Package 'lorenz'

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Type Package

Title Tools for Deriving Income Inequality Estimates from Grouped Income Data

Version 0.1.0

Description Provides two methods of estimating income inequality statistics from binned income data, such as the income data provided in the Census.
These methods use different interpolation techniques to infer the distribution of incomes within income bins. One method is an implementation of Jargowsky and Wheeler's mean-constrained integration over brackets (MCIB). The other method is based on a new technique, Lorenz interpolation, which estimates income inequality by constructing an interpolated Lorenz curve based on the binned income data. These methods can be used to estimate three income inequality measures: the Gini (the default measure returned), the Theil, and the Atkinson's index.
Jargowsky and Wheeler (2018) <doi:10.1177/0081175018782579>.

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Encoding UTF-8

LazyData true

Imports magrittr, dineq

RoxygenNote 7.1.1

Suggests testthat

NeedsCompilation no

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R topics documented:

`lorenz_interp` *Computes income inequality statistics derived with Lorenz interpolation.*

Description

Computes income inequality statistics derived with Lorenz interpolation.

Usage

```
lorenz_interp(freqs, bounds, mean, slope_parm = 0.9, stat = "gini", eta = NA)
```

Arguments

`freqs`	A vector of counts in income brackets.
`bounds`	A vector of income bracket boundaries.
`mean`	Grand mean of income distribution.
`slope_parm`	(default = .9) Slope parameter that influences the shape of the function fitted to the Lorenz curve.
`stat`	(optional) Return income statistic instead of sample incomes.
`eta`	(optional) Parameter for Atkinson's coefficient.

Value

Income inequality statistics derived with Lorenz interpolation.

Examples

```
ex_freqs <- c(45, 31, 33, 27, 43, 40, 51, 50, 63, 97, 121, 132, 64, 54, 32, 12)
ex_bounds <- c(0, 10000, 15000, 20000, 25000, 30000, 35000, 40000, 45000, 50000, 60000, 75000,
100000, 125000, 150000, 200000)
ex_mean <- 66500
lorenz_interp(ex_freqs, ex_bounds, ex_mean)
```

`mcib` *Derives income inequality statitics using mean-constrained integration over brackets.*

Description

Derives income inequality statitics using mean-constrained integration over brackets.

Usage

```
mcib(freqs, bounds, mean, stat = "gini", eta = NA)
```

Arguments

freqs	A vector of counts in income brackets.
bounds	A vector of income bracket boundaries.
mean	Grand mean of income distribution.
stat	(optional) Return income statistic instead of sample incomes.
eta	(optional) Parameter for Atkinson's coefficient.

Value

Income inequality statistics derived with mean-constrained integration over brackets.

Examples

```
ex_freqs <- c(45, 31, 33, 27, 43, 40, 51, 50, 63, 97, 121, 132, 64, 54, 32, 12)
ex_bounds <- c(0, 10000, 15000, 20000, 25000, 30000, 35000, 40000, 45000, 50000,
 60000, 75000, 100000, 125000, 150000, 200000)
ex_mean <- 66500
mcib(ex_freqs, ex_bounds, ex_mean)
```

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