Supplemental Online Content

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This supplemental material has been provided by the authors to give readers additional information about their work.
Online eAppendix 1: Additional Details on Empirical Analyses

The empirical strategy compared changes in health insurance and health care outcomes across counties within states, before versus after cuts in funding for the navigator program. We used county-level differences in prior exposure to the local navigator programs within each state for identification. Specifically, models compared changes in advertising outcomes across counties served by any of the state’s local navigator programs in 2016 (higher-exposure counties) and those not served by local navigator programs in 2016 (lower-exposure counties).

The main analyses used a difference-in-difference model of the following specification:

\[ y_{cst} = \alpha_c + \varphi_{st} + \delta_{Higher\ Exposure_c} \times I(t \geq 2018) + \beta Z_{cst} + \epsilon_{cst} \]  

(1)

In this model, \( y_{cst} \) represents an outcome (e.g., volume of private sector advertising) within county \( c \) in state \( s \) in year \( t \); \( \alpha_c \) is a vector of county fixed effects; and \( \varphi_{st} \) is a vector of state-by-year fixed effects. \( Higher\ Exposure_c \) is an indicator of whether the county was served by local (non-statewide) navigator programs in 2016 and was therefore more exposed to the subsequent cuts in program funding. \( I(t \geq 2018) \) is an indicator variable that takes the value 1 starting in the post-cut period, which is Open Enrollment (OE) 2018 or later. \( Z_{cst} \) is a vector of control variables that vary across counties over time and are key determinants of advertising strategy, including: the population size of the county; marketplace characteristics including the benchmark premium, the spread between the benchmark premium and the least expensive silver plan for a single 40-year-old, and the number of carriers participating in the marketplace. In alternate specifications, we excluded the number of carriers as a control. Heteroskedasticity-robust standard errors were clustered by state and exposure status of the county (more-exposed versus less exposed) to account for correlation of the error terms in regions with similar baseline exposure to the navigator program.\(^1\) The coefficient of interest was \( \delta \), which captured changes in advertising outcomes associated with the treatment (i.e., greater exposure to cuts in the navigator program).

The validity of the analysis relied on the assumption that trends in outcomes in the two groups of counties — higher exposure and lower exposure — would have remained parallel in the absence of the funding cuts initiated under the Trump administration. While this assumption cannot be tested, a lack of pre-existing differences between trends in higher-exposure and lower-exposure counties would provide evidence of its plausibility.

To assess pre-existing differences between the trends in the two county groups, we used event study models; these models also enabled us to test for time-varying effects of funding cuts to the navigator program. These models used the following specification:

\[ y_{cst} = \alpha_c + \varphi_{st} + Higher\ Exposure_c \times \sum_{k=-3}^{1} \delta_k I(t - 2018 = k) + \beta Z_{cst} + \epsilon_{cst} \]  

(2)

where \( I(t - 2018 = k) \) is an indicator variable that takes the value 1 if year \( t \) is \( k \) years away from the start of the post-cut period (OE 2018); the omitted category was the final year of the pre-cut period (OE 2017). All other variables are defined as in model (1).

The coefficients of interest in the event study models were \( \delta_0 \) and \( \delta_1 \), which captured changes in outcomes associated with the treatment (i.e., greater exposure to cuts in the navigator program) in OE 2018 and 2019, respectively.

Given the late notice of changes to the navigator program, which occurred shortly prior to the start of OE 2018, advertisers might not have been able to adjust their advertisements airings for that open enrollment period. To account for this possibility, one could consider an alternate interpretation of the data in which OE 2018 is considered a transition period. In this alternate interpretation, the coefficient of interest would be \( \delta_1 \), capturing changes in outcomes associated with the treatment (i.e., higher exposure to cuts in the navigator program) only in OE 2019.

