

## Supplemental Online Content

Acharya B, Dhakal C. Implementation of state vaccine incentive lottery programs and uptake of COVID-19 vaccinations in the United States. *JAMA Netw Open*. 2021;4(12):e2138238. doi:10.1001/jamanetworkopen.2021.38238

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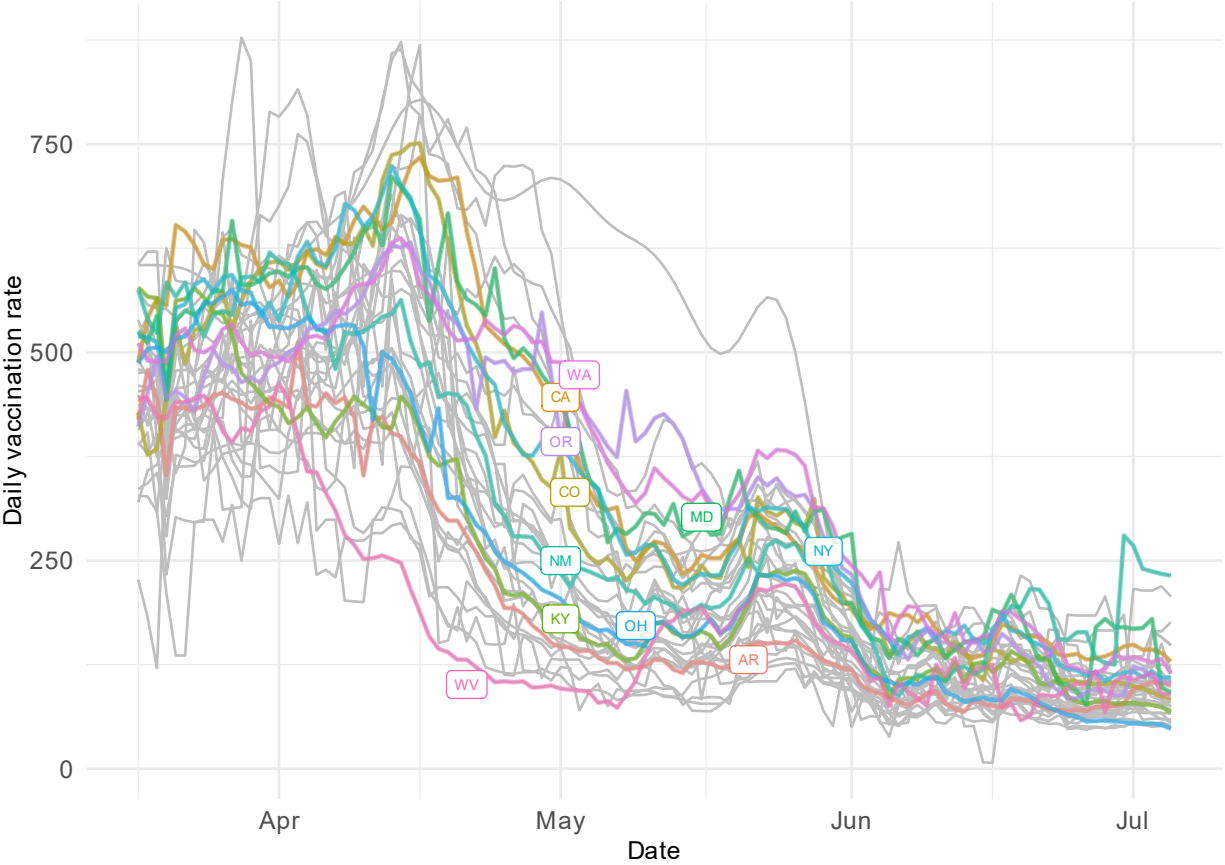
**eFigure 7.** Gap Plots From Sensitivity Analysis

This supplemental material has been provided by the authors to give readers additional information about their work.

