# Package: edbuildmapr (via r-universe)

September 13, 2024

**Type** Package

**Title** Download School District Geospatial Data, Perform Spatial
Analysis, and Create Formatted Exportable Maps

**Version** 0.3.1

**Description** Import US Census Bureau, Education Demographic and
Geographic Estimates Program, Composite School District
Boundaries Files for 2013-2019 with the option to attach the
'EdBuild' master dataset of school district finance, student
demographics, and community economic indicators for every
school district in the United States. The master dataset is
built from the US Census, Annual Survey of School System
Finances (F33) and joins data from the National Center for
Education Statistics, Common Core of Data; the US Census, Small
Area Income and Poverty Estimates; and the US Census, Education
Demographic and Geographic Estimates. Additional functions in
the package create a dataset of all pairs of school district
neighbors as either a dataframe or a shapefile and create
formatted maps of selected districts at the state or neighbor
level, symbolized by a selected variable in the 'EdBuild'
master dataset. For full details about 'EdBuild' data
processing please see 'EdBuild' (2020)
<http://data.edbuild.org/>.

**License** CC0

**Imports** dplyr, magrittr, spdep, sf (>= 0.9-1), stringr, tibble,
tidyselect (>= 1.0.0), tmap (>= 3.0)

**URL** https://github.com/EdBuild/edbuildmapr

**BugReports** https://github.com/EdBuild/edbuildmapr/issues

**Encoding** UTF-8

**RoxygenNote** 7.0.2

**Repository** https://edbuild.r-universe.dev

**RemoteUrl** https://github.com/edbuild/edbuildmapr

**RemoteRef** HEAD

**RemoteSha** 412ded698ad0cce302761bc043175fad738c4501

# Contents

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borders           *A function to create a file of the borders between neighboring districts*

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### Description

This function allows you to create a dataframe or linestring spatial object of the borders between neighboring districts from any polygon shapefile. It is optimized for school districts in the US, but any polygon shapefile can be used.

### Usage

```
borders(shapefile = "2019", state = NULL, id = "GEOID", diff_var =
 "StPovRate", export = "dataframe")
```

### Arguments

| | |
|---|---|
| shapefile | The polygon shapefile for which you want to define the borders. To import the school district shapefile for school years between 2013 and 2019, input the four digit year. Import any polygon shapefile by inputting the absolute path to the shapefile on your computer. Defaults to the 2019 school district shapes. |
| state | State name. Can only be used with the school district shapefile. Defaults to NULL to find all borders nationwide. |
| id | Unique variable used to create id for each pair of neighbors. Defaults to GEOID, the unique id in Census data. |
| diff_var | Name of a numeric variable by which to rank the difference between neighbors. Use diff_var = "options" to print a list of the variables. Defaults to "StPovRate", which returns the percentage point difference in Student Poverty Rate. |
| export | The type of object to return, dataframe or shape. Default to dataframe. |

### Format

A data frame with 7 variables or spatial object with 8 variables:

**year** data year

**u_id** Unique id of neighbor pair, a compilation of id1 and id2

**id1** Unique id of first district

**id2** Unique id of second district

**length** Length of border in meters for the school district shapefiles, and in the units associated with the projection of the shapefile if the user imports their own shapefile

**diff_var_1** Value of the selected `diff_var` for the first district

**diff_var_2** Value of the selected `diff_var` for the second district

**diff_in_diff_var** Difference in the selected `diff_var` between district one and two

**geography** Linestring spatial object if user selected to export as a shape

## Value

A dataframe or spatial object where each observation is a neighboring pair of districts.

## See Also

sd_shapepull, sd_neighbor_map

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| edbuildmapr | *edbuildmapr: A package to download school district geospatial data, perform spatial analysis, and create formatted exportable maps.* |

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## Description

Import US Census Bureau, Education Demographic and Geographic Estimates Program, Composite School District Boundaries Files for 2013-2019 with the option to attach EdBuild's master dataset of school district finance, student demographics, and community economic indicators for every school district in the United States. The master dataset is built from the US Census, Annual Survey of School System Finances (F33) and joins data from the National Center for Education Statistics, Common Core of Data; the US Census, Small Area Income and Poverty Estimates; and the US Census, Education Demographic and Geographic Estimates. Additional functions in the package create a dataset of all pairs of school district neighbors as either a dataframe or a shapefile and create formatted maps of selected districts at the state or neighbor level, symbolized by a selected variable in EdBuild's master dataset. For full details about 'EdBuild' data processing please see: EdBuild (2020) Methodology.

## edbuildmapr functions

The edbuildmapr functions are:

borders Create a dataframe or linestring object of the borders between neighboring districts.

sd_map Create a map of all school districts in any state symbolized by a selected variable from the EdBuild master dataset.

sd_neighbor_map Create a map of any school district with its neighbors symbolized by a selected variable from the EdBuild master dataset.

[sd_shapepull](#) Import a simplified version the US Census Bureau, Education Demographic and Geographic Estimates Program (EDGE), Composite School District Boundaries File for any school year from 2013 to 2018 with the option to attach EdBuild's master dataset of school district finance, student demographics, and community economic indicators for every school district in the US.

[state_shapepull](#) Import a simplified version of state shapefiles matching the US Census Bureau, Education Demographic and Geographic Estimates Program (EDGE), Composite School District Boundaries File for 2019.

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sd_map                              *A function to create a map of all school districts in a state*

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### Description

This function allows you to create a map of all school districts, in each state in the United States, symbolized by selected variables from the EdBuild master dataset.