To test for parallel trends across the two groups prior to funding cuts, we conducted an \( F \)-test of the joint significance of the coefficients identifying changes in the differences between high-exposure and low-exposure counties during the pre-cut period (i.e., \( \delta_{-3} \) and \( \delta_{-2} \), given that the year prior to cuts is the omitted category). A non-significant result would indicate parallel trends in these counties, and thus support the validity of the analysis.

To interpret the sign of the coefficients of interest, it is helpful to know that higher-exposure counties experienced larger cuts to their navigator program funding than lower-exposure counties. For evidence of this pattern for a range of plausible assumptions, see prior work.\(^1\)
### eTable1: Full Model with All Covariates

| Variables                  | All            | Marketplace or other non-Medicare, non-Medicaid focus | Medicare focus |
|----------------------------|----------------|-------------------------------------------------------|----------------|
| DID variable               | 28.78 (-105.8 - 163.3) | -1.024 (-93.85 - 91.80) | 22.41 (-51.96 - 96.78) |
| Population                 | 0.00203 (-0.0162 - 0.0202) | -0.00534 (-0.0264 - 0.0157) | 0.00752 (0.00421 - 0.0108) |
| Minimum Benchmark Spread   | -0.279 (-1.957 - 1.398) | 0.387 (-0.899 - 1.672) | -0.635 (-1.272 - 0.00257) |
| Benchmark Rate             | -0.0316 (-1.510 - 1.447) | 0.225 (-0.827 - 1.278) | -0.225 (-0.864 - 0.414) |
| Number of Insurers in County | 113.3 (31.77 - 194.7) | 121.1 (35.37 - 206.8) | -19.68 (-49.56 - 10.20) |
| Constant                   | 1,254 (-193.3 - 2,701) | 852.5 (-721.6 - 2,427) | 353.4 (-12.49 - 719.2) |
| Observations               | 12,173 | 12,173 | 12,173 |

*Regression models adjusted for county population, time-invariant county-level characteristics, state-by-year secular trends, and local marketplace characteristics as noted in the text. 95% confidence intervals are in parentheses.*
## eTable 2: Results of Alternate Analyses – Selectively Eliminating States from the Sample

