HETEROGENEOUS AND RACIALIZED IMPACTS OF STATE INCARCERATION POLICIES ON BIRTH OUTCOMES IN THE U.S.

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ABSTRACT

While state incarceration policies have received much attention in research on the causes of mass incarceration in the U.S., their roles in shaping population health and health disparities remain largely unknown. We examine the impacts of two signature state incarceration policies adopted during the "tough on crime" era of the 1990s—three strikes and truth in sentencing—on Black and White birth outcomes. Using a difference-in-differences event study research design that models the dynamic impacts of these policies over time, we find that these policies had opposing effects on birth outcomes. We find that birth weight outcomes—including mean birth weight and low birth weight—for Black infants worsened markedly in the year three strikes policies were adopted. By contrast, birth outcomes for Black and White infants gradually improved after truth in sentencing policies were adopted. The discordant findings point to distinct, countervailing mechanisms by which sentencing policies can affect population health. We provide suggestive evidence that three strikes policies adversely impacted Black birth outcomes through affective mechanisms, by inducing highly racialized, stigmatizing public discourse around the time of policy adoption, while truth in sentencing likely impacted birth outcomes via material mechanisms, namely gradually reductions in community incarceration and crime rates. Altogether, these findings point to the need to further interrogate state criminal legal system policies for their impacts on population health, considering whether, how, and for whom these policies result in health impacts.

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INTRODUCTION

The United States is a global leader in incarceration (Widra and Herring 2021). Incarceration rates in the U.S. skyrocketed in the latter half of the 20th century, driven primarily by a growth in state prison populations. Beginning in the late 1960s, states passed and enacted massive suites of punitive, "tough on crime" policies that scholars speculate contributed to both the mass incarceration boom and the striking divergence of state-level incarceration rates over time (National Research Council 2014; Phelps and Pager 2016). As a result, the role of state incarceration policies has received growing attention in research on the causes of inequalities not just in incarceration, but also across a variety of outcomes driven by incarceration, including health (e.g., Daza, Palloni, and Jones 2020; Massoglia and Pridemore 2015; O'Keefe 2021; Wildeman and Lee 2021; Wildeman and Wang 2017).

Still, tough-on-crime policies are frequently lumped together in research and policy discourse on mass incarceration and its consequences, but these policies were not monolithic and varied on many dimensions. Different tough-on-crime policies had distinct objectives, including lengthening prison sentences, increasing incarceration risks for people convicted of crimes, and reducing the possibility of early parole. Even policies with similar objectives were implemented differently across states. And importantly, some policies received a great deal of public attention, while others were adopted without much discussion or debate.

This variation suggests incarceration policies adopted by states have likely had heterogeneous impacts on population outcomes, including health and health inequalities. Because they were diverse in intent, implementation, reception, and ultimate impact, these state-level policies may have operated through a variety of channels—including potentially countervailing ones—to shape health outcomes. For example, some policies may have adversely affected population health and health inequalities by increasing incarceration risks, especially for poor and racially minoritized groups; others may have had protective population health effects by reducing exposure to crime and violence; and still others may have shaped health risks through their effects on public discourse, by increasing stress and stigmatization. To date, however, few studies consider the potentially heterogeneous effects and mechanistic pathways between state incarceration policies and population health outcomes.

In this study, we consider whether and how two particular state incarceration policies— three strikes laws and truth in sentencing policies—impacted birth outcomes, a key marker of

population health (Belbasis et al. 2016; Currie 2009), over a two decade period. The prenatal period is a highly sensitive stage in the life course, making social and environmental exposures during this period especially consequential for lifelong health (Almond, Currie, and Duque 2018; Kuh et al. 2003). In this sense, our focus on birth outcomes provides insights into how exposure to incarceration policies in utero unequally shaped population patterns of health risk. We focused on three strikes and truth in sentencing policies for two reasons. First, they were signature policies adopted and implemented as part of a broader suite of mandatory minimum laws during the tough-on-crime era of the 1980s and 1990s. There was widespread adoption of these policies at the state-level (Western 2007; Zimring 1999). Second, each of these policies targeted a different dimension of the state incarceration apparatus and received different levels of public attention. Three strikes laws were especially notorious, gaining significant public support in the 1990s. These laws aimed to dramatically increase sentences for individuals convicted of committing three (or more) serious felonies or violent crimes. While they had unclear effects on crime and incarceration rates (Chen 2008a; Helland and Tabarrok 2007; Kovandzic, Sloan, and Vieraitis 2004; Marvell and Moody 2001; Sorensen and Stemen 2002), there is evidence that three strikes laws were disproportionately applied to Black individuals (Chen 2008a; Ehlers, Schiraldi, and Lotke 2004; Sutton 2013). Truth in sentencing policies, which received comparatively less public attention, aimed to guarantee that individuals served the full length of prison sentences imposed by judges and sentencing guidelines. Unlike "three-strikes," there is evidence that state adoption of truth-in-sentencing may have reduced crime rates (Long 2018; Ross 2012; Shepherd 2002). Because of their varied intent, level of public attention, and impacts, we investigate whether these policies had varied consequences for birth outcomes. Given that mass incarceration has disproportionately affected Black individuals and communities, we also focus specifically on whether these policies contributed to racialized disparities in birth outcomes.

Merging administrative birth records from 1984-2004 to state-level data on incarceration policies, we estimate the impacts of each of these policies on birth outcomes using a pre-registered difference-in-difference event study design that allows us to model the dynamic effects of these policies over time. We further explore *why* these policies shaped birth outcomes, focusing on whether and how these policies affected incarceration rates, crime rates, and public discourse. We find that state implementation of three strikes laws led to immediate increases in

adverse birth outcomes—including increased risks of low birth weight and declines in mean birth weight—that were concentrated among Black birthing people with low levels of education. The magnitude of the estimates are in line with, though oppositely signed relative to, estimates of the impacts of large social programs on birth weight (Hoynes, Miller, and Simon 2015; Hoynes, Page, and Stevens 2011). We speculate that these laws may have negatively affected birth outcomes through their impacts on public discourse and sentiment, by increasing stress and stigma among Black people, in particular. The plausibility of this "affective" mechanism is supported by the sharp worsening in birth outcomes for Black infants timed exactly with the year when three strikes policies were adopted, evidence of high levels of public discourse about these policies – discourse that was highly racialized (Caldwell and Caldwell 2011; Dickey 1997) – as well as by other studies documenting significant health spillover effects of social policies that extend well-beyond those directly affected by the often limited or weakly implemented intervention (Torche and Sirois 2019; Venkataramani et al. 2019). In terms of other mechanisms, we find no evidence of changes in incarceration rates after three strikes. There is suggestive evidence that three strikes increased violent crime, but these impacts are most prominent 1-2 years after birth outcomes worsened.

In contrast, we find that implementation of state truth in sentencing policies led to small, gradual improvements in birth weight among both Black and White infants. Unlike three strikes, our results show that state implementation of truth in sentencing may have resulted in reductions in both crime and incarceration rates, which in turn resulted in improvements in birth outcomes in the years following policy implementation. We find less convincing evidence that truth in sentencing generated much public discourse, especially relative to three strikes.

Our study makes two key contributions to advance understanding of the links between state incarceration policies and health. First, we are among the first to link state incarceration policies to infant health and, in doing so, provide evidence of heterogeneous impacts of state-level tough on crime incarceration policies on birth outcomes. There has been a recent push to better understand the role of public policies—including carceral policies—in shaping health inequalities and promoting or impeding health equity (Binswanger et al. 2012; Lee 2024; Wildeman and Lee 2021). Findings from our study indicate that the varied intent and implementation of these policies produced heterogeneous impacts on population health outcomes by both policy type and race.

Second, by interrogating a variety of potential mechanisms, our results illustrate how the health impacts of state incarceration policies can accrue through a range of mechanisms that operate differently over time and by race. Our findings show how these different policies likely operated through distinct material and affective pathways to influence population birth outcomes. The findings for three strikes in particular highlight the importance of symbolism and stigma and their affective consequences in shaping the health effects of social policies. Altogether, these findings point to the need to further unpack and interrogate state criminal legal system policies for their impacts on population health equity and inequalities, considering whether, how, and for whom these policies will result in health impacts.

The remainder of this paper is as follows. We first summarize the landscape of mass incarceration in the U.S., the context and impacts of three strikes and truth in sentencing policies in the 1990s and early 2000s, and outline the channels through which these policies may impact birth outcomes. Thereafter, we discuss our data sources and research design. We then present our results around the impacts of three strikes and truth in sentencing policies on birth outcomes among Black and White infants. The following section probes candidate mechanisms. The final section summarizes the evidence and outlines areas for future research.

BACKGROUND

The Temporal, Spatial, and Racialized Landscape of Mass Incarceration in the U.S.

Between 1970 and 2010 the incarcerated population in the U.S. increased roughly eightfold, with much of the growth occurring in state prisons (National Research Council 2014; Western 2007). Starting around 2010, the incarcerated population in the U.S. decreased for the first time in decades (Phelps and Pager 2016). Still, as of 2020 there were roughly 2.2 million people incarcerated in the U.S., including approximately 1.3 million in state prisons (Sawyer and Wagner 2020).

Importantly, national trends in incarceration mask tremendous state-level heterogeneity. Some states—like Massachusetts and Minnesota—have state prison incarceration rates on par with countries like Spain and the UK (approximately 150-200 incarcerated people per 100,000 residents), while other states—like Louisiana and Mississippi—have state prison incarceration rates higher than any other country in the world (600-800 incarcerated people per 100,000 residents) (Aiken 2018; Phelps and Pager 2016; Walmsley 2013). These state-level differences

reflect that states have taken different policy paths with regard to incarceration. Localized social, economic, cultural, institutional, and political factors have given rise to varied legal and policy approaches to incarceration at the state-level (Lynch 2011) and produced a diverse subnational incarceration landscape in the U.S. (Phelps and Pager 2016; Shannon et al. 2017; Western 2007)

In addition to substantial state-level variation, another feature of the mass incarceration boom in the U.S. has been its especially devastating impacts on Black populations and communities. In 2010, approximately 23 out of every 1,000 Black persons were incarcerated, compared to an incarceration rate of 4 per 1,000 White people (Sakala 2014). Among men born in the U.S. since the late 1960s, more than 1 in 5 Black men could expect to be imprisoned at some point by their early 30s, compared to 1 in 30 White men (Western and Wildeman 2009). Incarceration rates in 2021 among Black women in the U.S. were roughly 1.6 times higher than for White women (62 vs. 38 per 100,000, respectively) (Carson 2023). Racialized disparities in incarceration also vary across U.S. states. Black imprisonment rates in 2019 ranged from a high of 1 in 36 Black residents incarcerated in Wisconsin to a low of 1 in 214 in Massachusetts. Black/White incarceration ratios also vary subnationally (Nellis 2022). In many ways, the strikingly disproportionate risks of incarceration for Black people in the U.S. both reflect and reinforce structural inequalities, including structural racism (Lee 2024; Williams and Mohammed 2013).

State Incarceration Policies: Three Strikes and Truth-in-Sentencing in a Broader Policy Landscape

The rise of the mass incarceration boom in the US coincided with a shift to "tough on crime" policies that responded to outcries about rising crime rates and concerns about "habitual offenders" with policies that aimed at incarcerating more people for longer periods. While the focus of our study is on the impacts of state-level incarceration policies, broad economic and structural changes at the federal level (Garland 2002) alongside several federal policy and legal developments in the latter half of the twentieth century (Campbell 2018) provided the scaffolding for these state-level policies. A liberalization of incarceration laws in the 1960s resulted in a sharp decline in the U.S. prison population, which reached a low of 188,000 people incarcerated in 1969. However, during the 1970s and 1980s, crime rates gradually started to rise and the "victims' rights movement" took hold. As a result, there were increasing calls for more

punitive punishment, and penal philosophy began to shift from one oriented towards rehabilitation towards one focused on punishment and crime control (Greene 2002).

The bipartisan "tough on crime" movement gained more traction in the early 1990s, as reflected in the signing of the 1994 Violent Crime Control and Law Enforcement Act by President Bill Clinton. The "Crime Bill" was the largest bill of its kind ever passed and provided huge increases in funding for police officers, prison building, and crime prevention programs. These national-level trends and policy changes interacted with state-level factors to produce tremendous temporal and subnational variation in incarceration (Campbell and Schoenfeld 2013), including variation in adoption of sentencing policies such as three strikes and truth-in-sentencing. It is important to note that while, on their face, these tough on crime policies were race-neutral, political support for these policies have been linked to racist ideologies, racial cleavages, the politics of racial resentment, and histories of racial violence and control (Asad and Clair 2018; Duxbury 2021, 2023; Murakawa 2008; Provine 2007; Smith 2004).

Three Strikes

Three strikes laws were part of a broader suite of legislation that gained momentum in the 1990s that aimed to impose harsher sentences on individuals with repeat felony convictions. The rationale for these laws was that longer sentences might reduce crime through both deterrence and incapacitation. These laws generally mandated 25 years to life sentences for third violations of violent felonies (including but not limited to violent crimes, selling drugs to minors, burglary, weapons possession, though the list of convictions varied slightly across states). California was the first state to pass the law, and dozens followed California's lead by passing their own version of three strikes. By 1997, 27 states had passed a three strikes law (**Figure 1a**).

Despite their intent, research on the effects of these laws on crime rates is mixed (Chen 2008a; Helland and Tabarrok 2007; Kovandzic et al. 2004; Marvell and Moody 2001).There is also mixed evidence on whether these laws affected incarceration rates (Sorensen and Stemen 2002). This may reflect the fact that there was variability in policy implementation at the local level. District attorneys, prosecutors, and judges used discretion in administering "three strikes," with some evidence that the law was not always applied to eligible cases. Still, despite the law's unclear effects on crime and incarceration, there is evidence that the law was disproportionately applied to racialized minoritized groups. For example, in California, Black individuals in

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California were roughly 1.5 times as likely as White individuals to receive a third strike sentence (Chen 2008b).

Despite their unclear effects on crime and incarceration, three strikes laws generated tremendous public and political discourse. Critically, this discourse leaned heavily on racist, criminalizing rhetoric that painted young, urban Black men – in particular – as "unredeemable" criminals deserving of harsh punishment. Research has shown that efforts to drum up support for three-strikes relied heavily on media images and rhetoric that demonized individuals convicted of criminal offenses, representing them as dangerous "super-predators" and "animals" (Caldwell and Caldwell 2011). In this sense, the impacts of these laws may have been largely symbolic (rather than directly material), as they generated tremendous political and public discussion that was deeply punitive and overtly and covertly racist, but did relatively little to prevent crime or affect incarceration rates (Feeley and Kamin 1996).

Truth in Sentencing

Another policy passed as part of the broader suite of mandatory minimum policies during this era was truth in sentencing. Truth in sentencing was a determinate-sentencing policy aimed to reduce judicial discretion in sentencing for violent crimes, in particular. State adoption of this policy was incentivized through the 1994 Violent Crime Control and Law Enforcement Act, which created the Violent Offender Incarceration and Truth in Sentencing program. This program created a federal grant initiative that provided funding to states to expand their prisons and jails so long as states passed laws that required individuals convicted of certain violent crimes to serve at least 85% of their sentence before becoming eligible for parole. Several states enacted truth in sentencing laws, with especially strong momentum in policy adoption between 1994 and 1998 (**Figure 1b**).

There is some evidence that adoption of truth-in-sentencing reduced crime rates (Long 2018; Ross 2012; Shepherd 2002). For example, Shepherd (2002) found that truth-in-sentencing laws reduced violent crimes, in particular, including murder, aggravated assault, robbery, rape, and larceny. Similarly, Long (2018) used a difference-in-difference design to show dynamic crime-reducing effects of truth in sentencing, documenting immediate declines in murder and robbery following policy implementation and longer-term declines in property crimes. Unlike

three strikes, truth-in-sentencing may have had detectable effects on crime but it was not as well-known or widely publicly discussed as three-strikes.

Incarceration Policies and Birth Outcomes: Possible Pathways

In this study, we hypothesize that these state incarceration policies could shape birth outcomes through several interconnected pathways. The possible channels are numerous, but we focus on whether these policies affected birth outcomes through their effects on: 1) incarceration risks; 2) crime rates; and 3) stigmatizing and marginalizing public discourse. While our estimation strategy focuses on identifying and absorbing the full effects of these policies on birth outcomes and racialized gaps in those outcomes, we provide suggestive tests of these three pathways in ways that help to unravel mediating mechanisms.

First, these policies could affect birth outcomes through their impacts on incarceration rates. If state incarceration policies increased incarceration risks or durations of incarceration–as many tough on crime policies aimed to do–they could impact health risks by increasing incarceration rates for birthing people, their partners and family members, and broader communities. A large body of research provides convincing evidence of a link between incarceration and health among those who experience incarceration firsthand (Massoglia and Pridemore 2015). Incarceration increases risks of physiological stress (Boen 2020), poor mental health (Sugie and Turney 2017; Western 2018), sexually transmitted infections (Hammett, Harmon, and Rhodes 2002), and a range of chronic conditions (Schnittker and John 2007). The health burdens associated with incarceration can further spread through families and networks by increasing levels of stress, financial burden, and relationship strain in ways that result in poor health for family members and partners left behind (Wildeman, Goldman, and Lee 2019). These spillover effects may be especially consequential for women, who are often the primary caregivers in families and are disproportionately the romantic partners of incarcerated individuals (Braman 2007; Comfort 2007, 2016; Lee et al. 2014; Wildeman and Lee 2021). This stress can increase risks of adverse birth outcomes through a number of biological, physiological, and behavioral mechanisms (Lee and Wildeman 2013; Lobel et al. 2008; O'Keefe 2021; Testa and Jackson 2020; Wildeman 2012). Incarceration rates can also have more indirect effects on entire neighborhoods, communities, and populations by restricting economic opportunities (Clear 2007) and increasing in stress, anxiety, and poor health (Hatzenbuehler et al.

2015; Holaday et al. 2023; Jahn et al. 2020). To the extent that state incarceration policies impact incarceration rates–and racialized disparities in those rates–they could affect population-level birth outcomes.

Second, state incarceration policies could affect birth outcomes through their impacts on crime. Reductions in crime could shape birth outcomes by reducing stress and violence exposure, especially among people most at risk for witnessing crime or being victimized. If these policies reduced crime, they may have affected birth outcomes by decreasing *in utero* stress exposure. Still, evidence of the crime-reducing impacts of these policies is mixed (Chen 2008a; Sabol et al. 2002).

Finally, these policies may have affected birth outcomes via their effects on stigmatizing, criminalizing, and discriminatory public discussion and discourse (Caldwell and Caldwell 2011). These were most often directed at young, poor, urban, Black men, in particular, associating them with especially high levels of criminality and dangerousness (Oliver 2003). In this sense, these policies may have been sources of structural stigma (Hatzenbuehler and Link 2014), inducing health harms among those racialized as Black, in particular, through a variety of psychosocial, affective, and biobehavioral mechanisms. Asad and Clair (2018) have described this process as *racialized legal status*, which operates by marking members of racial/ethnic groups who are disproportionately incarcerated (in this case, Black people) for "for material and symbolic exclusion" in ways that harm health.

DATA AND MEASURES

To estimate the impact of state implementation of three strikes and truth in sentencing on birth outcomes, we used data from several sources. First, we used the universe of birth certificates maintained in the U.S. National Vital Statistics System (NVSS) for the period 1984-2004. These data include information on our primary outcomes: (logged) birth weight, low birth weight (defined as birth weights < 2,500 grams), very low birth weight (defined as birth weights < 1,500 grams), gestational age at birth (in weeks), preterm birth (birth at < 37 weeks gestation), and very preterm birth (birth at < 28 weeks gestation). The NVSS data also record information on key child and birthing person characteristics that we used in our analyses, including state of birth, and birth month and year for the child; age, race (Black or White), marital status (married vs. unmarried), and education of the birthing person (high school or less vs. some college or

above; and birth parity (1, 2, or 3 or more) and multiple births (coding of all variables is specified in **Tables 1** and **2**). We use state and year of birth to help define our exposure. We used data on all births to U.S. born birthing persons whose race was coded as Black or White. Prior to 1989, information on ethnicity was only sporadically available, so we are unable to focus specifically on non-Hispanic birth persons. However, we do so in a sensitivity analysis using data from 1989 onwards (see next section).

Our main exposures include state adoption of three strikes and truth-in-sentencing policies. Information about these policies were obtained from several sources. To identify states that adopted three strikes policies we started with published academic literature (Helland and Tabarrok 2007; Kovandzic et al. 2004; Marvell and Moody 2001). States identified as adopting three strikes were nearly identical across these studies, and any discrepancies were adjudicated by a separate, formal search of the legal literature. For truth in sentencing policies, we used the classifications in Sabol et al. (2002) who updated adoption data provided in a 1998 Government Accounting Office report to Congress.

We also obtained data on a range of potential state-level confounders, focusing on those that have been linked to infant health during the study period (Pearlman and Robinson 2022). Specifically, we used in our analyses state-year level data on minimum wages (measured in U.S. dollars), Earned Income Tax Credit (EITC) rates, Medicaid prenatal eligibility thresholds, and the timing of the transition from the Aid for Families with Dependent Children (AFDC) to the Temporary Assistance for Needy Families (TANF) programs. Data on Medicaid thresholds comes from (Miller and Wherry 2018) and information on minimum wages, EITC, and TANF is from the Correlates of State Policies Project database. Our models also adjust for state-year poverty and unemployment rates, which we obtained from the Correlates of State Policies Project, and information on whether states had sentencing guidelines in place during the study period, which we obtained from searches of legal and policy databases.

EMPIRICAL METHODS

Research design

Differences in the likelihood of adopting three strikes and/or truth in sentencing policies across states allows us to leverage a difference-in-differences research design. We compare differences in birth outcomes for births occurring before and after policy adoption in states

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adopting policies versus those that did not. We do so using an event study specification (Goodman-Bacon 2021; Miller 2023), which allows policy effects to vary over time. Such a specification flexibly captures policy effects that might accrue immediately (e.g., due to policy adoption generating public discourse and/or sending signals about stigma or safety) as well as more gradually over time (e.g., due to changes in community-level incarceration or crime rates), allowing us to differentiate potential mechanisms. A canonical representation of the event-study specification is as follows:

$$Y_{ijt} = \sum_{l=2}^{5} \beta_l \times Policy_j \times 1[lead_t = l] + \sum_{k=0}^{9} \beta_k \times Policy_j \times 1[lag_t = k] + \delta X_{(i)jt} + \mu_j + \theta_t + e_{ijt}$$

where i indexes the birth, j indexes the state of birth, and t the year of birth. Y denotes the birth outcome of interest, $X_{(i)jt}$ a range of individual (birth person age, marital status, level of education, child sex, child month of birth, and indicators for birth parity and multiple births) and state-level (minimum wages, EITC rates, Medicaid income eligibility thresholds, timing of AFDC to TANF transition, poverty and unemployment rates, and implementation of sentencing guidelines) covariates. The μ_j and θ_t terms represent state and calendar year fixed effects, which account for time-invariant state-level confounders and national secular trends (e.g., those shaped by changes in medical technology or by impacts of federal legislation such as the 1994 Crime Bill) in birth outcomes, respectively.

The β_k terms are the objects of interest. They recover dynamic policy effects, namely the difference in birth outcomes in states adopting three strikes or truth in sentencing for each year after policy implementation (denoted by lags k), relative to the period just before policy implementation and trends in the outcome in states not adopting the policies. For periods before policy adoption (denoted by leads l), the estimates (β_l) provide a visual and statistical test of the parallel trends assumption that affords a causal interpretation of results from difference-in-differences models. We evaluated differences over periods five years before and 9 years after policy adoption, which contain a relatively balanced panel of states.

Importantly, the β_k terms recover the causal effects of adopting a set of specific policies that may have varied across states in how they were discussed, designed, and implemented and

in an era where there were other Federal and State actions geared towards addressing crime. These policies also occurred in the context of a social and political era in which personal responsibility was valued, and expressed in policymaking. As such the β_k terms can be interpreted as the effects of sentencing policies, averaged across different states, during in a particular historical era when there may have been myriad other structural and institutional forces shaping health and well-being. Using these β_k terms to predict the effects of a specific sentencing policy choice in a single state or a set of policy choices in different eras will require careful attention to the exact nature of the policy implemented, and the broader social, legal, and policy environment in which the policy of interest is being introduced.

Given known biases in standard two-way fixed effects estimates of difference-in-differences models (de Chaisemartin and D'Haultfœuille 2020b, 2020a; Goodman-Bacon 2021), we use the estimator of (de Chaisemartin and D'Haultfœuille 2020a) to estimate all models. This estimator address two forms of bias: those introduced by the fact that the policies were not implemented at the same time in all states (staggered adoption) and the fact that policy impacts may vary over time and across states or population groups (heterogenous treatment effects due to variations in policy design or implementation or differential policy impacts across groups or over time).

