Does Paid Family Leave Cause Mothers to Have More Children? Evidence from California *

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October 15, 2021

Abstract

Literature on the labor market and health effects of paid family leave largely overlooks the impacts on fertility, particularly in the United States. Increased childbearing following the introduction of a modest paid family leave policy in the U.S. could explain the contrasting short–term gains and long–term losses in women's labor market outcomes found in recent work. We exploit the nation's first paid family leave program, implemented in California in 2004. Using the universe of U.S. births and a difference-in-differences strategy, we find that access to leave increases fertility by 2.8 percent, driven by higher order births to mothers in their 30s, as well as Hispanic mothers and those with a high school degree. Our results are robust to corrective methods of inference, including synthetic controls. Our findings may inform the discussion of a national paid family leave policy.

Keywords— Maternity Leave; Paternity Leave; Paid Family Leave; Fertility

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*We would like to thank Sandy Black, Rich Murphy, Steve Trejo, Marika Cabral, Francine Blau, Nicholas Sanders, John Cawley, Sharon Sassler, David Slusky, Alex Hollingsworth, Wendy Stock and seminar participants at the University of Texas at Austin, Cornell University, and DIW Berlin as well as participants in the 2019 Population Association of American Annual Conference, the 2019 American Society of Health Economists Annual Conference, and the 2019 Southern Economic Association Annual Conference for helpful comments and suggestions.

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1 Introduction

Paid family leave is widely promoted as a means of addressing the "motherhood penalty" - a sizable disparity in male-female earnings that emerges at the birth of a woman's first child and lasts for 10 to 20 years (Byker, 2016; Goldin & Mitchell, 2017; Kleven et al., 2018; Bertrand et al., 2010). Paid family leave allows working parents to take time off work to recover from childbirth and care for their newborn (or newly adopted) children while receiving partial to full wage replacement. Such programs may support working mothers and ameliorate child penalties by enabling them to take short-term leave instead of dropping out of the labor force (Council of Economic Advisers, 2014).[1]

The U.S. is the only OECD country without nationally mandated paid family leave. California was the first state to implement a paid family leave policy in 2004. Following California's lead, New Jersey, Rhode Island, New York, Washington, Massachusetts, and Washington D.C. have since enacted and implemented their own paid family leave mandates.[2] As future state and national policies are debated and implemented, it is important to understand all of the consequences of paid family leave, including the impact on fertility decisions. In this paper, we exploit the introduction of California's Paid Family Leave law (CA-PFL) to empirically identify and quantify causal effects of paid leave on fertility. The context of this study is unique in that CA-PFL provides much shorter and less generous monetary benefits than European policies that have been previously studied.[3] It is important to note that even prior to CA-PFL, California provided 6 weeks of paid disability leave following the birth of a child (8 weeks for Caesarean delivery), so California women qualified for more paid leave than the average American woman before CA-PFL.

In this paper, we ask: Does paid family leave (PFL) affect fertility? Understanding potential fertility effects are essential to determining total policy effects on mothers' labor market outcomes. Past research in other contexts has found that paid leave may affect both fertility decisions (Lalive & Zweimüller, 2009) and the timing of births (Dickert-Conlin & Chandra, 1999; Gans & Leigh, 2009; Kluve & Tamm, 2013), but the results are mixed.[4] The

[1]For studies on paid leave and women's careers in the U.S., see Byker, 2016; Timpe, 2019; Bailey et al., 2018; Rossin-Slater et al., 2013; Bana et al., 2018; Campbell et al., 2018; Das & Polachek, 2015; Baum & Ruhm, 2016; Stanczyk, 2019; For studies of effects of leave across OECD countries, see Olivetti & Petrongolo (2017) and Rossin-Slater (2017), among others.

[2]New Jersey implemented paid leave in 2009, Rhode Island in 2015, and New York in 2018 (though this policy incrementally increased each year until 2021). Both Washington and Washington D.C. implemented policies in 2020; Massachusetts did in 2021. Federal government employees have access to paid leave as of October 2020. The DoD also has a paid leave policy for its employees.

[3]The average duration of paid parental leave in OECD countries (excluding the U.S.) is 57 weeks (Blau & Kahn, 2013). In contrast, CA-PFL offers six weeks.

[4]Examples of existing literature that find significant positive effects on fertility in other developed countries include: Olivetti Petrongolo (2017), Shim (2014), Lalive & Zweimuller (2009), Hoem (1993), Raute

theoretical impact of paid family leave on fertility is ambiguous. A basic economic model of fertility predicts that paid family leave lowers the real and opportunity costs of having a child (Luci-Greulich & Thevenon, 2013).[5] Family leave may also help actualize intended fertility to the extent that employees are unable to achieve their desired fertility levels without paid leave.[6] However, by increasing labor force attachment (Baum & Ruhm, 2016), California's paid family leave policy made women more likely to return to work following the birth of their first child. If prior to paid family leave, women would have left the labor force and had additional children but after leave women return to work and have no additional children, total fertility would decline.

Previous work suggests that CA-PFL may have impacted certain aspects of fertility decisions. Lichtman-Sadot (2014) found that CA-PFL caused women to *shift* their births from the first half to the second half of 2004 to take advantage of the new policy. Also studying timing, Oloomi (2016) finds women 35 years and older experience their first birth two years earlier following CA-PFL. CA-PFL research studying labor and health outcomes eliminates a change in fertility as a confounder of their results. However, they do not control for differences in age and racial population structure, which is important when using a fertility rate as an outcome and when studying a state like California that has a significantly different racial and age distribution than the rest of the country (Bailey et. al, 2019; Chen, 2020; and Pihl and Basso, 2019). Rossin-Slater et. al (2013) finds CA-PFL did not change the composition of mothers (education, race, or age) but does not examine birth rates or fertility directly.

This paper provides robust evidence that CA-PFL *increased fertility rates* using the universe of birth certificate data from U.S. Vital Statistics Natality Data. Our primary specification compares Californian women to women in all other states, before and after they could claim paid leave, in a difference-in-differences (DD) model. We find a statistically significant increase in the overall fertility rate of 2.8 percent as a result of the policy.[7] Our estimates imply that CA-PFL resulted in about 13,000 more births per year to women ages

(2019), and Dahl, Loken, Mogstad, and Salvanes (2016). Others find no significant effects: Tudor (2015), Dahl, Loken, Mogstad, & Salvanes (2016).

[5]Prior research has shown that individuals respond to financial incentives for seemingly non-economic decisions, such as marriage, divorce, and childbirth (Alm et al., 1999; Alm & Whittington, 1999; Hoem & Persson, 2014).

[6]Further, paid leave's potential as a pro-natal policy tool is particularly important as the U.S. faces record low fertility. The U.S. birth rate has dropped below the replacement rate, continuing a decade-long decline and coinciding with the lowest number of children born in the country in any year since 1968 (Hamilton et al., 2019). A birth rate persistently below the replacement rate often indicates long-term challenges of replacing the workforce and supporting an aging society. Many European countries expand family leave and childcare provisions as a means of increasing fertility and stabilizing the population (Shim, 2014).

[7]This is a large effect but falls in the range of estimates of fertility effects of some European studies, e.g. Shim (2014), Lalive Zweimuller (2009), and Raute (2019).

20-39 in California. Our results are robust to alternative hypothesis testing and comparison groups, which supports a causal interpretation of our estimates.[8]

Provision of paid leave may incentivize otherwise childless women to have children (extensive margin fertility), and it may also induce mothers to have additional children (intensive margin fertility). Added wage replacement and time off may be more relevant to mothers who have already "paid" the large upfront costs of entering motherhood, or to those who already planned to have a child. Further, mothers eligible for leave with one child may be more likely to have subsequent children, as leave eligibility may ease obstacles (work obligations, financial concerns, etc.) surrounding childbirth. Rossin (2011) and Averett and Whittington (2001) report contrasting fertility effects in terms of parity of *unpaid* leave under passage of the FMLA.[9] Accordingly, we consider fertility effects separately by birth parity. We find fertility increases are primarily to women in their 30s. Rates of second-plus parity births rise by 2.6 percent overall, and 4.5 percent for women in their 30s. This suggests paid leave may not lead otherwise childless women to have children but rather induces mothers to have additional children. This is consistent with Bassford and Fisher (2016) who found that introducing paid family leave in Australia increased women's intended fertility, conditional on wanting at least one more child prior to the policy's implementation. Additionally, prior research by Bana et al. (2018) documents that increases in wage replacement under CA-PFL raised the likelihood of a mother making a *future* paid leave claim.

This paper has important implications for other existing research on CA-PFL as causal changes in fertility and differential selection into motherhood may confound effects on mothers' careers. While the literature generally finds that the policy increased take-up of leave for mothers, evidence on mothers' labor market outcomes is mixed. Several papers find improved employment and wage outcomes in the short term (Rossin-Slater et al., 2013; Byker, 2016; Baum & Ruhm, 2016). In contrast, Das and Polachek (2015) find increases in unemployment and duration of unemployment, and Bailey et al. (2019) finds a reduction in employment and lower annual wages in the long run. Additionally, Bana et al. (2018) finds that an increase in the replacement rate at the cap does not increase employment of high earning mothers. Understanding how the introduction of paid leave benefits influences

[8]We utilize the heteroskedasticity adjustment from Ferman and Pinto (2019) for one treated unit but many control units to adjust for differences in treated and control group size. In addition to testing the sensitivity of our results to alternate post definitions and alternate control groups, we further use synthetic control methods as originally proposed by Abadie and Gardeazabal (2003) and furthered in Abadie et al. (2010, 2015).

[9]Using Vital Statistics birth records, the first finds more previously childless women gave birth, while fewer women had later parity births in response to unpaid leave. The second analyzes mothers surveyed in the National Longitudinal Survey of Youth and finds that the probability of childbirth increases with maternity leave but that this effect is larger for higher parity births.

fertility decisions and subsequent childbearing is necessary in interpreting these findings and future research on maternal labor market outcomes. Failure to account for increased fertility as a result of the introduction of paid leave may muddle effects on subsequent labor market outcomes, as additional childbearing can set women on lower long-term employment and earnings profiles (Kahn et. al, 2014). Our finding that paid leave increased childbearing may help reconcile the findings of positive short term labor market outcomes, due to women returning to work, and negative long term outcomes, due to the penalties in the workplace following child-bearing.

2 Policy Background

Paid family leave programs allow mothers and/or fathers to take time off work with partial-to-full wage replacement to care for a newborn or newly adopted child. Since 2018, the U.S. is the only industrialized nation not to mandate paid maternity leave. Each member of the European Union provides a minimum of 14 weeks of job-guaranteed, paid maternity leave, during which workers receive at least two-thirds of their regular earnings as recommended by the international Labor Organization (ILO, 2014).[10] Paternity leave is typically offered for a shorter duration.

The only federal parental leave in the U.S. is the Family Medical Leave Act (FMLA) of 1993 which entitles eligible employees to up to 12 weeks of *unpaid* leave to care for a newborn child or ill family member. The FMLA includes job protection, meaning that eligible workers are guaranteed the same or a similar position with their employer upon returning to work.[11] It's estimated that the eligibility restrictions render only 55 percent of American workers eligible (Ruhm, 1997; Pihl & Basso, 2019; Klerman et al., 2012).[12] A number of states extend the eligibility and/or duration of unpaid leave.

Five states (California, Hawaii, New Jersey, New York, and Rhode Island) have mandatory state-provided temporary disability insurance (TDI or SDI, we will use SDI going forward). The Pregnancy Discrimination Act of 1978 requires SDI programs to cover pregnancy and childbirth recovery. As a result, women in these states have five to six weeks of leave paid between half and two-thirds of their previous wages, depending on the state (Rossin-Slater, Ruhm, & Waldfogel, 2013; Rossin-Slater, 2018). Through SDI, most California birth moth-

[10]See https://www.oecd.org/els/soc/PF2_1_Parental_leave_systems.pdf

[11]Cannonier (2014) finds that FMLA increased fertility, but only among high-SES, white women. This is likely because they were more able to self-finance, or have a partner who could finance, their leave.

[12]Employees must have worked at their place of business for at least a year and for at least 1,250 hours over said year to be eligible. Additionally, only public agencies and private firms employing at least 50 workers within 75 miles are covered.

ers could already qualify for up to four weeks of paid pre-birth leave and six weeks of partially paid post-birth leave under state temporary disability insurance programs. Therefore, Californian women had greater access to leave than most states even prior to CA-PFL.[13] While this disability leave serves as a kind of maternity leave, Timpe (2019) finds no aggregate fertility effects from working women's access to state disability insurance coverage.

2.1 CA-PFL Policy Details

California was the first state to implement an explicit paid family leave entitlement, passing CA-PFL in September of 2002 with benefits available starting July 1, 2004. The program provides six weeks of paid leave for male and female workers who take time off to care for an ill family member or to bond with a new child, with benefits equal to 55 percent of the worker's normal earnings up to a weekly cap.[14] Parental leave can be taken any time within the first 12 months of a child's birth or adoption, and in two-parent households, each parent can take leave for the same child, concurrently or staggered.[15] Benefits are financed by an employee-paid payroll tax as part of California's SDI program.

Unlike FMLA, CA-PFL is nearly universal in its coverage. Apart from self-employed persons, virtually all private and nonprofit sector workers are included, regardless of the size of their employer.[16] There is no employment history requirement. Workers only need to earn a minimum of $300 in an SDI-covered job during any quarter in the five to seventeen months before filing a claim. In 2004, the maximum weekly benefit was set at $603 (2004 dollars) while the average weekly benefit claimed was $405. The weekly cap increased annually, and in 2008 it was $917, while average benefits were $474 per week. Neither PFL nor SDI includes job protection, unless individuals simultaneously qualify for FMLA leave.[17] Approximately 153,000 claims were paid in the first year. This grew to almost 201,000 claims in 2010. Importantly, an overwhelming majority of these claims were for bonding with a newborn. Baum and Ruhm (2016) and Rossin-Slater et al.(2013) estimate that CA-PFL increased average leave-taking by 2.4 and 3.2 weeks, respectively.

