Abstract.

In California, the largest state public school system in the nation, education law mandates that elementary students receive 200 minutes of physical education (PE) every ten days – the equivalent of 20 minutes per day. While the existence of this law signals the importance of PE, elementary students are the least likely to receive the mandated PE minutes. Over half of California elementary school districts do not comply with the law. We find students in noncompliant districts are less likely to meet physical fitness standards, and non-compliant districts have a higher proportion of minority and low income students than compliant districts. This paper examines whether unequal provision of PE contributes to racial/ethnic and income-related health disparities.

We use annual school-level data for all schools in California spanning 2007-08 through 2017-18 with detailed measures of students’ cardio-respiratory fitness and matched with the timing of litigation regarding physical fitness provision. We find 46 percent of California elementary school students represented among the districts were subject to PE litigation during our analysis period. We use a difference-in-difference research design exploiting the timing of PE litigation as an instrument for PE provision at the school, and thus compliance with state law. African American children exhibited the lowest levels of cardio-respiratory fitness, on average, at baseline. We find significant increases in the proportion that are in the Healthy Fitness Zone of cardio-respiratory fitness following the law suits (compared with the corresponding rates for children from those same schools prior to the PE litigation). These results hold true on average for all 5th graders, boys and girls, with larger effects for girls. The largest impacts are found for African American 5th grade children, who experienced a three percentage-point increase in the proportion that are in the Healthy Fitness Zone of cardio-respiratory fitness following the law suits. Models include school fixed effects, year fixed effects, and time-varying school-level socioeconomic factors to account for potential confounders and mitigate sources of bias. We find no evidence of positive, pre-existing time trends in cardio-respiratory fitness that could provide a counter explanation for the results. Placebo tests show, as expected, no detectable effects for middle school and high school students where these law suits did not apply and where changes in PE provision did not occur. Similar results are also found when we restrict the analysis to the past five years. The evidence indicates unequal provision of PE contributes to racial disparities in cardio-respiratory fitness for elementary school students, which may portend childhood obesity risks in the future.