Supplementary Materials for

**County-Level Relationships between Foreign-Born Residents, Latinos, Immigration Enforcement, and Child Maltreatment Report Rates in the United States, 2015−2018**

This file includes:

Tables S1-S4

Guidance on How to Use the Enclosed Supplementary Materials for Replication

**Table S1.** Multilevel Model of Total Child Maltreatment Report Rates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fixed effects** | **Coefficient** | **Standard error** | **t** | **p** |
| Intercept | 44.23 | 21.392 | 2.07 | .0390 |
| Year fixed effects |  |  |  |  |
| Year 2015 | Reference |  |  |  |
| Year 2016 | 2.57 | 0.319 | 8.05 | <.0001 |
| Year 2017 | 4.45 | 0.368 | 12.11 | <.0001 |
| Year 2018 | 7.04 | 0.458 | 15.38 | <.0001 |
| % foreign born | -0.50 | 0.146 | -3.39 | .0007 |
| % foreign born × year interaction effects |  |  |  |  |
| % foreign born × Year 2016 | -0.08 | 0.040 | -2.00 | .0454 |
| % foreign born × Year 2017 | -0.15 | 0.040 | -3.73 | .0002 |
| % foreign born × Year 2018 | -0.21 | 0.042 | -4.99 | <.0001 |
| % Latino | -0.41 | 0.089 | -4.66 | <.0001 |
| ICE arrest rate | 0.24 | 0.163 | 1.48 | .1383 |
| Control variables |  |  |  |  |
| % Black | -0.32 | 0.072 | -4.48 | <.0001 |
| % child | -1.36 | 0.268 | -5.10 | <.0001 |
| % male adult | 0.09 | 0.393 | 0.23 | .8206 |
| % single parent | 0.63 | 0.095 | 6.62 | <.0001 |
| % no high school | 1.46 | 0.190 | 7.69 | <.0001 |
| Child poverty rate | 0.11 | 0.092 | 1.18 | .2401 |
| Median housing value | -0.37 | 0.078 | -4.83 | <.0001 |
| % uninsured | -0.53 | 0.158 | -3.37 | .0008 |
| % moved | 0.13 | 0.133 | 0.94 | .3469 |
| Urbanicity |  |  |  |  |
| Large metro | Reference |  |  |  |
| Medium/small metro | 5.25 | 1.433 | 3.66 | .0003 |
| Rural | 7.00 | 2.004 | 3.49 | .0005 |
| **Random effect** | **Variance** | | | |
| State-level: Intercept | 154.92 | | | |
| County-level: Intercept | 426.68 | | | |
| Observation-level | 28.42 | | | |

N1 = 2,556 county-year observations; N2 = 639 counties; N3 = 51 states and DC. % foreign born = the percentage of foreign-born persons among residents. % Latino = the percentage of Latino persons among residents. ICE arrest rate = the number of ICE community arrests per 10k persons. % Black = the percentage of Black persons among persons. % child = the percentage of children among persons. % male adult = the percentage of male among adults aged 20 to 64. % single parent = the percentage of single-parent households among households with related children. % no high school = the percentage of adults (aged 25 or older) with no high school degree. Child poverty rate = the percentage of children living below the federal poverty threshold. Median housing value = the median value of owner-occupied houses per $10,000 (in 2018 US$). % uninsured = the percentage of children with no health insurance. % moved = the percentage of persons who were moved into their current home in the last 1 year. Large metro = counties in large metro areas (U.S. Department of Agriculture Rural-Urban Continuum [USDA RUC] code 1). Medium/small metro = counties in medium/small metro areas (USDA RUC codes 2-3). Rural = counties in nonmetro areas (USDA RUC codes 4-9).