This policy effectively introduced paid family leave in California, but also serves as an expansion of CA-SDI for women. Both programs are run by the CA Employment Develop-

[13]Mothers who have a Cesarean section could qualify for eight weeks of post-partum leave under CA-SDI.

[14]This amount increased to 70 percent in 2018, but that is outside our sample window.

[15]This policy is not a good fit for regression discontinuity because of the length of time between announcement and implementation, allowing parents to manipulate birth timing, and children born as early as August 2003 technically being eligible for the program, eliminating a clear point of discontinuity.

[16]California public-sector employees may be covered if the agency or unit that employs them opts into the program.

[17]The California Family Rights Act, an extension of the FMLA passed in 1993, requires employers of 50 or more employees to provide job-protected leave.

ment Department. Women filing for SDI for the birth of a child can simultaneously apply for PFL without additional paperwork. The introduction of PFL thus resulted in a six-week increase in the postpartum paid leave period for new mothers, increasing leave from six (or eight) weeks to 12 (or 14) weeks. However, these 12 weeks are not job protected unless the mother simultaneously qualifies for FMLA. For new fathers, this policy is a true introduction rather than an expansion. Prior to CA-PFL, they had no *paid* leave available to them and CA-PFL provides fathers with six weeks of paid leave.

3 Data: National Vital Statistics System

We use restricted data from the National Vital Statistics System (NVSS) of the Center for Disease Control, which hosts the universe of birth certificate data in the U.S.[18] For our analysis, we use data from July of 1999 through June 2008. The primary outcome variable of interest is a general fertility rate, defined as the number of births to women ages 20 to 39 per 1,000 of this gender-age population in a given state, month, and year.[19] We restrict our analysis to births to women ages 20 to 39 years, as this group is most viably responsive in terms of fertility behavior.[20] Since most teen births are unintentional and most teens would not meet the employment eligibility requirement, paid leave should not affect teenage fertility. In our sensitivity analyses in Table 6, we show that our main findings are not sensitive to including older women (40-54) in our sample, and that teens do not experience any fertility effect. To construct our dependent variable, we collapse the universe of births to women ages 20 to 39 in the U.S. by state and month within year, creating 5,508 state-birthmonth-birthyear cells. [21] Our sample ends July of 2008 prior to New Jersey implementing a paid family leave law so there is no other policy implemented in our sample period.[22] To generate state-year level equivalent birth rates, we multiply the monthly rates by 12.

The birth records also contain the parity, age, as well as education, race/ethnicity, and marital status of the mother.[23] We use this demographic information to construct birth rates for subgroups to test for any heterogeneous effects and present results by parity, mother's age, mother's education, mother's race (Non-Hispanic (NH)-White, NH-Black, NH-Asian,

[18]The geographic identifier of state is not included in the publicly available data after 2004.

[19]Population counts for the denominator come from the SEER data detailed below.

[20]The average age of first-time mothers in the U.S. was 25 years in 2006 (CDC NCHS). Female fertility significantly decreases after age 37 (The American College of Obstetricians and Gynecologists Committee).

[21]We have 10 data years for California (1999-2008) and use collapsed data from 50 states and Washington D.C.

[22]Results are similar if we drop New Jersey completely.

[23]Education is not reported consistently throughout our sample. Therefore, we interpret our estimates with caution. See Thunell (2017) for estimates by education and income.

and Hispanic), and mother's marital status.

Our state-month-year level birth data is merged with state-year population estimates of women of these ages obtained from the National Institute of Health's National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program. Using the SEER data, we generate age and racial shares of the age 20 to 39 female populations by state-year to use as controls.[24] These controls are important because the general fertility rate does not account for the age or race structure of the population.[25] As births vary by age and race groups, estimating the impact of CA-PFL on the GFR without controlling for the age and race structure of the population will result in inaccurate estimates. Additionally, Table 1 shows that California is significantly less White and more Hispanic than the control group of all other states and has a slightly different age distribution (more women 25-34 than the control group) emphasizing the need to control for these characteristics when estimating fertility impacts. We also obtain state-year level information on the state-year unemployment rate, per capita income, and log of the population from the University of Kentucky Poverty Research Center's National Welfare Data to account for the role of the economy in fertility decisions.

4 Empirical Strategy

4.1 Difference-in-Differences

We use a DD strategy to identify the effect of paid leave on fertility. We estimate:

$$Y_{smt} = \beta_1 \cdot Treat_{smt} + \rho_1 * X_{st} + \delta_s + \mu_{mt} + \epsilon_{smt} \quad (1)$$

where Y_{smt} is the general fertility rate for state s in month m in year t, defined above in the Data section. $Treat_{smt}$ is an indicator variable that turns on in California starting in July of 2004. All other states are in the control group. X_{st} includes demographic shares ages 20-24, 30-34, 35-39 (age 25-29 is the omitted group); NH-Black, NH-Asian, Hispanic, and NH-Other (NH-White is the omitted group) of the population of interest as well as the log of the total state population, the unemployment rate, and per capita income. δ_s is a state fixed effect and μ_{mt} indicates the birth-month within birth-year fixed effects. The birth-month within birth-year fixed effects control for the cyclicality of births as well as national time trends.

[24] For example, share white is the number of white females ages 20 to 39 divided by the total number of females ages 20 to 39, and share age 30-34 is the number of females ages 30 to 34 divided by the number of females ages 20 to 39.

[25] The general fertility rate is generally defined as births per 1,000 aged 15-44 females but we use births to 1,000 aged 20-39 females for reasons explained above.

The coefficient of interest, β_1, is the DD estimate of the effect of the implementation of CA-PFL on fertility. This equation estimates the reduced form (or intention-to-treat, ITT) effects of paid leave averaged over all prime childbearing-age women, even those who do not work, or who do not take leave.[26] We additionally investigate this model using subsets of the data based on age, birth parity, and race. We present results with robust standard errors clustered at the state level as well as Ferman and Pinto (2019) adjusted p-values.

4.2 Identification

Identification of β_1 as the causal effect of paid leave in a DD strategy relies on the treated and control states experiencing the same time trend; i.e. in the absence of CA-PFL, California would have experienced the same trend in fertility as control states. This assumption would be violated if there are alternative shocks to California or any control states during the sample period. While it is difficult to rule out any state policies that may have affected fertility in this period, a thorough search ruled out other simultaneous California policy changes relating to paid leave, child care provision, or abortion during the period. Additionally, while European and Scandinavian countries have expanded paid family leave programs to incentivize increased fertility, that was not the intention of these U.S. policies. However, the Great Recession is known to have differentially impacted state labor markets; thus, we restrict our California analysis to end in June of 2008.

Although the parallel trends assumption is fundamentally untestable, to explore its plausibility, we conduct a residualized event study analysis. We estimate:

$$Y_{smt} = \sum_{d=-D,d\neq-1}^{D} \cdot 1(t-T=d)\beta_d + \rho_1 \cdot X_{st} + \theta_s + \mu_{mt} + \epsilon_{smt} \tag{2}$$

All variables are as defined above in (1), but β_d is a vector which takes on a unique value for each year, with the exception of 2003, the omitted base year. For the event studies, d is measured in years rather than months due to the cyclicality of births.[27] Figure A1 shows the event study at the month level. The cyclicality of births makes it difficult to discern if the parallel trends assumption is validated. Consequently, we rely on year-level event studies for the remainder of the paper. Since the policies were implemented in July, years are defined as July to June. This has no effect on the DD estimates as they are always estimated at the state-month-year level.

As noted in the Data section, age and race controls are important when using a general fertility rate as an outcome measure, especially since California has a significantly different

[26] In the Natality data, we are unable to explicitly see either employment or take up of leave.

[27] Because all the control units are included in the omitted period, the cyclicality of births appears in the event study coefficients estimating fertility in California relative to the omitted group (all the control states and California in the omitted period). In the month level event studies, the omitted period is July 2003, 12 months before the policy was implemented.

racial and age composition than the rest of the U.S. Figure A2.A shows that without any controls, there is a strong pre-trend of declining fertility that flattens out after CA-PFL. Without controls, there is no significant change in fertility following CA-PFL consistent with Bailey et al (2019), Pihl and Basso (2019) and Chen (2020). Figure A3.B shows the event study and DD results when including age and race controls but none of the economic controls. There is no significant pre-trend and we estimate that births increase by 2.1 births per 1,000 women 20-39.[28]

4.3 Inference

Studies that exploit policy variation across states historically conduct inference using standard errors clustered at the state level to correct for likely serial correlation within a state (Bertrand et al., 2004). However, inference in this framework relies on asymptotic approximations associated with the assumption that the number of individuals/observations within a state and/or the number of states grows large (Wooldridge, 2006). This assumption does not apply in our setting since treatment occurred in only one state during the sample period. Some researchers argue inference is problematic in such settings because comparing a single state with all others collapses the degrees of freedom and creates much larger sampling variance (Donald & Lang, 2007; MacKinnon & Webb, 2018).

More recent work suggests that inference should additionally account for any imbalances in the number of observations in treated and control groups (Ferman & Pinto, 2019). Ferman and Pinto (2019) developed an alternative method specifically for causal inference with one treatment unit (hereafter FP). They suggest an extension of the cluster-residual bootstrap with a heteroskedasticity correction applied to the residuals. In our setting, heteroskedasticity may be generated by the variation in treated and control group sizes. This method produces an adjusted p-value that is reported in brackets in all tables.

5 Results

5.1 Effects on Fertility

Figure 1 shows the event study results for the effect of paid leave on the overall California birth rate. The dotted vertical line marks passage of the law in September of 2002, while the solid vertical line denotes the start of paid leave benefits on July 1, 2004. The dependent variable is the state-month-year birth rate defined above. Figure 1 provides strong support for

[28] It is primarily the lack of race controls that account for the pre-trend in Figure A2.A. Figures with just race or just age controls are available upon request.

parallel pre-trends, suggesting that women in other states may be a reasonable comparison group for women in California for causal interpretation in a DD framework. We find a statistically significant increase of 2.5 births per 1,000 females ages 20-39 (Table 2, Column 1), a 2.8 percent increase.[29]

5.2 Heterogeneity

5.2.1 Age

We next consider whether women of different ages respond differently to the policy. We present the results for women in their 20s separately from women in their 30s, as they are likely at different stages in both their career and childbearing. We find that fertility effects largely accrue to women in their 30s. Figure 2.A shows that births to women in their 20s were slightly higher in California relative to the rest of the country prior to 2004. Following the implementation of CA-PFL, the birth rate increases slightly before declining after 2006 resulting in no statistically significant change in fertility for mothers in their 20s. Figure 2.B shows a significant and steady increase in the birth rate for the mothers in their 30s following CA-PFL. This statistically significant increase of 3.1 higher order births per 1,000 aged 30-39 females is a 4 percent increase relative to the mean (Table 2, Column 3). Based on their 95 percent confidence intervals, the estimate for births to women in their 30s is significantly different from the estimate for births to women in their 20s, showing that the increase in fertility as a result of CA-PFL is driven by women in their 30s rather than women in their 20s.

5.2.2 Parity

Next, we test whether the policy drives women to have first births or mothers to have higher parity births, or both. As these groups likely have different opportunity costs associated with childbirth, added paid leave benefits may differentially affect the fertility decisions of these groups of women. Parity is somewhat conditional on age in that, on average, mothers of higher parity births will be older than mothers of first births. As the results above show that the fertility effect is driven by women in their 30s, we generate rates of first births and higher parity (second or higher) births to women ages 30-39.[30] In Table 2, Columns 4 and 5 show estimates of the effect on first and higher parity birth rates to these women. We find

[29] Throughout the paper, we will use the FP p-values to measure and determine statistical significance. The tables show both the robust standard errors in parentheses and the FP p-values in brackets.

[30] Results by parity for all women 20-39 are shown in Appendix Figure A3. Results by parity for women in their 20s are shown in Appendix Figure A4. Results by individual parity (second, third, fourth, etc.) available upon request. Our findings are driven entirely by second and third births.

no statistically significant effect on first births. Figure 3.B shows no gap between California and the control states before paid leave was implemented. We estimate a large increase in California higher parity births of 2.4 additional higher order births to women ages 30-39 per 1,000 30-39 women (Table 2, Columns 5), or about 4.5 percent. Based on the standard errors, we can reject that the estimates on first and higher-parity births are equal, telling us that the increase in fertility following CA-PFL is driven by intensive margin increases in fertility to mothers in their 30s. This finding suggests that CA-PFL increased completed fertility rather than increasing the number of women who have a child.

5.2.3 Education

Previous research found that the fertility increase following FMLA in the U.S. was only among high SES, white women (Cannonier, 2014). Table 3 shows the change in fertility by mother's highest education degree achieved. Mother's education is not available in every state and year in our data. We acknowledge that there is some selection into this analysis based on when and where we can observe mother's education and interpret our estimates with that caveat. Mothers with a high school degree had about 3.5 additional births per 1,000 women 20-39 following CA-PFL, a 14 percent increase from the mean (Column 3).[31] No other educational group saw a statistically significant change in birth rates. These findings suggest that paid family leave supports disadvantaged groups, and impacting their fertility decisions, where unpaid leave (FMLA) did not.

5.2.4 Race

Next, we explore whether women of different race and ethnicity respond differently to access to paid leave. Rossin-Slater et. al (2013) suggest that take-up of leave benefits in California differed by race, though they state the results should be interpreted with caution given large standard errors.[32] We thus estimate fertility effects separately for NH-White, NH-Black, NH-Asian, and Hispanic women.

Because event studies do not support the parallel trends assumption when broken down by race, we utilize the synthetic control method (SCM) from Abadie et. al (2010) for this analysis. The synthetic control approach selects control states that exhibit the same pre-treatment dynamics as California. By using a weighted subset of states to make up the control group, this method addresses concerns that all other states may not be the best

[31] Event studies shown in Figure A5.

[32] They estimate Black mothers had the largest gain in leave-taking, 10.6 percentage points, compared to a 7.1 percentage point increase among White mothers and a statistically significant 6.2 percentage point increase among Hispanic mothers.

control group for California. This method selects the vector of weights that minimizes the distance between the characteristics of California and the control states. The final vector of state weights sum to one.

