**Appendix B**

*Sensitivity analysis methods*

We conductedtwo sets of sensitivity analyses for Vital Statistics analyses. First, measurement of maternal race changed in Vital Statistics beginning in 1989 and phased in during the 1990s, when Hispanic ethnicity was added. Per a-priori study plans, we kept race coding consistent for our main analyses, with women coded as Black or White, regardless of whether they report Hispanic ethnicity. For our first sensitivity analysis we explored whether race coding in Vital Statistics data may have influenced results. We conducted a sensitivity analysis using 1989-2015 birth data in which maternal Hispanic ethnicity was collected in addition to maternal race. We used a 5-category race/ethnicity variable: non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic Asian/Pacific Islander, or non-Hispanic other race/ethnicity.

Second, we explored potential effects of states’ drug use during pregnancy policies. Per a-priori study plans, alcohol/pregnancy policies were established as our main policy predictors of interest. However, most state policies that cover alcohol use during pregnancy also cover drug use, with the exception of Mandatory Warning Signs.1 Because of this overlap, it was infeasible to include both alcohol/pregnancy policies and drug/pregnancy policies in a model. Also, it was not possible to use a four-category variable (measuring whether a state had an alcohol policy only, drug policy only, alcohol and drug policy, or neither policy in effect). Instead, we conducted sensitivity analyses that estimated effects of policies that target alcohol and/or drug use (alcohol+drug/pregnancy policies) during pregnancy using all years of data (1972-2015).

In our comparisons of sensitivity analyses results with main analyses results, our main concern was identifying any associations where there is a substantive difference in relation to the overall pattern of findings, i.e. where there is a significant relationship in the opposite direction from the main analyses. We also noted places where there were changes in statistical significance from the main effects analyses, but no notable change to the magnitude of effect.

*Sensitivity analysis results*

Overall, there was only one case where a sensitivity analysis result included a relationship in an opposite direction to the overall patterns of the main analyses. While there was no statistically significant association between Child Abuse/Neglect and late prenatal care in the main analyses, in the race/ethnicity sensitivity analyses, Child Abuse/Neglect was associated with decreased late prenatal care (i.e. increased prenatal care) for high school graduates.

Other differences between sensitivity analyses and main analyses involved differences in statistical significance only; we focus here only on those where the main effects (i.e. for high school graduates) differed and not on ones where only interactions differed in statistical significance (as these differences are likely related to changes in sample size).

For supportive policies and birth outcomes, the only notable differences between sensitivity analyses and main effects analyses were that in both the alcohol+drug/pregnancy policies and the race/ethnicity sensitivity analyses, Priority Treatment for Pregnant Women and Women with Children was significantly associated with increased PTB (for high school graduates) and that in the alcohol+drug/pregnancy policies sensitivity analyses, Prohibitions on Criminal Prosecution was no longer significantly associated with PTB for high school graduates. For supportive policies and prenatal care, the main notable changes were that in the race/ethnicity sensitivity analyses, Mandatory Warning Signs was no longer associated with any PNC or late PNC for high school graduates and Prohibitions on Criminal Prosecution was now associated with late PNC for high school graduates.

For punitive policies and birth outcomes, the main notable differences between sensitivity analyses and main effects analyses were that with alcohol+drug/pregnancy policies, CPS Reporting Requirements now has a significant main effect on LBW and PTB (for high school graduates) while Child Abuse/Neglect no longer has a significant main effect for PTB. For punitive policies and prenatal care, other than the substantive difference for Child Abuse/Neglect and late PNC described above, the main notable differences are that in the race/ethnicity sensitivity analyses CPS Reporting Requirements is no longer associated with any PNC for high school graduates and that both Child Abuse/Neglect and CPS Reporting Requirements are now associated with late PNC for high school graduates.

Overall, although there were some variations in the sensitivity analyses, there were no findings that were in an opposite pattern to what was found in the main analyses. This suggests the overall interpretation of the pattern of findings is robust to key assumptions.

1. Thomas S, Treffers R, Berglas N, Drabble L, Roberts S. Drug Use during Pregnancy Policies in the United States from 1970-2016. *Contemp Drug Probl.* 2018.