

Package ‘edbuildmapr’

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Type Package

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

Version 0.2.0

Description Import US Census Bureau, Education Demographic and Geographic Estimates Program, Composite School District Boundaries Files for 2013-2018 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) <<https://data.edbuild.org/>>.

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

URL <https://github.com/EdBuild/edbuildmapr>, <https://edbuild.github.io/>

BugReports <https://github.com/EdBuild/edbuildmapr/issues>

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borders	<i>A function to create a file of the borders between neighboring districts</i>
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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 = "2018", 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 2018, input the four digit year. Import any polygon shapefile by inputting the absolute path to the shapefile on your computer. Defaults to the 2018 school district shapes.
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](#)

Examples

```
dataframe_ex <- borders(shapefile = "2018",
  id = "GEOID",
  diff_var = "MHI",
  export = "dataframe")
```

```
shapefile_ex <- borders(shapefile = "2018",
  id = "GEOID",
  diff_var = "pctNW",
  export = "shape")
```

edbuildmapr

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

Description

Import US Census Bureau, Education Demographic and Geographic Estimates Program, Composite School District Boundaries Files for 2013-2018 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 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 2018.

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sd_map

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

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

Arguments

- | | |
|---------|---|
| 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 <code>sd_shapepull(year = "2018", with_data = TRUE)</code> |
| map_var | Variable by which to symbolize the map. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • elem displays elementary and unified districts • secon displays secondary and unified districts <p>Defaults to elem.</p>
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](#)

Examples

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

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

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

Arguments

school_district	Seven digit NCESID of the school district. Default is NULL.
map_var	Variable by which to symbolize the map. <ul style="list-style-type: none"> • 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](#)

Examples

```
map <- sd_neighbor_map(school_district = "2601103", "Percent Nonwhite")
```

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 = "2018", with_data=FALSE)
```

Arguments

<code>data_year</code>	Four digit year of shapefile data you would like to pull. Available for any school year from 2013 to 2018.
<code>with_data</code>	TRUE to attach EdBuild's school district master dataset to shapefile. Defaults to FALSE.

Format

Simple feature collection with 6 fields:

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/2018/shapefile_1718.zip

Examples

```
sd_shp_18 <- sd_shapepull("2018")
```

`state_shapepull` *A function to import state shapefiles*

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_States_Viz_2020_high_res.zip

Examples

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


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