**Table S2.** Multilevel Model of White Child Maltreatment Report Rates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fixed effects** | **Coefficient** | **Standard error** | **t** | **p** |
| Intercept | -5.70 | 18.884 | -0.30 | .7628 |
| Year fixed effects |  |  |  |  |
| Year 2015 | Reference |  |  |  |
| Year 2016 | 3.34 | 0.336 | 9.94 | <.0001 |
| Year 2017 | 4.72 | 0.363 | 13.01 | <.0001 |
| Year 2018 | 7.29 | 0.423 | 17.26 | <.0001 |
| % foreign born | -0.21 | 0.131 | -1.58 | .1137 |
| % foreign born × year interaction effects |  |  |  |  |
| % foreign born × Year 2016 | -0.17 | 0.043 | -3.82 | .0001 |
| % foreign born × Year 2017 | -0.25 | 0.044 | -5.75 | <.0001 |
| % foreign born × Year 2018 | -0.33 | 0.046 | -7.22 | <.0001 |
| % Latino | -0.19 | 0.068 | -2.75 | .0062 |
| ICE arrest rate | 0.09 | 0.167 | 0.53 | .5976 |
| Control variables |  |  |  |  |
| % Black | -0.36 | 0.054 | -6.70 | <.0001 |
| % child: White | -1.11 | 0.210 | -5.27 | <.0001 |
| % male adult: White | 0.84 | 0.379 | 2.23 | .0261 |
| % single parent: White | 0.59 | 0.085 | 6.99 | <.0001 |
| % no high school: White | 2.27 | 0.196 | 11.58 | <.0001 |
| Child poverty rate: White | 0.07 | 0.088 | 0.77 | .4414 |
| Median housing value | -0.39 | 0.072 | -5.37 | <.0001 |
| % uninsured: White | -0.30 | 0.144 | -2.10 | .0355 |
| % moved: White | -0.02 | 0.131 | -0.17 | .8634 |
| Urbanicity |  |  |  |  |
| Large metro | Reference |  |  |  |
| Medium/small metro | 5.07 | 1.250 | 4.06 | .0001 |
| Rural | 7.30 | 1.719 | 4.25 | <.0001 |
| **Random effect** | **Variance** | | | |
| State-level: Intercept | 116.47 | | | |
| County-level: Intercept | 285.39 | | | |
| Observation-level | 33.89 | | | |

N1 = 2,556 county-year observations; N2 = 639 counties; N3 = 51 states and DC. % foreign born = the percentage of foreign-born persons among residents. % Latino = the percentage of Latino persons among residents. ICE arrest rate = the number of ICE community arrests per 10k persons. % Black = the percentage of Black persons among persons. % child: White = the percentage of children among White persons. % male adult: White = the percentage of male among White adults aged 20 to 64. % single parent: White = the percentage of single-parent households among White households with related children. % no high school: White = the percentage of White adults (aged 25 or older) with no high school degree. Child poverty rate: White = the percentage of White children living below the federal poverty threshold. Median housing value = the median value of owner-occupied houses per $10,000 (in 2018 US$). % uninsured: White = the percentage of White children with no health insurance. % moved: White = the percentage of White persons who were moved into their current home in the last 1 year. Large metro = counties in large metro areas (U.S. Department of Agriculture Rural-Urban Continuum [USDA RUC] code 1). Medium/small metro = counties in medium/small metro areas (USDA RUC codes 2-3). Rural = counties in nonmetro areas (USDA RUC codes 4-9).

**Table S3.** Multilevel Model of Black Child Maltreatment Report Rates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fixed effects** | **Coefficient** | **Standard error** | **t** | **p** |
| Intercept | 219.47 | 16.791 | 13.07 | <.0001 |
| Year fixed effects |  |  |  |  |
| Year 2015 | Reference |  |  |  |
| Year 2016 | 6.52 | 1.037 | 6.29 | <.0001 |
| Year 2017 | 9.71 | 1.105 | 8.79 | <.0001 |
| Year 2018 | 14.98 | 1.205 | 12.43 | <.0001 |
| % foreign born | 0.04 | 0.427 | 0.09 | .9322 |
| % foreign born × year interaction effects |  |  |  |  |
| % foreign born × Year 2016 | -0.32 | 0.134 | -2.36 | .0182 |
| % foreign born × Year 2017 | -0.41 | 0.135 | -3.05 | .0023 |
| % foreign born × Year 2018 | -0.66 | 0.139 | -4.79 | <.0001 |
| % Latino | -0.32 | 0.216 | -1.47 | .1431 |
| ICE arrest rate | 0.56 | 0.541 | 1.04 | .3002 |
| Control variables |  |  |  |  |
| % Black | -0.97 | 0.167 | -5.81 | <.0001 |
| % child: Black | -4.43 | 0.255 | -17.36 | <.0001 |
| % male adult: Black | -0.21 | 0.201 | -1.04 | .2975 |
| % single parent: Black | 0.18 | 0.064 | 2.81 | .0050 |
| % no high school: Black | 0.69 | 0.209 | 3.33 | .0009 |
| Child poverty rate: Black | 0.10 | 0.071 | 1.37 | .1696 |
| Median housing value | -1.25 | 0.215 | -5.82 | <.0001 |
| % uninsured: Black | 0.28 | 0.173 | 1.64 | .1021 |
| % moved: Black | 0.11 | 0.152 | 0.73 | .4632 |
| Urbanicity |  |  |  |  |
| Large metro | Reference |  |  |  |
| Medium/small metro | 8.50 | 4.020 | 2.11 | .0350 |
| Rural | -13.73 | 5.930 | -2.32 | .0210 |
| **Random effect** | **Variance** | | | |
| State-level: Intercept | 1290.5 | | | |
| County-level: Intercept | 972.9 | | | |
| Observation-level | 303.7 | | | |