### Usage

```
sd_map(data_year = "2019", state="New Jersey", county = NULL, map_var = "Student Poverty",
  level = "elem", legend= TRUE)
```

### Arguments

| | |
|---|---|
| data_year | Four digit year of master data to pull in. Options include 2013- 2019. Defaults to 2019. |
| state | The state for which you want to map school districts. Defaults to New Jersey. |
| county | The county for which you want to map school districts. Defaults to NULL. To view a full list of counties use sd_shapepull(year = "2019", with_data = TRUE) |
| map_var | Variable by which to symbolize the map. |

- Student Poverty colors by student poverty rate
- Total Revenue colors by state and local revenue per pupil
- Local Revenue colors by local revenue per pupil
- State Revenue colors by state revenue per pupil
- Percent Nonwhite colors by percent nonwhite enrollment
- Median Household Income colors by median household income
- Median Property Value colors by owner-occupied median property value

- FRL colors by free and reduced price lunch rate

Defaults to `Student Poverty`

level           Selects which level of school districts you want displayed in the map.

- `elem` displays elementary and unified districts
- `secon` displays secondary and unified districts

Defaults to `elem`.

legend         If TRUE, legend is visible. Defaults to TRUE.

## Value

An image of the map which can be written out with `tmap::tmap_save(map, '~/Documents/map.png')`

## See Also

[sd_neighbor_map](sd_neighbor_map)

## Examples

```
map <- sd_map(state="Georgia", map_var = "Percent Nonwhite",
 level = "elem", legend= TRUE)
```

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sd_neighbor_map          *A function to create a map of a school district and its neighbors*

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## Description

This function allows you to create a map of any school district with its neighbors symbolized by a selected variable.

## Usage

```
sd_neighbor_map(data_year = "2019", school_district = NULL,
 map_var = "Student Poverty", legend= TRUE, type = "like")
```

## Arguments

data_year       Four digit year of master data to pull in. Options include 2013- 2019. Defaults to 2019.

school_district

          Seven digit NCESID of the school district. Default is NULL.

map_var        Variable by which to symbolize the map.

- `Student Poverty` colors by student poverty rate
- `Total Revenue` colors by state and local revenue per pupil
- `Local Revenue` colors by local revenue per pupil
- `State Revenue` colors by state revenue per pupil

- Percent Nonwhite colors by percent nonwhite enrollment
- Median Household Income colors by owner-occupied median household income
- Median Property Value colors by median property value
- FRL colors by free and reduced price lunch rate

Defaults to Student Poverty

legend        If TRUE, legend is visible. Defaults to TRUE.

type          Indicate which types of neighbors to return. Defaults to "like", returning a map of neighbors of the same district type (unified to unified, elementary to elementary and secondary to secondary). To view all neighbors use "all". This becomes important for districts like Chicago which have upwards of 50 neighboring school districts, but only 1 type-like neighbor. Chicago is a unified district with 1 unified neighbor, 16 secondary neighbors, and 32 elementary neighbors.

## Value

An image of the map which can be written out with tmap::tmap_save(map, '~/Documents/map.png')

## See Also

[sd_map](sd_map)

## Examples

```
map <- sd_neighbor_map(data_year = "2019", school_district = "2901000", "Percent Nonwhite")
```

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sd_shapepull                 *A function to import school district shapefiles*

---

## Description

This function allows you to import a simplified version of the US Census Bureau, Education Demographic and Geographic Estimates Program (EDGE), Composite School District Boundaries File.

## Usage

```
sd_shapepull(data_year = "2019", with_data=FALSE)
```

## Arguments

data_year     Four digit year of shapefile data you would like to pull. Available for any school year from 2013 to 2019.

with_data     TRUE to attach EdBuild's school district master dataset to shapefile. Defaults to FALSE.

## Format

Simple feature collection with 6 fields and geometry Multi Polygon:

**GEOID** Unique school district ID, character

**NAME** School district name, character string

**sdType** School district level, character string

**FIPS** State ID, character

**State** State name, character

**Postal** State postal code, character

**geometry** sfc_MULTIPOLYGON

## Value

A spatial object where each row is a school district.

## Source

[https://s3.amazonaws.com/data.edbuild.org/public/Processed+Data/SD+shapes/2019/shapefile_1819.zip](https://s3.amazonaws.com/data.edbuild.org/public/Processed+Data/SD+shapes/2019/shapefile_1819.zip)

## Examples

```
sd_shp_19 <- sd_shapepull("2019")
```

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| state_shapepull | *A function to import state shapefiles* |
|---|---|

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## Description

This function allows you to import a simplified version of state shapefiles which match the the US Census Bureau, Education Demographic and Geographic Estimates Program (EDGE), Composite School District Boundaries File.

## Usage

```
state_shapepull()
```

## Format

Simple feature collection with 4 fields:

**State.Post** State postal code, character string

**FIPSn** State ID, character

**Name** State name, character string

**geometry** sfc_MULTIPOLYGON

## Value

A spatial object where each row is a state.

## Source

[https://s3.amazonaws.com/data.edbuild.org/public/Processed+Data/State+Shapes/US_](https://s3.amazonaws.com/data.edbuild.org/public/Processed+Data/State+Shapes/US_States_Viz_2020_high_res.zip)
[States_Viz_2020_high_res.zip](https://s3.amazonaws.com/data.edbuild.org/public/Processed+Data/State+Shapes/US_States_Viz_2020_high_res.zip)

## Examples

```
state_shp <- state_shapepull()
```

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