Table 1. Raw data variables and sources.

|  |  |  |
| --- | --- | --- |
| Variable | Description | Source |
| Water System Boundary | A geospatial polygon delineating the area in which the water supplier provides water to connected parcels. | DWSB |
| Residential Connections | The number of residential service connections served by a water supplier within its system boundary. | EAR |
| Population | The total population served by a water supplier residing within its system boundary. | SDWIS |
| Ownership type | The type of owner as reported by the water suppliers to SWRCB, between Local Government and three varieties of private organizations. | EAR |
| Serious Violator status | The Safe Drinking Water Act requires utilities to make a number of water quality tests and also file reports of the results of such tests to USEPA and/or state drinking water regulators. EPA determines on an annual basis whether a utility is a "serious violator", meaning they have some combination of repeated, unresolved major water quality testing failures for regulated contaminants, or routinely fail to meet reporting requirements. | SDWIS |
| Infrastructure Leakage Index (ILI) | A performance indicator developed by the International Water Association designed for inter-utility comparisons of water leakage. Calculation and reporting of the ILI by water suppliers is assisted by CA-DWR through guided use of American Water Works Association spreadsheet templates as part of the Water Loss Audit Report process. | WLAR |
| Household size | Counts of households within census geographies for households of size 1-6 and 7 or more | ACS |
| Household income | Counts of households within census geographies with incomes in 10 brackets | ACS |
| Residential shutoffs | The number of residential connection accounts in a calendar year that were shut off for non-payment of water bills. | EAR |
| Subsidy | An indicator for whether there is some kind of water bill payment assistance program, as reported by the water suppliers to SWRCB | EAR |
| billing period | The period of time over which a water tariff applies for assessing base and commodity charges. | OWRS |
| base charge | The charge (USD) for water service that does not depend on the volume of water consumed during a billing period. | OWRS |
| Commodity charge | The charge (USD) for water per 1,000 gallons during a billing period. This variable is composed of many sub-variables depending on the rate structure, which can include seasonal variations and tiers based on the amount of water consumed. | OWRS |

Table 2: Distribution of Water System Ownership types by Service population

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Service Population Size Category | Local Government | Privately owned Mutual Water Company or Association | Privately owned, non-PUC-regulated | Privately owned, PUC-regulated, for profit water company | Total |
| <10 | 4 | 0 | 0 | 0 | 4 |
| 10 - 100 | 64 | 271 | 330 | 22 | 687 |
| 101 - 1,000 | 282 | 326 | 399 | 98 | 1,105 |
| 1,001 - 10,000 | 305 | 57 | 31 | 67 | 460 |
| 10,001 - 100,000 | 264 | 12 | 5 | 50 | 331 |
| 100,001 - 1,000,000 | 66 | 0 | 1 | 14 | 81 |
| >1,000,000 | 3 | 0 | 0 | 1 | 4 |
| Total | 988 | 666 | 766 | 252 | 2,672 |

Table 3: Population distributions by system ownership and service population category

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Local Gov | | Mutual Association | | non-PUC regulated | | PUC-regulated | |
| Population Category | Pop | % | Pop | % | Pop | % | Pop | % |
| 10 - 100 | 3700 | 0 | 15,415 | 0.0 | 18,284 | 0.0 | 13,14 | 0 |
| 101 - 1,000 | 112,034 | 0 | 96,735 | 0.2 | 105,198 | 0.3 | 35,032 | 0 |
| 1,001 - 10,000 | 1,235,159 | 3 | 201,774 | 0.5 | 90,245 | 0.2 | 221,223 | 1 |
| 10,001 - 100,000 | 10,240,168 | 26 | 275,435 | 0.7 | 128,722 | 0.3 | 2,099,275 | 5 |
| 100,001 - 1,000,000 | 13,407,240 | 35 | 0 | 0.0 | 190,680 | 0.5 | 2,336,026 | 6 |
| >1,000,000 | 6,927,422 | 18 | 0 | 0.0 | 0 | 0.0 | 1,007,514 | 3 |
| Total | 31,925,723 | 82 | 589,359 | 1.5 | 533,129 | 1.4 | 5,700,384 | 15 |

