Package ‘strat’

November 23, 2016

Type Package
Title An Implementation of the Stratification Index
Version 0.1
Description An implementation of the stratification index proposed by Zhou (2012) <DOI:10.1177/0081175012452207>.
The package provides two functions, srank, which returns stratum-specific information, including population share and average percentile rank; and strat, which returns the stratification index and its approximate standard error.
When a grouping factor is specified, strat also provides a detailed decomposition of the overall stratification into between-group and within-group components.

Depends R (>= 3.3.1),
Imports Hmisc (>= 4.0-0), Rcpp, stats
LinkingTo Rcpp, RcppArmadillo
License GPL (>= 3)
LazyData TRUE
RoxygenNote 5.0.1
Suggests testthat

URL https://github.com/xiangzhou09/strat
BugReports https://github.com/xiangzhou09/strat/issues

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| cpsmarch2015 | A Subset of March CPS 2015 Sample |

**Description**

A dataset containing income, big class, microclass, and education of 14,358 male respondents from March CPS 2015

**Usage**

cpsmarch2015

**Format**

A data frame with 14358 rows and 5 variables:

- **income** personal market income, in US dollars
- **big_class** big class membership
- **micro_class** microclass membership
- **education** educational attainment
- **weight** sampling weight given by CPS

**Description**

Print an object of class `srank`

**Usage**

```r
## S3 method for class 'srank'
print(x, digits = 3, ...)
```

**Arguments**

- **x** An object of class `srank`
- **digits** the number of significant digits to use when printing
- **...** further arguments passed to or from other methods
**print.strat**

**Print an object of class strat**

**Description**

Print an object of class strat

**Usage**

```r
## S3 method for class 'strat'
print(x, digits = 3, ...)
```

**Arguments**

- `x`: An object of class strat
- `digits`: the number of significant digits to use when printing
- `...`: further arguments passed to or from other methods

**srank**

**Ranking strata.**

**Description**

Ranking strata according to the average percentile rank of members in each stratum.

**Usage**

`srank(outcome, strata, weights = NULL, group = NULL)`

**Arguments**

- `outcome`: A numeric vector of outcome.
- `strata`: A vector of length(outcome) indicating strata membership. The elements are coerced to factors by `factor`.
- `weights`: An optional vector of weights.
- `group`: An optional grouping factor.

**Value**

An object of class `srank`.

- `raw`: a data frame consisting of complete cases of all inputs.
- `summary`: a data frame of stratum-specific information, including name, population share, and average percentile rank.
strat

Stratification index.

Examples

```r
strata_info <- with(cpsmarch2015, srank(incomeL, big_classL, 
weights = weightL, group = education))
print(strata_info, digits = 3)
```

Description

strat computes the stratification index proposed in Zhou (2012). When group is specified, it also returns between-group and within-group components of the overall stratification.

Usage

```r
strat(outcomeL, strataL, weights = nullL, ordered = falseL, group = null)
```

Arguments

- `outcome`: A numeric vector of outcome.
- `strata`: A vector of length(outcome) indicating strata membership. The elements are coerced to factors by `factor`.
- `weights`: An optional vector of weights.
- `ordered`: Logical. If TRUE strata are pre-ordered ascendingly.
- `group`: An optional grouping factor. If specified, strat also returns between-group and within-group components of the overall stratification.

Value

An object of class strat.

- `overall`: a vector of two, giving computed stratification index and approximate standard error.
- `strata_info`: a data frame of stratum-specific information, including name, population share, and average percentile rank.
- `decomposition`: between-group and within-group components of the overall stratification.
- `within_group`: within-group indices of stratification by group.

References

Examples

```r
s <- with(cpsmarch2015, strat(income, big_class,
weights = weight, group = education))
print(s, digits = 4)
print(s$strata_info, digits = 4)
print(s$within_group, digits = 4)
```
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