapter 2, it is found that while paid family leave improves children health outcomes, its beneficial impact is not immediate and it takes a few years to see the benefits. The awareness of employees and employers with a new law is an issue. Both employees and employers need some time to learn their rights, responsibilities, and obligations. There needs to be a phase-in period, of

at least six months, for employers to be aware of such legislation (Goodman, Elser, & Dow, 2020; Klerman et al., 2014). Though the education and training with the new law would be an ongoing process, this phase-in period would allow sufficient time for the employers to understand the law and get started. This is important since employers are the first source of information for their employees (Goodman, Elser, & Dow, 2020; Klerman et al., 2014). For example, Goodman et al. (2020) examined the level of workers' awareness of San Francisco Paid Parental Leave Ordinance, which requires employers to provide supplemental compensation to employees who are receiving California's paid family leave benefits so the employees have a fully paid family leave for up to eight weeks. The study found that Medicaid covered respondents were less likely to report receiving information about available maternity leave benefits through their employer compared to non-Medicaid covered respondents (Goodman et al., 2020). Thus, governments must ensure that employers are providing notices to employees regarding their benefits.

The delayed effect of paid family leave on health outcomes may partly be attributed to the lack of compliance by employers (Klerman et al., 2014). For example, Klerman et al. (2014) surveyed employees and employers regarding their experiences with the FMLA. The survey found that about 30 percent of employers stated that complying with the FMLA was "somewhat difficult" (Klerman et al., 2014). It is possible that the compliance rate is not high because some employers do not know where the information is available. There may be some fear in some to call an enforcing agency thinking that inquiry or call might lead to some other problems for them. Thus, there needs to be a better connection between the enforcing agency, employees, and employers. There should be outreach efforts from the enforcing agency publicizing that they are

there to help understand and implement the law. The federal enforcing agency can partner with the state and local governments to spread the message.

At the same time, it is possible that some employers are intentionally not complying (Klerman et al., 2014). For instance, under the FMLA, employers are not permitted to pressure their employees to return to work (Klerman et al., 2014). The survey found that 12 percent of eligible employees reported returning back to work due to feeling pressured. From the perspective of an employer, any additional benefit to employees may be perceived as an additional burden to running the business as it adds to the cost. Thus, there may be reluctance from some employers in supporting paid family leave and implementing it when it becomes a law. Once adopted, employers may engage in discriminatory practices. Employers may be less likely to hire and promote female employees to higher positions. They may also find other arrangements for the employees and convert their status from a full-time to part-time employee. These discriminatory practices may explain why Chapter 3 finds a decrease in employment and full-time status for mothers with both an infant and child in states with paid family leave.

Female employees paying motherhood penalty has been cited an issue in previous studies (Lequien, 2012; Drange & Rege, 2013; Schönberg & Ludsteck, 2014; Rossin-Slater, 2017; Bailey et al., 2019). The situation may exacerbate if there is national paid family mandate in the United States. Other countries have experienced this and some have come up with measures to control the discriminatory practices of employers. Mandating a shared paid family leave between father and mother is one such new measure, adopted by countries like Iceland and Norway (Wharton, 2019; Johnsen, Ku, & Salvanes, 2020). In this shared paid family leave policy, the share of leave between fathers and mothers is non-transferrable. It is a “use-it-or-lose-it” proposition. In June 2019, the European Commission passed a directive mandating two months

of paternity leave out of four months of parental leave, which is aimed at achieving equality between men and women in their labor market opportunities and treatment at work (European Council, 2019).

While a majority of employers find paid family leave to have a little to minimal adversarial effect on businesses, there is still a small percentage of employers that finds paid family leave to be burdensome (Appelbaum & Milkman, 2011; Bartel et al., 2017). Bartel et al. (2017), which surveyed employers in New Jersey and New York, found that 15 percent of employers were somewhat or very opposed of their state-mandated family leave programs. This could be an additional reason why Chapter 4 did not find a linkage between female legislative representation and the adoption of friendly work-family legislation. The success of adopting such legislation may depend on the support from the public. Thus, female legislators need to better communicate that paid family leave is beneficial to both employees and employer alike, and paid family leave is a value proposition to businesses and employers. There is a need for legislators to communicate this value proposition to employers in a way, which is simple, understandable, and quantifiable.

#### Limitations

While these chapters provide important insight, there are still questions that remain to be answered and these unanswered questions present opportunities for future research. In Chapter 2, it was found that the adoption of paid maternity improves the neonatal, infant, and under-five mortality after two years. However, the study did not account for factors such as wage replacement rate and the minimum number of weeks that employees need to work in order to receive paid leave. An important question that remains is whether a progressive paid family leave policy would improve the health outcomes of children, particularly from low-income

households. It is possible that low-income individuals are more likely to use paid family leave if there is a higher wage replacement and low minimum number of weeks threshold. This is primarily because low-income individuals cannot afford to lose significant portion of their paycheck. Additionally, low-income individuals who work multiple jobs may not be able to meet the minimum number of weeks threshold. These trends could have been validated if the uptake rate for the paid family leave programs was available in the data.

In Chapter 3, it was found that paid family leave may have a negative impact on the labor market, since employees may fear that using paid family leave will lead to potential adversarial consequence on the advancement of their career. However, this analysis did not account for factors such as the tenure and managerial status of female employees. A question that still remains is whether female employees who are new to their organization are less likely to utilize paid family leave compared to tenured employees. Female employees who have worked as managers and have worked with an organization for several years may have greater comfort and discretion in taking paid family leave. New employees, in contrast, may be less willing to take such leave. They may be more concerned with building their trust and reputation in the organization in order to advance their career and receive a promotion, or in other words developing and maintaining a competitive edge. It would have also been helpful if the CPS ASEC data had tracked the individuals over time to gain a better sense at whether paid family leave is retaining these employees.

Finally, Chapter 4 found that adoption of such legislation is not solely dependent on the percent of female legislators, but rather on a multitude of political factors. It would have been beneficial if the study accounted for factors such as the level of polarization in Congress and the amount of donation that legislators receive from certain political groups. A question that remains

is which political factors are taken into consideration when female legislators vote on a piece of legislation. Specifically, do female legislators' motivation to represent their female constituents outweigh other political factors? While female legislators may intend to alleviate the economic conditions of women, they may be pressured to vote in a particular manner. Legislators receive political support and donations from various groups to ensure their election or reelection. Thus, there is a possibility that female legislators are more concerned with their own interests than the interests of their constituents.

Overall, by addressing these questions, the existing literature on paid family leave would be strengthened. However, it should be acknowledged that some of the questions may be difficult to address due to the lack of data.

#### Future Research

The COVID-19 pandemic, which began in late 2019 and is on-going at the time of this writing, has put work-family policies at the front and center of conversation at all levels, including employees, employers, healthcare providers, legislators, and public administrators. Importance of many benefits are not realized in good times, but crises like these are a grim reminder that social issues directly or indirectly affect everyone. Social distancing is one of the public health strategies for controlling COVID-19 and many workers are looking for opportunities where they can isolate themselves from crowded public transportation systems and contacts with large groups of people. Realizing the gravity of the situation, many private, public, and academic institutions are either giving the option of telecommuting or mandating telecommuting.



In a bipartisan legislative initiative, Families First Coronavirus Response Act was passed, on March 18, 2020, which includes free COVID-19 testing and emergency paid leave.<sup>14</sup> The legislation also expanded unemployment benefits to those laid off due to COVID-19. The emergency paid leave portion of the Act covers a worker affected by the virus or someone the worker is caring for and who is affected by the virus. Emergency paid leave of up to three months, at a rate of two-thirds of monthly salary, with a cap of \$4,000 per month, is available under the Act.

Future research should examine whether the Families First Coronavirus Response Act improved the health outcomes of children and mothers, particularly for low-income individuals. This emergency paid leave may have made leave taking possible for mothers who otherwise would not have been able to take such leave. As a result, mothers may have been provided the time to recover and reduce the risk of infecting others. Future research should also examine whether the Families First Coronavirus Response Act improved the economic condition of mothers who lost their job. Specifically, research should examine whether the unemployment benefits mitigated household economic difficulties and provided mothers sufficient time to find employment.

Finally, research should examine whether female legislators were more likely to propose work-family oriented bills and legislation during this time period. It is possible that there is not a significant difference in the number of bills proposed by female and male legislators, considering there is a widespread effort to support families during this period.

---

<sup>14</sup> Families First Coronavirus Response Act, H.R. 6201, 116th Congress, (2019).

## Closing

This study serves as a foundation block in understanding the societal benefits and downsides of a national paid family leave policy. While there may be other friendly work-family legislations which can address the needs of working families, there is a growing need to address paid family leave, particularly in the light of the on-going COVID-19 crisis. Political champions are there, and more would emerge, who can shepherd this legislative initiative and can build a broad bipartisan coalition to turn the legislation into a law. The findings of this research can be used to educate stakeholders on the need, justification, challenges, and a general framework for the development and implementation of such a law.

