

Critical Analysis of
**“Does paid family leave save infant lives?
Evidence from California's paid family leave program”**

by Feng Chen (2022)

Project Report

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This paper is a critical analysis of a research article titled "Does paid family leave save infant lives? Evidence from California's paid family leave program" by F. Chen (2022). The study investigates **the causal effect of CA-PFL on the post-neonatal mortality rate (PNMR)***.

Introduction to the research area

There is a good amount of academic research on the benefits of parental leave on infants' health outcomes. Most common mechanisms through which parents' time off work may improve young children's health conditions include: less reliance on non-parental care usually associated with higher exposure to infectious illnesses (Bradley, 2003), better arrangement of preventative care: immunizations and well-visits (Berger et al., 2005), longer breastfeeding duration (Pac et al., 2019), and improved psychological well-being of parents that enhances attentiveness to infant needs (Bullinger, 2019). Paid leave, in addition, may strengthen economic security of families (especially low-income) correlated with better nutrition for kids (Stanczyk, 2019).

Countries have adopted various family leave policies to enhance family welfare, with most of the OECD countries offering at least six months of paid leave for mothers (Raub et al., 2018), while the U.S. at the national level provides only 12 weeks of unpaid leave. In 2004, California pioneered as the first state in the U.S to introduce a 6-week paid family leave policy (CA-PFL). The study of CA-PFL has significant policy implications, offering critical insights for the ongoing deliberation of two national PFL programs, the FAMILY Act and the American Families Plan (Chen, 2023).

Description of the data and methods used

Based on the data from the National Vital Statistics System (NVSS) on singleton births and infant deaths between 2000 and 2008, this research uses difference-in-differences (DD) method to examine the causal relationship.

The unit of observation is a state-month combination with number of births and deaths for 50 states and D.C. across 108 months, totalling 5508 observations. California is the treatment unit while all non-CA states and D.C. are considered

* Post-neonatal mortality rate is the number of infant deaths (between 28 days and 1 year) per 1000 live births

the comparison group. Initial summary statistics indicate that PNMR in California decreased significantly (-0.12) after CA-PFL as compared to before the policy was implemented, while it slightly increased (+0.04) for the comparison group during the same time period.

The regression equation the author uses to measure the causal effect includes state and time fixed effects, as well as maternal and birth control variables:

$$Y_{st} = \beta \cdot CA_s * Post_t + \gamma \cdot X_{st} + \mu_s + \lambda_t + \varepsilon_{st}$$

Maternal controls capture differences in age, race/ethnicity, marital status, employment, education and family income for mothers, while birth-related controls account for variation in birth weight, gestational age, sex and birth order of infants. The main coefficient of interest, β , represents the DD causal effect of CA-PFL on PNMR.

Causal inference using DD methods relies on the parallel trends assumption, which holds that both treated and untreated entities would follow parallel trends in the absence of the treatment. The plots of PNMR trends and the estimates of CA-PFL's effect before and after the intervention support the parallel trends assumption (Figure 1).