### Panel A. Outcome is all airings by private sponsors

| Subgroup                                      | Baseline mean in higher-exposure counties | Difference-in-differences estimate<sup>a</sup> | No. of advertisements (95% CI) | P-value |
|-----------------------------------------------|-------------------------------------------|-----------------------------------------------|-------------------------------|---------|
| All States                                    | 2282.9                                    | 28.8 (-103.1 to 160.6)                        |                               | 0.67    |
| States that have both groups of counties (more-exposed and less-exposed to cuts) | 2307.0                                    | 28.4 (-104.2 to 161)                         |                               | 0.68    |
| Drop Alabama                                  | 2276.5                                    | 17.7 (-117.8 to 153.1)                       |                               | 0.80    |
| Drop Alaska                                   | 2284.2                                    | 29.2 (-103.1 to 161.4)                       |                               | 0.67    |
| Drop Arizona                                  | 2282.9                                    | 29 (-102.3 to 160.3)                         |                               | 0.67    |
| Drop Delaware                                 | 2282.9                                    | 28.8 (-103.1 to 123.5)                       |                               | 0.67    |
| Drop Florida                                  | 2281.0                                    | 11 (-123.5 to 145.5)                         |                               | 0.87    |
| Drop Georgia                                  | 2192.5                                    | 28.5 (-103.7 to 160.7)                       |                               | 0.67    |
| Drop Illinois                                 | 2302.9                                    | 43.4 (-96.3 to 183.2)                        |                               | 0.54    |
| Drop Indiana                                  | 2264.9                                    | 39.6 (-102.1 to 181.3)                       |                               | 0.58    |
| Drop Iowa                                     | 2378.6                                    | 28.3 (-105.3 to 161.9)                       |                               | 0.68    |
| Drop Kansas                                   | 2294.3                                    | 25.9 (-110 to 161.8)                         |                               | 0.71    |
| Drop Louisiana                                | 2289.7                                    | 20.1 (-113.2 to 153.4)                       |                               | 0.77    |
| Drop Maine                                    | 2278.1                                    | 29.3 (-104.2 to 162.7)                       |                               | 0.67    |
| Drop Michigan                                 | 2285.1                                    | 37.6 (-99.0 to 174.2)                        |                               | 0.59    |
| Drop Mississippi                              | 2288.8                                    | 29.3 (-110.1 to 168.7)                       |                               | 0.68    |
| Drop Missouri                                 | 2307.4                                    | 28.5 (-103.1 to 160.0)                       |                               | 0.67    |
| Drop Montana                                  | 2317.0                                    | 30.6 (-105.8 to 167.1)                       |                               | 0.66    |
| Drop Nebraska                                 | 2363.2                                    | 28.7 (-104.1 to 161.6)                       |                               | 0.67    |
| Drop New Hampshire                            | 2276.7                                    | 26.6 (-106 to 159.1)                         |                               | 0.69    |
| Drop New Jersey                               | 2228.6                                    | -2.8 (-125.7 to 120.2)                       |                               | 0.97    |
| Drop North Carolina                           | 2267.4                                    | 24.0 (-111.7 to 159.7)                       |                               | 0.73    |
| Drop North Dakota                             | 2316.6                                    | 29.3 (-108.3 to 166.9)                       |                               | 0.68    |
| Drop Ohio                                     | 2276.6                                    | 52.4 (-81.1 to 185.9)                        |                               | 0.44    |
| Drop Oklahoma                                 | 2340.2                                    | 29.4 (-102.8 to 161.7)                       |                               | 0.66    |
| Drop Pennsylvania                             | 2174.0                                    | 36.5 (-99.2 to 172.3)                        |                               | 0.60    |
| Drop South Carolina                           | 2290.6                                    | 21.3 (-112.8 to 155.4)                       |                               | 0.76    |
| Drop South Dakota                             | 2262.1                                    | 30.4 (-108.6 to 169.4)                       |                               | 0.67    |
| Drop Tennessee                                | 2291.1                                    | 40.9 (-95.5 to 177.2)                        |                               | 0.56    |
| Drop Texas                                    | 2157.0                                    | 77.6 (-50.5 to 205.7)                        |                               | 0.24    |
| Drop Utah                                     | 2268.1                                    | 27.9 (-107.2 to 162.9)                       |                               | 0.69    |
| Subgroup                      | Baseline mean in higher-exposure counties | Difference-in-differences estimate  
|------------------------------|------------------------------------------|---------------------------------|
|                              | No. of advertisements (95% CI)           | P-value |
| Drop Virginia                | 2299.2                                   | -18.3 (-122.2 to 85.5)          | 0.73 |
|                              | **Baseline mean in higher-exposure counties** | **Difference-in-differences estimate**  
|                              | **No. of advertisements (95% CI)** | **P-value**  |
| Drop West Virginia           | 2310.8                                   | 39.6 (-98.3 to 177.5)           | 0.57 |
| Drop Wisconsin               | 2309.7                                   | 23.7 (-112.9 to 160.3)          | 0.73 |
| Drop Wyoming                  | 2283.8                                   | 31.6 (-102.9 to 166)            | 0.65 |

Regression models adjusted for county population, time-invariant county-level characteristics, state-by-year secular trends, and local marketplace characteristics as noted in the text.

