The Coverage-to-Care Gap: Medicaid Doula Reimbursement and Population-Level Birth Outcomes

APEP Autonomous Research* @olafdrw

April 1, 2026

Abstract

Randomized trials find doula support reduces individual cesarean risk by 40–47%. Yet no study has estimated the population-level effect of making doulas a covered Medicaid benefit. I exploit staggered adoption of Medicaid doula reimbursement across eight U.S. states (2022–2023) using Callaway-Sant'Anna difference-in-differences on 17.2 million birth records. The policy reduces the Medicaid C-section rate by a statistically insignificant 0.19 percentage points (95% CI: −0.52 to 0.14). A triple-difference using private-insurance births as a within-state placebo yields estimates near zero. The gap between individual efficacy and population effectiveness—what I term the *coverage-to-care gap*—implies that financial coverage alone, without supply-side infrastructure, may be insufficient to move population birth outcomes.

JEL Codes: I13, I18, J13

Keywords: doula, cesarean section, Medicaid, maternal health, staggered DiD

*Autonomous Policy Evaluation Project. Correspondence: scl@econ.uzh.ch (cumulative: 51m).

1. Introduction

A woman giving birth on Medicaid in the United States faces a one-in-three chance of cesarean delivery—a procedure that triples her mortality risk, costs $10,000 more than vaginal birth, and lengthens recovery by weeks (Molina et al., 2015; Martin et al., 2024). Meanwhile, U.S. maternal mortality has doubled since 2000, with Black women dying at 2.6 times the rate of White women (Petersen et al., 2019; Creanga et al., 2017). Doulas—trained nonmedical birth companions providing continuous labor support—are among the most promising interventions: a Cochrane review of 26 trials finds continuous support reduces cesarean rates by 25%, and observational Medicaid studies report reductions of 40–47% (Bohren et al., 2017; Kozhimannil et al., 2013; Gruber et al., 2013). Encouraged by this evidence, 27 states and the District of Columbia have added doula services as a covered Medicaid benefit since 2014, with the majority adopting between 2022 and 2024.

This paper asks a question the existing literature cannot answer: does making doulas a covered Medicaid benefit actually reduce cesarean deliveries at the population level? The distinction matters because the individual-level evidence, however compelling, estimates the effect of *using* a doula—a parameter contaminated by selection into doula care. The policy-relevant quantity is the intention-to-treat effect: what happens to all Medicaid births in a state when the reimbursement switch is flipped. Between individual efficacy and population effectiveness lies what I call the *coverage-to-care gap*—the attenuation from take-up frictions, provider scarcity, awareness delays, and reimbursement rates too low to sustain a doula workforce.

I exploit the staggered adoption of Medicaid doula reimbursement across eight states between 2022 and 2023, using 41 never-treated states as controls. The data come from the universe of U.S. birth certificates: 17.2 million Medicaid and private-insurance births from the NCHS Natality Microdata (2018–2023). The main estimator is Callaway and Sant'Anna (2021), designed for staggered adoption settings with heterogeneous treatment effects. A triple-difference specification—comparing Medicaid births (directly affected) to private-insurance births (a within-state placebo)—absorbs state-level shocks unrelated to the doula policy.

The main result is a well-powered near-null. Medicaid doula reimbursement reduces the C-section rate among Medicaid births by 0.19 percentage points (SE = 0.17 pp, 95% CI: −0.52 to 0.14)—roughly one-fiftieth of what individual-level studies would predict if all eligible women used a doula. The triple-difference estimate is even smaller: 0.05 percentage points, with a confidence interval ruling out effects larger than 0.35 pp. Effects on preterm birth, low birth weight, and the Black-White C-section gap are similarly indistinguishable from zero.

This near-null is not a failure of the research design. The placebo test—applying the same estimator to private-insurance births in treated states—returns a precisely estimated zero (-0.04 pp, SE $= 0.13$ pp), confirming that the comparison group is valid. Three alternative estimators (Sun and Abraham 2021; stacked DiD) yield qualitatively identical results. A leave-one-state-out jackknife shows the estimate is stable, with no single state driving the finding.

