

# Package ‘ictools’

May 8, 2026

**Title** Unified Tools for Classical and Bootstrap Confidence Intervals

**Version** 0.1.0

**Maintainer** Rayan Siffe <bydex859@gmail.com>

**Description** Provides a unified and consistent interface for computing classical and bootstrap confidence intervals for means, variances, proportions, variance ratios, and regression coefficients. The package offers a standardized output structure, S3 classes, and user-friendly methods to facilitate statistical analysis and reproducibility.

**License** MIT + file LICENSE

**Encoding** UTF-8

**Depends** R (>= 3.5.0)

**Imports** stats

**Suggests** testthat (>= 3.0.0), knitr, rmarkdown

**Config/testthat/edition** 3

**URL** <https://github.com/RayanSiffe0/ictools>

**BugReports** <https://github.com/RayanSiffe0/ictools/issues>

**RoxygenNote** 7.3.3

**NeedsCompilation** no

**Author** Rayan Siffe [aut, cre]

**Repository** CRAN

**Date/Publication** 2026-03-08 10:10:02 UTC

## Contents

ic_pmean . . . . .	2
ic_prop . . . . .	3
ic_razon_var . . . . .	3
ic_reg . . . . .	4
ic_var . . . . .	5

<b>Index</b>	<b>7</b>
--------------	----------

---

`ic_pmean`*Confidence Interval for the Mean*

---

**Description**

Computes confidence intervals for a population mean.

**Usage**

```
ic_pmean(  
  x,  
  conf.level = 0.95,  
  type = c("two.sided", "upper", "lower"),  
  method = c("t", "z"),  
  sigma = NULL,  
  na.rm = TRUE  
)
```

**Arguments**

<code>x</code>	Numeric vector, matrix, or data.frame.
<code>conf.level</code>	Confidence level (default 0.95).
<code>type</code>	Character. "two.sided", "upper", or "lower".
<code>method</code>	Character. "t" (default) or "z".
<code>sigma</code>	Known population standard deviation (required if method = "z").
<code>na.rm</code>	Logical. Whether to remove NA values.

**Value**

A list of class "ic\_pmean" with mean estimate and confidence interval.

**Examples**

```
data <- c(5, 7, 8, 6, 9, 10)  
ic_pmean(data)  
ic_pmean(data, conf.level = 0.99)  
mat <- matrix(data, nrow = 2)  
ic_pmean(mat)
```

---

`ic_prop`*Confidence Interval for a Proportion*

---

**Description**

Computes confidence intervals for a population proportion.

**Usage**

```
ic_prop(  
  x,  
  conf.level = 0.95,  
  success = c(1, "yes", "true"),  
  method = c("wilson", "wald", "clopper"),  
  na.rm = TRUE  
)
```

**Arguments**

<code>x</code>	Numeric vector (0/1) or matrix of 0/1.
<code>conf.level</code>	Confidence level (default 0.95).
<code>success</code>	Value considered a success (default 1, "yes", "true").
<code>method</code>	Character. "wilson", "wald", or "clopper".
<code>na.rm</code>	Logical. Whether to remove NA values.

**Value**

A list of class "ic\_proportion" with proportion estimate and confidence interval.

**Examples**

```
data <- matrix(c(1, 0, 1, 1, 0, 1), nrow = 2)  
ic_prop(data)  
ic_prop(data, conf.level = 0.99)
```

---

`ic_razon_var`*Confidence Interval for the Ratio of Variances*

---

**Description**

Computes confidence intervals for the ratio of two population variances.

**Usage**

```
ic_razon_var(
  x,
  y,
  conf.level = 0.95,
  method = c("f", "log", "bootstrap"),
  R = 2000,
  na.rm = TRUE
)
```

**Arguments**

x	Numeric vector or matrix (first sample).
y	Numeric vector or matrix (second sample).
conf.level	Confidence level (default 0.95).
method	Character. "f", "log", or "bootstrap".
R	Number of bootstrap replicates (default 2000).
na.rm	Logical. Whether to remove NA values.

**Value**

A list of class "ic\_var\_ratio" with ratio estimate and confidence interval.

**Examples**

```
data1 <- matrix(c(5, 7, 8, 6, 9, 10), nrow = 2)
data2 <- matrix(c(4, 6, 7, 5, 8, 9), nrow = 2)
ic_razon_var(data1, data2)
ic_razon_var(data1, data2, conf.level = 0.99)
```

---

 ic\_reg

---

*Confidence Intervals for Regression Coefficients*


---

**Description**

Computes confidence intervals for the coefficients of a linear model (lm).

**Usage**

```
ic_reg(
  model,
  conf.level = 0.95,
  method = c("classical", "bootstrap", "residual"),
  R = 2000
)
```

**Arguments**

model	An object of class lm.
conf.level	Confidence level (defaults to 0.95).
method	Método para calcular el intervalo: "classical", "bootstrap" o "residual".
R	Número de réplicas bootstrap (solo para métodos bootstrap/residual).

**Value**

An object of class ic\_reg containing the estimate and the confidence interval.

**Examples**

```
# Create sample data
test_data <- data.frame(
  y = c(5, 6, 7, 8, 9, 10),
  x1 = c(1, 2, 3, 4, 5, 6),
  x2 = c(2, 1, 3, 2, 4, 5)
)

# Fit model and calculate CI
fit <- lm(y ~ x1 + x2, data = test_data)
ic_reg(fit)
```

---

ic\_var

*Confidence Interval for the Variance*


---

**Description**

Computes confidence intervals for a population variance.

**Usage**

```
ic_var(
  x,
  conf.level = 0.95,
  type = c("two.sided", "upper", "lower"),
  na.rm = TRUE
)
```

**Arguments**

x	Numeric vector or matrix.
conf.level	Confidence level (default 0.95).
type	Character. "two.sided", "upper", or "lower".
na.rm	Logical. Whether to remove NA values.

**Value**

A list of class "ic\_var" with variance estimate and confidence interval.

**Examples**

```
data <- matrix(c(5, 7, 8, 6, 9, 10), nrow = 2)
ic_var(data)
ic_var(data, conf.level = 0.99)
```

# Index

ic\_pmean, 2  
ic\_prop, 3  
ic\_razon\_var, 3  
ic\_reg, 4  
ic\_var, 5