Estimates by race/ethnicity are shown in Figure 4. There is no significant change in fertility among White, Black, or Asian mothers. The increase in births following paid family leave is driven entirely by Hispanic mothers with an increase of 1.96 Hispanic births per 1,000 Hispanic females ages 20-39. Consistent with the education findings above, CA-PFL appears to differentially support and impact the fertility of disadvantaged groups.

5.2.5 Marital Status

Another measure of socio-economic status available in the Natality data is marital status. We cannot observe partnership status, so unmarried includes cohabiting, divorced, and separated women in addition to single mothers. As with race, we use SCM as the parallel trends assumption for DD is not satisfied. Fertility increased by 0.9 births to married mothers per 1,000 females ages 20-39 and 1.1 births to unmarried mothers per 1,000 females ages 20-39. The estimates are not significantly different from each other. Consequently, there is no apparent difference in response to CA-PFL by mother's marital status.

5.3 Robustness

5.3.1 Definition of Post

In our primary specification, we define *Post* as a birth during or after July, 2004 when benefits under CA-PFL could officially be claimed. When California's law was first passed in September of 2002, it was announced at the same time that parents would first be able to claim benefits starting July 1, 2004. If women strategically delayed their pregnancies to be able to take paid leave immediately after childbirth, our estimates may reflect *displaced* births rather than additional births.[33] Thus, impacts of the policy may begin earlier. While any births in 2002 would have been conceived prior to the announcement of the policy's implementation, this is not the case for all 2003 births. Further, while most parents take leave immediately following their child's birth (or shortly after if they have disability or other leave they can combine CA-PFL with), parents are eligible to take leave any time within 12 months of their child's birth. Consequently, parents of children born starting August of 2003 are technically eligible.

[33] Lichtman-Sadot (2014) finds evidence that women shifted births from the first half of 2004 to the second half.

For these reasons, we test the sensitivity of our DD results to alternative *Post* periods. In Table 4, Column 1 of Panel A and B reproduce our main findings, an increase in the overall birthrate and higher parity births for women ages 30-39, for convenience. Column 2 shows the estimates when *Post* begins at policy passage, September 2002. This model includes all possible "treated" births for birth conceived shortly after the policy was announced since leave can be claimed up to 12 months after the child is born. In Column 3, we exclude the interim period of September 2002 through July 2003. While the beginning the post period in 2002 assures that we are accounting for all who are potentially treated, excluding the period between announcement and implementation tests that our estimates are not driven by a decline in births from between announcement and implementation. Column 4 omits 2004 entirely to eliminate any change due to a shifting of births from the first half to the second half of 2004. Column 5 uses annual data to address concerns that our birth-month estimates artificially inflate our number of observations, shrinking our standard errors. Our estimates are generally consistent across these alternate specifications.

5.3.2 Control States

In our main analysis, we use all other states as the control group. Because California is a unique state in terms of size, policy, and demographics, certain select states might serve as a better control group.[34] Table 5 estimates the impact of CA-PFL against several alternative control groups. Column 1 reproduces our main findings for convenience. Column 2 shows estimates when we drop New Jersey as they implemented a policy shortly after our sample period, though this has little impact on our estimates. Column 3 shows results when the next three largest states (Florida, New York, and Texas) serve as the control group with estimates similar in magnitude. Column 4 of Table 5 shows estimates using states with state temporary disability insurance programs (HI, NJ, NY, and RI) as the control group. These states have a similar policy environment to California prior to CA-PFL since all these states provide paid maternity leave through their SDI programs. The estimate is actually larger with 4.1 additional births per 1,000 women ages 20-39 and 3.9 additional higher order births to women ages 30-39. These estimates highly significant when according to the FP p-values shown in brackets.

Baum and Ruhm (2016) employ an alternative set of control states with similar trends in maternal leave taking prior to July 1, 2004. To determine these alternative states, we adapt their specification to our data using fertility rates (since we do not have maternal leave taking in our data) and estimate the following model using observations from before July

[34] Though our event studies do show that women from all other states are collectively a reasonable control group.

2004 and each other state in turn:

$$Y_{smt} = \alpha_0 + \alpha_1 TR_{smt} + \alpha_2 NonCA_{smt} + \alpha_3 TRxNonCA_{smt} + \epsilon_{smt} \quad (3)$$

where TR is a linear time trend for the relative birth month-year prior to July 2004, NonCA is a dummy variable equal to one for the potential control state and zero for California, and TR x NonCA allows the time trend to differ between California and the potential control state. For simplicity, Y_{smt} is all birth rate (births per 1,000 women 20-39) and we use control states determined by this equation as the alternate control group for both the all birth rate and higher births to aged 30-39 women. The potential control state is included as a control state if we cannot reject that α_3 equals zero at the 5 percent level. Appendix Table A1 shows the coefficients, standard errors, and whether or not the potential control state is included in this control group. Column 5 of Table 6 shows the estimates utilizing this method to determine which states are in the control group are similar in magnitude and significance to our main estimates.

5.3.3 Synthetic Control Analysis

Another alternative method for selecting the control group is the synthetic control method (SCM) from Abadie et. al (2010). We implement SCM for DD to compare with our primary analysis and use accompanying randomization inference to generate p-values.[35] Figure 6.A maps synthetic California (the black dashed line) to actual California (the solid red line) overall birth rates. The vertical dashed line indicates CA-PFL passage and the vertical solid line indicates benefit implementation. As in Figure 1, California experiences a positive fertility effect across the post period. The synthetic control-estimated DD coefficients along with the p-value are shown in the bottom right corner of the figure. Using CA and synthetic CA rates, CA-PFL resulted in a highly significant increase of 2.9 births per 1,000 women ages 20-39, similar to our main DD estimate (2.5). As a placebo test, we calculate a synthetic control estimate for every state using 2004 as the treated year.[36] Figure 6.B graphs the treatment effects for each of these placebo analyses. California is demarcated with the thick red line and the thin black lines show the 90 percent confidence interval. This is a demanding test of statistical significance given the small number of states. The treatment effect for California is within the 90 percent confidence interval, failing the placebo test as seven states have larger estimates.

Figure 6.C shows the SCM results for higher parity births to mothers ages 30-39. Similar to our DD estimate (2.4), the SCM model shows an increase of 2.8 higher parity births to

[35] We do not use SCM as our main method of analysis because the results are highly subjective to researcher decisions regarding lags of both the outcome and control variables and inference is more difficult.

[36] Vermont is excluded because the hedonic matrix is assymetrical.

women ages 30-39 per 1,000 aged 30-39 females, also highly statistically significant. Figure 6.D shows that the treatment effect for higher parity births to mothers ages 30-39 in California is outside the 90 percent confidence interval of placebo treatment effects with only one state having a larger estimate, passing the placebo test.

5.3.4 Study Population

In our main results, we focus on child-bearing age women, who are 20 to 39 years old. We do not expect paid leave policies to impact teenage births. We thus use this group for a placebo test. We find no significant effect on the number of births to teens in California (Table 6, Column 1). We also exclude women 40 years and older from our primary specification, as they are generally less physically able to respond to fertility incentives. As seen in Column 2, including women 20-44 does not significantly change our estimate. As women's reproductive years expand, we include women 20-54 in Column 3. While there is still a statistically significant increase in fertility, it becomes smaller in magnitude as we would expect by including a lower fertility group.

5.4 Alternative Explanations

We consider two alternative explanations of our findings here. The first is that the increase in births is not due to an increase in births among California residents but an influx of soon-to-be parents attracted to California by CA-PFL, aka the policy serves as a welfare magnet. While not necessarily problematic in estimating the impact of a state paid family leave policy, any increase in fertility driven by differential cross-state migration would not occur following a national policy as the U.S. provides the least generous leave of any developed country. To check for differential migration, we use American Community Survey (ACS) data from 2000 to 2008.[37] The ACS asks if the respondent moved in the last year and whether they moved within state, between states, or between countries. The ACS also includes age of youngest child. We use these variables in the same DD and event study analysis described in Equations (1) and (2) to test if there was a differential increase in out-of-state in-migration to California compared to out-of-state in-migration to other states in the last year. We also look specifically at in-migration among those with a child less than one (capturing those who moved in conjunction with a birth to take advantage of CA-PFL). Figure A6.A shows a small and insignificant decrease in cross-state migration to California relative to other states. Figure A6.B shows a more precisely estimated null for those who had a child in the last year.

[37] The ACS is considered preliminary and not necessarily representative prior to 2003, but it is the best data source, to our knowledge, to answer this question.

Overall, we find no evidence that CA-PFL acts as a welfare magnet differentially attracting migrants to take advantage of the policy. We therefore have confidence that our estimates are capturing fertility changes to California parents rather than attracting those intending to have additional children to California to give birth under the policy. Additionally, Rossin-Slater et al. (2013) finds no evidence of a change in the composition of mothers following the policy.

A second alternative explanation is that we have not identified an increase in fertility, but rather, a shifting of births identified in Lichtman-Sadot (2016) and Oloomi (2020).[38] If this were the case, we would expect to see a short-term spike in births as a result of women shifting their births later to take advantage of the policy or shifting births earlier in the response to the policy followed by a return to pre-PFL level fertility shortly following implementation. Instead, the event study in Figure 1 shows a sustained increase in fertility through 2008.[39] For this long-term increase to be a shift in timing, women would have to shift their intended births by more than 4 years for several years following the policy, which seems implausible.

5.5 External Validity

5.5.1 Paid Family Leave in New Jersey

To explore the external validity of our results, we conduct a parallel analysis of New Jersey's Family Leave Insurance (FLI) program. We generally find that paid leave had a similar positive impact on fertility, with evidence of increased higher parity births. While New Jersey provides a good counterpart to California in some ways, there are caveats that preclude us from relying heavily on results from this state. New Jersey is a much smaller state than California, with less than a third of California's population, has a different racial and ethnic composition[40], and is also on the opposite coast, with a different geographic and economic landscape. The passage and implementation of NJ-FLI in 2009 overlapped with the recession, which has had a differential impact on state economies since. This is a worrisome confounder, cautioning a causal interpretation of between-state DD estimates for New Jersey.

[38] Lichtman-Sadot (2016) shows that women shifted their births from the first half of 2004 to the second half of 2004 to take advantage of the new leave policy. Oloomi (2020) shows that women have their first birth 2 years earlier following CA-PFL.

[39] If we extend our analysis through 2010, the estimates for the additional years are slightly smaller but remain positive and statistically different from zero.

[40] It is significantly less Hispanic and more Black

5.5.2 Policy Details

New Jersey signed its Paid Family Leave Insurance (NJ-FLI) into law May 2, 2008. Contributions started January 1, 2009, and benefits began July 1, 2009. Modeled after California's program, NJ-FLI also offers six weeks of partially paid leave to working parents to bond with a newborn or newly adopted child and is financed by employee-paid payroll taxes. In 2009, the wage replacement rate was 66 percent with a weekly maximum benefit of 524 nominal dollars. A worker must either have worked 20 calendar weeks in New Jersey-covered employment, or alternatively, earned at least 7,150 nominal dollars during a base period of 12 months preceding any leave. NJ-FLI does not offer any explicit job protection. There is little existing research documenting New Jersey's paid leave policy; this is another contribution of this paper.

5.5.3 Findings

We estimate that NJ-FLI increased fertility in New Jersey by 2.7 births per 1,000 aged 20-39 females, an increase of 3 percent (Table 7, Column 1). Unlike California, this increase is driven by births to women in their 20s (Column 2), though none of the NJ estimates are significant using the FP p-values in brackets. Similar to California, the increase is driven by higher order births 2.9 additional higher order births per 1,000 aged 20-29 females, a 6 percent increase (Table 7, Column 5). The similarity of these results to our CA findings suggests we have accurately identified a lower bound for a change in fertility following a similar policy implemented in other states or at a national level. Because both California and New Jersey have SDI programs, our analysis is estimating an expansion of paid leave for mothers rather than a true introduction. States without SDI or a national policy would likely see a larger increase as women experience a larger change in their leave access with the introduction of a paid family leave policy.

6 Discussion & Conclusion

Women in California increase fertility after gaining access to paid leave. These effects are largely driven by women in their 30s having additional, higher-parity, children. The 2.8 percent increase in the overall general fertility rate (2.5 births per 1,000 females ages 20-39) suggests that CA-PFL resulted in about 13,000 additional children born *each year* after paid leave was made available. Our results are similar to Shim (2014), which finds that paid family leave is associated with a 2 percent increase in fertility among OECD countries.[41]

[41] Lalive & Zweimuller (2009) and Raute (2019) find fertility increases of similar magnitude.

The increase in fertility is driven by higher order births to mothers in their 30s, who increase their fertility by 4.5 percent. Hispanic mothers and mothers with a high school degree also significantly increased their fertility. This suggests that *paid* family leave may has a greater impact on low SES groups compared to FMLA which increased fertility only among high SES, whites (Cannonier, 2014)

The finding that paid leave increases women's fertility sheds an important light on research that has considered the effect of paid family leave on women's labor market outcomes. Increased fertility as a result of the policy may be an important mechanism to explain seemingly surprising negative impacts on employment and earnings in the long run in recent work. Positive short-term labor market outcomes may result from women returning to their pre-birth employment/employer, while negative long-term outcomes may be the result of child penalties the mother would not have faced if she left the workforce or had no additional children. Future work should explore this potential mechanism. Analyses of total policy effects should also not ignore potential positive utility effects of increased childbearing for women and families who prefer to have more children.

The fact that paid leave is implemented in only one state at a time causes challenges to inference and generalizability in this work. We test the external validity of our results in California by estimating the causal effect of New Jersey's similar 2009 paid leave policy. In New Jersey, we find that fertility increases by 3 percent (2.7 births per 1,000 females ages 20-39). A similar fertility response in two distinct states sheds light on how a national paid family leave policy may impact fertility in the U.S.

While we document increases in fertility rates, of key interest is how paid leave increases *completed* fertility. The birth records data used in this paper does not allow us to link multiple births to one mother or to directly observe completed fertility. Another limitation of this work is that we estimate intent-to-treat effects, as we cannot observe either leave-taking or employment directly. Future work might use more detailed data to provide additional insight into which women change their fertility decisions and how.

