

# Impact of Medicaid Dental Expansion on Prenatal Dental Cleaning and Birth Outcomes\*

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## Abstract

Expanding Medicaid dental benefits significantly enhances prenatal healthcare utilization and maternal health outcomes. This study finds that providing dental coverage to pregnant Medicaid recipients increases dental cleaning rates by 30% relative to the baseline. While evidence on birth outcomes is suggestive, we identify a significant reduction in the likelihood of delivering an infant who is small for gestational age, decreasing by 11.42% from the baseline mean. Subgroup analyses indicate that Medicaid dental expansions disproportionately benefit non-Hispanic Black and Hispanic women, urban residents, and mothers aged 26 to 34. These findings highlight Medicaid's role in reducing disparities in maternal and child health and underscore the importance of expanding access to preventive dental care during pregnancy as a strategy for improving long-term population health.

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# 1 Introduction

Poor oral health during pregnancy may have long term implications for the oral and overall health of expectant mothers and their children (Dye et al., 2011; Chaffee et al., 2014; Ihezor-Ejiofor et al.; Ide & Papapanou, 2013; Nasseh et al., 2017; Jeffcoat et al., 2014). Oral health problems can cause pain that interferes with eating, speaking, and overall quality of life (CDC, 2024a; Naito et al., 2006). Moreover, poor oral health has been linked to systemic health conditions including cardiovascular disease (Sanz et al., 2020; Oliveira et al., 2010), diabetes (Nasseh et al., 2017; Chee et al., 2013; Díaz-Romero et al., 2005), respiratory conditions (Manger et al., 2017), and adverse pregnancy and birth outcomes (Jeffcoat et al., 2014; Puertas et al., 2018). Despite elevated risks for oral health problems during pregnancy and the availability of effective interventions to address these issues, more than half of pregnant people do not visit the dentist at least once during pregnancy (Kranz & Estrada-Darley, 2022; Lee et al., 2022b), including more than one-third who report experiencing dental problems (Lee et al., 2022b).

Although Medicaid covers more than 40% of US births (KFF, 2023), there is no federally-set minimum coverage requirement for adult dental services. While all states cover emergency dental services during pregnancy to relieve pain and infection (e.g., tooth extractions), Medicaid coverage of preventive and restorative dental services vary at the state level. It is unclear whether Medicaid dental benefits will affect pregnant and non-pregnant populations similarly. Nearly three-quarters of pregnant people are affected by gum disease, which is higher than the rate among reproductive-aged women who are not pregnant (CDC, 2024b). Higher susceptibility to oral health problems may lead to a greater demand response. On the other hand, 12-14 prenatal care visits are recommended for a low-risk pregnancy, which may reduce demand for additional preventive services. Therefore, the magnitude of any impacts on dental visits among pregnant people, a highly policy relevant group, is therefore an empirical question.

In this paper, we examine the effects of Medicaid pregnancy dental benefits on dental visits during pregnancy and birth outcomes using 2012-2022 data from the Pregnancy Risk Assessment Monitoring System (PRAMS). Our main analysis uses a stacked difference-in-differences approach to account for variation in policy timing and a proprietary dataset including restricted state data. We examine receipt of a dental cleaning during pregnancy, preterm birth, small for gestational age (10th percentile), low birthweight (under 2500 grams), and very low birthweight (under 1500 grams). We also conduct heterogeneity analyses by race and ethnicity, rural/urban residence, maternal age, marital status, and pre-pregnancy existing health risks.

Our results reveal that Medicaid dental benefit expansions significantly increase dental cleaning rates among pregnant Medicaid recipients by 7.96 percentage points, representing an 30% relative increase from the baseline rate of 26.9%. This positive impact persists over

time, underscoring the effectiveness of policy expansions in promoting preventive dental care utilization among pregnant Medicaid beneficiaries. Our analysis of major birth outcomes also suggests potential intergenerational impacts of Medicaid dental benefit expansions for pregnant adults. While the effects on low birth weight, very low birth weight, and preterm birth are generally null, we find that expanding dental benefits for pregnant women reduces the probability of delivering an infant who is small for gestational age by 1.37 percentage points, an 11.42% reduction from the baseline rate of 12%. These findings highlight the importance of Medicaid dental benefit expansions in addressing not only gaps in dental coverage but also their broader and long-term influence on population health.

Our subgroup analyses reveal notable heterogeneity across demographic groups. Medicaid dental benefits have a stronger impact on dental care utilization among non-Hispanic Black and Hispanic individuals, potentially reducing racial disparities in access to dental care. We also find larger increases in prenatal dental cleaning rates among urban residents, reflecting ongoing geographical disparities in healthcare access. Additionally, the greatest improvements in dental cleaning rates are observed among pregnant women aged 26 to 34 and those without pre-pregnancy health risks. Consistent with our main findings on dental care utilization, Medicaid dental benefits have the strongest effect in reducing the likelihood of delivering infants who are small for gestational age among mothers aged 21 to 25. Furthermore, we find that Medicaid dental benefits significantly reduce the rates of low birth weight, very low birth weight, and preterm birth in rural areas, while also lowering the incidence of very low birth weight and preterm birth among pregnant women aged 21 to 25. These findings suggest that the expansion of Medicaid dental benefits may be particularly effective in mitigating adverse birth outcomes among underserved communities and high-risk populations.

This study contributes to the growing evidence on Medicaid dental benefits and their role in promoting equitable health outcomes. The primary mechanism for an impact of Medicaid pregnancy dental benefits on dental visits is via a reduction in out-of-pocket costs for pregnant enrollees ([Abdus & Decker, 2019](#)). According to surveys of dental practitioners, the average cost of a dental cleaning ranges from \$90 to \$120 and fillings from \$100 to \$1200 per tooth. In states that provide Medicaid dental benefits, enrollee cost-sharing amounts are typically small, ranging from \$1 to \$3, representing a substantial reduction in enrollee costs for dental services. Changes in Medicaid pregnancy dental benefits may also bring salience to the importance of oral health during pregnancy through news coverage and notifications to beneficiaries, further increasing demand for services. Providing Medicaid dental benefits could also have supply side impacts. According to mixed economy model with private and public payers ([Sloan et al., 1978](#)), dentists would increase acceptance of Medicaid patients but reduce the quantity of services supplied in

response to Medicaid dental benefits. The latter prediction is based on lower payment rates to dentists in Medicaid relative to private plans. Research examining dentist responses to Medicaid dental coverage expansions found increased employment of dental hygienists to accommodate additional demand.

To our knowledge, there are few rigorous analyses evaluating the impacts of Medicaid pregnancy dental benefits on dental services use among pregnant people. The only quasi-experimental study we are aware of examined Virginia’s 2015 addition of a comprehensive Medicaid pregnancy dental benefit and found that reports of receiving a dental cleaning increased among Medicaid-enrolled pregnant people relative to privately insured pregnant people before and after the policy’s implementation (Naavaal & Harless, 2022). Other cross-sectional studies support these findings (Robison et al., 2021; Lee et al., 2022a). Research examining Medicaid dental benefits for non-pregnant adults finds that when states provide adult dental benefits beyond emergency care, past-year dental visits increase by about 13 percentage points and exam-based measures of untreated caries decline by about 9 percentage points (Decker & Lipton, 2015). Furthermore, Medicaid dental benefits reduce out-of-pocket spending on dental care (Abdus & Decker, 2019) and reduce emergency department visits for oral conditions (Singhal et al., 2015).

Our study is among the first to link state dental policy changes to birth outcomes on a large scale, offering critical insights for policy design and implementation. While evidence that maternal oral health can impact infant health outcomes is largely suggestive rather than definitive, addressing oral health issues during pregnancy may reduce systemic inflammation and mother-to-child transmission of cariogenic bacteria (Chaffee et al., 2014; Shira Davenport, 2010). Retrospective cohort studies using linked medical and dental claims suggest that treatment for periodontal disease, or gum disease, at baseline precedes lower total medical spending and hospitalizations for several chronic conditions and lower costs for atypical pregnancy care (Nasseh et al., 2017; Jeffcoat et al., 2014). However, the results of intervention studies providing periodontal treatment during pregnancy are mixed with some evidence of an improvement in low birthweight, though from low-quality studies at high risk of bias.

Overall, our study underscores the complex interplay between Medicaid policies, healthcare utilization, and health equity. By demonstrating how expanded dental benefits influence both prenatal care access and birth outcomes, our findings highlight the importance of comprehensive maternal healthcare coverage. The results suggest that Medicaid policies can serve as a critical tool in reducing racial, geographic, and socioeconomic disparities in maternal and infant health. Moreover, the observed heterogeneity in policy effects across demographic groups and geographic locations reinforces the need for targeted interventions that address the unique barriers faced by underserved communities.

Beyond immediate healthcare utilization, our study also contributes to a broader discussion on the long-term benefits of preventive maternal health policies. Improved prenatal healthcare access not only enhances maternal well-being but also has lasting intergenerational effects on newborn health, potentially influencing early-life development and future socioeconomic trajectories. As policymakers consider future expansions or modifications to Medicaid, these findings provide actionable insights on how tailoring benefits to meet the needs of high-risk populations can yield meaningful improvements in both short- and long-term health outcomes.

## 2 Background

In a national consensus statement, the Oral Health Care During Pregnancy Expert Workgroup recommended that pregnant people receive prenatal dental care, but pregnant people are less likely to visit the dentist (44%) than reproductive-age people who are not pregnant (65%).

Oral health problems are common among pregnant people with up to three-quarters affected by gum disease (CDC, 2024b). Hormone fluctuations during pregnancy increase the risk of developing gingivitis, a mild form of gum disease (Figuero et al., 2013; CDC, 2024b). If left untreated, gingivitis can progress to periodontitis, causing damage to the gums and bone that may lead to tooth loss. Pregnant people are also more susceptible to tooth decay given changes in eating and oral hygiene habits (e.g., reduced tooth brushing and flossing) (Boggess et al., 2010; Hunter & Yount, 2011). Poor oral hygiene and the presence of gum disease during early pregnancy are highly predictive of gum disease in later pregnancy (Gil-Montoya et al., 2023). Moreover, intervention studies suggest nonsurgical periodontal therapy is highly effective in resolving symptoms among pregnant people (Bobetsis et al., 2020; Kaur et al., 2014).

Medicaid plays a vital role in providing health coverage to low-income populations in the United States, covering over 40% of all births nationwide (KFF, 2023). However, unlike mandatory benefits such as hospital or prenatal care, adult dental services are considered optional under federal Medicaid law. As a result, states have broad discretion in determining whether and how to offer dental coverage to adult enrollees, including pregnant people. While most states cover emergency-only dental services to address acute pain or infection, fewer provide comprehensive preventive and restorative dental care. This considerable variation across states and over time creates an opportunity to assess how the availability of Medicaid dental benefits affects service utilization among pregnant people—a population with elevated oral health risks but persistently low rates of dental care use during pregnancy.