APPENDIX A: MATERNITY LEAVE - COMMON YEAR TREND

VARIABLES	(1) Neonatal Mortality	(2) Infant Mortality	(3) Under 5 Mortality	(4) Measles Immunization
Lead Treatment (2 years)	0.0256 (0.0759)	0.0178 (0.0657)	0.00451 (0.0606)	0.0182 (0.0281)
Lead Treatment (1 year)	-0.00780 (0.0149)	-0.0157* (0.00832)	-0.0131 (0.00817)	-0.00621 (0.0124)
Treatment Year	-0.00206 (0.0416)	-0.00604 (0.0316)	0.00596 (0.0363)	-0.00941 (0.0203)
Lagged Treatment (1 year)	-0.0167 (0.0173)	-0.0194 (0.0150)	-0.0230* (0.0134)	0.0114 (0.0226)
Lagged Treatment (2 years)	-0.0868 (0.0673)	-0.0774 (0.0606)	-0.0866 (0.0616)	-0.00833 (0.0171)
GNI (current US dollars)	0** (0)	0** (0)	0* (0)	-0 (0)
Health Expenditure (% of GDP)	0.0405** (0.0186)	0.0313** (0.0137)	0.0296** (0.0142)	0.00735 (0.00783)
Family Benefits Public Spending (% of GDP)	0.0401 (0.0279)	0.0345 (0.0215)	0.0352 (0.0211)	0.0210* (0.0116)
Prevalence of Anemia Among Pregnant Women (%)	-0.0184 (0.0202)	-0.00242 (0.0210)	-0.00415 (0.0220)	0.00781 (0.00916)
Female Labor Force Participation Rate	-0.00998 (0.0152)	-0.00430 (0.0117)	-0.00333 (0.0117)	0.00266 (0.00559)
CO2 Emissions (kt)	6.36e-07 (7.17e-07)	6.70e-07 (5.24e-07)	6.48e-07 (5.09e-07)	5.08e-07 (4.24e-07)
Fixed Telephone Subscription (per 100 people)	-1.15e-08 (9.98e-09)	-1.26e-08 (7.71e-09)	-1.22e-08 (7.41e-09)	3.89e-09 (3.66e-09)
Individuals Using the Internet (% of the population)	-0.00180 (0.00184)	-0.000871 (0.00141)	-0.000727 (0.00135)	0.000713 (0.00103)
Total Population	-3.03e-09 (7.73e-09)	-2.69e-09 (6.96e-09)	-5.94e-09 (7.86e-09)	4.74e-09 (3.98e-09)
Constant	2.021** (0.928)	1.885** (0.812)	2.155** (0.863)	3.745*** (0.379)
Observations	723	723	723	722
R-squared	0.950	0.971	0.971	0.669
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX B: LENGTH OF PAID MATERNITY LEAVE - COMMON YEAR TREND

	(1)	(2)	(3)	(4)
Neonatal Mortality	Infant Mortality	Under 5 Mortality	Measles Immunization	Neonatal Mortality
Length of Paid Maternity Leave	-0.00874** (0.00420)	-0.00699* (0.00357)	-0.00660* (0.00369)	0.00148 (0.00122)
GNI (current US dollars)	0** (0)	0* (0)	0* (0)	-0 (0)
Health Expenditure (% of GDP)	0.0374* (0.0189)	0.0280* (0.0139)	0.0271* (0.0146)	0.00888 (0.00703)
Family Benefits Public Spending (% of GDP)	0.0416 (0.0335)	0.0359 (0.0256)	0.0372 (0.0250)	0.0247* (0.0126)
Prevalence of Anemia Among Pregnant Women (%)	-0.0173 (0.0216)	-0.00539 (0.0216)	-0.00759 (0.0223)	0.000807 (0.0101)
Female Labor Force Participation Rate	-0.0110 (0.0155)	-0.00549 (0.0119)	-0.00449 (0.0118)	0.00298 (0.00591)
CO2 Emissions (kt)	5.42e-07 (6.76e-07)	5.86e-07 (4.69e-07)	5.61e-07 (4.58e-07)	4.68e-07 (3.93e-07)
Fixed Telephone Subscription (per 100 people)	-1.14e-08 (9.83e-09)	-1.30e-08* (7.32e-09)	-1.26e-08* (7.05e-09)	3.64e-09 (3.64e-09)
Individuals Using the Internet (% of the population)	-0.00218 (0.00220)	-0.000947 (0.00163)	-0.000736 (0.00153)	0.000760 (0.00109)
Total Population	-3.35e-09 (6.69e-09)	-1.27e-09 (5.79e-09)	-4.65e-09 (6.48e-09)	5.87e-09* (3.39e-09)
Constant	2.202** (0.944)	2.142** (0.815)	2.421*** (0.861)	3.902*** (0.405)
Observations	764	764	764	761
R-squared	0.950	0.972	0.972	0.685
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX C: PAID PATERNITY LEAVE - COMMON YEAR TREND

VARIABLES	(1) Neonatal Mortality	(2) Infant Mortality	(3) Under 5 Mortality	(4) Measles Immunization
Lead Treatment (2 years)	-0.0489 (0.0322)	-0.0279 (0.0238)	-0.0254 (0.0223)	0.0100 (0.0114)
Lead Treatment (1 year)	0.00406 (0.0139)	-0.00582 (0.0112)	-0.00331 (0.0108)	-0.00722 (0.00792)
Treatment Year	0.0276 (0.0262)	0.0306 (0.0220)	0.0290 (0.0236)	-0.00854 (0.00876)
Lagged Treatment (1 year)	-0.0147 (0.0126)	-0.0265** (0.0118)	-0.0220* (0.0115)	-0.00609 (0.00943)
Lagged Treatment (2 years)	-0.0192 (0.0368)	-0.0109 (0.0306)	-0.0163 (0.0294)	-0.000633 (0.0147)
GNI (current US dollars)	0** (0)	0* (0)	0* (0)	-0 (0)
Health Expenditure (% of GDP)	0.0408* (0.0221)	0.0327* (0.0168)	0.0315* (0.0171)	0.00671 (0.00760)
Family Benefits Public Spending (% of GDP)	0.0460 (0.0309)	0.0409 (0.0243)	0.0423* (0.0240)	0.0212* (0.0117)
Prevalence of Anemia Among Pregnant Women (%)	-0.0198 (0.0225)	-0.00425 (0.0226)	-0.00627 (0.0235)	0.00818 (0.00900)
Female Labor Force Participation Rate	-0.0111 (0.0162)	-0.00510 (0.0124)	-0.00428 (0.0124)	0.00282 (0.00544)
CO2 Emissions (kt)	5.23e-07 (6.80e-07)	5.44e-07 (4.89e-07)	5.09e-07 (4.75e-07)	5.01e-07 (3.97e-07)
Fixed Telephone Subscription (per 100 people)	-9.33e-09 (9.04e-09)	-1.07e-08 (6.87e-09)	-1.02e-08 (6.60e-09)	4.11e-09 (3.84e-09)
Individuals Using the Internet (% of the population)	-0.00174 (0.00188)	-0.000764 (0.00138)	-0.000607 (0.00131)	0.000731 (0.00110)
Total Population	-4.92e-10 (8.16e-09)	-4.01e-10 (7.40e-09)	-3.62e-09 (8.24e-09)	4.66e-09 (3.89e-09)
Constant	2.065** (1.001)	1.925** (0.868)	2.204** (0.921)	3.736*** (0.378)
Observations	723	723	723	722
R-squared	0.949	0.971	0.971	0.670
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX D: LENGTH OF PAID PATERNITY LEAVE - COMMON YEAR TREND

VARIABLES	(1) Infant Mortality	(2) Under 5 Mortality	(3) Measles Immunization	(4) Neonatal Mortality
Length of Paid Paternity Leave	-0.00864 (0.0248)	-0.0175 (0.0208)	-0.0188 (0.0215)	-0.00857 (0.00873)
GNI (current US dollars)	0** (0)	0* (0)	0* (0)	-0 (0)
Health Expenditure (% of GDP)	0.0405* (0.0215)	0.0297* (0.0163)	0.0286* (0.0167)	0.00767 (0.00777)
Family Benefits Public Spending (% of GDP)	0.0419 (0.0331)	0.0359 (0.0254)	0.0372 (0.0247)	0.0243* (0.0126)
Prevalence of Anemia Among Pregnant Women (%)	-0.0219 (0.0221)	-0.00909 (0.0220)	-0.0111 (0.0228)	0.00154 (0.0104)
Female Labor Force Participation Rate	-0.0108 (0.0155)	-0.00518 (0.0115)	-0.00416 (0.0113)	0.00304 (0.00596)
CO2 Emissions (kt)	4.26e-07 (6.30e-07)	4.61e-07 (4.45e-07)	4.36e-07 (4.41e-07)	4.57e-07 (3.78e-07)
Fixed Telephone Subscription (per 100 people)	-1.02e-08 (9.16e-09)	-1.16e-08 (6.87e-09)	-1.13e-08 (6.67e-09)	3.75e-09 (3.73e-09)
Individuals Using the Internet (% of the population)	-0.00187 (0.00212)	-0.000633 (0.00154)	-0.000424 (0.00145)	0.000780 (0.00111)
Total Population	-1.86e-09 (6.85e-09)	-1.88e-10 (6.05e-09)	-3.64e-09 (6.72e-09)	5.50e-09 (3.36e-09)
Constant	2.284** (0.957)	2.216** (0.815)	2.493*** (0.853)	3.898*** (0.409)
Observations	764	764	764	761
R-squared	0.947	0.970	0.971	0.684
Country Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX E: ROBUSTNESS CHECKS - PRIOR YEAR DUMMIES

VARIABLES	(1) Employed	(2) Full-time	(3) Number of Hours	(4) Utilization of Paid Maternity Leave
Mothers with Infants	-0.252*** (0.00458)	-0.250*** (0.00377)	-8.692*** (0.177)	0.0288*** (0.00137)
State Paid Family Leave	0.00683* (0.00386)	0.00129 (0.00537)	0.580* (0.293)	0.000963*** (0.000251)
Mothers with Children	0.0141*** (0.00288)	-0.00678** (0.00278)	-0.0210 (0.108)	0.000243*** (8.35e-05)
Mothers with Infants in State with Paid Family Leave	-0.00224 (0.00627)	0.00942* (0.00557)	0.364* (0.198)	0.00167 (0.00211)
Mothers with Children in State with Paid Family Leave	-0.0320*** (0.00399)	-0.0126*** (0.00412)	-0.962*** (0.171)	-9.59e-05 (0.000149)
Black	0.00170 (0.00513)	0.0435*** (0.00403)	1.031*** (0.188)	0.000165** (7.94e-05)
Hispanic	-0.0412*** (0.00520)	0.00662 (0.00420)	-0.492*** (0.164)	-0.000445*** (9.91e-05)
Married	0.0300*** (0.00658)	0.0157*** (0.00485)	1.011*** (0.226)	0.000515*** (5.14e-05)
Number of Children	-0.0308*** (0.00111)	-0.0329*** (0.00196)	-1.364*** (0.0655)	-0.000639*** (7.16e-05)
Age of Youngest Child	- 0.00142*** (3.67e-05)	- 0.00133*** (4.84e-05)	-0.0595*** (0.00177)	-1.28e-05*** (1.47e-06)
College-Educated	0.110*** (0.00367)	0.0999*** (0.00321)	4.318*** (0.137)	0.00105*** (9.02e-05)
\$60,000 or more	0.349*** (0.00736)	0.419*** (0.00610)	15.59*** (0.274)	0.00201*** (0.000233)
Lives in Metropolitan Area	-0.00558 (0.00477)	0.00176 (0.00321)	-0.0678 (0.161)	7.93e-05 (8.07e-05)
State Paid Family Leave's Wage Replacement Rate	-0.00370 (0.00646)	0.0158 (0.0190)	-1.136 (0.918)	-0.000722 (0.000493)
State Paid Family Leave's Length of Leave	1.32e-05 (0.000636)	-0.00181 (0.00188)	-0.0320 (0.106)	-5.53e-05 (3.81e-05)
1 year prior to the Implementation of State Paid Family Leave	0.000637 (0.00470)	0.000275 (0.00733)	0.157 (0.406)	-0.000150 (0.000240)
2 years prior to the Implementation of State Paid Family Leave	-0.00210 (0.00470)	0.00196 (0.00467)	-0.0807 (0.160)	0.000289 (0.000298)
3 years prior to the Implementation of State Paid Family Leave	0.00137 (0.00170)	0.0164*** (0.00515)	0.646 (0.408)	-3.50e-05 (0.000155)
4 years prior to the Implementation of	- (0.00170)	0.00215 (0.00515)	0.301 (0.408)	-7.77e-06 (0.000155)

