Package 'populR'

September 23, 2021

Type Package

Title Population Down-Scaling

Version 0.1.1

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Description Population down-
scaling from census blocks to building units using Areametric and Volumetric approaches.
The aforementioned methods were adopted by Lwin K. K. and Murayama Y. work <doi:10.1111/j.1467-9671.2009.01171.x>.

License GPL-3

Encoding UTF-8

LazyData true

Imports sf

Depends R (>= 2.10)

RoxygenNote 7.1.1

NeedsCompilation no

Repository CRAN

Date/Publication 2021-09-23 17:00:06 UTC

R topics documented:

`pp_estimate` *Population Down-scaling*

Description

Population Down-scaling

Usage

```
pp_estimate(source, target, sourcepop, sourcecode, volume = NULL)
```

Arguments

`source`	object of class `sf`
`target`	object of class `sf`
`sourcepop`	string of source pop column
`sourcecode`	string of source id column
`volume`	string of target floor/height column

Value

an object of class `sf` including population counts

References

Lwin, K. K., & Murayama, Y. (2009) *A GIS approach to estimation of building population for micro-spatial analysis. Transactions in GIS, 13(4), 401–414.* doi: 10.1111/j.14679671.2009.01171.x

Examples

```
library(populR)
data("target")
data("source")

# areametric
pop_aw <- pp_estimate(source = source, target = target, sourcepop = 'pop',
    sourcecode = 'sid')

#volumetric
pop_vw <- pp_estimate(source = source, target = target, sourcepop = 'pop',
    sourcecode = 'sid', volume = 'floors')
```

pp_rmse *RMS Error*

Description

This function calculates the rmse between the source and target counts

Usage

```
pp_rmse(target, source, sourcecode, sourcepop, targetpop, title)
```

Arguments

target	target file in sf format
source	census source file in sf format
sourcecode	source id column string
sourcepop	source population column name string
targetpop	target estimated pop column name string
title	title of scatterplot string

Value

rms error, correlation, lm line and scatterplot

Examples

```
library(populR)
data("target")
data("source")

# areametric
pop_aw <- pp_estimate(source = source, target = target, sourcepop = 'pop',
    sourcecode = 'sid')

# areametric rmse
pp_rmse(target = pop_aw, source = source, sourcecode = 'sid',
    sourcepop = 'pop', targetpop = 'pp_est', title = 'Areametric')

# volumetric
pop_vw <- pp_estimate(source = source, target = target, sourcepop = 'pop',
    sourcecode = 'sid', volume = 'floors')

# volumetric rmse
pp_rmse(target = pop_vw, source = source, sourcecode = 'sid',
    sourcepop = 'pop', targetpop = 'pp_est', title = 'Volumetric')
```

pp_round *Rounding Function*

Description

This function converts decimal population estimates produced by the pp_estimate approach into integer numbers that sum up to the source zone population counts

Usage

```
pp_round(target, targetpop, sourcepop, sourcecode)
```

Arguments

target	object of class sf
targetpop	string of target estimated pop column
sourcepop	string of source pop column
sourcecode	string of source id column

Value

an object of class sf including rounded population counts

Examples

```
library(populR)
data("target")
data("source")

# areametric
pop_aw <- pp_estimate(source = source, target = target,
    sourcepop = "pop", sourcecode = "sid")

# areametric round
round_aw <- pp_round(target = pop_aw, targetpop = "pp_est",
    sourcepop = "pop", sourcecode = "sid")

# volumetric
pop_vw <- pp_estimate(source = source, target = target,
sourcepop = "pop", sourcecode = "sid", volume = "floors")

# volumetric round
round_vw <- pp_round(target = pop_vw, targetpop = "pp_est",
    sourcepop = "pop", sourcecode = "sid")
```

source *Source*

Description

object of sf class representing the blocks of a fictional area

Usage

```
source
```

Format

object of sf class with 6 rows and 3 columns:

id source id

pop population count

geometry geometry

Source

http://www.mbatsaris.gr/

target *Target*

Description

object of sf class representing the buildings of a fictional areag

Usage

```
target
```

Format

object of sf class with 19 rows and 2 columns:

floors number of floors

geometry geometry

Source

http://mbatsaris.gr/

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