Several recent studies suggest that dental insurance is associated with dental care

utilization among pregnant people, although this research is generally cross-sectional (Robison et al., 2021; Lee et al., 2022a), based on self-report data (Naavaal & Harless, 2022; Robison et al., 2021; Lee et al., 2022a), and/or focuses on a single state (Naavaal & Harless, 2022). The only quasi-experimental study we are aware of examined Virginia’s 2015 addition of a comprehensive Medicaid pregnancy dental benefit and found that reports of receiving a dental cleaning increased among Medicaid-enrolled pregnant people relative to privately insured pregnant people before and after the policy’s implementation (Naavaal & Harless, 2022). A second recent cross-sectional study found that Medicaid-enrolled pregnant people with no Medicaid dental coverage (27%) were less likely to have a dental cleaning during pregnancy when compared to those with limited benefits (e.g., fewer than 100 services or an annual spending cap of less than \$1,000) (37%) and extensive benefits (e.g., at least 100 services and an annual spending cap of at least \$1,000) (45%) (Lee et al., 2022a). Across different population groups, Medicaid eligibility expansions to pregnant people and infants during their first year of life were associated with a significant reduction in permanent tooth loss on reaching young adulthood for non-Hispanic Black cohorts (Lipton et al., 2016). While this research could not disentangle the specific mechanisms for these effects, the importance of eligibility expansions targeting pregnant people and infants is suggestive of a critical role for Medicaid pregnancy benefits. These findings also provide support for the notion of longer run oral health improvements following early life interventions.

While evidence on the impacts of Medicaid pregnancy dental benefits remains somewhat limited, there is a robust body of research on dental benefits for non-pregnant adults and their effects on dental care use and oral health (Choi, 2011; Decker & Lipton, 2015; Singhal et al., 2015, 2017; Abdus & Decker, 2019; Meyerhoefer et al., 2019; Wehby et al., 2019; Lyu et al., 2020; Singhal et al., 2021; Wehby et al., 2022; Lyu & Wehby, 2023). Decker & Lipton (2015) found that when states provided adult dental benefits beyond emergency care, past-year dental visits increased by about 13 percentage points and exam-based measures of untreated caries declined by about 9 percentage points. The increase in dental visits represented a 34% increase relative to the average rate in states without dental benefits (38%). Meyerhoefer et al. (2019) also found that Medicaid dental benefits increased basic and major services use by 23% and 36%, respectively. Other researchers have found that Medicaid dental benefits reduce out-of-pocket spending on dental care (Abdus & Decker, 2019), reduce emergency department visits for oral conditions (Singhal et al., 2015), and that they induce a supply-side response with dentists increasing their acceptance of Medicaid patients (Buchmueller et al., 2016).

Moreover, poor oral health has been linked to systemic health conditions including cardiovascular disease (Oliveira et al., 2010; Sanz et al., 2020), diabetes (Díaz-Romero et al., 2005; Chee et al., 2013; Nasseh et al., 2017), respiratory conditions (Manger et al.,

(2017), and adverse pregnancy and birth outcomes [Jeffcoat et al. \(2014\)](#); [Puertas et al. \(2018\)](#). Retrospective cohort studies using linked medical and dental claims suggest that treatment for periodontal disease, or gum disease, at baseline precedes lower total medical spending and hospitalizations for several chronic conditions and lower costs for atypical pregnancy care [Jeffcoat et al. \(2014\)](#); [Nasseh et al. \(2017\)](#). Based on these findings, one recent analysis indicated that providing Medicaid dental benefits to adult enrollees in states that currently do not offer them could result in approximately \$273 million in annual medical care cost savings ([Vujicic et al.](#)).

Taken together, the clinical and economic literature suggests that pregnancy represents a critical window for improving oral health, yet coverage gaps in Medicaid may limit access to needed dental care. While studies of adult Medicaid dental expansions point to substantial gains in utilization and health outcomes, the causal effects of pregnancy-specific dental benefits remain understudied. This paper contributes new evidence by leveraging state-level variation in pregnancy dental benefit policies and applying a difference-in-differences design to assess impacts on preventive dental care during pregnancy and key birth outcomes.

### 3 Data

The data for this study is drawn from the Pregnancy Risk Assessment Monitoring System (PRAMS), a state-based surveillance system managed by the Centers for Disease Control and Prevention (CDC) in collaboration with state health departments. PRAMS collects comprehensive, population-based data on maternal experiences before, during, and shortly after pregnancy, with an emphasis on maternal health behaviors and access to care. This data is ideal for examining patterns of healthcare utilization, including dental care, among Medicaid-enrolled pregnant individuals. Our analysis utilizes PRAMS data from 2012 to 2019, focusing on individuals aged 21 and older who were enrolled in Medicaid during pregnancy. This restriction allows us to target populations most likely to be affected by Medicaid policy changes related to dental benefits.

PRAMS provides a state-representative sample of people who have recently given birth, sampling between 1,000 and 3,000 individuals annually from each participating site (typically a state). The dataset includes self-reported measures of dental cleaning during pregnancy, which are linked with birth certificate data to assess birth outcomes. The linked birth certificate data also allows us to identify Medicaid recipients at childbirth, enabling precise targeting of the population impacted by Medicaid pregnancy dental benefits.

Our primary outcome for dental care utilization is an indicator of having received dental cleaning during the pregnancy period for the current birth. Furthermore, we



investigate four main birth outcomes, including small for gestational age (at 10<sup>th</sup> percentile), preterm birth, low birth weight, and very low birth weight. The PRAMS also provides a rich set of individual and socioeconomic characteristics at the individual level, and can be controlled for potential factors that may influence dental care access and utilization. Socioeconomic indicators such as income and maternal and paternal education provide insight into the role of financial and educational resources in healthcare access, allowing us to examine whether Medicaid dental benefits have a differential impact across income and education levels. Demographic controls, including age, race, ethnicity, marital status, and urban versus rural residence, allow us to account for disparities in access to dental care. Birth order serves as a control for maternal experience, which could influence healthcare utilization behaviors during pregnancy.

(Table 2 here)

Table 2 provides descriptive statistics offering a snapshot of the study population. In total, we obtain 71,442 individual observations. Regarding dental care utilization, 44% of respondents reported receiving a dental cleaning during pregnancy. For birth outcomes, approximately 10% of births are classified as low birth weight, 11% as preterm, and 11% as small for gestational age (10th percentile). The demographics of the sample reveal that the average maternal age is 28 years, with 56% of respondents having less than a college education. The sample is racially and ethnically diverse, with 42% identifying as non-Hispanic White, 30% as non-Hispanic Black, and 22% as Hispanic. Additionally, 40% of respondents are married, and 80% reside in urban areas.

We supplement the PRAMS data with a comprehensive set of year-specific variables to account for potential confounding factors related to state-level socioeconomic and policy changes. Medicaid-related variables, such as state-specific eligibility limits, managed care penetration rates, and Affordable Care Act (ACA) implementation status, are included to account for variations in Medicaid dental coverage. Additionally, broader contextual factors, such as unemployment rates, the density of dentists per capita, and public health policies (e.g., mask mandates, shelter-in-place orders), provide further context for understanding how external factors may influence dental care utilization and maternal health outcomes.

This integration of individual- and state-level data facilitates subgroup analyses, allowing us to explore disparities in dental care utilization and birth outcomes across demographic groups, including race, ethnicity, rural/urban residence, and socioeconomic status. By leveraging the extensive coverage of PRAMS and its linkages to state-level variables, this study provides a comprehensive evaluation of Medicaid pregnancy dental benefits on healthcare utilization and health outcomes.



## 4 Empirical Strategy

### 4.1 A Stacked Difference-in-differences Approach

This study employs a stacked difference-in-differences (DID) design, following recent methodological advancements outlined by [Wing et al. \(2024\)](#). The staggered adoption of Medicaid pregnancy dental benefits across states during the study period (2012-2019) provides a quasi-experimental setting to estimate the causal effects of policy expansions on dental care utilization and birth outcomes. As [Figure 1](#) shows, some states maintained pre-existing benefits throughout this timeframe (shown in blue), while others implemented expanded benefits during the study period (shown in green). Several states continued to offer no dental benefits for pregnant individuals (shown in red). Therefore, a stacked DID approach is particularly well-suited for analyzing staggered treatment adoption of Medicaid dental benefits for pregnant women, as it addresses potential biases and estimation challenges associated with traditional two-way fixed effects models.

([Figure 1](#) here)

The inclusion of states in this analysis is determined by the availability of state-level PRAMS data, which offers comprehensive information on birth outcomes, maternal health behaviors, and demographics. States depicted in grey either do not participate in PRAMS or have data below the threshold required for public use. Based on policy status, states with pre-existing benefits are categorized as the “already treated” group, while those introducing benefit expansions—such as Colorado, Illinois, Utah, Virginia, and South Carolina—constitute the treatment group. States without any benefits, including Maine, Tennessee, New Hampshire, Alabama, Louisiana, and Mississippi, serve as a natural comparison group for evaluating the impacts of these policies.

A stacked difference-in-differences (DID) design leverages variations in the staggered timing of policy adoption across states by comparing changes in dental care utilization and subsequent birth outcomes before and after the adoption of benefits and between states that have implemented the policy and those that have not yet done so. In this approach, we create multiple “sub-experiments,” each representing a distinct policy adoption event. For each sub-experiment, the treated group consists of states that adopted Medicaid pregnancy dental benefits during a specific event window, while the control group is composed of states that not yet implemented policy changes during the same period. For example, Utah’s policy adoption in October 2013 forms one sub-experiment, with states such as Alabama, Arizona, Colorado, and others serving as controls. [Table 1](#) summarizes these sub-experiments, including the treatment and control states, as well as the associated event windows.

([Table 1](#) here)

Each sub-experiment is analyzed within a pre-defined event window, spanning a period before and after the policy implementation date. Symmetric event windows of approximately 4 to 5 years were used in this study to capture both pre-policy trends and post-policy effects. For instance, the event window for Utah spans from January 2012 to October 2016, providing sufficient observations to evaluate changes in outcomes before and after the policy adoption month. The event study version of the stacked DID framework not only captures dynamic treatment effects in both the short and long term but also assesses whether the parallel trends assumption holds during the pre-treatment period.

Traditional two-way fixed effects models often pool within-state variation across treated and untreated states, which can introduce bias when treatment effects are heterogeneous or evolve over time. For example, early-adopting states may serve as controls for later-adopting states, conflating policy effects with underlying time trends. By isolating treatment and control groups for each policy event and analyzing them within clean, non-overlapping event windows, the stacked DID framework mitigates these concerns and provides more reliable causal estimates. (citation)

## 4.2 Main Specification

Our baseline stacked DID specification estimates both pre-trends and post-treatment effects within each sub-experiment. We employ an event study design that includes leads and lags of the time periods relative to the adoption of Medicaid dental benefits for pregnant individuals, using the following regression model:

$$Y_{istd} = \mu_{sd} + \sum_{\tau=-\kappa_a}^{-2} \alpha_{\tau} \cdot 1(TSE_{td} = \tau) + \sum_{\sigma=0}^{\kappa_b} \delta_{\sigma} \cdot 1(TSE_{td} = \sigma) + \mathbf{X}_{istd}\boldsymbol{\beta} + \lambda_t + \epsilon_{istd} \quad (1)$$

In Equation (1),  $Y_{istd}$  denotes the outcome of interest for individual  $i$  (e.g., dental cleaning utilization or birth outcomes) in state  $s$ , time  $t$ , and sub-experiment  $d$ . The variable  $TSE_{td}$  represents the number of months since policy implementation, with  $\alpha_{\tau}$  and  $\delta_{\sigma}$  capturing pre-policy and post-policy event-time effects, respectively. Specifically, our event study specification aligns birth year and month with the timing of Medicaid dental benefit implementation and groups the pre- and post-treatment periods into three-month intervals. This structure allows for a detailed examination of how outcomes, such as dental care utilization and birth outcomes, evolve over time. The model differentiates between partial policy exposure, observed in the initial post-policy intervals, and full policy exposure, captured in later periods. By aligning events temporally, this approach provides a clearer understanding of the timing, stabilization, and persistence of policy impacts, offering insights into both short-term effects and longer-term trends.