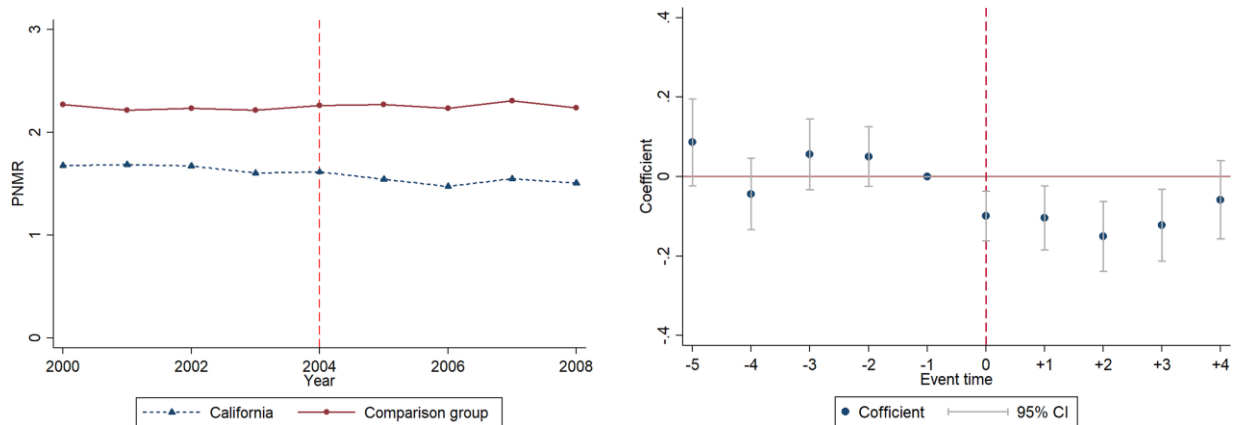


Figure 1. Raw trends (2000-2008) in PNMR and event study estimates of CA-PFL's effects on PNMR

Summary and brief discussion of the primary findings

The research finds that CA-PFL led to 0.135 reduction in PNMR. An additional analysis of heterogeneous effects revealed that the effect was more pronounced on boys (0.201), infants of married women (0.167) and on health related causes of death (0.16).

To validate these findings, the author employs multiple robustness checks. Using 6 alternative groups based on family friendliness, as well as 1000 combinations of 25 random states to check for sensitivity of results on the comparison group, he finds no threat to causality. To address the potential effect of contemporaneous shocks on PNMR, the author utilizes fetal mortality rate as a placebo outcome and does not discover any significant relationship between CA-PFL and fetal mortality. Additionally, another placebo check was performed by replacing California with every non-CA state in the regression, which also proved the robustness of his findings. Lastly, other potential threats to causality, such as changes in fertility and birth outcomes are checked and ruled out in the absence of statistically significant evidence.

Critical assessment of the analysis

Overall, this research article provides a comprehensive analysis of the topic based on reliable government data. It utilizes an appropriate causal inference method and rules out possible challenges to identification using numerous robustness checks. Nevertheless, there still remains some room for questioning the accuracy of these findings, which will be the main focus in the following sections.

Contemporaneous shock: California Mental Health Services Act (2004)

As mentioned earlier, psychological well-being of parents may have direct implications for infants' health outcomes. Specifically, mental health challenges and depressive conditions in new mothers is associated with greater risks of infant hospitalization and death during their first year (Jacques et al., 2019).

Therefore, any changes in mental health support and services in California during the same time as CA-PFL might have affected the PNMR. Interestingly, in November 2004 California voters passed the Proposition 63, the Mental Health

Services Act (MHSA), designed to transform the mental health system and improve the delivery of services (Mental Health Services Oversight and Accountability Commission).

If these positive changes also helped to reduce PNMR, then the decline in PNMR in California after 2004 might not be solely due to CA-PFL. Consequently, the causal effect of CA-PFL on PNMR, observed in the research, might be downward biased, and the estimate of the effect overestimated (Figure 2A).