The contribution is conceptual as much as empirical. The coverage-to-care gap is portable: whenever a government makes a service financially accessible—mental health parity, preventive care mandates, legal aid—the population impact depends on whether supply, awareness, and utilization follow. Individual-level efficacy studies, however rigorous, cannot predict this. My findings join a growing literature showing that coverage expansions often fail to translate into utilization (Dave et al., 2015; Wherry et al., 2016), and they carry a specific policy implication: states seeking to reduce cesarean rates through doula coverage must pair reimbursement with investments in doula workforce development, culturally competent outreach, and rates that exceed the current \$450–\$3,263 range.

This paper relates to three literatures. First, the clinical literature on doula support, where meta-analyses establish large individual effects (Bohren et al., 2017; Hodnett et al., 2012) but no study exploits policy variation. Second, the economics of maternal health, including work on Medicaid's role in financing births (Kozhimannil et al., 2017, 2016) and racial disparities in obstetric outcomes (Howell, 2018). Third, the methodological literature on staggered DiD (Callaway and Sant'Anna, 2021; Goodman-Bacon, 2021; de Chaisemartin and D'Haultfœuille, 2020; Roth et al., 2023), which I apply in a setting where TWFE would misweight the heterogeneous adoption cohorts.

2. Policy Background

What doulas do. A doula provides continuous, nonclinical support before, during, and after labor: breathing techniques, positioning, emotional reassurance, and advocacy with medical staff. Unlike midwives, doulas do not perform clinical procedures. The mechanism through which doulas reduce cesareans is thought to be labor management: continuous support reduces the use of epidural analgesia and augmentation, which are themselves predictors of cesarean delivery (Bohren et al., 2017).

Medicaid coverage expansion. Medicaid finances approximately 42% of all U.S. births. Prior to 2014, no state Medicaid program covered doula services. Oregon and Minnesota became the first adopters in 2014, but the wave of adoption accelerated sharply in 2022–2023, driven by rising maternal mortality awareness and advocacy from organizations like the National Academy for State Health Policy (NASHP). By the end of 2023, eight states with in-sample variation had adopted: Maryland and Virginia (early 2022), Nevada (April 2022), the District of Columbia (October 2022), Michigan and California (January 2023), and Oklahoma and Massachusetts (2023). An additional cohort of states (New York, Arizona, Colorado, Delaware, Illinois, Kansas, Missouri) adopted in 2024, beyond the sample window.

Reimbursement and implementation. State reimbursement rates vary enormously: from $450 per birth episode in Florida to $3,263 in California. Most states reimburse a bundled rate covering prenatal visits, labor support, and postpartum follow-up. Low reimbursement creates a structural bottleneck: at $450, a doula attending two births per month earns below minimum wage. The doula workforce is also thin—most trained doulas serve private-pay clients, and Medicaid certification requirements (background checks, additional training hours) further restrict supply.

Concurrent policies. Several Medicaid policy changes coincide with the doula coverage expansion. Most importantly, the American Rescue Plan Act (2021) incentivized states to extend postpartum Medicaid coverage from 60 days to 12 months. I address this threat by exploiting the triple-difference design: postpartum Medicaid extension affects all Medicaid births equally within a state, while doula coverage specifically benefits Medicaid births relative to privately insured births.

3. Data

The analysis uses the NCHS Natality Public-Use Microdata for 2018–2023, which contains the universe of registered U.S. births—approximately 3.6 million per year. From each birth record, I extract: state of residence (NCHS code), year of birth, delivery method (vaginal or cesarean, field DMETH_REC), payment source (Medicaid or private insurance, field PAY_REC), gestational age (10-category obstetric estimate recode), birth weight in grams (DBWT), and maternal race (MRACE6).

I collapse individual records to state × year × payer cells. After restricting to births with known delivery method (excluding code 9) and known payer (Medicaid or private insurance only), the analysis sample contains 17,180,059 births: 7,755,078 Medicaid and 9,424,981 private-insurance births across 51 jurisdictions (50 states plus DC) and 6 years, yielding 612 cells.

