The Impact of Paid Family Leave on Infant and Maternal Health in the United States

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Purpose: Funding Request

I. Abstract

This research investigates the effects of paid family leave (PFL) on infant and maternal health outcomes. The United States does not have a national paid family leave requirement. The inability of the United States to guarantee all postpartum mothers paid time off has resulted in adverse effects on both infant and maternal health outcomes. Resultantly, mothers in many states must take unpaid time off of work to care for their newborn children and recover from childbirth. Many low-income mothers return to work soon after giving birth because they cannot afford to take unpaid time off. Therefore, low-income families are disproportionately affected by the adverse health outcomes that result from a lack of a national PFL requirement. Funding from the Trudeau Foundation would be used to conduct a research study investigating whether infant and maternal health outcomes would be improved by a national PFL requirement. Furthermore, the study will help policymakers determine whether a fully or partially paid national leave would be the most effective in terms of costs and effects. I plan to conduct two difference-in-difference analyses. One will measure infant and maternal health outcomes under paid family leave as compared to unpaid family leave. The other will measure infant and maternal health outcomes under paid family leave as compared to partially-paid family leave. The intended outcome of this study is to expose the need for national fully paid family leave legislation in the United States.

II. Introduction

The United States is the only developed nation that does not have a national paid family leave requirement. In recent years there have been increasing calls for such a requirement in the nation. To consider implementing a PFL program nationally, lawmakers must look to research in the field to determine whether or not the program would be cost-effective, as well as whether to

implement a partially or fully paid leave program. In 2004, legislation went into effect in the

state of California that provides workers up to six weeks of partially paid leave to care for a new

child. According to the Employee Development Department of California, employees are paid

60-70% of their normal earnings during family leave (Department E. D., 2022). Research has

shown that granting employees partially paid family leave has had a positive effect on infant and

maternal health outcomes in the state. California was the first state in the nation to pass

legislation enacting a paid family leave program. The legislation for the program was passed in

2002 and went into effect in 2004. Since then, several states have followed suit in enacting a PFL

program. This is a step in the right direction for the United States. However, many of these

programs only guarantee up to a certain percentage of the state average weekly wages as

compensation during the leave. It may not be economically feasible for many families to take

several weeks off of work and receive only a fraction of their normal pay. PFL programs such as

the one in California have improved infant and maternal health outcomes, but a

difference-in-difference analysis is essential in determining whether fully paid family leave

would have a significantly larger effect on those same health outcomes. Additionally, fully paid

family leave would help reduce some of the disparities in health outcomes based on income.

There is significant research to support the notion that paid family leave programs

improve infant and maternal health outcomes. However, much of the existing research does not

seek to answer whether or not these health outcomes could be improved even further by

compensating workers with 100% of their normal salary during paid time off. With the help of

funding from the Trudeau Foundation, my research will seek to answer this question in hopes of

aiding United States lawmakers in recognizing the importance of enacting a national fully paid

family leave program. This will ensure the best possible health outcomes for postpartum mothers and their children in every state across the country.

III.   Literature Review

Many studies examine the correlation between paid family leave and infant and maternal health outcomes. Since California was the first state to implement a PFL program, researchers and lawmakers alike often look to the state for an indication as to whether the program is effective in terms of cost as well as in terms of improving health outcomes. One of the most common health outcomes linked to paid family leave is maternal mental health. A 2020 study entitled "California's paid family leave law improves maternal psychological health" conducted research assessing the effect of California's PFL program on maternal mental health status, more specifically postpartum depression (PPD) and anxiety. According to the study, "13-19% of new mothers" experience PPD, and "up to 40% of this group" experiences postpartum anxiety (Doran et al., 2020). Postpartum depression and anxiety are not only harmful to the mother, but the child as well. Mothers with PPD have been found to have "less positive interactions with their children," as well as "a lower incidence of breastfeeding, reduced rates of playtime with children … and less verbal communication" with their children (E.L. Doran, et al., 2020). PFL programs like the one in California have been shown to reduce the likelihood of PPD, in turn reducing its adverse health effects on children. The study found a "statistically significant 0.64- point decrease in K6 scores for new mothers" after the implementation of California's PFL (E.L. Doran, et al., 2020). K6 scores are measures of the Kessler Psychological Distress Scale which was created for the National Health Interview Survey at the Center for Disease Control.