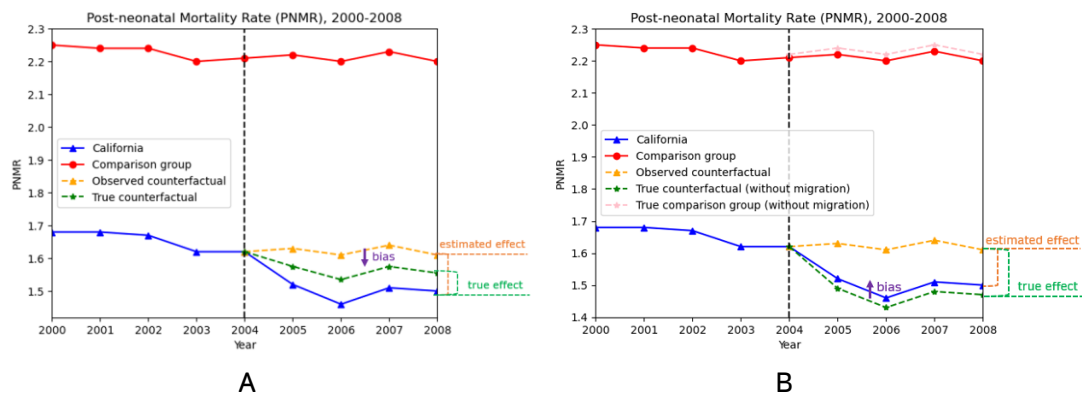


Figure 2. Estimated and true effects of CA-PFL on PNMR

Contemporaneous shock: A shift in family-friendly workplace practices

California has long been known for progressive policies (NBC News, 2020), including those related to family support and family-friendly workplace. Around the time CA-PFL was introduced, California experienced a rise in family and worker support initiatives. Notable among those were the efforts of the California Work & Family Coalition (2002), who advocated for helping parents and caregivers (WorkFamilyCA.org), and the San Francisco Family Friendly Workplace Ordinance (2002), which implemented flexible schedules for caregiving workers (City and County of San Francisco).

These independent and contemporaneous (with regard to CA-PFL) changes could have improved PNMR by facilitating a workplace environment more conducive to working pregnant women and new mothers. Therefore, the decrease in PNMR in California after 2004 may not be solely attributable to CA-PFL. If that is the case, the claimed causal effect is downward biased and the coefficient of interest is overestimated (Figure 2A).

Migration-Induced Selection

CA-PFL was announced 21 months prior to its enactment, early enough to make it possible for (currently or future) pregnant women to move to California to benefit from this policy. While the author rules out this possibility due to the high average cost of interstate move, two scenarios suggest it could be economically viable to migrate. First, those who reside closer to California's borders may incur costs much lower than the average. Second, CA-PFL could have "tipped the scale" for families already considering relocation for other reasons (employment, education, family ties).

We can assume that those who migrated are disproportionately from lower socioeconomic backgrounds based on following considerations: CA-PFL was designed to be universally accessible in terms of eligibility criteria, and may have been particularly appealing to lower-income individuals who could not afford to take unpaid leave. Since the CA-PFL were capped, for individuals in lower-paying jobs, the opportunity cost of taking leave is lower because they forgo less income by not working compared to higher-income individuals. Additionally, lower-wage workers are less likely to have generous employer-provided leave benefits, and CA-PFL would offer them an opportunity for paid leave that they otherwise would not have. Empirical evidence suggests that leave-taking rates among new mothers (with kids under 1 years old) nearly doubled after CA-PFL, and the increase was most pronounced among unmarried, minority, and less-educated mothers – groups often associated with lower socioeconomic status (Rosslin-Slater et al., 2013).

Lower socioeconomic status of parents is traditionally associated with higher risk of negative health outcomes for kids (Mohamoud et al., 2019). If the assumptions above hold, the influx of predominantly lower-income pregnant women may have skewed the demographic profile of California, thereby increasing the pre-PFL PNMR relative to a no-migration scenario. Conversely, out-migration of these families could have lowered pre-CA-PFL PNMR in their origin states.

This implies an upward bias in the estimated effect of CA-PFL, suggesting the policy's true impact on reducing PNMR could be more substantial than reported in the research (Figure 2B).

Conclusion

In summary, the paper utilizes administrative microdata and employs a sound methodological approach, complete with checks for sensitivity and robustness of its findings. The paper's conclusions provide valuable insights that could inform decision-making in the realm of family leave policies.

Nevertheless, the estimates might be subject to biases (most likely downward). Although the migration-induced bias is expected to be relatively minor, it should not be overlooked. Moreover, instead of the average of all non-CA states and D.C., the author could have benefited by using a synthetic state as a comparison unit to obtain more accurate results by avoiding excessive variability in the data. Addressing these identified threats to causality may further enhance the validity of this already comprehensive piece of research.

Nonetheless, this critical analysis exercise serves as an important reminder of the need for careful assessment of all research, ensuring that policies are informed by a thorough understanding of potential limitations and biases.

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