State Paid Family Leave	0.00850***			
	(0.00251)	(0.00343)	(0.372)	(0.000231)
Constant	1.012***	0.680***	47.37***	0.000731***
	(0.00694)	(0.00803)	(0.294)	(0.000209)
Observations	1,489,471	1,489,471	1,336,431	1,489,471
R-squared	0.177	0.124	0.219	0.023
State Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
P-value: Mothers with Infants in States with Paid Family Leave = Mothers with Children in States with Paid Family Leave	0.0000	0.0010	0.0000	0.4224

---

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



APPENDIX F: ADOPTION OF PAID FAMILY LEAVE - WITHOUT FIXED EFFECTS

VARIABLES	(1) 15 percent of female legislators	(2) 20 percent of female legislators	(3) 25 percent of female legislators	(4) 30 percent of female legislators	(5) 35 percent of female legislators
X percent of female legislators	-0.0388*	-0.0253**	0.0451	-0.00308	-0.0563**
	(0.0208)	(0.0118)	(0.0299)	(0.0255)	(0.0261)
Governor is Female	-0.0472	-0.0244	-0.00122	-0.000686	-0.0193
	(0.0420)	(0.0315)	(0.0173)	(0.0297)	(0.0250)
Interaction term - X percent of female legislators and Governor is a Female	0.0357	0.0151	-0.0277	-0.0437	0.0413
	(0.0378)	(0.0308)	(0.0316)	(0.0394)	(0.0432)
Governor is Democrat	-0.0214	-0.0209	-0.0208	-0.0195	-0.0193
	(0.0200)	(0.0202)	(0.0193)	(0.0204)	(0.0199)
Background Checks Required at Private Sales or Gun Shows	0.0881*	0.0906*	0.0818*	0.0838*	0.0831*
	(0.0461)	(0.0452)	(0.0454)	(0.0453)	(0.0441)
Some Marijuana Sales Legal	-0.0482*	-0.0479**	-0.0533*	-0.0414	-0.0316
	(0.0241)	(0.0231)	(0.0283)	(0.0290)	(0.0250)
General Right-to-Work Law	-0.0440*	-0.0466*	-0.0338	-0.0417*	-0.0426*
	(0.0252)	(0.0251)	(0.0225)	(0.0231)	(0.0246)
Affirmative Action Ban	0.0728	0.0761	0.0606	0.0741	0.0788
	(0.0637)	(0.0644)	(0.0586)	(0.0619)	(0.0649)
Minimum Wage is Greater than Federal Wage	-0.00972	-0.00734	-0.0170	-0.0106	-0.0100
	(0.0239)	(0.0236)	(0.0265)	(0.0244)	(0.0241)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	0.0611	0.0623	0.0575	0.0603	0.0637
	(0.0453)	(0.0450)	(0.0455)	(0.0443)	(0.0460)
Fraction of State House that is Democrat	-0.107	-0.100	-0.0835	-0.0845	-0.0989
	(0.111)	(0.109)	(0.0990)	(0.112)	(0.107)
Fraction of State Senate that is Democrat	0.0679	0.0570	0.0512	0.0644	0.0746
	(0.0929)	(0.0914)	(0.0799)	(0.0911)	(0.0926)
WIC Participation	7.21e-07*	7.23e-07*	7.18e-07*	7.27e-07*	7.26e-07*
	(3.88e-07)	(3.85e-07)	(3.83e-07)	(3.88e-07)	(3.89e-07)
State EITC Rate	0.116	0.122	0.0768	0.101	0.112
	(0.160)	(0.158)	(0.158)	(0.155)	(0.160)
Unemployment Rate	0.00219	0.00241	0.00208	0.00182	0.00201
	(0.00685)	(0.00692)	(0.00678)	(0.00706)	(0.00682)

Population	-1.42e-08 (8.76e-09)	-1.45e-08 (8.64e-09)	-1.31e-08 (8.92e-09)	-1.44e-08 (8.71e-09)	-1.46e-08 (8.83e-09)
Hispanic Population (%)	0.0616 (0.159)	0.0733 (0.159)	-0.0310 (0.155)	0.0510 (0.159)	0.0565 (0.159)
High School Degree (%)	0.00267 (0.0574)	-0.00267 (0.0593)	0.0136 (0.0593)	0.00396 (0.0590)	0.000158 (0.0572)
Children in Single Families (%)	0.121 (0.118)	0.120 (0.119)	0.137 (0.128)	0.128 (0.122)	0.101 (0.115)
Children in Poverty (%)	-0.0492 (0.121)	-0.0581 (0.117)	-0.0474 (0.125)	-0.0566 (0.119)	-0.0299 (0.114)
Infant Mortality (%)	-0.00578 (0.00836)	-0.00558 (0.00830)	-0.00231 (0.00866)	-0.00521 (0.00820)	-0.00469 (0.00830)
Constant	0.0409 (0.0722)	0.0254 (0.0745)	-0.0446 (0.0815)	-0.00480 (0.0689)	0.00128 (0.0685)
Observations	817	817	813	817	817
R-squared	0.372	0.372	0.377	0.371	0.373
State Fixed Effects	NO	NO	NO	NO	NO
Year Fixed Effects	NO	NO	NO	NO	NO
State-Specific Time Trends	NO	NO	NO	NO	NO

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX G: ADOPTION OF PAID SICK LEAVE - WITHOUT FIXED EFFECTS

VARIABLES	(1) 15 percent of female legislators	(2) 20 percent of female legislators	(3) 25 percent of female legislators	(4) 30 percent of female legislators	(5) 35 percent of female legislators
X percent of female legislators	-0.0192*	-0.0209*	-0.00337	-0.0513*	-0.0505
	(0.00980)	(0.0124)	(0.0117)	(0.0282)	(0.0304)
Governor is Female	-0.00723	-0.00615	0.00678	-0.0225	-0.00693
	(0.0110)	(0.0120)	(0.00596)	(0.0205)	(0.0183)
Interaction term - X percent of female legislators and Governor is a Female	0.00554	0.00767	-0.0131	0.0678*	0.0541
	(0.0149)	(0.0163)	(0.0258)	(0.0348)	(0.0434)
Governor is Democrat	0.00625	0.00610	0.00708	0.00731	0.00759
	(0.0140)	(0.0140)	(0.0145)	(0.0144)	(0.0144)
Background Checks Required at Private Sales or Gun Shows	0.0174	0.0207	0.0159	0.0169	0.0145
	(0.0209)	(0.0220)	(0.0208)	(0.0192)	(0.0192)
Some Marijuana Sales Legal	0.0763	0.0760	0.0776	0.100	0.0908
	(0.0911)	(0.0907)	(0.0922)	(0.0839)	(0.0892)
General Right-to-Work Law	0.0125	0.00988	0.0128	0.00593	0.0132
	(0.00878)	(0.00831)	(0.00853)	(0.00868)	(0.00891)
Affirmative Action Ban	-0.00161	0.00189	-0.00104	0.0120	0.00503
	(0.0168)	(0.0171)	(0.0163)	(0.0207)	(0.0185)
Minimum Wage is Greater than Federal Wage	0.0164	0.0187	0.0165	0.0143	0.0164
	(0.0125)	(0.0131)	(0.0127)	(0.0107)	(0.0120)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	0.0837*	0.0848*	0.0841*	0.0770*	0.0862*
	(0.0466)	(0.0466)	(0.0473)	(0.0423)	(0.0478)
Fraction of State House that is Democrat	-0.0509	-0.0493	-0.0468	-0.0438	-0.0484
	(0.0598)	(0.0601)	(0.0588)	(0.0671)	(0.0611)
Fraction of State Senate that is Democrat	0.00950	0.00151	0.0108	0.0112	0.0156
	(0.0700)	(0.0709)	(0.0683)	(0.0711)	(0.0682)
WIC Participation	-5.93e-08	-5.89e-08	-5.66e-08	-3.74e-08	-5.54e-08
	(8.05e-08)	(7.99e-08)	(7.97e-08)	(7.93e-08)	(8.17e-08)
State EITC Rate	0.148	0.156	0.146	0.194	0.149
	(0.127)	(0.130)	(0.128)	(0.139)	(0.127)
Unemployment Rate	-0.00251	-0.00230	-0.00256	-0.00273	-0.00262
	(0.00195)	(0.00194)	(0.00195)	(0.00202)	(0.00197)