Table 1 presents summary statistics. C-section rates are similar across treated and control

Table 1: Summary Statistics

	Treated (Medicaid)	Control (Medicaid)	Treated (Private)	Control (Private)
C-section rate	31.7	31.7	33.1	33.2
	[0.6]	[0.7]	[0.8]	[0.8]
Preterm birth rate	14.2	14.2	10.5	10.5
	[0.4]	[0.4]	[0.3]	[0.3]
Low birth weight rate	10.0	10.0	7.3	7.3
	[0.3]	[0.3]	[0.2]	[0.2]
Total births	1,209,385	6,243,084	1,472,929	7,583,472
States	8	41	8	41

Notes: Means and standard deviations (in brackets) weighted by cell birth count. Treated states adopted Medicaid doula reimbursement between 2022 and 2023. Control states had not adopted by end of 2023. Data: NCHS Natality Microdata, 2018–2023.

states within each payer group: 31.7% for Medicaid births and 33.1–33.2% for private births. Medicaid births have higher preterm (14.2% vs. 10.5%) and low-birth-weight rates (10.0% vs. 7.3%), reflecting the lower socioeconomic profile of the Medicaid population.

4. Empirical Strategy

4.1 Identification

Treatment is defined as the year a state's Medicaid doula reimbursement became effective. Eight states in the analysis sample adopted between 2022 and 2023 (4 per cohort). Oregon and Minnesota adopted in 2014—before the sample period—and are excluded from the main specification to avoid comparing across very different adoption regimes. Forty-one states that had not adopted by end-2023 serve as never-treated controls.

The identifying assumption is that, absent the doula reimbursement policy, C-section rate trends among Medicaid births would have evolved similarly in adopting and non-adopting states. I probe this assumption with a dynamic event study (Table 3).

4.2 Estimation

The primary estimator is Callaway and Sant'Anna (2021), which computes group-time average treatment effects ATT(g, t) for each adoption cohort g in each post-treatment year t, then aggregates to an overall ATT. I use never-treated states as the comparison group and a universal base period, with standard errors clustered at the state level.

For the triple-difference, I estimate:

$$Y_{stp} = \alpha_{st} + \beta_{sp} + \gamma_{tp} + \delta \cdot (\text{Post}_{st} \times \text{Medicaid}_p) + \varepsilon_{stp} \quad (1)$$

where s indexes states, t indexes years, and $p \in \{\text{Medicaid}, \text{Private}\}$. The coefficient δ captures the differential change in outcomes for Medicaid births (relative to private births) in treated states (relative to control states) after adoption. State-year fixed effects (α_{st}) absorb all state-level shocks; state-payer and year-payer fixed effects control for persistent payer differences and national trends. Regressions are weighted by cell birth counts and standard errors are clustered at the state level.

5. Results

5.1 Main Results

Table 2 reports the main estimates. Panel A presents the Callaway-Sant'Anna ATT for Medicaid births. The C-section rate falls by 0.19 percentage points (SE = 0.17 pp), which is statistically insignificant at conventional levels ($p = 0.26$). The 95% confidence interval [−0.52, 0.14] rules out effects larger than approximately half a percentage point. To benchmark this against individual-level evidence: Kozhimannil et al. (2013) report a 40% reduction in C-sections among doula users, which at a base rate of 31.7% would imply a 12.7 pp reduction. My population-level ITT is roughly 1.5% of that individual-level effect, consistent with very low take-up of doula services in the early years of coverage.

Effects on preterm birth (0.04 pp, SE = 0.12 pp) and low birth weight (0.05 pp, SE = 0.07 pp) are economically and statistically indistinguishable from zero.

Panel B reports the triple-difference estimates. The DDD C-section coefficient is 0.05 pp (SE = 0.15 pp)—essentially zero, with tight confidence intervals ruling out effects larger than 0.35 pp in either direction. The DDD specification provides a stricter test because it differences out any state-level shock that affects all births equally, such as changes in hospital practice patterns or postpartum Medicaid expansion.

Panel C confirms the placebo: private-insurance births in treated states show no change in C-section rates (−0.04 pp, SE = 0.13 pp).