We estimate all models separately by race (Black and White) and policy for three strikes and truth in sentencing (adjusting for a binary indicator for the other policy as a time varying confounder).[1] We also estimated models separately by birthing person level of education (high school completion and below; some college and above) to assess whether policy impacts on birth outcomes varied at the intersection of race and education. We do this to interrogate the possibility that the policies' effects on birth outcomes–operating in part through incarceration risks, crime rates, and stigmatizing public discourse–may have occurred unequally by race and socioeconomic status (Asad and Clair 2018; Phelan and Link 2015).

To facilitate estimation, we collapsed the data into birth state-birth year-race (and, when relevant, education group) means and weighted by the count of births within each cell. This

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[1] Despite having fewer assumptions required to support causal inference (Olden and Moen 2022), we do not adopt a triple difference approach, in which race would serve as the third difference after state of birth and timing of policy implementation. This is because this alternate approach would require the assumption that births from one racial group were not affected by the policy. We did not expect this to be the case *ex ante,* since some policies may have explicitly targeted or stigmatized one group (e.g., three strikes and Black persons) and/or it is possible that they had consequences (either adverse or favorable) for the majority group.

approach yields identical estimates as with using individual level-data, but is computationally faster (Miller 2023). We clustered standard errors at the state (policy) level. We pre-registered all analyses at the Open Science Forum (Bair, Venkataramani, and Boen 2022).

Threats to inference and sensitivity checks

The key threats to inference in the difference-in-difference research design are differential trends in outcomes across treated and untreated units (here states adopting and not adopting sentencing policies) or the presence of other state-level events or policies that are correlated with both timing of policy adoption and the outcomes of interest. As discussed before, our use of an event study setup allows us to evaluate violations of the parallel trends assumption (acknowledging that visual and statistical tests may be underpowered). It also allows us to assess whether changes in birth outcomes in adopting states are timed with when the policy was adopted, which helps limit the scope of potential confounding. Our use of a rich set of individual and state-level controls helps further address this possibility.

In addition to these tests, we further probe the validity of these assumptions by estimating models that additionally include state-specific linear trends, which further address potential violations of the parallel trends assumption as well as potential unmeasured confounders. We also estimate models with and without different sets of state and individual (child and birthing person) level controls. Sensitivity to the choice of included state-level covariates would elevate concerns about unmeasured confounding at the policy level. Sensitivity of the estimates to the choice of individual-level would suggest the potential importance of sample selection as a mechanism underlying the findings; i.e. the sentencing policies may shift birth outcomes by changing the composition of birthing persons (O'Keefe 2021). To address this particular mechanism, we also estimate balancing regressions, in which birth person characteristics are specified as outcomes in our event study regressions (Pei, Pischke, and Schwandt). Finally, to the extent that results may reflect increases in the population of Hispanic birthing persons (i.e., differential migration to states with different policy regimes), we estimate models restricting the sample to infants of Black and White birthing persons who do not identify as ethnically Hispanic (which was consistently recorded starting in 1989).

MAIN RESULTS

We begin by reporting sample characteristics and trends in outcomes over time, stratified by whether states adopted three strikes and truth in sentencing policies. We then present results examining the impacts of three strikes and truth in sentencing policies on birth outcomes, followed by a discussion of sensitivity analyses.

Descriptive statistics

Table 1 presents sample characteristics for all births included in our analysis, stratified by race and whether the birth occurred in states adopting three strikes or truth in sentencing policies. In our sample period (1984-2004), there were over 12 million live births to Black birthing persons and nearly 60 million births to White birthing persons. Across both racial groups, birth outcomes and birthing person characteristics were similar across states adopting and not-adopting each of the sentencing policies of interest. Overall, Black infants were more likely than White infants to be low birthweight (13.1% vs. 6.2%), very low birth weight (2.9% vs 1.0%) and born preterm (17.7% vs. 9.6%). Black birthing persons were on average younger (~25 vs. 27 years), less likely to be married (~33% vs. 77%), and less likely to have obtained some college education or above (~30% vs 44%) compared to White birthing persons.

States adopting each of the sentencing policies were also similar on a range of policy dimensions and economic characteristics over the study periods (**Table 2**), including minimum wage rates, timing of TANF implementation, Medicaid eligibility thresholds, and poverty and unemployment rates. State EITC rates, however, were higher in states implementing three strikes and truth in sentencing compared to those that did not.

Figures 2 and **3** plot unadjusted trends in each of the main outcomes separately by race and whether the state adopted three strikes (**Figure 2**) or truth in sentencing (**Figure 3**). The plots demonstrate a slight narrowing of Black-White gaps in many of the outcomes. For three strikes policies, among Black births, states not adopting the policy had slightly worse birth weight outcomes prior to the mid 1990s (when most policy adoption occurred, see **Figure 1**), after which outcomes between states adopting and not-adopting converged. No such pattern is noted for White births. For truth in sentencing, the opposite pattern is seen for Black births: adverse birth weight outcomes were higher in these states prior to the mid 1990s but converged thereafter. For White births, birth outcomes improved more in truth in sentencing states

compared to non-truth states for most outcomes. Similar patterns in unadjusted outcomes obtained when stratifying by birth person level of education (Appendix Figures 1-4).

Three strikes

Difference-in-differences event study estimates for three strikes policies are provided in **Figure 4**. Both here and for the event study graphs presented in other sections, the x-axis denotes time since policy adoption (with year -1 set as the reference) and the y-axis the coefficient estimates of differences in each outcome between births occurring in states adopting and not adopting three strikes for each year before and after policy adoption (relative to event year -1). Estimates for event times before -1 provide pre-intervention trends, and estimates for event times 0 and above follow the evolution of post-intervention differences in outcomes. (Coefficient estimates for specific event time periods are provided in Appendix Tables 1 and 2 for the Black and White samples, respectively).

For the three birth weight outcomes, the estimates show a striking worsening of birthweight for Black infants in the year of policy implementation (which is precisely estimated for overall logged birthweight and the probability of being born very low birth weight), with similar magnitude coefficients through the first few years of after policy adoption and attenuation thereafter. This trajectory of treatment effects, which can be observed in the unadjusted plots in **Figure 2**, runs opposite to the estimated pre-trends, which suggests that birth outcomes were improving in states adopting three strikes versus those that did not prior to policy implementation. Estimates for gestational age and preterm birth outcomes for Black births were small and not statistically significant. For birth weight outcomes, we find oppositely signed estimates (precisely estimated for low birth weight) for the year of policy implementation.

Focusing on birth weight outcomes for Black infants, the estimates for the year immediately following three strikes implementation imply a 9 gram decrease in mean birth weight, a 0.34 percentage point (% point) increase in the probability of low birth weight (2.6% relative to the sample mean), and a 0.17% point (5.8%) increase in the probability of very low birth weight. The estimates are of similar magnitude – though oppositely signed -- to the impacts of the Supplemental Nutrition Program for Women, Infants, and Children (WIC) and federal Earned Income Tax Credit (EITC) (Hoynes et al. 2015, 2011). In addition, the estimates for very low birth weight for the Black sample are equivalent to 9% of the overall sample Black-White

gap in this outcome. We find smaller, oppositely signed estimates for birth weight outcomes among White infants, with a similar pattern of immediate effects in the first year of the policy. For example, estimates for low birth weight in the first year of policy implementation imply a 0.21% point reduction, a 3.4% decline relative to the mean.

Stratifying by the level of education of the birthing person, we find strong evidence of treatment effect heterogeneity. Focusing on Black infants (**Figure 5,** Appendix Table 3), the entirety of the immediate, adverse impact of three strikes on birth weight outcomes are borne by infants born to individuals with a high school education or less. These estimates suggest a 13g decline in mean birthweight, a 0.45% point increase in the probability of low birth weight (11% relative to the sample mean), and a 0.29% point (10%) increase in the probability of very low birthweight, with the latter two estimates equivalent to 7% and 15% of the overall Black-White gap in their respective outcomes and of similar magnitude (though again, oppositely signed) to birthweight impacts accruing from interventions to reduce ambient pollution (Currie et al. 2015; Currie and Walker 2011). The estimates for gestational age outcomes suggest a decline in mean gestational age in year zero for Black infants born to individuals with a high school education or less. For births occurring to individuals with some college or higher levels of education, estimates for all outcomes are either smaller in magnitude or oppositely signed. For White infants born to individuals without any college education, the immediate impacts (in year 0) on birth outcomes are oppositely signed in magnitude and, though smaller, precisely estimated (Appendix Figure 5 and Appendix Table 4). For White infants born to individuals with at least some college education, there were no substantively or statistically significant impacts in the first year of the policy, though for some outcomes (gestational age and preterm birth) there is a suggestion of improvements gradually accruing over time.

Truth in sentencing

Event study estimates for the impacts of truth in sentencing policies on birth outcomes by race are provided in **Figure 6** (and Appendix Tables 5 and 6); estimates further stratified by birth person level of education are provided in **Figure 7** for the Black sample (Appendix Figure 6 shows corresponding estimates for the White sample; coefficient estimates for the race and education stratified analyses are in Appendix Tables 7 and 8). Event study estimates suggest gradual improvements in birth weight and gestational outcomes for Black infants following an

initial worsening in year zero. The overall magnitudes of the estimates are larger than those for White infants, though the majority of coefficients are imprecisely estimated. Scaling effects, the largest coefficients (lag = 9 years) for Black infants imply a 25 gram increase in mean birth weight, a 0.42% point (3%) decrease in the probability of being born low birthweight, a 0.11% point (3%) decrease in the probability of being very low birth weight, and a 0.74% point (4%) decrease in premature birth. We find a similar pattern of coefficients for White infants, but the estimated magnitudes are smaller and less precisely estimated.

Stratifying by birthing person level of education, we find, in the Black sample, larger estimates for infants born to persons attaining at least some college education (**Figure 7** and Appendix Table 7; though these differences are not robust to changes in specification - see next subsection). Small and imprecisely estimated coefficients were found for White infants born to both to individuals with and without some college education (Appendix Figure 6 and Appendix Table 8).

Robustness checks

Our core findings remain unchanged regardless of whether we control for birth person or birth state level policy and economic characteristics; Appendix Tables 1 and 2 provide event study estimates for 4 sets of specifications for three strikes; Appendix Tables 5 and 6 repeat this exercise for truth in sentencing. Across specifications there are small changes in coefficient estimates and standard errors (with increasing precision as covariates are included). These findings, along with the sharp coefficient or trend breaks in event study estimates occurring at the time of policy implementation, limit the scope of both residual unobserved confounding and selection into births on parental characteristics in explaining our findings.

This contention is underscored by results from models that additionally include birth state specific linear time trends (Appendix Figures 7-9 and Tables 9-12 for three strikes and Appendix Figures 10-12 and Tables 13-16 for truth in sentencing). For Black infants, the precision of estimates improves when including state-specific linear trends for both sentencing policies and across birthing person education subgroups. For truth in sentencing, the estimated impacts on birth outcomes are larger in magnitude and statistically significant. For White infants, we see evidence of monotonic improvements in birthweight and gestational age outcomes following adoption of three strikes, though these are imprecisely estimated.

Estimates from balancing regressions suggest little evidence of selection into births, consistent with the fact that estimates for policy impacts do not substantively change with inclusion of birthing person covariates (Appendix Figure 13 and Appendix Table 17 for three strikes and Appendix Figure 14 and Appendix Table 18 for truth in sentencing). Estimates for both sentencing policies and races are generally imprecisely estimated and small. For three strikes, there are no appreciable changes in birthing person characteristics in the year of policy implementation, making it less likely that the immediate policy effects observed for birth weight outcomes for Black infants were driven by these characteristics. For truth in sentencing, there is some evidence of increasing lower parity births after policy implementation, but these estimates are again imprecisely estimated and adjusting for parity and other characteristics does not change the substantive findings.

Estimates excluding births to individuals specifying Hispanic ethnicity on birth certificates (recorded in birth certificates from 1989 onwards; Appendix Figures 15-17 and Appendix Tables 19-22 for three strikes and Appendix Figures 18-20 and Appendix Tables 23-26) are similar, if not more precisely estimated, for three strikes. For truth in sentencing, coefficient estimates for Black infants are somewhat smaller in magnitude, and there appear to be more prominent pre-trends for some of the outcomes. However, the general patterns remain similar to the main estimates.

Finally, we re-estimate our main models using standard two-way fixed effects regressions (Appendix Figures 21 and 22). Consistent with known biases in the presence of staggered adoption and heterogeneous treatment effects, these event studies show prominent violations of the parallel trends assumption for both sentencing policies, artefactual consequences of the negative weighting problem in two way fixed effects models (Sun and Abraham 2020).This supports our original choice to use a heterogeneity robust estimator.

POTENTIAL MECHANISMS

In this section we examine potential mechanisms underlying our findings. We anchor our assessment of mechanisms to the distinct pattern of results noted for each of the sentencing policies. For Black infants, we see an immediate worsening in birth outcomes – most notably those related to birth weight – upon state adoption of three strikes policies; for truth in sentencing, we see evidence of a gradual improvement in these outcomes in the years following

adoption. Impacts for White infants were generally smaller in magnitude and, for three strikes, were of the opposite sign. The differential pattern of results across the two sentencing policies suggests distinct dominant explanations. In this section, we interrogate three potential explanations, all motivated by the theoretical framework presented in the Background section: incarceration risks, crime rates, and public discourse around the time of policy adoption that was potentially stigmatizing and marginalizing. While data from the study era preclude us from precisely pinning down a particular set of mechanisms, our suggestive analyses nevertheless motivates future work in this area.

Incarceration risks

To assess the importance of changing incarceration risks as a potential mechanism, we use data on the annual number of incarcerated persons in each state by race and year from the U.S. Department of Justice (United States Department of Justice 2018). We estimate versions of our main event study model, using logged incarceration rates (number incarcerated per 100,000 population) as the dependent variable, separately for each of the two sentencing policies and by race. The estimates are plotted in **Figure 8.** For both Black and White persons, we find no association between three strikes and incarceration risk. However, for truth in sentencing, we see evidence of *declining* incarceration rates after policy adoption (with effect magnitudes expressed in percent changes larger for White compared to Black individuals; though given the higher baseline rates of incarceration among Black individuals, we find no evidence of a risking Black-White incarceration ratio). The trajectory of the coefficient estimates for incarceration risk for truth in sentencing is similar to those seen for birth outcomes. Given the previously discussed body of work suggesting that, on net, population-wide incarceration risks are positively associated with adverse health outcomes (Daza et al. 2020; Holaday et al. 2023; Jahn et al. 2020; Massoglia et al. 2014; Wildeman 2012; Wildeman and Wang 2017), these findings point to the possibility of incarceration risk as one mechanism underlying the impacts of truth in sentencing.

Crime rates

We adopt a similar approach to assess crime rates as a mechanism, using state-year level data on crime by type from the Uniform Crime Statistics (available in the dataset compiled by (Grumbach 2018)). Event study estimates are presented in **Figure 9**. For three strikes policies,

we see suggestive increases in overall violent crime, including murder, rape, and assault that occurring 1-2 years after policy adoption; in the case of murders, results represent a statistically significant 10% increase the year after adoption. For truth in sentencing, we see steady, precise decreases in several classes of crime, including overall violent crime, robbery, assaults, property crime, burglary, and theft, though estimates for violent crime show evidence of pre-existing trends in the same direction of the dynamic effects. The findings for truth in sentencing accord with the literature (Long 2018; Ross 2012; Shepherd 2002), while those for three strikes sit within a more mixed literature (Chen 2008a; Helland and Tabarrok 2007; Kovandzic et al. 2004; Marvell and Moody 2001).

In the case of truth in sentencing, the trajectory of reductions in non-violent crime follow the trajectory of improvements in birth outcomes. These coincident patterns are consistent with a large literature linking crime rates with adverse health outcomes (Brown 2018; Clemens and Dibben 2016; Messer et al. 2006). For three strikes, the increases in violent crime occur right after the sharp declines in birth weight outcomes. Thus, while increases in crime rates may play a role in mediating the relationship between three strikes and adverse birth outcomes, it cannot explain the worsening in birth outcomes among Black infants in the very year the policy was adopted.

Public discourse, stigma, and marginalization

Given data limitations, we are unable to measure directly any potentially stigmatizing or marginalizing effects of the sentencing policies. However, we can turn to suggestive circumstantial evidence using data from U.S. newspapers. In **Figure 10**, we first plot mentions of the phrase "tough on crime," to serve as a baseline (Panel A). We see a small, steady increase in mentions between 1988 and 1993, with a sharp uptick in 1994, the year of the federal crime bill and when many three strikes and truth in sentencing policies were passed. In Panel B of the figure, we plot mentions of three strikes and truth in sentencing, finding increases in mentions of both starting in 1994. Mentions of three strikes dominate truth in sentencing both in 1994 and in totality through our study period.

In addition to widespread coverage of an evocatively-titled policy, newspaper articles further provide clues to the stigmatizing nature of the public discussion around three strikes. One article reviewing the events of 1994 noted that "'three strikes and you're out' became the new

motto of an enraged citizenry" (Spiegelman 1994) Another quoted a speech by the Reverend Jesse Jackson, a well-known Black civil rights leader, to incarcerated people in a Chicago-area prison: "The surrender to drugs, dropouts, and violence…are fueling the politics of anger, fear, and repression. The power 'three strikes and you're out' is driven by you. The $24 billion crime bill is driven by you" (Raspberry 1994).

Together, the volume and charged nature of news coverage underscore the importance of the stigmatizing and marginalizing nature of three strikes discussed previously, particularly among Black people (Caldwell and Caldwell 2011). The large and sudden increase in discussion of three strikes around the time most states implemented it (1994) suggest that the substantive, and precisely estimated negative impacts of three-strikes in the year of policy implementation on birth outcomes for Black infants in the year of policy adoption are possibly due to the consequences of the policy on prevailing sentiment, stigma, community marginalization.

Truth in sentencing may have had similar stigmatizing effects, but the relatively smaller amount of policy discussion suggests that any effects on birth outcomes through this mechanism are likely to be small relative to other exposures (perhaps why we see slight worsening of birth weight outcomes among Black infants in the year of policy implementation, though of a smaller and less precisely estimated magnitude than for three strikes, that in later years disappears entirely, giving way to improvements in birthweight outcomes).

DISCUSSION

Linking birth record and policy data and using a difference-in-difference event study design, this study examined the impacts of two "tough on crime" state incarceration policies on birth outcomes and racialized disparities in those outcomes in the U.S. Our results revealed new evidence of the distinct impacts of these policies on population birth outcomes. That our results were robust to a variety of specifications and tests bolsters confidence in our findings. State adoption of three strikes laws—which were well-known and widely discussed, often in highly racially-charged and stigmatizing terms—led to immediate worsening in birth weight outcomes among Black infants, particularly those from lower socioeconomic status backgrounds. The adverse impacts of three strikes, which were not experienced by White infants, accrued even without any detectable impacts of the policy on incarceration rates and with suggestive increases in violent crime that occurred *after* birth outcomes had already worsened. We provided

suggestive evidence that widespread and highly-racialized public discussions likely played a large role in explaining adverse birth outcomes among Black infants. These impacts would ostensibly worked through *in utero* stress driven by stigmatization and discrimination. In contrast, truth in sentencing policies led to gradual improvements in birth outcomes for both Black and White infants (though these were not always precisely estimated). These improvements were concomitant with reductions in incarceration rates and crimes.

Our findings have a number of implications for scientific understanding of and empirical research on the consequences of state incarceration policies on health. First, our results highlight how carceral policies are not uniform in impact. Moving forward, more attention is needed to understanding the many, potentially countervailing mechanisms through which these policies pattern health outcomes, as well as the conditions under which some mechanisms may dominate over others.

Second, our findings for three strikes highlight the need to better understand both *symbolic* and *affective* impacts of public policies, including criminal legal system-related policies. A growing body of work has highlighted the importance of policy choices in shaping population health outcomes (Kemp, Grumbach, and Montez 2022; Montez et al. 2020). This literature has typically focused on the material mechanisms through which policies impact health. Less work, however, has focused on symbolic and affective mechanisms, including how policy discussions and political choices can be sources of structural stigma (Hatzenbuehler et al. 2015; Hatzenbuehler and Link 2014) that serve to marginalize, stigmatize, and criminalize groups, even when policy implementation is weak or limited or considered to be race neutral (Asad and Clair 2018). Moreover, it will be important to understand the role that the media may play in amplifying these affective pathways. For example, there is a burgeoning body of research suggesting that highly publicized acts of racial violence may disproportionately impact the health of Black populations (Bor et al. 2018; Curtis et al. 2021, 2022). The case of three strikes suggests that these pathways can be incredibly powerful. In this sense, our findings contribute to a nascent but growing literature on how these affective mechanisms may shape population health (Torche and Sirois 2019; Venkataramani et al. 2019), as well as the broader literatures on the role of symbolism in driving policy impact (Barrett and Tsui 1999; Boussaguet and Faucher 2020; Donohue and Heckman 1991).

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Figure 1. States with Three Strikes and Truth in Sentencing policies, by year of policy enactment

A. Three Strikes
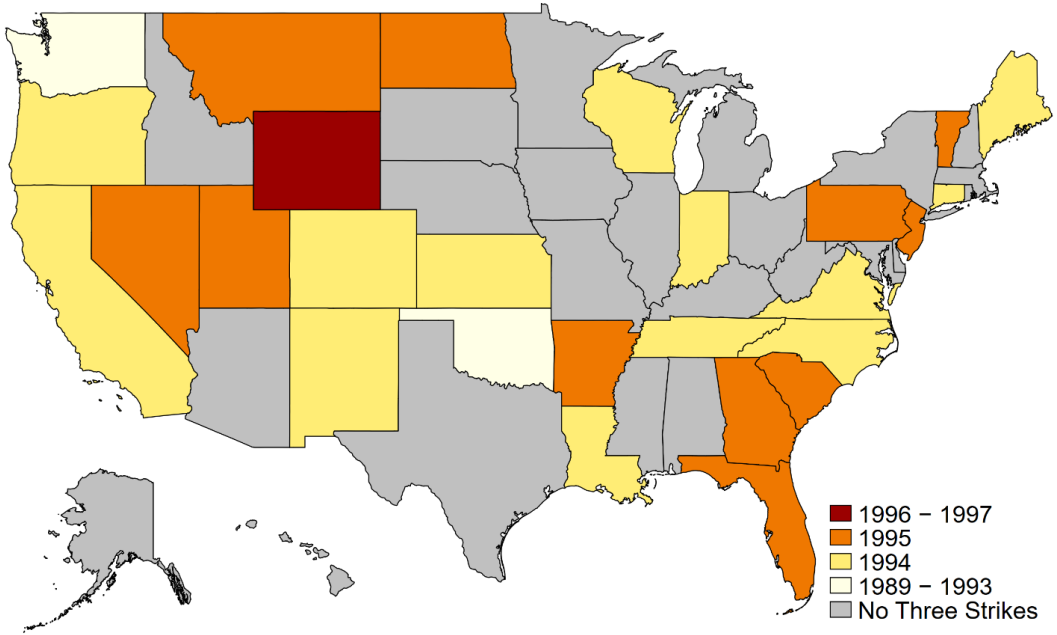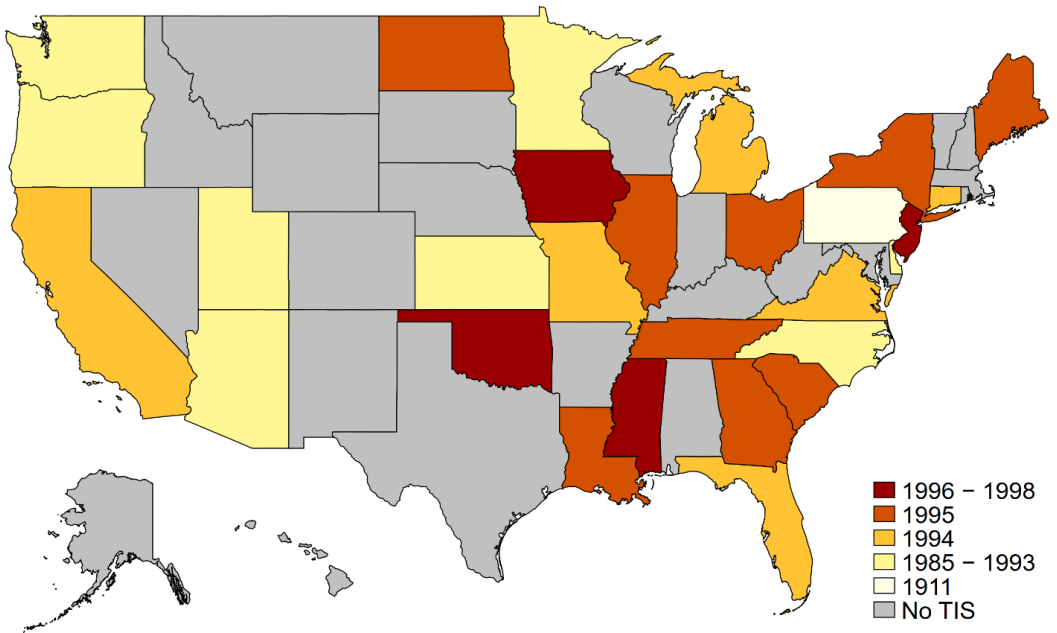

B. Truth in Sentencing (TIS)

Table 1. Sample characteristics by state policy status

	Overall	Three Strikes		Truth in Sentencing	
		Three Strikes states (N = 27)	Non-Three Strikes states (N = 34)	Truth in Sentencing states (N = 29)	Non-Truth in Sentencing states (N = 32)
Black					
Births	12,087,729	6,606,093	5,481,636	9,627,918	2,459,811
Outcomes					
Log birthweight, mean (SD)	8.01 (0.29)	8.01 (0.29)	8.01 (0.29)	8.01 (0.29)	8.01 (0.28)
Low birthweight	13.1%	12.9%	13.2%	13.1%	12.8%
Very low birthweight	2.9%	2.9%	2.9%	2.9%	2.8%
Weeks gestation, mean (SD)	38.34 (3.35)	38.35 (3.33)	38.34 (3.36)	38.34 (3.35)	38.35 (3.33)
Preterm	17.7%	17.4%	17.9%	17.7%	17.6%
Very preterm	4.2%	4.1%	4.3%	4.2%	4.1%
Birthing person characteristics					
Age, mean (SD)	24.74 (6.07)	24.67 (6.03)	24.82 (6.12)	24.77 (6.09)	24.62 (6.02)
Education					
≤High School	68.6%	70.4%	68.8%	70.1%	67.8%
Some college or above	30.4%	29.6%	31.2%	29.9%	32.2%
Married	32.6%	33.4%	31.5%	31.7%	36.1%
Parity					
1	30.3%	30.8%	29.7%	30.0%	31.4%
2	26.3%	26.8%	25.7%	26.1%	27.2%
≥3	43.4%	42.4%	44.7%	44.0%	41.3%
White					
Births	59,714,543	34,932,069	24,782,474	42,951,438	16,763,105
Outcomes					
Log birthweight, mean (SD)	8.10 (0.21)	8.10 (0.21)	8.10 (0.22)	8.11 (0.21)	8.10 (0.21)
Low birthweight	6.2%	6.1%	6.2%	6.1%	6.4%
Very low birthweight	1.0%	1.0%	1.1%	1.0%	1.0%
Weeks gestation, mean (SD)	39.10 (2.52)	39.10 (2.50)	39.08 (2.54)	39.11 (2.51)	39.06 (2.54)
Preterm	9.6%	9.4%	9.8%	9.4%	10.0%
Very preterm	1.5%	1.4%	1.5%	1.4%	1.5%

