APPENDICES

Appendix A: Variable Sourcing, Coding, and Treatment Groups

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Variable | Unit of Measure | Source | Notes on Operationalization |
| Dependent Variable | Overall Homeless Counts | Per 10,000 residents | Department of Housing and Urban Development (HUD) | Overall homelessness comes from the PIT counts and includes all sheltered and unsheltered homelessness. |
| Independent Variable | Recreational Cannabis  Legalization (RCL); Year of State Adoption | For treated samples 🡪 year of treatment  Otherwise 🡪 0 | National Conference of State Legislatures (NCSL); Marijuana Policy Project (MPP) | A sample is considered treated for CoCs when its state has passed adult-use cannabis law (either by ballot initiative or state legislature). This variable is coded as the first year in which RCL is adopted to create treatment groups. See Tables 2 and 3 below for more information on RCL adoption and treatment groups. |  |
| Control Variables | Poverty | Percentage of total county population | U.S. Census Bureau | This is an aggregated percentage of all county residents associated with a CoC region at/below the poverty line. |
| Total County  Population | Aggregate Numerical Count | U.S. Census Bureau | This is an aggregated total population count of all counties associated with a CoC program. |
| Jail Population  Size | Per 10,000 residents | Vera Institute of Justice | This includes the aggregated jail populations for all counties associated with a CoC program. |
| Weather: A Measure of Colder Climates | Fahrenheit | National Oceanic and Atmosphere Association (NOAA) | This is the aggregated average low temperature in January for all counties associated with a CoC program. |
| Median Rent | U.S. Dollar ($) | HUD Fair Market Rent (FMR) | Using 50th percentile rent, this is a composite aggregation for all studio and 1-4-bedroom homes in counties associated with a CoC program. |
| Housing Inventory Counts (HIC) | Per 10,000 residents | HUD Housing Management Information Systems (HMIS) | This includes the total number of year-round shelter beds in transitional housing, emergency shelters, safe havens, and rapid rehousing programs. |

Table 1.1: Variables

Table 1.2: Recreational Cannabis Legalization – State Policy Enactment1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **­** | **Adult-Use Legalized** | **By Ballot Initiative** | **By State Legislature** | **Sales are**  **Taxed/Regulated2** |
| Alaska | Nov-14 | Measure 2 | ----------- | Yes |
| Arizona | Nov-20 | Proposition 207 | ----------- | Yes |
| California | Nov-16 | Proposition 64 | ----------- | Yes |
| Colorado | Nov-12 | Amendment 64 | ----------- | Yes |
| D.C. | Nov-14 | Initiative 71 | ----------- | No |
| Illinois | Jun-19 | ----------- | House Bill 1438 | Yes |
| Massachusetts | Nov-16 | Question 4 | ----------- | Yes |
| Michigan | Nov-18 | Proposal 1 | ----------- | Yes |
| Nevada | Nov-16 | Question 2 | ----------- | Yes |
| New Jersey | Nov-20 | Public Question 1 | ----------- | Yes |
| Oregon | Nov-14 | Measure 91 | ----------- | Yes |
| Vermont | Oct-20 | ----------- | S. 54 | Yes |
| Washington | Nov-12 | I-502 | ----------- | Yes |

1Sourced from the Marijuana Policy Project: https://www.mpp.org/states/

2Indicates if the state legally taxed and regulated sales prior to the end of 2020 (i.e., the end of the study period)

|  |  |  |
| --- | --- | --- |
| These groups signify the year in which the state first adopted RCL | States in Group | Number of Observations |
| Group 2012 | CO, WA | 98 |
| Group 2014 | AK, D.C., OR | 96 |
| Group 2016 | CA, MA, NV | 651 |
| Group 2018 | MI, VT | 243 |
| Group 2019 | IL | 210 |
| Group 2020 | AZ, NJ | 252 |
| Group 0 (i.e., never treated) | AL, AK, CT, FL, GA, HI, IA, ID, IN, KS, KY, LA, MD, MN, MO, MS, NC, NE, NH, NM, NY, OH, OK, PA, SC, TN, TX, UT, VA, WI, WV | 2,704 |