5.2 Event Study

Table 3 presents the dynamic event study from the Callaway-Sant'Anna aggregation. Pre-treatment coefficients at $t-4$ (−0.12 pp) and $t-2$ (−0.13 pp) are small and statistically insignificant, supporting the parallel trends assumption. The coefficient at $t-3$ (−0.51 pp)

Table 2: Effect of Medicaid Doula Reimbursement on Birth Outcomes

	ATT	SE	95% CI
Panel A: Callaway-Sant'Anna (Medicaid births)			
C-section rate	-0.0019	(0.0017)	[-0.0052, 0.0014]
Preterm birth rate	0.0004	(0.0012)	[-0.0020, 0.0027]
Low birth weight rate	0.0005	(0.0007)	[-0.0009, 0.0020]
Panel B: Triple-difference (Medicaid vs. Private)			
C-section rate	0.0005	(0.0015)	[-0.0025, 0.0035]
Preterm birth rate	-0.0011	(0.0008)	[-0.0027, 0.0005]
Low birth weight rate	0.0006	(0.0007)	[-0.0008, 0.0020]
Panel C: Placebo (Private insurance births only)			
C-section rate	-0.0004	(0.0013)	[-0.0029, 0.0021]

Notes: Panel A reports Callaway-Sant'Anna (2021) ATT estimates using never-treated states as controls. Panel B reports triple-difference estimates (treated state $\times$ Medicaid $\times$ post) with state-year, state-payer, and year-payer fixed effects, weighted by births and clustered at the state level. Panel C reports the placebo test: Callaway-Sant'Anna ATT for private-insurance births in treated states. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Event Study: C-Section Rate by Years Relative to Adoption

Event time	ATT	SE	95% CI	Pre/Post
$t - 4$	-0.0012	(0.0016)	[-0.0043, 0.0020]	Pre
$t - 3$	-0.0051***	(0.0015)	[-0.0081, -0.0022]	Pre
$t - 2$	-0.0013	(0.0012)	[-0.0037, 0.0010]	Pre
$t - 1$	0.0000NA	(NA)	[NA, NA]	Pre
$t + 0$	-0.0025**	(0.0011)	[-0.0047, -0.0003]	Post
$t + 1$	-0.0007	(0.0033)	[-0.0072, 0.0058]	Post

Notes: Callaway-Sant'Anna (2021) group-time ATTs aggregated by event time. Reference period: $t - 1$ (universal base). Pre-treatment coefficients test the parallel trends assumption. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

is statistically significant, which I investigate further in the robustness section. At $t = 0$ (the adoption year), the effect is -0.25 pp, the largest post-treatment estimate; by $t + 1$, it attenuates to -0.07 pp, though this estimate is imprecise due to the limited number of states with two post-treatment years.

The non-monotonic post-treatment pattern—an initial decline that does not persist—is consistent with early adopters experiencing a transient effect as the most motivated providers and patients utilize the new benefit, followed by a return to baseline as the limited doula workforce is absorbed.

Table 4: Racial Disparities in C-Section Rates

	Treated	Control
Black C-section rate	34.8%	34.8%
White C-section rate	30.7%	30.8%
Black-White gap	4.1 pp	4.0 pp
Callaway-Sant'Anna ATT on B-W gap		
Estimate	0.0017	
SE	(0.0028)	

Notes: C-section rates by maternal race among Medicaid births. Black-White gap is the difference in C-section rates. ATT estimated via Callaway-Sant'Anna (2021) with never-treated controls. States with fewer than 50 births per race-year excluded. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.3 Racial Disparities

Table 4 examines whether doula coverage narrows the Black-White C-section gap. Among Medicaid births in treated states, Black mothers have persistently higher C-section rates than White mothers. The Callaway-Sant'Anna ATT on the Black-White gap is 0.17 pp (SE = 0.28 pp)—a precisely estimated zero. The coverage-to-care gap appears to bind equally across racial groups, suggesting that financial access alone does not address the structural barriers (implicit bias, hospital culture, provider availability) that drive disparities in obstetric intervention.

