

Package ‘ovbsa’

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Title Sensitivity Analysis of Omitted Variable Bias

Version 2.1.0

Description Conduct sensitivity analysis of omitted variable bias in linear econometric models using the methodology presented in Basu (2025) <[doi:10.2139/ssrn.4704246](https://doi.org/10.2139/ssrn.4704246)>.

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Encoding UTF-8

RoxygenNote 7.3.3

Imports dplyr, ggplot2, lmtest, stats, tictoc, tidyr

Suggests sensemakr

URL <https://github.com/dbasu-umass/ovbsa/>,
<https://github.com/dbasu-umass/ovbsa>

BugReports <https://github.com/dbasu-umass/ovbsa/issues>

NeedsCompilation no

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Repository CRAN

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baci	<i>Compute bias adjusted confidence interval using truncated exponential prior distributions for kD, kY.</i>
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Description

Compute bias adjusted confidence interval using truncated exponential prior distributions for kD, kY.

Usage

```
baci(fit, treatment, benchmark, N = 1000, alpha = 5/100, medkd = 1, medky = 1)
```

Arguments

fit	An object of class lm.
treatment	A character string naming the treatment variable.
benchmark	A character string naming the benchmark variable.
N	Numeric value for grid size.
alpha	Significance level.
medkd	Median of the distribution of kD (default=1).
medky	Median of the distribution of kY (default=1).

Value

A list containing the following two elements:

results	A data frame with 2 rows ("Unadjusted" and "Bias-adjusted") and 2 columns ("Lower" and "Upper") containing the computed $100 \cdot (1 - \alpha) \%$ unadjusted and bias-adjusted confidence intervals.
undstats	A data frame of underlying statistics: the estimate, std error, max(kD) and max(k(Y)).
support_kdky_plot	A ggplot2 plot object visualizing the support of the joint distribution of (kD, kY).

Examples

```
# CRAN requires checking if the optional package is installed before running the example
if (requireNamespace("sensemakr", quietly = TRUE)) {
  library(sensemakr)

  # Define example variables
  myN <- 500

  # Fit the model using the darfur dataset provided by sensemakr
  fit <- lm(peacefactor ~ directlyharmed + age + farmer_dar + herder_dar +
```

```

      pastvoted + hhsizedarfur + female + village,
      data = sensemakr::darfur)

# Run baci function and see results
res1 <- baci(fit = fit, treatment = "directlyharmed",
             benchmark = "female", N = myN, alpha = 1/100)
}

```

dtruncexp	<i>truncated exponential density</i>
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Description

truncated exponential density

Usage

```
dtruncexp(x, rate = 1, a = 0, b = Inf)
```

Arguments

x	point between a and b at which density is computed
rate	rate parameter
a	lower bound
b	upper bound

Value

a real number

Examples

```
dtruncexp(x=1, rate=1, a=0, b=10)
```

dtruncgamma	<i>truncated gamma density</i>
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Description

truncated gamma density

Usage

```
dtruncgamma(x, shape, scale, a = 0, b = Inf)
```

Arguments

x	point at which density is computed
shape	shape parameter
scale	scale parameter
a	lower limit (default is 0)
b	upper limit (default is Inf)

Value

a real number

Examples

```
dtruncgamma(x=1,shape=2, scale=3, a=0, b=20)
```

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