The results of this paper suggest the potential effectiveness of public benefits for working mothers as a pro-natal policy tool, which is particularly significant in the context of record-low childbearing rates in the U.S. A back of the envelope calculation suggests that PFL implemented at a national level would increase the U.S. total fertility rate from 1.78 children per woman (as of 2021) to 1.83 children per woman.[42] While still far from the replacement rate (2.1 children per woman needed to replace the woman and her partner, accounting for mortality), a universal paid leave policy would counteract declining national fertility.

[42]The number of children a woman entering reproductive years if expected to bear if she follows current fertility rates.

References

[1] **Abadie, Alberto, Alexis Diamond, and Jens Hainmueller.** "Comparative politics and the synthetic control method." *American Journal of Political Science* 59, no. 2 (2015): 495-510.

[2] **Abadie, Alberto, Alexis Diamond, and Jens Hainmueller.** "Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program". *Journal of the American statistical Association* 105, no. 490 (2010): 493-505.

[3] **Abadie, Alberto, and Javier Gardeazabal.** "The economic costs of conflict: A case study of the Basque Country." *American Economic Review*, 93(1), 113-132.

[4] **Alm, James, Stacy Dickert-Conlin, and Leslie A. Whittington.** "Policy watch: The marriage penalty." *Journal of Economic Perspectives* 13, no. 3 (1999): 193-204.

[5] **Alm, James, and Leslie A. Whittington.** "For love or money? The impact of income taxes on marriage." *Economica* 66, no. 263 (1999): 297-316.

[6] **Averett, Susan L., and Leslie A. Whittington.** (2001). "Does maternity leave induce births?" *Southern Economic Journal* (2001): 403-417.

[7] **Bailey, Martha J., Tanya S. Byker, Elena Patel, and Shanthi Ramnath.** *The Long-Term Effects of California's 2004 Paid Family Leave Act on Women's Careers: Evidence from U.S. Tax Data.* No. w26416. National Bureau of Economic Research, 2019.

[8] **Bana, S., Bedard, K., & Rossin-Slater, M.** (2018) *The impacts of Paid Family Leave Benefits: Regression Kink Evidence from California Administrative Data.* No. w24438. National Bureau of Economic Research, 2018.

[9] **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.

[10] **Bassford, Micaela, and Hayley Fisher.** "Bonus babies? The impact of paid parental leave on fertility intentions." (2016).

[11] **Baum, Charles L., and Christopher J. Ruhm.** "The effects of paid family leave in California on labor market outcomes." *Journal of Policy Analysis and Management* 35, no.2 (2016): 333-356.

[12] **Becker, Gary S.** "An economic analysis of Fertility, Demography and economic change in developed countries: a conference of the Universities." *National Bureau Committee for Economic Research* 209 (1960).

[13] **Bertrand, Marianne, Esther Duflo, and Sendhil Mullainathan.** "How much should we trust differences-in-differences estimates?" *The Quarterly Journal of Economics* 119, no. 1 (2004): 249-275.

[14] **Bertrand, Marianne, Claudia Goldin, and Lawrence F. Katz.** "Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors". *American Economic Journal: Applied Economics* 2, no. 3 (2010): 228-255.

[15] **Blau, Francine D., and Lawrence M. Kahn.** "Female labor supply: Why is the United States falling behind?" *American Economic Review* 103, no. 3 (2013): 251-56.

[16] **Buckles, Kasey** "Understanding the Returns to Delayed Childbearing for Working Women." *American Economic Review*, 98, no. 2 (2008): 403-07.

[17] **Byker, Tanya S.** "Paid parental leave laws in the United States: does short-duration leave affect women's labor-force attachment?" *American Economic Review* 106, no. 5 (2016): 242-46.

[18] **Carneiro, Pedro, Katrine V. Løken, and Kjell G. Salvanes.** "A flying start? Maternity leave benefits and long-run outcomes of children." *Journal of Political Economy* 123, no. 2 (2015): 365-412.

[19] **Campbell, Zakary, Eric Chyn, and Justin Hastings.** *The Impact of Paid Maternity Leave: Evidence from a Temporary Disability insurance Program.* Technical report, 2018.

[20] **Chen, Feng.** *The Unintended Effects of California's Paid Family Leave Program on Children's Birth Outcomes.* 2020.

[21] Council of Economic Advisors. "The Economics of Paid and Unpaid Leave." (2014).

[22] **Dahl, Gordon B., Katrine V. Løken, Magne Mogstad, and Kari Vea Salvanes.** "What is the Case for Paid Maternity Leave?." *The Review of Economics and Statistics.* 94, no. 4 (2016): 655-670.

[23] **Das, Tirthatanmoy, and Solomon W. Polachek.** "Unanticipated effects of California's paid family leave program." *Contemporary Economic Policy* 33, no. 4 (2015): 619-635.

[24] **Dickert-Conlin, Stacy, and Amitabh Chandra.** "Taxes and the Timing of Births." *Journal of Political Economy* 107, no. 1 (1999): 161-177.

[25] **Donald, Stephen G., and Kevin Lang.** "Inference with difference-in-differences and other panel data." *The review of Economics and Statistics* 89, no. 2 (2007): 221-233.

[26] **Ferman, Bruno, and Cristine Pinto.** "Inference in differences-in-differences with few treated groups and heteroskedasticity." *Review of Economics and Statistics*, 101 no. 3, (2019): 452-467.

[27] **Finer, Lawrence B., and Mia R. Zolna.** "Unintended pregnancy in the United States: incidence and disparities, 2006." Contraception 84, no. 5 (2011): 478-485.

[28] **Gans, Joshua S., and Andrew Leigh.** "Born on the first of July: An (un) natural experiment in birth timing." *Journal of Public Economics*, 93 no. 1-2 (2009): 246-263.

[29] **Goldin, Claudia, and Joshua Mitchell.** "The new life cycle of women's employment: Disappearing humps, sagging middles, expanding tops." *Journal of Economic Perspectives* 31, no. 1 (2017): 161-82.

[30] **Gruber, Jonathan, Phillip Levine, and Douglas Staiger.** "Abortion legalization and child living circumstances: who is the 'marginal child'?" *The Quarterly Journal of Economics* 114, no. 1 (1999): 263-291.

[31] **Hamilton, Brady E., Joyce A. Martin, Michelle JK Osterman, and Lauren M. Rossen.** "Births: Provisional Data for 2018." (2019).

[32] **Hoem, Jan M.** "Public Policy as the Fuel of Fertility: Effects of a Policy Reform on the Pace of Childbearing in Sweden in the 1980s." *Acta Sociologica* 36 (1993): 19-31.

[33] **Kahn, J.R., García-Manglano, J. and Bianchi, S.M.** "The Motherhood Penalty at Midlife: Long-Term Effects of Children on Women's Careers" *Journal of Marriage and Family*, 76: 56-72 (2014). https://doi.org/10.1111/jomf.12086

[34] **Klerman, Jacob Alex, Kelly Daley, and Alyssa Pozniak.** *Family and medical leave in 2012.* Technical report, Abt Associates September, 2012.

[35] **Kleven, Henrik, Camille Landais, Johanna Posch, Andreas Steinhauer, and Josef Zweimuller.** "Child penalties across countries: Evidence and explanations." In AEA Papers and Proceedings, vol. 109, pp. 122-26. (2019).

[36] **Kluve, Jochen, and Marcus Tamm.** "Parental leave regulations, mothers' labor force attachment and fathers' childcare involvement: evidence from a natural experiment." *Journal of Population Economics* 26, no. 3 (2013): 983-1005.

[37] **Lalive, Rafael, and Josef Zweimüller.** "How does parental leave affect fertility and return to work? Evidence from two natural experiments." *The Quarterly Journal of Economics*, 124, no. 3 (2009): 1363-1402.

[38] **Lichtman-Sadot, S.** (2014). "The Value of Postponing Pregnancy: California's Paid Family Leave and the Timing of Pregnancies." The BE Journal of Economic Analysis & Policy, 14(4), 1467-1499.

[39] **Luci-Greulich, Angela, and Olivier Thévenon.** "The impact of family policies on fertility trends in developed countries." *European Journal of Population/Revue européenne de Démographie* 29, no. 4 (2013): 387-416.

[40] **MacKinnon, James G., and Matthew D. Webb.** "The wild bootstrap for few (treated) clusters." *The Econometrics Journal* 21, no. 2 (2018): 114-135.

[41] **Mathews, Thomas J., and Brady E. Hamilton.** "Mean age of mothers is on the rise: United States, 2000-2014." US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2016.

[42] **Olivetti, Claudia, and Barbara Petrongolo.** "The economic consequences of family policies: lessons from a century of legislation in high-income countries." *Journal of Economic Perspectives* 31, no. 1 (2017): 205-30.

[43] **Oloomi, Sara.** "Impact of Paid Family Leave of California on Delayed Childbearing and on Infant Health Outcomes." Louisiana State University Department of Economics Working Paper Series. (2016).

[44] **Persson, Lotta, and Jan M. Hoem.** "Immigrant fertility in Sweden, 2000-2011: A descriptive note." *Demographic Research* 30 (2014): 887-898.

[45] **Pihl, Ariel Marek, and Gaetano Basso.** "Did California paid family leave imapct infant health?" *Journal of Policy Analysis and Management* 38, no. 1 (2019): 155-180.

[46] **Raute, Anna.** "Can financial incentives reduce the baby gap? Evidence from a reform in maternity leave benefits." *Journal of Public Economics*. 169 (2019): 203-222.

[47] **Rossin-Slater, Maya.** “Maternity and Family Leave Policy.” *The Oxford Handbook of Women and the Economy*, edited by Saul D. Hoffman Susan L. Averett, Laura M. Argys, 323-342. Oxford University Press. (2018).

[48] **Rossin-Slater, Maya, Christopher J. Ruhm, and Jane Waldfogel.** “The effects of California’s paid family leave program on mothers’ leave-taking and subsequent labor market outcomes.” *Journal of Policy Analysis and Management* 32, no. 2 (2013): 224-245.

[49] **Ruhm, Christopher, J.** “Policy watch: the family and medical leave act.” *Journal of Economic Perspectives* 11, no. 3 (1997): 175-186.

[50] **Ruhm, Christopher, J.** “Policies to assist parents with young children.” *The future of children/Center for the Future of Children, the David and Lucile Packard Foundation* 21, no. 2 (2011): 37.

[51] **Shim, Joyce.** “Family Leave Policy and Fertility Rates in OECD COuntries including East Asia.” In *Population Association of America 2014 Annual Meeting, Boston, MA. http://paa2014.princeton.edu/papers/140973.* 2014.

[52] **Stanczyk, Alexandra Boyle.** “Does Paid Family Leave Improve Household Economic Security Following a Birth? Evidence from California.” Social Service Review 93 no. 2 (2019): 262-304.

[53] **Timpe, Brendan.** “The Long-Run Effects of American’s First Paid Maternity Leave Policy.” (2019).

[54] **Thunell, Johanna.** “Paid Family Leave and Women’s Childbearing Decisions in the United States.” Population Association of America Annual Meeting. https://paa.confex.com/paa/2017/meetingapp.cgi/Paper/15479. (2017).

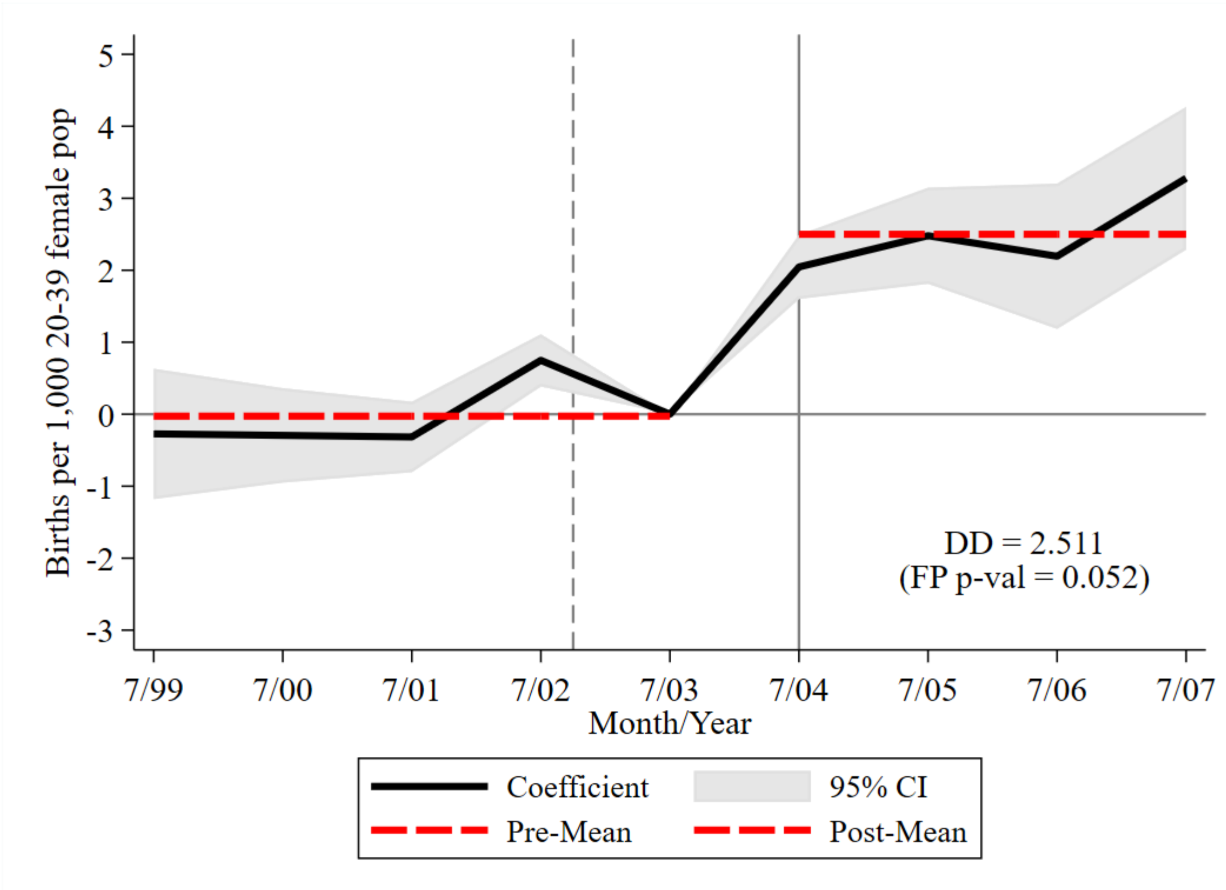
[55] **Tudor, Simona.** ”Financial incentives, fertility and early life child outcomes.” *Labor Economics* 64. (2020).

