

Package ‘sshicm’

May 9, 2026

Title Information Consistency-Based Measures for Spatial Stratified Heterogeneity

Version 0.1.0

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](https://doi.org/10.1080/24694452.2023.2223700)>; Wang, J. et al. (2024) <[doi:10.1080/24694452.2023.228](https://doi.org/10.1080/24694452.2023.228)>)

License GPL-3

Encoding UTF-8

RoxygenNote 7.3.2

URL <https://stsc1.github.io/sshicm/>, <https://github.com/stsc1/sshicm>

BugReports <https://github.com/stsc1/sshicm/issues>

Depends R (>= 4.1.0)

LinkingTo Rcpp, RcppThread

Imports dplyr, purrr, sdsfun (>= 0.5.0), sf

Suggests gdverse, knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation yes

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Repository CRAN

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Contents

sshic	2
sshicm	3
sshin	4

sshic	<i>Measurement of Spatial Stratified Heterogeneity Based on Information Consistency for Continuous Variables</i>
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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

```
# This code may take a bit longer to execute:  
baltim = sf::read_sf(system.file("extdata/baltim.gpkg", package = "sshicm"))  
sshic(baltim$PRICE, baltim$DWELL)
```

sshicm	<i>Information Consistency-Based Measures for Spatial Stratified Heterogeneity</i>
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Description

Information Consistency-Based Measures for Spatial Stratified Heterogeneity

Usage

```
sshicm(  
  formula,  
  data,  
  type = "IC",  
  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

```
# 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")
```

sshin	<i>Measurement of Spatial Stratified Heterogeneity Based on Information Consistency for Nominal Variables</i>
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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

```
# This code may take a bit longer to execute:  
cinc = sf::read_sf(system.file("extdata/cinc.gpkg", package = "sshicm"))  
sshin(cinc$THEFT_D, cinc$MALE)
```

Index

sshic, 2
sshicm, 3
sshin, 4