Package: glorenz (via r-universe)

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Title Transformed and Relative Lorenz Curves for Survey Weighted Data

Version 0.1.1

Description Functions for constructing Transformed and Relative Lorenz curves with survey sampling weights. Given a variable of interest measured in two groups with scaled survey weights so that their hypothetical populations are of equal size, tlorenz() computes the proportion of members of the group with smaller values (ordered from smallest to largest) needed for their sum to match the sum of the top qth percentile of the group with higher values. rlorenz() shows the fraction of the total value of the group with larger values held by the pth percentile of those in the group with smaller values. Fd() is a survey weighted cumulative distribution function and Eps() is a survey weighted inverse cdf used in rlorenz(). Ramos, Graubard, and Gastwirth (2025) <doi:10.1093/jrsssa/qnaf044>.

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Encoding UTF-8

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Imports dplyr , magrittr , stats , LorenzRegression, rlang

RoxygenNote 7.3.2

NeedsCompilation no

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Eps *Inverse cumulative distribution function for a subset of the dataset*

Description

Inverse cumulative distribution function for a subset of the dataset

Usage

```
Eps(p, data, group = "qtyvar")
```

Arguments

p	cumulative distribution percentile
data	dataset with defined group and newwts columns
group	variable of interest

Value

Cumulative distribution percentile for quantile y

Examples

```
df_samp <- data.frame(qtyvar = rnorm(1000, mean = 5, sd = 2),newwts = rep(1, 1000))
Eps(0.25,df_samp)
# Finds the quantile for 25th percentile in simulated data.
```

`Fd` *Cumulative distribution function for a subset of the dataset*

Description

Cumulative distribution function for a subset of the dataset

Usage

```
Fd(y, data, group = "qtyvar", newwts = "newwts")
```

Arguments

`y`	cumulative distribution quantile
`data`	dataset with defined group and newwts columns
`group`	variable of interest
`newwts`	sampling weights

Value

Cumulative distribution percentile for quantile y

Examples

```
df_samp <- data.frame(qtyvar = rnorm(1000, mean = 5, sd = 2),newwts = rep(1, 1000))
Fd(3.5,df_samp)
# Finds the percentile for 3.5 in simulated data.
```

`rlorenz` *Compute relevant probabilities and estimates for selecting performance criteria*

Description

Compute relevant probabilities and estimates for selecting performance criteria

Usage

```
rlorenz(p, data, group, edata, newwts = "newwts")
```

Arguments

p	percentile based on data from group with lower mean value
data	dataset of group with higher mean value.
group	variable of interest. Entered in quotes.Must be present in data and edata.
edata	dataset of group with lower mean value.Must have defined newwts column. Sum of newwts for edata must be equal to sum of newwts for data.
newwts	sampling weights. "newwts" by default. Must be present in data and edata.

Value

Relative Lorenz function value for p

Examples

```
df_samp <- data.frame(x1 = rnorm(500, mean = 5, sd = 2),newwts = rep(1, 500))
df_samp2 <- data.frame(x1 = rnorm(500, mean = 4.5, sd = 2),newwts = rep(1, 500))
p_vals <- seq(0, 1, length.out = 100)
lc_vals <- rlorenz(p_vals, data = df_samp, group = "x1", edata = df_samp2)

#Creates relative Lorenz curve values for two sets of simulated data
```

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tlorenz *Compute relevant probabilities and estimates for selecting performance criteria*

Description

Compute relevant probabilities and estimates for selecting performance criteria

Usage

```
tlorenz(q, d1, group, d2, newwts = "newwts")
```

Arguments

q	1-percentile of data on variable of interest in group with higher mean value
d1	dataset of group with higher mean value.
group	variable of interest. Entered in quotes.Must be present in d1 and d2
d2	dataset of group with lower mean value.
newwts	sampling weights. "newwts" by default. Must be present in data and edata.

Value

Transformed Lorenz function value for q

Examples

```
df_samp <- data.frame(x1 = rnorm(500, mean = 5, sd = 2),newwts = rep(1, 500))
df_samp2 <- data.frame(x1 = rnorm(500, mean = 4.5, sd = 2),newwts = rep(1, 500))
p_vals <- seq(0, 1, length.out = 100)
lc_vals <- tlorenz(p_vals, d1 = df_samp, group = "x1", d2 = df_samp2)

#Creates transformed Lorenz curve values for two sets of simulated data
```

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