

# Package ‘populR’

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**Type** Package

**Title** Population Down-Scaling

**Version** 0.1.4

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**Description** Areal interpolation of population data obtained by census surveys. Given a set of source zone polygons such as census tracts or city blocks alongside with population counts and a target zone of incogruent yet superimposed polygon features (such as individual buildings) populR transforms population counts from the former to the latter using Areal Weighted and Volume Weighted Interpolation methods.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**Imports** sf, rlang, Metrics

**Depends** R (>= 3.3.0)

**RoxygenNote** 7.1.2

**NeedsCompilation** no

**Repository** CRAN

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pp\_estimate

*Residential Population Down-Scaling***Description**

Residential Population Down-Scaling

**Usage**

```
pp_estimate(.target, source, sid, spop, volume = NULL, point = FALSE, method)
```

**Arguments**

.target	an object of class sf representing individual building polygons
source	an object of class sf representing coarse polygon features (such as census tracts or city blocks) including population counts
sid	source id
spop	source population
volume	target volume (height or number of floors)
point	whether to use point geometries (TRUE/FALSE)
method	available methods: awi, vwi

**Value**

and object of class sf including estimated population counts for target zone features using either awi or vwi methods

**Examples**

```
# read lib data
data('source')
data('target')

# areal weighted interpolation - awi
pp_estimate(target, source = source, sid = sid, spop = pop,
  method = awi)

# areal weighted interpolation - awi using point geometries
pp_estimate(target, source = source, sid = sid, spop = pop,
  method = awi, point = TRUE)

# volume weighted interpolation - vwi
pp_estimate(target, source = source, sid = sid, spop = pop,
  method = vwi, volume = floors)

# volume weighted interpolation - vwi using point geometries
pp_estimate(target, source = source, sid = sid, spop = pop,
```

```
method = vwi, volume = floors, point = TRUE)
```

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pp\_rmse

*RMSE*

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## Description

RMSE

## Usage

```
pp_rmse(.target, source, sid, spop, tpop, title)
```

## Arguments

.target	an object of class sf
source	an object of class sf
sid	source id
spop	source population
tpop	target population
title	scatterplot title string

## Value

a list including rmse, mae, linear model details and correlation coefficient

## Examples

```
# read lib data
data('source')
data('target')

# areal weighted interpolation - awi
awi <- pp_estimate(target, source = source, sid = sid, spop = pop,
  method = awi)

# volume weighted interpolation - vwi
vwi <- pp_estimate(target, source = source, sid = sid, spop = pop,
  method = vwi, volume = floors)

# awi - rmse
pp_rmse(awi, source = source, sid = sid, spop = pop, tpop = pp_est,
  title = 'awi')

# vwi - rmse
pp_rmse(vwi, source = source, sid = sid, spop = pop, tpop = pp_est,
  title = 'vwi')
```

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pp\_round

*Rounding Function*

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## Description

Rounding Function

## Usage

```
pp_round(.target, tpop, spop, sid)
```

## Arguments

.target	object of class sf obtained by the <a href="#">pp_estimate</a> function and includes population estimates
tpop	target population
spop	source population
sid	source id

## Value

an object of class sf including rounded population counts

## Examples

```
# read lib data
data('source')
data('target')

# areal weighted interpolation - awi
awi <- pp_estimate(target, source = source, sid = sid, spop = pop,
  method = awi)

# volume weighted interpolation - vwi
vwi <- pp_estimate(target, source = source, sid = sid, spop = pop,
  method = vwi, volume = floors)

# awi - round
pp_round(awi, tpop = pp_est, spop = pop, sid = sid)

# vwi - round
pp_round(vwi, tpop = pp_est, spop = pop, sid = sid)
```

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source	<i>Source</i>
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**Description**

object of sf class representing the blocks of a fictional area

**Usage**

source

**Format**

object of sf class with 9 rows and 3 columns:

sid source id

pop population count

geometry geometry

**Source**

<http://www.mbatsaris.gr/>

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target	<i>Target</i>
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**Description**

object of sf class representing the buildings of a fictional area

**Usage**

target

**Format**

object of sf class with 179 rows and 3 columns:

tid target id

floors number of floors

geometry geometry

**Source**

<http://mbatsaris.gr/>

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