Birthing person characteristics					
Age, mean (SD)	27.03 (5.86)	27.06 (5.89)	26.99 (5.82)	27.17 (5.86)	26.69 (5.86)
Education					
≤High School	55.7%	56.1%	55.1%	55.3%	56.8%
Some college or above	44.3%	43.9%	44.9%	44.7%	43.2%
Married	76.8%	76.0%	77.9%	76.4%	77.8%
Parity					
1	33.7%	34.0%	33.4%	33.7%	33.8%
2	30.4%	30.4%	30.3%	30.3%	30.5%
≥3	35.9%	35.6%	36.3%	36.0%	35.7%

Notes: Sample sizes for log birthweight, low birthweight, and very low birthweight are: Overall, Black, N = 12,072,616; Three Strikes, Black, N = 6,598,845; Non-Three Strikes, Black, N = 5,473,771; TIS, Black, N = 9,617,086; Non-TIS, Black, N = 2,455,530. Overall, White, N = 59,669,126; Three Strikes, White, N = 34,907,270; Non-Three Strikes, White, N = 24,761,856; TIS, White, N = 42,925,055; Non-TIS, White, N = 16,744,071. Sample sizes for weeks gestation, preterm, and very preterm are: Overall, Black, N = 11,911,578; Three Strikes, Black, N = 6,484,903; Non-Three Strikes, Black, N = 5,426,675; TIS, Black, N = 9,491,356; Non-TIS, Black, N = 2,420,222. Overall, White, N = 58,906,853; Three Strikes, White, N = 34,309,624; Non-Three Strikes, White, N = 24,597,229; TIS, White, N = 42,307,520; Non-TIS, White, N = 16,599,333.

Table 2. State policy characteristics by state policy status

	Overall	Three Strikes		Truth in Sentencing	
		Three Strikes states (N = 27)	Non-Three Strikes states (N = 34)	Truth in Sentencing states (N = 29)	Non-Truth in Sentencing states (N = 32)
Minimum wage (USD)	4.2 (1.1)	4.3 (1.0)	4.2 (1.1)	4.2 (1.1)	4.3 (1.0)
EITC rate	2.7 (8.1)	3.9 (10.2)	1.8 (5.9)	3.3 (9.5)	2.3 (6.9)
Proportion of state-year observations where TANF was implemented	40.2%	40.3%	40.2%	40.5%	40.1%
Medicaid, prenatal eligibility (FPL threshold)	30.6 (12.5)	31.6 (11.7)	29.9 (13.0)	29.0 (10.9)	31.9 (13.4)
Poverty rate (%)	12.9 (4.0)	13.1 (4.2)	12.7 (3.7)	12.7 (4.1)	13.0 (3.8)
Unemployment rate (%)	5.6 (1.7)	5.7 (2.0)	5.4 (1.5)	5.5 (1.9)	5.6 (1.6)

Notes: See Table 1 notes for sample sizes and main text for data sources.

Figure 2. Trends in birth outcomes over time by race and Three Strikes policy adoption
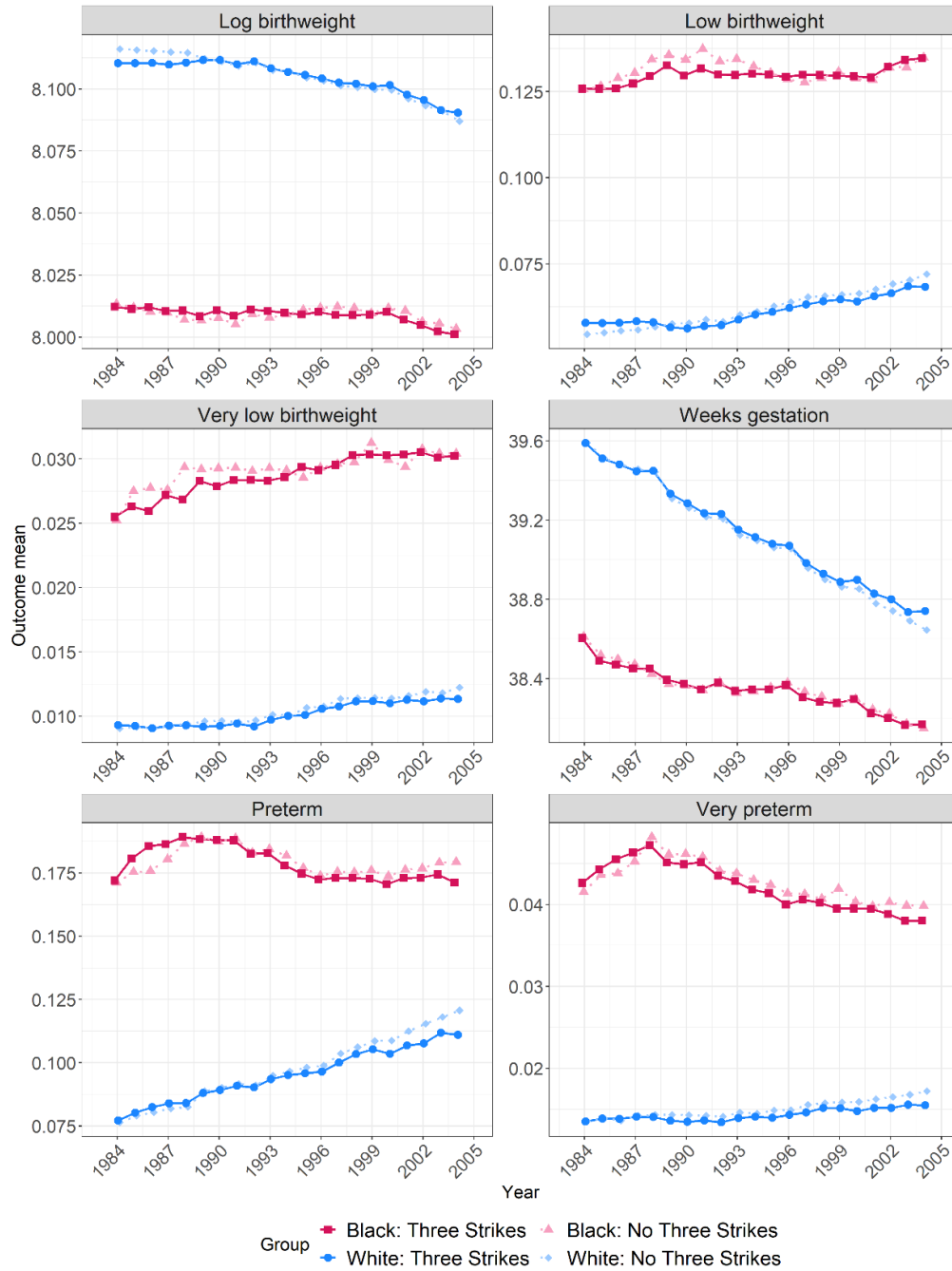
Notes: Figures plot mean birth outcomes (ascertained from Vital Statistics) by group over time.

Figure 3. Trends in birth outcomes over time by race and Truth in Sentencing policy adoption
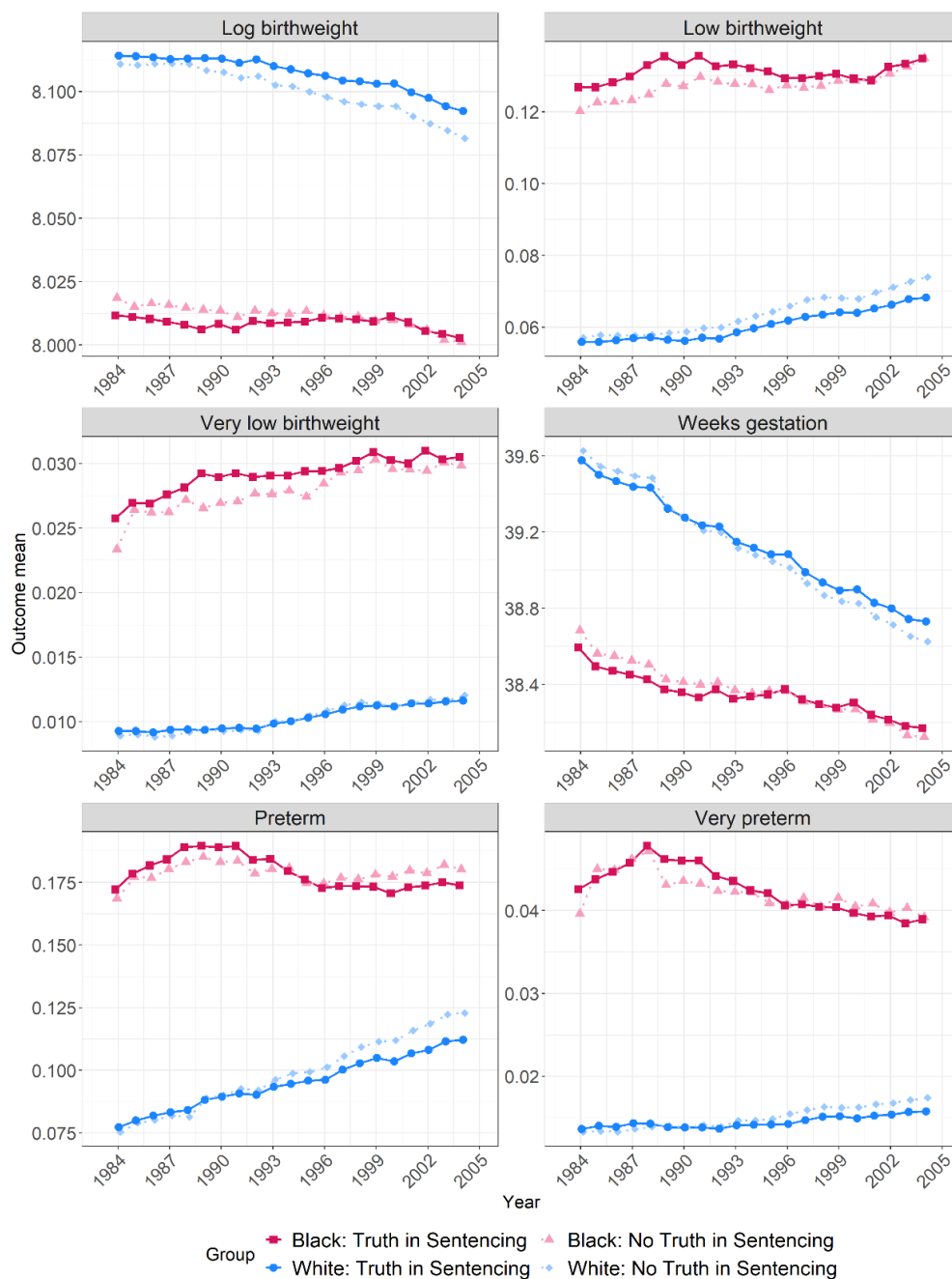
Notes: Figures plot mean birth outcomes (ascertained from Vital Statistics) by group over time.

Figure 4. Impact of enactment of Three Strikes policies over time
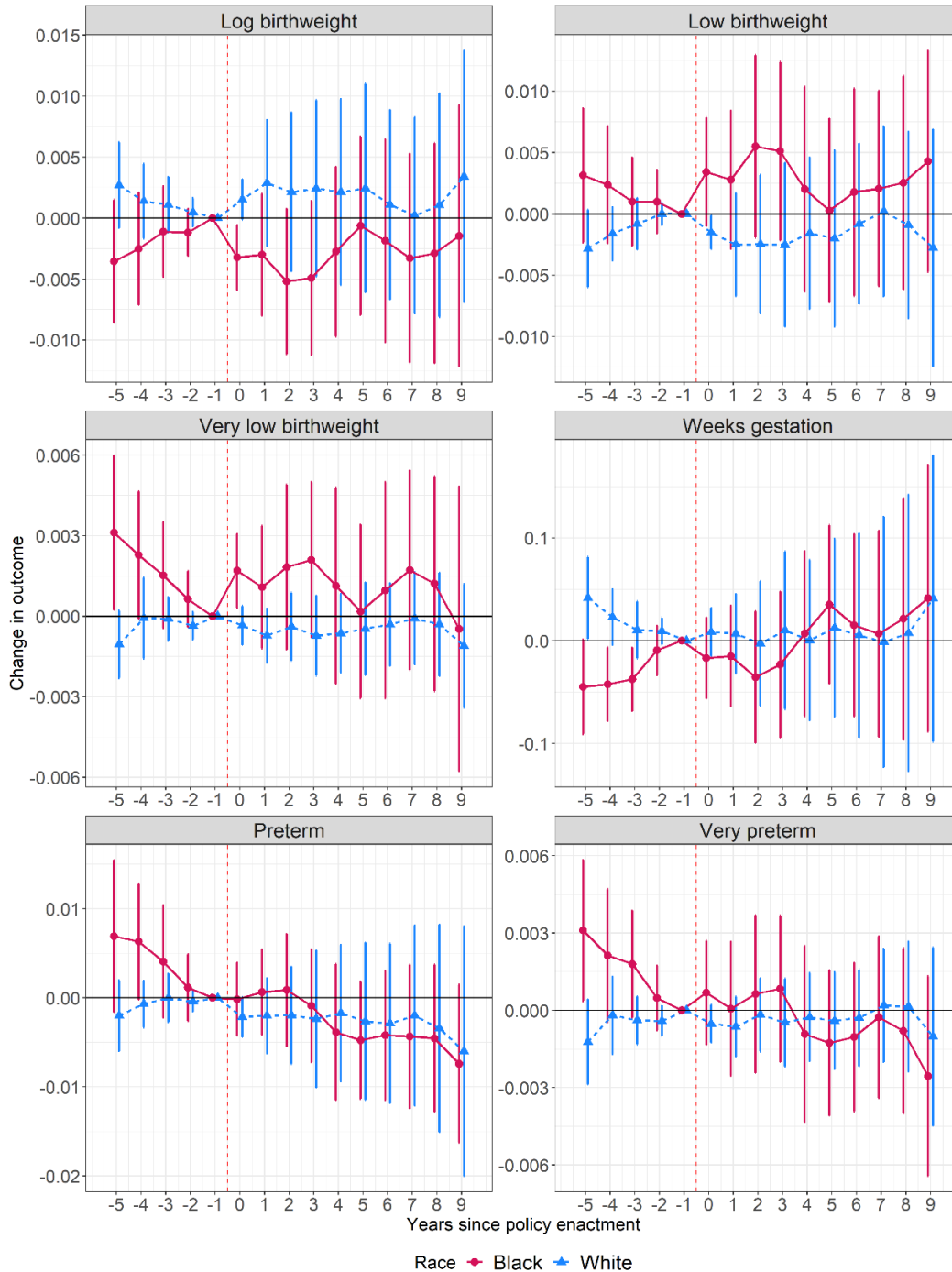
Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (stratified by infant race), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Tables 1 and 2 for coefficients and standard errors (for times 0, 5, 9) and sensitivity to covariates.

Figure 5. Impact of enactment of Three Strikes policies over time by birthing person's level of education, Black sample

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 3 for coefficients and standard errors (for times 0, 5, 9) and sensitivity to covariates.

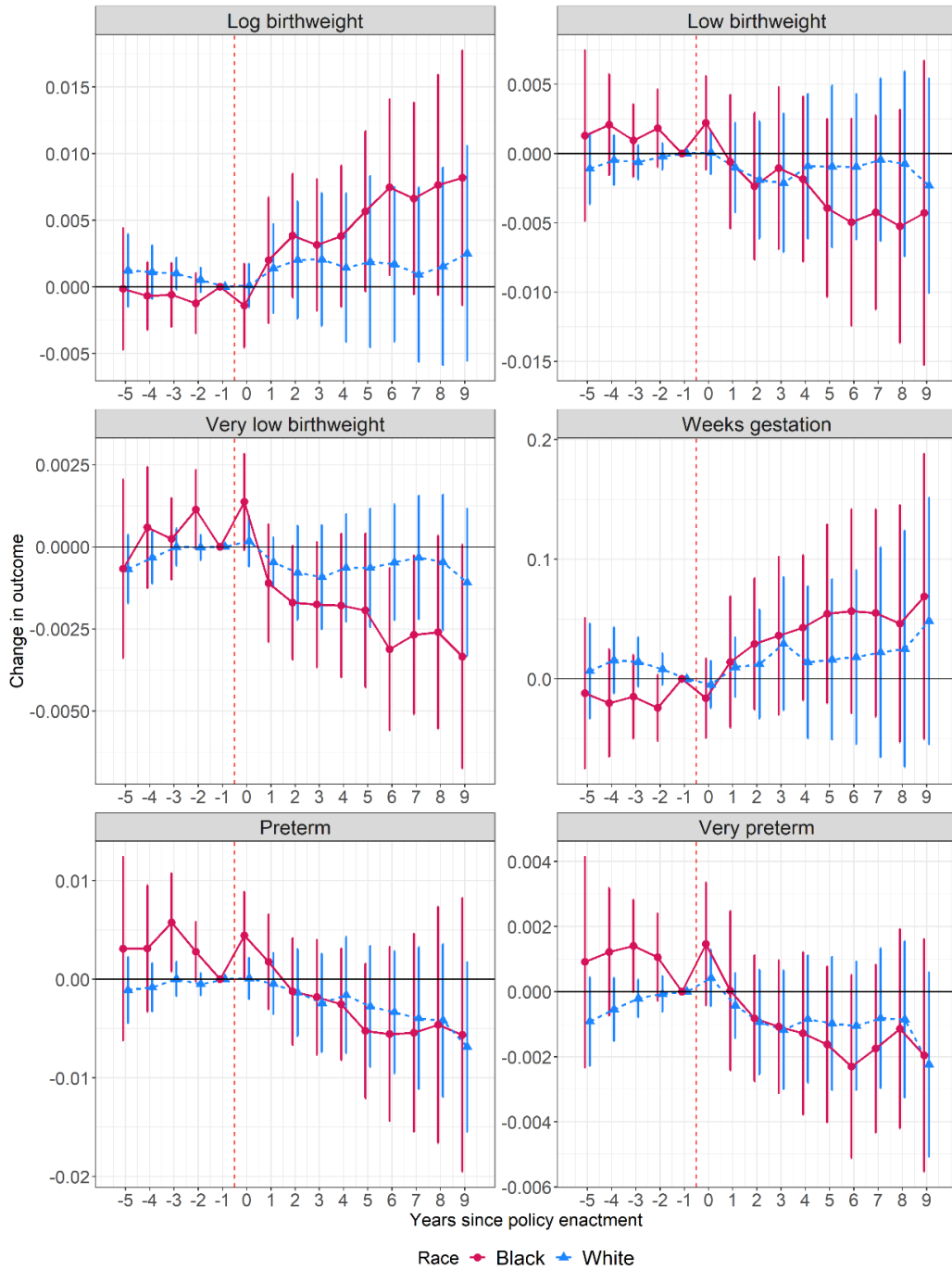Figure 6. Impact of enactment of Truth in Sentencing policies over time

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (stratified by infant race), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Tables 5 and 6 for coefficients and standard errors (for times 0, 5, 9) and sensitivity to covariates.

Figure 7. Impact of enactment of truth in sentencing policies over time by birthing person's level of education, Black sample
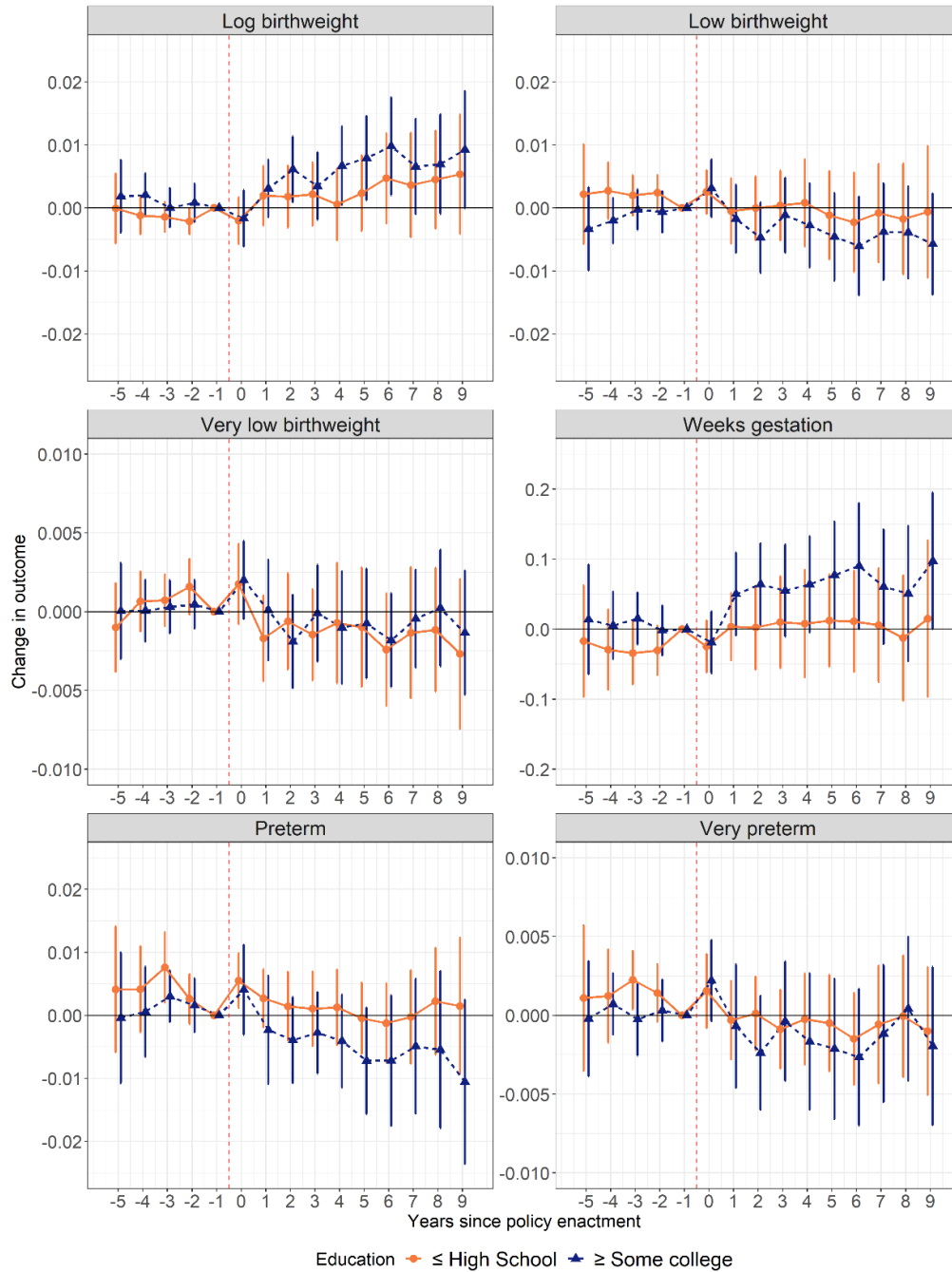

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 7 for coefficients and standard errors (for times 0, 5, 9) and sensitivity to covariates.