The study "The Effect of Paid Family Leave on Infant and Parental Health in the United States" conducted similar research into California's PFL program. This study encapsulates a wider array of PFL impacts. The study credited California's PFL program with "reducing the prevalence of overweight, ADHD, and hearing-related problems" in elementary-aged children (Bullinger, 2019). Additionally, PFL in California reduced infant hospitalization for "avoidable infections and illnesses" (Bullinger, 2019). This is because longer family leave allows parents to get to know their children better, allowing them to identify any health abnormalities or illnesses early on and seek medical treatment. The study also identifies California's PFL as improving the overall mental health of parents by alleviating some stress and anxiety associated with not being able to spend ample time with newborn children, having to manage full-time work while caring for a newborn and dealing with the financial and emotional impacts of child care. The study mentioned a direct link between parental mental health and children's health. The study also points out that longer family leave improves "parental engagement" and the "quality of parental care" (Bullinger, 2019). When parents have more time at home after the birth of a child, infant health outcomes related to close parental care and engagement are shown to improve. Lastly, the study points out that longer paid family leave allows a higher likelihood of breastfeeding, which has been linked to a reduction in the prevalence of asthma and allergies in children.

The journal "Paid Maternity Leave in the United States: Associations with Maternal and Infant Health" evidenced even more positive infant health outcomes as a result of PFL. According to the research, family leave has been proven to reduce "neonatal and child mortality, low birth weight, and premature birth" and has been shown to improve "developmental outcomes" (Jou et al., 2017). The study was conducted using data from a national survey of 700

women who gave birth between 2011 and 2012. The results showed that "women who took partially or fully-paid leave experienced a nearly 50% reduction in the odds of having had their infants hospitalized, having been hospitalized themselves, and having seen a mental health care provider" (Jou et al., 2017). This study is consistent with much of the other research in this area in proving the positive correlation between paid or partially paid leave and infant and maternal health outcomes. A limitation of this study is the lack of differentiation in the analysis of health outcomes resulting from partially paid family leave against fully paid family leave. This is something that could be improved upon in my research.

Another article entitled "The impact of paid family leave in the United States on birth outcomes and mortality in the first year of life" focused on America's infant mortality rates (IMR) as impacted by PFL. Infant mortality rates in America are higher than in comparable countries, and the article conducted a study to analyze what role paid family leave has on those rates. The article determined that "maternal stressors such as shift work, high job stress, and high physical demands" are factors linked to adverse outcomes among "vulnerable infants" (Montoya-Williams et al., 2020). The study, like many others, used a difference-in-difference approach to measure health outcomes in California before and after the implementation of PFL. The results showed that "postneonatal mortality decreased by 12 percent" once PFL took effect in California. This is very significant. Close parental care has been associated with postneonatal mortality, so the study showed that a PFL program would reduce this occurrence. This article proved to be unique in that it focused on not just infant health outcomes, but went so far as to link PFL with lower infant mortality rates. This research could be essential in the fight for a national paid family leave initiative in the United States.

"The Impact of Paid Maternity Leave on the Mental and Physical Health of Mothers and Children: A Review of the Literature and Policy Implications" in the Harvard Review of Psychiatry conducted five studies proving the positive correlation between PFL and maternal and infant mental health outcomes. One study of 3,859 women found "significantly higher overall" scores for maternal depression, "as well as increased diagnoses of major depressive disorder" among women who had fewer than 12 weeks of paid family leave (Van Niel et al., 2020). Interestingly, a study of 98 parents found that those who had less than 12 weeks of paid leave reported "decreased self-esteem and quality of marriage," an aspect that has not been brought up as often in other similar research. Every study conducted by the researchers connected shorter family leave with higher rates of depression. More specifically, the researchers studied 177 mothers and found that "every additional week of paid maternity leave was significantly associated with decreased odds of experiencing symptoms of postpartum depression" (Van Niel et al., 2020). As mentioned in much of the other research, PPD has serious adverse health effects on infants. The study also conducted research into the physical health effects of PFL on mothers and infants. The results showed that "women who took paid leave of any duration had a 51% lower chance of being hospitalized in the year after birth (Van Niel et al., 2020). Additionally, those same women were also found to be "1.8 times as likely to have more success in managing stress and to engage in regular exercise," which are two crucial aspects of both physical and mental wellbeing. Lastly, the study found a direct correlation between longer paid leave and lower infant mortality, improved child and infant physical health, a lower first-year infant rehospitalization rate, and an increase in the "timely administration of recommended

immunizations" (Van Niel et al., 2020). The research in this journal unequivocally reflects the need for a national paid family leave program in the United States.