Population	2.51e-09 (3.64e-09)	2.28e-09 (3.62e-09)	2.33e-09 (3.59e-09)	7.48e-10 (3.91e-09)	2.09e-09 (3.74e-09)
Hispanic Population (%)	0.0810 (0.0937)	0.0947 (0.101)	0.0850 (0.102)	0.144 (0.123)	0.0798 (0.0924)
High School Degree (%)	-0.0118 (0.0519)	-0.0170 (0.0526)	-0.0149 (0.0527)	-0.0257 (0.0544)	-0.0144 (0.0514)
Children in Single Families (%)	-0.0391 (0.0447)	-0.0390 (0.0446)	-0.0422 (0.0472)	-0.0641 (0.0516)	-0.0563 (0.0502)
Children in Poverty (%)	-0.0906* (0.0526)	-0.0986* (0.0568)	-0.0867 (0.0524)	-0.0574 (0.0466)	-0.0747 (0.0485)
Infant Mortality (%)	-0.000119 (0.00523)	-0.000476 (0.00499)	0.000298 (0.00535)	0.000772 (0.00533)	0.000357 (0.00536)
Constant	0.0511 (0.0392)	0.0548 (0.0413)	0.0321 (0.0361)	0.0462 (0.0387)	0.0348 (0.0361)
Observations	817	817	813	817	817
R-squared	0.131	0.134	0.130	0.151	0.137
State Fixed Effects	NO	NO	NO	NO	NO
Year Fixed Effects	NO	NO	NO	NO	NO
State-Specific Time Trends	NO	NO	NO	NO	NO

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX H: ADOPTION OF BREASTFEEDING AT WORK - WITHOUT FIXED EFFECTS

VARIABLES	(1) 15 percent of female legislators	(2) 20 percent of female legislators	(3) 25 percent of female legislators	(4) 30 percent of female legislators	(5) 35 percent of female legislators
X percent of female legislators	0.0291 (0.124)	-0.157 (0.117)	-0.0222 (0.116)	-0.0178 (0.102)	0.206* (0.119)
Governor is Female	0.214 (0.344)	-0.0871 (0.226)	-0.0290 (0.153)	0.0411 (0.106)	0.0934 (0.0981)
Interaction term - X percent of female legislators and Governor is a Female	-0.158 (0.362)	0.211 (0.254)	0.154 (0.212)	0.0972 (0.186)	-0.254 (0.266)
Governor is Democrat	0.0701 (0.0725)	0.0612 (0.0697)	0.0626 (0.0712)	0.0649 (0.0714)	0.0610 (0.0711)
Background Checks Required at Private Sales or Gun Shows	-0.128 (0.125)	-0.0852 (0.122)	-0.121 (0.121)	-0.120 (0.122)	-0.116 (0.127)
Some Marijuana Sales Legal	0.517*** (0.132)	0.510*** (0.130)	0.524*** (0.133)	0.520*** (0.136)	0.462*** (0.124)
General Right-to-Work Law	-0.0876 (0.123)	-0.111 (0.117)	-0.0935 (0.122)	-0.0915 (0.121)	-0.0858 (0.122)
Affirmative Action Ban	-0.0940 (0.172)	-0.0488 (0.172)	-0.0751 (0.177)	-0.0824 (0.170)	-0.111 (0.167)
Minimum Wage is Greater than Federal Wage	0.0756 (0.0824)	0.0945 (0.0813)	0.0685 (0.0808)	0.0725 (0.0818)	0.0699 (0.0826)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	0.334** (0.137)	0.344** (0.140)	0.334** (0.137)	0.333** (0.136)	0.324** (0.133)
Fraction of State House that is Democrat	-0.800* (0.425)	-0.850* (0.424)	-0.851** (0.410)	-0.828* (0.424)	-0.800* (0.428)
Fraction of State Senate that is Democrat	0.445 (0.458)	0.394 (0.459)	0.458 (0.461)	0.442 (0.456)	0.407 (0.463)
WIC Participation	1.72e-06** (7.97e-07)	1.70e-06** (8.21e-07)	1.72e-06** (8.12e-07)	1.73e-06** (8.06e-07)	1.72e-06** (7.98e-07)
State EITC Rate	0.449 (0.612)	0.572 (0.620)	0.506 (0.607)	0.501 (0.602)	0.451 (0.631)

Unemployment Rate	0.00444 (0.0154)	0.00631 (0.0155)	0.00694 (0.0153)	0.00525 (0.0156)	0.00531 (0.0153)
Population	-4.55e-08 (3.00e-08)	-4.69e-08 (3.07e-08)	-4.55e-08 (3.13e-08)	-4.65e-08 (3.07e-08)	-4.46e-08 (3.01e-08)
Hispanic Population (%)	0.272 (0.482)	0.412 (0.484)	0.248 (0.472)	0.297 (0.471)	0.245 (0.477)
High School Degree (%)	-0.257 (0.260)	-0.301 (0.264)	-0.276 (0.277)	-0.284 (0.272)	-0.274 (0.277)
Children in Single Families (%)	-0.494 (0.357)	-0.474 (0.361)	-0.485 (0.358)	-0.513 (0.366)	-0.420 (0.357)
Children in Poverty (%)	0.901* (0.485)	0.829* (0.462)	0.891* (0.485)	0.941* (0.493)	0.859* (0.496)
Infant Mortality (%)	-0.00445 (0.0378)	-0.0110 (0.0366)	-0.00605 (0.0372)	-0.00306 (0.0370)	-0.00308 (0.0365)
Constant	0.624 (0.407)	0.847** (0.363)	0.684* (0.368)	0.668* (0.361)	0.636* (0.352)
Observations	817	817	813	817	817
R-squared	0.187	0.200	0.192	0.187	0.193
State Fixed Effects	NO	NO	NO	NO	NO
Year Fixed Effects	NO	NO	NO	NO	NO
State-Specific Time Trends	NO	NO	NO	NO	NO

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX I: CONTINUOUS VARIABLE - WITHOUT FIXED EFFECTS

VARIABLES	(1) Paid Family Leave	(2) Paid Sick Leave	(3) Breastfeeding at Work
Percent of female legislators	-0.00167 (0.00120)	-0.00258* (0.00131)	0.00132 (0.00898)
Governor is female	-0.0124 (0.0244)	0.000554 (0.0158)	0.0648 (0.0949)
Governor is Democrat	-0.0198 (0.0202)	0.00797 (0.0142)	0.0668 (0.0713)
Background Checks Required at Private Sales or Gun Shows	0.0867* (0.0438)	0.0187 (0.0209)	-0.129 (0.124)
Some Marijuana Sales Legal	-0.0379 (0.0236)	0.0909 (0.0887)	0.514*** (0.136)
General Right-to-Work Law	-0.0477* (0.0242)	0.00558 (0.00820)	-0.0842 (0.124)
Affirmative Action Ban	0.0771 (0.0635)	0.00754 (0.0183)	-0.0891 (0.177)
Minimum Wage is Greater than Federal Wage	-0.00790 (0.0242)	0.0203 (0.0126)	0.0687 (0.0830)
Active Cap on Greenhouse Gas Emissions from Electric Power Producers	0.0613 (0.0449)	0.0845* (0.0460)	0.335** (0.136)
Fraction of State House that is Democrat	-0.102 (0.108)	-0.0562 (0.0643)	-0.841* (0.423)
Fraction of State Senate that is Democrat	0.0717 (0.0944)	0.0169 (0.0700)	0.468 (0.456)
WIC Participation	7.23e-07* (3.89e-07)	-5.84e-08 (7.88e-08)	1.71e-06** (7.98e-07)
State EITC Rate	0.123 (0.155)	0.170 (0.130)	0.468 (0.608)
Unemployment Rate	0.00206 (0.00691)	-0.00273 (0.00194)	0.00616 (0.0154)
Population	-1.46e-08 (8.79e-09)	1.76e-09 (3.55e-09)	-4.48e-08 (3.04e-08)
Hispanic Population (%)	0.0878 (0.155)	0.136 (0.120)	0.233 (0.493)
High School Degree (%)	0.00302 (0.0582)	-0.0141 (0.0524)	-0.273 (0.268)
Children in Single Families (%)	0.114 (0.119)	-0.0499 (0.0479)	-0.481 (0.363)
Children in Poverty (%)	-0.0505 (0.117)	-0.0942* (0.0537)	0.892* (0.485)
Infant Mortality (%)	-0.00644 (0.00857)	-0.00238 (0.00471)	-0.00476 (0.0391)
Constant	0.0479 (0.0785)	0.113* (0.0590)	0.626 (0.485)

Observations	813	813	813
R-squared	0.372	0.142	0.190
State Fixed Effects	NO	NO	NO
Year Fixed Effects	NO	NO	NO
State-Specific Time Trends	NO	NO	NO

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



APPENDIX J: ADOPTION OF PAID FAMILY LEAVE - WITHOUT POLICY CONTROL  
VARIABLES

VARIABLES	(1) 15 percent of female legislators	(2) 20 percent of female legislators	(3) 25 percent of female legislators	(4) 30 percent of female legislators	(5) 35 percent of female legislators
X percent of female legislators	0.000884 (0.00531)	0.0409 (0.0282)	0.0701 (0.0455)	0.0298 (0.0272)	0.00645 (0.00709)
Governor is Female	-0.00669 (0.0138)	0.0419 (0.0362)	0.0212 (0.0166)	0.0266 (0.0180)	0.0158 (0.0137)
Interaction term - X percent of female legislators and Governor is a Female	0.0230 (0.0174)	-0.0328 (0.0401)	-0.0194 (0.0275)	-0.0421 (0.0286)	-0.0101 (0.00988)
Governor is Democrat	-0.00772 (0.0151)	-0.00855 (0.0153)	-0.00676 (0.0155)	-0.00644 (0.0134)	-0.00743 (0.0151)
Fraction of State House that is Democrat	0.0112 (0.0708)	0.000903 (0.0697)	-0.0180 (0.0735)	-0.00279 (0.0687)	0.00938 (0.0699)
Fraction of State Senate that is Democrat	0.0128 (0.0511)	0.0175 (0.0544)	0.0371 (0.0637)	0.0174 (0.0479)	0.0129 (0.0481)
WIC Participation	2.95e-07 (3.26e-07)	2.94e-07 (3.31e-07)	3.04e-07 (3.18e-07)	3.00e-07 (3.26e-07)	2.95e-07 (3.27e-07)
State EITC Rate	-0.117 (0.0899)	-0.121 (0.0817)	-0.154 (0.0984)	-0.123 (0.0900)	-0.116 (0.0902)
Unemployment Rate	-0.00455 (0.00654)	-0.00493 (0.00663)	-0.00462 (0.00638)	-0.00428 (0.00648)	-0.00452 (0.00652)
Population	5.59e-08 (7.72e-08)	7.39e-08 (7.76e-08)	5.69e-08 (7.80e-08)	4.41e-08 (6.17e-08)	5.57e-08 (7.77e-08)
Hispanic Population (%)	0.283 (0.825)	0.376 (0.862)	0.109 (0.766)	0.409 (0.820)	0.336 (0.803)
High School Degree (%)	0.0553 (0.0345)	0.0624 (0.0380)	0.0722* (0.0391)	0.0603 (0.0370)	0.0551 (0.0344)
Children in Single Families (%)	-0.0864 (0.0819)	-0.0895 (0.0856)	-0.0783 (0.0739)	-0.0691 (0.0772)	-0.0849 (0.0819)
Children in Poverty (%)	0.0290 (0.0720)	0.0299 (0.0712)	0.0267 (0.0673)	0.00519 (0.0758)	0.0275 (0.0724)
Infant Mortality (%)	-0.00458 (0.00462)	-0.00504 (0.00417)	-0.00354 (0.00437)	-0.00561 (0.00487)	-0.00473 (0.00471)
Constant	0.191 (3.589)	0.574 (3.714)	-0.715 (3.399)	0.594 (3.368)	0.440 (3.265)
Observations	817	817	813	817	817
R-squared	0.845	0.847	0.850	0.846	0.845
State Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES

