Package ‘WgtEff’

June 10, 2019

Title Functions for Weighting Effects
Version 0.1.2
Description Functions for determining the effect of data weights on the variance of survey data: users will load a data set which has a weights column, and the package will calculate the design effect (DEFF), weighting loss, root design effect (DEFT), effective sample size (ESS), and/or weighted margin of error.

Imports stats
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DEFF  
**Calculate DEFF**

**Description**
Calculates design effect (DEFF)

**Usage**
DEFF(x)

**Arguments**
x = weights vector (name of weights column)

**Value**
Design effect (DEFF)

**References**
Design effect (DEFF) due to weighting => n * (sum(x^2) / sum(x)^2)

**Examples**
DEFF(testweights$weights_column)

DEFT  
**Calculate DEFT**

**Description**
Calculates root design effect (DEFT)

**Usage**
DEFT(x)

**Arguments**
x = weights vector (name of weights column)

**Value**
Root design effect (DEFT)
References

Root design effect (DEFT) => square root of DEFF

Examples

```
DEFT(testweights$weights_column)
```

---

**Description**

Calculates effective sample size (ESS)

**Usage**

```
ESS(x)
```

**Arguments**

- `x` = weights vector (name of weights column)

**Value**

Effective sample size (ESS)

**References**

Effective sample size (ESS) => sum(x)^2 / sum(x^2)

**Examples**

```
ESS(testweights$weights_column)
```
Calculate Full Statistics

Description
Calculates DEFF, weighting loss, DEFT, ESS, and MOE

Usage
FULL(p = 50, conf = 95, N, wtcol)

Arguments
- \( p \) = percentage for which MOE is calculated (optional, default is \( p = 50 \))
- \( \text{conf} \) = level of confidence (optional, default is \( \text{conf} = 95 \))
- \( N \) = population size (optional, used for finite population correction)
- \( \text{wtcol} \) = Weights vector (name of weights column)

Value
DEFF, weighting loss, DEFT, ESS, and MOE

Examples
FULL(N=3000, wtcol=testweights$weights_column)

Calculate MOE

Description
Calculates weighted margin of error (MOE)

Usage
MOE(p = 50, conf = 95, N, wtcol)

Arguments
- \( p \) = percentage for which MOE is calculated (optional, default is \( p = 50 \))
- \( \text{conf} \) = level of confidence (optional, default is \( \text{conf} = 95 \))
- \( N \) = population size (optional, used for finite population correction)
- \( \text{wtcol} \) = Weights vector (name of weights column)
testweights

Value
Weighted margin of error (MOE)

References
Weighted margin of error (MOE) => unweighted MOE * DEFT

Examples
MOE(N=3000, wtcol=testweights$weights_column)

| testweights | An example weights column for a data set of 80 cases |

Description
An example weights column for a data set of 80 cases

Usage
testweights

Format
A data frame with 80 rows and 1 variable
weights_column data weights

Source
Example data generated by author

 wtgloss

Calculate weighting loss

Description
Calculates weighting loss

Usage
wtgloss(x)

Arguments
x = weights vector (name of weights column)
Value

Weighting loss

References

Weighting loss => DEFF-1

Examples

WTGLOSS(testweights$weights_column)
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