The control variable vector  $\mathbf{X}_{istd}$  includes individual-level characteristics (e.g., maternal age, education, marital status, race/ethnicity, and urban/rural residence), state-level policy variables (e.g., Medicaid eligibility thresholds and managed care penetration rates), and time-varying contextual factors (e.g., unemployment rates and dentist density). These controls account for time-varying observable differences that could be associated with outcomes. State-by-sub-experiment fixed effects,  $\mu_{sd}$ , account for time-invariant characteristics at the state level, while  $\lambda_t$  represents time fixed effects to control for common time shocks. The error term,  $\epsilon_{istd}$ , captures unobserved variation. Standard errors are clustered at the state level to account for serial correlation and within-state dependencies in outcomes.

Equation (1) tests for pre-trends by estimating the pre-policy coefficients  $\alpha_\tau$ , ensuring that treated and control groups exhibit parallel trends before policy implementation. The post-policy coefficients  $\delta_\sigma$  capture the dynamic effects of the policy. To obtain the aggregated average treatment effect, we estimate the following model:

$$Y_{istd} = \mu_{sd} + \omega_1 \text{PregDental}_{istd} + \mathbf{X}_{istd}\boldsymbol{\beta} + \lambda_t + \epsilon_{istd} \quad (2)$$

where, the aggregate ( $\omega_1$ ) is derived from the post-policy coefficients ( $\delta_\sigma$ ) and quantifies the overall policy impact.

Together, the stacked DID and event study methods offer a comprehensive framework for evaluating the staggered adoption of Medicaid pregnancy dental benefits. By capturing effects in three-month intervals, this approach is well-suited to identifying nuanced temporal trends, which are essential for understanding both the granular and overall impact of Medicaid dental benefit expansions on both dental care utilization and birth outcomes. Our empirical strategy enhances the robustness and interpretability of the results, providing valuable insights for policymakers and stakeholders seeking to optimize Medicaid dental benefits for pregnant individuals.

## 5 Results

This section presents the findings on the impact of Medicaid pregnancy dental benefits on dental care utilization and birth outcomes. The analysis evaluates how these benefits influence the likelihood of receiving prenatal dental cleaning and their subsequent effects on key birth outcomes, including small for gestational age (at 10<sup>th</sup> percentile), preterm birth, low birth weight, and very low birth weight. Additionally, event study models are employed to examine the dynamic treatment effects over time and test the parallel trends assumption. Heterogeneous treatment effects are explored across demographic and socioeconomic subgroups, shedding light on disparities in policy impacts and highlighting potential areas for targeted interventions.

## 5.1 Effects of Medicaid Pregnancy Dental Benefits on Dental Cleaning and Birth Outcomes

We first estimate the effect of Medicaid dental benefits for pregnant women on the probability of having received dental cleaning during the pregnancy period for the current birth, as a first-stage outcome. Column (1) in Table 3 shows a 7.16 percentage point increase in dental cleaning rates among Medicaid recipients, from a baseline mean of 24.6%. This improvement represents a 29.1% relative increase from baseline rates of prenatal dental cleaning and demonstrates the effectiveness of policy expansions in promoting the use of preventive dental care among pregnant women. These findings underscore Medicaid’s potential as a lever to address gaps in healthcare access during pregnancy.

(Table 3 here)

Figure 2 provides event study estimates of the impact of Medicaid pregnancy dental benefits on prenatal dental cleaning rates. The temporal dynamics suggest that while there is no pre-existing trend in prenatal dental cleaning rates before policy implementation, the effect of Medicaid pregnancy dental benefits gradually intensifies in the months afterwards, with significant increases becoming evident between 7 and 9 months post-adoption. This upward trajectory suggests that the early post-policy period represents a phase of partial policy exposure, during which the full impact of expanded benefits may not be immediately realized. As time progresses, the observed effect grows stronger, reflecting full policy exposure and a sustained improvement in dental care utilization. By the later post-policy months, the effect plateaus at a consistently higher rate of dental cleaning compared to pre-policy levels, indicating a long-lasting shift in healthcare-seeking behavior among Medicaid-eligible pregnant individuals.

(Figure 2 here)

We estimate the effects of prenatal exposure to Medicaid dental benefits on four primary birth outcomes: small for gestational age (SGA) at the 10th percentile, preterm birth, low birth weight, and very low birth weight. Table 3 presents these findings in Columns (2) to (5). Notably, Medicaid dental benefits significantly reduce the likelihood of a newborn being small for gestational age by 1.19 percentage points, representing a 9.52% decrease relative to the baseline mean of 12.5%. Additionally, we observe a statistically significant reduction in very low birth weight by 0.47 percentage points. However, the estimated impacts on preterm birth (-0.99 percentage points) and low birth weight are not statistically significant.

Figure 3 illustrates event study plots for each birth outcome. Before policy implementation, estimates for most outcomes largely hover near zero with overlapping

confidence intervals, suggesting parallel trends between treated and control states. However, the estimates for low birth weight deviate from zero prior to policy adoption, indicating potential violations of the parallel trends assumption for this outcome. Post-policy implementation, we consistently observe negative effects for small for gestational age, preterm birth, and very low birth weight. These effects are especially pronounced for small for gestational age and very low birth weight. While the table estimates for preterm birth are imprecise, the event study plots reveal consistent post-policy reductions, suggesting a potential impact not captured in the average effect estimates. In contrast, there is no consistent evidence of impact on low birth weight.

(Figure 3 here)

Our main results underscore the effectiveness of Medicaid dental benefits in addressing barriers to prenatal dental care access, with policy impacts that extend over the course of pregnancy and contribute to sustained improvements in maternal healthcare utilization. Furthermore, we find suggestive evidence that providing dental care benefits to pregnant women may have intergenerational health impacts on their newborns. This highlights the need for further research to better understand the underlying mechanisms driving these effects and to identify additional factors that could enhance policy effectiveness.

## 5.2 Heterogeneous Treatment Effects Across Subgroups

The analysis of subgroup-specific treatment effects on prenatal dental cleaning reveals broadly consistent improvements across different racial and ethnic groups in response to the Medicaid pregnancy dental benefit expansions (Figure 4). Non-Hispanic Black and non-Hispanic White individuals experienced statistically significant increases in prenatal dental cleaning rates. While Hispanic individuals also exhibited positive point estimates, the effects for this group are statistically imprecise. These findings suggest that the Medicaid expansions may have contributed to narrowing disparities in access to preventive dental care across racial and ethnic groups, although further research is needed to confirm the impact among Hispanic populations due to the lack of statistical precision.

(Figure 4 here)

Geographic differences also emerged, with rural residents showing not significant increase in utilizing prenatal dental cleaning compared to their urban counterparts. This pattern might reflect ongoing disparities in healthcare access between rural and urban areas, possibly driven by factors such as limited availability of dental providers or the increased travel distance required to access care in rural settings. Age-specific effects reveal that individuals aged 26 to 34 experienced the largest improvements

in dental cleaning utilization among all age groups, suggesting that this segment of the population may have been particularly well-positioned to benefit from the policy. Furthermore, individuals without pre-pregnancy health risks exhibited stronger effects, indicating that those without underlying health conditions might respond more favorably to the expansion of dental benefits. These variations highlight the differential impacts of Medicaid expansions across population subgroups, with distinct responses based on demographic, geographic, and health-related factors.

We further demonstrate heterogeneous treatment effects of Medicaid pregnancy dental expansions on birth outcomes across subgroups, with pronounced disparities observed across geographic, racial, and age categories (Figure 5).

For the impact on small for gestational age, rural residents experienced a more statistically significant and substantial negative effect than urban counterparts, suggesting that the policy may contribute to improved fetal growth in these areas. Compared with women with other marital statuses, married individuals experience a statistically significant reduction in the rate of small for gestational age.

Notably, mothers aged 21-25 experienced significant improvements in preterm birth rates, suggesting that this group, often facing heightened risks, benefited substantially from improved access to prenatal dental care. Similarly, among rural residents, the coefficient for preterm birth was also negative, indicating a promising effect on improving this birth outcome in rural areas.

Rural residents also experienced a statistically significant reduction in low birth weight, with a negative estimated coefficient and a confidence interval that did not cross zero. This suggests that the expansion of dental benefits may be particularly effective in mitigating adverse birth outcomes in these underserved communities.

(Figure 5 here)

Further examination of the effects on very low birth weight reveals similar patterns for younger mothers and rural populations. Mothers aged 21-25 experienced a statistically significant reduction in very low birth weight, reinforcing the positive impact of the policy on this demographic. Rural areas also exhibited a likely negative effect on very low birth weight. These findings suggest that more data or a larger sample size can be used to confirm this effect conclusively.

The benefits observed on birth outcomes underscore the potential of targeted healthcare policies to address specific vulnerabilities faced by younger mothers and rural communities. It suggests that younger mothers, who often face heightened risks due to limited financial stability and inconsistent healthcare access, were among the primary beneficiaries of improved prenatal care. The findings emphasize that expanding dental care access during pregnancy may play a key role in mitigating preterm birth risks and

very low birth weight for younger populations. In contrast, older mothers did not exhibit significant improvements, indicating that the policy’s effects might be less effective for this group. For all four adverse birth outcomes, rural residents substantially benefit from Medicaid dental benefits for pregnant women. This further suggests that rural areas—where individuals typically face greater barriers to accessing healthcare services than their urban counterparts—are a key target population for Medicaid dental care coverage.

In summary, the analysis of heterogeneous treatment effects demonstrates that the Medicaid pregnancy dental benefit expansion yielded meaningful improvements in preventive dental care utilization and birth outcomes, particularly for rural residents, younger mothers, and non-Hispanic Black individuals. However, the variability in effects across subgroups, including mixed or insignificant results for certain populations, underscores the complexity of addressing adverse birth outcomes through single-policy interventions. These findings highlight the importance of considering demographic and geographic disparities when evaluating policy effectiveness.

### 5.3 Robustness Checks and Mechanisms

To ensure the validity and robustness of our main findings and to better understand the underlying mechanisms driving observed effects, we conduct additional analyses through a series of robustness checks and mechanism explorations. Table 4 presents estimates examining the effects of Medicaid pregnancy dental benefits across different education and income groups. These analyses are conducted on the full sample, which includes individuals with Medicaid, private insurance, and other forms of coverage. The purpose of this stratification is to assess whether the policy’s impact varies by socioeconomic status and to identify which subgroups benefit the most from the expansion of dental benefits.

Results show consistent and statistically significant improvements in prenatal dental cleaning rates across all subgroups, with the strongest effects observed among individuals with lower education and those with incomes less than \$25,000 and \$50,000. These patterns suggest that the policy may be particularly effective in expanding access to dental care among historically underserved populations. In terms of birth outcomes, the overall estimates are generally imprecise. However, we find a statistically significant reduction in low birth weight among the low-education subgroup, indicating a potential health benefit of the dental policy among individuals facing greater structural barriers to care. These findings reinforce the importance of Medicaid dental expansions in improving preventive care access, particularly for socially and economically disadvantaged groups.