State-Specific Time Trends	YES	YES	YES	YES	YES
----------------------------	-----	-----	-----	-----	-----

---

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX K: ADOPTION OF PAID SICK LEAVE - WITHOUT POLICY CONTROL  
VARIABLES

VARIABLES	(1) 15 percent of female legislators	(2) 20 percent of female legislators	(3) 25 percent of female legislators	(4) 30 percent of female legislators	(5) 35 percent of female legislators
X percent of female legislators	0.00437 (0.00614)	0.00647 (0.00871)	0.0113 (0.0186)	-0.0154 (0.0164)	-0.00119 (0.0135)
Governor is Female	-0.00278 (0.00831)	0.00910 (0.0118)	0.0115 (0.0116)	-0.0245 (0.0381)	-0.0205 (0.0399)
Interaction term - X percent of female legislators and Governor is a Female	-0.0188 (0.0462)	-0.0353 (0.0410)	-0.0516 (0.0584)	0.0151 (0.0249)	-0.0256 (0.0252)
Governor is Democrat	-0.00310 (0.0190)	-0.00389 (0.0186)	-0.00451 (0.0182)	-0.00412 (0.0190)	-0.00391 (0.0187)
Fraction of State House that is Democrat	-0.0758 (0.0664)	-0.0741 (0.0621)	-0.0706 (0.0597)	-0.0642 (0.0525)	-0.0742 (0.0633)
Fraction of State Senate that is Democrat	-0.0205 (0.0299)	-0.0194 (0.0294)	-0.00776 (0.0304)	-0.0228 (0.0331)	-0.0155 (0.0288)
WIC Participation	-4.86e-07 (5.18e-07)	-4.86e-07 (5.16e-07)	-4.83e-07 (5.20e-07)	-4.88e-07 (5.16e-07)	-4.88e-07 (5.19e-07)
State EITC Rate	0.703*** (0.207)	0.706*** (0.209)	0.699*** (0.197)	0.705*** (0.207)	0.701*** (0.206)
Unemployment Rate	-0.00505 (0.00436)	-0.00508 (0.00438)	-0.00519 (0.00437)	-0.00523 (0.00441)	-0.00508 (0.00437)
Population	1.50e-07 (1.11e-07)	1.57e-07 (1.12e-07)	1.52e-07 (1.09e-07)	1.56e-07 (1.14e-07)	1.46e-07 (1.10e-07)
Hispanic Population (%)	0.745 (1.224)	0.867 (1.235)	0.900 (1.197)	0.687 (1.232)	0.699 (1.246)
High School Degree (%)	-0.0473 (0.0594)	-0.0480 (0.0601)	-0.0474 (0.0606)	-0.0491 (0.0597)	-0.0474 (0.0592)
Children in Single Families (%)	0.0254 (0.0446)	0.0227 (0.0421)	0.0337 (0.0510)	0.0176 (0.0415)	0.0246 (0.0426)
Children in Poverty (%)	-0.0999 (0.0915)	-0.0986 (0.0901)	-0.106 (0.0945)	-0.0890 (0.0838)	-0.0981 (0.0891)
Infant Mortality (%)	-0.000299 (0.00328)	-0.000763 (0.00299)	-0.000259 (0.00321)	0.000159 (0.00324)	-0.000286 (0.00347)
Constant	4.402 (5.576)	5.178 (5.568)	4.840 (5.325)	4.506 (5.519)	4.405 (5.619)
Observations	817	817	813	817	817
R-squared	0.628	0.629	0.632	0.629	0.628
State Fixed Effects	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES

State-Specific Time Trends      YES                      YES                      YES                      YES                      YES

---

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX L: ADOPTION OF BREASTFEEDING AT WORK - WITHOUT POLICY  
CONTROL VARIABLES

VARIABLES	(1) 15 percent of female legislators	(2) 20 percent of female legislators	(3) 25 percent of female legislators	(4) 30 percent of female legislators	(5) 35 percent of female legislators
X percent of female legislators	-0.102** (0.0442)	-0.0233 (0.0522)	0.0119 (0.0395)	0.00176 (0.0400)	0.0807 (0.116)
Governor is Female	-0.176 (0.138)	-0.110* (0.0609)	-0.0691** (0.0329)	-0.0573* (0.0297)	-0.0583 (0.0427)
Interaction term - X percent of female legislators and Governor is a Female	0.116 (0.144)	0.0536 (0.0702)	0.00181 (0.0598)	-0.0269 (0.0732)	0.0189 (0.128)
Governor is Democrat	0.0550 (0.0344)	0.0570 (0.0343)	0.0553 (0.0337)	0.0549 (0.0346)	0.0594* (0.0342)
Fraction of State House that is Democrat	-0.110 (0.219)	-0.102 (0.223)	-0.141 (0.225)	-0.0881 (0.240)	-0.117 (0.232)
Fraction of State Senate that is Democrat	0.0932 (0.191)	0.0507 (0.211)	0.0710 (0.214)	0.0460 (0.213)	0.00686 (0.215)
WIC Participation	9.85e-08 (3.50e-07)	1.14e-07 (3.51e-07)	8.91e-08 (3.53e-07)	1.17e-07 (3.53e-07)	1.32e-07 (3.49e-07)
State EITC Rate	-0.344 (0.363)	-0.349 (0.357)	-0.345 (0.360)	-0.350 (0.367)	-0.338 (0.364)
Unemployment Rate	0.0114 (0.00693)	0.0114 (0.00700)	0.0121* (0.00706)	0.0110 (0.00714)	0.0113 (0.00688)
Population	1.73e-07 (1.92e-07)	1.65e-07 (1.97e-07)	1.78e-07 (2.00e-07)	1.82e-07 (1.99e-07)	1.99e-07 (2.02e-07)
Hispanic Population (%)	0.0686 (2.486)	-0.392 (2.603)	-0.124 (2.553)	-0.225 (2.549)	-0.0766 (2.527)
High School Degree (%)	-0.0281 (0.147)	-0.0395 (0.152)	-0.0389 (0.149)	-0.0368 (0.151)	-0.0348 (0.148)
Children in Single Families (%)	0.0781 (0.140)	0.0913 (0.138)	0.109 (0.142)	0.0946 (0.141)	0.104 (0.139)
Children in Poverty (%)	0.168 (0.182)	0.156 (0.179)	0.125 (0.174)	0.148 (0.180)	0.138 (0.177)
Infant Mortality (%)	0.00190 (0.0105)	0.00165 (0.0105)	0.00196 (0.0103)	0.000368 (0.0104)	-4.55e-05 (0.0111)
Constant	-94.10*** (9.598)	-102.0*** (8.112)	-102.0*** (7.837)	-101.4*** (7.927)	-99.50*** (7.973)
Observations	817	817	813	817	817
R-squared	0.889	0.888	0.890	0.888	0.889
State Fixed Effects	YES	YES	YES	YES	YES

Year Fixed Effects	YES	YES	YES	YES	YES
State-Specific Time Trends	YES	YES	YES	YES	YES

---

Note: X refers to the percentage of female legislators in a state legislature.

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

APPENDIX M: CONTINUOUS VARIABLES - WITHOUT POLICY CONTROL  
VARIABLES

VARIABLES	(1) Paid Family Leave	(2) Paid Sick Leave	(3) Breastfeeding at Work
Percent of female legislators	-0.000125 (0.00140)	-0.00169 (0.00104)	0.00553 (0.00838)
Governor is female	0.000462 (0.0202)	0.000934 (0.0138)	0.0539 (0.109)
Governor is Democrat	-0.00711 (0.0184)	0.0152 (0.0158)	0.108 (0.0743)
Fraction of State House that is Democrat	0.00101 (0.103)	-0.0150 (0.0620)	-0.658 (0.459)
Fraction of State Senate that is Democrat	0.143 (0.0994)	0.0378 (0.0632)	0.396 (0.465)
WIC Participation	6.26e-07 (4.66e-07)	-4.94e-08 (7.81e-08)	1.79e-06** (7.66e-07)
State EITC Rate	0.168 (0.172)	0.239 (0.170)	0.735 (0.545)
Unemployment Rate	0.00412 (0.00691)	-0.000902 (0.00205)	0.0131 (0.0158)
Population	-8.22e-09 (1.09e-08)	1.95e-09 (3.15e-09)	-5.02e-08* (2.71e-08)
Hispanic Population (%)	-0.00865 (0.200)	0.119 (0.127)	0.0691 (0.551)
High School Degree (%)	0.0630 (0.0707)	0.0228 (0.0510)	-0.218 (0.261)
Children in Single Families (%)	0.0466 (0.0867)	-0.0583 (0.0606)	-0.412 (0.379)
Children in Poverty (%)	-0.0121 (0.133)	-0.0624* (0.0364)	0.934* (0.533)
Infant Mortality (%)	-0.0196** (0.00893)	-0.00818** (0.00406)	-0.0200 (0.0443)
Constant	-0.0299 (0.0823)	0.0837* (0.0478)	0.460 (0.496)
Observations	813	813	813
R-squared	0.329	0.083	0.133
State Fixed Effects	NO	NO	NO
Year Fixed Effects	NO	NO	NO
State-Specific Time Trends	NO	NO	NO