[56] **Wooldridge, Jeffrey M.** “Cluster-sample methods in applied econometrics: an extended analysis.” *Michigan State University mimeo* (2006).

[57] **Zigler, Edward, Susan Muenchow, and Christopher Ruhm.** ”Time Off with Baby: Who Gets it, and Who Doesn’t.” *Zero to Three (J)* 32, no. 6 (2012): 50-55.

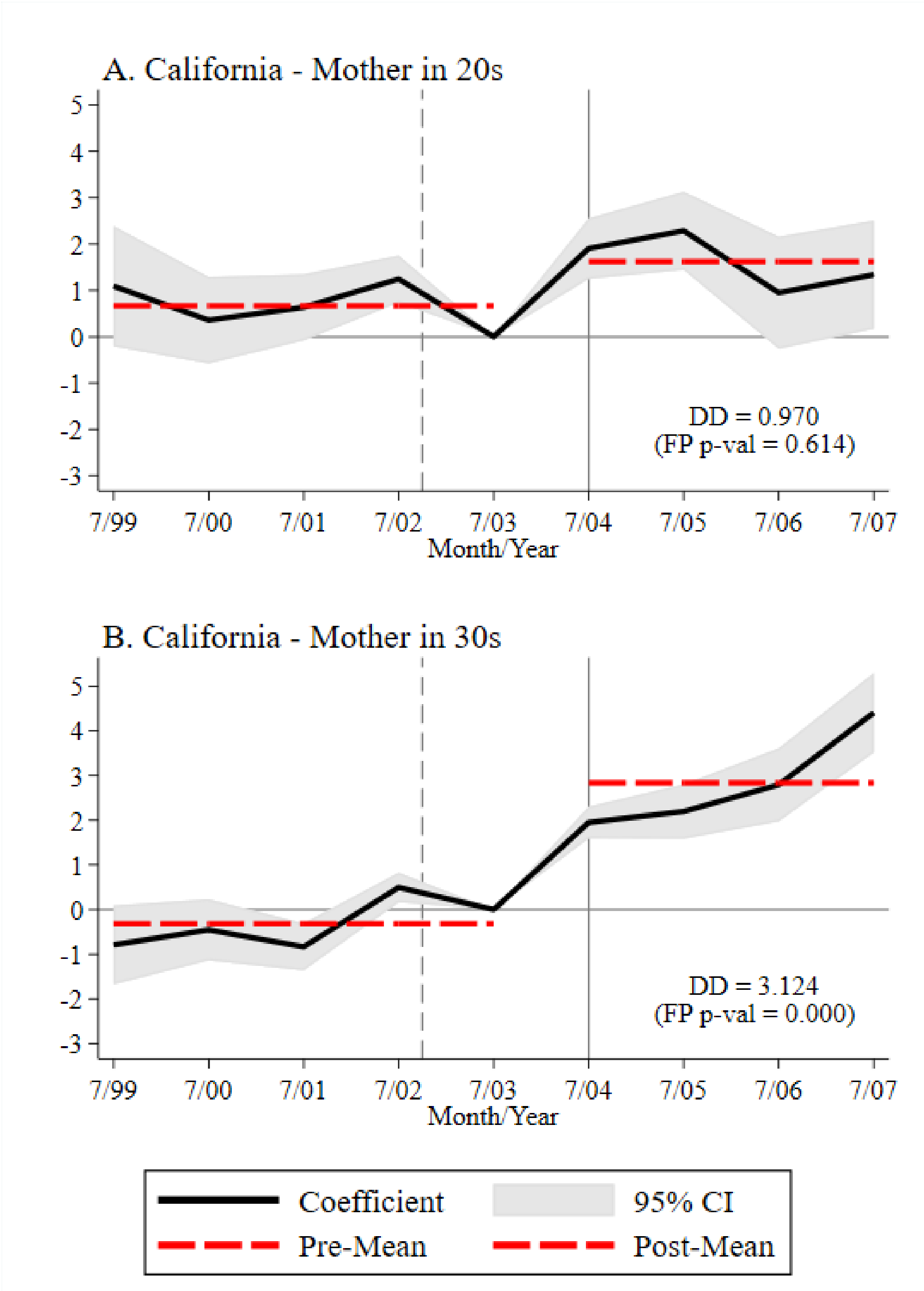
Figures & Tables

Figure 1: Effect of Paid Leave on Fertility Rate



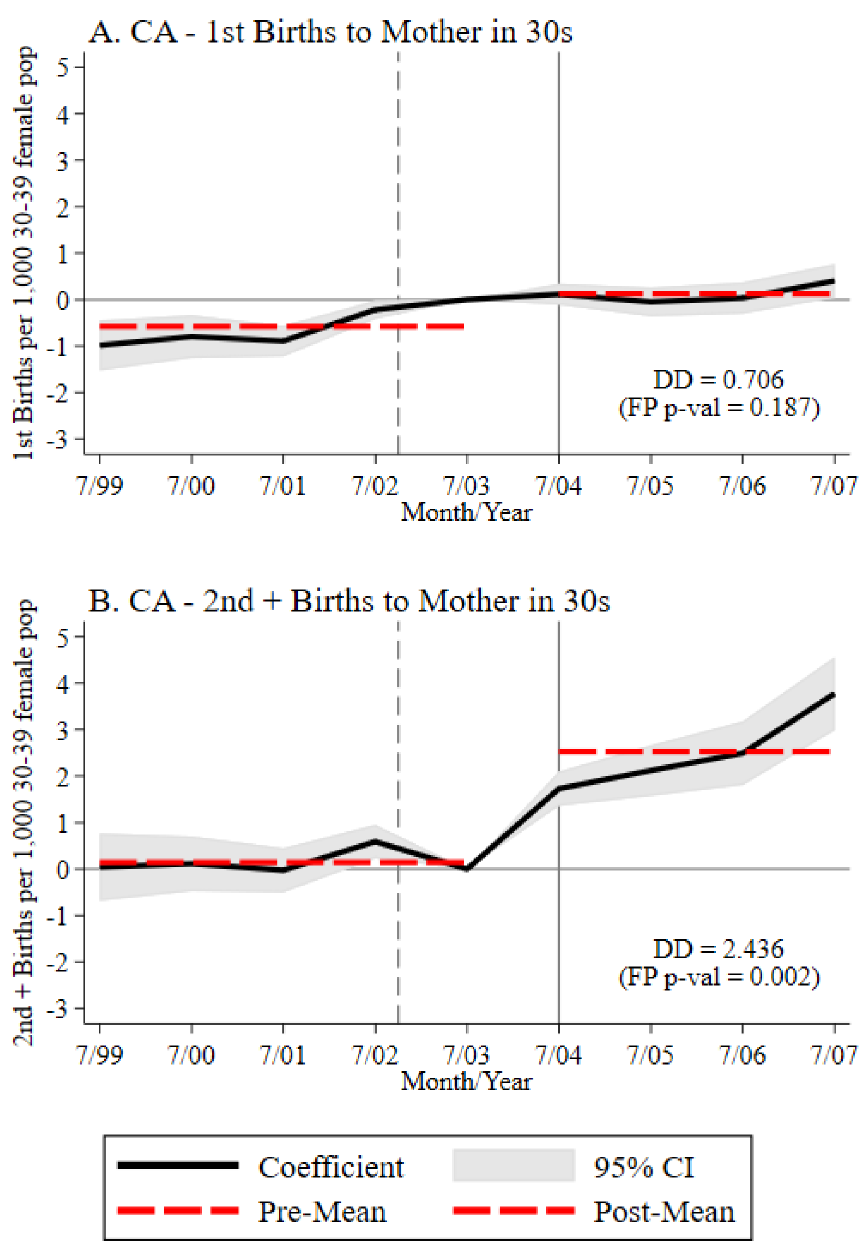
Note: This plots equation (2) for the general fertility rate (births per 1,000 women 20-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Includes controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population as well as state fixed effects and birth month-year fixed effects. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure 2: Effect of Paid Leave on Fertility by Mother's Age



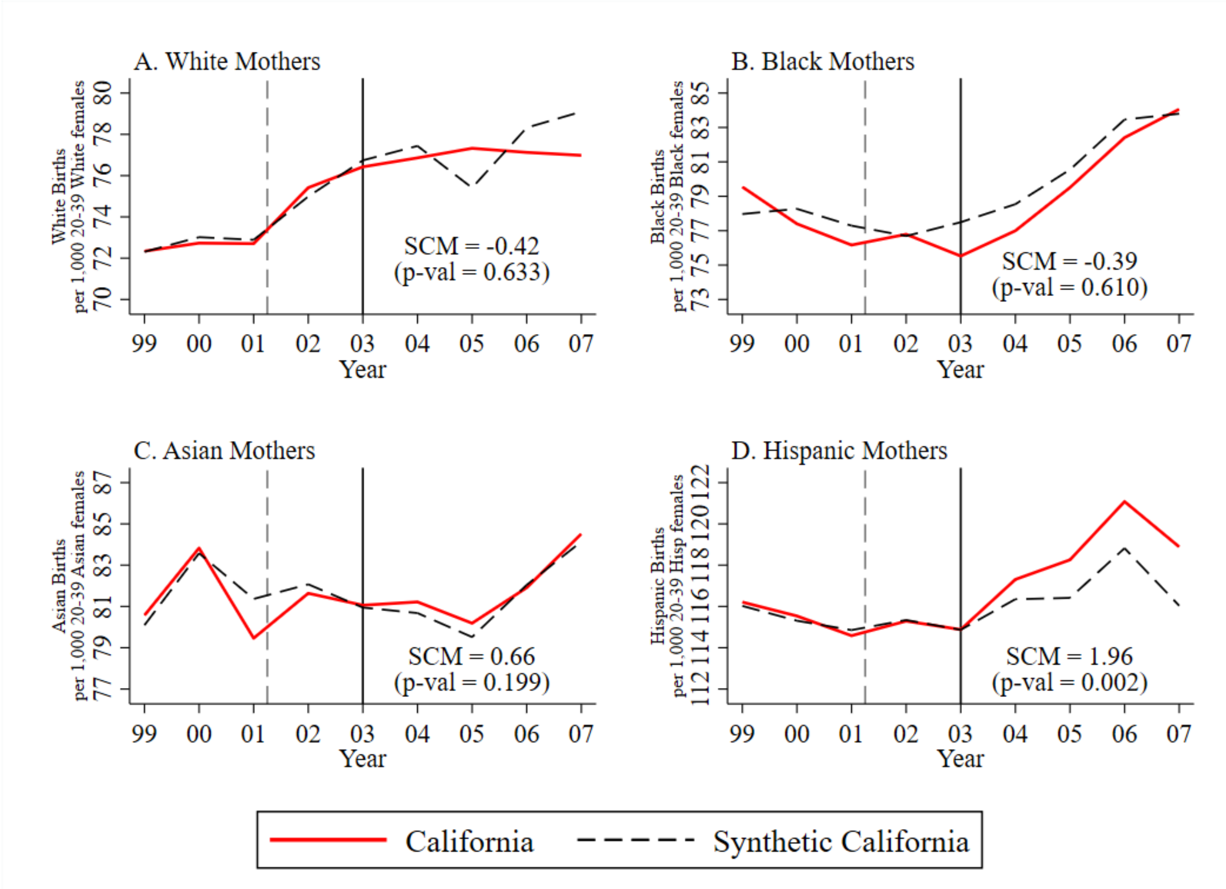
Note: This plots equation (2) for the age-specific general fertility rate (births to women age 20-29 (30-39) per 1,000 women 20-29 (30-39)) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Includes birth month-year and state fixed effects, and state-year controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure 3: Effect of Paid Leave on Fertility by Birth Parity, 30s



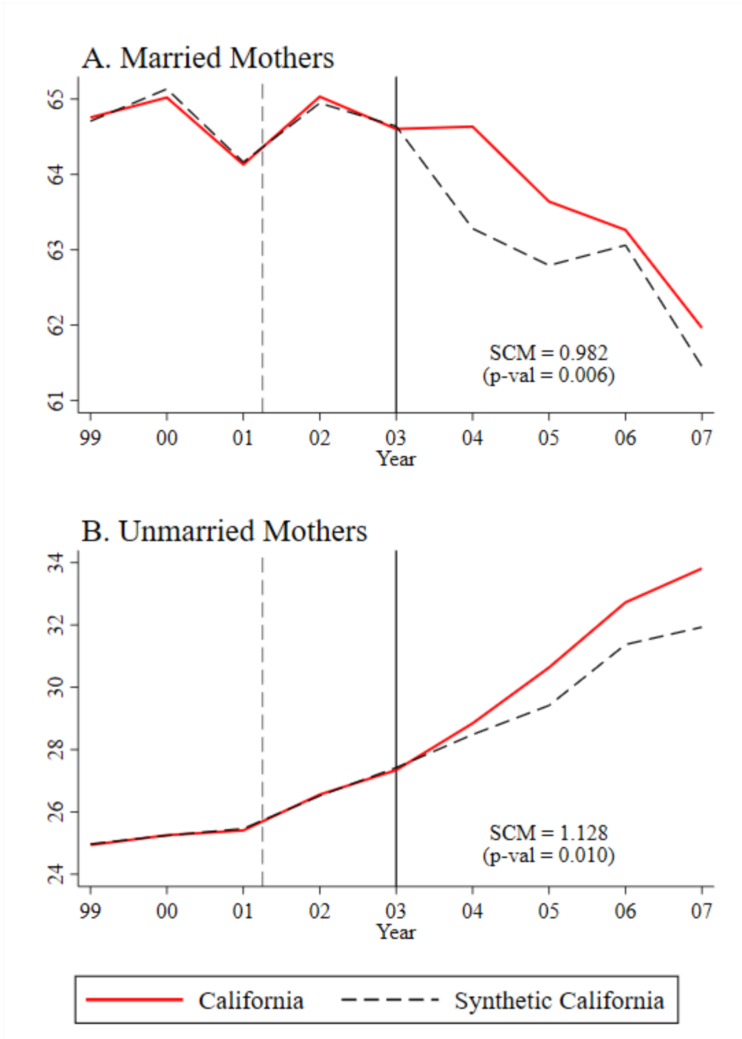
Note: This plots equation (2) for the parity-by-age general fertility rate (first (2nd+) births to women age 30-39 per 1,000 women 30-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Includes month-year and state fixed effects, and state-year controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure 4: Effect of Paid Leave on Fertility by Race