N1 = 2,348 county-year observations; N2 = 599 counties; N3 = 51 states and DC. % foreign born = the percentage of foreign-born persons among residents. % Latino = the percentage of Latino persons among residents. ICE arrest rate = the number of ICE community arrests per 10k persons. % Black = the percentage of Black persons among persons. % child: Black = the percentage of children among Black persons. % male adult: Black = the percentage of male among Black adults aged 20 to 64. % single parent: Black = the percentage of single-parent households among Black households with related children. % no high school: Black = the percentage of Black adults (aged 25 or older) with no high school degree. Child poverty rate: Black = the percentage of Black children living below the federal poverty threshold. Median housing value = the median value of owner-occupied houses per $10,000 (in 2018 US$). % uninsured: Black = the percentage of Black children with no health insurance. % moved: Black = the percentage of Black persons who were moved into their current home in the last 1 year. Large metro = counties in large metro areas (U.S. Department of Agriculture Rural-Urban Continuum [USDA RUC] code 1). Medium/small metro = counties in medium/small metro areas (USDA RUC codes 2-3). Rural = counties in nonmetro areas (USDA RUC codes 4-9).

**Table S4.** Multilevel Model of Latino Child Maltreatment Report Rates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fixed effects** | **Coefficient** | **Standard error** | **t** | **p** |
| Intercept | 64.41 | 10.821 | 5.95 | <.0001 |
| Year fixed effects |  |  |  |  |
| Year 2015 | Reference |  |  |  |
| Year 2016 | 2.98 | 0.503 | 5.92 | <.0001 |
| Year 2017 | 4.41 | 0.528 | 8.36 | <.0001 |
| Year 2018 | 6.56 | 0.574 | 11.43 | <.0001 |
| % foreign born | -0.22 | 0.174 | -1.27 | .2031 |
| % foreign born × year interaction effects |  |  |  |  |
| % foreign born × Year 2016 | -0.13 | 0.066 | -2.00 | .0456 |
| % foreign born × Year 2017 | -0.23 | 0.067 | -3.50 | .0005 |
| % foreign born × Year 2018 | -0.31 | 0.067 | -4.62 | <.0001 |
| % Latino | -0.09 | 0.087 | -1.03 | .3053 |
| ICE arrest rate | 0.16 | 0.235 | 0.70 | .4867 |
| Control variables |  |  |  |  |
| % Black | -0.26 | 0.064 | -4.05 | .0001 |
| % child: Latino | -0.69 | 0.183 | -3.75 | .0002 |
| % male adult: Latino | -0.02 | 0.125 | -0.14 | .8870 |
| % single parent: Latino | 0.09 | 0.035 | 2.44 | .0149 |
| % no high school: Latino | 0.07 | 0.058 | 1.14 | .2547 |
| Child poverty rate: Latino | 0.13 | 0.042 | 3.05 | .0023 |
| Median housing value | -0.36 | 0.090 | -3.97 | .0001 |
| % uninsured: Latino | -0.17 | 0.074 | -2.27 | .0231 |
| % moved: Latino | -0.20 | 0.072 | -2.77 | .0056 |
| Urbanicity |  |  |  |  |
| Large metro | Reference |  |  |  |
| Medium/small metro | 5.80 | 1.535 | 3.78 | .0002 |
| Rural | 5.03 | 2.097 | 2.40 | .0168 |
| **Random effect** | **Variance** | | | |
| State-level: Intercept | 186.34 | | | |
| County-level: Intercept | 266.54 | | | |
| Observation-level | 77.79 | | | |

