Package ‘strat’

October 14, 2022

**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  
**NeedsCompilation** yes  
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**Repository** CRAN  
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**R topics documented:**

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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

print.srank

Print an object of class srank

Description

Print an object of class srank

Usage

## 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

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**srank**

*Ranking strata.*

**Description**

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

**Usage**

```r
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.
Examples

```r
strata_info <- with(cpsmarch2015, srank(income, big_class, 
   weights = weight, 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(outcome, strata, weights = NULL, ordered = FALSE, 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

\[
s \leftarrow \text{with(cpsmarch2015, strat(income, big_class, weights = weight, group = education))}
\]
print(s, digits = 4)
print(s$strata_info, digits = 4)
print(s$within_group, digits = 4)\]
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