Table 3. Summary Statistics by System Ownership. Univariate tests of statistically significant differences included for continuous (F-tests) and categorical (Chi-Sq) variables.

| **Water System Ownership** | **Local Government** | | | **Privately owned, PUC-regulated, for profit water company** | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **N** | **Mean** | **SD** | **N** | **Mean** | **SD** | **Test** |
| Pop | 314 | 83750.68 | 266046.94 | 69 | 73160.33 | 131730.3 | F=0.104 |
| 20th Percentile | 314 | 29920.38 | 12697.07 | 69 | 28659.42 | 14517.86 | F=0.529 |
| 50th Percentile | 314 | 67914.01 | 25586.33 | 69 | 66195.65 | 31890.81 | F=0.232 |
| ILI | 265 | 2.04 | 1.96 | 49 | 1.85 | 1.47 | F=0.415 |
| years\_serious\_violater | 314 | 0.12 | 0.43 | 69 | 0.03 | 0.17 | F=3.076\* |
| shutoffs\_perc | 247 | 0.03 | 0.05 | 40 | 0.02 | 0.02 | F=1.653 |
| subsidy | 312 |  |  | 69 |  |  | X2=90.27\*\*\* |
| … No | 223 | 71% |  | 6 | 9% |  |  |
| … Yes | 89 | 29% |  | 63 | 91% |  |  |
| bill\_type | 314 |  |  | 69 |  |  | X2=18.519\*\*\* |
| … Budget | 14 | 4% |  | 0 | 0% |  |  |
| … Tiered | 205 | 65% |  | 63 | 91% |  |  |
| … Uniform | 95 | 30% |  | 6 | 9% |  |  |
| bill | 314 | 30.26 | 14.8 | 69 | 31.93 | 11.98 | F=0.772 |
| bill\_hhsize2 | 314 | 35.72 | 16.72 | 69 | 39.18 | 14.37 | F=2.54 |
| bill\_hhsize3 | 314 | 41.49 | 19.76 | 69 | 46.6 | 17.23 | F=3.959\*\* |
| bill\_hhsize4 | 314 | 47.56 | 23.51 | 69 | 54.1 | 20.43 | F=4.588\*\* |
| bill\_hhsize5 | 314 | 54.02 | 28.1 | 69 | 62.13 | 25.18 | F=4.882\*\* |
| bill\_hhsize6 | 314 | 60.77 | 33.1 | 69 | 70.3 | 30.56 | F=4.815\*\* |
| bill\_hhsize7 | 314 | 67.72 | 38.51 | 69 | 78.87 | 36.43 | F=4.836\*\* |
| AR20 | 314 | 1.41 | 0.9 | 69 | 1.81 | 1.64 | F=7.64\*\*\* |
| AR20\_hhsize2 | 314 | 1.65 | 1.02 | 69 | 2.2 | 1.98 | F=11.031\*\*\* |
| AR20\_hhsize3 | 314 | 1.9 | 1.17 | 69 | 2.59 | 2.33 | F=13.046\*\*\* |
| AR20\_hhsize4 | 314 | 2.16 | 1.36 | 69 | 2.99 | 2.68 | F=13.874\*\*\* |
| AR20\_hhsize5 | 314 | 2.44 | 1.58 | 69 | 3.41 | 3.05 | F=14.356\*\*\* |
| AR20\_hhsize6 | 314 | 2.74 | 1.81 | 69 | 3.84 | 3.43 | F=14.397\*\*\* |
| AR20\_hhsize7 | 314 | 3.04 | 2.06 | 69 | 4.28 | 3.82 | F=14.441\*\*\* |
| Statistical significance markers: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01 |  |  |  |  |  |  |  |