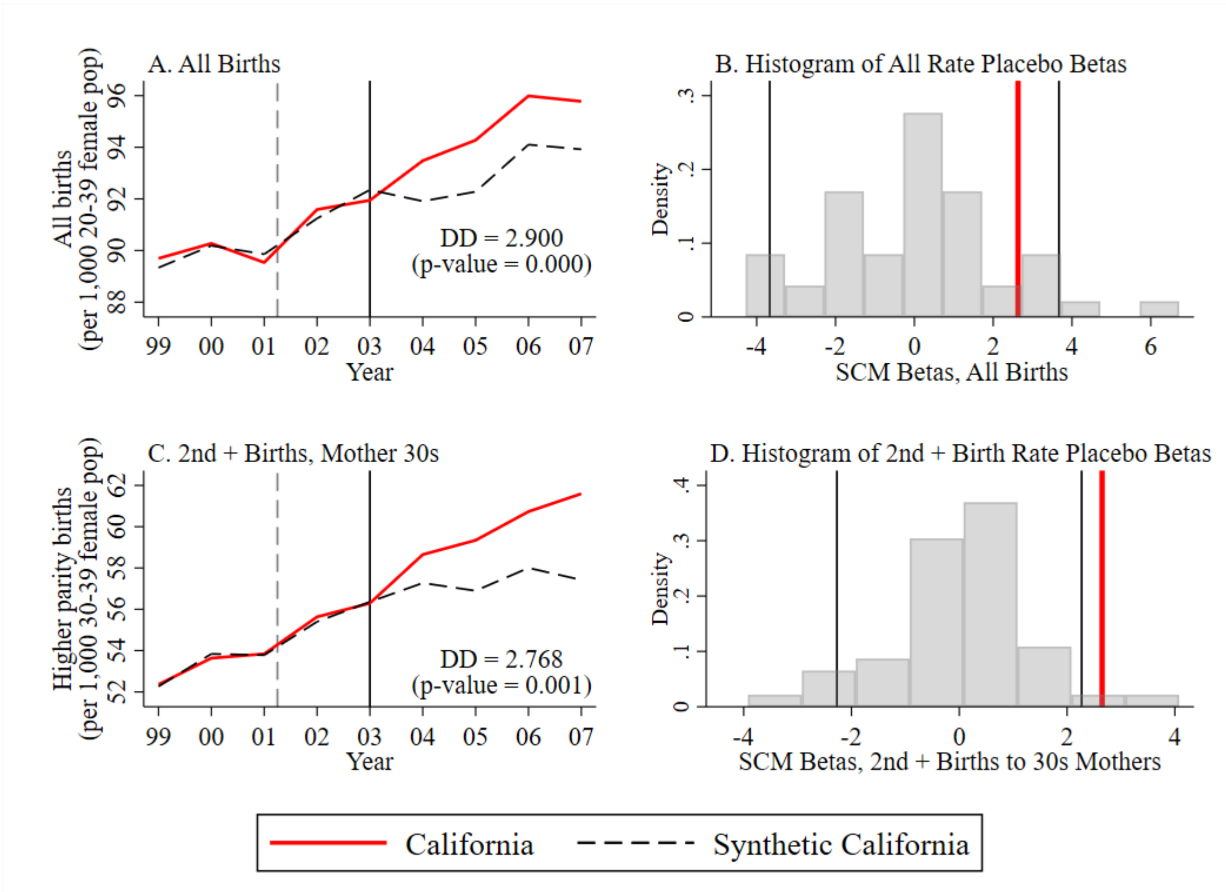
Note: This plots the SCM estimates for the general fertility rate by race/ethnicity (race-specific births per 1,000 race-specific females 20-39) in California using 1999-2008 CDC NVSS Natality Data. The matching was based on 1999-2002 pre-CA-PFL births per 1,000 population. Additionally, state unemployment rate, log population, per capita income, age shares, and race shares, are matched averaged over all pre-period years (1999-2003).

Figure 5: SCM Estimates by Marital Status



Note: The matching was based on 1999-2002 pre-CA-PFL births per 1,000 population. Additionally, state unemployment rate, log population, per capita income, age shares, and race shares, are matched averaged over all pre-period years (1999-2003).

Figure 6: Synthetic Control Estimates for CA-PFL



Note: The matching was based on 1999-2002 pre-CA-PFL births per 1,000 population. Additionally, state unemployment rate, log population, per capita income, age shares, and race shares, are matched averaged over all pre-period years (1999-2003). Synthetic California is comprised of Hawaii (0.103), Nevada (0.456), Texas (0.197), and Washington (0.244). Figures B and D shows a histogram of the betas from placebo tests where every other state in the sample (see footnote 46 for exclusions) is the treated unit.

Table 1: Summary Statistics

	California				Control (All Other States)			
	Pre- PFL		Post-PFL		Pre- CA-PFL		Post- CA-PFL	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Outcome Variables								
All Birth Rate	90.61	(4.28)	94.88	(5.03)	87.50	(11.76)	92.43	(11.78)
Mother 20-29 Rate	108.11	(5.96)	107.30	(6.13)	112.02	(16.78)	113.47	(18.46)
Mother 30-39 Rate	74.82	(4.18)	82.52	(4.21)	64.58	(16.59)	70.38	(15.87)
1st to Mother 30-39 Rate	20.41	(1.53)	22.38	(0.97)	16.84	(7.34)	17.96	(7.37)
2nd + to Mother 30-39 Rate	54.35	(2.84)	60.08	(3.32)	47.43	(10.67)	52.01	(10.49)
White Birth Rate	73.92	(4.05)	77.07	(3.77)	83.61	(11.21)	87.45	(11.58)
Black Birth Rate	77.09	(4.18)	80.74	(4.84)	88.68	(22.4)	95.18	(23.33)
Hispanic Birth Rate	115.30	(7.23)	118.89	(8.00)	114.41	(30.1)	125.21	(32.76)
Asian Birth Rate	81.31	(4.35)	81.96	(4.55)	86.98	(18.64)	85.19	(15.84)
<HS Degree Birth Rate	22.96	(1.44)	17.02	(10.01)	11.44	(4.86)	8.21	(7.24)
HS degree Birth Rate	25.28	(1.34)	18.97	(11.15)	27.08	(6.28)	16.74	(13.52)
Some College Birth Rate	18.78	(0.98)	15.19	(8.99)	21.34	(5.79)	15.30	(12.80)
BA+ Birth Rate	21.88	(1.64)	17.69	(10.38)	24.64	(8.10)	17.13	(14.19)
Married Birth Rate	64.71	(3.12)	63.38	(3.60)	63.13	(10.69)	62.29	(11.30)
Unmarried Birth Rate	25.90	(1.46)	31.50	(2.46)	24.38	(5.81)	30.13	(6.50)
Control Variables								
Proportion 20-24	0.23	(0.01)	0.25	(0.00)	0.25	(0.03)	0.26	(0.02)
Proportion 25-29	0.24	(0.00)	0.25	(0.00)	0.23	(0.01)	0.25	(0.01)
Proportion 30-34	0.26	(0.00)	0.24	(0.00)	0.25	(0.01)	0.24	(0.01)
Proportion 35-39	0.27	(0.01)	0.26	(0.00)	0.28	(0.02)	0.25	(0.02)
Proportion White	0.41	(0.02)	0.37	(0.01)	0.73	(0.16)	0.70	(0.16)
Proportion Black	0.07	(0.00)	0.06	(0.00)	0.12	(0.12)	0.12	(0.11)
Proportion Other	0.01	(0.00)	0.01	(0.00)	0.02	(0.03)	0.02	(0.03)
Proportion Asian	0.14	(0.01)	0.16	(0.00)	0.04	(0.09)	0.05	(0.09)
Proportion Hispanic	0.37	(0.01)	0.41	(0.01)	0.09	(0.09)	0.11	(0.10)
Unemployment Rate	5.80	(0.89)	5.75	(1.06)	4.68	(1.19)	4.76	(1.12)
GDP per capita	33.60	(1.65)	42.22	(2.12)	30.23	(5.15)	37.85	(6.58)
Log Population	17.35	(0.02)	17.40	(0.01)	14.98	(0.99)	15.04	(0.99)

Note: Data for outcome variables from July 1999-June 2008 NVSS Natality data aggregated at the birth-month level where pre is all months prior to July 2004 and post includes July 2004 through the end of the sample. Data for age and race controls come from 1999-2008 SEER data at the year level. Data for unemployment rate, GDP per capita, and log population are from the 1999-2008 UK Poverty Research Center National Welfare Data also at the annual level. For the control variables, pre includes 1999-2003 and post includes 2005-2008 with 2004 omitted since the policy was implemented in July of 2004. T-tests available upon request.

Table 2: Effect of Paid Leave on Birth Rates

	(1) All Births	(2) All Births, Mothers 20-29	(3) All Births, Mothers 30-39	(4) First Births, Mothers 30-39	(5) 2nd + Births, Mothers 30-39
CA*post	2.511*	0.97	3.124***	0.706	2.436***
	(0.438)	(0.569)	(0.355)	(0.167)	(0.284)
	[0.052]	[0.614]	[0.000]	[0.187]	[0.002]
Mean	90.61	108.1	74.82	20.41	54.35
Observations	5,508	5,508	5,508	5,508	5,508

Note: Table shows DD estimates of the effect of the CA-PFL on state-year fertility rates (births per 1,000 women 20-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. All models control for the proportion of the state-year population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), the proportion of the state-year population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), unemployment rate, per capita income, log of the population, as well as state and month-year fixed effects. Robust standard errrors clustered at the state level are shown in parentheses and Ferman and Pinto (2019) adjusted p-values are shown in brackets. Stars are based on FP p-values. Significance levels: *FP $p < 0.10$; ** FP $p < 0.05$, ***FP $p < 0.01$.

Table 3: Difference-in-Differences Estimates by Mother's Education

	(1) <HS	(2) HS	(3) Some College	(4) BA+
CA*post	-0.835	3.478**	0.005	1.566
	(0.483)	(0.632)	(0.746)	(0.685)
	[0.258]	[0.015]	[0.994]	[0.116]
Mean	22.96	25.28	18.78	21.88
Observations	4,575	4,574	4,573	4,573

Note: Table shows DD estimates of the effect of the CA-PFL by highest degree of mother using 1999-2008 CDC NVSS Natality Data. All models control for the proportion of the state-year population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), the proportion of the state-year population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), unemployment rate, per capita income, log of the population, as well as state and month-year fixed effects. Robust standard errrors clustered at the state level are shown in parentheses and Ferman and Pinto (2019) adjusted p-values are shown in brackets. Stars are based on FP p-values. Significance levels: *FP $p < 0.10$; ** FP $p < 0.05$, ***FP $p < 0.01$.

Table 4: Sensitivity: Alternate Post Definitions

	(1) Post = 7/04	(2) Post = 9/02	(3) Omit 9/02 - 7/04	(4) Omit 2004	(5) Annual (excl. 2004)
Panel A. All Births					
CA*post	2.511*	2.237*	2.833**	2.303*	2.144
	(0.438)	(0.402)	(0.495)	(0.472)	(0.515)
	[0.052]	[0.074]	[0.036]	[0.066]	[0.123]
Mean	90.61	90.10	90.10	90.75	90.81
Observations	5,508	5,508	4,386	4,896	459
Panel B. 2nd + Births to Mothers 30-39					
	(1) Post = 7/04	(2) Post = 9/02	(3) Omit 9/02 - 7/04	(4) Omit 2004	(5) Annual (excl. 2004)
CA*post	2.436***	1.814*	2.522***	2.321***	2.411***
	(0.284)	(0.278)	(0.337)	(0.310)	(0.354)
	[0.002]	[0.052]	[0.004]	[0.002]	[0.002]
Mean	54.35	53.48	53.48	54.24	54.09
Observations	5,508	5,508	4,386	4,896	459

Note: Table shows DD estimates of the effect of the CA-PFL from various specifications using 1999-2008 CDC NVSS Natality Data. Each coefficient is from a separate regression, with standard errors in parentheses. See Table 1 notes for specification details. Stars are based on FP p-values. Significance levels: *FP $p < 0.10$; ** FP $p < 0.05$, ***FP $p < 0.01$.

Table 5: Sensitivity: Alternate Control Groups

Panel A. All Births

	(1) Control = All Other States	(2) Drop NJ	(3) Control = FL, NY, TX	(4) Control = SDI States	(5) Control = Baum and Ruhm
CA*post	2.511*	2.690**	2.099***	4.098***	2.193*
	(0.438)	(0.474)	(1.462)	(1.366)	(0.549)
	[0.052]	[0.032]	[0.000]	[0.000]	[0.075]
Mean	90.61	90.61	90.61	90.61	90.61
Observations	5,508	5,400	432	540	3,780

Panel B. 2nd + Births to Mothers 30-39

	(1) Control = All Other States	(2) Drop NJ	(3) Control = FL, NY, TX	(4) Control = TDI States	(5) Control = Baum and Ruhm
CA*post	2.436***	2.559***	1.665***	3.935***	1.652***
	(0.284)	(0.299)	(0.719)	(1.194)	(0.264)
	[0.002]	[0.001]	[0.000]	[0.000]	[0.004]
Mean	54.35	54.35	54.35	54.35	54.35
Observations	5,508	5,400	432	540	3,780

Note: Table shows DD estimates of the effect of the CA-PFL from various specifications using 1999-2008 CDC NVSS Natality Data. Each coefficient is from a separate regression, with standard errors in parentheses. See Table 1 notes for specification details. Stars are based on FP p-values. Significance levels: *FP $p < 0.10$; ** FP $p < 0.05$, ***FP $p < 0.01$.