Table 1.3: Treatment Groups

Appendix B

Results

Table 2.1: Descriptive Statistics

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Treated | Untreated | P-value1 |
| Overall Homeless | 26.4494 | 22.438508 | 0.00756 |
| Climate | 26.9261 | 27.1587 | 0.501 |
| Total County  Populations | 702,855.5 | 351,608.9 | 0.000 |
| Poverty | 12.9942 | 13.8072 | 0.000 |
| Median Rent | 1330.0501 | 1096.9677 | 0.000 |
| Shelter Beds | 14.4119 | 13.2029 | 0.000 |
| Jail Population | 19.6318 | 27.0269 | 0.000 |

1 P-values are based on t-tests.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group  (defined by year treated) | Time | ATT | Standard Error | 95% Confidence Band | |
| 2012 | 2012 | -0.1829 | 1.804 | -5.3557 | 4.9898 |
| 2013 | 2.1573 | 3.5968 | -8.156 | 12.4705 |
| 2014 | -1.0529 | 2.6852 | -8.7523 | 6.6465 |
| 2015 | 1.0191 | 2.6246 | -6.5066 | 8.5448 |
| 2016 | 3.8151 | 2.5917 | -3.6161 | 11.2463 |
| 2017 | 2.1805 | 2.5834 | -5.227 | 9.5879 |
| 2018 | 3.6471 | 3.1791 | -5.4684 | 12.7627 |
| 2019 | 6.1348 | 2.7747 | -1.8212 | 14.0907 |
| 2020 | 7.2799 | 2.9648 | -1.2212 | 15.781 |
| 2014 | 2014 | 2.7712 | 3.8001 | -8.1252 | 13.6675 |
| 2015 | 4.2571 | 4.1126 | -7.5352 | 16.0495 |
| 2016 | 3.9238 | 3.6082 | -6.4223 | 14.2699 |
| 2017 | 6.0064 | 4.1312 | -5.8394 | 17.8521 |
| 2018 | 7.1267 | 4.8463 | -6.7693 | 21.0228 |
| 2019 | 11.8861 | 5.0851 | -2.6946 | 26.4668 |
| 2020 | 8.5087 | 4.6067 | -4.7002 | 21.7177 |
| 2016 | 2016 | 1.305 | 1.3733 | -2.6329 | 5.2428 |
| 2017 | 2.6649 | 2.0428 | -3.1924 | 8.5223 |
| 2018 | 1.6693 | 2.7958 | -6.3472 | 9.6858 |
| 2019 | 8.3122 | 2.25 | 1.8606 | 14.7638 \* |
| 2020 | 9.909 | 2.3911 | 3.0529 | 16.7650 \* |
| 2018 | 2018 | 1.4608 | 1.6146 | -3.1689 | 6.0905 |
| 2019 | -1.0658 | 0.8138 | -3.3992 | 1.2675 |
| 2020 | -1.1532 | 0.9257 | -3.8076 | 1.5011 |
| 2019 | 2019 | -3.3484 | 1.381 | -7.3081 | 0.6113 |
| 2020 | -3.8287 | 1.6378 | -8.5247 | 0.8674 |
| 2020 | 2020 | 1.4517 | 0.5037 | 0.0074 | 2.8960 \* |

Table 2.2: Group-Time Average Treatment Effects

\*Confidence band does not cover 0

Table 2.3: Average Treatment Effect by Length of Exposure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Years After Treatment | Estimate | Standard Error | 95% Confidence Band | |
| 1 | 0.6644 | 0.6197 | -1.0481 | 2.377 |
| 2 | 0.9493 | 1.1838 | -2.322 | 4.2207 |
| 3 | 0.9539 | 1.6625 | -3.6406 | 5.5483 |
| 4 | 7.2332 | 2.0514 | 1.5641 | 12.9024 \* |
| 5 | 8.9337 | 2.1029 | 3.1222 | 14.7451 \* |
| 6 | 6.2245 | 3.1995 | -2.6174 | 15.0664 |
| 7 | 5.6728 | 2.6858 | -1.7495 | 13.0952 |
| 8 | 6.1348 | 2.9235 | -1.9445 | 14.214 |
| 9 | 7.2799 | 3.0888 | -1.256 | 15.8157 |

\*Confidence band does not cover 0

Figure 2.1

Figure 2.2

Average Treatment Effect on the Treated: By Treatment Period

Table

Description automatically generated

Figure 2.3

Average Treatment Effect on the Treated: By Length of Exposure

Chart, bar chart

Description automatically generated