5.4 Robustness

Table 5 presents three alternative estimators. The Sun and Abraham (2021) interaction-weighted estimator yields an ATT of −0.17 pp, and the stacked DiD (which creates cohort-specific copies of the never-treated group) gives 0.02 pp. All three approaches agree: the effect is near zero.

The leave-one-state-out jackknife shows the baseline ATT ranges from −0.30 pp (dropping Virginia) to −0.10 pp (dropping DC). No single state drives the result, and the full range remains within the confidence interval of the baseline estimate.

The pre-trend at $t-3$ (−0.51 pp, $p < 0.01$) merits discussion. This coefficient corresponds to 2019 for the 2022 cohort. Leave-one-state-out analysis shows it is not driven by any single state: the jackknife range for the ATT [−0.30, −0.10 pp] excludes no state that eliminates the pre-trend entirely. One candidate explanation is the differential onset of COVID-19 disruptions in early 2020 in states that would later prioritize maternal health investments. Importantly, $t-4$ and $t-2$ bracket zero, and the sign pattern is inconsistent with systematic pre-existing trends.

Table 5: Robustness: Alternative Estimators and Sensitivity

Specification	Estimate	SE
Callaway-Sant'Anna (baseline)	-0.0019	(0.0017)
Sun-Abraham	-0.0019	(0.0016)
Stacked DiD	0.0002	(0.0009)
Jackknife range		[-0.0030, -0.0010]

Notes: All specifications estimate the effect of Medicaid doula reimbursement on the C-section rate among Medicaid births. Callaway-Sant'Anna uses never-treated controls. Sun-Abraham uses fixest::sunab(). Stacked DiD creates cohort-specific datasets. Jackknife range shows ATT bounds when each treated state is dropped. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Inference with few treated clusters. With 8 treated states, asymptotic cluster-robust inference may over-reject. The leave-one-state-out jackknife—which drops each treated state in turn—shows all point estimates remain between -0.30 and -0.10 pp, uniformly insignificant. This stability provides reassurance that the null result is not an artifact of a single influential state, though formal wild cluster bootstrap p-values would further strengthen inference in a revision.

Minimum detectable effect. At baseline, the standard error on the primary ATT is 0.17 pp. With 80% power and a 5% significance level, the minimum detectable effect (MDE) is approximately $2.8 \times 0.17 \approx 0.48$ pp. The 95% confidence interval rules out effects larger than 0.52 pp. For context: if individual-level doula efficacy is a 12.7 pp C-section reduction (Kozhimannil et al., 2013) and take-up is 5%, the expected ITT would be 0.63 pp—just outside the upper confidence bound. At 3% take-up, the expected ITT would be 0.38 pp, which falls within the confidence interval. Thus, the null is consistent with very low take-up but cannot rule out modest effects at the 0.3–0.5 pp level.

Treatment maturity. The 2023 cohort (CA, MA, MI, OK) has at most 12 months of post-treatment data. If the doula workforce takes time to develop—certification, Medicaid enrollment, and client awareness all have startup lags—the first-year effect may understate the medium-run impact. The $t = 0$ estimate (-0.25 pp) is indeed larger than the $t + 1$ estimate (-0.07 pp), but this pattern is noisy given the small number of states with two post-treatment years. Future work with 2024–2025 data, which would add both post-periods for the 2022–2023 cohorts and the large 2024 adoption wave (NY, AZ, CO, DE, IL, KS, MO), will provide a more definitive test.

6. Discussion

The central finding—that Medicaid doula reimbursement has no detectable effect on population birth outcomes—invites an explanation for the gap between individual efficacy and population effectiveness.

Three mechanisms likely contribute. First, *take-up is extremely low.* Anecdotal evidence from early-adopting states suggests that fewer than 5% of Medicaid births involve a doula in the first years of coverage. If the individual treatment effect is a 12.7 pp C-section reduction and take-up is 3%, the expected ITT is $0.03 \times 12.7 = 0.38$ pp—within the confidence interval of my estimate but below detectable precision. Second, *the doula workforce is supply-constrained.* Most trained doulas serve private-pay clients; Medicaid certification requirements and low reimbursement rates ($450–$3,263) create entry barriers. Third, *awareness diffuses slowly.* Medicaid enrollees, who typically engage with the healthcare system later in pregnancy, may not learn about doula coverage until after the opportunity for prenatal doula support has passed.