Table 6: Placebo and Sensitivity

	(1) All Births, Mother 15-19	(2) All Births, Mother 20-44	(3) All Births, Mother 20-54
CA*post	-0.500	3.062**	1.925**
	(0.684)	(0.450)	(0.346)
	[0.695]	[0.045]	[0.018]
Mean	43.47	90.61	54.74
Observations	5,508	5,508	5,508

Note: Table shows DD estimates of the effect of the CA-PFL from various specifications using 1999-2008 CDC NVSS Natality Data. Each coefficient is from a separate regression, with standard errors in parentheses. See Table 1 notes for specification details. Stars are based on FP p-values. Significance levels: *FP $p < 0.10$; ** FP $p < 0.05$, ***FP $p < 0.01$.

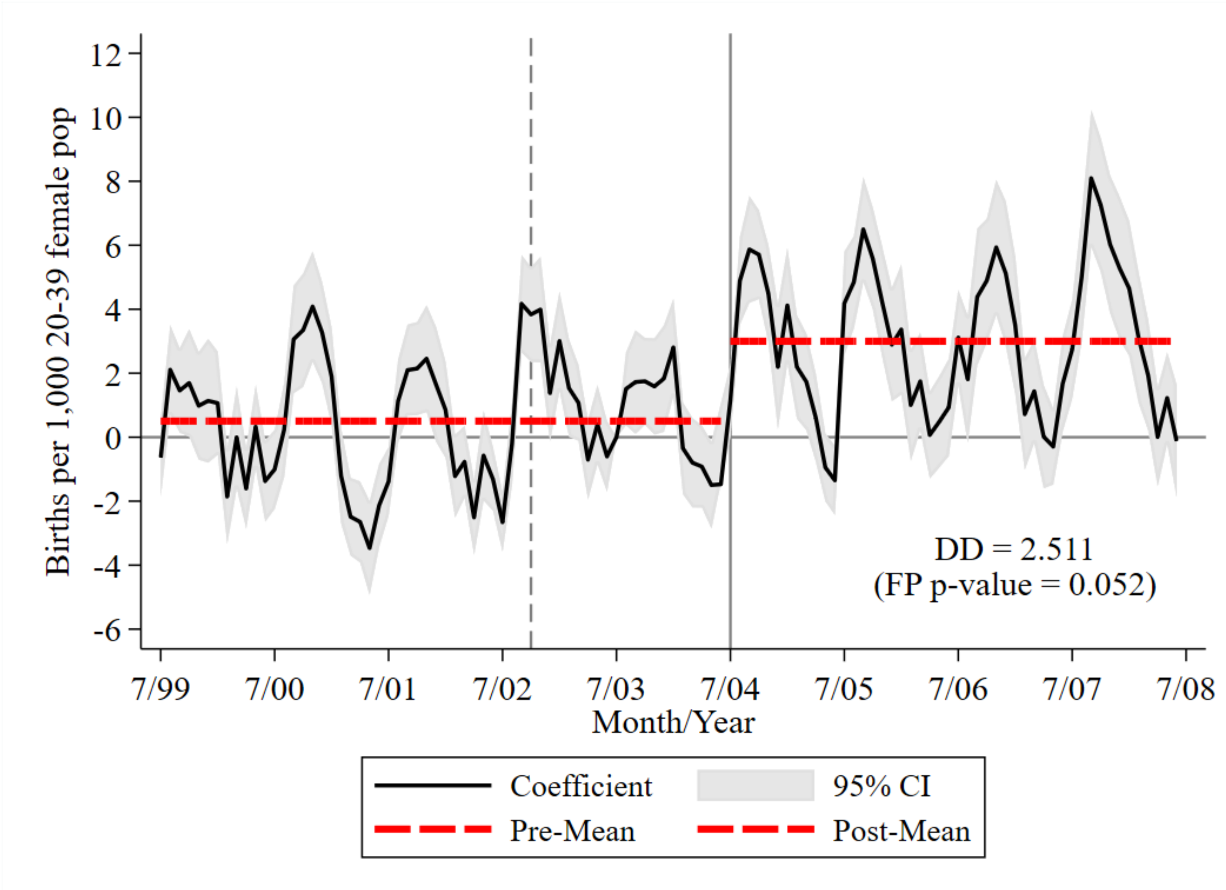
Table 7: Difference-in-Differences Estimates of Effect of New Jersey Paid Leave

	(1) All Births	(2) All Births, Mothers 20-29	(3) All Births, Mothers 30-39	(4) First Births, Mothers 20-29	(5) 2nd + Births, Mothers 20-29
NJ*post	2.676	2.87	1.617	-0.027	2.923
	(0.947)	(0.942)	(0.868)	(0.441)	(0.692)
	[0.218]	[0.248]	[0.332]	[0.978]	[0.171]
Mean	88.43	92.18	85.25	43.67	48.45
Observations	5,994	5,994	5,994	5,994	5,994

Note: Table shows DD estimates of the effect of the NJ-FLI on state-year fertility rates (births per 1,000 women 20-39) in New Jersey compared to women in all other states (CA excluded all years and RI excluded in 2014) using 2004-2014 CDC NVSS Natality Data. Includes state-year controls for proportion of the state-year population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. Robust standard errrors clustered at the state level are shown in parentheses and Ferman and Pinto (2019) adjusted p-values are shown in brackets. Stars are based on FP p-values. Significance levels: *FP $p < 0.10$; ** FP $p < 0.05$, ***FP $p < 0.01$.

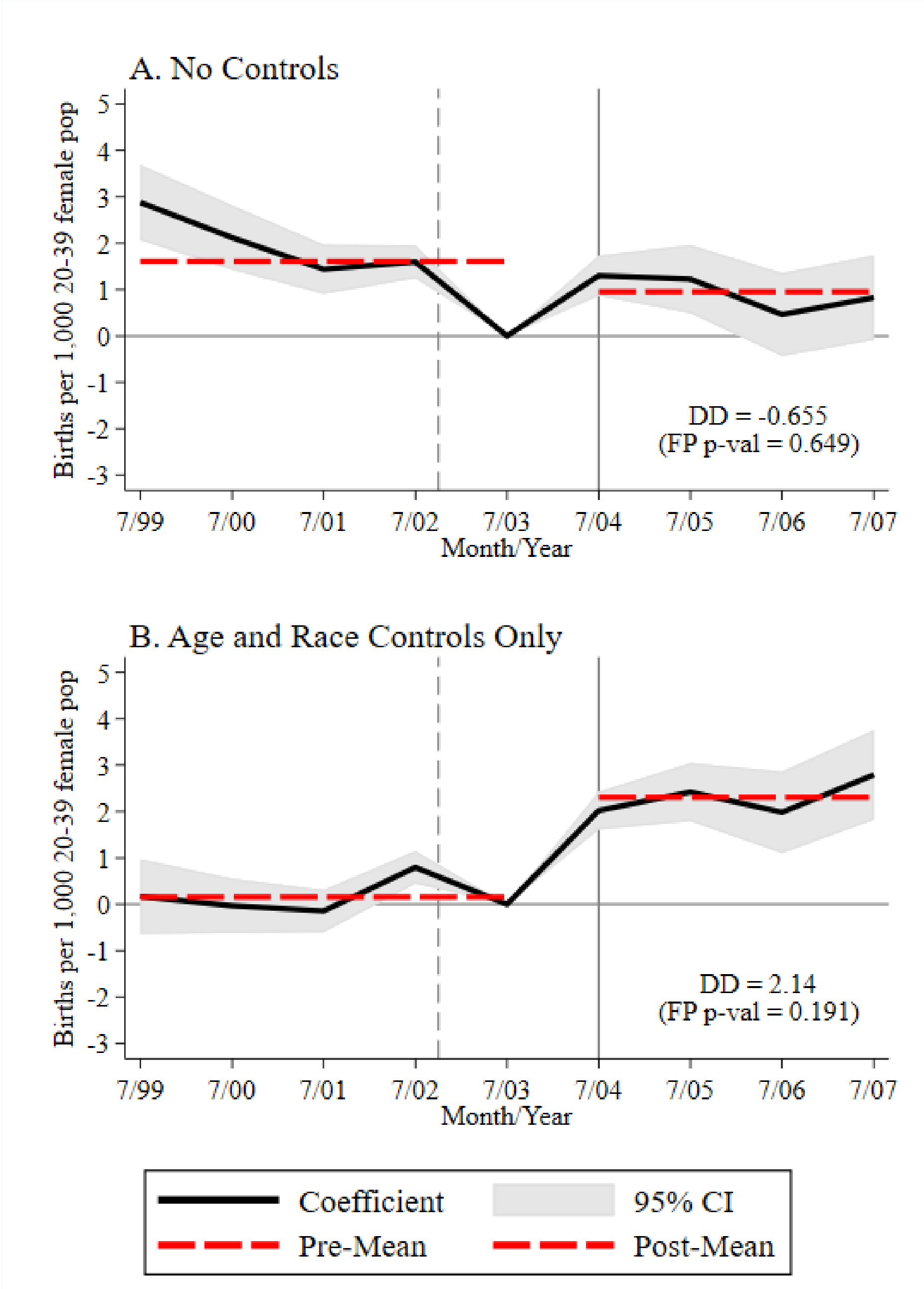
Appendix

Figure A1: Month-Level Event Study for All Birth Rate



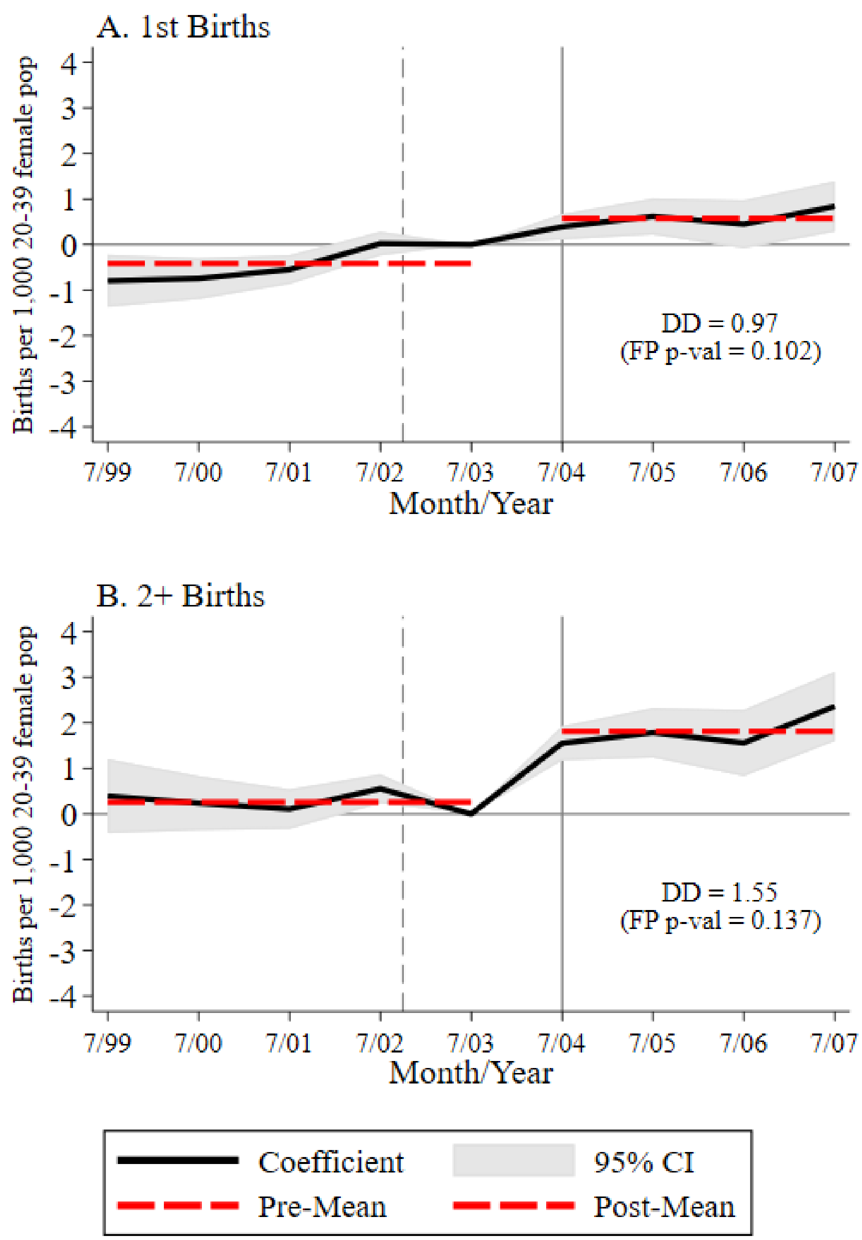
Note: This plots equation (2) for the general fertility rate (births per 1,000 women 20-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data using birthmonth level data. Includes controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population as well as state fixed effects and birth month-year fixed effects. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure A2: Non-Residualized Event Studies