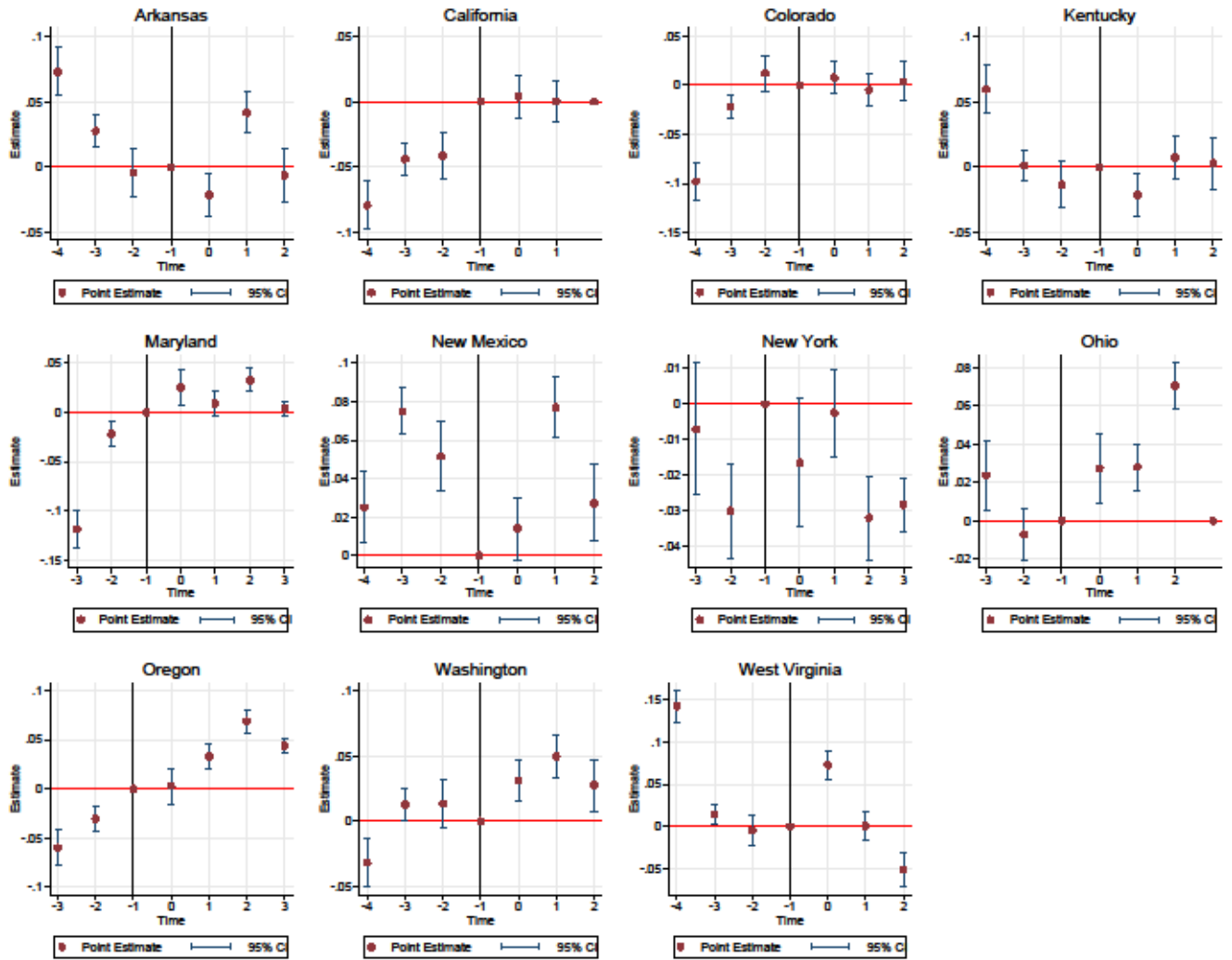
**eTable 1. Announcement Dates of Lottery-Incentive Programs for COVID-19 Vaccinations in the United States**

| State          | Announcement Date | Included in Analysis | If excluded in analysis, reasons(s)                     |
|----------------|-------------------|----------------------|---|
| Arkansas       | 5/26/21           | Yes                  |   |
| California     | 5/27/21           | Yes                  |   |
| Colorado       | 5/25/21           | Yes                  |   |
| Delaware       | 5/25/21           | No                   | State has implemented smaller prizes and other programs |
| Kentucky       | 6/4/21            | Yes                  |   |
| Louisiana      | 6/17/21           | No                   | Announcement after study window                         |
| Massachusetts  | 6/15/21           | No                   | Announcement after study window                         |
| Maine          | 6/16/21           | No                   | Announcement after study window                         |
| Maryland       | 5/20/21           | Yes                  |   |
| Michigan       | 7/1/21            | No                   | Announcement after study window                         |
| North Carolina | 6/10/21           | No                   | Announcement after study window                         |
| New York       | 5/20/21           | Yes                  |   |
| New Mexico     | 6/1/21            | Yes                  |   |
| Nevada         | 6/17/21           | No                   | Announcement after study window                         |
| Ohio           | 5/13/21           | Yes                  |   |
| Oregon         | 5/21/21           | Yes                  |   |
| Washington     | 6/3/21            | Yes                  |   |
| West Virginia  | 6/1/21            | Yes                  |   |