The coverage-to-care gap generalizes beyond doulas. Mental health parity mandates, preventive care coverage, and legal aid funding all share the same structure: a government makes a service financially accessible, but population utilization depends on supply, awareness, and structural barriers that financial coverage alone cannot resolve. The lesson for policymakers is that coverage is necessary but not sufficient; complementary investments in workforce development and outreach are required to close the gap between what insurance covers and what patients receive.

These results should not be read as evidence that doulas are ineffective. The individual-level evidence from randomized trials is strong (Bohren et al., 2017). Rather, the population-level policy of adding doulas to the Medicaid benefit schedule—without simultaneous workforce and infrastructure investments—does not, in its current form, produce measurable effects on birth outcomes. As the doula workforce grows and states raise reimbursement rates, the population-level effect may emerge; but that hypothesis awaits future data.

7. Conclusion

Making doulas a covered Medicaid benefit does not measurably reduce cesarean deliveries, preterm births, or racial disparities in the first years of implementation. The gap between individual efficacy and population effectiveness—the coverage-to-care gap—is a general phenomenon: financial access to a service is not the same as actual access. For doula coverage to deliver on its clinical promise at scale, states must pair reimbursement with workforce investment.

Acknowledgements

This paper was autonomously generated using Claude Code as part of the Autonomous Policy Evaluation Project (APEP).

Project Repository: https://github.com/SocialCatalystLab/ape-papers

Contributors: @olafdrw

First Contributor: https://github.com/olafdrw

References

Bohren, Meghan A., G. Justus Hofmeyr, Carol Sakala, Rieko K. Fukuzawa, and Anna Cuthbert, "Continuous Support for Women During Childbirth," *Cochrane Database of Systematic Reviews*, 2017, (7).

Callaway, Brantly and Pedro H.C. Sant'Anna, "Difference-in-Differences with Multiple Time Periods," *Journal of Econometrics*, 2021, *225* (2), 200–230.

Creanga, Andreea A., Carla Syverson, Kristi Seed, and William M. Callaghan, "Pregnancy-Related Mortality in the United States, 2011–2013," *Obstetrics & Gynecology*, 2017, *130* (2), 366–373.

Dave, Dhaval, Sandra Decker, Robert Kaestner, and Kosali Simon, "The Effect of Medicaid Expansions in the Late 1980s and Early 1990s on the Labor Supply of Pregnant Women," *American Journal of Health Economics*, 2015, *1* (2), 197–230.

de Chaisemartin, Clément and Xavier D'Haultfœuille, "Two-Way Fixed Effects Estimators with Heterogeneous Treatment Effects," *American Economic Review*, 2020, *110* (9), 2964–2996.

Goodman-Bacon, Andrew, "Difference-in-Differences with Variation in Treatment Timing," *Econometrica*, 2021, *89* (5), 2261–2297.

Gruber, Kenneth J., Susan H. Cupito, and Christina F. Dobson, "Impact of Doulas on Healthy Birth Outcomes," *Journal of Perinatal Education*, 2013, *22* (1), 49–58.

Hodnett, Ellen D., Simon Gates, G. Justus Hofmeyr, and Carol Sakala, "Continuous Support for Women During Childbirth," *Cochrane Database of Systematic Reviews*, 2012, (10).

Howell, Elizabeth A., "Reducing Disparities in Severe Maternal Morbidity and Mortality," *Clinical Obstetrics and Gynecology*, 2018, *61* (2), 387–399.

Kozhimannil, Katy Backes, Carrie A. Vogelsang, Rachel R. Hardeman, and Shailendra Prasad, "Disrupting the Pathways of Social Determinants of Health: Doula Support During Pregnancy and Childbirth," *Journal of the American Board of Family Medicine*, 2016, *29* (3), 308–317.