Much of the research that has been conducted on this topic points to a statistically significant correlation between PFL and infant and maternal health outcomes. However, each study has its own limitations. With the help of the Trudeau Foundation, I will conduct further research to conclude whether fully paid family leave impacts health outcomes by a significantly greater margin than partially paid family leave and whether such an initiative would be beneficial as well as cost-effective.

IV.   Proposed Methodology & Request

I am requesting funds from the Trudeau Foundation to conduct a difference-in-difference study on the effect of paid family leave on maternal and infant health outcomes. These health outcomes include postpartum depression and infant mortality. According to the U.S Bureau of Labor Statistics, 23% of American workers have access to paid family leave and 89% of workers have access to unpaid family leave (2021). I plan to run a study implementing a required six week 100% paid family leave in the state of Nevada. I have divided participants into a control group and a test group. The test group will include pregnant mothers who are offered 6 weeks of completely paid family leave. The control group will include pregnant mothers who are not offered any sort of paid family leave. A lottery selection system will be used to randomize the participants of the study and control for age, health habits, prenatal care, and race. During the study, I will be observing health outcomes including postpartum depression, infant and maternal rehospitalization, and infant mortality as these outcomes have been most frequently identified in relation to PFL. I will then use the difference-in-difference method to compare the study's

implementation of fully paid family leave in Nevada to a control state, Arizona. Arizona does not currently require employers to provide family leave. I will then conduct a second difference-in-difference analysis to compare California's implementation of partially paid family leave to the control state. This will allow me to observe whether or not paid family leave affects infant and maternal health outcomes significantly more than partially paid family leave. My hypothesis supports that infant and maternal health outcomes improve slightly with California's partially paid family leave, and more significantly in the study's fully paid leave in Nevada. Below I have included the setup for my difference-in-difference analysis.

Difference-In-Difference Pre/Post CA-PFL: Control State (Arizona) to California

	Arizona (no paid leave) (2002)	**California (partially paid leave) (2006)**	**Δ Over Time**
Control Group			
Treatment Group			
			Effect of PFL on Health Outcomes Relative to Control

The same difference-in-difference model will be repeated to compare the control state (Arizona) to Nevada. I expect that the difference-in-difference analysis will show some effect of PFL in comparing Arizona to California and an even larger effect in comparing Arizona to Nevada. Once I have completed the difference-in-difference models, I will then set up the null and alternative hypotheses and calculate and compare t-statistics to determine whether the results

are statistically significant. I will also conduct a Cost-Effectiveness analysis of the California

program versus the Nevada program to determine the economic feasibility of fully paid family

leave. To do so, I need to determine the costs and effectiveness of partially and fully paid leave. I

will then set up an Incremental Cost Effectiveness Ratio (ICER) equation. I have included the

setup for this analysis below. C_A is the cost and E_A is the effect of fully paid leave. C_B is the cost

and E_B is the effect of partially paid leave.

$$\text{ICER} = \frac{C_B - C_A}{E_B - E_A}$$

Lastly, below I have included a difference-in-difference model based on data from the

Kids Count Data Center comparing infant mortality rates in Arizona and California in 2002 and

2006, before and after the implementation of PFL in California. Arizona had no PFL either year.

Difference-in-Difference Infant Mortality: Control State (Arizona) to California

	2002	**2006**	**Δ Over Time**
Arizona [Control State]	6.4	6.4	0
California [Treatment State]	5.5	5.0	-0.5
		Effect of CA-PFL on Infant Mortality →	-0.5

The difference-in-difference analysis shows that infant mortality rates in Arizona were stagnant

from 2002 to 2006 but that those same rates declined in California in those years. This means

that there is likely some effect of the PFL policy in California on infant mortality. I have included an appendix with a graph showing the change in infant mortality rates in the two states before and after California's PFL implementation. Please see Figure 1. The data used to conduct this analysis did not include standard error, so I was unable to determine if the outcome was statistically significant. I intended to conduct this analysis on PPD rates instead of infant mortality rates, but mental health data is scarce for the early 2000s. These are the biggest limitations of my research. I will amend this with funding from the Trudeau Foundation.

I expect that my research will show a strong correlation between PFL and infant and maternal health outcomes and indicate the need for a national PFL program in the United States, likely partially or fully paid. I implore the Trudeau Foundation to consider funding this research and take part in changing the lives of millions of parents and children in the United States.