(Table 4 here)



Table 5 further examines the joint effects of Medicaid pregnancy dental benefits and broader adult Medicaid expansions on prenatal dental cleaning and birth outcomes. This analysis serves to isolate the specific contribution of pregnancy-targeted dental coverage relative to general Medicaid eligibility expansions for adults. The results confirm that improvements in prenatal dental cleaning and reductions in very low birth weight are consistent even when controlling for non-pregnancy adult Medicaid expansions. In contrast, the estimated effects for other birth outcomes are sensitive to the inclusion of adult expansions. Notably, adult (non-pregnancy) Medicaid expansions are associated with modest improvements—statistically significant at the 10% level—for small-for-gestational-age births and low birth weight. These findings underscore the unique value of pregnancy-specific dental coverage in driving improvements in maternal oral health, while also suggesting that broader Medicaid expansions may offer complementary, albeit limited, benefits for certain birth outcomes.

(Table 5 here)

Table 6 presents estimates of the effect of Medicaid pregnancy dental benefits on dental cleaning and birth outcomes after excluding individuals classified as low-income. This analysis is intended to test whether the observed effects persist among higher-income populations. The results indicate that even after excluding low-income individuals, Medicaid pregnancy dental benefits are associated with a statistically significant increase in prenatal dental cleaning (8.99 percentage points) and significant reductions in small-for-gestational-age births, low birth weight, and very low birth weight. The effect on preterm birth remains negative but is not statistically significant. These findings suggest that while low-income populations may benefit most strongly from the policy, meaningful improvements are also observed among higher-income individuals, indicating broader relevance of the dental benefit expansion across income levels.

(Figure 6 here)

Table 6 presents estimates of the effect of Medicaid pregnancy dental benefits on dental cleaning and birth outcomes after excluding individuals classified as low-income. This analysis is intended to test whether the observed effects persist among higher-income populations. The results indicate that even after excluding low-income individuals, Medicaid pregnancy dental benefits are associated with a statistically significant increase in prenatal dental cleaning (8.99 percentage points) and significant reductions in small-for-gestational-age births, low birth weight, and very low birth weight. The effect on preterm birth remains negative but is not statistically significant. These findings suggest that while low-income populations may benefit most strongly from the policy, meaningful improvements are also observed among higher-income individuals, indicating broader relevance of the dental benefit expansion across income levels.

(Figure 7 here)

Table 7 explores potential mechanisms through which Medicaid pregnancy dental benefits may influence birth outcomes by examining prenatal care utilization and maternal smoking behaviors. The results indicate no statistically significant effects on receiving adequate prenatal care, as measured by the Kotelchuck Index, or on maternal smoking behaviors before, during, or after pregnancy. These findings suggest that the improvements in birth outcomes associated with dental benefit expansions are unlikely to be driven by changes in these particular behavioral mechanisms. Instead, the effects may operate through other pathways, such as direct improvements in maternal oral health or reduced systemic inflammation associated with periodontal treatment.

In summary, the robustness checks and supplemental analyses provide strong support for the main findings. The consistent improvements in prenatal dental cleaning across diverse subgroups, along with significant reductions in certain adverse birth outcomes, underscore the effectiveness of Medicaid pregnancy dental benefit expansions. While we find limited evidence for behavioral mechanisms such as prenatal care utilization or smoking cessation, the persistence of effects across income levels and policy combinations suggests that improved access to dental care itself plays a critical role in shaping maternal and neonatal health outcomes.

## 6 Discussion

This study provides compelling evidence on the effectiveness of Medicaid pregnancy dental benefits in increasing access to prenatal dental care and its varying impacts on birth outcomes. Our results indicate that expanding Medicaid dental coverage significantly increased the likelihood of pregnant individuals receiving preventive dental cleanings, with particularly strong improvements observed among non-Hispanic Black and Hispanic individuals, as well as among individuals aged 26–34. These findings are consistent with previous research showing the importance of insurance coverage in addressing unmet healthcare needs during pregnancy. However, the benefits of expanded coverage were not uniformly distributed, as rural residents experienced smaller gains in dental care utilization but larger relative improvements in birth outcomes, including significant reductions in low birth weight and preterm birth. This discrepancy underscores the complex relationship between healthcare access and birth outcomes, particularly for populations facing structural barriers to care.

The heterogeneous treatment effects reveal that while Medicaid expansions helped reduce some disparities, particularly those based on geographic location and income, challenges remain in addressing disparities related to race and ethnicity. The lack of significant and consistent improvements in preterm birth and very low birth weight

outcomes highlights the multifaceted nature of these outcomes, which are influenced by a range of factors beyond oral healthcare access. The findings suggest that Medicaid dental benefits alone are insufficient to comprehensively improve birth outcomes across all populations, emphasizing the need for a more holistic approach that considers social, medical, and environmental factors affecting maternal and child health.

The robustness of our results is supported by placebo tests, which show no significant changes in birth outcomes or dental cleaning rates among privately insured individuals who were not eligible for Medicaid pregnancy dental benefits. Additionally, we found no policy-related effects on unrelated health conditions, such as pre-pregnancy diabetes and hypertension, further confirming that the observed effects are specific to Medicaid recipients and not driven by external confounding factors. These findings strengthen the causal interpretation of our results, highlighting the role of Medicaid coverage expansions in improving maternal healthcare utilization and, to some extent, birth outcomes.

The findings from this study carry important policy implications for improving maternal and child health outcomes. Expanding Medicaid dental benefits has proven to be an effective strategy for increasing access to dental care among low-income pregnant individuals, particularly those from historically underserved groups. Given the significant improvements observed, further expansion of these benefits could help bridge income-based disparities in dental care use during pregnancy. However, the mixed results on birth outcomes suggest that coverage alone may not be sufficient to address disparities related to race and ethnicity. Complementary strategies, such as targeted outreach, culturally tailored health education, and coordination between dental and prenatal care providers, are necessary to ensure that minority populations fully benefit from expanded coverage.

Moreover, extending Medicaid and Children's Health Insurance Program (CHIP) coverage to 12 months postpartum could further support maternal and child health by sustaining the oral health improvements achieved during pregnancy. Postpartum coverage would provide opportunities for continued preventive care, reducing the risk of long-term oral health issues that could negatively affect both the mother and her child. Integrating oral health services into routine prenatal care could also enhance the impact of Medicaid dental benefits. Encouraging collaboration between dental and prenatal care providers would allow for early detection and treatment of oral health issues, while implementing routine dental screenings during prenatal visits could address oral health concerns before they lead to adverse outcomes.

Targeted programs are needed to address the specific barriers faced by vulnerable populations, particularly rural and Hispanic mothers. The significant gains observed in rural areas in terms of birth outcomes suggest that targeted interventions, such as mobile dental clinics and telehealth services, could further improve access to care.

Additionally, bilingual health education and culturally sensitive prenatal programs could help overcome barriers faced by Hispanic mothers, ensuring that they also benefit from expanded dental coverage. To ensure the ongoing effectiveness of these policies, robust monitoring and evaluation systems should be established to track both short-term and long-term impacts. Data-driven approaches would allow policymakers to identify gaps, assess program performance, and continuously improve the design and implementation of Medicaid dental benefits.

## 7 Conclusion

In conclusion, Medicaid pregnancy dental benefits have demonstrated their potential to improve maternal healthcare utilization and reduce some adverse birth outcomes, particularly among rural residents, younger mothers, and non-Hispanic Black individuals. However, the variability in policy impacts highlights the need for a comprehensive approach that integrates expanded coverage with targeted programs and complementary interventions. Addressing persistent disparities requires not only financial access through expanded benefits but also tailored outreach and education programs designed to meet the unique needs of diverse populations.

By incorporating continuous monitoring and evaluation systems, policymakers can ensure that programs remain effective and equitable. Expanding postpartum coverage and integrating oral health services into prenatal care could further enhance the impact of Medicaid dental benefits. As policymakers seek to optimize maternal and child health outcomes, this study underscores the importance of leveraging Medicaid's potential as a powerful tool to reduce barriers to care, while recognizing the complexity of addressing disparities in health outcomes through policy interventions alone.

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Figure 1: State Variation in Medicaid Pregnancy Dental Benefits, 2012–2022

