BUNMD Supplementary Geography File Codebook

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Summary and Methodology

The BUNMD Supplementary Geography File (N = 43,541,997) provides a set of supplementary geography variables reporting place of birth and death for individuals in the BUNMD. This file can be linked onto the BUNMD at the individual-level using Social Security number.

Place of death variables: To construct the place of death variables, we use the ZIP code of last residence available in the Numident Death record. It is likely that this reflects the ZIP code where an individual last lived. We map these ZIP codes onto city, county, state, census region, country, and rural urban continuum codes using a database from the United States Postal Service (USPS) Link. For ZIP codes that have been decommissioned, we use a secondary database from UnitedStatesZipCodes.org.

Place of birth variables: To construct the place of birth variables, we use 12-character city/county of birth string from the Numident Application records. These strings are uncleaned and contain misspellings and other inconsistencies. We mapped these uncleaned strings onto Geographic Names Information System (GNIS) codes using the crosswalk developed for this paper:

> Black, Dan A., Seth G. Sanders, Evan J. Taylor, and Lowell J. Taylor. 2015. "The Impact of the Great Migration on Mortality of African Americans: Evidence from the Deep South."*American Economic Review.* 105(2):477–503. doi: 10.1257/aer.20120642.

To construct other place of birth variable, we mapped the GNIS codes onto city, county, state, and census regions using a database from the U.S. Board on Geographic Names Link.**Note that the District of Columbia and birth locations outside the United States are not mapped to GNIS codes.** Please cite Black et al. (2015) if you are using any of the birthplace geography variables in the file.

ssn

Label: Social Security Number

Description: ssn is a numeric variable reporting a person's Social Security number. This variable uniquely identifies all records in the dataset and can be used to merge onto the BUNMD dataset.

birth_string_uncleaned

Label: Place of birth, uncleaned city/county string

Description: birth_string_uncleaned reports the 12-character city/county of birth string from the Numident Application records. This variable is uncleaned and unprocessed, and any many contain spelling errors or inconsistencies.

NA values are due to birth cities not being inputted in social security records.

birth_gnis_code

Label: Place of birth, GNIS code

Description: birth_gnis_code is a numeric variable that reports a person's Geographic Names Information System (GNIS) code for their place of birth. Each GNIS code maps onto physical locations located in the U.S., including longitude and latitude coordinates, physical feature names, counties, and states.

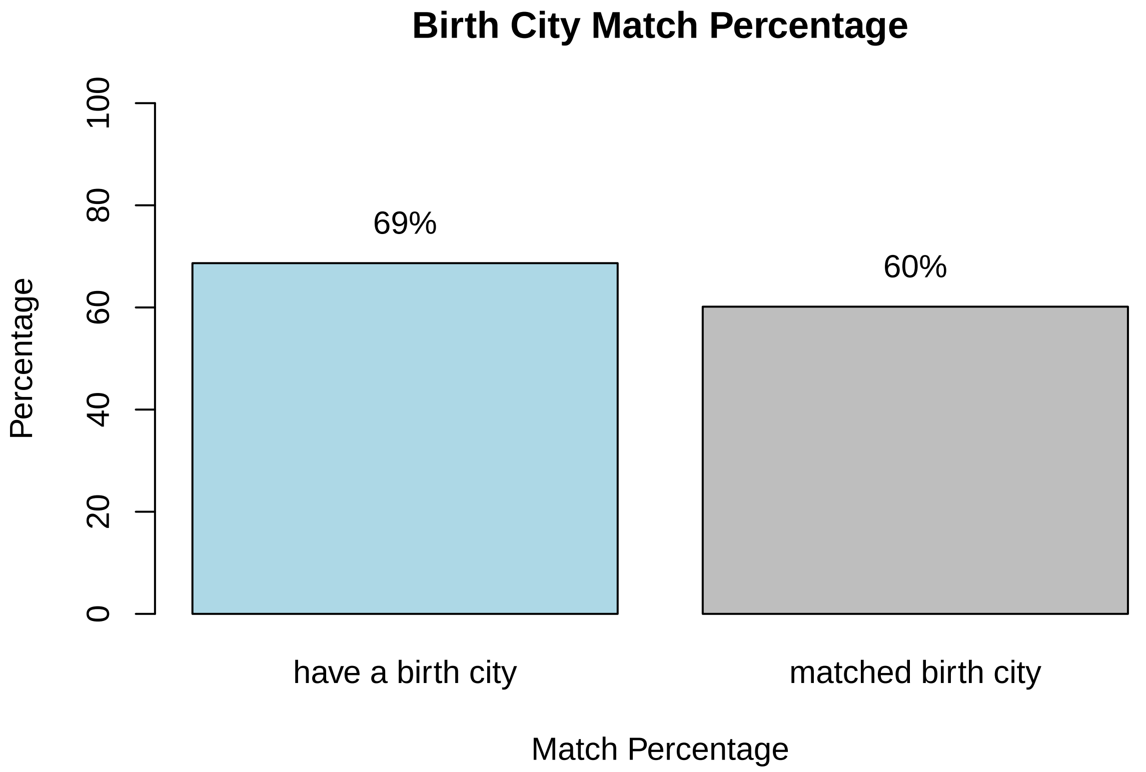
NA values are due to an inability to match uncleaned birth city values with the GNIS crosswalk or a lack of birth city on social security records.