Panel B. Outcome is airings by private sponsors with Marketplace or other non-Medicaid, non-Medicare focus

| Subgroup                      | Baseline mean in higher-exposure counties | Difference-in-differences estimate  
|------------------------------|------------------------------------------|---------------------------------|
|                              | No. of advertisements (95% CI)           | P-value |
| All States                   | 1655.4                                   | -1.0 (-92 to 89.9)              | 0.98 |
| States that have both groups of counties (more-exposed and less-exposed to cuts) | 1696.2                                   | 0.9 (-90.4 to 92.2)             | 0.98 |
| Drop Alabama                 | 1657.7                                   | -7.5 (-101.4 to 86.5)           | 0.88 |
| Drop Alaska                  | 1656.2                                   | -0.5 (-91.8 to 90.7)            | 0.99 |
| Drop Arizona                 | 1655.4                                   | -0.8 (-91.5 to 89.8)            | 0.99 |
| Drop Delaware                | 1655.4                                   | -1.0 (-92.0 to 89.9)            | 0.98 |
| Drop Florida                 | 1663.1                                   | 2.0 (-94.2 to 98.1)             | 0.97 |
| Drop Georgia                 | 1612.9                                   | 0.1 (-91.3 to 91.6)             | >0.99 |
| Drop Illinois                | 1668.2                                   | 7.1 (-89.9 to 104)              | 0.89 |
| Drop Indiana                 | 1649.6                                   | 9 (-88.0 to 105.9)              | 0.86 |
| Drop Iowa                    | 1720.3                                   | 3.1 (-89 to 95.2)               | 0.95 |
| Drop Kansas                  | 1662.9                                   | -4.3 (-98.0 to 89.4)            | 0.93 |
| Drop Louisiana               | 1661.1                                   | -2.0 (-95 to 91.1)              | 0.97 |
| Drop Maine                   | 1652.8                                   | -0.9 (-93.0 to 91.1)            | 0.98 |
| Drop Michigan                | 1657.4                                   | 5.9 (-88.2 to 100)              | 0.90 |
| Drop Mississippi             | 1672.3                                   | -10.1 (-104.5 to 84.4)          | 0.83 |
| Drop Missouri                | 1667.0                                   | -0.7 (-91.5 to 90.2)            | 0.99 |
| Drop Montana                 | 1675.5                                   | 0.1 (-94.1 to 94.2)             | >0.99 |
| Drop Nebraska                | 1716.0                                   | -1.1 (-92.2 to 90.1)            | 0.98 |
| Drop New Hampshire           | 1652.7                                   | -2.8 (-94.2 to 88.7)            | 0.95 |
| Drop New Jersey              | 1617.8                                   | -18.8 (-106.5 to 68.8)          | 0.67 |
| Drop North Carolina          | 1645.0                                   | 2.4 (-91.5 to 96.4)             | 0.96 |
| Drop North Dakota            | 1678.0                                   | -0.3 (-95.3 to 94.7)            | >0.99 |
| Drop State           | Baseline mean in higher-exposure counties | Difference-in-differences estimate | No. of advertisements (95% CI) | P-value |
|----------------------|------------------------------------------|-----------------------------------|--------------------------------|---------|
| Drop Ohio            | 1656.3                                   | 21.4 (-66.5 to 109.3)             | 0.63                           |
| Drop Oklahoma        | 1690.3                                   | -1.1 (-92.1 to 90)                | 0.98                           |
|                     | **Baseline mean**                        | **Difference-in-differences estimate** |                                |         |
| Drop Pennsylvania    | 1574.2                                   | 6.0 (-87.1 to 99.2)               | 0.90                           |
| Drop South Carolina  | 1659.9                                   | -13.3 (-103.8 to 77.1)            | 0.77                           |
| Drop South Dakota    | 1622.9                                   | -1.8 (-97.5 to 94)                | 0.97                           |
| Drop Tennessee       | 1664.3                                   | -10.4 (-102.1 to 81.4)            | 0.83                           |
| Drop Texas           | 1529.7                                   | 22.9 (-74.0 to 119.8)             | 0.64                           |
| Drop Utah            | 1642.3                                   | -3.5 (-96.4 to 89.4)              | 0.94                           |
| Drop Virginia        | 1671.8                                   | -36.7 (-104.8 to 31.4)            | 0.30                           |
| Drop West Virginia   | 1678.5                                   | 0.6 (-94.5 to 95.6)               | 0.99                           |
| Drop Wisconsin       | 1670.5                                   | 7.8 (-86.9 to 102.5)              | 0.87                           |
| Drop Wyoming         | 1655.3                                   | 1.0 (-91.7 to 93.7)               | 0.98                           |

Regression models adjusted for county population, time-invariant county-level characteristics, state-by-year secular trends, and local marketplace characteristics as noted in the text.