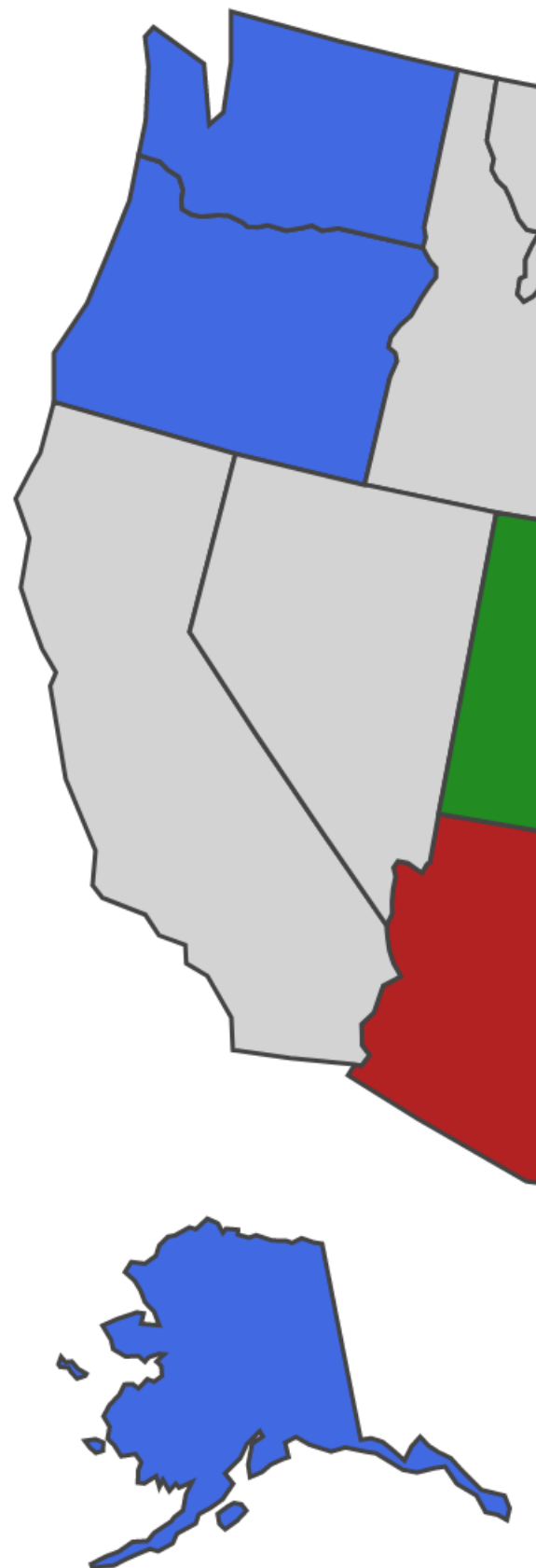
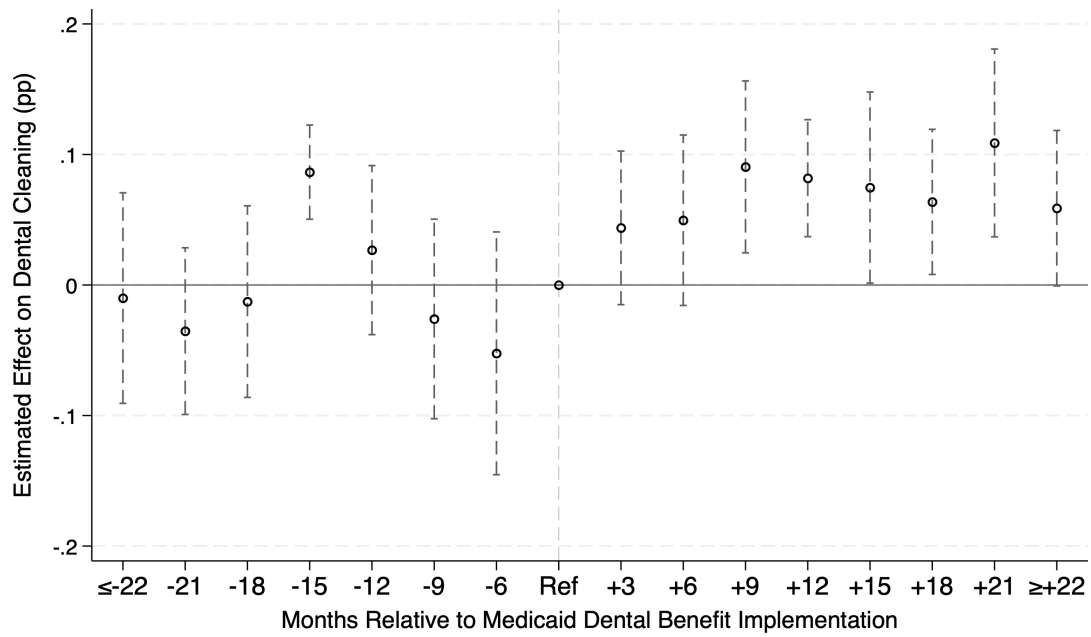
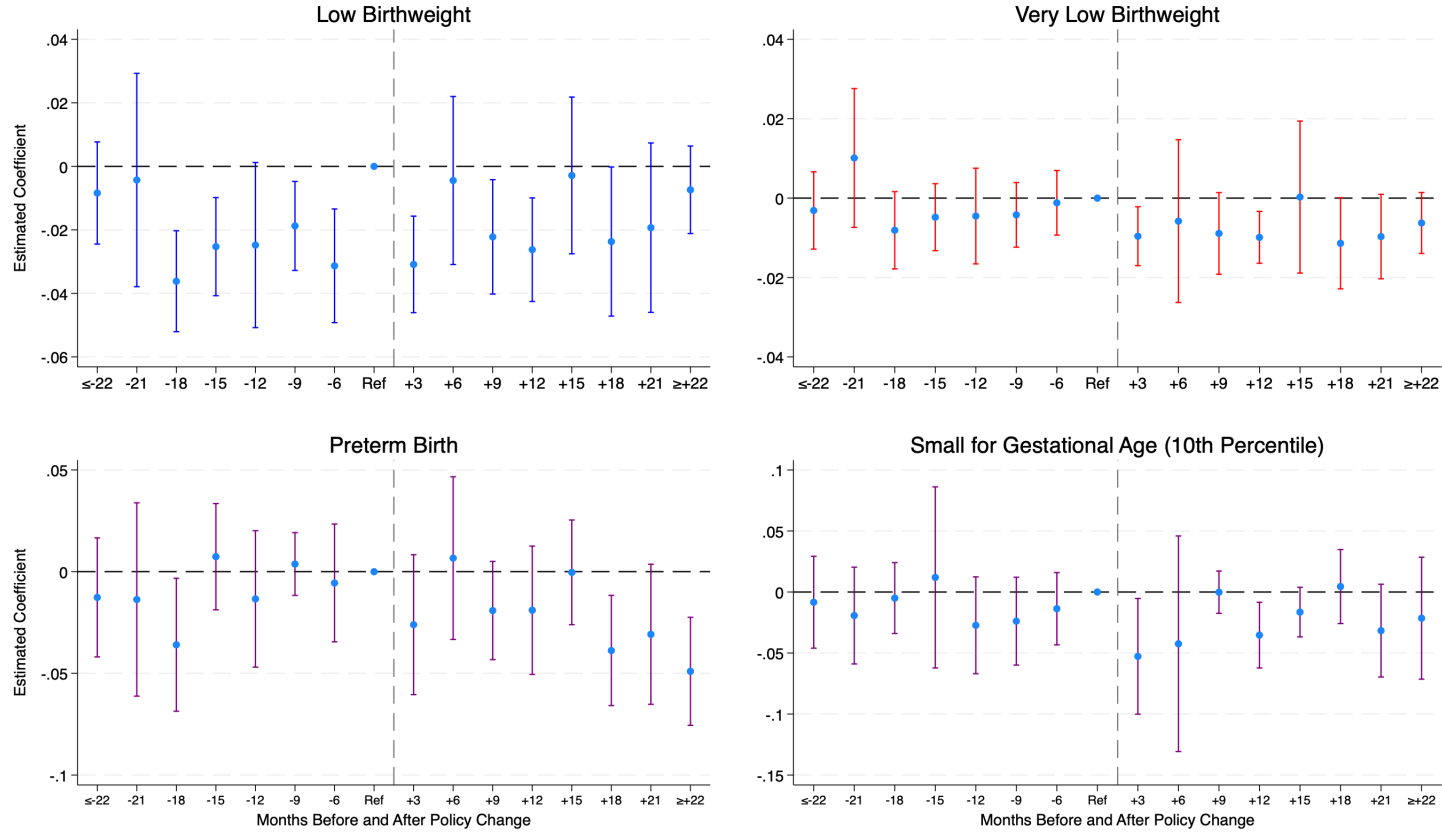


Figure 2: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning: Event Study Estimates



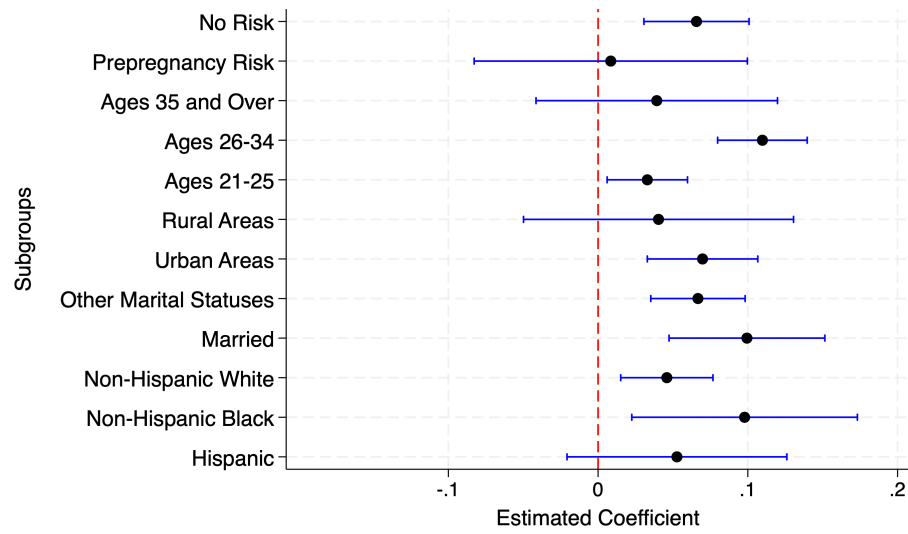
*Notes:* The figure displays event study estimates of the effect of Medicaid pregnancy dental benefit expansions on prenatal dental cleaning rates, using a stacked difference-in-differences approach. The x-axis represents time in months before and after policy adoption, and the y-axis shows the estimated coefficients. Confidence intervals are indicated by the vertical lines around the point estimates. The reference group is set to 0–3 months before policy implementation, and the estimates test the parallel trends assumption while capturing dynamic treatment effects.

Figure 3: Event Study Estimates: Effect of Medicaid Pregnancy Dental Benefits on Birth Outcomes



*Notes:* The figure presents event study estimates of the effect of Medicaid pregnancy dental benefits on key birth outcomes, including low birth weight, very low birth weight, preterm birth, and small for gestational age (10th percentile). Each panel corresponds to a separate outcome variable, with the x-axis representing time in months before and after policy implementation. The y-axis indicates the estimated coefficients, and vertical bars represent 95% confidence intervals. The reference group is set to 0–3 months before policy implementation. These estimates test the parallel trends assumption and provide dynamic treatment effects.

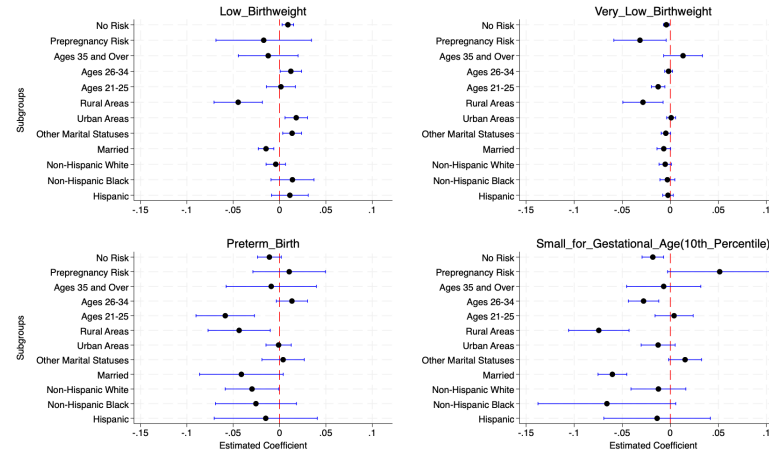
Figure 4: Heterogeneous Effects of Medicaid Pregnancy Dental Benefits on Dental Cleaning by Subgroup



*Notes:* The figure displays heterogeneous effects of Medicaid pregnancy dental benefits on prenatal dental cleaning rates across key subgroups, including racial/ethnic groups, age groups, marital statuses, and geographic locations. The estimated coefficients are plotted along with 95% confidence intervals. Subgroups with significant positive effects indicate populations that benefit most from the policy, while the vertical red line at zero denotes no effect.



Figure 5: Heterogeneous Effects of Medicaid Pregnancy Dental Benefits on Birth Outcomes by Subgroup



*Notes:* The figure displays the heterogeneous effects of Medicaid pregnancy dental benefits on key birth outcomes across subgroups, including demographic (age, race/ethnicity), geographic (urban vs. rural), and risk-based categories. Estimated coefficients for low birthweight, very low birthweight, preterm birth, and small for gestational age (10th percentile) are presented with 95% confidence intervals. Subgroups showing significant reductions or no changes provide insights into differential impacts. The vertical red line at zero represents no effect.

Table 1: Sub-experiments of Medicaid dental benefit expansions for pregnant individuals

| <b>Sub-experiment</b> | <b>Date</b> | <b>Event Window</b> | <b>Treatment States</b> | <b>Control States</b>              |
|-----------------------|-------------|---------------------|-------------------------|------------------------------------|
| 10/2013               |             | 01/2012–10/2016     | UT                      | DE, GA, ME, TN, WV, NH, AL, LA, MS |
| 04/2014               |             | 01/2012–04/2017     | CO                      | DE, GA, ME, TN, WV, NH, AL, LA, MS |
| 07/2014               |             | 01/2012–07/2017     | IL                      | DE, GA, ME, TN, WV, NH, AL, LA, MS |
| 12/2014               |             | 01/2012–12/2017     | SC                      | DE, GA, ME, TN, WV, NH, AL, LA, MS |
| 03/2015               |             | 01/2012–03/2028     | VA                      | DE, GA, ME, TN, WV, NH, AL, LA, MS |

*Notes:* The table lists sub-experiments comparing treatment states with expanded benefits to control states without policy changes during the event window. The design captures pre- and post-policy effects.