**eFigure 1. Daily COVID-19 Vaccination Rate per 100 000 People in the United States, 2021**



eFigure 2. Event Study Graphs From DiD Analysis



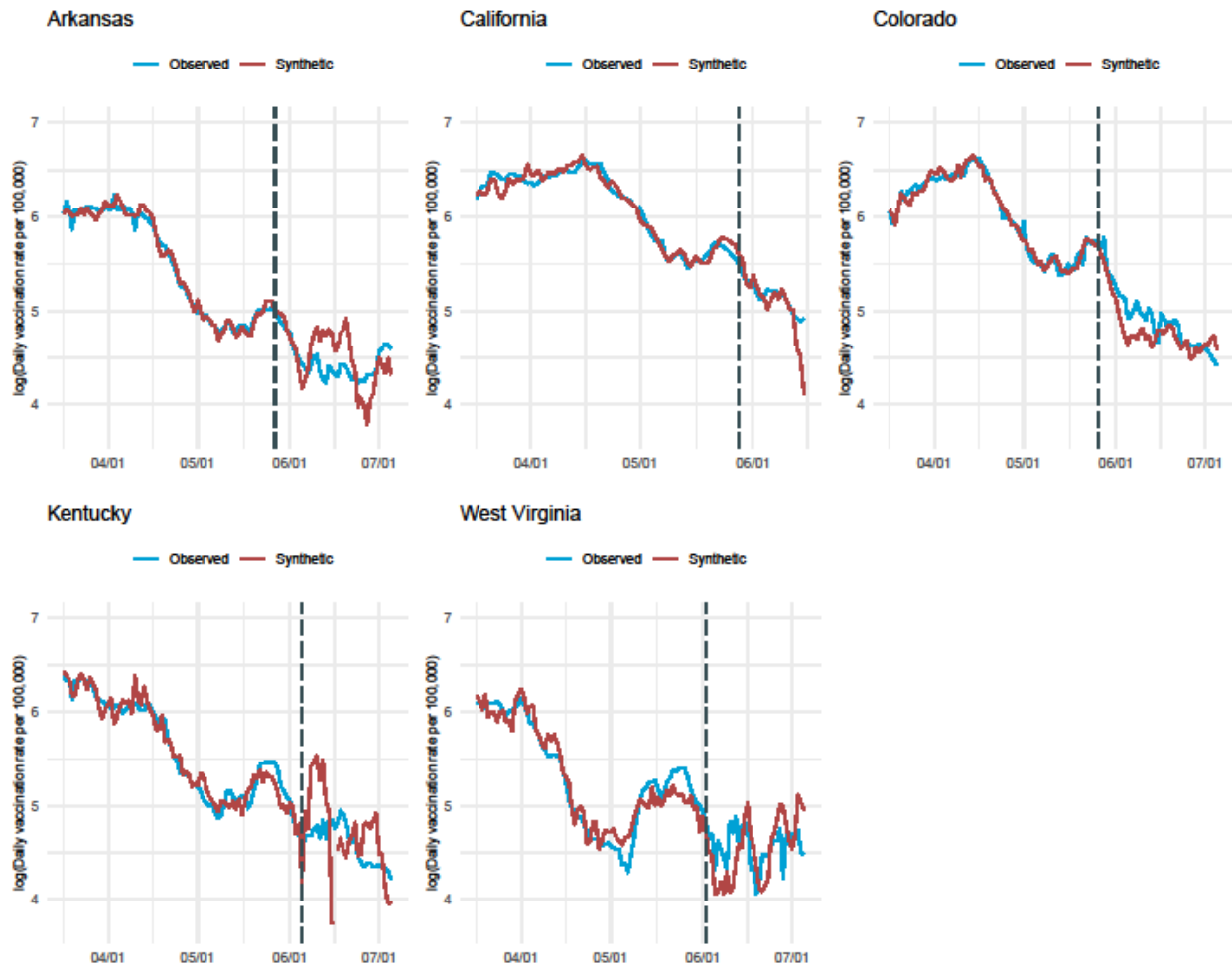
**eTable 2. Summary Statistics of State-Level Variables in Treated and Control States**