Figure 8. Impact of enactment of Truth in Sentencing and Three Strikes policies over time on log incarceration rates and Black-White gap in incarceration rates, by race and sex

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions, evaluating either three strikes or truth in sentencing, with lines representing 95% CIs. Incarcerated populations derived from Department of Justice Incarcerated Population Files (obtained via ICPSR). Regressions do not adjust for any covariates.

Figure 9. Impact of enactment of Truth in Sentencing and Three Strikes policies over time on log crime rates, by type of crime
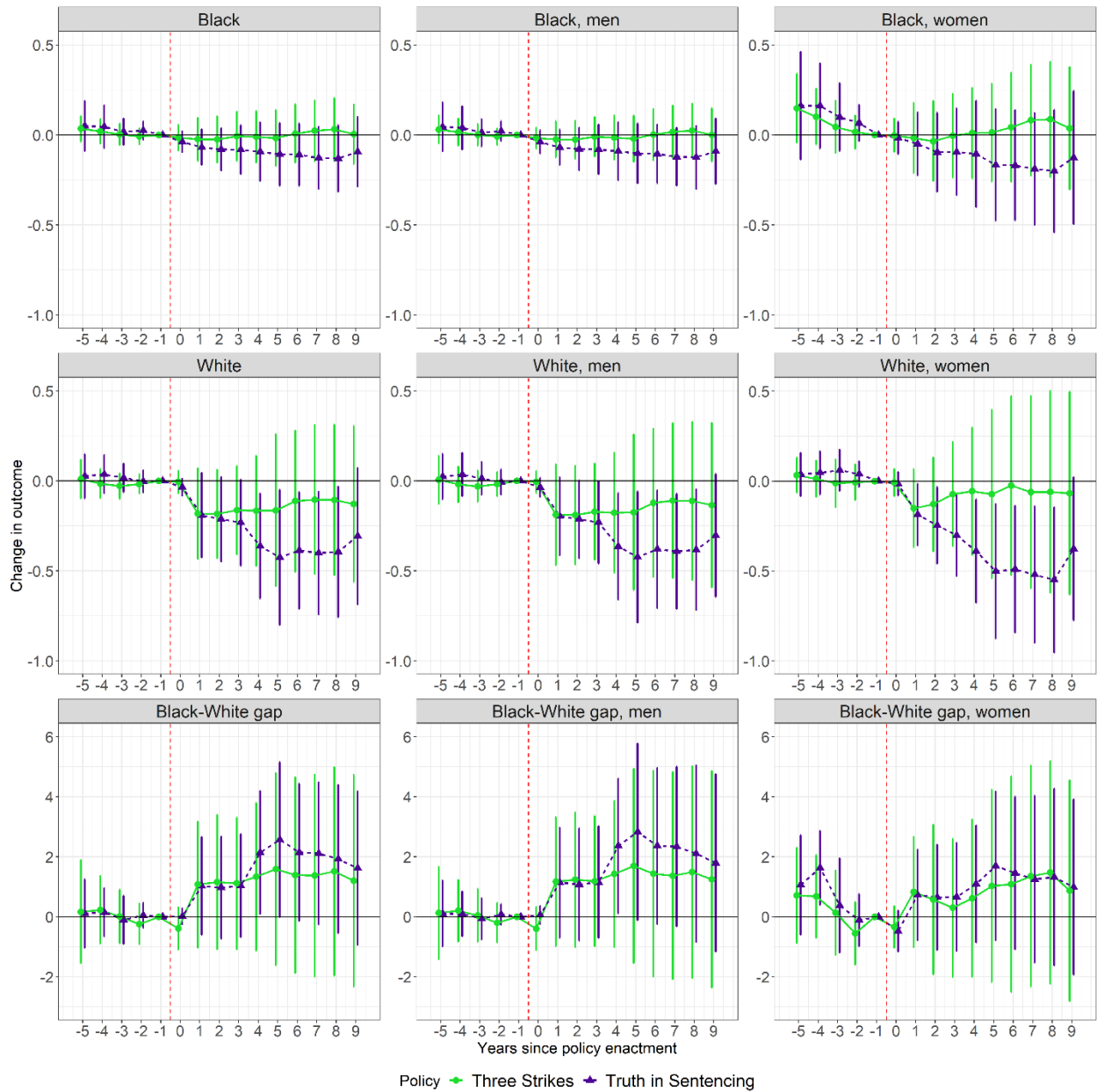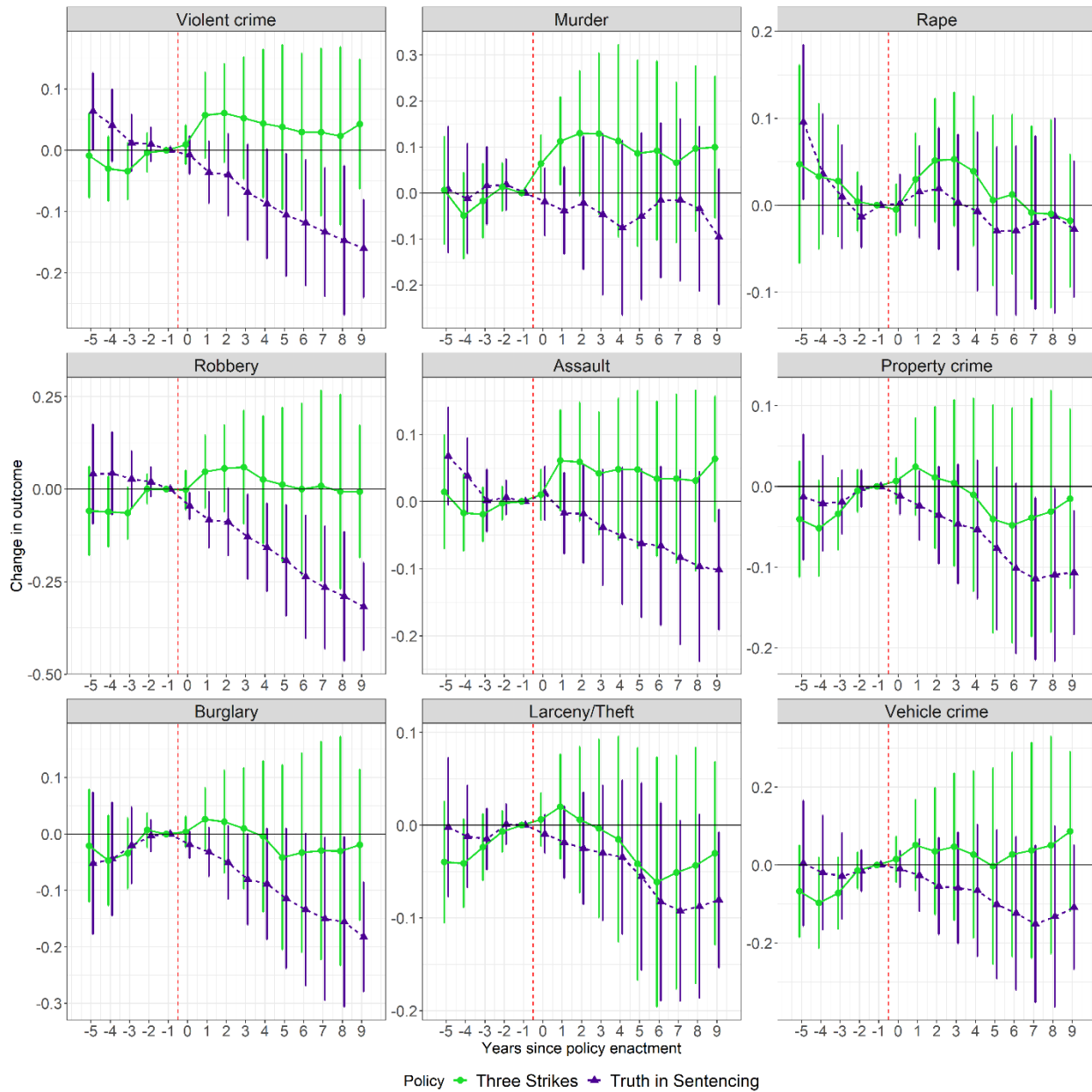

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions, evaluating either three strikes or truth in sentencing, with lines representing 95% CIs. Data on state-year crime rates were obtained from Grumbach (2021). Regressions do not adjust for any covariates.

Figure 10. Coverage of three strikes and truth in sentencing policies in U.S. newspapers

A. Mentions of 'tough on crime'

B. Mentions of 'three strikes' or 'truth in sentencing'

Policy ▮ Three Strikes ▮ Truth in Sentencing
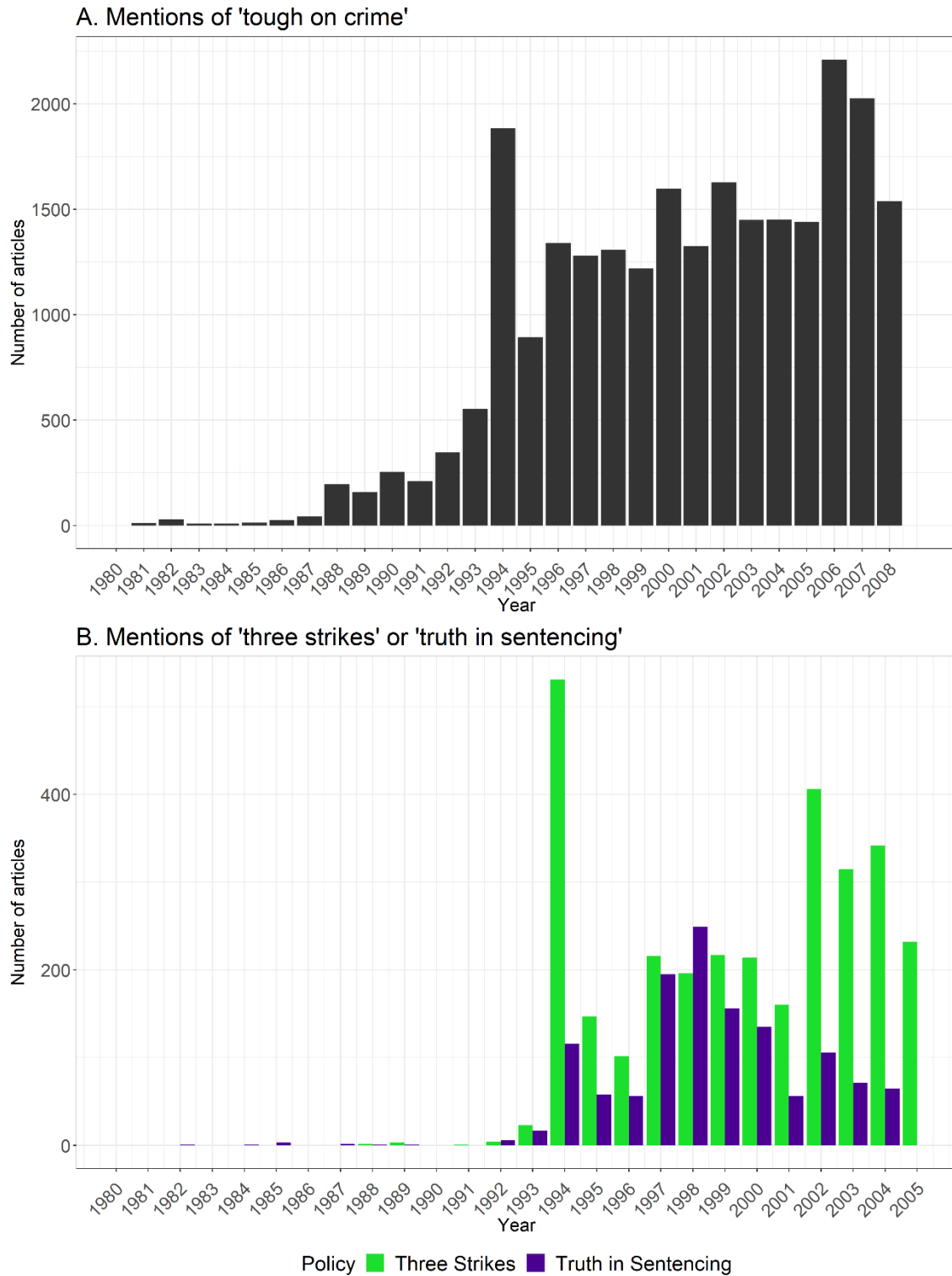
Note: Data represent annual counts of U.S. newspaper mentions in the FACTIVA database of the search terms "tough on crime" (Panel A) and "three strikes" and "truth in sentencing" (Panel B).

ONLINE APPENDIX

Appendix Figure 1. Trends in birth outcomes over time by race and Three Strikes policy adoption among those with ≤ High School education
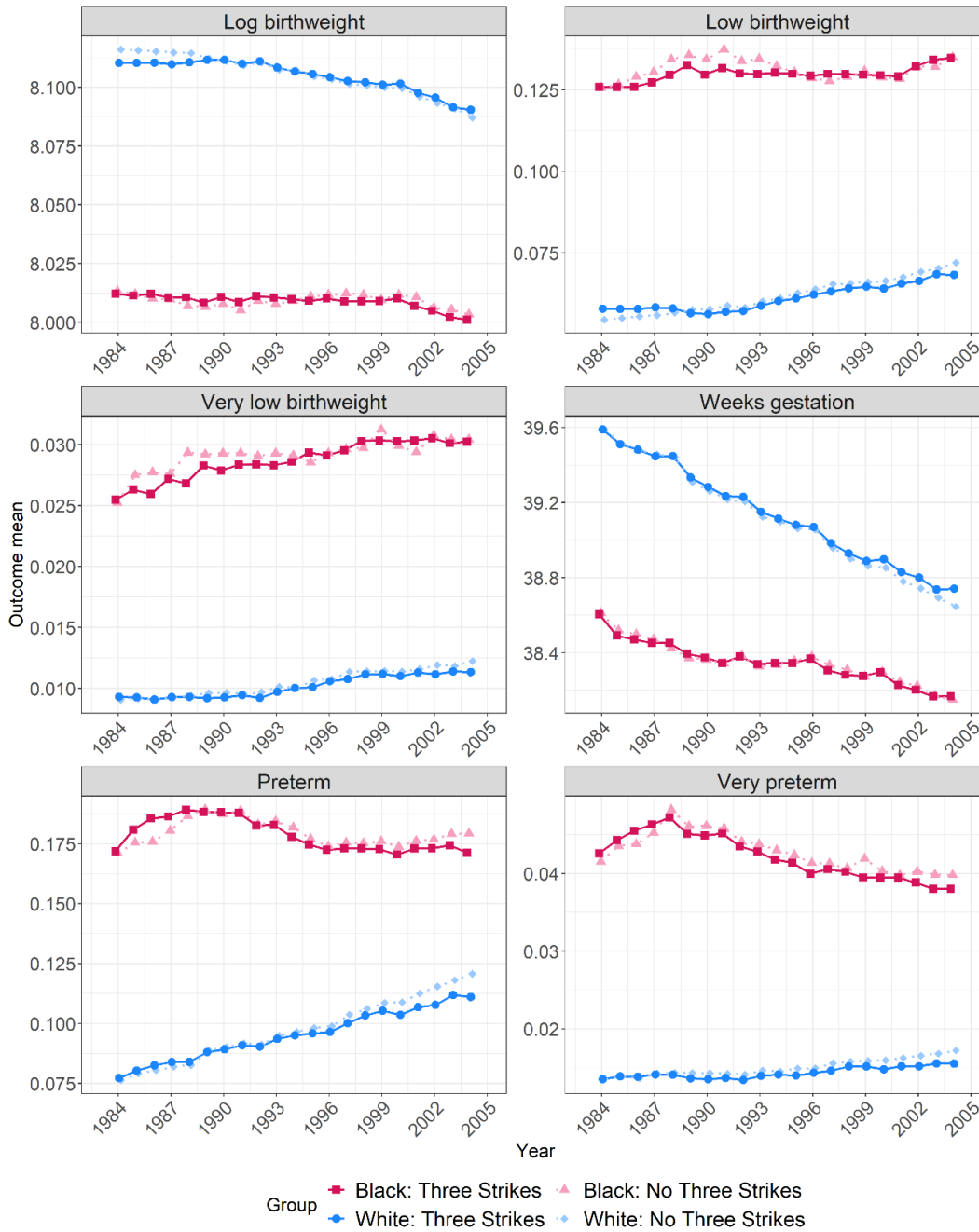
Notes: Figures plot mean birth outcomes (ascertained from Vital Statistics) by group over time.

Appendix Figure 2. Trends in birth outcomes over time by race and Three Strikes policy adoption among those with ≥ Some College education
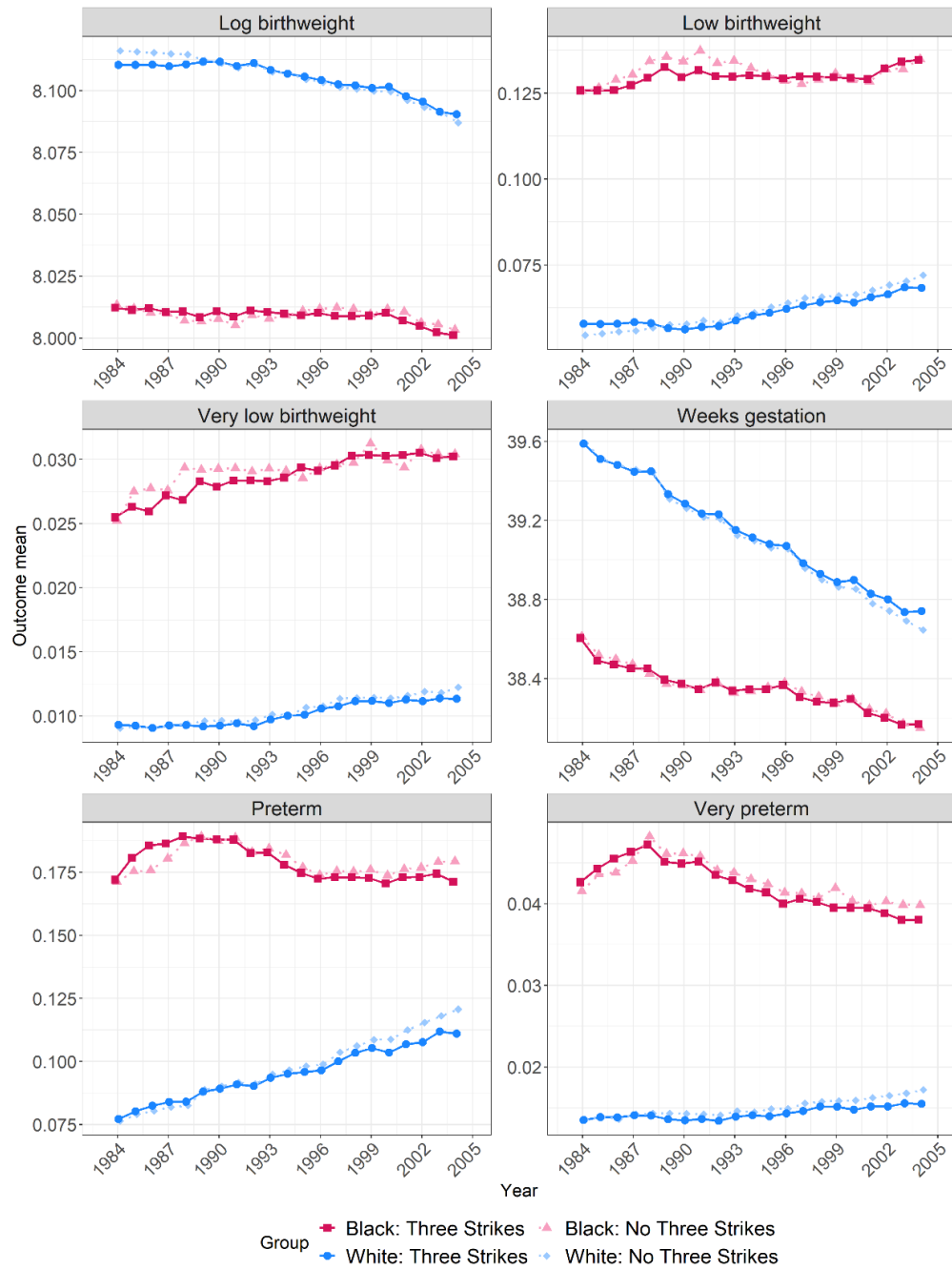
Notes: Figures plot mean birth outcomes (ascertained from Vital Statistics) by group over time.

Appendix Figure 3. Trends in birth outcomes over time by race and Truth in Sentencing policy adoption among those with ≤ High School education
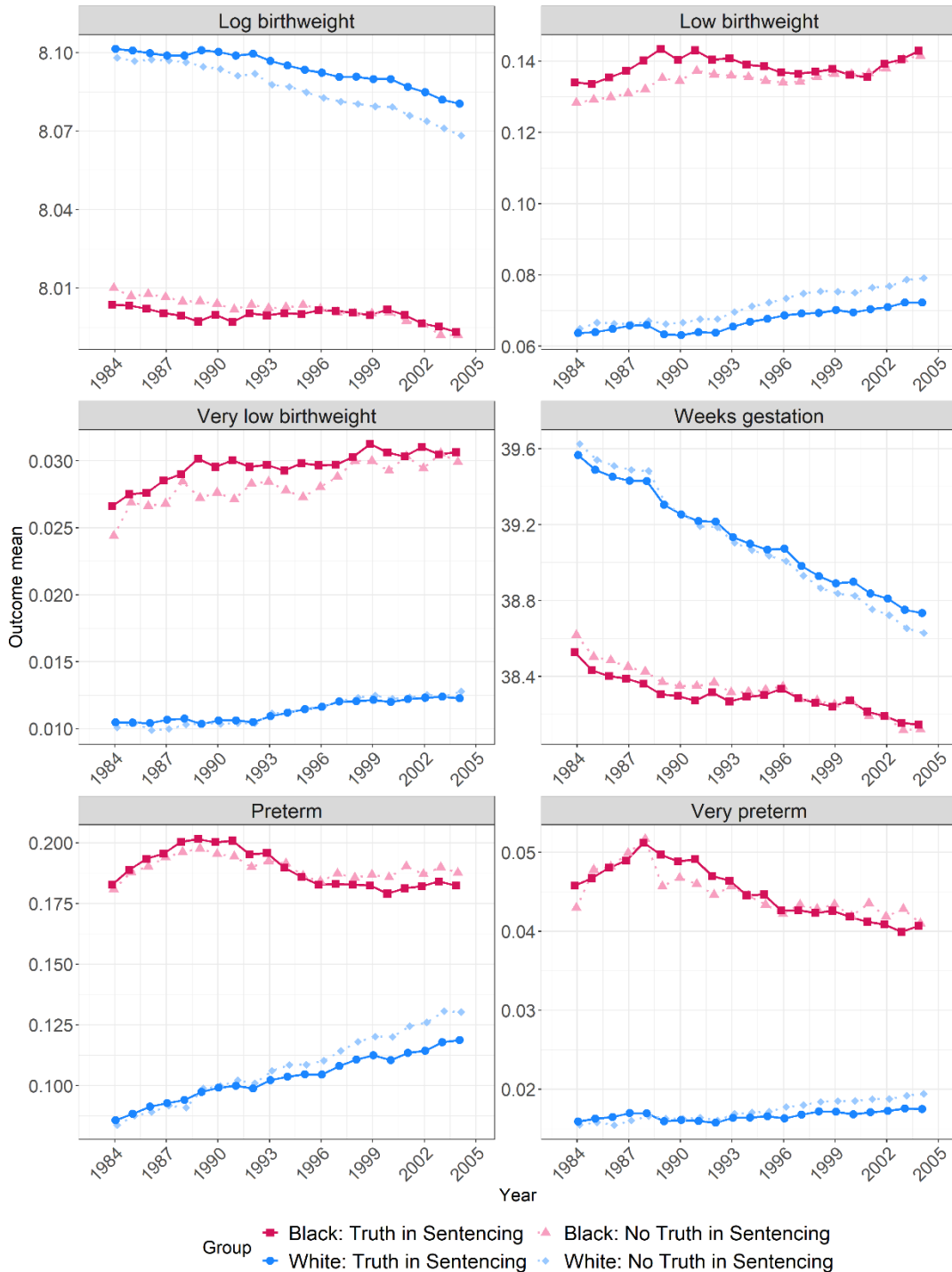
Notes: Figures plot mean birth outcomes (ascertained from Vital Statistics) by group over time.