Table 2: Summary Statistics

| Variable                                    | Mean   | Std. Dev |
|---|--------|----------|
| <b>Dental Care Utilization</b>              |        |          |
| Received Dental Cleaning                    | 0.443  | 0.497    |
| <b>Birth Outcomes</b>                       |        |          |
| Low Birthweight                             | 0.077  | 0.267    |
| Very Low Birthweight                        | 0.013  | 0.114    |
| Preterm Birth                               | 0.093  | 0.290    |
| Small for Gestational Age (10th Percentile) | 0.109  | 0.312    |
| <b>Demographics</b>                         |        |          |
| Birth Order                                 | 1.009  | 0.098    |
| Age of Mother                               | 29.384 | 5.151    |
| Lower than College Education                | 0.338  | 0.473    |
| Non-Hispanic White                          | 0.586  | 0.493    |
| Non-Hispanic Black                          | 0.176  | 0.381    |
| Hispanic                                    | 0.145  | 0.353    |
| Married                                     | 0.658  | 0.474    |
| Urban Areas                                 | 0.797  | 0.402    |

*Note:* Summary statistics are based on PRAMS data from 2012 to 2019 for Medicaid-enrolled pregnant individuals aged 21 and older. The table provides means and standard deviations for birth outcomes, dental care utilization, and demographic characteristics.

Table 3: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning and Birth Outcomes

|                          | Dental<br>Cleaning    | Small for<br>Gestational Age (P10) | Preterm<br>Birth      | Low Birth<br>Weight  | Very Low<br>Birth Weight |
|--------------------------|-----------------------|------------------------------------|-----------------------|----------------------|--------------------------|
| Pregnancy Dental Benefit | 0.0716***<br>(0.0138) | -0.0119**<br>(0.00518)             | -0.00900<br>(0.00633) | 0.00503<br>(0.00321) | -0.00470***<br>(0.00147) |
| Baseline Mean            | 0.246                 | 0.125                              | 0.112                 | 0.103                | 0.017                    |
| Observations             | 67068                 | 61317                              | 64282                 | 67132                | 67132                    |
| R-squared                | 0.038                 | 0.015                              | 0.025                 | 0.023                | 0.010                    |

*Notes:* The table presents estimates of the effect of Medicaid pregnancy dental benefits on dental cleaning during pregnancy and key birth outcomes. Each column corresponds to results from a separate regression, with robust standard errors clustered at the state level shown in parentheses. The baseline mean is the average rate of each outcome in states without Medicaid pregnancy dental benefits. Covariates include maternal age, race/ethnicity, education, marital status, urban/rural residence, and pre-pregnancy risk factors, along with state-level controls such as Medicaid eligibility limits, managed care penetration, and broader contextual factors. State and year-by-month fixed effects account for unobserved heterogeneity across states and over time. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 4: Stratified Estimates: Effect of Medicaid Pregnancy Dental Benefits

|   | All<br>Sample         | Low<br>Education<br>(≤ Associate) | High<br>Education<br>(≥ Bachelor's) | Income<br>< \$25k     | Income<br>≥ \$75k     | Income<br>≤ \$50k      | Income<br>≥ \$90k     |
|---|-----------------------|-----------------------------------|-------------------------------------|-----------------------|-----------------------|------------------------|-----------------------|
| <b>Panel A: Dental Cleaning</b>                 |                       |                                   |                                     |                       |                       |                        |                       |
| Pregnancy Dental Benefit                        | 0.0420***<br>(0.0110) | 0.0572***<br>(0.0124)             | 0.0362**<br>(0.0117)                | 0.0355*<br>(0.0184)   | 0.0262<br>(0.0194)    | 0.0423**<br>(0.0151)   | 0.0301<br>(0.0199)    |
| Observations                                    | 148811                | 54838                             | 93973                               | 56406                 | 35374                 | 84565                  | 31430                 |
| R-squared                                       | 0.161                 | 0.050                             | 0.135                               | 0.021                 | 0.043                 | 0.042                  | 0.040                 |
| <b>Panel B: Small for Gestational Age (P10)</b> |                       |                                   |                                     |                       |                       |                        |                       |
| Pregnancy Dental Benefit                        | -0.00113<br>(0.00539) | 0.00442<br>(0.0107)               | -0.00342<br>(0.00822)               | 0.00548<br>(0.0109)   | -0.00280<br>(0.0137)  | -0.00421<br>(0.00766)  | 0.00339<br>(0.0136)   |
| Observations                                    | 135413                | 50555                             | 84858                               | 51836                 | 31858                 | 77389                  | 28324                 |
| R-squared                                       | 0.013                 | 0.013                             | 0.009                               | 0.011                 | 0.012                 | 0.013                  | 0.012                 |
| <b>Panel C: Preterm Birth</b>                   |                       |                                   |                                     |                       |                       |                        |                       |
| Pregnancy Dental Benefit                        | 0.00116<br>(0.00817)  | -0.00853<br>(0.00984)             | 0.00640<br>(0.00986)                | -0.0104<br>(0.00922)  | 0.00439<br>(0.00585)  | -0.00497<br>(0.00739)  | 0.00532<br>(0.00675)  |
| Observations                                    | 143090                | 52829                             | 90261                               | 54203                 | 34210                 | 81203                  | 30520                 |
| R-squared                                       | 0.018                 | 0.021                             | 0.015                               | 0.024                 | 0.013                 | 0.020                  | 0.012                 |
| <b>Panel D: Low Birth Weight</b>                |                       |                                   |                                     |                       |                       |                        |                       |
| Pregnancy Dental Benefit                        | -0.00180<br>(0.00248) | -0.0121**<br>(0.00394)            | 0.00387<br>(0.00362)                | -0.00819<br>(0.00495) | -0.00282<br>(0.00466) | -0.00510*<br>(0.00250) | -0.00188<br>(0.00490) |
| Observations                                    | 148846                | 54871                             | 93975                               | 56400                 | 35367                 | 84553                  | 31423                 |
| R-squared                                       | 0.020                 | 0.017                             | 0.019                               | 0.020                 | 0.010                 | 0.018                  | 0.008                 |
| <b>Panel E: Very Low Birth Weight</b>           |                       |                                   |                                     |                       |                       |                        |                       |
| Pregnancy Dental Benefit                        | 0.000368<br>(0.00160) | -0.00189<br>(0.00138)             | 0.00178<br>(0.00213)                | -0.00229<br>(0.00267) | 0.00276<br>(0.00179)  | -0.000717<br>(0.00262) | 0.00311*<br>(0.00163) |
| Observations                                    | 148846                | 54871                             | 93975                               | 56400                 | 35367                 | 84553                  | 31423                 |
| R-squared                                       | 0.007                 | 0.008                             | 0.007                               | 0.009                 | 0.008                 | 0.007                  | 0.005                 |

*Notes:* The table presents stratified estimates of the effect of Medicaid pregnancy dental benefits on prenatal dental cleaning and birth outcomes. Each column represents a subgroup defined by education or income. Low education includes those with an associate degree or less; high education includes those with a bachelor's degree or more. Income categories are based on midpoint estimates of income brackets. All models control for demographics, state-level covariates, and year fixed effects. Standard errors are clustered at the state level. Statistical significance: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 5: Effect of Medicaid Pregnancy Dental Benefits and Adult Medicaid Expansions on Dental Cleaning and Birth Outcomes

|                                 | Dental<br>Cleaning    | Small for<br>Gestational Age (P10) | Preterm<br>Birth       | Low Birth<br>Weight  | Very Low<br>Birth Weight |
|---------------------------------|-----------------------|------------------------------------|------------------------|----------------------|--------------------------|
| Pregnancy Dental Benefit        | 0.0734***<br>(0.0269) | -0.00347<br>(0.00817)              | -0.000311<br>(0.00559) | 0.00301<br>(0.00430) | -0.00422**<br>(0.00187)  |
| Non-Pregnant Medicaid Expansion | -0.00308<br>(0.0271)  | -0.0147*<br>(0.00858)              | -0.0151*<br>(0.00803)  | 0.00349<br>(0.00492) | -0.000819<br>(0.00260)   |
| Observations                    | 67068                 | 61317                              | 64282                  | 67132                | 67132                    |
| R-squared                       | 0.038                 | 0.015                              | 0.025                  | 0.023                | 0.010                    |

*Notes:* This table presents estimates of the effects of (i) Medicaid pregnancy dental benefit adoption and (ii) non-pregnancy adult Medicaid expansions on prenatal dental cleaning and selected birth outcomes. Each column reports results from a separate regression controlling for maternal demographics, state-level economic and healthcare characteristics, and COVID-19 related measures. All regressions include state and year fixed effects and are weighted using survey weights. Standard errors clustered at the state level are shown in parentheses. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 6: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning and Birth Outcomes (Excluding Low-Income)

|                          | Dental<br>Cleaning    | Small for<br>Gestational Age (P10) | Preterm<br>Birth     | Low Birth<br>Weight     | Very Low<br>Birth Weight |
|--------------------------|-----------------------|------------------------------------|----------------------|-------------------------|--------------------------|
| Pregnancy Dental Benefit | 0.0899***<br>(0.0199) | -0.0218**<br>(0.00825)             | -0.00809<br>(0.0103) | -0.00828**<br>(0.00399) | -0.00528**<br>(0.00222)  |
| Baseline Mean            | 0.282                 | 0.109                              | 0.101                | 0.086                   | 0.014                    |
| Observations             | 31638                 | 29276                              | 30773                | 31693                   | 31693                    |
| R-squared                | 0.057                 | 0.019                              | 0.030                | 0.021                   | 0.011                    |

*Notes:* This table presents estimates of the effect of Medicaid pregnancy dental benefits on prenatal dental cleaning and key birth outcomes, excluding individuals classified as **\*\*low income\*\***. Each column corresponds to results from a separate regression, with robust standard errors clustered at the state level shown in parentheses. Covariates include maternal age, race/ethnicity, education, marital status, urban/rural residence, and pre-pregnancy risk factors, along with state-level controls such as Medicaid eligibility limits, managed care penetration, and broader contextual factors. State and year-by-month fixed effects account for unobserved heterogeneity across states and over time. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .



