**APPENDIX**

**Table A.1: Variable description and data source**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Variables** | **Detail Level** | **Type** | **Data source** |
| 1 | Inpatient Volume | State | Dependent | www.aha.org |
| 2 | Extent of Con - stringent, None etc. | State | Independent | Hellinger (2009) see reference section for more details |
| 3 | CON Law characteristics | State | Independent | http://www.ahpanet.org/websites\_copn.html |
| 4 | Age distribution | State | Independent | http://www.census.gov/popest/estbygeo.html |
| 5 | Race Distribution | State | Independent | http://factfinder.census.gov/servlet/DatasetMainPageServlet?\_program=PEP |
| 6 | Population | County | Independent | http://www.census.gov/popest/data/ |
| 7 | % of uninsured, Medicaid, Medicare patients in state | State | Independent | http://www.statehealthfacts.org/profileind.jsp?cmprgn=1&cat=3&rgn=12&ind=125&sub=39 |
| 8 | Percentage of obese population | State | Independent | www.cdc.gov |
| 9 | Percentage of population that never smoked | State | Independent | www.cdc.gov |
| 10 | Emergency Physicians | State | Independent | http://www.abms.org/ |
| 11 | Percentage of population that used ED services | State | Independent | http://kff.org/other/state-indicator/emergency-room-visits/ |
| 12 | Number of beds per 1000 population – for profit hospitals | State | Independent | http://kff.org/other/state-indicator/beds-by-ownership/ |
| 13 | Teaching versus Non-teaching | State | Independent | http://healthguideusa.org/teaching\_hospitals\_georgia.htm |
| 14 | Median Income | State | Independent | http://www.bea.gov/regional/gsp/ |
| 15 | Senators State Voting Record | State | Independent | http://www.adaaction.org/ |
| 16 | Party in Power | State | Independent | http://www.nga.org/cms/home/governors/past-governors-bios.html;jsessionid=567B4C3B27E3CF6210B93BC608D3FED5 |
| 17 | GINI coefficient | State | Instrumental | www.census.gov |
| 18 | Technology index | State | Instrumental | http://www.milkeninstitute.org/tech/tech2010.taf?sub=tswf |
| 22 | Excise tax on beer per gallon | State | Instrumental | http://www.taxadmin.org/fta/tobacco/ |

**Table A.2: Variable categorization and description**

|  |  |  |
| --- | --- | --- |
| **Variable name** | **Variable Description** | |
| **Outcome Variable** | | |
| Herfindahl Index | | Herfindahl Index representing Inpatient market competition at the HRR level |
| **Independent Variables** | | |
| **CON Law** | | |
| CON Indicator | | Dummy variable for con law coverage |
| Stringency Index - Service | | Index of strictness of con threshold on service, can take values between 0 and 1 |
| **Demographics** | | |
| Population Size | | Population size (millions) |
| Proportion - Female | | Proportion of female |
| Proportion (age 0-17) | | Proportion of people aged 17 or under |
| Proportion (18-44) | | Proportion of people aged between 18 and 44 |
| Proportion (45-64) | | Proportion of people aged between 45 and 64 |
| Proportion - Black | | Proportion of population that is Black |
| Proportion - Asian | | Proportion of population that is Asian |
| Proportion - Amer Indian | | Proportion of population that is American Indian |
| Proportion - Pacific | | Proportion of population that is Pacific Islander |
| Proportion - Oth Race | | Proportion of population that belongs to two or more races |
| **Health Status** | | |
| Obesity | | Proportion of population that is obese |
| Infant Mortality Rate | | Infant mortality rate |
| Proportion – Never Smoked | | Proportion of population that has never smoked |
| **Health Care Access and Supply** | | |
| Proportion - Employer insurance | | Proportion of individuals with employer provided insurance |
| Proportion - Private insurance | | Proportion of individuals with privately purchased insurance |
| Proportion - Medicaid | | Proportion of individuals with Medicaid |
| Proportion - Medicare | | Proportion of individuals with Medicare |
| Num of Teaching Hosp (per 1000 pop) | | Number of teaching schools per 1000 population |
| ED Physicians (per 1000 pop) | | Number of ED physicians per 1000 population |
| Proportion of Population – ED Services | | Proportion of state population that has availed Emergency Department Services |
| Number of Beds - For Profit Hospitals (per 1000 pop) | | Number of beds in for profit hospitals per 1000 population |
| **Economic and Political Environment** | | |
| Median Income | | Median income |
| Poverty Rate | | Poverty rate |
| Senator Mean | | Mean of “yes” votes of the state senators on liberal issues |
| Senator Deviation | | Absolute deviation in the voting record of the state senators on liberal issues |
| Gov\_demo | | Dummy variable of democratic party governor |
| Gov\_ind | | Dummy variable of governor who is an independent |
| **Instrumental Variables** | | |
| GINI | | Gini index (measure of Inequality) |
| Tech Index | | Index of science and technology |
| Beer Tax per Gallon | | Excise taxes on beer per gallon |

