Package 'RCTrep'

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Type Package

Title What the Package Does (Title Case)

Version 0.1.0

Author Who wrote it

Maintainer The package maintainer <yourself@somewhere.net>

Description More about what it does (maybe more than one line)
Use four spaces when indenting paragraphs within the Description.

License What license is it under?

Encoding UTF-8

LazyData true

Imports mvtnorm, MASS, MatchIt, ggplot2, ggpubr, dplyr, PSweight, numDeriv, R6

Suggests rmarkdown,
knitr,
testthat (>= 3.0.0)

Config/testthat/edition 3

RoxygenNote 7.1.2

VignetteBuilder knitr

Depends R (>= 2.10)

R topics documented:

`hello` *Hello, World!*

Description

Prints 'Hello, world!'.

Usage

```
hello()
```

Examples

```
hello()
```

RCTREP *Replicate treatment effect estimates obtained from a randomized control trial using real world data*

Description

The function RCTREP is used to replicate the estimate of treatment effect from a target randomized control trial based on non-experimental observational data. This function estimate the treatment effect of observational data to ensure the internal validity of the estimates within the study population (namely, the observational data) and weight the resulting estimates to the target population (namely, the RCT) to enable external validity. The function currently implement the following types of estimators of treatment effect: G_computation, inverse propensity score weighting (IPW), and augmented propensity score weighting. The function implement the following two types of weighting estimators to generalize the resulting estimates of treatment effect from observational data to the target randomized control trial population: exact matching weights, and selection score weights. Since the target population is the RCT, weights for each individual in observational data is $p/(1-p)$.

Usage

```
RCTREP(
  Estimator = "G_computation",
  weighting_estimator = "Balancing",
  source.data = source.data,
  target.data = target.data,
  vars_name,
  outcome_method = "glm",
  treatment_method = "glm",
  weighting_model = "glm",
  outcome_formula = NULL,
  treatment_formula = NULL,
  selection_formula = NULL,
  stratification = NULL,
  stratification_joint = FALSE,
  strata_cut = NULL,
  two_models = NULL,
  ...
)
```

Arguments

Estimator	a character specifying an estimator for average treatment effect. The allowed estimators for Estimator are: "G_computation", "IPW", and "DR". The corresponding object will be created by the wrapper function Estimate().

Details

An R6 object for both studies are constructed by a wrapper function `Estimate()` with user's input of data and estimator for treatment effect. Then `Estimate()` return initialized objects `source.obj` and `target.obj`. `source.obj` replicates the target RCT estimate via the class method `RCTrep()` with input of target object `target.obj` and weighting method.

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