Appendix Figure 4. Trends in birth outcomes over time by race and Truth in Sentencing policy adoption among those with ≥ Some College education
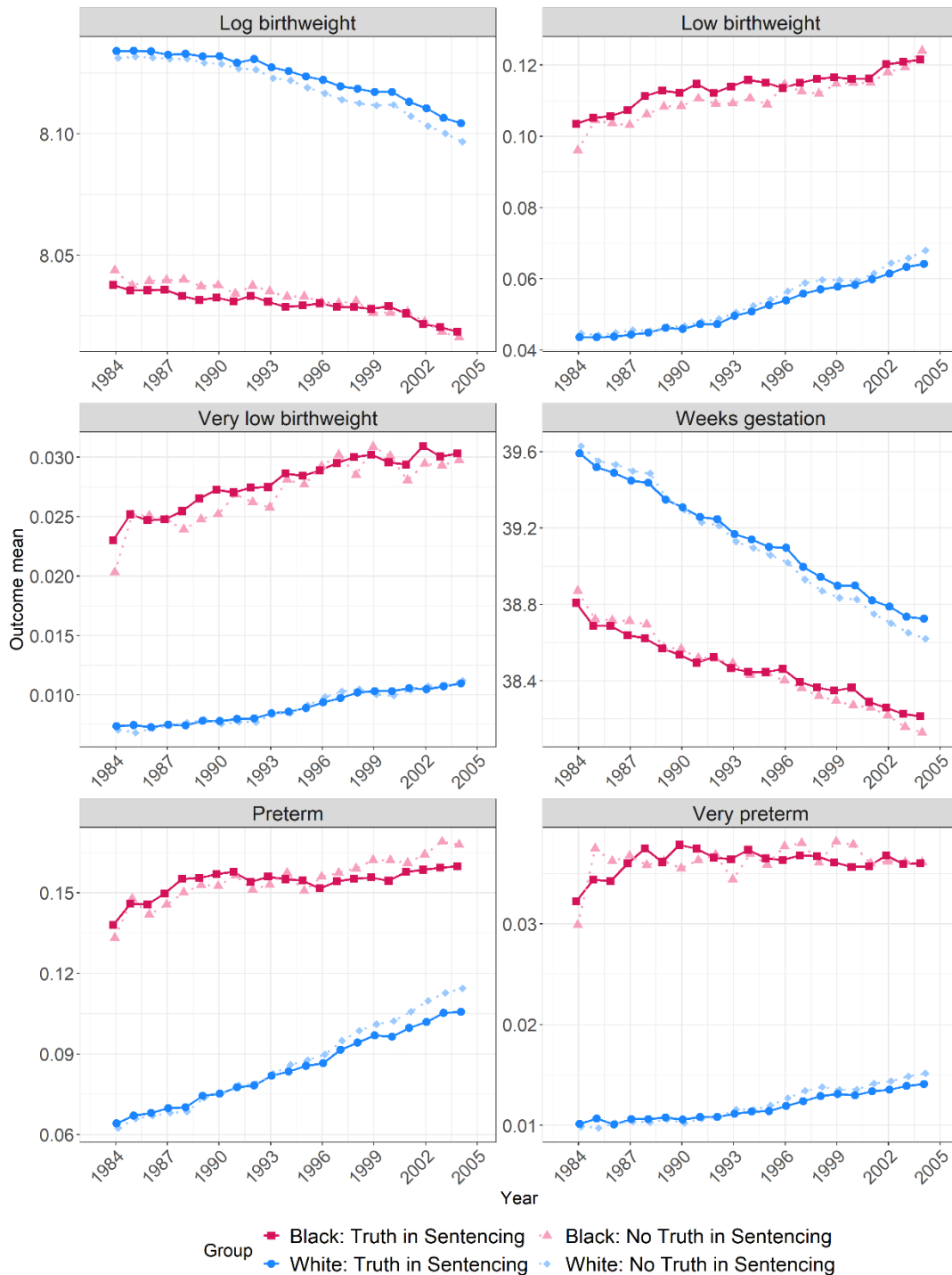
Notes: Figures plot mean birth outcomes (ascertained from Vital Statistics) by group over time.

Appendix Figure 5. Impact of Three Strikes on primary outcomes among white births over time, stratified by birthing person level of education


Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for White infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 4 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 6. Impact of Truth in Sentencing on primary outcomes among White births over time, stratified by birthing person level of education

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for White infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 8 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 7. Impact of enactment of Three Strikes policies over time (with state linear trends)

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (stratified by race), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and state-specific linear time trends. See Appendix Tables 9 and 10 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 8. Effect of Three Strikes on primary outcomes among Black births over time, stratified by birthing person level of education (with state linear trends)

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and state-specific linear time trends. See Appendix Table 11 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 9. Effect of Three Strikes on primary outcomes among White births over time, stratified by birthing person level of education (with state linear trends)
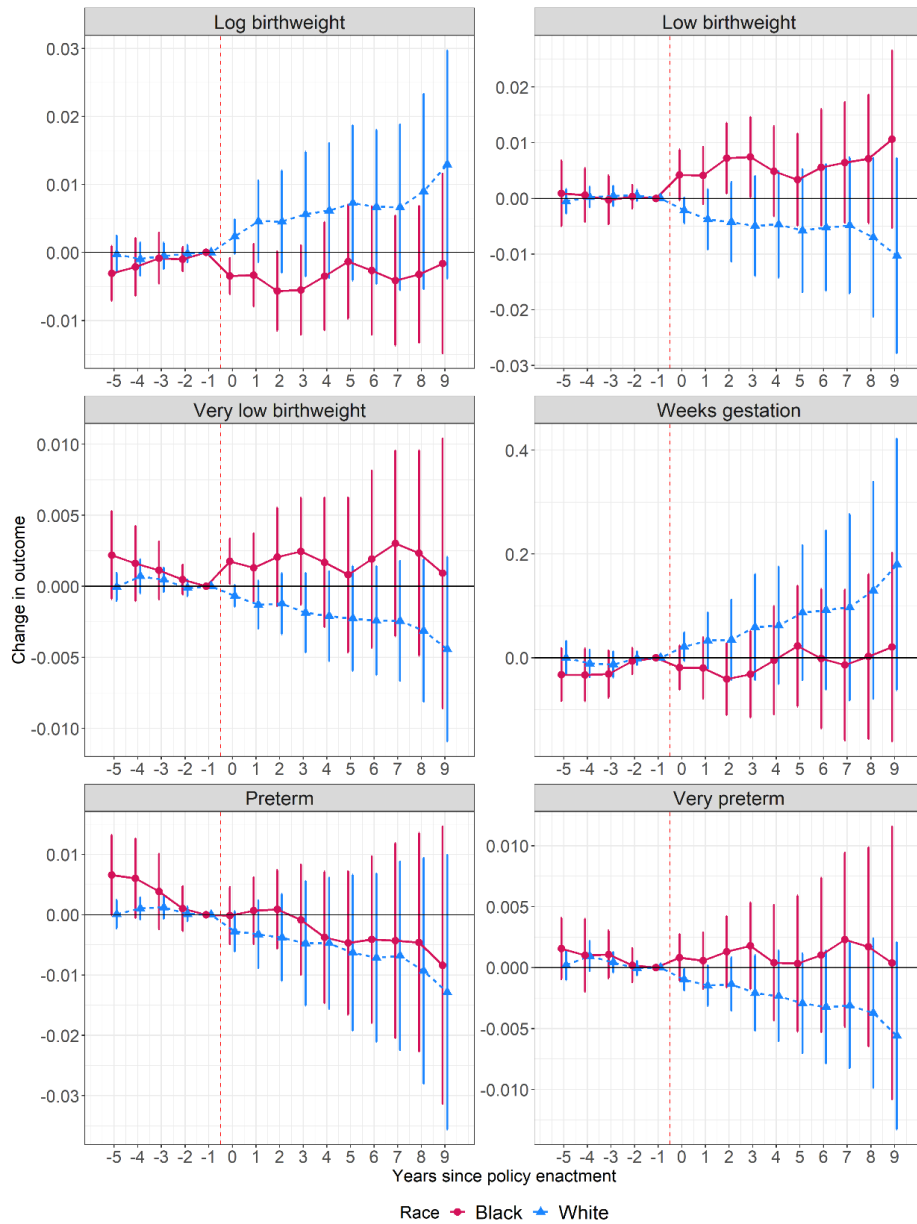

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for White infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and state-specific linear time trends. See Appendix Table 12 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 10. Impact of enactment of Truth in Sentencing policies over time (with state linear trends)

Note: Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (stratified by infant race), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and state-specific linear time trends. See Appendix Tables 13 and 14 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.
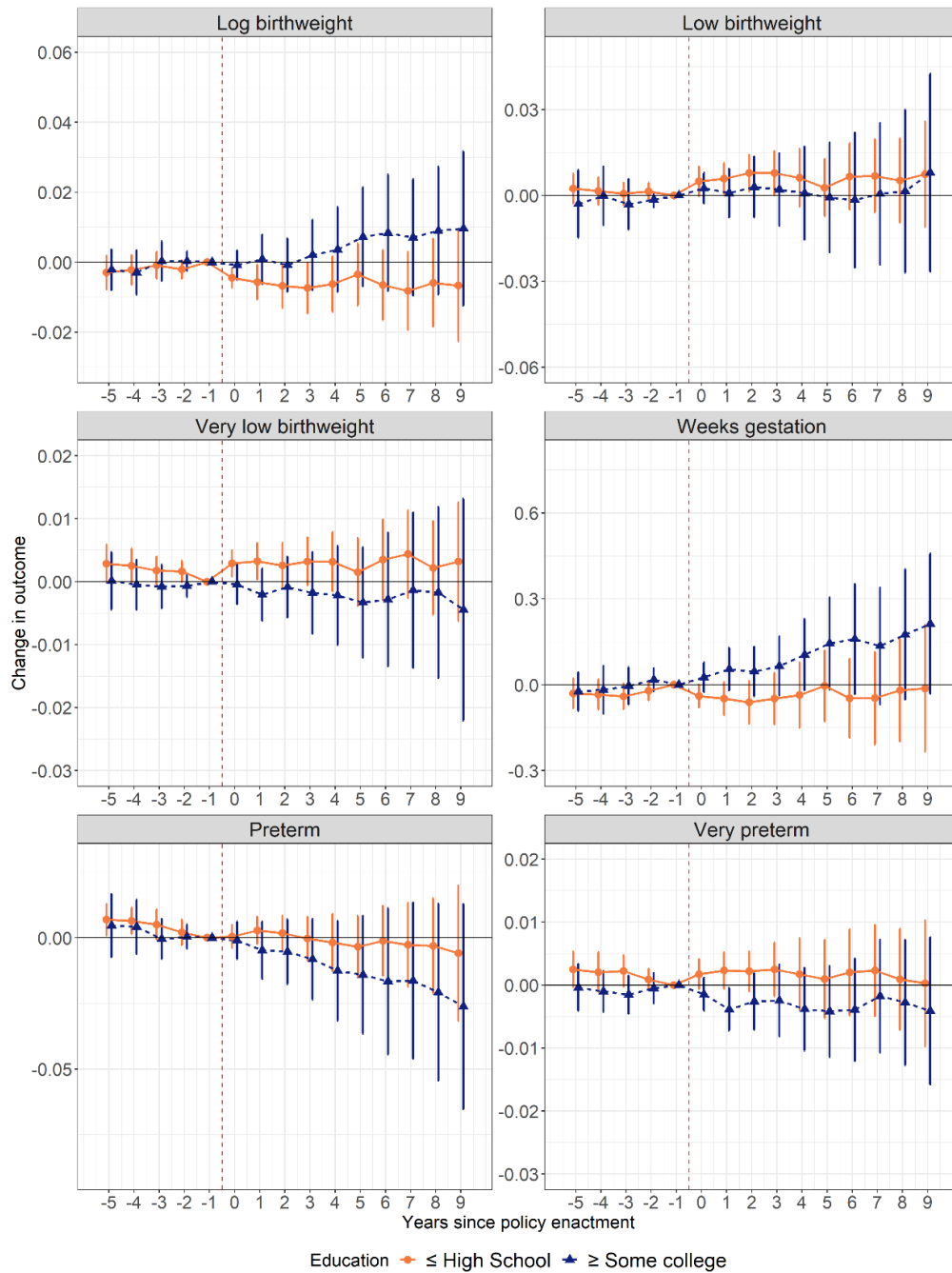
Appendix Figure 11. Effect of Truth in Sentencing on primary outcomes among Black births over time, stratified by birthing person level of education (with state linear trends)

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and state-specific linear time trends. See Appendix Table 15 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.
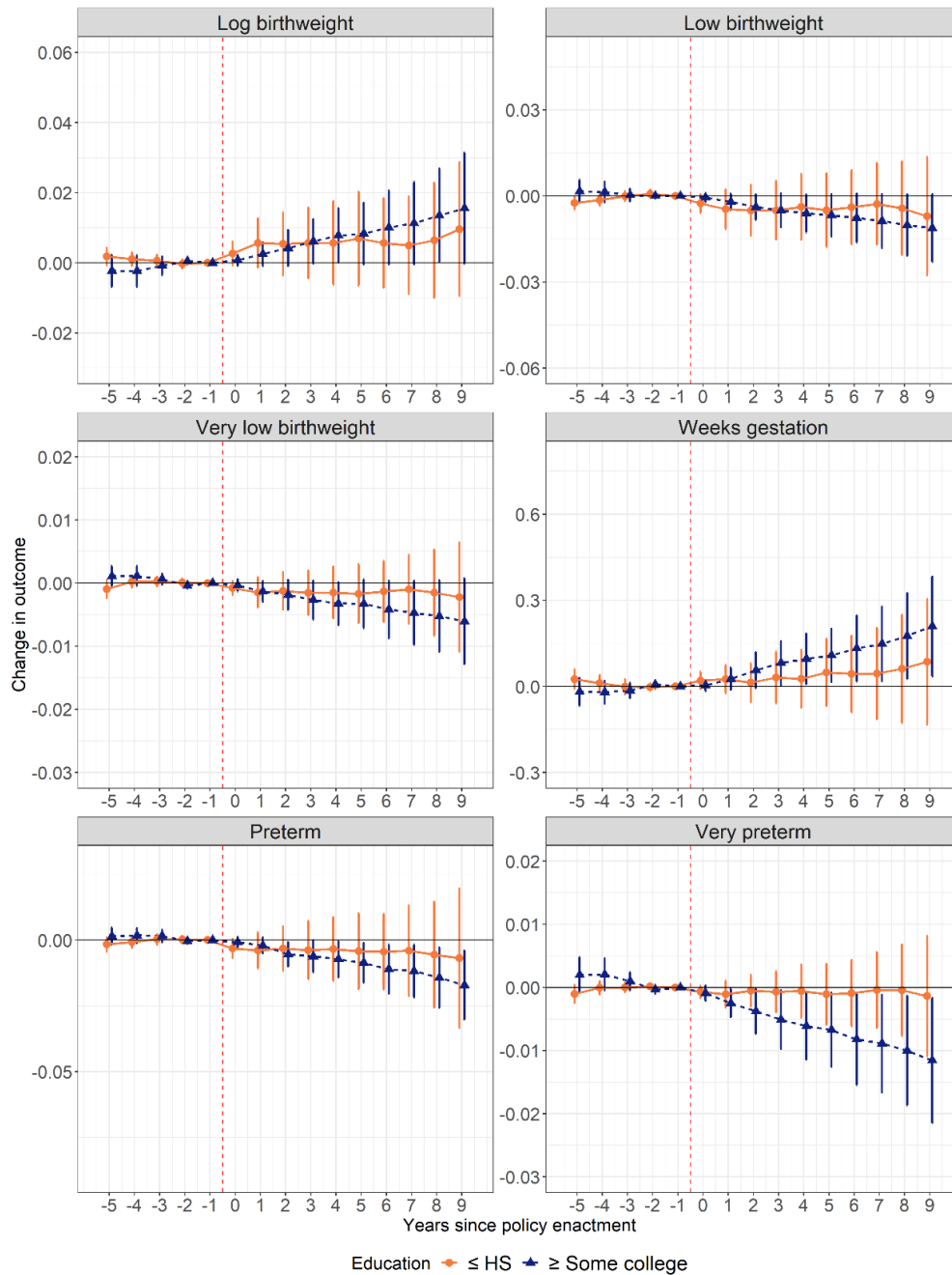
Appendix Figure 12. Effect of Truth in Sentencing on primary outcomes among White births over time, stratified by birthing person level of education (with state linear trends)
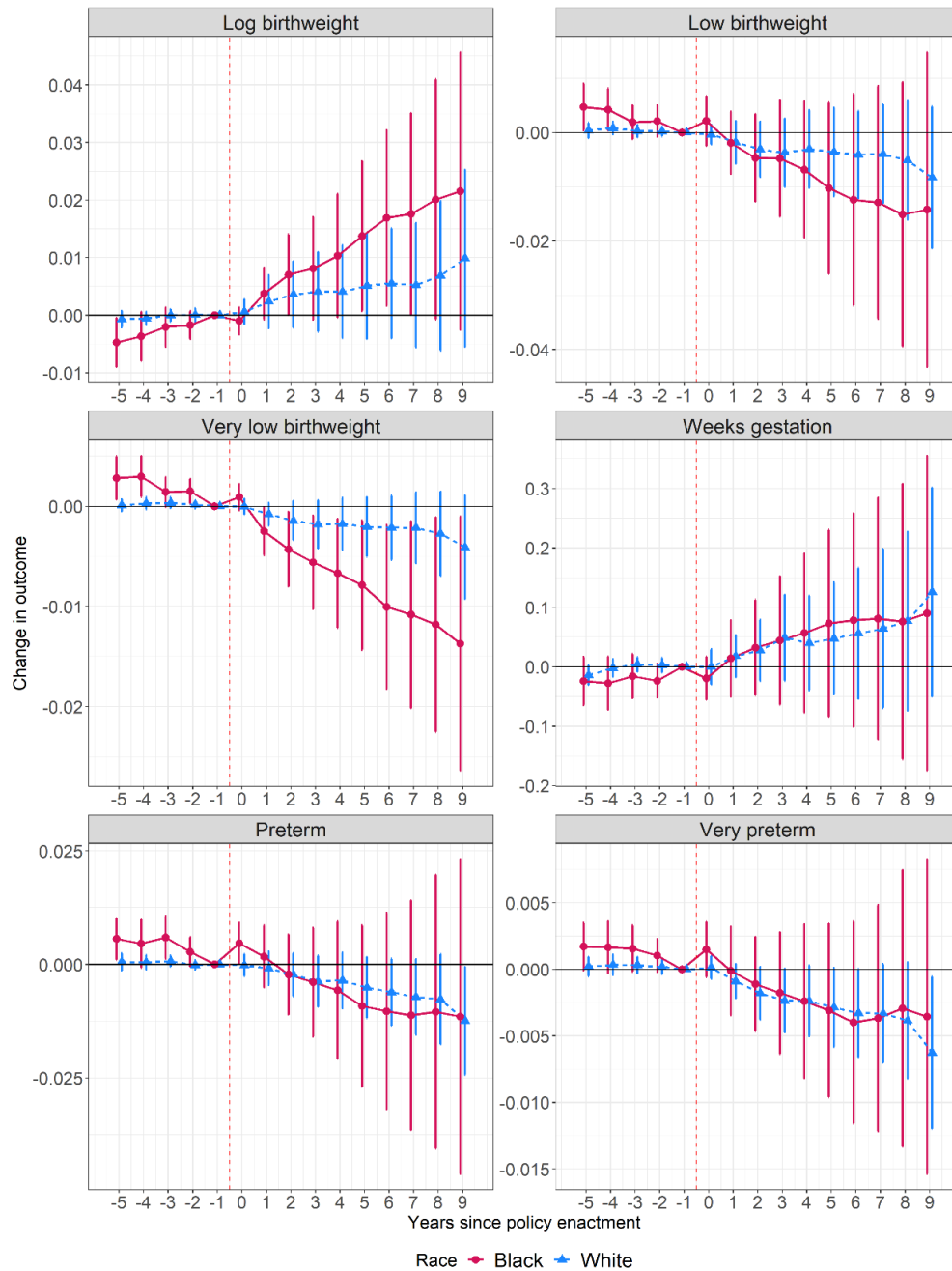

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (for White infants, stratified by birthing person level of education), with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and state-specific linear time trends. See Appendix Table 16 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 13. Balance tests for Three Strikes

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (stratified by infant race), with lines representing 95% CIs. Regressions use covariates as outcomes, allowing for a dynamic balancing test (as in Pei et al 2019). See Appendix Table 17 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

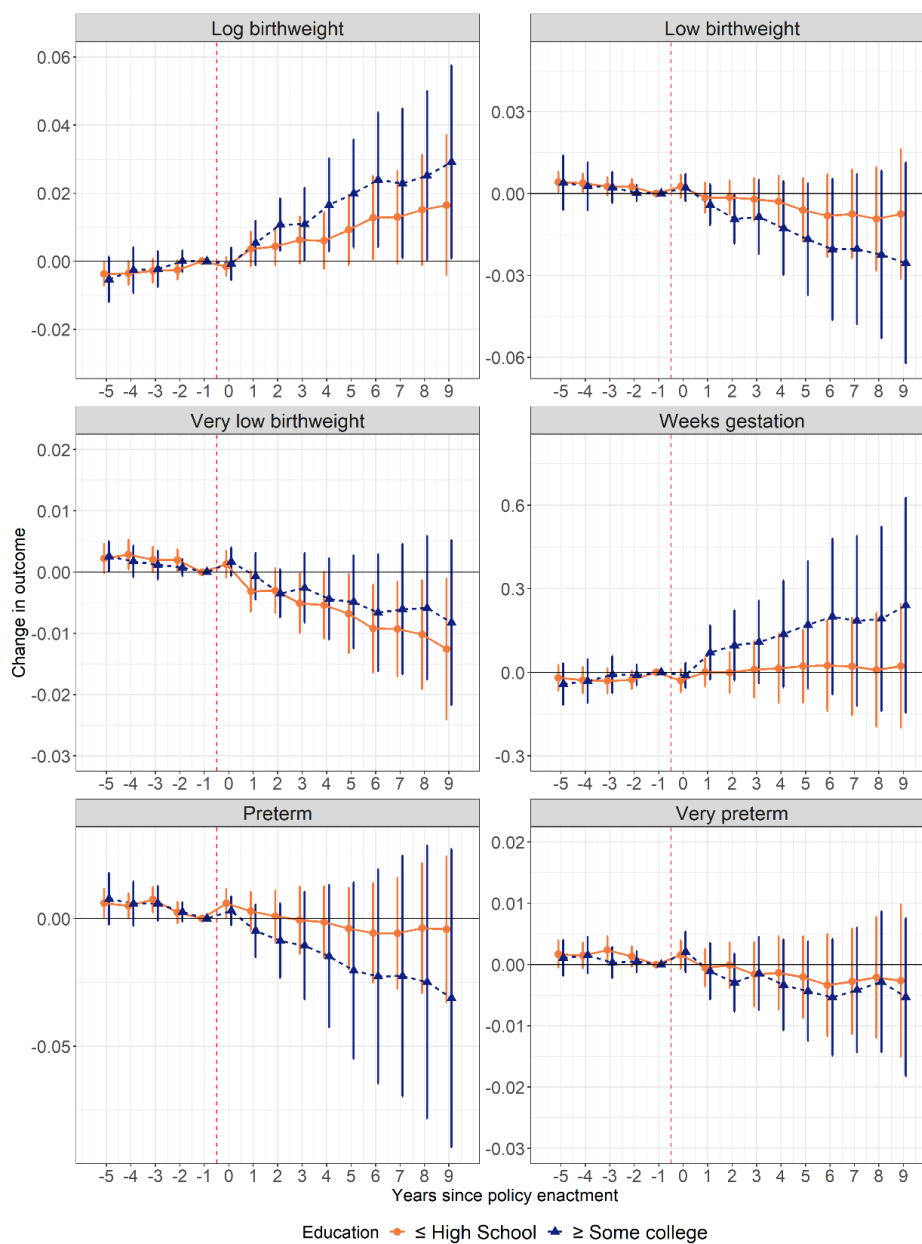# Appendix Figure 14. Balance tests for Truth in Sentencing
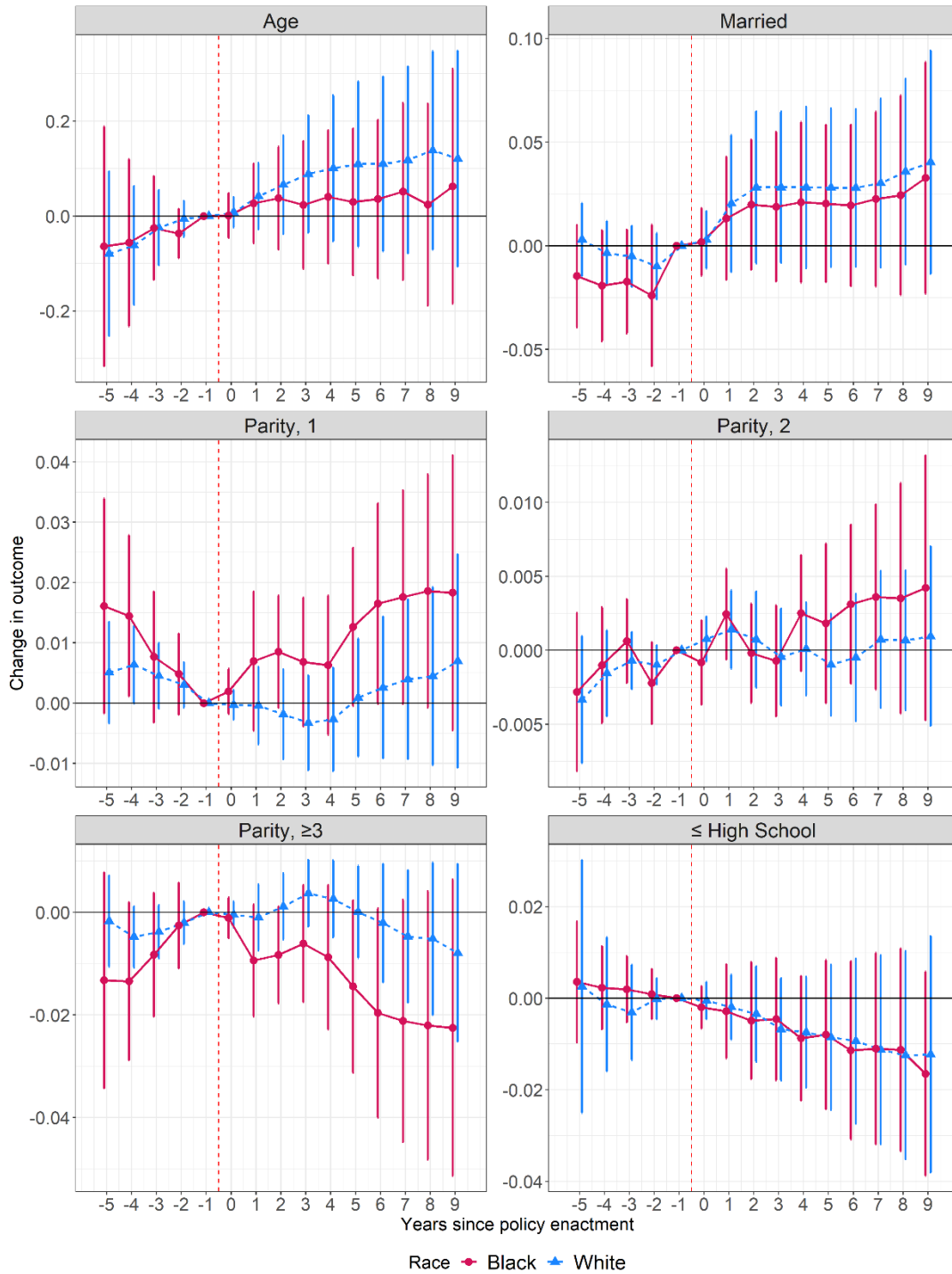
Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille. Each panel contains estimates from two separate regressions (stratified by infant race), with lines representing 95% CIs. Regressions use covariates as outcomes, allowing for a dynamic balancing test (as in Pei et al 2019). See Appendix Table 18 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 15. Impact of enactment of Three Strikes on birth outcomes among non-Hispanic Black and non-Hispanic Whites infants