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## APPENDIX N: STATE TRENDS IN THE PERCENT OF FEMALES IN STATE LEGISLATURE





## REFERENCES

- Alexopoulos, E. C. (2010). Introduction to multivariate regression analysis. *Hippokratia*, 14(Suppl 1), 23.
- Allen, S. M., & Daly, K. J. (2007). *The effects of father involvement: An updated research summary of the evidence*. Centre for Families, Work & Well-Being, University of Guelph.
- Alvarez, R. M., & McCaffery, E. J. (2000). Is there a gender gap in fiscal political preferences?. *USC Law School, Olin Research Paper No. 00-5*.
- Appelbaum, E., & Milkman, R. (2011). Leaves that pay: Employer and worker experiences with paid family leave in California. *UCLA: Institute for Research on Labor and Employment*.
- Argyrous, G., & Rahman, S. (2017). How does paid work affect who does the childcare? An analysis of the time use of Australian couples. *Review of Economics of the Household*, 15(2), 383-398.
- Armenia, A., Gerstel, N., & Wing, C. (2013). Workplace compliance with the law: The case of the family and medical leave act. *Work and Occupations*, 41(3), 277-304.
- Atchison, A., & Down, I. (2009). Women cabinet ministers and female-friendly social policy. *Poverty & Public Policy*, 1(2), 1-23.
- Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton university press.
- Atkeson, L. R., & Carrillo, N. (2007). More is better: The influence of collective female descriptive representation on external efficacy. *Politics & Gender*, 3(1), 79.
- Bailey, M. J., Byker, T. S., Patel, E., & Ramnath, S. (2019). *The long-term effects of California's 2004 paid family leave act on women's careers: Evidence from US tax data* (No. w26416). National Bureau of Economic Research.
- Baker, M., Gruber, J., & Milligan, K. (2008). Universal child care, maternal labor supply, and family well-being. *Journal of political Economy*, 116(4), 709-745.
- Baker, M. and K. Milligan (2008a). How Does Job-Protected Maternity Leave Affect Mothers' Employment? *Journal of Labor Economics* 26 (4), 655–691.
- Bartel, A., Rossin-Slater, M., Ruhm, C., & Waldfogel, J. (2017). *Employer Attitudes to Paid Family Leave*. Working Paper. Sanford, Calif.: Stanford University.
- Bartel, A. P., Rossin-Slater, M., Ruhm, C. J., Stearns, J., & Waldfogel, J. (2018). Paid family leave, fathers' leave-taking, and leave-sharing in dual-earner households. *Journal of Policy Analysis and Management*, 37(1), 10-37.

- Bartick, Melissa C., Schwarz, Eleanor Bimla, Green, Brittany D., Jegier, Briana J., Reinhold, Arnold G., Colaizy, Tarah T., and Stuebe, Alison M. (2017). Suboptimal breastfeeding in the United States: Maternal and pediatric health outcomes and costs. *Maternal & Child Nutrition* 13 (1), e12366.
- Baum, C. L., & Ruhm, C. J. (2016). The effects of paid family leave in California on labor market outcomes. *Journal of Policy Analysis and Management*, 35(2), 333-356.
- Béland, D. (2017). Identity, politics, and public policy. *Critical Policy Studies*, 11(1), 1-18.
- Berger, L. M., Hill, J., & Waldfogel, J. (2005). Maternity leave, early maternal employment and child health and development in the US. *The Economic Journal*, 115(501), F29-F47.
- Berger, L. M., & Waldfogel, J. (2004). Maternity leave and the employment of new mothers in the United States. *Journal of Population Economics*, 17(2), 331-349.
- Bergemann, A., & Riphahn, R. T. (2015). Maternal Employment Effects of Paid Parental Leave (IZA DP No. 9073).
- Berkman, M. B., & O'Connor, R. E. (1993). Do women legislators matter? Female legislators and state abortion policy. *American Politics Quarterly*, 21(1), 102-124.
- Bible, D., & Hill, K. L. (2007). Discrimination: Women in business. *Journal of Organizational Culture, Communication and Conflict*, 11(1), 65-76.
- Bixler D, Miller AD, Mattison CP, et al. SARS-CoV-2–Associated Deaths Among Persons Aged <21 Years — United States, February 12–July 31, 2020. *Morbidity and Mortal Weekly Report*. ePub: 15 September 2020.
- Blau, F. D., & Kahn, L. M. (2013). Female labor supply: Why is the United States falling behind?. *American Economic Review*, 103(3), 251-56.
- Blundell, R., Bozio, A., & Laroque, G. (2011). Labor supply and the extensive margin. *American Economic Review*, 101(3), 482-86.
- Boots, S. W., Martinson K., and Danziger A. (2009). Employers' Perspectives on San Francisco's Paid Sick Leave Policy, Technical Report. The Urban Institute.
- Boushey, H. (2008). Family friendly policies: Helping mothers make ends meet. *Review of Social Economy*, 66(1), 51-70.
- Boushey, H., & Glynn, S. J. (2012). The effects of paid family and medical leave on employment stability and economic security. *Washington, DC: Center for American Progress*. Retrieved on September, 16, 2013.
- Boushey, H., O'Leary, A., & Glynn, S. J. (2013). Our working nation in 2013: An updated

national agenda for work and family policies. Center for American Progress, Washington DC.

- Bratberg, E., & Naz, G. (2009). *Does Paternity Leave Affect Mothers' Sickness Absence?*. Department of Economics, University of Bergen.
- Budd, D., Myers, A., & Longoria, T. (2016). The role of a gendered policy agenda in closing the mayoral ambition gap: The case of Texas female city council members. *Journal of Research on Women and Gender*, 6, 81-93.
- Burnet, J. E. (2011). Women have found respect: Gender quotas, symbolic representation, and female empowerment in Rwanda. *Politics & Gender*, 7(3), 303-334.
- Caiazza, A. (2004). Does women's representation in elected office lead to women-friendly policy? Analysis of state-level data. *Women & Politics*, 26(1), 35-70.
- California Employment Development Department (CAEDD). 2013a. "State of California Employment Development Department, Paid Family Leave."
- California Employment Development Department (CAEDD). 2013b. "State of California Employment Development Department, Quick Statistics (2013)."
- Center for American Women and Politics (2019). "Women in the U.S. Congress 2019." Rutgers University, New Brunswick, New Jersey.
- Chatterji, P., & Markowitz, S. (2008). *Family leave after childbirth and the health of new mothers* (No. w14156). National Bureau of Economic Research.
- Chatterji, P., & Markowitz, S. (2012). Family leave after childbirth and the mental health of new mothers. *Journal of Mental Health Policy and Economics* 15 (2), 61-76.
- Chen, E. M., Gau, M. L., Liu, C. Y., & Lee, T. Y. (2017). Effects of father-neonate skin-to-skin contact on attachment: a randomized controlled trial. *Nursing research and practice*, 2017.
- Clemans-Cope, L., Perry, C. D., Kenney, G. M., Pelletier, J. E., & Pantell, M. S. (2008). Access to and use of paid sick leave among low-income families with children. *Pediatrics*, 122(2), e480-486.
- Cools, S., Fiva, J. H., & Kirkebøen, L. J. (2015). Causal effects of paternity leave on children and parents. *The Scandinavian Journal of Economics*, 117(3), 801-828.
- Craig, L. (2006). Does father care mean fathers share? A comparison of how mothers and fathers in intact families spend time with children. *Gender & society*, 20(2), 259-281.

- Dagher, R. K., McGovern, P. M., & Dowd, B. E. (2014). Maternity leave duration and postpartum mental and physical health: implications for leave policies. *Journal of Health Politics, Policy and Law*, 39(2), 369-416.
- Daku, M., Raub, A., & Heymann, J. (2012). Maternal leave policies and vaccination coverage: A global analysis. *Social science & medicine*, 74(2), 120-124.
- Datar, A. (2006). The impact of kindergarten entrance age policies on the childcare needs of families. *Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management*, 25(1), 129-153.
- Drange, N., & Rege, M. (2013). Trapped at home: The effect of mothers' temporary labor market exits on their subsequent work career. *Labour Economics*, 24, 125-136.
- Earle, A., Mokomane, Z., & Heymann, J. (2011). International perspectives on work-family policies: lessons from the world's most competitive economies. *The Future of Children*, 191-210.
- European Commission. (2013). The current situation of gender equality in Sweden—Country Profile. Brussels, Belgium: European Commission.
- European Council (2019). Work-life balance for parents and carers. Directive (EU) 2019/1158 of The European Parliament and of the Council. Brussels, Belgium: European Council.
- Evertsson, M., & Duvander, A. Z. (2011). Parental leave—Possibility or trap? Does family leave length effect Swedish women's labour market opportunities?. *European Sociological Review*, 27(4), 435-450.
- Flammang, J. A. (1985). Female officials in the feminist capital: The case of Santa Clara County. *Western Political Quarterly*, 38(1), 94-118.
- Fortin, N. M. (2005). Gender role attitudes and the labour-market outcomes of women across OECD countries. *oxford review of Economic Policy*, 21(3), 416-438.
- Fraga, L. R., Lopez, L., Martinez-Ebers, V., & Ramirez, R. (2007). Gender and ethnicity: Patterns of electoral success and legislative advocacy among Latina and Latino state officials in four states. *Journal of Women, Politics & Policy*, 28(3-4), 121-145.
- Gade, D. M., & Wilkins, V. M. (2012). Where did you serve? Veteran identity, representative bureaucracy, and vocational rehabilitation. *Journal of Public Administration Research and Theory*, 23(2), 267-288.
- Garfield, C. F., & Isacco, A. (2006). Fathers and the well-child visit. *Pediatrics*, 117(4), e637-e645.
- Gariety, B. S., & Shaffer, S. (2001). Wage differentials associated with flextime. *Monthly Lab. Rev.*, 124, 68.

