Package 'polecon'

November 20, 2026

Title Quantitative Methods for Political Economy

Version 0.1.1

Description Provides quantitative methods for empirical research in political economy, with applications to food security, household economic vulnerability, and inequality. Computes weighted, rank-dependent concentration and inequality indices with explicit treatment of tied ranks. Supports variance estimation with survey replicate weights and recomputes fractional ranks for each replicate.

License GPL-3

Encoding UTF-8

Depends R (>= 4.1.0)

Suggests survey, testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation no

Author Stefanos Stavrianos [aut, cre, cph],
Pavlos Karanikolas [aut, ths],
Stavros Zografakis [aut, ths],
Chrysovalantis Malesios [aut, ths]

Maintainer Stefanos Stavrianos <stefanstavrianos@aua.gr>

Repository CRAN

Date/Publication 2026-11-20 14:40:02 UTC

Contents

conindex 2
conindex_results 3

Index **5**

conindex *Weighted Concentration and Inequality Indices*

Description

Compute relative, generalized, modified, Wagstaff and Erreygers concentration indices with weighted mid-ranks. When `rankvar` is omitted, the outcome is also the ranking variable and the result is a Gini-type index.

Usage

```
conindex(data, varname, rankvar = NULL, weight = NULL,
         truezero = TRUE, limits = NULL, generalized = FALSE,
         bounded = FALSE, wagstaff = FALSE, erreygers = FALSE,
         svy = NULL, na_action = c("omit", "fail"))
```

Arguments

`data`	Data frame containing numeric variables. If `svy` is supplied, it must correspond row-for-row to the survey design.
`varname`	Name of the numeric outcome variable.
`rankvar`	Optional name of numeric ranking variable, omitted for Gini.
`weight`	Optional weight column name or numeric vector. Omit with `svy`.
`truezero`	If `FALSE` with a single lower limit, compute a modified index. Defaults to `TRUE`.
`limits`	Theoretical limits of the outcome: length two when `bounded=TRUE`, or one lower limit for a modified index.
`generalized`	Compute generalized index $2Cov_w(h, R)$.
`bounded`	Transform outcome to $(h - a)/(b - a)$; requires finite `limits=c(a,b)`.
`wagstaff`	Compute Wagstaff normalization of a bounded outcome.
`erreygers`	Compute Erreygers normalization of a bounded outcome.
`svy`	Optional `svyrep.design` from package **survey**; recomputes ranks and moments in every replicate.
`na_action`	Drop invalid observations (default) or fail; with `svy`, invalid observations always fail.

Details

The weighted mid-rank for all observations tied at ranking value y is the sum of the weights strictly below y, plus half the total weight of the tie group, divided by the sum of all weights. With R denoting that rank and μ the weighted outcome mean, the standard index is $C = 2Cov_w(h, R)/\mu$. Generalized is $G = 2Cov_w(h, R)$. For the normalized bounded outcome $z = (h - a)/(b - a)$, Erreygers is $E = 8Cov_w(z, R)$ and Wagstaff is $W = 2Cov_w(z, R)/(\mu_z(1 - \mu_z))$. For a modified index with lower limit a, use $M = 2Cov_w(h, R)/(\mu - a)$.

With survey replicate weights, the point estimate is recomputed for each replicate; reported standard errors are design-dependent and use the replicate construction supplied by the analyst. Confidence intervals and p-values use a normal approximation. Without a replicate-weight survey design, this function does not estimate standard errors. Theoretical bounds must be meaningful for normalized indices; sample-based scaling alone does not imply substantive absolute outcome limits.

Value

A `conindex` object containing `CI`, `CIse`, `p.value`, `N`, `Nunique`, `rank`, `type`, and concentration-curve coordinates in `curve`.

References

O'Donnell, O., O'Neill, S., Van Ourti, T. and Walsh, B. (2016). Conindex: Estimation of concentration indices. *The Stata Journal*, 16(1), 112–138. doi:10.1177/1536867X1601600112.

Examples

```
d <- data.frame(income = 1:4, outcome = c(1, 2, 3, 4), w = c(1, 1, 1, 1))
conindex(d, "outcome", "income", weight = "w")
conindex(d, "outcome", weight = "w")
b <- data.frame(income = 1:4, health = c(0, 0, 1, 1))
conindex(b, "health", "income", bounded = TRUE,
         limits = c(0, 1), erreygers = TRUE)
```

---

conindex_results *Inspect Concentration Index Results*

Description

Print an index, extract a one-row data frame, or obtain an approximate confidence interval if a replicate-weight standard error is available.

Usage

```
conindex_results(x)
## S3 method for class 'conindex'
print(x, ...)
## S3 method for class 'conindex'
confint(object, parm = NULL, level = 0.95, ...)
```

Arguments

`x`	Object of class `conindex`.
`object`	Object of class `conindex`.
`parm`	Must be `NULL`.
`level`	Confidence level between zero and one.
`...`	Unused extra arguments for generic-method compatibility.

Value

`conindex_results` gives a one-row data frame; `print` returns the input invisibly; `confint` returns an interval matrix.

Examples

```
d <- data.frame(y = 1:4)
z <- conindex(d, "y")
conindex_results(z)
```

Index

confint.conindex *(*conindex_results*)*, 3
conindex, 2
conindex_results, 3

print.conindex *(*conindex_results*)*, 3