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille, using data from birth certificates from 1989 onwards, which allows identification of Hispanic ethnicity. Each panel contains estimates from two separate regressions (stratified by infant race in a sample including only non-Hispanic births) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Tables 19 and 20 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 16. Impact of enactment of Three Strikes on birth outcomes among non-Hispanic Black infants, stratified by birthing person level of education
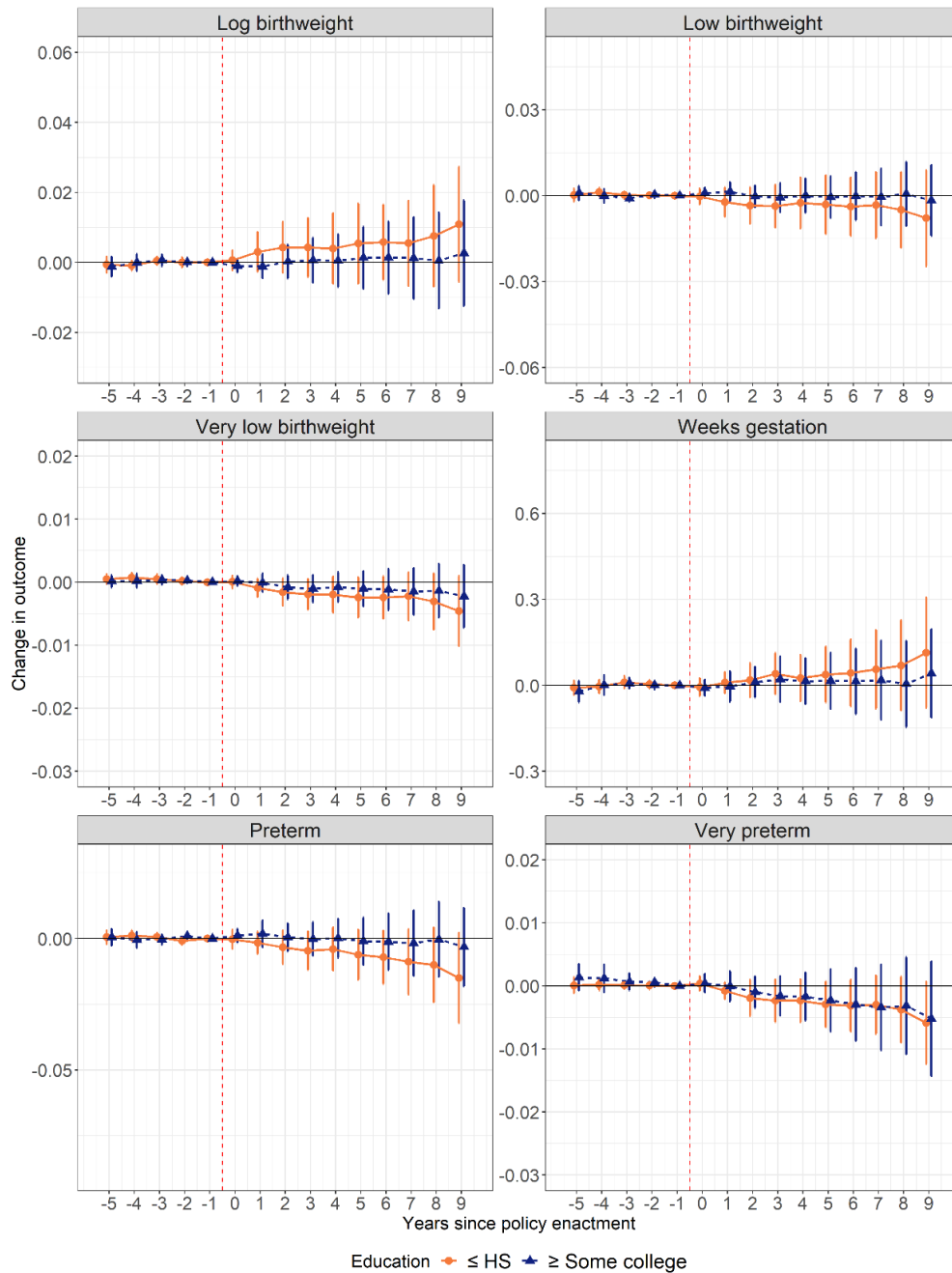

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille, using data from birth certificates from 1989 onwards, which allows identification of Hispanic ethnicity. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 21 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 17. Impact of enactment of Three Strikes on birth outcomes among non-Hispanic White infants, stratified by birthing person level of education

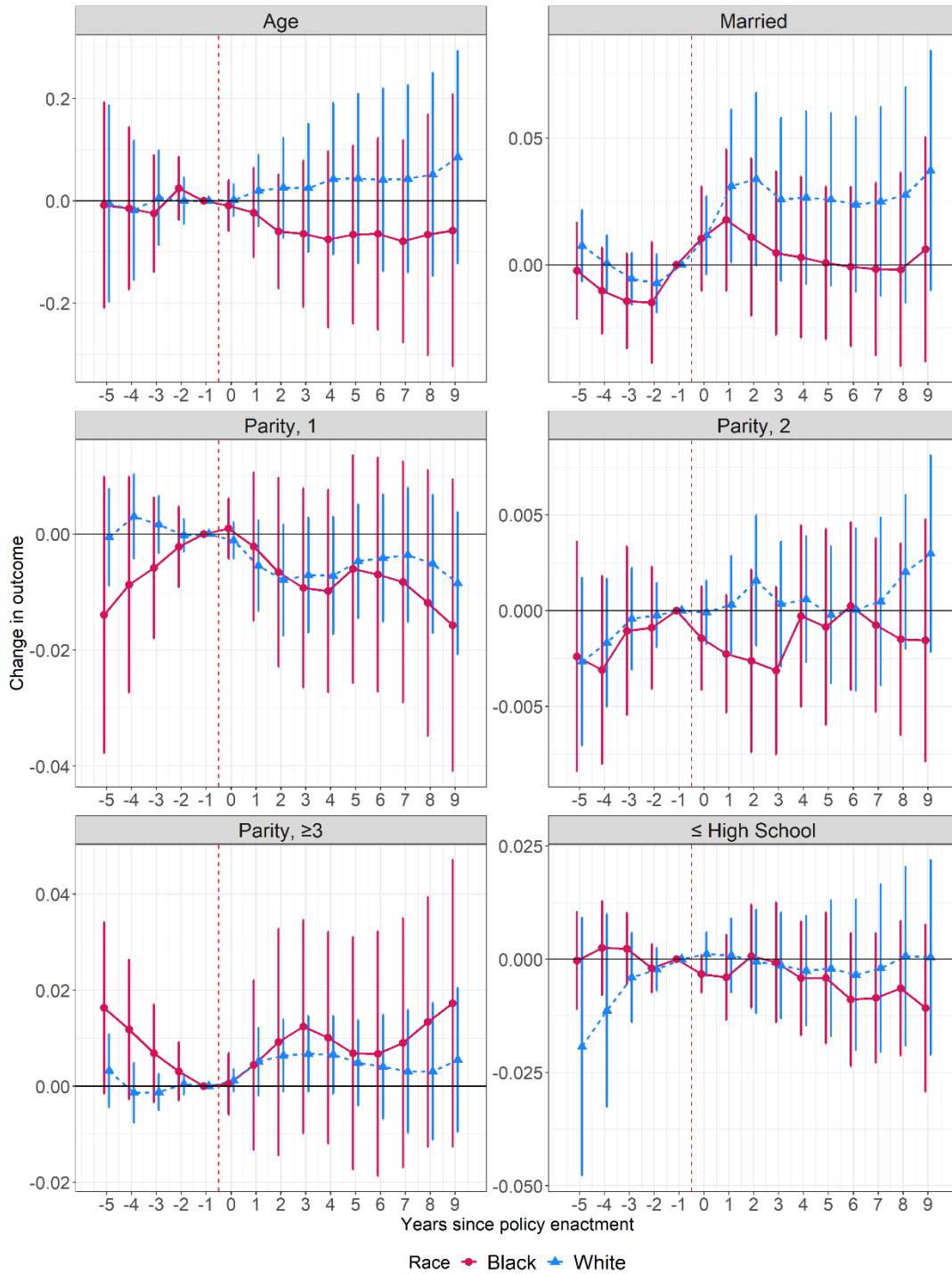Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille, using data from birth certificates from 1989 onwards, which allows identification of Hispanic ethnicity. Each panel contains estimates from two separate regressions (for White infants, stratified by birthing person level of education) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 22 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

Appendix Figure 18. Impact of enactment of truth in sentencing on birth outcomes among non-Hispanic Black and non-Hispanic Whites infants

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille, using data from birth certificates from 1989 onwards, which allows identification of Hispanic ethnicity. Each panel contains estimates from two separate regressions (stratified by infant race in a sample including only non-Hispanic births) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 23 and 24 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

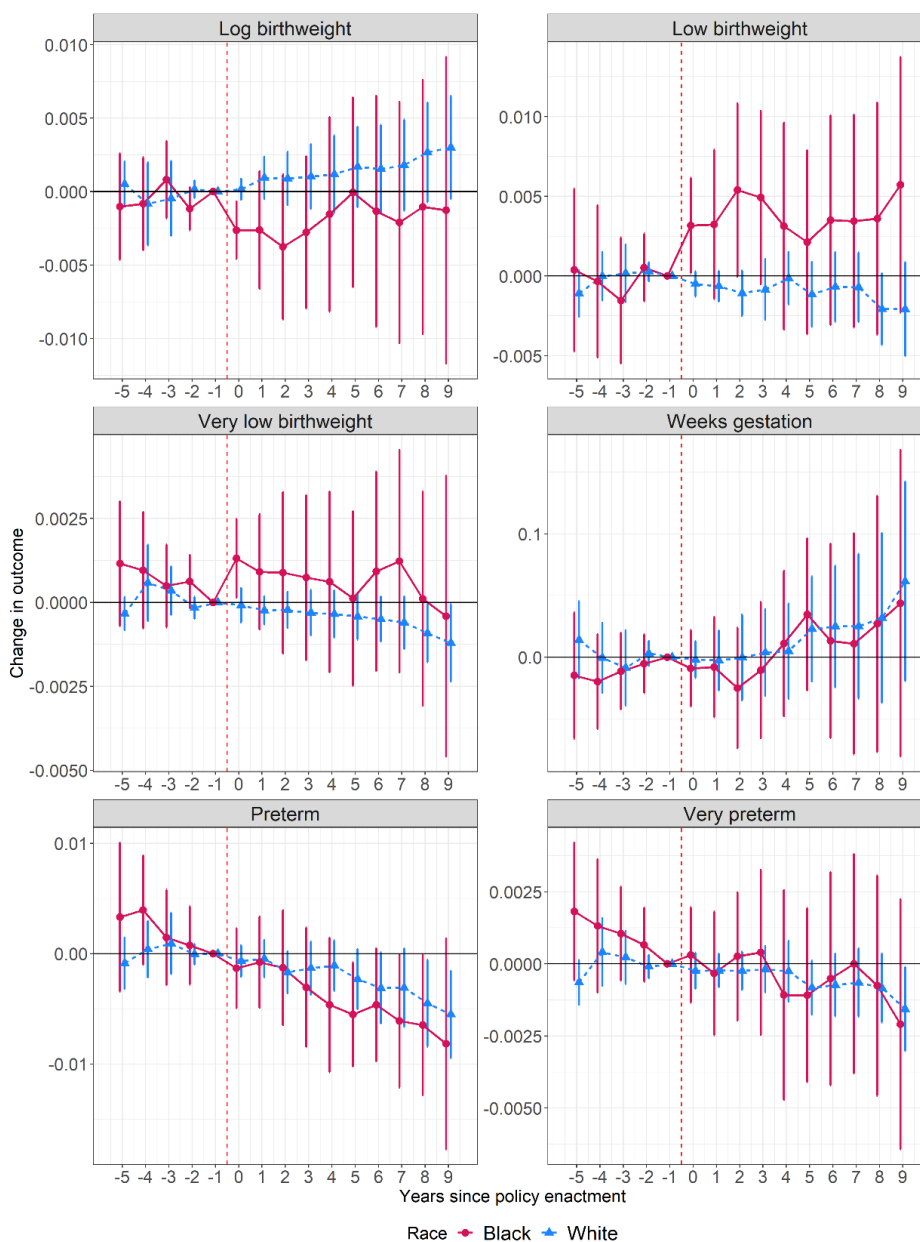Appendix Figure 19. Impact of enactment of Truth in Sentencing on birth outcomes among non-Hispanic Black infants, stratified by birthing person level of education

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille, using data from birth certificates from 1989 onwards, which allows identification of Hispanic ethnicity. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education in a sample including only non-Hispanic births) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 25 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.

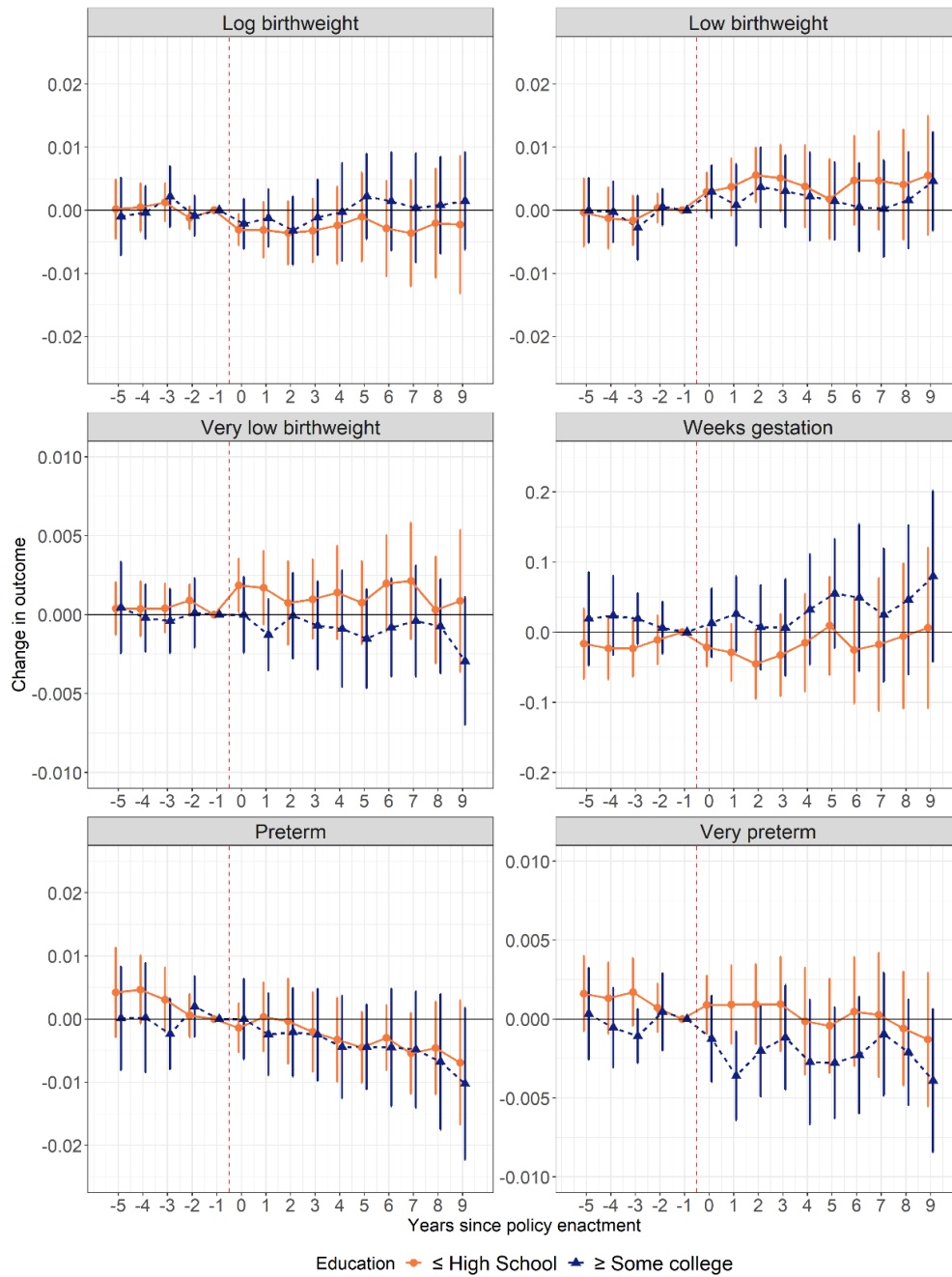Appendix Figure 20. Impact of enactment of Truth in Sentencing on birth outcomes among non-Hispanic White infants, stratified by birthing person level of education

Notes: Figure plots event study regression estimates using the method of d'Chaisemartin and D'Haultfoeuille, using data from birth certificates from 1989 onwards, which allows identification of Hispanic ethnicity. Each panel contains estimates from two separate regressions (for Black infants, stratified by birthing person level of education in a sample including only non-Hispanic births) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), and other sentencing policies (truth in sentencing, sentencing guidelines). See Appendix Table 26 for coefficient estimates for time point 0, 5, and 9, and robustness to different covariate sets.
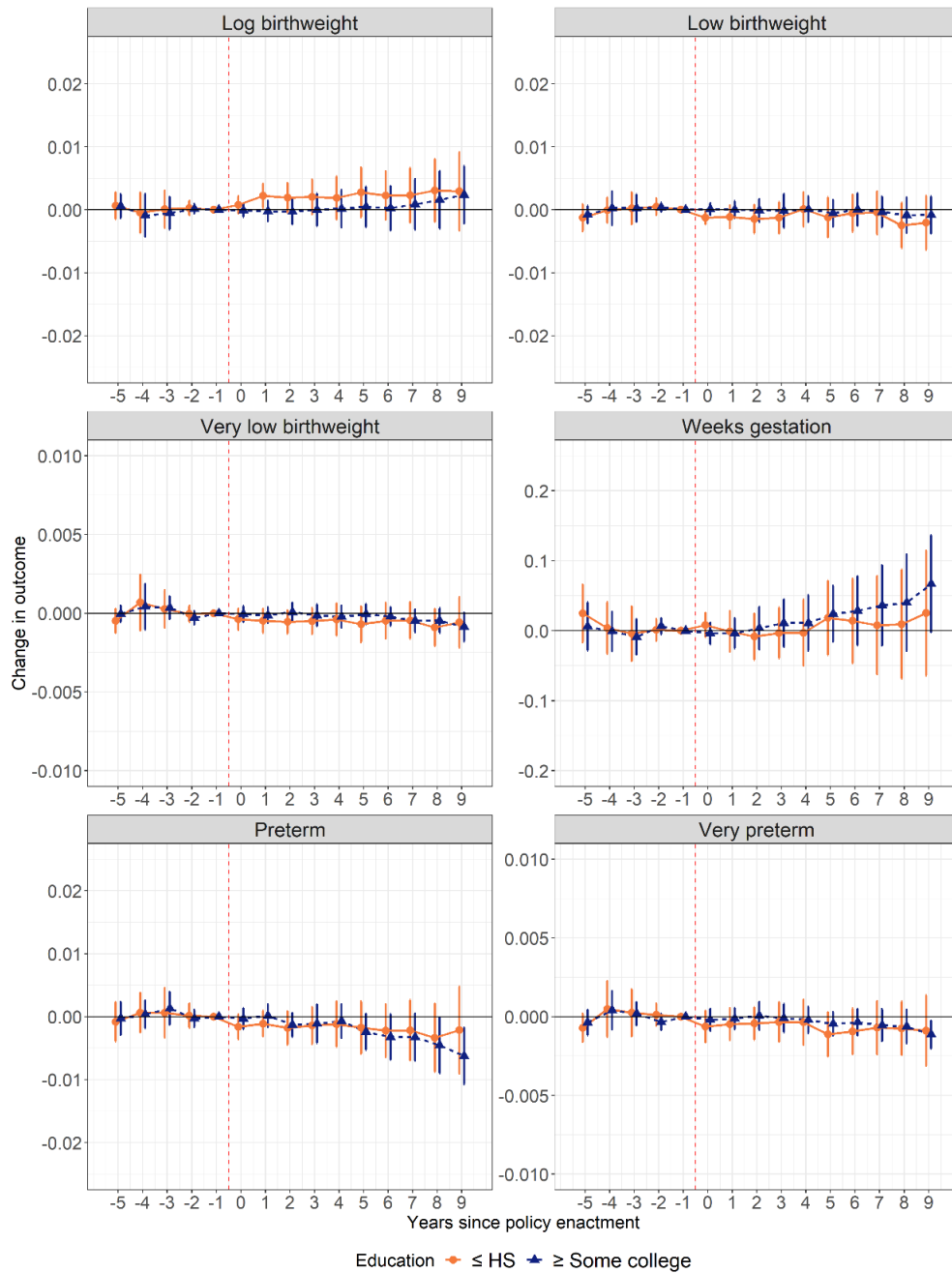
Appendix Figure 21. Impact of enactment of Three Strikes policies over time (using Two-Way Fixed Effects estimator)

Notes: Figure plots event study regression estimates using two-way fixed effects models. Each panel contains estimates from two separate regressions (stratified by infant race) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and fixed effects for birth state and birth year.

Appendix Figure 22. Impact of enactment of Truth in Sentencing policies over time (using Two-Way Fixed Effects estimator)

Notes: Figure plots event study regression estimates using two-way fixed effects models. Each panel contains estimates from two separate regressions (stratified by infant race) with lines representing 95% CIs. All models adjust for individual characteristics (child sex, birthing person age, birthing person years of education, birthing person marital status, month of birth, multiple birth, parity), state policy covariates (minimum wage, EITC rate, year TANF was implemented, and Medicaid eligibility), other sentencing policies (truth in sentencing, sentencing guidelines), and fixed effects for birth state and birth year.

