

Package: smmr (via r-universe)

October 22, 2024

Type Package

Title Sign test and Mood's median test

Version 1.0.1

Date 2017-06-15

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Description Provides alternatives to t-test and two-sample t / ANOVA when normality is questionable.

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Encoding UTF-8

RoxygenNote 7.2.3

Imports purrr, rlang, magrittr, dplyr, tidyr

Repository <https://nxskok.r-universe.dev>

RemoteUrl <https://github.com/nxskok/smmr>

RemoteRef HEAD

RemoteSha e61b91332f653fecff9370a2ad5e70e5606297c4

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ci_median

Confidence interval for median by inverting sign test

Description

Confidence interval for median by inverting sign test

Usage

```
ci_median(d, x, conf.level = 0.95, tol = 0.01)
```

Arguments

d	a data frame
x	unquoted name of column of data
conf.level	level for CI (as decimal), default 95 percent
tol	ends of CI determined to within this accuracy, default 0.01

Value

lower and upper limits

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
d=data.frame(z=1:20)
d1=data.frame(z=1:5)
ci_median(d,z)
ci_median(d1,z)
ci_median(datasets::mtcars, mpg)
```

ci_median0*Confidence interval for median by inverting sign test*

Description

Confidence interval for median by inverting sign test

Usage

```
ci_median0(x, conf.level = 0.95, tol = 0.01)
```

Arguments

x vector of data
 conf.level level for CI (as decimal), default 95 percent
 tol ends of CI determined to within this accuracy, default 0.01

Value

lower and upper limits

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
ci_median0(1:20)
ci_median0(1:5)
```

 median_test

Mood's median test for comparison of group medians

Description

Mood's median test for comparison of group medians

Usage

```
median_test(d, x, g, tol = 1e-06)
```

Arguments

d a data frame
 x unquoted name of quantitative variable
 g unquoted name of grouping variable
 tol (default 1e-6) any data values closer to overall median than this are discarded

Value

list of 2 objects: table, counts of values above and below the grand median in each group; value, test statistic, df and P-value

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
median_test(datasets::mtcars,mpg,cyl)
d=data.frame(z=1:9,gg=c(1,1,1,1,1,2,2,2,2))
median_test(d,z,gg)
```

median_test0	<i>Mood's median test for comparison of group medians</i>
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Description

Mood's median test for comparison of group medians

Usage

```
median_test0(x, g)
```

Arguments

x	vector of data
g	vector of group memberships (same length as x)

Value

list of 3 objects: grand median of all obs, table, counts of values above and below the grand median in each group; value, test statistic, df and P-value

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
median_test0(datasets::mtcars$mpg,datasets::mtcars$cyl)
```

median_test_pair	<i>Mood's median tests for one pair of groups</i>
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Description

Mood's median tests for one pair of groups

Usage

```
median_test_pair(d, x, g, g1, g2, tol = 1e-06)
```

Arguments

d	a data frame
x	unquoted name of quantitative variable
g	unquoted name of grouping variable (as character, not a factor)
g1	first group to compare (as text)
g2	second group to compare (as text)
tol	(default 1e-6) any data values closer to overall median than this are discarded

Value

(two-sided) P-value

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
median_test_pair(datasets::mtcars, mpg, cyl, 4, 8)
```

pairwise_median_test	<i>Pairwise Mood's median tests for all comparison of pairs of group medians</i>
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Description

Pairwise Mood's median tests for all comparison of pairs of group medians

Usage

```
pairwise_median_test(d, x, g, tol = 1e-06)
```

Arguments

d	a data frame
x	unquoted name of quantitative variable
g	unquoted name of grouping variable (can be a factor, is treated as text)
tol	(default 1e-6) any data values closer to overall median than this are discarded

Value

data frame of groups being compared and unadjusted and Bonferroni-adjusted P-values

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
pairwise_median_test(datasets::mtcars, mpg, cyl)
```

pval_sign

Two-sided P-value for sign test

Description

Two-sided P-value for sign test

Usage

```
pval_sign(med0, d, x)
```

Arguments

med0	null median
d	data frame
x	vector of data for test

Value

P-value of two-sided sign test for median

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
d=data.frame(z=1:10)
pval_sign(3.5,d,z)
pval_sign(3,d,z)
pval_sign(25, datasets::mtcars, mpg)
```

<i>pval_sign0</i>	<i>Two-sided P-value for sign test</i>
-------------------	--

Description

Two-sided P-value for sign test

Usage

```
pval_sign0(med0, x)
```

Arguments

<i>med0</i>	null median
<i>x</i>	vector of data for test

Value

P-value of two-sided sign test for median

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
pval_sign0(3.5,1:10)
pval_sign0(3,1:10)
pval_sign0(25, datasets::mtcars$mpg)
```

sign_test	<i>Sign test for given median</i>
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Description

Sign test for given median

Usage

```
sign_test(d, x, med0 = 0, tol = 1e-06)
```

Arguments

d	a data frame
x	unquoted name of column to test
med0	null median (defaults to zero)
tol	(default 1e-6) how close a data value has to be to the null median to be considered equal to null median (and discarded)

Value

list of two elements: table of values above and below null median, data frame of 1-sided and 2-sided P-values

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
d=data.frame(z=1:10)
sign_test(d,z,3.5)
sign_test(d,z,3)
sign_test(datasets::mtcars, mpg, 25)
```

sign_test0	<i>Sign test (simplified) for given median</i>
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Description

Sign test (simplified) for given median

Usage

```
sign_test0(x, med0 = 0, tol = 1e-06)
```


Arguments

<code>x</code>	vector of data
<code>med0</code>	null median (defaults to zero)
<code>tol</code>	(default 1e-6) how close a data value has to be to the null median to be considered equal to null median (and discarded)

Value

list of two elements: table of values above and below null median, data frame of 1-sided and 2-sided P-values

Author(s)

Ken Butler, <butler@utsc.utoronto.ca>

Examples

```
sign_test0(1:10,3.5)
sign_test0(1:10,3)
sign_test0(datasets::mtcars$mpg,25)
```

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