| Characteristics                          | Treated states<br>Mean (Standard deviation) | Control states<br>Mean (Standard deviation) |
|--|---|---|
| No. of states                            | 11  | 28  |
| Mean daily vaccination rate per 100,000  | 312.1 (183.7)                               | 273.7 (190.0)                               |
| % Black                                  | 9.46 (8.58)                                 | 11.93 (11.89)                               |
| % Hispanic                               | 16.71 (15.2)                                | 10.87 (8.84)                                |
| % Population aged 65 years or more       | 16.96 (1.67)                                | 16.7 (2.1)                                  |
| % Population aged 14 years or less       | 18.05 (0.85)                                | 18.74 (1.94)                                |
| % Unemployment rate                      | 4.15 (0.53)                                 | 3.44 (0.78)                                 |
| % Education at least college degree      | 32.22 (7.31)                                | 32.53 (6.73)                                |
| % Population in labor force              | 62.11 (4.44)                                | 64.53 (3.75)                                |
| % With private health insurance          | 65.78 (5.88)                                | 69.81(5.19)                                 |
| Annual median household income (dollars) | 65712(14089)                                | 63592 (9372)                                |
| Party lean index                         | 0.08 (22.88)                                | -12.05 (24.09)                              |
| Urban index                              | 10.76 (1.15)                                | 10.25 (1.14)                                |
| Life expectancy at birth                 | 78.07 (2.31)                                | 78.14 (1.59)                                |

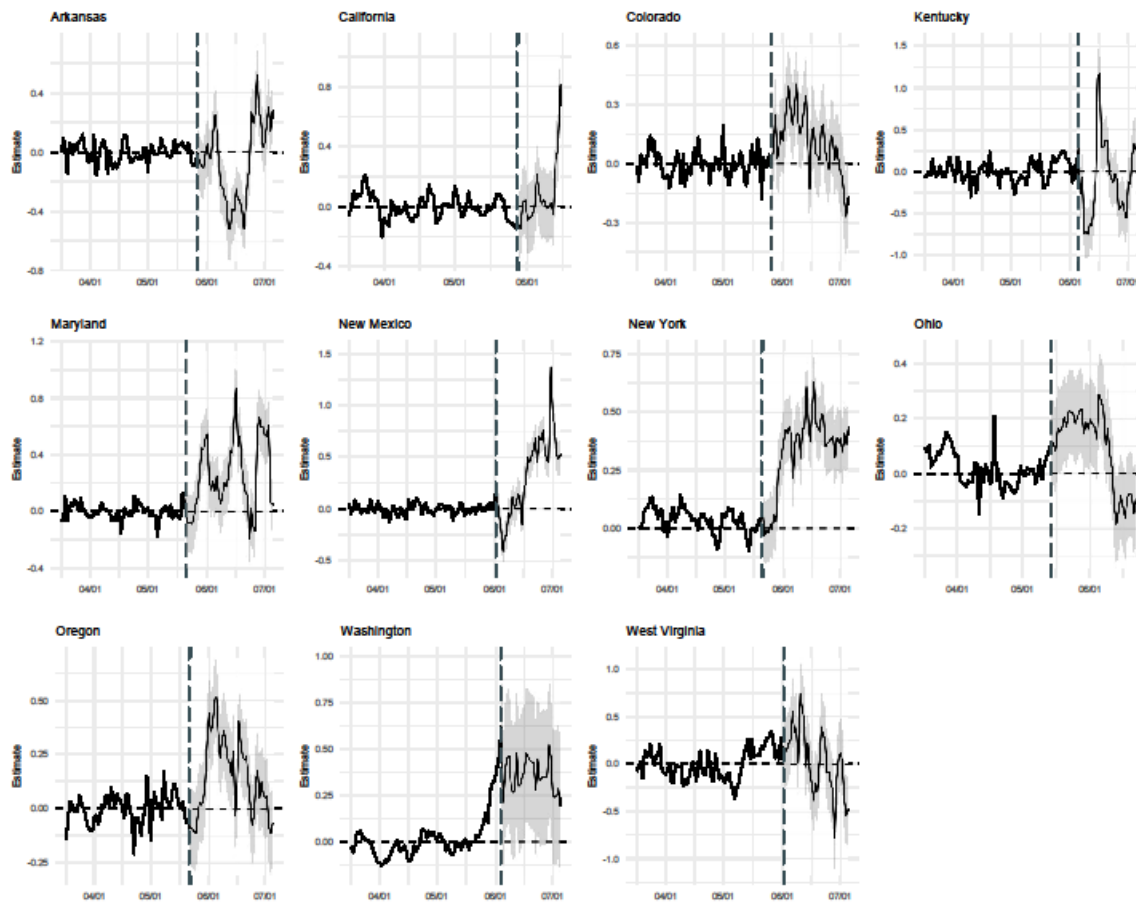
**eTable 3. Weights of Control States Used in Calculating Synthetic Treated States in Ridge-Augmented Synthetic Control Analysis**