Appendix Table 1. Effect of Three Strikes on primary outcomes among Black births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0025 (0.0010)	-0.0018 (0.0032)	-0.0036 (0.0040)	-0.0031 (0.0012)	-0.0008 (0.0037)	-0.0017 (0.0051)	-0.0032 (0.0014)	-0.0006 (0.0037)	-0.0015 (0.0055)	-0.0034 (0.0012)	-0.0004 (0.0033)	-0.0013 (0.0047)
Low birth weight (<2,500g)	0.0022 (0.0013)	0.0022 (0.0024)	0.0053 (0.0031)	0.0033 (0.0018)	0.0003 (0.0034)	0.0043 (0.0047)	0.0034 (0.0023)	0.0003 (0.0038)	0.0043 (0.0046)	0.0035 (0.0022)	-0.0001 (0.0043)	0.0042 (0.0047)
Very low birthweight (<1,500g)	0.0013 (0.0006)	0.0001 (0.0010)	0.0003 (0.0012)	0.0016 (0.0007)	0.0002 (0.0018)	-0.0003 (0.0027)	0.0017 (0.0007)	0.0002 (0.0016)	-0.0005 (0.0027)	0.0017 (0.0007)	0.0001 (0.0017)	-0.0005 (0.0021)
Weeks gestation	-0.0073 (0.0139)	0.0098 (0.0338)	0.0158 (0.0599)	-0.0155 (0.0172)	0.0321 (0.0379)	0.0354 (0.0595)	-0.0169 (0.0201)	0.0352 (0.0394)	0.0413 (0.0662)	-0.0176 (0.0167)	0.0383 (0.0386)	0.0422 (0.0624)
Preterm birth (<37 weeks)	-0.0013 (0.0020)	-0.0024 (0.0021)	-0.0049 (0.0039)	-0.0003 (0.0020)	-0.0045 (0.0027)	-0.0070 (0.0047)	-0.0002 (0.0021)	-0.0048 (0.0034)	-0.0074 (0.0045)	-0.0002 (0.0024)	-0.0052 (0.0028)	-0.0073 (0.0041)
Very preterm (<32 weeks)	0.0002 (0.0008)	-0.0007 (0.0009)	-0.0015 (0.0010)	0.0006 (0.0010)	-0.0011 (0.0016)	-0.0023 (0.0021)	0.0007 (0.0010)	-0.0013 (0.0014)	-0.0026 (0.0020)	0.0007 (0.0010)	-0.0014 (0.0015)	-0.0026 (0.0021)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Figure 4 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 2. Effect of Three Strikes on primary outcomes among White births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0005 (0.0007)	0.0018 (0.0015)	0.0025 (0.0016)	0.0015 (0.0008)	0.0024 (0.0038)	0.0035 (0.0051)	0.0015 (0.0008)	0.0025 (0.0044)	0.0034 (0.0053)	0.0016 (0.0010)	0.0025 (0.0035)	0.0035 (0.0050)
Low birth weight (<2,500g)	0.0004 (0.0005)	-0.0013 (0.0010)	-0.0019 (0.0010)	-0.0015 (0.0008)	-0.0019 (0.0038)	-0.0027 (0.0051)	-0.0015 (0.0007)	-0.0020 (0.0037)	-0.0028 (0.0049)	-0.0016 (0.0008)	-0.0020 (0.0037)	-0.0028 (0.0048)
Very low birthweight (<1,500g)	0.0002 (0.0003)	-0.0001 (0.0003)	-0.0003 (0.0004)	-0.0003 (0.0004)	-0.0004 (0.0009)	-0.0011 (0.0012)	-0.0003 (0.0004)	-0.0005 (0.0009)	-0.0011 (0.0012)	-0.0004 (0.0004)	-0.0005 (0.0009)	-0.0011 (0.0012)
Weeks gestation	-0.0075 (0.0069)	0.0159 (0.0191)	0.0463 (0.0347)	0.0082 (0.0108)	0.0111 (0.0479)	0.0390 (0.0820)	0.0084 (0.0120)	0.0126 (0.0441)	0.0410 (0.0711)	0.0094 (0.0103)	0.0136 (0.0470)	0.0416 (0.0816)
Preterm birth (<37 weeks)	-0.0005 (0.0008)	-0.0027 (0.0017)	-0.0066 (0.0027)	-0.0021 (0.0011)	-0.0024 (0.0042)	-0.0058 (0.0063)	-0.0022 (0.0011)	-0.0026 (0.0045)	-0.0060 (0.0071)	-0.0023 (0.0012)	-0.0027 (0.0041)	-0.0060 (0.0061)
Very preterm (<32 weeks)	0.0000 (0.0004)	-0.0004 (0.0003)	-0.0009 (0.0004)	-0.0005 (0.0004)	-0.0004 (0.0011)	-0.0010 (0.0019)	-0.0005 (0.0004)	-0.0004 (0.0010)	-0.0010 (0.0018)	-0.0006 (0.0005)	-0.0004 (0.0010)	-0.0010 (0.0018)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Figure 4 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 3. Effect of Three Strikes on primary outcomes among Black births at selected post-treatment time points, stratified by birthing person level of education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0044 (0.0015)	-0.0030 (0.0036)	-0.0064 (0.0057)	-0.0013 (0.0019)	0.0020 (0.0038)	0.0002 (0.0042)
Low birth weight (<2,500g)	0.0045 (0.0023)	0.0023 (0.0035)	0.0083 (0.0049)	0.0018 (0.0024)	0.0002 (0.0035)	0.0051 (0.0045)
Very low birthweight (<1,500g)	0.0029 (0.0012)	0.0014 (0.0017)	0.0036 (0.0024)	-0.0005 (0.0012)	-0.0018 (0.0014)	-0.0032 (0.0021)
Weeks gestation	-0.0375 (0.0183)	0.0057 (0.0443)	-0.0011 (0.0612)	0.0166 (0.0275)	0.0577 (0.0503)	0.0701 (0.0747)
Preterm birth (<37 weeks)	0.0004 (0.0020)	-0.0034 (0.0029)	-0.0048 (0.0049)	-0.0001 (0.0035)	-0.0054 (0.0042)	-0.0108 (0.0057)
Very preterm (<32 weeks)	0.0016 (0.0012)	0.0001 (0.0018)	0.0001 (0.0021)	-0.0016 (0.0012)	-0.0032 (0.0021)	-0.0039 (0.0019)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Figure 5 for plots).. Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 4. Effect of Three Strikes on primary outcomes among white births at selected post-treatment time points, stratified by birthing person level of education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0003 (0.0008)	0.0009 (0.0019)	0.0018 (0.0028)	0.0018 (0.0009)	0.0027 (0.0040)	0.0017 (0.0053)
Low birth weight (<2,500g)	0.0002 (0.0006)	-0.0013 (0.0015)	-0.0013 (0.0021)	-0.0020 (0.0010)	-0.0019 (0.0037)	-0.0014 (0.0050)
Very low birthweight (<1,500g)	0.0000 (0.0004)	-0.0004 (0.0006)	-0.0010 (0.0009)	-0.0005 (0.0003)	-0.0005 (0.0011)	-0.0002 (0.0014)
Weeks gestation	-0.0069 (0.0094)	0.0320 (0.0251)	0.0709 (0.0425)	0.0111 (0.0109)	-0.0049 (0.0396)	-0.0066 (0.0656)
Preterm birth (<37 weeks)	-0.0001 (0.0009)	-0.0032 (0.0021)	-0.0074 (0.0031)	-0.0029 (0.0015)	-0.0015 (0.0052)	-0.0021 (0.0083)
Very preterm (<32 weeks)	-0.0001 (0.0005)	-0.0010 (0.0010)	-0.0015 (0.0016)	-0.0006 (0.0005)	-0.0003 (0.0011)	-0.0002 (0.0019)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 5 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 5. Effect of Truth in Sentencing on primary outcomes among Black births at selected post-treatment time points (using de Chaisemartin and D'Haultfœuille estimator)

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0016 (0.0011)	0.0030 (0.0030)	0.0039 (0.0043)	-0.0016 (0.0015)	0.0053 (0.0026)	0.0081 (0.0051)	-0.0014 (0.0016)	0.0057 (0.0031)	0.0082 (0.0049)	-0.0012 (0.0015)	0.0062 (0.0035)	0.0085 (0.0054)
Low birth weight (<2,500g)	0.0019 (0.0013)	-0.0024 (0.0027)	-0.0014 (0.0033)	0.0024 (0.0019)	-0.0040 (0.0029)	-0.0046 (0.0045)	0.0022 (0.0017)	-0.0039 (0.0033)	-0.0043 (0.0056)	0.0020 (0.0018)	-0.0046 (0.0032)	-0.0046 (0.0045)
Very low birthweight (<1,500g)	0.0014 (0.0005)	0.0001 (0.0011)	-0.0001 (0.0012)	0.0014 (0.0007)	-0.0017 (0.0015)	-0.0032 (0.0023)	0.0014 (0.0007)	-0.0019 (0.0012)	-0.0033 (0.0017)	0.0013 (0.0008)	-0.0021 (0.0013)	-0.0034 (0.0021)
Weeks gestation	-0.0140 (0.0116)	0.0432 (0.0254)	0.0589 (0.0414)	-0.0174 (0.0181)	0.0470 (0.0363)	0.068 (0.0571)	-0.0162 (0.0169)	0.0544 (0.0382)	0.0690 (0.0609)	-0.0141 (0.0185)	0.0615 (0.0309)	0.0726 (0.0535)
Preterm birth (<37 weeks)	0.0036 (0.0018)	-0.0064 (0.0022)	-0.0069 (0.0047)	0.0045 (0.0019)	-0.0048 (0.0030)	-0.0057 (0.0066)	0.0044 (0.0023)	-0.0052 (0.0035)	-0.0056 (0.0071)	0.0042 (0.0020)	-0.0061 (0.0031)	-0.0060 (0.0062)
Very preterm (<32 weeks)	0.0014 (0.0007)	-0.0012 (0.0009)	-0.0013 (0.0009)	0.0015 (0.0011)	-0.0014 (0.0015)	-0.0019 (0.0017)	0.0015 (0.0010)	-0.0016 (0.0012)	-0.0020 (0.0018)	0.0014 (0.0010)	-0.0019 (0.0014)	-0.0021 (0.0019)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Figure 6 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 6. Effect of Truth in Sentencing on primary outcomes among white births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	0.0009 (0.0005)	-0.0013 (0.0016)	-0.0027 (0.002)	0.0001 (0.0008)	-0.0011 (0.0031)	-0.0025 (0.0039)	0.0001 (0.0008)	-0.0009 (0.0030)	-0.0023 (0.0039)	0.0001 (0.0008)	-0.0008 (0.0032)	-0.0022 (0.0041)
Low birth weight (<2,500g)	0.0004 (0.0002)	-0.0005 (0.0008)	-0.0006 (0.0009)	0.0002 (0.0004)	-0.0007 (0.0009)	-0.0012 (0.0011)	0.0002 (0.0004)	-0.0006 (0.0009)	-0.0011 (0.0011)	0.0002 (0.0003)	-0.0005 (0.0009)	-0.0009 (0.0011)
Very low birthweight (<1,500g)	-0.0110 (0.0066)	0.0288 (0.0253)	0.0664 (0.0369)	-0.0045 (0.0099)	0.0181 (0.0356)	0.0500 (0.0606)	-0.0046 (0.0102)	0.0162 (0.0341)	0.0483 (0.0525)	-0.0047 (0.0090)	0.0123 (0.0351)	0.0440 (0.0514)
Weeks gestation	0.0005 (0.0006)	-0.0045 (0.0018)	-0.0091 (0.0027)	0.0001 (0.0011)	-0.0030 (0.0033)	-0.0071 (0.0048)	0.0001 (0.0011)	-0.0028 (0.0031)	-0.0069 (0.0044)	0.0001 (0.0011)	-0.0026 (0.0036)	-0.0067 (0.0050)
Preterm birth (<37 weeks)	0.0006 (0.0003)	-0.001 (0.0008)	-0.0016 (0.001)	0.0004 (0.0004)	-0.0010 (0.0011)	-0.0023 (0.0014)	0.0004 (0.0004)	-0.0010 (0.0010)	-0.0022 (0.0014)	0.0004 (0.0005)	-0.0009 (0.0011)	-0.0021 (0.0015)
Very preterm (<32 weeks)	-0.0011 (0.0023)	-0.0031 (0.0051)	-0.0175 (0.0095)	0.0022 (0.0039)	-0.0051 (0.0101)	-0.0240 (0.0134)	0.0022 (0.0045)	-0.0055 (0.0103)	-0.0242 (0.0124)	0.0023 (0.0042)	-0.0041 (0.0100)	-0.0227 (0.0132)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 5 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 7. Effect of Truth in Sentencing on primary outcomes among Black births at selected post-treatment time points, stratified by birthing person level of education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0020 (0.0019)	0.0024 (0.0030)	0.0054 (0.0048)	-0.0017 (0.0023)	0.0079 (0.0034)	0.0093 (0.0047)
Low birth weight (<2,500g)	0.0025 (0.0018)	-0.0011 (0.0036)	-0.0006 (0.0053)	0.0031 (0.0023)	-0.0046 (0.0035)	-0.0057 (0.0041)
Very low birthweight (<1,500g)	0.0018 (0.0013)	-0.0010 (0.0019)	-0.0027 (0.0024)	0.0020 (0.0013)	-0.0007 (0.0018)	-0.0013 (0.0020)
Weeks gestation	-0.0246 (0.0191)	0.0123 (0.0338)	0.0151 (0.0571)	-0.0189 (0.0225)	0.0772 (0.0390)	0.0974 (0.0499)
Preterm birth (<37 weeks)	0.0055 (0.0022)	-0.0005 (0.0029)	0.0015 (0.0055)	0.0041 (0.0037)	-0.0072 (0.0043)	-0.0106 (0.0066)
Very preterm (<32 weeks)	0.0016 (0.0012)	-0.0005 (0.0016)	-0.0010 (0.0021)	0.0022 (0.0013)	-0.0021 (0.0023)	-0.0020 (0.0026)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Figure 7 for plots). Each panel-row represents a separate regression.
[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 8. Effect of Truth in Sentencing on primary outcomes among white births at selected post-treatment time points, stratified by birthing person level of education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0002 (0.0011)	0.0007 (0.0040)	0.0007 (0.0048)	-0.0008 (0.0009)	0.0010 (0.0020)	0.0004 (0.0028)
Low birth weight (<2,500g)	0.0004 (0.0010)	0.0004 (0.0034)	0.0000 (0.0045)	0.0008 (0.0007)	-0.0003 (0.0017)	-0.0005 (0.0020)
Very low birthweight (<1,500g)	0.0004 (0.0005)	-0.0004 (0.0014)	-0.0004 (0.0016)	0.0003 (0.0003)	0.0001 (0.0007)	0.0001 (0.0011)
Weeks gestation	-0.0135 (0.0122)	-0.0062 (0.0368)	0.0132 (0.0492)	-0.0052 (0.0108)	0.0282 (0.0231)	0.0465 (0.0379)
Preterm birth (<37 weeks)	0.0003 (0.0013)	-0.0015 (0.0042)	-0.0048 (0.0056)	0.0008 (0.0012)	-0.0024 (0.0023)	-0.0049 (0.0027)
Very preterm (<32 weeks)	0.0007 (0.0006)	-0.0006 (0.0011)	-0.0012 (0.0016)	0.0007 (0.0006)	0.0001 (0.0012)	-0.0004 (0.0016)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix. Figure 6 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 9. Effect of Three Strikes on primary outcomes among Black births at selected post-treatment time points (with state linear trends)

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0014 (0.0012)	0.0066 (0.0095)	0.0112 (0.0179)	-0.0033 (0.0013)	-0.0017 (0.0042)	-0.0021 (0.0073)	-0.0034 (0.0013)	-0.0013 (0.0043)	-0.0016 (0.0067)	-0.0035 (0.0012)	-0.0005 (0.0038)	-0.0005 (0.0071)
Low birth weight (<2,500g)	0.0026 (0.0017)	0.0006 (0.0113)	0.0055 (0.0219)	0.0041 (0.0023)	0.0034 (0.0052)	0.0107 (0.0093)	0.0042 (0.0023)	0.0033 (0.0042)	0.0106 (0.0081)	0.0042 (0.0022)	0.0024 (0.0049)	0.0094 (0.0090)
Very low birthweight (<1,500g)	0.0004 (0.0013)	-0.0061 (0.0071)	-0.0102 (0.0144)	0.0017 (0.0008)	0.0008 (0.0027)	0.0010 (0.0048)	0.0018 (0.0008)	0.0008 (0.0028)	0.0009 (0.0048)	0.0018 (0.0009)	0.0004 (0.0026)	0.0004 (0.0050)
Weeks gestation	-0.0121 (0.0256)	0.0203 (0.1408)	0.0167 (0.2564)	-0.0177 (0.0201)	0.0206 (0.0458)	0.0164 (0.0848)	-0.0191 (0.0218)	0.0225 (0.0594)	0.0206 (0.0927)	-0.0187 (0.0193)	0.0308 (0.0535)	0.0307 (0.0931)
Preterm birth (<37 weeks)	-0.0019 (0.0024)	-0.0083 (0.0121)	-0.0160 (0.0227)	-0.0003 (0.0022)	-0.0043 (0.0058)	-0.0077 (0.0107)	-0.0002 (0.0024)	-0.0047 (0.0061)	-0.0084 (0.0117)	-0.0004 (0.0027)	-0.0063 (0.0058)	-0.0102 (0.0113)
Very preterm (<32 weeks)	0.0002 (0.0010)	-0.0014 (0.0053)	-0.0020 (0.0109)	0.0007 (0.0010)	0.0004 (0.0027)	0.0006 (0.0054)	0.0008 (0.0010)	0.0003 (0.0028)	0.0004 (0.0057)	0.0008 (0.0011)	-0.0002 (0.0034)	-0.0002 (0.0065)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 7 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 10. Effect of Three Strikes on primary outcomes among White births at selected post-treatment time points (with state linear trends)

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0042 (0.0029)	-0.0165 (0.0142)	-0.036 (0.0284)	0.0023 (0.0014)	0.0072 (0.0059)	0.0130 (0.0091)	0.0023 (0.0013)	0.0073 (0.0058)	0.0129 (0.0085)	0.0025 (0.0015)	0.0078 (0.0069)	0.0138 (0.0099)
Low birth weight (<2,500g)	0.0043 (0.0031)	0.0192 (0.0155)	0.0406 (0.0300)	-0.0021 (0.0013)	-0.0057 (0.0063)	-0.0102 (0.0099)	-0.0021 (0.0012)	-0.0058 (0.0056)	-0.0103 (0.0089)	-0.0023 (0.0012)	-0.0063 (0.0062)	-0.0111 (0.0099)
Very low birthweight (<1,500g)	0.0014 (0.0013)	0.0055 (0.0063)	0.0117 (0.0117)	-0.0007 (0.0004)	-0.0022 (0.0019)	-0.0044 (0.0032)	-0.0007 (0.0004)	-0.0023 (0.0019)	-0.0044 (0.0033)	-0.0007 (0.0004)	-0.0025 (0.0020)	-0.0047 (0.0035)
Weeks gestation	-0.0400 (0.0310)	-0.1352 (0.1606)	-0.2815 (0.2934)	0.0209 (0.0154)	0.0852 (0.0609)	0.1780 (0.1164)	0.0215 (0.0140)	0.0869 (0.0664)	0.1799 (0.1237)	0.0237 (0.0152)	0.0971 (0.0749)	0.1956 (0.1379)
Preterm birth (<37 weeks)	0.0030 (0.0026)	0.0144 (0.0148)	0.0297 (0.0274)	-0.0027 (0.0015)	-0.0061 (0.0062)	-0.0126 (0.0110)	-0.0028 (0.0017)	-0.0063 (0.0066)	-0.0129 (0.0116)	-0.0029 (0.0017)	-0.0067 (0.0065)	-0.0134 (0.0110)
Very preterm (<32 weeks)	0.0011 (0.0014)	0.0040 (0.0071)	0.0093 (0.0130)	-0.0010 (0.0004)	-0.0029 (0.0021)	-0.0056 (0.0042)	-0.0010 (0.0005)	-0.0029 (0.0021)	-0.0056 (0.0039)	-0.0010 (0.0004)	-0.0031 (0.0020)	-0.0059 (0.0038)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 7 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 11. Effect of Three Strikes on primary outcomes among Black births at selected post-treatment time points, stratified by birthing person level of education (with state linear trends)

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0045 (0.0014)	-0.0035 (0.0045)	-0.0067 (0.0081)	-0.0008 (0.0022)	0.0073 (0.0072)	0.0096 (0.0113)
Low birth weight (<2,500g)	0.0049 (0.0026)	0.0027 (0.0051)	0.0074 (0.0094)	0.0025 (0.0027)	-0.0007 (0.0098)	0.0079 (0.0176)
Very low birthweight (<1,500g)	0.0029 (0.0011)	0.0015 (0.0027)	0.0032 (0.0048)	-0.0004 (0.0016)	-0.0033 (0.0045)	-0.0045 (0.0090)
Weeks gestation	-0.0401 (0.0205)	-0.0037 (0.0634)	-0.0127 (0.1130)	0.0257 (0.0261)	0.1440 (0.0821)	0.2126 (0.1246)
Preterm birth (<37 weeks)	0.0005 (0.0022)	-0.0034 (0.0059)	-0.0058 (0.0131)	-0.0010 (0.0037)	-0.0141 (0.0115)	-0.0262 (0.0199)
Very preterm (<32 weeks)	0.0017 (0.0012)	0.0010 (0.0032)	0.0003 (0.0051)	-0.0015 (0.0013)	-0.0042 (0.0037)	-0.0041 (0.0060)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 8 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 12. Effect of Three Strikes on primary outcomes among White births at selected post-treatment time points, stratified by birthing person level of education (using de Chaisemartin and D'Haultfœuille estimator with state linear trends)

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	0.0027 (0.0017)	0.0070 (0.0068)	0.0096 (0.0097)	0.0008 (0.0009)	0.0083 (0.0045)	0.0156 (0.0081)
Low birth weight (<2,500g)	-0.0026 (0.0017)	-0.0049 (0.0066)	-0.0071 (0.0105)	-0.0006 (0.0008)	-0.0068 (0.0037)	-0.0112 (0.0060)
Very low birthweight (<1,500g)	-0.0008 (0.0006)	-0.0017 (0.0024)	-0.0022 (0.0044)	-0.0004 (0.0005)	-0.0033 (0.0020)	-0.0061 (0.0035)
Weeks gestation	0.0205 (0.0152)	0.0488 (0.0601)	0.0859 (0.1118)	0.0035 (0.0097)	0.1083 (0.0476)	0.2092 (0.0885)
Preterm birth (<37 weeks)	-0.0032 (0.0019)	-0.0042 (0.0073)	-0.0069 (0.0135)	-0.0008 (0.0011)	-0.0087 (0.0039)	-0.0171 (0.0067)
Very preterm (<32 weeks)	-0.0007 (0.0005)	-0.0011 (0.0025)	-0.0014 (0.0048)	-0.0009 (0.0006)	-0.0067 (0.003)	-0.0116 (0.0050)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 9 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 13. Effect of Truth in Sentencing on primary outcomes among Black births at selected post-treatment time points (with state linear trends)

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	0.0004 (0.0016)	0.0239 (0.0160)	0.0399 (0.0306)	-0.0012 (0.0012)	0.0126 (0.0062)	0.0204 (0.0119)	-0.0010 (0.0012)	0.0137 (0.0066)	0.0216 (0.0123)	-0.0007 (0.0013)	0.0147 (0.0059)	0.0228 (0.0116)
Low birth weight (<2,500g)	0.0006 (0.0022)	-0.0221 (0.0212)	-0.0337 (0.0396)	0.0023 (0.0020)	-0.0099 (0.0076)	-0.0140 (0.0149)	0.0021 (0.0024)	-0.0103 (0.0081)	-0.0143 (0.0148)	0.0019 (0.0018)	-0.0112 (0.0078)	-0.0154 (0.0137)
Very low birthweight (<1,500g)	-0.0002 (0.0011)	-0.0145 (0.0101)	-0.0261 (0.0185)	0.0010 (0.0007)	-0.0072 (0.0034)	-0.0131 (0.0062)	0.0009 (0.0007)	-0.0079 (0.0033)	-0.0137 (0.0065)	0.0008 (0.0008)	-0.0083 (0.0037)	-0.0142 (0.0064)
Weeks gestation	-0.0093 (0.0211)	0.1605 (0.1817)	0.2427 (0.3298)	-0.0210 (0.0202)	0.0579 (0.0733)	0.0763 (0.1324)	-0.0192 (0.0187)	0.0730 (0.0801)	0.0902 (0.1351)	-0.0165 (0.0201)	0.0844 (0.0828)	0.1036 (0.1446)
Preterm birth (<37 weeks)	0.0024 (0.0027)	-0.0245 (0.0201)	-0.0367 (0.0384)	0.0048 (0.0027)	-0.0081 (0.0086)	-0.0107 (0.0179)	0.0046 (0.0023)	-0.0092 (0.0091)	-0.0115 (0.0177)	0.0043 (0.0023)	-0.0108 (0.0079)	-0.0133 (0.0165)
Very preterm (<32 weeks)	0.0008 (0.0009)	-0.0077 (0.0078)	-0.0117 (0.0141)	0.0016 (0.0009)	-0.0025 (0.0036)	-0.0029 (0.0066)	0.0015 (0.0011)	-0.0031 (0.0033)	-0.0035 (0.0060)	0.0014 (0.0010)	-0.0037 (0.0032)	-0.0043 (0.0060)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 10 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 14. Effect of Truth in Sentencing on primary outcomes among White births at selected post-treatment time points (with state linear trends)