**Panel C. Outcome is airings by private sponsors with Medicare focus**

| Subgroup                              | Baseline mean in higher-exposure counties | Difference-in-differences estimate* | No. of advertisements (95% CI) | P-value |
|---------------------------------------|------------------------------------------|-----------------------------------|--------------------------------|---------|
| All States                            | 556.0                                    | 22.4 (-50.5 to 95.3)              | 0.55                           |
| States that have both groups of counties (more-exposed and less-exposed to cuts) | 547.4                                    | 20.2 (-52.6 to 93)                | 0.59                           |
| Drop Alabama                          | 547.7                                    | 18.7 (-56.8 to 94.1)              | 0.63                           |
| Drop Alaska                           | 556.4                                    | 22.3 (-50.8 to 95.4)              | 0.55                           |
| Drop Arizona                          | 556.0                                    | 22.4 (-50.7 to 95.6)              | 0.55                           |
| Drop Delaware                         | 556.0                                    | 22.4 (-50.5 to 95.3)              | 0.55                           |
| Drop Florida                          | 546.1                                    | 4.1 (-65.7 to 74)                 | 0.91                           |
| Drop Georgia                          | 515.5                                    | 21.0 (-51.2 to 93.3)              | 0.57                           |
| Drop Illinois                         | 561.4                                    | 24.8 (-53.8 to 103.5)             | 0.54                           |
| Drop Indiana                          | 553.2                                    | 15 (-62.4 to 92.3)                | 0.71                           |
| Drop Iowa                             | 581.4                                    | 17.8 (-55.3 to 90.9)              | 0.63                           |
| Drop Kansas                           | 559.3                                    | 22.8 (-52.6 to 98.2)              | 0.55                           |
| Drop Louisiana                        | 556.7                                    | 15.4 (-57.4 to 88.1)              | 0.68                           |
| Drop Maine                            | 556.2                                    | 22.7 (-51.1 to 96.5)              | 0.55                           |
| Drop Michigan                         | 556.3                                    | 24.3 (-51.2 to 99.9)              | 0.53                           |
| Drop Mississippi                      | 545.5                                    | 32.7 (-43.6 to 109)               | 0.40                           |

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| State                | Baseline mean in higher-exposure counties | Difference-in-differences estimate |
|---------------------|------------------------------------------|-----------------------------------|
| Drop Missouri       | 570.0                                    | 21.7 (-51.1 to 94.6)              | 0.56 |
| Drop Montana        | 567.6                                    | 22.8 (-52.6 to 98.1)              | 0.55 |
| Drop Nebraska       | 574.0                                    | 22.4 (-50.8 to 95.6)              | 0.55 |
| Drop New Hampshire  | 553.2                                    | 22.3 (-51.1 to 95.7)              | 0.55 |
| Drop New Jersey     | 539.0                                    | 10.4 (-60.4 to 81.2)              | 0.77 |
| Drop North Carolina | 550.2                                    | 15.1 (-58.6 to 88.9)              | 0.69 |
| Drop North Dakota   | 565.6                                    | 21.8 (-54.1 to 97.8)              | 0.57 |
| Drop Ohio           | 551.0                                    | 19.5 (-56.1 to 95.1)              | 0.61 |
| Drop Oklahoma       | 574.0                                    | 23.1 (-50 to 96.2)                | 0.54 |
| Drop Pennsylvania   | 527.3                                    | 23.5 (-52.7 to 99.7)              | 0.55 |
| Drop South Carolina | 558.8                                    | 27.0 (-47.8 to 101.8)             | 0.48 |
| Drop South Dakota   | 565.5                                    | 24.4 (-52.5 to 101.4)             | 0.53 |
| Drop Tennessee      | 554.8                                    | 43.6 (-24.2 to 111.3)             | 0.21 |
| Drop Texas          | 550.2                                    | 49.2 (-19.3 to 117.8)             | 0.16 |
| Drop Utah           | 554.9                                    | 24.0 (-50.6 to 98.7)              | 0.53 |
| Drop Virginia       | 555.2                                    | 21.6 (-54.4 to 97.5)              | 0.58 |
| Drop West Virginia  | 561.4                                    | 31.5 (-44.3 to 107.3)             | 0.42 |
| Drop Wisconsin      | 570.9                                    | 7.5 (-62.9 to 77.9)               | 0.83 |
| Drop Wyoming        | 557.0                                    | 22.0 (-52.2 to 96.1)              | 0.56 |