- Gault, B., Hartmann, H., Hegewisch, A., Milli, J., and Reichlin, L. (2014). 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, Washington DC.
- Gelbach, J. B. (2002). Public schooling for young children and maternal labor supply. *American Economic Review*, 92(1), 307-322.
- Glinianaia, S. V., Rankin, J., Bell, R., Pless-Mullooli, T., & Howel, D. (2004). Does particulate air pollution contribute to infant death? A systematic review. *Environmental health perspectives*, 112(14), 1365-1370.
- Glynn, S. J., & Farrell, J. (2012). Latinos least likely to have paid leave or workplace flexibility. *Center for American Progress*, 20.
- Goodman, J. M., Elser, H., & Dow, W. H. (2020). Among Low-Income Women In San Francisco, Low Awareness Of Paid Parental Leave Benefits Inhibits Take-Up: Study examines the impact of the San Francisco Paid Parental Leave Ordinance, the first in the United States to provide parental leave with full pay. *Health Affairs*, 39(7), 1157-1165.
- Goodman-Bacon, A. (2018). *Difference-in-differences with variation in treatment timing* (No. w25018). National Bureau of Economic Research.
- Gupta, N., Smith, N., & Verner, M. (2008). Child care and parental leave in the Nordic countries: A model to aspire to? *Review of Economics of the Household* 6, 65–89.
- Haas, L., & Hwang, C. P. (2008). The impact of taking parental leave on fathers' participation in childcare and relationships with children: Lessons from Sweden. *Community, Work and Family*, 11(1), 85-104.
- Halverson, C. (2003). From here to paternity: Why men are not taking paternity leave under the family and medical leave act. *Wis. Women's LJ*, 18, 257.
- Hamdan, A., & Tamim, H. (2012). The relationship between postpartum depression and breastfeeding. *The International Journal of Psychiatry in Medicine*, 43(3), 243-259.
- Han, W. J., & Waldfogel, J. (2003). Parental leave: The impact of recent legislation on parents' leave taking. *Demography*, 40(1), 191-200.
- Hegewisch, A., & Gornick, J. C. (2011). The impact of work-family policies on women's employment: a review of research from OECD countries. *Community, Work & Family*, 14(2), 119-138.
- Hessel, P., González Jaramillo, M. J., Rasella, D., Duran, A. C., & Sarmiento, O. L. (2020). Increases In Women's Political Representation Associated With Reductions In Child Mortality In Brazil: Study assesses the effects of female political representation on

- mortality among children younger than age five in Brazil. *Health Affairs*, 39(7), 1166-1174.
- Hewitt, B., Strazdins, L., & Martin, B. (2017). The benefits of paid maternity leave for mothers' post-partum health and wellbeing: Evidence from an Australian evaluation. *Social Science & Medicine*, 182, 97-105.
- Heymann, J., Sprague, A. R., Nandi, A., Earle, A., Batra, P., Schickedanz, A., Chung, P., Raub, A. (2017). Paid parental leave and family wellbeing in the sustainable development era. *Public health reviews*, 38(1), 1-16.
- Höhm, D. (2020). When Do Men Represent Women's Interests in Parliament? How the Presence of Women in Parliament Affects the Legislative Behavior of Male Politicians. *Swiss Political Science Review*, 26(1), 31-50.
- Holm, A., Ejrnæs, M., & Karlson, K. (2015). Comparing linear probability model coefficients across groups. *Quality & Quantity*, 49(5), 1823-1834.
- Houser, L., & Vartanian, T. P. (2012). *Pay matters: The positive economic impacts of paid family leave for families, businesses and the public*. Rutgers Center for Women and Work.
- Ip, S., Chung, M., Raman, G., Chew, P., Magula, N., Trikalinos, T., and Lau, J. (2007). Breastfeeding and maternal and infant health outcomes in developed countries. Evidence/Report/Technol Assessment 153, Report Prepared for the Agency for Health Care Research and Quality, U.S. Department of Health and Human Services, Rockville, Maryland.
- Isaacs, J., Healy, O., & Peters, H. E. (2017). Paid family leave in the United States. *Urban Institute*.
- Jackson, D. B. (2017). The interplay between early father involvement and neonatal medical risk in the prediction of infant neurodevelopment. *Prevention Science*, 18(1), 106-115.
- Johnsen, J., Ku, H., and Salvanes, K.G. (2020). Competition and career advancement: The hidden costs of paid leave. IZA Discussion Paper No. 13596, IZA Institute of Labor Economics, Bonn, Germany.
- Johnson, H., McGhee, E., Mejia, M. (2020). California's Population. Public Policy Institute of California.
- Jordan, P. and Grossmann, M. (2020). *The Correlates of State Policy Project v.2.2*. East Lansing, MI: Institute for Public Policy and Social Research (IPPSR).
- Jou, J., Kozhimannil, K. B., Abraham, J. M., Blewett, L. A., & McGovern, P. M. (2018). Paid maternity leave in the United States: associations with maternal and infant health. *Maternal and child health journal*, 22(2), 216-225.



- Karp, J. A., & Banducci, S. A. (2008). When politics is not just a man's game: Women's representation and political engagement. *Electoral studies*, 27(1), 105-115.
- Kathlene, L. (1994). Power and influence in state legislative policymaking: The interaction of gender and position in committee hearing debates. *American Political Science Review*, 560-576.
- Kavanaugh, K., Meier, P., Zimmermann, B., & Mead, L. (1997). The rewards outweigh the efforts: breastfeeding outcomes for mothers of preterm infants. *Journal of Human Lactation*, 13(1), 15-21.
- Keiser, L. R., Wilkins, V. M., Meier, K. J., & Holland, C. A. (2002). Lipstick and logarithms: Gender, institutional context, and representative bureaucracy. *American political science review*, 553-564.
- Kittilson, M. C. (2008). Representing women: The adoption of family leave in comparative perspective. *The Journal of Politics*, 70(2), 323-334.
- Klerman, J.A., Daley, K., and Pozniak, A. (2014). Family and medical leave in 2012: Technical report,” Report Prepared for the Department of Labor, Cambridge, MA: Abt Associates.
- Kokkonen, A., & Wängnerud, L. (2017). Women’s Presence in Politics and Male Politicians Commitment to Gender Equality in Politics: Evidence from 290 Swedish Local Councils. *Journal of Women, Politics & Policy*, 38(2), 199-220.
- Krook, M. L. (2010). *Quotas for women in politics: Gender and candidate selection reform worldwide*. Oxford University Press.
- Laughlin, L. L. (2011). *Maternity leave and employment patterns of first-time mothers: 1961-2008*. US Department of Commerce, Economics and Statistics Administration, US Census Bureau.
- Lavariaga Monforti, J., Orey, B. D. A., & Conroy, A. (2009). The Politics of Race, Gender, Ethnicity and Representation in the Texas Legislature. *The Journal of Race and Policy*, 5(1), 35-53.
- Lawless, J. L. (2004). Politics of presence? Congresswomen and symbolic representation. *Political research quarterly*, 57(1), 81-99.
- Lequien, L. (2012). The impact of parental leave duration on later wages. *Annals of Economics and Statistics/ANNALES D'ÉCONOMIE ET DE STATISTIQUE*, 267-285.
- Lester, Gillian, 2005. A defense of paid family leave. *Harvard Journal of Law and Gender* 28 (1).

- Lichtman-Sadot, S., and Bell, N. P. (2017). Child health in elementary school following California's paid family leave program. *Journal of Policy Analysis and Management* 36 (4), 790–827.
- Lindner, T., Puck, J., & Verbeke, A. (2020). Misconceptions about multicollinearity in international business research: Identification, consequences, and remedies.
- Malas, N. (2018, September 13). California Cities Lead the U.S. in Personal Income Growth. *Wall Street Journal*.
- Maldonado, L. C., & Nieuwenhuis, R. (2015). Family policies and single parent poverty in 18 OECD countries, 1978–2008. *Community, Work & Family*, 18(4), 395-415.
- Mandal, B. (2018). The effect of paid leave on maternal mental health. *Maternal and Child Health Journal*, 22(10), 1470-1476.
- Marshall, K. (2008). Fathers' use of paid parental leave. Perspectives, Statistics Canada.
- Masket, S. (2019). What Is, and Isn't, Causing Polarization in Modern State Legislatures. *PS: Political Science & Politics*, 52(3), 430-435.
- Martin, G., Grant, A., and D'Agostino, M. (2012). Global Health Funding and Economic Development, *Global Health* 8, 8.
- Martínez-Fernández, A., Lobos-Medina, I., Díaz-Molina, C. A., Chen-Cruz, M. F., & Prieto-Egido, I. (2015). TulaSalud: An m-health system for maternal and infant mortality reduction in Guatemala. *Journal of telemedicine and telecare*, 21(5), 283-291.
- Marynissen, L., Mussino, E., Wood, J., & Duvander, A. Z. (2019). Fathers' Parental Leave Uptake in Belgium and Sweden: Self-Evident or Subject to Employment Characteristics?. *Social Sciences*, 8(11), 312.
- Meier, K. J., & Funk, K. D. (2017). Women and public administration in a comparative perspective: The case of representation in Brazilian local governments. *Administration & Society*, 49(1), 121-142.
- Meier, K. J., & Nicholson-Crotty, J. (2006). Gender, representative bureaucracy, and law enforcement: The case of sexual assault. *Public Administration Review*, 66(6), 850-860.
- Misra, J., Moller, S., Strader, E., & Wemlinger, E. (2012). Family policies, employment and poverty among partnered and single mothers. *Research in Social Stratification and Mobility*, 30(1), 113-128.
- Moon, R. Y., Patel, K. M., & Shaefer, S. J. M. (2000). Sudden infant death syndrome in child care settings. *Pediatrics*, 106(2), 295-300.
- Moon, R. Y., Sprague, B. M., & Patel, K. M. (2005). Stable prevalence but changing risk factors