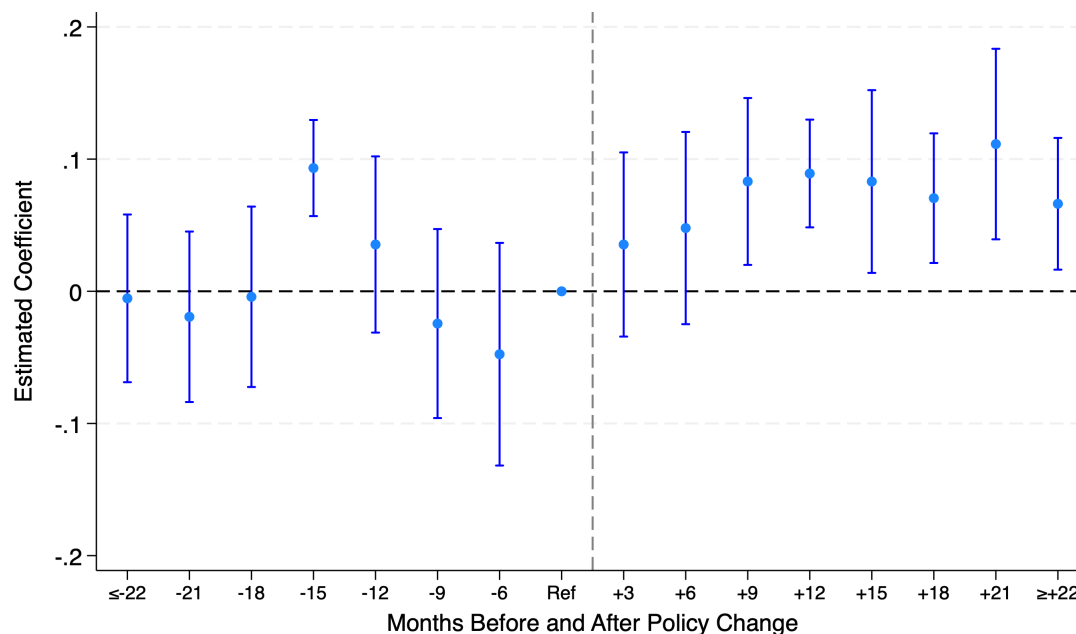
Table 7: Effect of Medicaid Pregnancy Dental Benefits on Prenatal Care and Smoking Behaviors

|                          | Adequate<br>Prenatal Care<br>(Kotelchuck) | Maternal<br>Smoking (Any) | Smoking<br>3 Months Before | Smoking<br>Last 3 Months<br>of Pregnancy | Non-Smoking<br>After Pregnancy |
|--------------------------|---|---------------------------|----------------------------|--|--------------------------------|
| Pregnancy Dental Benefit | -0.000125<br>(0.0169)                     | 0.0130<br>(0.0148)        | 0.00921<br>(0.0132)        | 0.0147<br>(0.0146)                       | 0.00275<br>(0.0115)            |
| Observations             | 62819                                     | 66003                     | 66451                      | 66507                                    | 66479                          |
| R-squared                | 0.038                                     | 0.171                     | 0.195                      | 0.174                                    | 0.170                          |

*Notes:* The table presents estimates of the effect of Medicaid pregnancy dental benefits on prenatal care utilization and maternal smoking behaviors. The first column measures the probability of receiving adequate prenatal care based on the Kotelchuck Index (coded as a binary variable). The other columns reflect smoking status before, during, and after pregnancy. Each estimate is from a separate regression controlling for maternal demographics, state characteristics, and health service availability. All models include state and year fixed effects. Standard errors are clustered at the state level and reported in parentheses. Statistical significance is denoted by \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

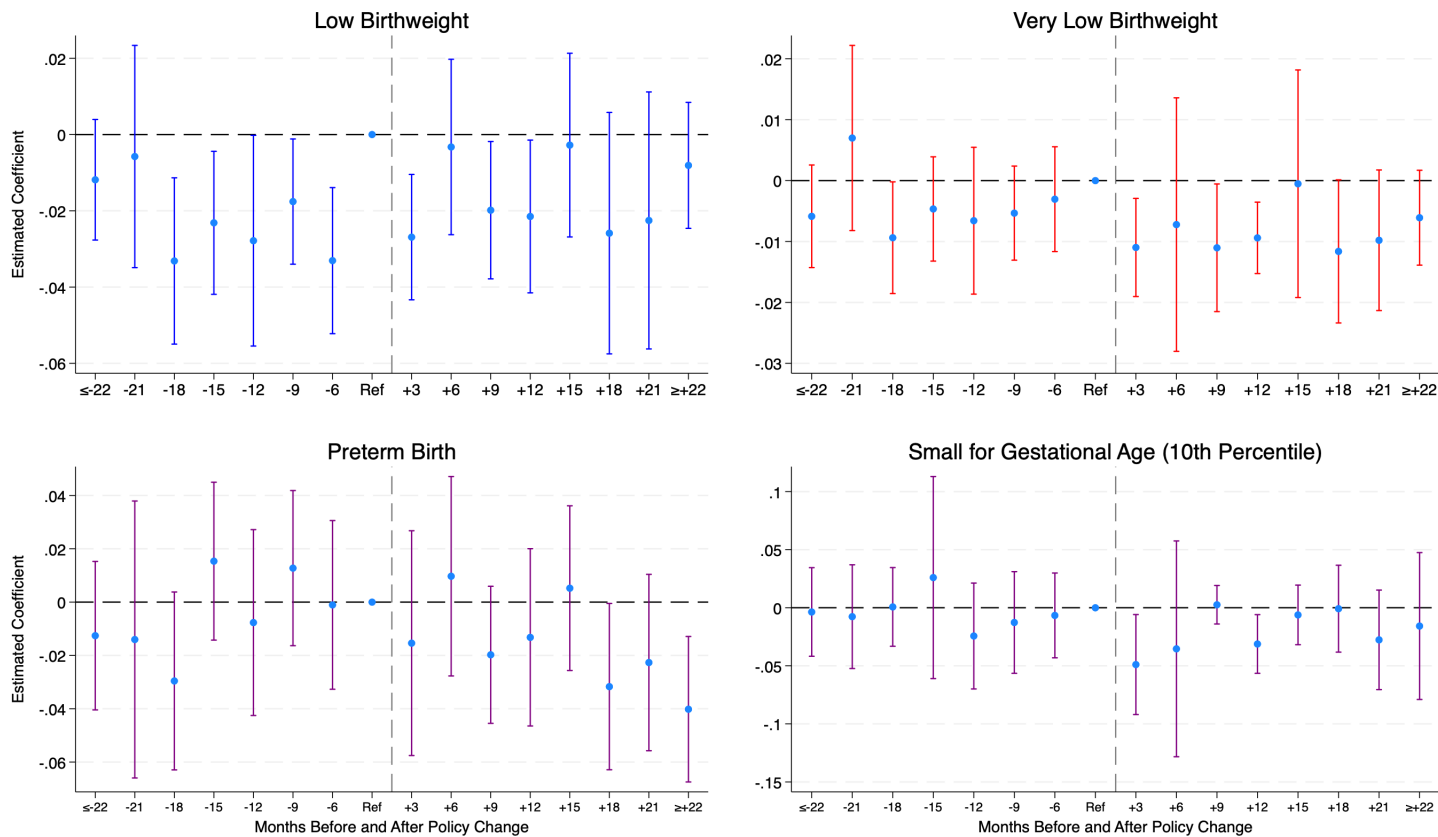
# Appendix

Figure A.1: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning: Event Study Estimates (Including Post-COVID-19 Period)



*Notes:* The figure displays event study estimates of the effect of Medicaid pregnancy dental benefit expansions on prenatal dental cleaning rates, using a stacked difference-in-differences approach with data including the post-COVID-19 period. The x-axis represents time in months before and after policy adoption, and the y-axis shows the estimated coefficients. Confidence intervals are indicated by the vertical lines around the point estimates. The reference group is set to 0–3 months before policy implementation. These estimates test the parallel trends assumption and provide dynamic treatment effects over time.

Figure A.2: Event Study Estimates: Effect of Medicaid Pregnancy Dental Benefits on Birth Outcomes (Including Post-COVID-19 Period)



*Notes:* The figure presents event study estimates of the effect of Medicaid pregnancy dental benefits on key birth outcomes, including low birth weight, very low birth weight, preterm birth, and small for gestational age (10th percentile), using data that includes the post-COVID-19 period. Each panel corresponds to a separate outcome, with the x-axis representing months before and after policy implementation. The y-axis shows the estimated coefficients, and vertical bars indicate 95% confidence intervals. The reference group is set to 0–3 months before policy implementation. These estimates assess the parallel trends assumption and capture dynamic treatment effects.

Table A.1: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning (Stacked DID)

|                          | (1)                   | (2)                   | (3)                   | (4)                   |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Pregnancy Dental Benefit | 0.0658***<br>(0.0160) | 0.0806***<br>(0.0127) | 0.0737***<br>(0.0148) | 0.0716***<br>(0.0138) |
| State                    | YES                   | YES                   | YES                   | YES                   |
| Year                     | YES                   | YES                   | YES                   | YES                   |
| Demographics             |                       | YES                   | YES                   | YES                   |
| Contextual Factors       |                       |                       | YES                   | YES                   |
| Health Resources         |                       |                       |                       | YES                   |
| Observations             | 68840                 | 67068                 | 67068                 | 67068                 |
| R-squared                | 0.016                 | 0.037                 | 0.038                 | 0.038                 |

*Notes:* The table reports estimates of the effect of Medicaid pregnancy dental benefits on prenatal dental cleaning using a stacked difference-in-differences (SDID) design. Each column corresponds to a separate regression, sequentially adding control variables: demographics, contextual factors, and health resources. All models include state and year fixed effects and are weighted by survey weights. Robust standard errors clustered at the state level are reported in parentheses. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table A.2: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning (TWFE)

|                          | (1)                   | (2)                  | (3)                   | (4)                   |
|--------------------------|-----------------------|----------------------|-----------------------|-----------------------|
| Pregnancy Dental Benefit | 0.0757***<br>(0.0233) | 0.105***<br>(0.0168) | 0.0974***<br>(0.0173) | 0.0776***<br>(0.0160) |
| State                    | YES                   | YES                  | YES                   | YES                   |
| Year                     | YES                   | YES                  | YES                   | YES                   |
| Demographics             |                       | YES                  | YES                   | YES                   |
| Contextual Factors       |                       |                      | YES                   | YES                   |
| Health Resources         |                       |                      |                       | YES                   |
| Observations             | 30437                 | 28758                | 28758                 | 28758                 |
| R-squared                | 0.016                 | 0.032                | 0.032                 | 0.033                 |

*Notes:* The table reports estimates of the effect of Medicaid pregnancy dental benefits on prenatal dental cleaning using a traditional two-way fixed effects (TWFE) design. Each column adds further controls: demographics, contextual factors, and health resources. Models are weighted and include state and year fixed effects. Standard errors are clustered at the state level. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table A.3: Effect of Medicaid Pregnancy Dental Benefits on Prenatal Dental Cleaning and Birth Outcomes (Including Post-COVID-19 Period)

|                          | Dental<br>Cleaning    | Small for<br>Gestational Age (P10) | Preterm<br>Birth      | Low Birth<br>Weight    | Very Low<br>Birth Weight |
|--------------------------|-----------------------|------------------------------------|-----------------------|------------------------|--------------------------|
| Pregnancy Dental Benefit | 0.0663***<br>(0.0151) | -0.0149***<br>(0.00506)            | -0.00758<br>(0.00551) | 0.00693**<br>(0.00304) | -0.00427**<br>(0.00164)  |
| Baseline Mean            | 0.242                 | 0.123                              | 0.114                 | 0.105                  | 0.017                    |
| Observations             | 95582                 | 87430                              | 91572                 | 95653                  | 95653                    |
| R-squared                | 0.039                 | 0.014                              | 0.026                 | 0.023                  | 0.010                    |