**Table A.3: First stage regression of CON Indicator on exogenous variables**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **Coef.** | **Std. Error** | **Test Stat** |
| Population Size | -0.023 | (0.008) | -2.92\*\*\* |
| Proportion - Female | 10.846 | (13.921) | 0.78 |
| Proportion (age 0-17) | -11.013 | (4.725) | -2.33\*\* |
| Proportion (18-44) | 2.253 | (5.628) | 0.40 |
| Proportion (45-64) | -5.560 | (6.232) | -0.89 |
| Proportion - Black | 0.668 | (0.780) | 0.86 |
| Proportion - Asian | -3.850 | (2.986) | -1.29 |
| Proportion - Amer Indian | -12.551 | (3.401) | -3.69\*\*\* |
| Proportion - Pacific | -15.548 | (55.340) | -0.28 |
| Proportion - Oth Race | 39.645 | (9.348) | 4.24\*\*\* |
| Proportion - Employer insurance | -2.456 | (1.331) | -1.85\* |
| Proportion - Private insurance | -5.341 | (1.997) | -2.68\*\*\* |
| Proportion - Medicaid | -0.714 | (1.725) | -0.41 |
| Proportion - Medicare | -2.239 | (2.799) | -0.80 |
| Obesity | 0.010 | (0.010) | 0.95 |
| Infant Mortality Rate | -0.045 | (0.062) | -0.72 |
| Proportion - Never Smoked | 0.700 | (0.900) | 0.81 |
| Proportion of Population - ED Services | 0.125 | (0.859) | 0.15 |
| ED Physicians (per 1000 pop) | 0.00000002 | (0.0000005) | 0.05 |
| Num of Teaching Hosp (per 1000 pop) | -0.00003 | (0.00004) | -0.75 |
| Number of Beds - For Profit Hospitals (per 1000 pop) | -0.498 | (0.171) | -2.91\*\*\* |
| Median Income | 0.036 | (0.016) | 2.22\*\* |
| Poverty Rate | 0.005 | (0.009) | 0.58 |
| Senator Mean | 0.223 | (0.130) | 1.71\* |
| Senator Deviation | -0.059 | (0.116) | -0.51 |
| Gov\_demo | 0.040 | (0.032) | 1.25 |
| Gov\_ind | -0.504 | (0.222) | -2.26\*\* |
| Beer Tax Per Gallon | 0.628 | (0.311) | 2.02\*\* |
| Tech Index | -0.022 | (0.005) | -4.49\*\*\* |
| GINI | 0.001 | (0.001) | 1.38 |
| Constant | -0.854 | (8.967) | -0.10 |
| N | 1445 |  |  |