N1 = 2,527 county-year observations; N2 = 634 counties; N3 = 51 states and DC. % foreign born = the percentage of foreign-born persons among residents. % Latino = the percentage of Latino persons among residents. ICE arrest rate = the number of ICE community arrests per 10k persons. % Black = the percentage of Black persons among persons. % child: Latino = the percentage of children among Latino persons. % male adult: Latino = the percentage of male among Latino adults aged 20 to 64. % single parent: Latino = the percentage of single-parent households among Latino households with related children. % no high school: Latino = the percentage of Latino adults (aged 25 or older) with no high school degree. Child poverty rate: Latino = the percentage of Latino children living below the federal poverty threshold. Median housing value = the median value of owner-occupied houses per $10,000 (in 2018 US$). % uninsured: Latino = the percentage of Latino children with no health insurance. % moved: Latino = the percentage of Latino persons who were moved into their current home in the last 1 year. Large metro = counties in large metro areas (U.S. Department of Agriculture Rural-Urban Continuum [USDA RUC] code 1). Medium/small metro = counties in medium/small metro areas (USDA RUC codes 2-3). Rural = counties in nonmetro areas (USDA RUC codes 4-9).

**Guidance on How to Use the Enclosed Supplementary Materials for Replication**

This study used data linking multiple national datasets at the county level for counties in 50 States and DC from 2009 to 2018. The data had been constructed by a large project funded by the Centers for Disease Control and Prevention (CDC), K01CE003229.

The purpose of this document is to provide guidance on how to use the enclosed supplementary materials (the SAS programs and the R script) to replicate this study’s data and analysis results.

The child maltreatment report data are available to eligible researchers with no cost. All other data are open to the public with no cost. Table S1 lists the datasets, their sources (locations), and the SAS programs for importing, managing, and merging the datasets.

**Table S1.** SAS Programs, Raw Datasets, and Sources to Construct the Present Study’s Data.

|  |  |  |
| --- | --- | --- |
| SAS Program | Dataset | Source |
| 01 CAN\_Input.sas | Child maltreatment report data | <https://www.ndacan.acf.hhs.gov/> |
| 02 Census\_Input.sas | Census ACS data | <https://www.socialexplorer.com/explore-tables> |
| 03 BIRTH\_Input.sas | Birth outcome data | <https://wonder.cdc.gov/> |
| 04 Opioid\_Input.sas | Opioid prescription rate data | <https://www.cdc.gov/drugoverdose/rxrate-maps/> |
| 05 NCHS\_RUC\_Input.sas | NCHS rural-urban codes | <https://www.cdc.gov/nchs/data_access/urban_rural.htm> |
| 06 USDA\_RUC\_Input.sas | USDA rural-urban codes | <https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx> |
| 07 Spatial\_Input.sas | Census gazetteer files | <https://www.census.gov/geographies/reference-files/time-series/geo/gazetteer-files.html> |
| 08 CHR\_Input.sas | County Health Rankings data | <https://www.countyhealthrankings.org/> |
| 09 Food\_Input.sas | Food insecurity data | <https://map.feedingamerica.org/> |
| 10 MHV\_Input.sas | MIECHV data | <https://mchb.hrsa.gov/programs-impact/programs/home-visiting/state-fact-sheets> |
| 11 NHV\_Input.sas | NHVRC data | <https://nhvrc.org/yearbook/2020-yearbook/> |
| 12 Grand\_Merge.sas | This program merges all datasets and constructs analysis data. | |
| 13 ICE\_Arrest4.sas | ICE Arrests | <https://trac.syr.edu/phptools/immigration/arrest/> |
| This program will manage the ICE data and merge them with the main data (“CDCK01County.sas7bdat”) created by “Grand\_Merge.sas”. | |

After obtaining the raw datasets, running all enclosed SAS programs from “01 CAN\_Input.sas” to “12 Grand\_Merge.sas” will produce the analysis data (“CDCK01County.sas7bdat”). The “Dataset Contents.htm” reports the summary information about the contents of the analysis data, including the variables’ names and descriptions.

After constructing the analysis data, one can use the enclosed R script (“ICE3.R”) to replicate this study’s analysis results.

All the SAS programs, “Dataset Contents.htm”, and the R script are in the “Supplement.zip” file.

Please contact the corresponding author (Hyunil Kim, [hyunil@illinois.edu](mailto:hyunil@illinois.edu)) for additional information.