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0031 (0.0029)	-0.0065 (0.0161)	-0.016 (0.0322)	0.0006 (0.0011)	0.0054 (0.0050)	0.0101 (0.0075)	0.0006 (0.0011)	0.0051 (0.0047)	0.0099 (0.0079)	0.0007 (0.0011)	0.0054 (0.0043)	0.0103 (0.0069)
Low birth weight (<2,500g)	0.0031 (0.0028)	0.0081 (0.0148)	0.0184 (0.0300)	-0.0004 (0.0012)	-0.0038 (0.0044)	-0.0084 (0.0066)	-0.0004 (0.0009)	-0.0036 (0.0041)	-0.0083 (0.0067)	-0.0004 (0.0010)	-0.0037 (0.0041)	-0.0085 (0.0068)
Very low birthweight (<1,500g)	0.0009 (0.0010)	0.0000 (0.0058)	0.0017 (0.0109)	0.0000 (0.0005)	-0.0021 (0.0016)	-0.0041 (0.0027)	0.0000 (0.0004)	-0.0020 (0.0015)	-0.0041 (0.0026)	0.0000 (0.0004)	-0.0020 (0.0015)	-0.0041 (0.0025)
Weeks gestation	-0.0256 (0.0245)	-0.0022 (0.1462)	-0.0111 (0.2732)	0.0000 (0.0127)	0.0512 (0.0408)	0.1288 (0.0787)	-0.0001 (0.0150)	0.0477 (0.0479)	0.1258 (0.0898)	0.0003 (0.0121)	0.0445 (0.0421)	0.1206 (0.0779)
Preterm birth (<37 weeks)	0.0022 (0.0023)	-0.0003 (0.0145)	0.0016 (0.0284)	-0.0002 (0.0012)	-0.0054 (0.0038)	-0.0126 (0.0069)	-0.0002 (0.0013)	-0.0051 (0.0034)	-0.0124 (0.0061)	-0.0002 (0.0014)	-0.0049 (0.0043)	-0.0122 (0.0073)
Very preterm (<32 weeks)	0.0009 (0.0013)	-0.0024 (0.0083)	-0.0029 (0.0154)	0.0001 (0.0005)	-0.0030 (0.0014)	-0.0064 (0.0027)	0.0001 (0.0004)	-0.0029 (0.0015)	-0.0063 (0.0029)	0.0001 (0.0005)	-0.0029 (0.0014)	-0.0063 (0.0026)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 10 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 15. Effect of Truth in Sentencing on primary outcomes among Black births at selected post-treatment time points, stratified by birthing person education (with state linear trends)

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0016 (0.0014)	0.0093 (0.0052)	0.0165 (0.0105)	-0.0008 (0.0025)	0.0199 (0.0081)	0.0292 (0.0145)
Low birth weight (<2,500g)	0.0026 (0.0022)	-0.0060 (0.0060)	-0.0075 (0.0121)	0.0022 (0.0025)	-0.0168 (0.0104)	-0.0254 (0.0188)
Very low birthweight (<1,500g)	0.0013 (0.0011)	-0.0068 (0.0033)	-0.0126 (0.0059)	0.0017 (0.0012)	-0.0049 (0.0039)	-0.0082 (0.0069)
Weeks gestation	-0.0299 (0.0208)	0.0221 (0.0668)	0.0222 (0.1128)	-0.0109 (0.0228)	0.1705 (0.1158)	0.2406 (0.1968)
Preterm birth (<37 weeks)	0.0059 (0.0028)	-0.0039 (0.0081)	-0.0043 (0.0146)	0.0030 (0.0029)	-0.0204 (0.0176)	-0.0312 (0.0298)
Very preterm (<32 weeks)	0.0016 (0.0012)	-0.0021 (0.0034)	-0.0026 (0.0063)	0.0021 (0.0017)	-0.0044 (0.0041)	-0.0053 (0.0066)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 11 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 16. Effect of Truth in Sentencing on primary outcomes among White births at selected post-treatment time points, stratified by birthing person education (with state linear trends)

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	0.0006 (0.0014)	0.0054 (0.0058)	0.0109 (0.0083)	-0.0009 (0.0010)	0.0013 (0.0045)	0.0027 (0.0077)
Low birth weight (<2,500g)	-0.0003 (0.0014)	-0.0031 (0.0052)	-0.0079 (0.0085)	0.0009 (0.0009)	-0.0005 (0.0037)	-0.0017 (0.0063)
Very low birthweight (<1,500g)	0.0000 (0.0005)	-0.0024 (0.0016)	-0.0046 (0.0028)	0.0002 (0.0004)	-0.0010 (0.0014)	-0.0022 (0.0025)
Weeks gestation	-0.0063 (0.0160)	0.0373 (0.0497)	0.1138 (0.0981)	-0.0085 (0.0141)	0.0156 (0.0496)	0.0416 (0.0785)
Preterm birth (<37 weeks)	-0.0003 (0.0018)	-0.0061 (0.0048)	-0.0150 (0.0087)	0.0012 (0.0014)	-0.0010 (0.0046)	-0.0032 (0.0076)
Very preterm (<32 weeks)	0.0004 (0.0006)	-0.0029 (0.0019)	-0.0059 (0.0033)	0.0004 (0.0007)	-0.0023 (0.0025)	-0.0052 (0.0046)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 12 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 17. Effect of Three Strikes on birthing person characteristics at selected post-treatment time points

Birthing person race	Black			White		
Post-treatment time point	0	5	9	0	5	9
Birthing person age	-0.0092	-0.0659	-0.0579	0.0015	0.0437	0.0853
	(0.0251)	(0.0886)	(0.1356)	(0.0157)	(0.0850)	(0.1064)
Birthing person marital status	0.0103	0.0007	0.0061	0.0116	0.0258	0.0372
	(0.0105)	(0.0154)	(0.0226)	(0.0079)	(0.0173)	(0.0241)
Parity, 1	0.0009	-0.006	-0.0157	-0.0011	-0.0047	-0.0085
	(0.0026)	(0.0100)	(0.0128)	(0.0016)	(0.0050)	(0.0063)
Parity, 2	-0.0014	-0.0009	-0.0016	-0.0001	-0.0002	0.0030
	(0.0014)	(0.0026)	(0.0032)	(0.0009)	(0.0018)	(0.0026)
Parity, ≥3	0.0005	0.0069	0.0173	0.0012	0.0049	0.0055
	(0.0033)	(0.0123)	(0.0152)	(0.0012)	(0.0045)	(0.0077)
≤High School Education	-0.0033	-0.0041	-0.0108	0.0011	-0.0021	0.0004
	(0.0021)	(0.0074)	(0.0094)	(0.0025)	(0.0076)	(0.0110)

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, of balancing tests in tabular form (see Appendix Figure 13 for plots). Each panel-row represents a separate regression.

Appendix Table 18. Effect of Truth in Sentencing on birthing person characteristics at selected post-treatment time points

Birthing person race	Black			White		
Post-treatment time point	0	5	9	0	5	9
Birthing person age	0.0012 (0.0241)	0.0300 (0.0788)	0.0626 (0.1260)	0.0080 (0.0161)	0.1096 (0.0890)	0.1209 (0.1162)
Birthing person marital status	0.0018 (0.0083)	0.0204 (0.0194)	0.0327 (0.0285)	0.0029 (0.0071)	0.0280 (0.0195)	0.0403 (0.0275)
Parity, 1	0.0019 (0.0019)	0.0126 (0.0067)	0.0183 (0.0116)	-0.0003 (0.0012)	0.0009 (0.0050)	0.0070 (0.0090)
Parity, 2	-0.0008 (0.0015)	0.0018 (0.0028)	0.0042 (0.0046)	0.0008 (0.0008)	-0.0010 (0.0018)	0.0010 (0.0031)
Parity, ≥3	-0.0011 (0.0020)	-0.0145 (0.0086)	-0.0225 (0.0147)	-0.0005 (0.0013)	0.0001 (0.0046)	-0.0079 (0.0088)
≤High School Education	-0.0020 (0.0024)	-0.0080 (0.0083)	-0.0165 (0.0114)	-0.0005 (0.0021)	-0.0085 (0.0081)	-0.0123 (0.0132)

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 14 for plots). Each panel-row represents a separate regression.

Appendix Table 19. Effect of Three Strikes on primary outcomes among non-Hispanic Black births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0024 (0.0010)	-0.0011 (0.0026)	-0.0030 (0.0042)	-0.0025 (0.0010)	-0.0007 (0.0031)	-0.0023 (0.0049)	-0.0026 (0.0010)	0.0000 (0.0033)	-0.0013 (0.0053)	-0.0029 (0.0009)	0.0002 (0.0033)	-0.0010 (0.0053)
Low birth weight (<2,500g)	0.0021 (0.0013)	0.0015 (0.0024)	0.0047 (0.0031)	0.0031 (0.0016)	0.0025 (0.0032)	0.0063 (0.0045)	0.0032 (0.0015)	0.0021 (0.0029)	0.0057 (0.0041)	0.0034 (0.0018)	0.0018 (0.0033)	0.0054 (0.0051)
Very low birthweight (<1,500g)	0.0012 (0.0006)	-0.0001 (0.0009)	-0.0002 (0.0010)	0.0013 (0.0007)	0.0002 (0.0013)	-0.0002 (0.0022)	0.0013 (0.0006)	0.0001 (0.0013)	-0.0004 (0.0021)	0.0014 (0.0006)	0.0000 (0.0014)	-0.0005 (0.0020)
Weeks gestation	-0.0060 (0.0120)	0.0170 (0.0269)	0.0181 (0.0552)	-0.0083 (0.0174)	0.0289 (0.0321)	0.0333 (0.0612)	-0.0090 (0.0158)	0.0347 (0.0314)	0.0438 (0.0634)	-0.0130 (0.0158)	0.0397 (0.0343)	0.0486 (0.0597)
Preterm birth (<37 weeks)	-0.0014 (0.0018)	-0.0028 (0.0023)	-0.0050 (0.0048)	-0.0014 (0.0022)	-0.0052 (0.0024)	-0.0075 (0.0052)	-0.0013 (0.0018)	-0.0055 (0.0024)	-0.0082 (0.0049)	-0.0014 (0.0021)	-0.0062 (0.0025)	-0.0082 (0.0045)
Very preterm (<32 weeks)	0.0002 (0.0009)	-0.0009 (0.0008)	-0.0017 (0.0011)	0.0002 (0.0009)	-0.0009 (0.0014)	-0.0016 (0.0019)	0.0003 (0.0008)	-0.0011 (0.0015)	-0.0021 (0.0022)	0.0004 (0.0008)	-0.0013 (0.0015)	-0.0022 (0.0025)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 15 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 20. Effect of Three Strikes on primary outcomes among non-Hispanic White births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0002 (0.0004)	-0.0013 (0.0007)	-0.0019 (0.0009)	-0.0004 (0.0004)	-0.0009 (0.0009)	-0.0015 (0.0012)	-0.0005 (0.0004)	-0.0012 (0.0010)	-0.0021 (0.0015)	-0.0005 (0.0004)	-0.0012 (0.0011)	-0.0020 (0.0018)
Low birth weight (<2,500g)	0.0000 (0.0002)	-0.0002 (0.0002)	-0.0006 (0.0002)	-0.0001 (0.0002)	-0.0004 (0.0005)	-0.0011 (0.0006)	-0.0001 (0.0003)	-0.0004 (0.0003)	-0.0012 (0.0006)	-0.0001 (0.0003)	-0.0004 (0.0004)	-0.0012 (0.0006)
Very low birthweight (<1,500g)	-0.0021 (0.0059)	0.0219 (0.0179)	0.0422 (0.0338)	-0.0028 (0.0080)	0.0187 (0.0218)	0.0531 (0.0381)	-0.0020 (0.0076)	0.0228 (0.0217)	0.0615 (0.0413)	-0.0037 (0.0092)	0.0227 (0.0239)	0.0598 (0.0453)
Weeks gestation	-0.0008 (0.0006)	-0.0025 (0.0014)	-0.0052 (0.0026)	-0.0006 (0.0007)	-0.0018 (0.0011)	-0.0047 (0.0021)	-0.0007 (0.0007)	-0.0023 (0.0014)	-0.0055 (0.0020)	-0.0007 (0.0007)	-0.0023 (0.0015)	-0.0053 (0.0022)
Preterm birth (<37 weeks)	-0.0002 (0.0004)	-0.0007 (0.0003)	-0.0010 (0.0004)	-0.0002 (0.0004)	-0.0008 (0.0005)	-0.0014 (0.0007)	-0.0002 (0.0003)	-0.0008 (0.0005)	-0.0016 (0.0007)	-0.0002 (0.0004)	-0.0008 (0.0006)	-0.0015 (0.0008)
Very preterm (<32 weeks)	-0.0005 (0.0022)	0.0013 (0.0051)	-0.0014 (0.0074)	0.0008 (0.0034)	-0.0007 (0.0061)	-0.0112 (0.0108)	0.0007 (0.0032)	-0.0011 (0.0061)	-0.0116 (0.0130)	0.0010 (0.0038)	-0.0010 (0.0066)	-0.0116 (0.0126)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 15 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 21. Effect of Three Strikes on primary outcomes among non-Hispanic Black births at selected post-treatment time points, stratified by birthing person level of education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0031 (0.0012)	-0.0011 (0.0036)	-0.0023 (0.0055)	-0.0021 (0.0020)	0.0022 (0.0035)	0.0015 (0.0039)
Low birth weight (<2,500g)	0.0029 (0.0016)	0.0018 (0.0032)	0.0055 (0.0048)	0.0030 (0.0021)	0.0014 (0.0031)	0.0046 (0.0040)
Very low birthweight (<1,500g)	0.0019 (0.0009)	0.0008 (0.0013)	0.0009 (0.0023)	0.0000 (0.0012)	-0.0015 (0.0016)	-0.0029 (0.0021)
Weeks gestation	-0.0218 (0.0140)	0.0091 (0.0359)	0.0062 (0.0583)	0.0133 (0.0250)	0.0552 (0.0395)	0.0798 (0.0622)
Preterm birth (<37 weeks)	-0.0014 (0.0020)	-0.0045 (0.0029)	-0.0069 (0.0050)	0.0000 (0.0033)	-0.0044 (0.0034)	-0.0102 (0.0061)
Very preterm (<32 weeks)	0.0009 (0.0010)	-0.0004 (0.0015)	-0.0013 (0.0022)	-0.0012 (0.0014)	-0.0028 (0.0018)	-0.0039 (0.0023)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 16 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 22. Effect of Three Strikes on primary outcomes among non-Hispanic White births at selected post-treatment time points, stratified by birthing person level of education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0001 (0.0005)	0.0005 (0.0016)	0.0024 (0.0023)	0.0008 (0.0007)	0.0028 (0.0020)	0.0029 (0.0032)
Low birth weight (<2,500g)	0.0001 (0.0005)	-0.0005 (0.0011)	-0.0008 (0.0015)	-0.0012 (0.0006)	-0.0012 (0.0016)	-0.0020 (0.0022)
Very low birthweight (<1,500g)	-0.0001 (0.0003)	-0.0001 (0.0003)	-0.0009 (0.0005)	-0.0004 (0.0003)	-0.0007 (0.0006)	-0.0006 (0.0008)
Weeks gestation	-0.0038 (0.0079)	0.0243 (0.0204)	0.0669 (0.0354)	0.0082 (0.0090)	0.0185 (0.0272)	0.0253 (0.0455)
Preterm birth (<37 weeks)	-0.0003 (0.0009)	-0.0024 (0.0015)	-0.0062 (0.0023)	-0.0016 (0.0010)	-0.0017 (0.0021)	-0.0021 (0.0035)
Very preterm (<32 weeks)	-0.0002 (0.0004)	-0.0005 (0.0004)	-0.0011 (0.0005)	-0.0006 (0.0005)	-0.0011 (0.0007)	-0.0009 (0.0011)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 17). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 23. Effect of Truth in Sentencing on primary outcomes among non-Hispanic Black births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0017 (0.0010)	0.0025 (0.0027)	0.0043 (0.0039)	-0.0005 (0.0012)	0.0039 (0.0027)	0.0054 (0.0042)	-0.0004 (0.0011)	0.0051 (0.0029)	0.0063 (0.0033)	-0.0003 (0.0011)	0.0056 (0.0032)	0.0066 (0.0035)
Low birth weight (<2,500g)	0.0020 (0.0011)	-0.0019 (0.0028)	-0.0021 (0.0037)	0.0009 (0.0014)	-0.0019 (0.0027)	-0.0011 (0.0038)	0.0007 (0.0014)	-0.0024 (0.0024)	-0.0013 (0.0034)	0.0006 (0.0015)	-0.0030 (0.0033)	-0.0016 (0.0040)
Very low birthweight (<1,500g)	0.0013 (0.0004)	0.0002 (0.0009)	-0.0005 (0.0009)	0.0008 (0.0005)	-0.0008 (0.0010)	-0.0015 (0.0012)	0.0008 (0.0005)	-0.0011 (0.0012)	-0.0018 (0.0014)	0.0007 (0.0007)	-0.0013 (0.0012)	-0.0019 (0.0012)
Weeks gestation	-0.0124 (0.0128)	0.0406 (0.0224)	0.0676 (0.0436)	-0.0070 (0.0160)	0.0335 (0.0318)	0.0513 (0.0482)	-0.0060 (0.0155)	0.0456 (0.0289)	0.0576 (0.0363)	-0.0027 (0.0168)	0.0557 (0.0309)	0.0632 (0.0477)
Preterm birth (<37 weeks)	0.0035 (0.0019)	-0.0057 (0.0022)	-0.0074 (0.0046)	0.0034 (0.0018)	-0.0026 (0.0036)	-0.0021 (0.0057)	0.0033 (0.0019)	-0.0034 (0.0032)	-0.0022 (0.0061)	0.0031 (0.0018)	-0.0043 (0.0029)	-0.0025 (0.0054)
Very preterm (<32 weeks)	0.0014 (0.0008)	-0.0009 (0.0010)	-0.0016 (0.0009)	0.0011 (0.0008)	-0.0009 (0.0014)	-0.0008 (0.0019)	0.0010 (0.0010)	-0.0017 (0.0015)	-0.0013 (0.0017)	0.0010 (0.0010)	-0.0019 (0.0014)	-0.0014 (0.0016)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 18 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 24. Effect of Truth in Sentencing on primary outcomes among non-Hispanic White births at selected post-treatment time points

Post-treatment time point	0	5	9	0	5	9	0	5	9	0	5	9
Birthweight (log)	-0.0004 (0.0004)	0.0028 (0.0021)	0.0045 (0.0026)	-0.0003 (0.0004)	0.0030 (0.0020)	0.0047 (0.0029)	-0.0004 (0.0005)	0.0029 (0.0022)	0.0046 (0.0031)	-0.0003 (0.0004)	0.0032 (0.0019)	0.0049 (0.0028)
Low birth weight (<2,500g)	0.0005 (0.0004)	-0.0015 (0.0017)	-0.0035 (0.0019)	0.0005 (0.0005)	-0.0011 (0.0014)	-0.0030 (0.0019)	0.0005 (0.0004)	-0.0010 (0.0014)	-0.0029 (0.0018)	0.0005 (0.0005)	-0.0012 (0.0015)	-0.0031 (0.0020)
Very low birthweight (<1,500g)	0.0002 (0.0002)	-0.0008 (0.0008)	-0.0012 (0.0010)	0.0001 (0.0002)	-0.0010 (0.0008)	-0.0015 (0.0012)	0.0001 (0.0002)	-0.0010 (0.0008)	-0.0014 (0.0011)	0.0001 (0.0003)	-0.0010 (0.0007)	-0.0015 (0.0010)
Weeks gestation	-0.0069 (0.0045)	0.0388 (0.0240)	0.0749 (0.0372)	-0.0037 (0.0084)	0.0450 (0.0262)	0.0864 (0.0441)	-0.0036 (0.0076)	0.0447 (0.0267)	0.0863 (0.0465)	-0.0033 (0.0074)	0.0458 (0.0271)	0.0872 (0.0437)
Preterm birth (<37 weeks)	0.0003 (0.0006)	-0.0051 (0.0023)	-0.0093 (0.0030)	0.0005 (0.0007)	-0.0039 (0.0017)	-0.0080 (0.0027)	0.0005 (0.0008)	-0.0038 (0.0018)	-0.0079 (0.0029)	0.0005 (0.0008)	-0.0039 (0.0018)	-0.0080 (0.0025)
Very preterm (<32 weeks)	0.0004 (0.0002)	-0.0014 (0.0008)	-0.0022 (0.0011)	0.0003 (0.0003)	-0.0014 (0.0007)	-0.0026 (0.0011)	0.0003 (0.0003)	-0.0014 (0.0009)	-0.0026 (0.0012)	0.0003 (0.0003)	-0.0015 (0.0009)	-0.0027 (0.0012)
Covariates included												
Individual Covariates[a] and Other incarceration policies				✓	✓	✓	✓	✓	✓	✓	✓	✓
State policy covariates							✓	✓	✓	✓	✓	✓
Poverty and Unemployment										✓	✓	✓

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 18 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 25. Effect of Truth in Sentencing on primary outcomes among non-Hispanic Black births at selected post-treatment time points, stratified by birthing person education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0003 (0.0012)	0.0025 (0.0031)	0.0041 (0.0049)	-0.0007 (0.0021)	0.0101 (0.0036)	0.0109 (0.0042)
Low birth weight (<2,500g)	-0.0002 (0.0012)	-0.0017 (0.0032)	-0.0005 (0.0043)	0.0021 (0.0023)	-0.0058 (0.0040)	-0.0058 (0.0043)
Very low birthweight (<1,500g)	0.0005 (0.0006)	-0.0007 (0.0014)	-0.0016 (0.0015)	0.0017 (0.0013)	-0.0011 (0.0020)	-0.0017 (0.0021)
Weeks gestation	-0.0022 (0.0141)	0.0158 (0.0284)	0.0287 (0.0432)	-0.0110 (0.0269)	0.0949 (0.0480)	0.1069 (0.0597)
Preterm birth (<37 weeks)	0.0030 (0.0018)	0.0002 (0.0040)	0.0027 (0.0064)	0.0023 (0.0027)	-0.0092 (0.0049)	-0.0110 (0.0066)
Very preterm (<32 weeks)	0.0007 (0.0009)	-0.0005 (0.0015)	-0.0009 (0.0015)	0.0019 (0.0015)	-0.0027 (0.0020)	-0.0022 (0.0023)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 19 for plots). Each panel-row represents a separate regression.

[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity

Appendix Table 26. Effect of Truth in Sentencing on primary outcomes among non-Hispanic White births at selected post-treatment time points, stratified by birthing person education

Birthing person education	≤High School			≥Some College		
Post-treatment time point	0	5	9	0	5	9
Birthweight (log)	-0.0002 (0.0006)	0.0034 (0.0024)	0.0055 (0.0034)	-0.0002 (0.0006)	0.0028 (0.0023)	0.0044 (0.0034)
Low birth weight (<2,500g)	0.0004 (0.0006)	-0.0016 (0.0019)	-0.0038 (0.0022)	0.0004 (0.0005)	-0.0009 (0.0015)	-0.0026 (0.0018)
Very low birthweight (<1,500g)	0.0002 (0.0003)	-0.0015 (0.0011)	-0.0018 (0.0015)	0.0001 (0.0002)	-0.0004 (0.0007)	-0.0007 (0.0009)
Weeks gestation	-0.0064 (0.0072)	0.0402 (0.0280)	0.0793 (0.0408)	-0.0008 (0.0062)	0.0452 (0.0233)	0.0822 (0.0407)
Preterm birth (<37 weeks)	0.0003 (0.0008)	-0.0044 (0.0021)	-0.0089 (0.0027)	0.0005 (0.0006)	-0.0037 (0.0015)	-0.0069 (0.0028)
Very preterm (<32 weeks)	0.0004 (0.0004)	-0.0019 (0.0011)	-0.0029 (0.0017)	0.0003 (0.0002)	-0.0008 (0.0006)	-0.0018 (0.0008)
Covariates included						
Individual Covariates[a] and Other incarceration policies	✓	✓	✓	✓	✓	✓
State policy covariates	✓	✓	✓	✓	✓	✓
Poverty and Unemployment						

Note: Event study estimates, using method of de Chaisemartin and D'Haultfœuille, in tabular form (see Appendix Figure 20 for plots). Each panel-row represents a separate regression.
[a] Child sex, birthing person age, birthing person education, birthing person marital status, month of birth, multiple birth, parity