Package 'ExpectedRepresentation'

November 19, 2022

Title Descriptive Representation Calculator from 'The Composition of Descriptive Representation'

Version 2.0

Authors 'John Gerring <jgerring@austin.utexas.edu> [aut], Connor Jerzak <connor.jerzak@gmail.com> [aut, cre], Erzen Oncel <erzen.oncel@ozyegin.edu.tr> [aut]'

Description This package contains two functions. The first computes the expected degree of representation for a given group in a political body under a random sampling model. The second computes the residual standard deviation in using the expected value as a prediction for observed values under the model.

Depends R (>= 3.3.3)

License Creative Commons Attribution-Noncommercial-No Derivative Works 4.0, for academic use only.

Encoding UTF-8

LazyData true

Maintainer 'Connor Jerzak' <connor.jerzak@gmail.com>

RoxygenNote 7.2.1

R topics documented:

`ExpectedRepresentation` *Compute the expected degree of representation for any group in a political body*

Description

Finds the degree of expected representation for any group in a political body under a random sampling model (Gerring, Jerzak and Oncel, 2022+).

Usage

```
ExpectedRepresentation(PopShares, BodyN)
```

Arguments

PopShares	A numeric vector containing the group-level population proportions.
BodyN	A positive integer denoting the size of the political body in question.
a=-0.5, b=1	Parameters controlling the affine transformation for how the representation measure is summarized. More precisely, a and b control how the expected L1 deviation of the population shares from the body shares are re-weighted (the expected L1 deviation is multiplied by a; b is as an additive re-scaling term). By default, a=-0.5 and b=1 so that the expected Rose Index of Proportionality is returned.

Value

The expected degree of representation (a scalar).

Examples

```
ExpectedRep <- ExpectedRepresentation(PopShares = c(1/3, 2/3,1/3),
                                      BodyN = 50)

print( ExpectedRep )
```

ResidualRepresentation

Compute the amount of representation not explained by a random sampling model.

Description

Finds the residual standard deviation when using the expected representation for any group in a political body to predict observed representation (Gerring, Jerzak and Oncel, 2022+).

Usage

```
ResidualRepresentation(PopShares, BodyN)
```

Arguments

PopShares	A numeric vector containing the group-level population proportions.
BodyN	A positive integer denoting the size of the political body in question.
a=-0.5, b=1	Parameters controlling the affine transformation for how the representation measure is summarized. More precisely, a and b control how the L1 deviation of the population shares from the body shares are re-weighted (the expected L1 deviation is multiplied by a; b is as an additive re-scaling term). By default, a=-0.5 and b=1 so that the expected Rose Index of Proportionality is returned.

Value

A summary of the amount of representation not explained by a random sampling model. More precisely, this function returns the the residual standard deviation when using the expected degree of representation to predict observed representatoin under a random sampling model.

Examples

```
ResidualRep <- ResidualRepresentation(PopShares = c(1/3, 2/3,1/3),
                                      BodyN = 50)

print( ResidualRep )
```

Index