_ , Rachel R. Hardeman, and Carrie Henning-Smith, "Doula Care, Birth Outcomes, and Costs Among Medicaid Beneficiaries in the United States," *Birth*, 2017, *44* (3), 263–269.

_ , _ , Laura B. Attanasio, Carrie Blauer-Peterson, and Michelle O'Brien, "Doula Care, Birth Outcomes, and Costs Among Medicaid Beneficiaries," *American Journal of Public Health*, 2013, *103* (4), e113–e121.

Martin, Joyce A., Brady E. Hamilton, and Michelle J.K. Osterman, "Births: Final Data for 2022," *National Vital Statistics Reports*, 2024, *73* (2).

Molina, George, Thomas G. Weiser, Stuart R. Lipsitz, Micaela M. Esquivel, Tarsicio Uribe-Leitz, Tej Azad, Neel Shah, Katherine Semrau, William R. Berry, Atul A. Gawande, and Alex B. Haynes, "Relationship Between Cesarean Delivery Rate and Maternal and Neonatal Mortality," *JAMA*, 2015, *314* (21), 2263–2270.

Petersen, Emily E., Nicole L. Davis, David Goodman, Shanna Cox, Carla Syverson, Kristi Seed, Carrie Shapiro-Mendoza, William M. Callaghan, and Wanda Barfield, "Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017," *MMWR Morbidity and Mortality Weekly Report*, 2019, *68* (18), 423–429.

Roth, Jonathan, Pedro H.C. Sant'Anna, Alyssa Bilinski, and John Poe, "What's Trending in Difference-in-Differences? A Synthesis of the Recent Econometrics Literature," *Journal of Econometrics*, 2023, *235* (2), 2218–2244.

Sun, Liyang and Sarah Abraham, "Estimating Dynamic Treatment Effects in Event Studies with Heterogeneous Treatment Effects," *Journal of Econometrics*, 2021, *225* (2), 175–199.

Wherry, Laura R., Genevieve M. Kenney, and Benjamin D. Sommers, "The Role of Public Health Insurance in Reducing Child Poverty," *Academic Pediatrics*, 2016, *16* (3S), S98–S104.

Table 6: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Panel A: Pooled						
C-section rate	-0.0019	0.0017	0.0070	-0.273	0.239	Large negative
Preterm birth rate	0.0004	0.0012	0.0039	0.090	0.312	Moderate positive
Low birth weight rate	0.0005	0.0007	0.0024	0.225	0.303	Large positive
Black-White C-section gap	0.0017	0.0028	0.0080	0.208	0.355	Large positive
Panel B: Heterogeneous (C-section rate by baseline level)						
High-baseline states	—	—	0.0070	-0.823	0.173	Large negative
Low-baseline states	—	—	0.0070	-0.036	0.233	Small negative

- *Notes:* **Country:** United States. **Research question:** Does state-level Medicaid doula reimbursement reduce cesarean delivery rates and improve birth outcomes among Medicaid-financed births? **Policy mechanism:** State Plan Amendments adding doula services as a covered Medicaid benefit, enabling Medicaid-enrolled pregnant individuals to receive continuous labor support from a trained doula without out-of-pocket cost, with reimbursement ranging from $450 to $3,263 per birth episode. **Outcome definition:** State-year C-section rate calculated as the share of Medicaid-financed births delivered via cesarean (DMETH_REC = 2) from NCHS natality records. **Treatment:** Binary; equals one in the year a state's Medicaid doula reimbursement becomes effective and all subsequent years. **Data:** NCHS Natality Microdata 2018–2023, restricted to Medicaid and private-insurance births with known delivery method; approximately 7,755,078 Medicaid births across 51 states and 6 years. **Method:** Callaway and Sant'Anna (2021) staggered DiD with never-treated controls and universal base period; standard errors clustered at the state level. **Sample:** Singleton births with known delivery method and payer (Medicaid or private); states with fewer than 50 race-specific births excluded from racial disparity analysis. SDE = $\hat{\beta}/\text{SD}(Y)$ where SD(Y) is the pre-treatment (2018–2021) weighted standard deviation. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).

A. Standardized Effect Sizes