*Regression models adjusted for county population, time-invariant county-level characteristics, state-by-year secular trends, and local marketplace characteristics as noted in the text.
## eTable 3: Results of Alternate Analyses – Using 2016 as Start Year of Analysis

| Outcome | Baseline mean in higher-exposure counties | Difference-in-differences estimate\(^a\) | \(95\%\) CI | \(P\)-value |
|---------|------------------------------------------|------------------------------------------|-----------|-----------|
| All airings by private sponsors | 1825.6 | 11.8 (-89.5 to 113.12) | 0.82 |
| Airings by private sponsors with Marketplace or other non-Medicaid, non-Medicare focus | 961.1 | -33.1 (-89.3 to 23.2) | 0.25 |
| Airings by private sponsors with Medicare focus | 739.2 | 35.4 (-34.1 to 105.0) | 0.32 |

\(^a\)Regression models adjusted for county population, time-invariant county-level characteristics, state-by-year secular trends, and local marketplace characteristics as noted in the text.
### eTable 4: Results of Alternate Analyses – Changing Covariates

| Outcome                                                                 | Baseline mean in higher-exposure counties | Difference-in-differences estimate<sup>a</sup> | P-value |
|-------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------|---------|
| All airings by private sponsors                                         | 2282.9                                   | 29.0 (-107.2 to 165.3)                         | 0.68    |
| Airings by private sponsors with Marketplace or other non-Medicaid, non-Medicare focus | 1655.4                                   | -0.75 (-95.9 to 94.4)                          | 0.99    |
| Airings by private sponsors with Medicare focus                        | 556.0                                    | 22.4 (-50.1 to 94.8)                           | 0.55    |

<sup>a</sup>Regression models adjusted for county population, time-invariant county-level characteristics, state-by-year secular trends, and local marketplace characteristics as noted in the text with the exception of the number of insurance carriers, which was not included as a control variable in this alternate specification.
eFigure 1: Navigator Funding over Time

![Graph showing Navigator Funding over Time with years on the x-axis ranging from 2015 to 2021 and Millions of dollars on the y-axis ranging from $0 to $70. The funding shows a decrease from 2017 to 2019, with a sharp decline after 2018.]

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eFigure 2: Changes in Advertising Associated with Higher Exposure to Navigator Program Cuts: Event Study Results

A. All airings by private sponsors

B. Airings by private sponsors with marketplace or other non-Medicaid, non-Medicare focus
C. Airings by private sponsors with a Medicare focus

NOTE: Dotted lines are 95% confidence intervals.
1. Myerson R, Li H. Information Gaps and Health Insurance Enrollment: Evidence from the Affordable Care Act Navigator Programs. *Am J Health Econ*. Forthcoming. http://dx.doi.org/10.2139/ssrn.3966511