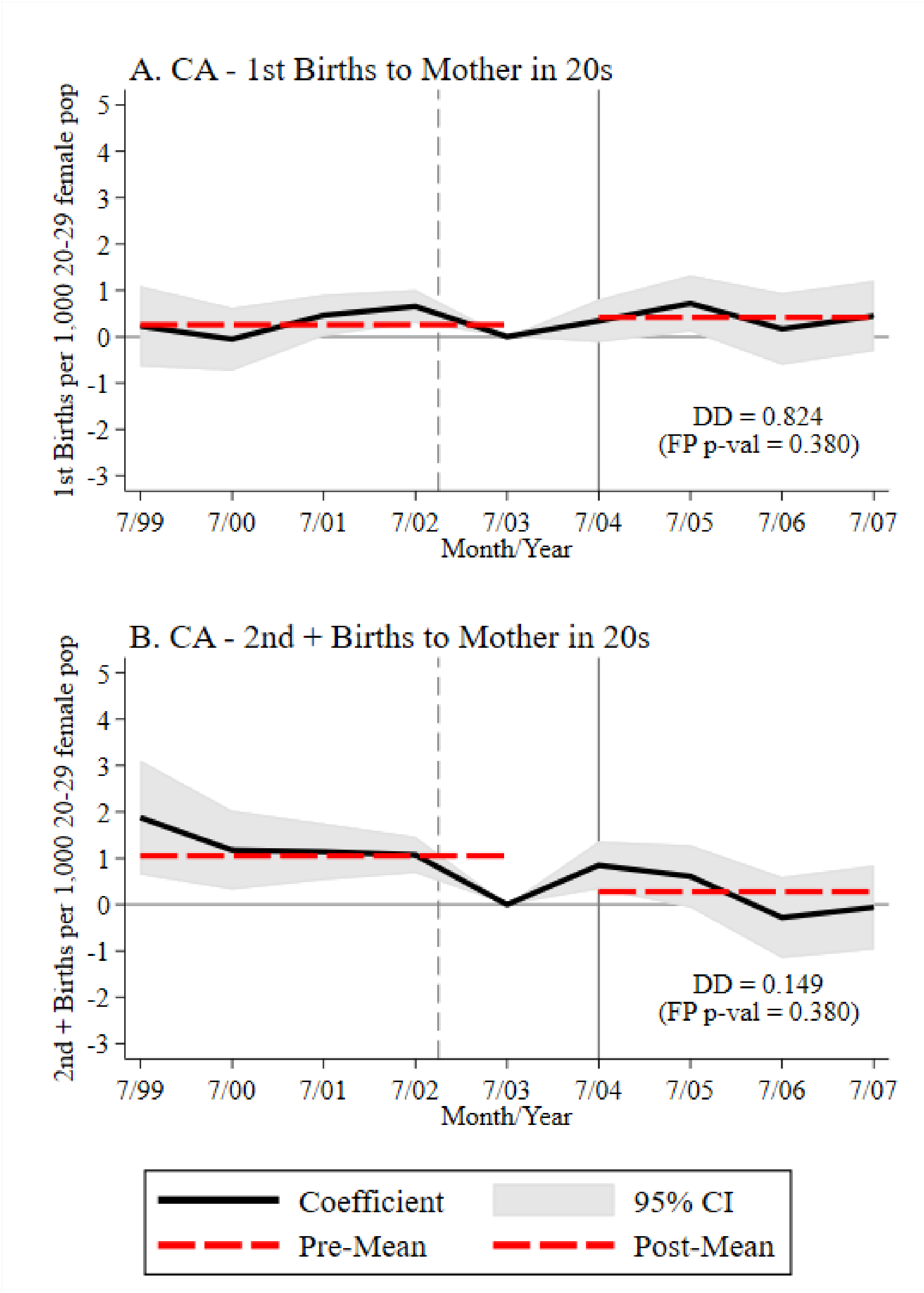
Note: This plots equation (2) for the general fertility rate (births per 1,000 women 20-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Figure A3.A includes only state and month-year fixed effects. Figure A3.B adds controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group) as well as state fixed effects and birth month-year fixed effects. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure A3: Event Studies By Parity, Mothers 20-39



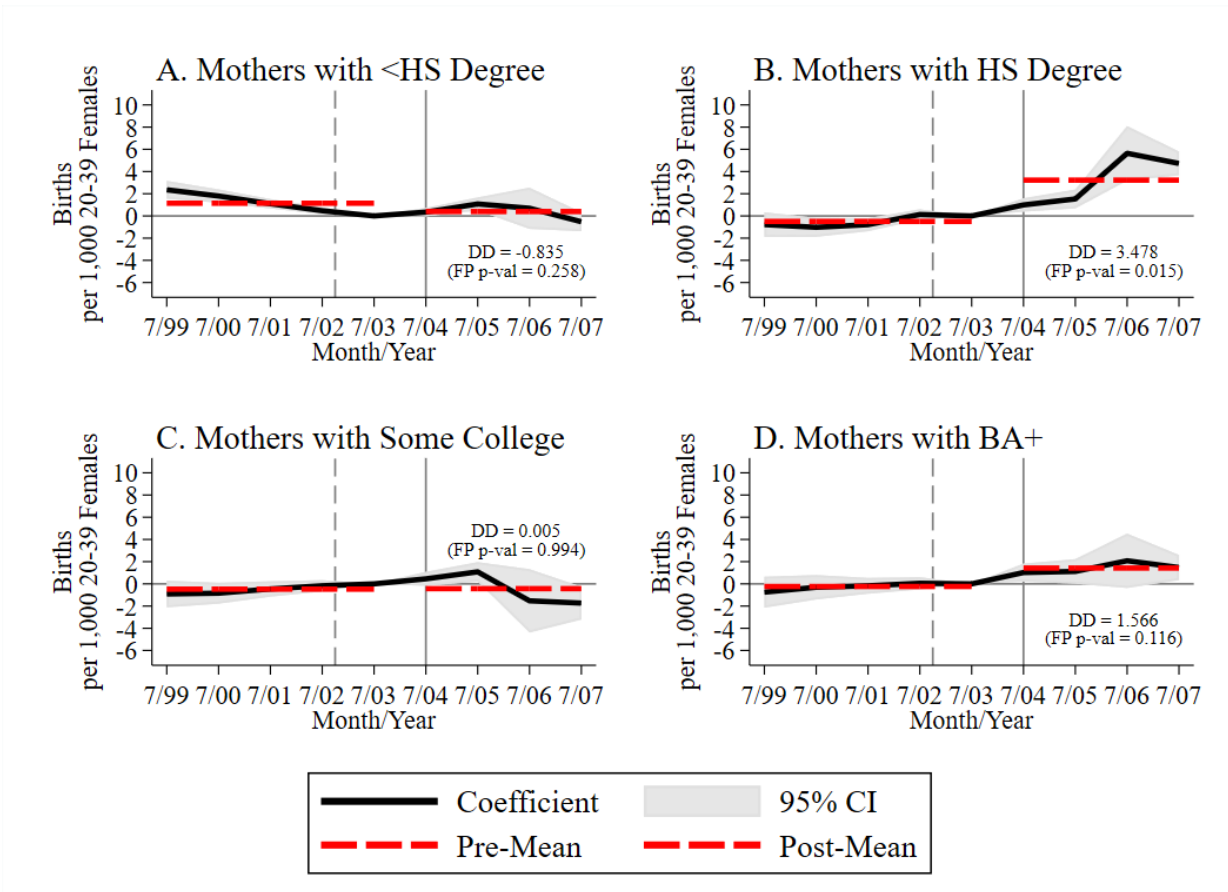
Note: This plots equation (2) for the general fertility rate by parity (first (second+) births to women age 20-39 per 1,000 women 20-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Includes birth month-year and state fixed effects, and state-year controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure A4: Event Studies By Parity, Mothers 20-29



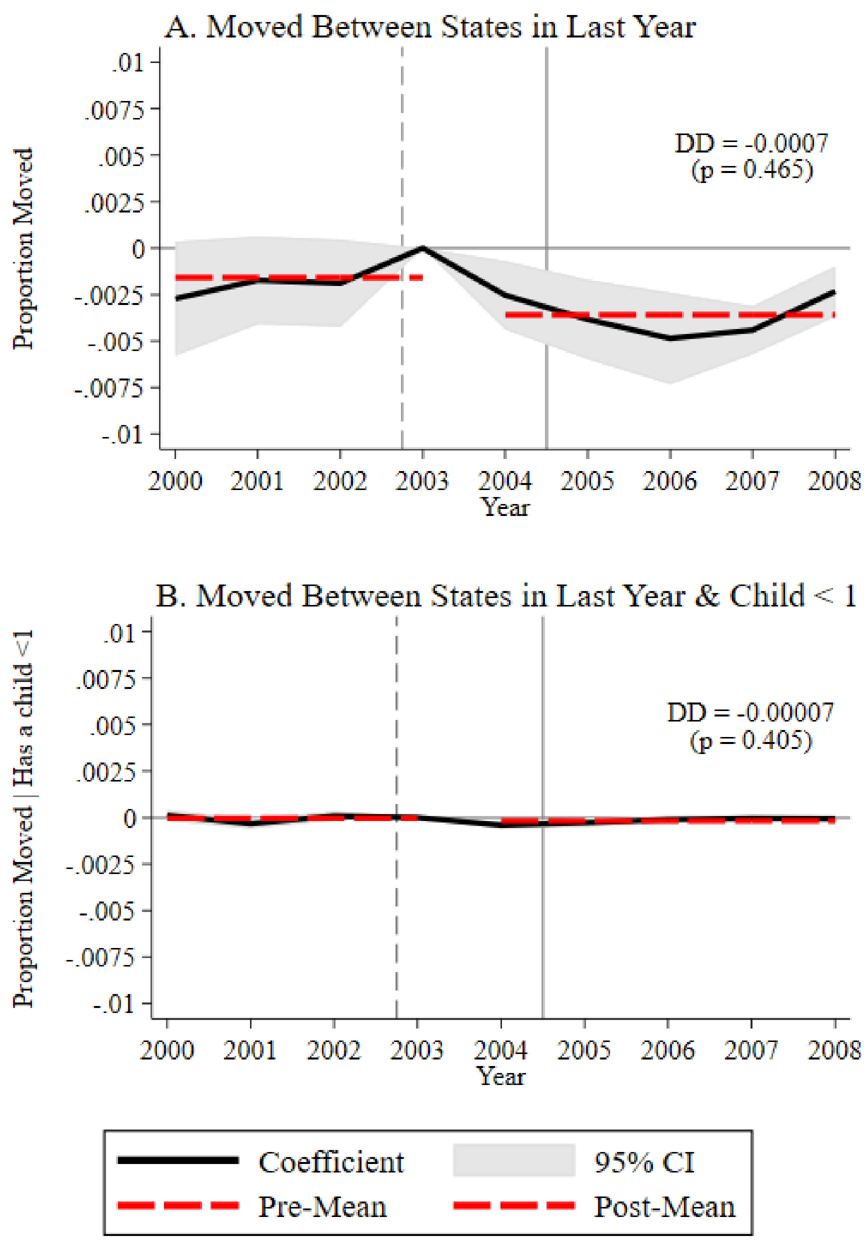
Note: This plots equation (2) for the age-specific general fertility rate by parity (first (second+) births to women age 20-29 per 1,000 women 20-29) by parity in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Includes birth month-year and state fixed effects, and state-year controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure A5: Event Studies by Educational Attainment



Note: This plots equation (2) for the education-specific general fertility rate (births to women age 20-39 with ¡HS (HS, Some College, or BA+) degree per 1,000 women 20-39) in California compared to women in all other states using 1999-2008 CDC NVSS Natality Data. Includes birth month-year and state fixed effects, and state-year controls for proportion of the state-year 20-39 female population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year 20-39 female population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Figure A6: Differential Migration to California



Note: Data from 2001 - 2008 American Community Survey. This plots equation (2) for moving between states in the last year (migrate1 = 3 or 4) and moving between states in the last year conditional on having a birth in the last year (yngch = 0) in California compared to those (men and women) in all other states. Includes month-year and state fixed effects, and state-year controls for proportion of the state-year population age 20-24, 30-34, and 35-39 (age 25-29 is omitted), proportion of the state-year population by race/ethnicity (NH-black, NH-Asian, Hispanic, and other. NH-white is the omitted group), the unemployment rate, per capita income, and log of the population. The dotted-vertical line marks passage (September, 2002), while the solid vertical line denotes the start of benefits (July 1, 2004).

Table A1: Baum and Ruhm (2016) Controls

State	Coeff. TRxNonCA	p-value	B&R Control	State	Coeff. TRxNonCA	p-value	B&R Control
Alabama	-0.087*	0.054	Yes	Montana	0.141**	0.013	No
Alaska	0.063	0.224	Yes	Nebraska	0.187***	0.000	No
Arizona	0.064	0.215	Yes	Nevada	0.022	0.639	Yes
Arkansas	0.061	0.154	Yes	New Hampshire	0.099*	0.059	Yes
California				New Jersey	0.070	0.127	Yes
Colorado	0.115**	0.015	No	New Mexico	0.047	0.321	Yes
Connecticut	0.077	0.107	Yes	New York	0.006	0.880	Yes
Delaware	0.117**	0.016	No	North Carolina	-0.014	0.736	Yes
District of Columbia	-0.009	0.875	Yes	North Dakota	0.191***	0.001	No
Florida	0.011	0.801	Yes	Ohio	0.013	0.778	Yes
Georgia	0.046	0.288	Yes	Oklahoma	0.079*	0.069	Yes
Hawaii	0.127***	0.007	No	Oregon	-0.006	0.904	Yes
Idaho	0.156**	0.011	No	Pennsylvania	0.037	0.410	Yes
Illinois	0.025	0.586	Yes	Rhode Island	0.123**	0.020	No
Indiana	0.049	0.286	Yes	South Carolina	0.004	0.912	Yes
Iowa	0.088*	0.055	Yes	South Dakota	0.250***	0.000	No
Kansas	0.135***	0.003	No	Tennessee	0.012	0.783	Yes
Kentucky	0.032	0.475	Yes	Texas	0.035	0.499	Yes
Louisiana	-0.050	0.329	Yes	Utah	0.090	0.191	Yes
Maine	0.099*	0.053	Yes	Vermont	0.093	0.115	Yes
Maryland	0.047	0.259	Yes	Virginia	0.074*	0.082	Yes
Massachusetts	0.022	0.641	Yes	Washington	0.018	0.694	Yes
Michigan	0.009	0.836	Yes	West Virginia	0.043	0.341	Yes
Minnesota	0.146***	0.003	No	Wisconsin	0.087*	0.064	Yes
Mississippi	-0.006	0.901	Yes	Wyoming	0.163***	0.005	No

Note: Table shows DD estimates and p-values of Equation (3) for each potential control states using 1999-2008 CDC NVSS Natality Data. Each coefficient is from a separate regression. Significance levels: *p > 0.10; **p < 0.05, ***p < 0.01.