*Notes:* The table presents estimates of the effect of Medicaid pregnancy dental benefits on dental cleaning during pregnancy and key birth outcomes using data that includes the post-COVID-19 period. Each column corresponds to results from a separate regression, with robust standard errors clustered at the state level shown in parentheses. The baseline mean is the average rate of each outcome in states without Medicaid pregnancy dental benefits. Covariates include maternal age, race/ethnicity, education, marital status, urban/rural residence, and pre-pregnancy risk factors, along with state-level controls such as Medicaid eligibility limits, managed care penetration, and broader contextual factors. State and year fixed effects account for unobserved heterogeneity across states and over time. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table A.4: Intent-to-Treat Estimates: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning and Birth Outcomes (Full Insurance Sample)

|                          | Dental<br>Cleaning     | Small for<br>Gestational Age (P10) | Preterm<br>Birth     | Low Birth<br>Weight    | Very Low<br>Birth Weight |
|--------------------------|------------------------|------------------------------------|----------------------|------------------------|--------------------------|
| Pregnancy Dental Benefit | 0.0350***<br>(0.00807) | 0.000495<br>(0.00433)              | 0.00330<br>(0.00289) | 0.00670**<br>(0.00252) | -0.000273<br>(0.00104)   |
| Baseline Mean            | 0.422                  | 0.101                              | 0.093                | 0.079                  | 0.013                    |
| Observations             | 148811                 | 135413                             | 143090               | 148846                 | 148846                   |
| R-squared                | 0.163                  | 0.014                              | 0.019                | 0.020                  | 0.007                    |

*Notes:* The table presents intent-to-treat (ITT) estimates of the effect of Medicaid pregnancy dental benefit expansions on prenatal dental cleaning and birth outcomes using the full insurance sample, which includes individuals with Medicaid, private, or other forms of insurance. Each column reports results from a separate regression of the outcome on the dental benefit policy indicator. All models adjust for maternal demographics (age, education, marital status, race/ethnicity, urban/rural residence, pre-pregnancy health risk), state-level characteristics (fertility rate, managed care penetration, dental provider supply, unemployment rate) and health service factors (ACA expansion, dentist availability). State and year fixed effects are included. Robust standard errors are clustered at the state level and reported in parentheses. Baseline means represent average outcomes in states without pregnancy dental benefits. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table A.5: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning and Birth Outcomes (Self-Reported + Birth Certificate Medicaid)

|                          | Dental<br>Cleaning    | Small for<br>Gestational Age (P10) | Preterm<br>Birth      | Low Birth<br>Weight    | Very Low<br>Birth Weight |
|--------------------------|-----------------------|------------------------------------|-----------------------|------------------------|--------------------------|
| Pregnancy Dental Benefit | 0.0673***<br>(0.0133) | 0.000789<br>(0.00439)              | -0.00350<br>(0.00664) | 0.00880**<br>(0.00426) | -0.00325*<br>(0.00165)   |
| Baseline Mean            | 0.253                 | 0.122                              | 0.111                 | 0.101                  | 0.016                    |
| Observations             | 74233                 | 67809                              | 71136                 | 74292                  | 74292                    |
| R-squared                | 0.036                 | 0.014                              | 0.022                 | 0.021                  | 0.009                    |

*Notes:* This table presents estimates of the effect of Medicaid pregnancy dental benefits on dental cleaning during pregnancy and key birth outcomes, using a sample that includes both self-reported Medicaid coverage and birth certificate Medicaid coverage. Each column corresponds to results from a separate regression, with robust standard errors clustered at the state level shown in parentheses. The baseline mean is the average rate of each outcome in states without Medicaid pregnancy dental benefits. Covariates include maternal age, race/ethnicity, education, marital status, urban/rural residence, and pre-pregnancy risk factors, along with state-level controls such as Medicaid eligibility limits, managed care penetration, and broader contextual factors. State and year fixed effects account for unobserved heterogeneity across states and over time. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table A.6: Leave-One-Out Estimates: Effect of Medicaid Pregnancy Dental Benefits

|   | Full Sample              | Excl. UT                 | Excl. IL                | Excl. CO                | Excl. VA                | Excl. SC                 |
|---|--------------------------|--------------------------|-------------------------|-------------------------|-------------------------|--------------------------|
| <b>Panel A: Dental Cleaning</b>                 |                          |                          |                         |                         |                         |                          |
| Pregnancy Dental Benefit                        | 0.0716***<br>(0.0138)    | 0.0812***<br>(0.00959)   | 0.0437*<br>(0.0231)     | 0.0654***<br>(0.0173)   | 0.0764***<br>(0.0161)   | 0.0716***<br>(0.0138)    |
| Observations                                    | 67068                    | 65470                    | 64822                   | 65030                   | 66180                   | 67068                    |
| R-squared                                       | 0.038                    | 0.035                    | 0.043                   | 0.039                   | 0.038                   | 0.038                    |
| <b>Panel B: Small for Gestational Age (P10)</b> |                          |                          |                         |                         |                         |                          |
| Pregnancy Dental Benefit                        | -0.0119**<br>(0.00518)   | -0.0148***<br>(0.00522)  | -0.00295<br>(0.00728)   | -0.0108<br>(0.00677)    | -0.0162***<br>(0.00572) | -0.0119**<br>(0.00518)   |
| Observations                                    | 61317                    | 59778                    | 59168                   | 59391                   | 60476                   | 61317                    |
| R-squared                                       | 0.015                    | 0.015                    | 0.015                   | 0.015                   | 0.014                   | 0.015                    |
| <b>Panel C: Preterm Birth</b>                   |                          |                          |                         |                         |                         |                          |
| Pregnancy Dental Benefit                        | -0.00900<br>(0.00633)    | -0.00937<br>(0.00736)    | -0.0178*<br>(0.00927)   | -0.0104*<br>(0.00602)   | -0.0169***<br>(0.00464) | -0.00900<br>(0.00633)    |
| Observations                                    | 64282                    | 62684                    | 62039                   | 62246                   | 63393                   | 64282                    |
| R-squared                                       | 0.025                    | 0.025                    | 0.026                   | 0.026                   | 0.023                   | 0.025                    |
| <b>Panel D: Low Birth Weight</b>                |                          |                          |                         |                         |                         |                          |
| Pregnancy Dental Benefit                        | 0.00503<br>(0.00321)     | 0.00443<br>(0.00327)     | 0.00470<br>(0.00450)    | 0.00606*<br>(0.00357)   | 0.00604<br>(0.00393)    | 0.00503<br>(0.00321)     |
| Observations                                    | 67132                    | 65534                    | 64886                   | 65097                   | 66241                   | 67132                    |
| R-squared                                       | 0.023                    | 0.023                    | 0.022                   | 0.023                   | 0.023                   | 0.023                    |
| <b>Panel E: Very Low Birth Weight</b>           |                          |                          |                         |                         |                         |                          |
| Pregnancy Dental Benefit                        | -0.00470***<br>(0.00147) | -0.00559***<br>(0.00147) | -0.00609**<br>(0.00252) | -0.00337**<br>(0.00145) | -0.00397**<br>(0.00157) | -0.00470***<br>(0.00147) |
| Observations                                    | 67132                    | 65534                    | 64886                   | 65097                   | 66241                   | 67132                    |
| R-squared                                       | 0.010                    | 0.010                    | 0.010                   | 0.010                   | 0.010                   | 0.010                    |

*Notes:* This table presents leave-one-out stacked difference-in-differences (SDID) estimates of the effect of Medicaid pregnancy dental benefits on various maternal and birth outcomes. Each column excludes one treated state at a time. Standard errors are clustered at the state level and shown in parentheses. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table A.7: Placebo Test: Effect of Medicaid Pregnancy Dental Benefits on Dental Cleaning and Birth Outcomes (Private Insurance Sample)

|                          | Dental<br>Cleaning  | Small for<br>Gestational Age (P10) | Preterm<br>Birth     | Low Birth<br>Weight     | Very Low<br>Birth Weight |
|--------------------------|---------------------|------------------------------------|----------------------|-------------------------|--------------------------|
| Pregnancy Dental Benefit | 0.00625<br>(0.0224) | 0.00447<br>(0.00566)               | 0.00306<br>(0.00737) | 0.00963***<br>(0.00332) | 0.00397***<br>(0.00133)  |
| Baseline Mean            | 0.611               | 0.079                              | 0.073                | 0.056                   | 0.010                    |
| Observations             | 58626               | 53232                              | 56654                | 58614                   | 58614                    |
| R-squared                | 0.094               | 0.013                              | 0.016                | 0.010                   | 0.008                    |

*Notes:* This table presents placebo test estimates of the effect of Medicaid pregnancy dental benefits on dental cleaning during pregnancy and key birth outcomes using the private insurance sample. Because private insurance enrollees are not subject to Medicaid dental expansions, significant estimates would suggest potential confounding or broader trends. Each column corresponds to results from a separate regression, with robust standard errors clustered at the state level shown in parentheses. Covariates include maternal age, race/ethnicity, education, marital status, urban/rural residence, and pre-pregnancy risk factors, along with state-level controls such as Medicaid eligibility limits, managed care penetration, COVID-19 contextual factors, and broader socioeconomic indicators. State and year fixed effects are included. Statistical significance is denoted as \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .



Table A.8: Balance Test: Covariate Differences by Medicaid Pregnancy Dental Benefit Status

|                          | Hispanic              | Non-Hispanic<br>Black | Non-Hispanic<br>White | Non-Hispanic<br>Other | Ages<br>21–25         | Ages<br>26–34          | Ages<br>35 and Over  | Married             | Other Marital<br>Status | Urban<br>Areas       | Rural<br>Areas      |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|----------------------|---------------------|-------------------------|----------------------|---------------------|
| Pregnancy Dental Benefit | -0.0404**<br>(0.0197) | -0.00877<br>(0.00721) | 0.0227<br>(0.0488)    | 0.0264<br>(0.0565)    | 0.0661***<br>(0.0230) | -0.0801***<br>(0.0211) | 0.0141*<br>(0.00790) | -0.0174<br>(0.0124) | 0.0174<br>(0.0124)      | -0.0250*<br>(0.0146) | 0.0250*<br>(0.0146) |
| Observations             | 67141                 | 67141                 | 67141                 | 67141                 | 67141                 | 67141                  | 67141                | 67141               | 67141                   | 67141                | 67141               |
| R-squared                | 0.099                 | 0.118                 | 0.130                 | 0.415                 | 0.015                 | 0.009                  | 0.012                | 0.030               | 0.030                   | 0.113                | 0.113               |

|                          | Low<br>Education   | High<br>Education   | Low<br>Income        | Low Middle<br>Income | Middle<br>Income     | Upper<br>Income        | High<br>Income         | Other<br>Income        | Prepregnancy<br>Risk | No<br>Risk           | Missing<br>Risk Info |
|--------------------------|--------------------|---------------------|----------------------|----------------------|----------------------|------------------------|------------------------|------------------------|----------------------|----------------------|----------------------|
| Pregnancy Dental Benefit | 0.0280<br>(0.0332) | -0.0280<br>(0.0332) | -0.00710<br>(0.0167) | 0.0312**<br>(0.0126) | -0.0330*<br>(0.0176) | 0.0291***<br>(0.00728) | -0.000825<br>(0.00285) | 0.0291***<br>(0.00728) | -0.0177<br>(0.0137)  | 0.00323<br>(0.00552) | 0.0144<br>(0.0123)   |
| Observations             | 67141              | 67141               | 67141                | 67141                | 67141                | 67141                  | 67141                  | 67141                  | 67141                | 67141                | 67141                |
| R-squared                | 0.011              | 0.011               | 0.074                | 0.017                | 0.040                | 0.034                  | 0.006                  | 0.034                  | 0.450                | 0.018                | 0.832                |

*Notes:* The table reports results from balance tests assessing differences in baseline characteristics between states with and without Medicaid pregnancy dental benefits. Each cell presents the estimated coefficient from a separate regression of the specified characteristic on the Medicaid dental benefit indicator, controlling for time-varying state-level covariates. All models include state and year fixed effects. Standard errors clustered at the state level are shown in parentheses. Statistical significance is denoted by \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , and \*  $p < 0.1$ .