| Donor pool of control states | Treated states |        |        |        |        |        |        |        |        |        |        |
|------------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                              | AK             | CA     | CO     | KY     | MD     | NM     | NY     | OH     | OR     | WA     | WV     |
| AZ                           | 0.031          | 0.67   | 0.17   | -0.237 | -0.009 | 0.303  | -0.002 | 0      | 0.549  | 0.249  | 0.333  |
| CT                           | -0.03          | -0.111 | 0.15   | -0.042 | 0.073  | 0.04   | 0.001  | -0.001 | -0.041 | 0.002  | 0.031  |
| DC                           | 0.147          | 0.178  | 0.221  | -0.308 | 0.273  | -0.081 | -0.002 | 0.003  | 0.024  | 0.002  | -0.223 |
| FL                           | 0.653          | 0.018  | 0.097  | 0.052  | -0.049 | 0.026  | -0.002 | -0.001 | -0.03  | -0.001 | -0.164 |
| GA                           | -0.083         | 0.19   | -0.047 | 0.261  | 0.112  | -0.045 | -0.001 | 0      | -0.155 | -0.007 | -0.208 |
| ID                           | 0.146          | 0.453  | 0.323  | -0.654 | -0.094 | 0.112  | 0.083  | -0.001 | 0.18   | 0.004  | -0.933 |
| IN                           | 0.201          | 0.018  | -0.138 | -0.182 | -0.097 | -0.112 | 0      | 0.197  | 0.006  | -0.003 | -0.083 |
| IA                           | -0.131         | 0.104  | 0.057  | -0.263 | -0.073 | 0.389  | 0.001  | -0.002 | 0.091  | 0      | 0.146  |
| KS                           | 0.304          | 0.125  | 0.144  | 0.059  | -0.108 | 0.292  | 0.002  | 0.375  | -0.054 | -0.002 | -0.277 |
| MN                           | 0.048          | -0.027 | -0.007 | -0.081 | -0.013 | -0.341 | 0.208  | 0      | 0.073  | 0.296  | 0.068  |
| MS                           | 0.013          | -0.135 | -0.138 | 0.14   | -0.039 | -0.217 | -0.002 | 0.107  | 0.032  | -0.002 | -0.221 |
| MO                           | 0.082          | 0.007  | -0.103 | 0.093  | 0      | 0.111  | -0.002 | 0      | 0.001  | -0.003 | -0.383 |
| MT                           | 0.312          | 0.08   | 0.017  | 1.022  | 0.036  | -0.382 | 0      | -0.003 | 0.162  | 0.002  | 0.186  |
| NE                           | 0.14           | -0.06  | -0.033 | 0.072  | 0.093  | 0.302  | 0      | 0      | -0.094 | -0.002 | 0.819  |
| ND                           | -0.085         | -0.117 | 0.061  | 0.299  | -0.077 | -0.193 | -0.002 | 0.001  | 0.096  | 0.001  | 0.388  |
| PA                           | -0.015         | -0.062 | -0.22  | 0.382  | 0.043  | 0.012  | 0.001  | 0.002  | -0.131 | 0      | -0.18  |
| RI                           | -0.151         | -0.031 | -0.08  | 0.128  | 0.116  | -0.046 | 0      | -0.002 | -0.048 | 0.003  | 0.066  |
| SC                           | -0.291         | -0.244 | -0.029 | 0.239  | 0.094  | -0.066 | -0.001 | 0.019  | -0.06  | -0.004 | 0.369  |
| SD                           | -0.3           | -0.213 | -0.126 | -0.248 | 0.013  | -0.09  | 0.002  | 0.001  | -0.093 | -0.003 | 0.041  |
| TN                           | 0.027          | -0.453 | 0.036  | 0.025  | 0.078  | 0.012  | -0.001 | 0.103  | -0.031 | -0.003 | 0.748  |
| TX                           | 0.202          | 0.309  | 0.107  | 0.427  | -0.036 | 0.286  | -0.001 | -0.004 | -0.124 | 0.003  | 0.163  |
| UT                           | 0.013          | -0.17  | 0.08   | -0.128 | 0.067  | -0.061 | 0.117  | -0.002 | -0.022 | 0.001  | -0.133 |
| VT                           | -0.183         | -0.168 | 0.033  | -0.453 | -0.196 | -0.047 | 0.001  | 0.206  | 0.069  | 0.001  | 0.073  |
| VA                           | -0.248         | 0.264  | 0.108  | 0.237  | 0.352  | 0.272  | 0.283  | 0      | 0.589  | 0.466  | 0.266  |
| WI                           | 0.102          | 0.462  | 0.234  | 0.25   | 0.437  | 0.53   | 0.317  | 0.002  | -0.062 | 0      | -0.003 |
| WY                           | 0.095          | -0.083 | 0.083  | -0.09  | 0.005  | -0.005 | -0.001 | 0      | 0.073  | 0.002  | 0.11   |

