Package: sshicm (via r-universe)

February 15, 2025

Title Information Consistency-Based Measures for Spatial Stratified
Heterogeneity

Version 0.2.0

Description Spatial stratified heterogeneity (SSH) denotes the
coexistence of within-strata homogeneity and between-strata
heterogeneity. Information consistency-based methods provide a
rigorous approach to quantify SSH and evaluate its role in
spatial processes, grounded in principles of geographical
stratification and information theory (Bai, H. et al. (2023)
<doi:10.1080/24694452.2023.2223700>; Wang, J. et al. (2024)
<doi:10.1080/24694452.2023.2289982>).

License GPL-3

Encoding UTF-8

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

URL https://stscl.github.io/sshicm/, https://github.com/stscl/sshicm

BugReports https://github.com/stscl/sshicm/issues

Depends R (>= 4.1.0)

LinkingTo Rcpp, RcppThread

Imports dplyr, purrr, sdsfun (>= 0.6.0), sf

Suggests gdverse, knitr, Rcpp, RcppThread, rmarkdown

VignetteBuilder knitr

Config/pak/sysreqs libgdal-dev gdal-bin libgeos-dev libssl-dev
libproj-dev libsqlite3-dev libudunits2-dev

Repository https://stscl.r-universe.dev

RemoteUrl https://github.com/stscl/sshicm

RemoteRef HEAD

RemoteSha 8f4b6f584d86016a81a7a1a21ee52dafb1db9c1d

Contents

sshic	*Measurement of Spatial Stratified Heterogeneity Based on Information Consistency for Continuous Variables*

Description

Measurement of Spatial Stratified Heterogeneity Based on Information Consistency for Continuous Variables

Usage

```
sshic(d, s, seed = 42, permutation_number = 999, bin_method = "Sturges")
```

Arguments

d	The target variable.
s	The stratification.
seed	(optional) Random number seed, default is 42.
permutation_number	
	(optional) Number of Random Permutations, default is 999.
bin_method	(optional) Histogram binning method for probability density estimation, default is Sturges.

Value

A two-element numerical vector.

Examples

```
baltim = sf::read_sf(system.file("extdata/baltim.gpkg",package = "sshicm"))
sshic(baltim$PRICE,baltim$DWELL)
```

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sshicm   *Information Consistency-Based Measures for Spatial Stratified Heterogeneity*

Description

Information Consistency-Based Measures for Spatial Stratified Heterogeneity

Usage

```
sshicm(
  formula,
  data,
  type = c("IC", "IN"),
  seed = 42,
  permutation_number = 999,
  bin_method = "Sturges"
)
```

Arguments

formula	A formula.
data	A data.frame, tibble or sf object of observation data.
type	(optional) Measure type, default is IC.
seed	(optional) Random number seed, default is 42.
permutation_number	
	(optional) Number of Random Permutations, default is 999.
bin_method	(optional) Histogram binning method for probability density estimation, default is Sturges.

Value

A tibble.

Examples

```
## Not run:
# This code may take a bit longer to execute:
baltim = sf::read_sf(system.file("extdata/baltim.gpkg",package = "sshicm"))
sshicm(PRICE ~ .,baltim,type = "IC")
cinc = sf::read_sf(system.file("extdata/cinc.gpkg",package = "sshicm"))
sshicm(THEFT_D ~ .,cinc,type = "IN")

## End(Not run)
```

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sshin   *Measurement of Spatial Stratified Heterogeneity Based on Information*
                               Consistency for Nominal Variables

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Description

Measurement of Spatial Stratified Heterogeneity Based on Information Consistency for Nominal
Variables

Usage

```
sshin(d, s, seed = 42, permutation_number = 999)
```

Arguments

d	The target variable.
s	The stratification.
seed	(optional) Random number seed, default is 42.
permutation_number	
	(optional) Number of Random Permutations, default is 999.

Value

A two-element numerical vector.

Examples

```
cinc = sf::read_sf(system.file("extdata/cinc.gpkg",package = "sshicm"))
sshin(cinc$THEFT_D,cinc$MALE)
```

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