For more information on GNIS codes, please see https://www.usgs.gov/faqs/what-geographic-names-information-system-gnis.

birth_city

Label: Place of birth, city

Description: birth_city is a character variable reporting a person's city of birth. NA values are due to an inability to match uncleaned birth city values with the GNIS crosswalk or a lack of birth city on social security records.



birth_county

Label: Place of birth, county

Description: birth_county is a character variable reporting a person's county of birth.

NA values are due to an inability to match uncleaned birth city values with the GNIS crosswalk or a lack of birth city on social security records.

birth_region

Label: Place of birth, census region

Description: birth_region is a character variable reporting a person's census region of birth. For more information on Census Regions, please see https://www.census.gov/programs-surveys/economic-census/guidance-geographies/levels.html.

NA values are due to an inability to match uncleaned birth city values with the GNIS crosswalk, birth city being outside of a census region (in a different country for example), or a birth city not being entered in social security records.

Births by Census Region

Region	n	freq %
midwest	9313443	21.4
northeast	7873541	18.1
south	12121869	27.8
west	2823356	6.5
NA	11409788	26.2

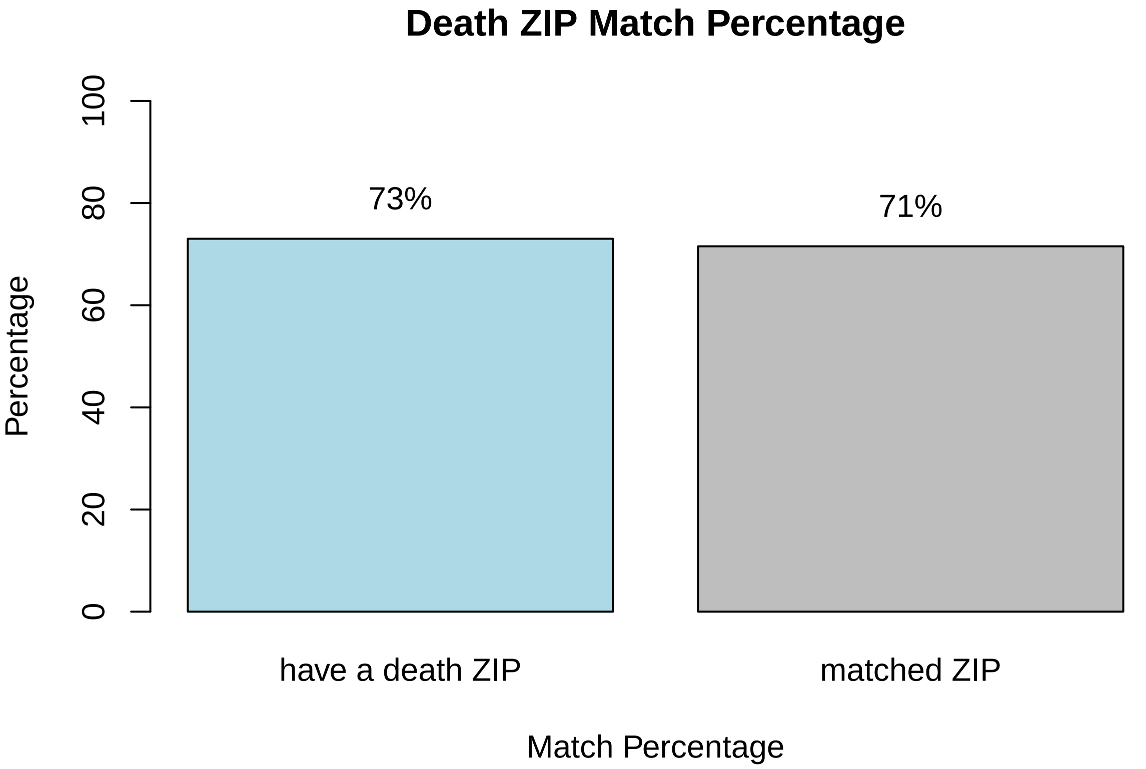
death_zip

Label: Place of death, ZIP code

Description: death_zip is a numeric variable that represents the 5-digit ZIP code of the last residence. It is obtained from the Numident Death record, which is a record maintained by the Social Security Administration. However, it's important to note that the ZIP codes in this variable include non-identifiable codes such as "XX768" and "00000".

