Can synthetic controls improve causal inference in interrupted time series evaluations of public health interventions?

**Supplementary File**

**Table S1.** Additional state characteristics used as predictors and special predictors in the synthetic control model

|  |  |  |
| --- | --- | --- |
| **State characteristic** | **Data collection intervals** | **Source** |
| Population demographics: proportion over 15y,15-24y, Hispanic, Black or African American, >25y with a bachelor’s degree;) | Year | U.S. Census Bureau |
| Unemployment rates (adjusted) | Month | U.S. Bureau of Labor Statistics |
| Personal income per capita | Year | U.S. Bureau of Economic Analysis |
| Number of people living in poverty | Year | U.S. Census Bureau |
| Gallons of ethanol consumption | Year | National Institute on Alcohol Abuse and Alcoholism |
| Suicide rates and firearm suicide rates (per 100,000 population) | Month | CDC WONDER |
| Burglary and robbery rates (per 100,000 population) | Year | FBI Uniform Crime Reports |
| Incarceration rates (per 100,000 population) | Year | U.S. Department of Justice |
| Sworn police officers (per 1,000 population) | Every 4 years (from 2000) | FBI Uniform Crime Reports |
| Number of paid hunting license holders | Year | U.S. Fish and Wildlife Service |
| Proportion of Republican votes out of total voters | Every 4 years (from 2000) | U.S. Federal Election Commission |
| Urbanicity: population density, number of people living in metropolitan statistical areas, percentage of the population living in urban areas | Every 10 years (from 2000) | U.S. Census Bureau |

**Table S2.** Identified weights for the synthetic control matched on homicide rates

|  |  |  |
| --- | --- | --- |
| **Comparison states in donor pool** | **State abbreviation** | **Weights based on homicide rates**  **(x 100,000 population)** |
| Arkansas | AR | 0.25 |
| Connecticut | CT | 0.00 |
| Delaware | DE | 0.00 |
| Hawaii | HI | 0.06 |
| Iowa | IA | 0.00 |
| Maine | ME | 0.00 |
| Maryland | MD | 0.00 |
| Massachusetts | MA | 0.00 |
| Nebraska | NE | 0.00 |
| New Jersey | NJ | 0.04 |
| New York | NY | 0.56 |
| North Dakota | ND | 0.00 |
| Ohio | OH | 0.06 |
| Rhode Island | RI | 0.00 |
| Wyoming | WY | 0.04 |

Note. Comparison states were identified as states that had not enacted SYG laws by statue or that had set the legal precedent through case law.