Table 5. Regressions for Equity Indicators AR20 (household sizes 2-6) and Shutoff prevalence (%)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | |
|  | *Dependent variable:* | | | | | |
|  |  | | | | | |
|  | AR20\_hhsize2 | AR20\_hhsize3 | AR20\_hhsize4 | AR20\_hhsize5 | AR20\_hhsize6 | shutoffs\_perc |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
|  | | | | | | |
| Water System Ownership Privately owned, PUC-regulated, for profit water company | 0.397\* | 0.525\*\* | 0.640\*\* | 0.761\*\* | 0.877\*\* | -1.266\*\* |
|  | (0.219) | (0.265) | (0.312) | (0.364) | (0.416) | (0.597) |
|  |  |  |  |  |  |  |
| log(Pop) | -0.317\*\*\* | -0.355\*\*\* | -0.397\*\*\* | -0.438\*\*\* | -0.480\*\*\* | -0.572\*\* |
|  | (0.096) | (0.117) | (0.139) | (0.161) | (0.184) | (0.243) |
|  |  |  |  |  |  |  |
| 50th Percentile | -0.00002\*\*\* | -0.00002\*\*\* | -0.00002\*\*\* | -0.00002\*\*\* | -0.00003\*\*\* | -0.00001 |
|  | (0.00000) | (0.00000) | (0.00000) | (0.00000) | (0.00001) | (0.00001) |
|  |  |  |  |  |  |  |
| AR20\_hhsize4 |  |  |  |  |  | 0.698\*\*\* |
|  |  |  |  |  |  | (0.207) |
|  |  |  |  |  |  |  |
| subsidyYes |  |  |  |  |  | -0.539 |
|  |  |  |  |  |  | (0.420) |
|  |  |  |  |  |  |  |
| Constant | 6.232\*\*\* | 7.012\*\*\* | 7.837\*\*\* | 8.678\*\*\* | 9.535\*\*\* | 8.335\*\*\* |
|  | (1.133) | (1.358) | (1.595) | (1.841) | (2.094) | (2.774) |
|  |  |  |  |  |  |  |
|  | | | | | | |
| Observations | 382 | 382 | 382 | 382 | 382 | 285 |
| R2 | 0.361 | 0.333 | 0.308 | 0.283 | 0.261 | 0.134 |
| Adjusted R2 | 0.356 | 0.328 | 0.302 | 0.277 | 0.255 | 0.119 |
| Residual Std. Error | 1.012 (df = 378) | 1.207 (df = 378) | 1.425 (df = 378) | 1.667 (df = 378) | 1.923 (df = 378) | 4.370 (df = 279) |
|  | | | | | | |
| *Note:* | *\*p<0.1****; \*\*****p<0.05;****\*\*\****p<0.01 | | | | | |

Table 6. Regressions for performance indicators ILI and years of serious SDWA violator status

|  |  |  |
| --- | --- | --- |
|  | | |
|  | *Dependent variable:* | |
|  |  | |
|  | ILI | years\_serious\_violator |
|  | (1) | (2) |
|  | | |
| `Water System Ownership`Privately owned, PUC-regulated, for profit water company | -0.030 | -0.094\* |
|  | (0.165) | (0.049) |
|  |  |  |
| log(Pop) | -0.227\*\* | -0.010 |
|  | (0.097) | (0.010) |
|  |  |  |
| `50th Percentile` | -0.00001\* | -0.00000\*\* |
|  | (0.00000) | (0.00000) |
|  |  |  |
| bill\_hhsize4 | -0.019\*\*\* | -0.001 |
|  | (0.006) | (0.001) |
|  |  |  |
| Constant | 5.884\*\*\* | 0.345\*\* |
|  | (1.269) | (0.144) |
|  |  |  |
|  | | |
| Observations | 314 | 382 |
| R2 | 0.082 | 0.021 |
| Adjusted R2 | 0.070 | 0.011 |
| Residual Std. Error | 1.820 (df = 309) | 0.394 (df = 377) |
|  | | |
| *Note:* | \*p<0.1; \*\*p<0.05; \*\*\*p<0.01 | |