We note that ZIP codes are primarily used for USPS mail delivery purposes, not as geographic units. For a more detailed description of ZIP codes, please see: https://faq.usps.com/s/article/ZIP-Code-The-Basics.

NA values are due to ZIP code not being entered correctly in social security records or a person dying in a place where there is no USPS identifiable ZIP code.



death_city

Label: Place of death, city

Description: death_city is a character variable reporting a person's city of death, as sourced from the ZIP code of their residence at time of death. For ZIP codes that cross city lines, we report the city where the primary post office for that ZIP code is located.

NA values are due to ZIP code not being entered correctly in social security records, a person dying in a place with no ZIP codes, or a ZIP code that could not be matched against USPS records.

death_county_fips

Label: Place of death, county FIPS code

Description: death_fips is a numeric variable reporting a person's county FIPS code of death. NA values are due to ZIP code not being entered correctly in social security records, a ZIP code that could not be matched against USPS records, a person dying in a place with no ZIP code, or a county not being matched with a FIPS code.

For a more detailed description of county FIPS codes, please see: https://transition.fcc.gov/oet/info/maps/census/fips/fips.txt#:~:text=FIPS%20codes%20are%20numbers%20which,to%20which%20the%20county%20belongs.

Although FIPS codes rarely change, one major change occurred after Dade County, FL became Miami-Dade and a new FIPS code was assigned. If you're using FIPS code data that was produced after 1997, you'll want to manually change Dade County's FIPS code in order for it to match. Below is an example of how you could use these FIPS codes if you wanted to incorporate county-level education attainment (https://www.ers.usda.gov/webdocs/DataFiles/48747/Education.xls).

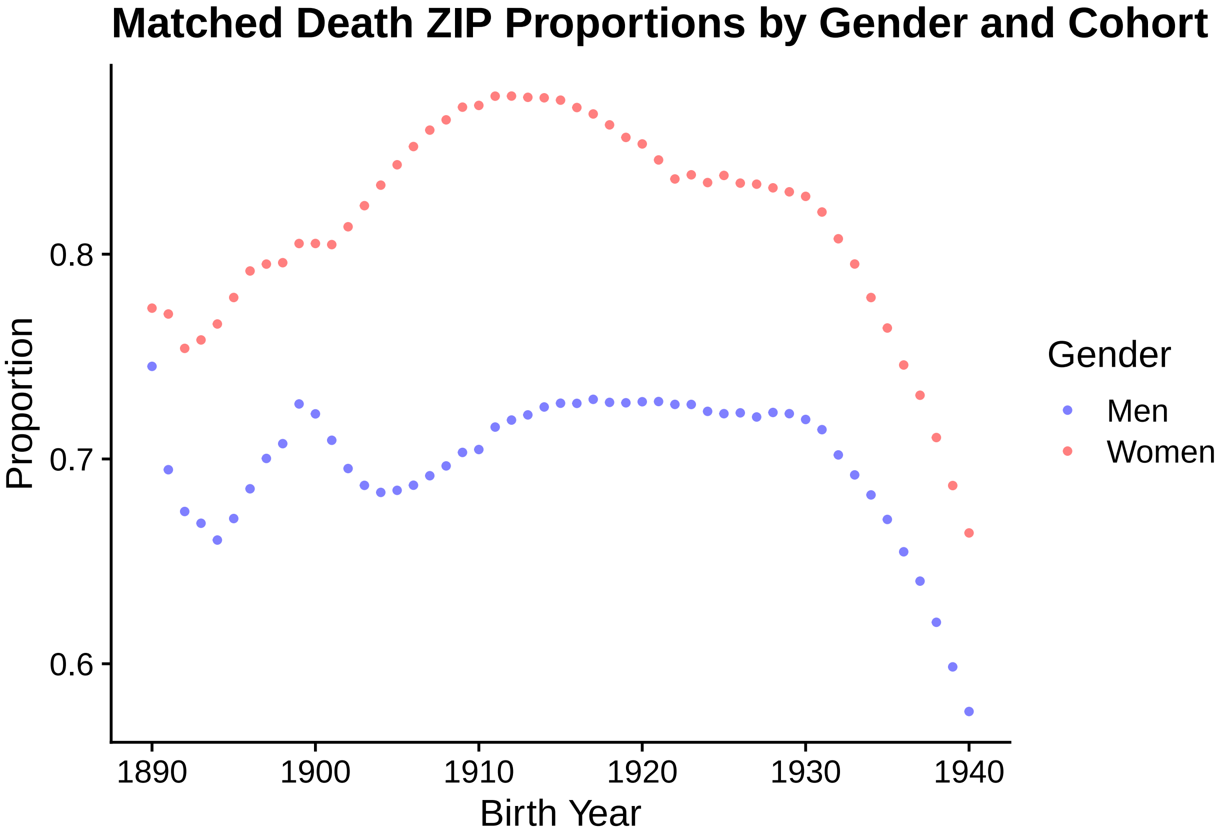
```r
#Hypothetical education data
education <- read_excel("/data/censoc/workspace/geography_variables/Education.xlsx")

#we rename FIPS to death_fips so that it can match
colnames(education)[1] <- "death_fips"

#recode Miami-Dade's FIPS to Dade County's FIPS
education <- education %>%
  mutate(death_fips = ifelse(death_fips == "12086", "12025", death_fips)) %>%
  mutate(death_fips = as.character(death_fips))

#merge onto BUNMD
bunmd_merged <- merge(bunmd_merged, education, by = "death_fips", all.x = TRUE)
```