**eFigure 3. Trends of Daily Vaccination Rate in Treated States and Their Synthetic Controls**

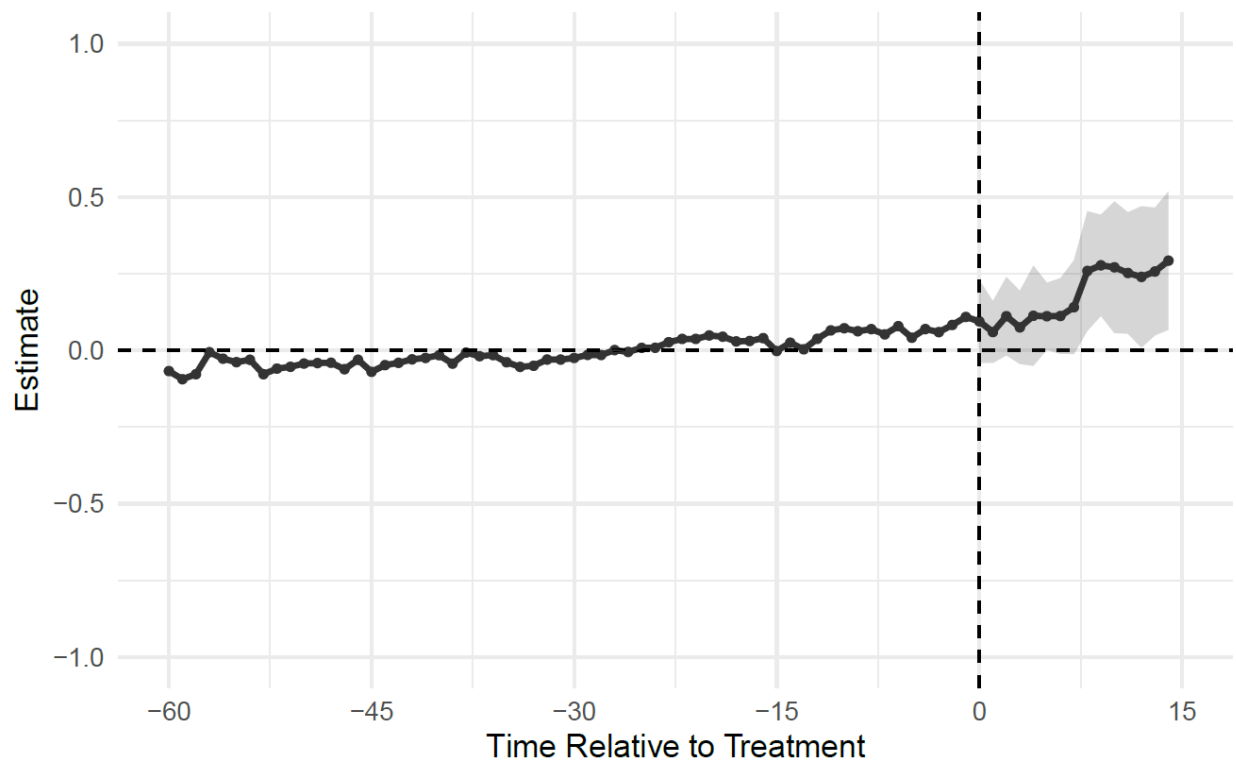


**eFigure 4. Gap Plots From the Augmented Synthetic Control Analysis**

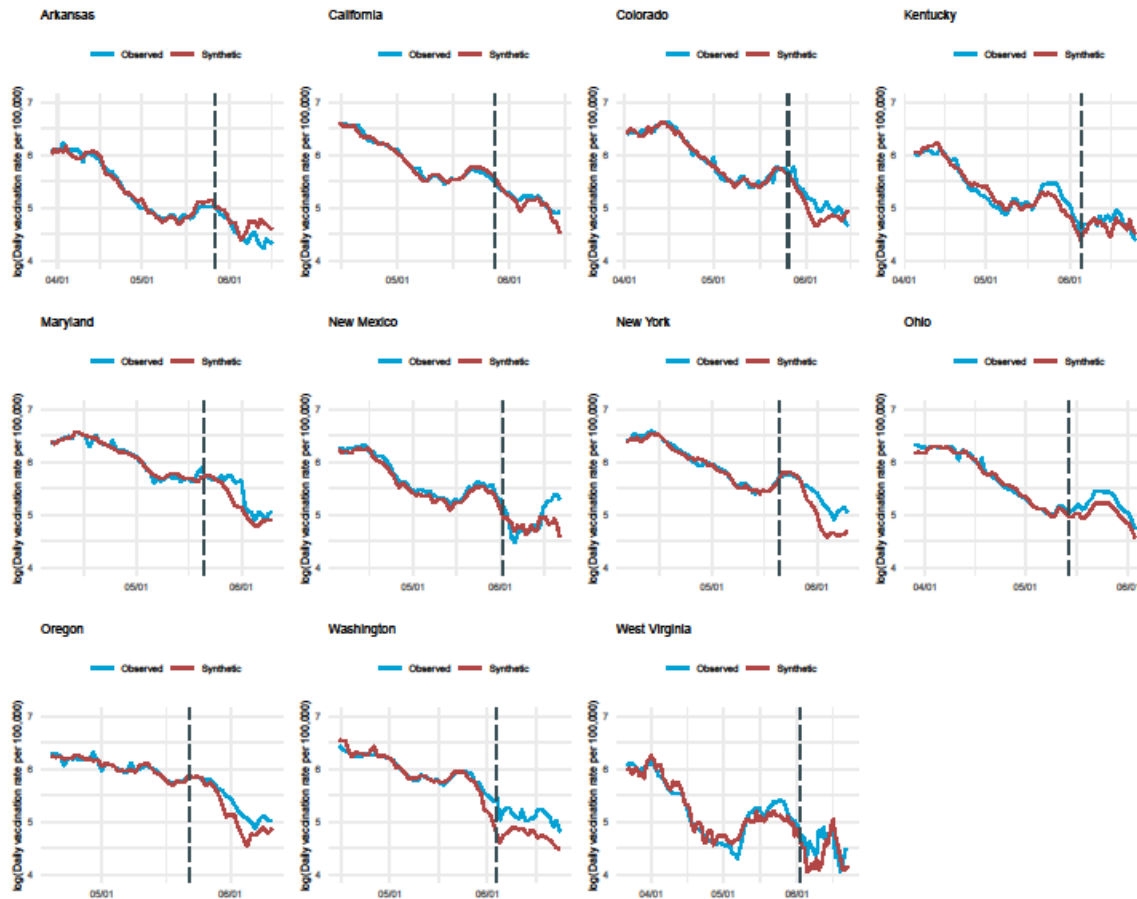




**eFigure 5. Sensitivity Analysis Gap Plot From Staggered Synthetic Control Method**



eFigure 6. Observed and Synthetic Trend Plots From Sensitivity Analysis



eFigure 7. Gap Plots From Sensitivity Analysis