\* indicates statistical significance at the 10% level

\*\* indicates statistical significance at the 5% level

\*\*\* indicates statistical significance at the 1% level

**Table A.4: First stage regression of CON stringency on exogenous variables**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **Coef.** | **Std. Error** | **Test Stat** |
| CON Indicator | 0.416 | (0.152) | 2.73\*\*\* |
| Population Size | -0.032 | (0.012) | -2.67\*\*\* |
| Proportion - Female | -11.748 | (18.612) | -0.63 |
| Proportion (age 0-17) | -3.091 | (6.073) | -0.51 |
| Proportion (18-44) | -11.620 | (7.130) | -1.63 |
| Proportion (45-64) | -17.617 | (8.747) | -2.01\*\* |
| Proportion - Black | -0.610 | (1.130) | -0.54 |
| Proportion - Asian | 3.345 | (4.161) | 0.80 |
| Proportion - Amer Indian | -6.983 | (3.847) | -1.82\* |
| Proportion - Pacific | -71.710 | (45.624) | -1.57 |
| Proportion - Oth Race | 4.466 | (27.490) | 0.16 |
| Proportion – Employer insurance | -0.262 | (2.523) | -0.10 |
| Proportion - Private insurance | -3.871 | (3.006) | -1.29 |
| Proportion - Medicaid | 0.714 | (3.049) | 0.23 |
| Proportion - Medicare | -2.870 | (3.740) | -0.77 |
| Obesity | 0.004 | (0.011) | 0.37 |
| Infant Mortality Rate | -0.028 | (0.060) | -0.46 |
| Proportion - Never Smoked | -1.400 | (1.200) | -1.14 |
| Proportion of Population - ED Services | -0.194 | (1.533) | -0.13 |
| ED Physicians (per 1000 pop) | -0.0000002 | (0.000001) | -0.22 |
| Num of Teaching Hosp (per 1000 pop) | 0.0000003 | (0.0001) | 0.00 |
| Number of Beds - For Profit Hospitals (per 1000 pop) | -0.400 | (0.251) | -1.59 |
| Median Income | -0.006 | (0.013) | -0.43 |
| Poverty Rate | 0.007 | (0.015) | 0.47 |
| Senator Mean | 0.222 | (0.153) | 1.45 |
| Senator Deviation | -0.045 | (0.104) | -0.43 |
| Gov\_demo | 0.091 | (0.058) | 1.56 |
| Gov\_ind | -0.018 | (0.169) | -0.11 |
| Beer Tax Per Gallon | 0.968 | (0.363) | 2.67\*\*\* |
| Tech Index | 0.011 | (0.006) | 1.65\* |
| GINI | 0.002 | (0.001) | 2.21\*\* |
| Constant | 16.404 | (12.676) | 1.29 |
| N | 1395 |  |  |

\* indicates statistical significance at the 10% level

\*\* indicates statistical significance at the 5% level

\*\*\* indicates statistical significance at the 1% level

**Table A.5: Effects of CON Indicator and its stringency on Inpatient market competition: HHI (Non-Normalized version)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Variables** | **Coef.** | **Std. Error** | **Test Stat** |
| CON Indicator | -555.288 | (197.709) | -2.81\*\*\* |
| Stringency Index – Service | 88.323 | (114.726) | 0.77 |
| Population Size | 9.360 | (17.414) | 0.54 |
| Proportion - Female | -19303.780 | (26294.260) | -0.73 |
| Proportion (age 0-17) | -15427.200 | (7376.360) | -2.09\*\* |
| Proportion (18-44) | -3137.734 | (6679.522) | -0.47 |
| Proportion (45-64) | -14773.740 | (11413.300) | -1.29 |
| Proportion - Black | 753.292 | (1306.794) | 0.58 |
| Proportion - Asian | -17878.370 | (6086.187) | -2.94\*\*\* |
| Proportion - Amer Indian | -17524.990 | (6049.566) | -2.90\*\*\* |
| Proportion - Pacific | -4010.461 | (125482.500) | -0.03 |
| Proportion - Oth Race | 52757.470 | (39301.270) | 1.34 |
| Proportion – Employer insurance | -4096.066 | (2622.182) | -1.56 |
| Proportion - Private insurance | -9163.923 | (3189.774) | -2.87\*\*\* |
| Proportion - Medicaid | -7827.645 | (3185.778) | -2.46\*\* |
| Proportion - Medicare | -3635.637 | (5626.116) | -0.65 |
| Obesity | 0.998 | (11.731) | 0.09 |
| Infant Mortality Rate | 85.069 | (77.148) | 1.10 |
| Proportion - Never Smoked | 1993.200 | (2064.500) | 0.97 |
| Proportion of Population - ED Services | 1939.709 | (1396.350) | 1.39 |
| ED Physicians (per 1000 pop) | 0.000 | (0.001) | 0.26 |
| Num of Teaching Hosp (per 1000 pop) | -0.265 | (0.065) | -4.11\*\*\* |
| Number of Beds - For Profit Hospitals (per 1000 pop) | -902.893 | (258.523) | -3.49\*\*\* |
| Median Income | 4.671 | (17.544) | 0.27 |
| Poverty Rate | 21.257 | (27.772) | 0.77 |
| Senator Mean | 392.553 | (205.737) | 1.91\* |
| Senator Deviation | 102.502 | (134.103) | 0.76 |
| Gov\_demo | 144.815 | (78.541) | 1.84\* |
| Gov\_ind | -666.309 | (191.182) | -3.49\*\*\* |
| Constant | 22945.520 | (16739.500) | 1.37 |
| N | 1395 |  |  |

\* indicates statistical significance at the 10% level

\*\* indicates statistical significance at the 5% level

\*\*\* indicates statistical significance at the 1% level