death_county

Label: Place of death, county

Description: death_county is a character variable reporting a person's county of death, as sourced from the ZIP code of their residence at time of death.

NA values are due to ZIP code not being entered correctly in social security records or a ZIP code that could not be matched against USPS records.



death_state

Label: Place of death, state

Description: death_state is a character variable reporting a person's state of death, as sourced from the ZIP code of their residence at time of death.

NA values are due to ZIP code not being entered correctly in social security records, the person died outside of the US, or a ZIP code that could not be matched against USPS records.

death_region

Label: Place of death, census region

Description: death_region is a character variable reporting a person's census region of death, as sourced from the ZIP code of their residence at time of death.

NA values are due to ZIP code not being entered correctly in social security records, the person died outside of one of the four census regions (for example in a different country), or a ZIP code that could not be matched against USPS records.

Deaths by Census Region

region	n	freq %
midwest	7446343	17.1
northeast	7372558	16.9
south	12843880	29.5
west	7349179	16.9
NA	8530037	19.6

death_country

Label: Place of death, country

Description: death_country is a character variable reporting a person's country of death, as sourced from the ZIP code of their residence at time of death. While the majority of ZIP codes are within the U.S., countries that host U.S. military bases on their territories may also have ZIP codes associated with them.

NA values are due to ZIP code not being entered correctly in social security records or a ZIP code that could not be matched against USPS records. People who died in a country where there are no ZIP codes identifiable by the USPS are assigned an NA.

death_ruc1993

Label: County of death, rural-urban continuum code

Description: death_ruc1993 report the Rural-Urban continuum code for a person's county of death, as sourced from the United States Department of Agriculture (USDA). The Urban-Rural Continuum Codes are a classification system developed to categorize U.S. counties based on their degree of urbanization and adjacency to metropolitan areas. The system consists of ten codes, ranging from 0 to 9, where lower codes represent more urbanized counties and higher codes represent more rural areas.

NA values are due to ZIP code not being entered correctly in social security records, a ZIP code that could not be matched against USPS records, or a county not being matched with a FIPS code.

For more information: https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx

Rural-Urban Deaths

code	description	n	freq %
0	Central counties of metro areas of 1 million population or more	14395202	33.1
1	Fringe counties of metro areas of 1 million population or more	1226287	2.8
2	Counties in metro areas of 250,000 to 1 million population	7849039	18.0
3	Counties in metro areas of fewer than 250,000 population	2901451	6.7
4	Urban population of 20,000 or more, adjacent to a metro area	1529111	3.5
5	Urban population of 20,000 or more, not adjacent to a metro area	933952	2.1
6	Urban population of 2,500 to 19,999, adjacent to a metro area	2803023	6.4
7	Urban population of 2,500 to 19,999, not adjacent to a metro area	2261455	5.2
8	Rural or fewer than 2,500 urban population, adjacent to a metro area	441401	1.0
9	Rural or fewer than 2,500 urban population, not adjacent to a metro area	663670	1.5
NA	NA	8537406	19.6