- for sudden infant death syndrome in child care settings in 2001. *Pediatrics*, 116(4), 972-977.
- Moore, T., & Kotelchuck, M. (2004). Predictors of urban fathers' involvement in their child's health care. *Pediatrics*, 113(3), 574-580.
- National Conference of State Legislatures (2020). "State Breastfeeding Laws." National Conference of State Legislatures, Denver, Colorado, July 9.
- National Partnership for Women and Families (2018). Paid Family Leave and Medical Law: A Racial Justice Issue- and Opportunity.
- National Partnership for Women and Families (2019). State Paid Family Leave and Medical Insurance Laws.
- National Prevention Council (2011). National prevention strategy. National Prevention Council, U.S. Department of Health and Human Services, Office of the Surgeon General, Washington DC.
- OECD Family Database, 2019. PF2.1: Parental Leave Systems.
- OECD Health Statistics, 2019. CO1.1. Infant mortality.
- O'Leary, A. (2007). How family leave laws left out low-income workers. *Berkeley Journal of Employment and Labor Law*, 1-62.
- Ortiz, S. Y., & Roscigno, V. J. (2009). Discrimination, women, and work: Processes and variations by race and class. *The Sociological Quarterly*, 50(2), 336-359.
- Pac, J. E., Bartel, A. P., Ruhm, C. J., & Waldfogel, J. (2019). *Paid family leave and breastfeeding: Evidence from California* (No. w25784). National Bureau of Economic Research.
- Pedersen, F. A., Rubenstein, J. L., & Yarrow, L. J. (1979). Infant development in father-absent families. *The Journal of Genetic Psychology*, 135(1), 51-61.
- Peipins, L. A., Soman, A., Berkowitz, Z., & White, M. C. (2012). The lack of paid sick leave as a barrier to cancer screening and medical care-seeking: results from the National Health Interview Survey. *BMC public health*, 12(1), 520.
- Persson, P., & Rossin-Slater, M. (2019). *When Dad Can Stay Home: Fathers' Workplace Flexibility and Maternal Health* (No. w25902). National Bureau of Economic Research.
- Pew's Research Center (2016). 5. Views of parties' positions on issues, ideologies.
- Phillips, D. A., & Shonkoff, J. P. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academies Press.

- Pihl, A., & Basso, G. (2016). Paid family leave, job protection and low take-up among low-wage workers. *Policy brief*, 12.
- Reed, J., & Vandegrift, D. (2016). The effect of New Jersey's paid parental leave policy on employment.
- Riccucci, N. M., & Meyers, M. K. (2004). Linking passive and active representation: The case of frontline workers in welfare agencies. *Journal of Public Administration Research and Theory*, 14(4), 585-597.
- Rossin-Slater, M. (2011). The effects of maternity leave on children's birth and infant health outcomes in the United States. *Journal of health Economics*, 30(2), 221-239.
- Rossin-Slater, M., Ruhm, C. J., & Waldfogel, J. (2013). 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(2), 224-245.
- Rossin-Slater, M. (2017). *Maternity and family leave policy* (No. w23069). National Bureau of Economic Research.
- Rossin-Slater, Maya, Ruhm, Christopher J., and Waldfogel, Jane, 2013. 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 (2), 224-245.
- Ruhm, C. J. (1997). Policy watch: the family and medical leave act. *Journal of Economic Perspectives*, 11(3), 175-186.
- Ruhm, C. J. (1998). The economic consequences of parental leave mandates: Lessons from Europe. *The quarterly journal of economics*, 113(1), 285-317.
- Ruhm, C. J. (2000). Parental leave and child health. *Journal of health economics*, 19(6), 931-960.
- Saez, E. (2002). Optimal income transfer programs: intensive versus extensive labor supply responses. *The Quarterly Journal of Economics*, 117(3), 1039-1073.
- Saad-Lessler, J., & Bahn, K. (2017). The Importance of Paid Leave for Caregivers. *Washington, DC: Center for American Progress*.
- Saltzstein, G. H. (1986). Female mayors and women in municipal jobs. *American Journal of Political Science*, 140-164.
- Seward, R. R., E. Yeatts, D., & Zoitarelli, L. K. (2002). Parental leave and father involvement in child care: Sweden and the United States. *Journal of Comparative Family Studies*, 33(3), 387-399.

- Schönberg, U., & Ludsteck, J. (2014). Expansions in maternity leave coverage and mothers' labor market outcomes after childbirth. *Journal of Labor Economics*, 32(3), 469-505.
- Schulte, B., Durana, A., Stout, B., & Moyer, J. (2017). Paid family leave: How much time is enough? New America, Washington, DC.
- Schuster, M. A., Chung, P. J., Elliott, M. N., Garfield, C. F., Vestal, K. D., & Klein, D. J. (2008). Awareness and use of California's paid family leave insurance among parents of chronically ill children. *Jama*, 300(9), 1047-1055.
- Schwindt-Bayer, L. A., & Mishler, W. (2005). An integrated model of women's representation. *The Journal of politics*, 67(2), 407-428.
- Shaw, T (2019). "Key Takeaways from BPC's Survey of Small Business Views on Paid Family Leave." Bipartisan Policy Center, Washington DC.
- Smooth, W. (2011). Standing for women? Which women? The substantive representation of women's interests and the research imperative of intersectionality. *Politics & Gender*, 7(3), 436-441.
- Sole-Smith, V. (2016). One Unassailable Reason We Need Paid Family Leave: It Saves Babies' Lives. Slate Magazine.
- Solon, G., Haider, S. J., & Wooldridge, J. M. (2015). What are we weighting for?. *Journal of Human resources*, 50(2), 301-316.
- Stanczyk, A. B. (2019). Does paid family leave improve household economic security following a birth? evidence from california. *Social Service Review*, 93(2), 262-304.
- Summers, L. H. (1989). Some simple economics of mandated benefits. *The American Economic Review*, 79(2), 177-183.
- Sundström, M., & Stafford, F. P. (1992). Female labour force participation, fertility and public policy in Sweden. *European Journal of Population/Revue Europeenne de Demographie*, 8(3), 199-215.
- Swain, C.M. (1993). *Black Faces, Black Interests: The Representation of African Americans in Congress*. Cambridge, MA: Harvard University Press.
- Swers, M. L. (2005). Connecting descriptive and substantive representation: An analysis of sex differences in cosponsorship activity. *Legislative Studies Quarterly*, 30(3), 407-433.
- Tam, W. (2017). Do female legislators have different policy priorities than their male colleagues in an undemocratic/semi-democratic legislature? The case of Hong Kong. *The Journal of Legislative Studies*, 23(1), 44-70.
- Tanaka, S. (2005). Parental leave and child health across OECD countries. *The Economic*

*Journal*, 115(501), F7-F28.

- Tanaka, S., & Waldfogel, J. (2007). Effects of Parental Leave and Work Hours on Fathers' Involvement with their Babies: Evidence from the Millennium Cohort Study. *Community, Work and Family*, 10(4), 409-426.
- Taylor, A. B., West, S. G., & Aiken, L. S. (2006). Loss of power in logistic, ordinal logistic, and probit regression when an outcome variable is coarsely categorized. *Educational and psychological measurement*, 66(2), 228-239.
- Theobald, N. A., & Haider-Markel, D. P. (2009). Race, bureaucracy, and symbolic representation: Interactions between citizens and police. *Journal of Public Administration Research and Theory*, 19(2), 409-426.
- Thielemann, G. S., & Stewart Jr, J. (1996). A demand-side perspective on the importance of representative bureaucracy: AIDS, ethnicity, gender, and sexual orientation. *Public Administration Review*, 168-173.
- Thomas, S. (1991). The impact of women on state legislative policies. *The Journal of Politics*, 53(4), 958-976.
- Tikotzky, L., Sadeh, A., Volkovich, E., Manber, R., Meiri, G., & Shahar, G. (2015). VII. Infant sleep development from 3 to 6 months postpartum: Links with maternal sleep and paternal involvement. *Monographs of the Society for Research in Child Development*, 80(1), 107-124.
- University of Kentucky Center for Poverty Research. (2020, May). UKCPR National Welfare Data, 1980-2018. Lexington, KY.
- U.S. Census Bureau (2020). American Community Survey using American FactFinder.
- U.S. Department of Labor (2018). "National Compensation Survey: Employee Benefits in the United States, March 2018." U.S. Department of Labor, Washington DC.
- U.S. Department of Labor (2015). "Paternity Leave: Why Parental Leave For Fathers Is So Important For Working Families." DOL Policy Brief, U.S. Department of Labor, Washington DC.
- U.S. Senate Hearing (2018). *Examining the Importance of Paid Family Leave for American Working Families*, Subcommittee on Social Security, Pensions, and Family Policy, 115th Congress.
- Vennemann, M. M., Bajanowski, T., Brinkmann, B., Jorch, G., Yücesan, K., Sauerland, C., & Mitchell, E. A. (2009). Does breastfeeding reduce the risk of sudden infant death syndrome?. *Pediatrics*, 123(3), e406-e410.
- Waldfogel, J. (1998). Understanding the "family gap" in pay for women with children. *Journal*

*of economic Perspectives, 12(1), 137-156.*

Wharton School of the University of Pennsylvania. (2019). Paid family leave: What's the right model?. Knowledge@Wharton. Human Resources, Law and Public Policy.

Wilkins, V. M., & Keiser, L. R. (2004). Linking passive and active representation by gender: The case of child support agencies. *Journal of Public Administration Research and Theory, 16(1), 87-102.*

Winegarden, C. R., & Bracy, P. M. (1995). Demographic consequences of maternal-leave programs in industrial countries: evidence from fixed-effects models. *Southern Economic Journal, 1020-1035.*

Winkler, A. E. (2016). Women's labor force participation. *IZA World of Labor.*

World Health Organization (2002). Integrating gender perspectives in the work of WHO: WHO gender policy.

World Health Organization (2019). The cost of a polluted environment: 1.7 million child deaths a year, says WHO.

World Economic Forum. (2020). Global Gender Gap Report 2020.

ProQuest Number:28153115

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent on the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 28153115

Published by ProQuest LLC (2021). Copyright of the Dissertation is held by the Author.

All Rights Reserved.

This work is protected against unauthorized copying under Title 17, United States Code  
Microform Edition © ProQuest LLC.

ProQuest LLC  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 - 1346

ProQuest Number:28153115

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent on the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



ProQuest 28153115

Published by ProQuest LLC (2021). Copyright of the Dissertation is held by the Author.

All Rights Reserved.

This work is protected against unauthorized copying under Title 17, United States Code  
Microform Edition © ProQuest LLC.

ProQuest LLC  
789 East Eisenhower Parkway  
P.O. Box 1346  
Ann Arbor, MI 48106 - 1346