V.   Conclusion

Research shows that California's Paid Family Leave program positively impacted infant and maternal health outcomes. I wish to conduct research that will indicate that a national program like the one in California would be beneficial to the United States. A federal fully paid family leave policy would improve millions of lives in the United States, promoting healthier parent-child relationships, improved infant and maternal mental and physical health, and more. While there has been much research conducted on the success and impact of the PFL program in California, it is essential to determine whether a guarantee of fully paid family leave on a national level would improve upon the partially paid model by a significant margin while still being cost-effective.

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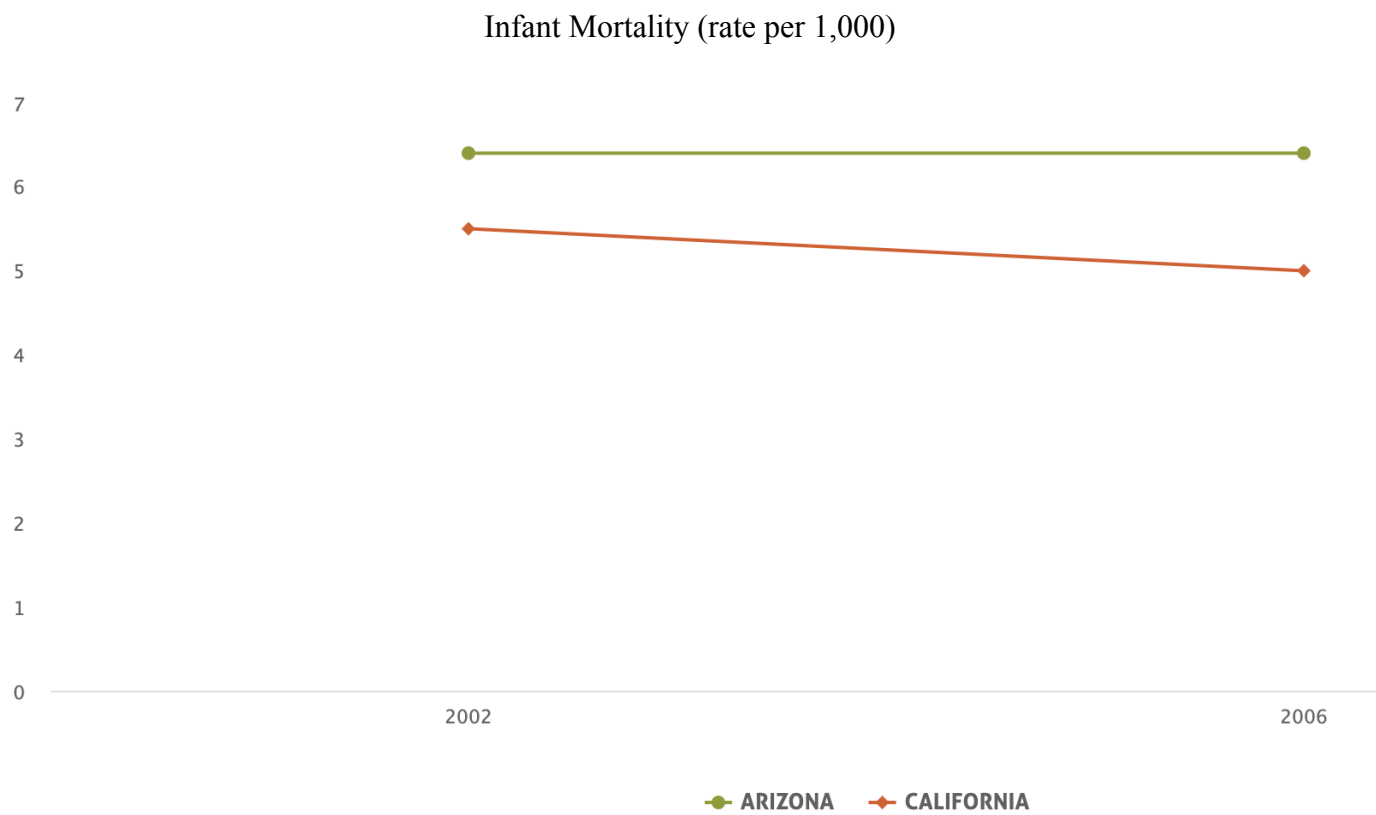
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Appendix

Figure 1:

Infant Mortality (rate per 1,000)