

bayes: truncreg — Bayesian truncated regression
[Description](#)[Remarks and examples](#)[Quick start](#)[Stored results](#)[Menu](#)[Methods and formulas](#)[Syntax](#)[Also see](#)

Description

`bayes: truncreg` fits a Bayesian truncated linear regression to a continuous outcome; see [\[BAYES\] bayes](#) and [\[R\] truncreg](#) for details.

Quick start

Bayesian truncated linear regression of `y` on `x1` and `x2`, using a lower truncation limit of 17 and using default normal priors for regression coefficients and default inverse-gamma prior for the variance

```
bayes: truncreg y x1 x2, ll(17)
```

Use a standard deviation of 10 instead of 100 for the default normal priors

```
bayes, normalprior(10): truncreg y x1 x2, ll(17)
```

Use a shape of 1 and a scale of 2 instead of values of 0.01 for the default inverse-gamma prior

```
bayes, igammaprior(1 2): truncreg y x1 x2, ll(17)
```

Use uniform priors for the slopes and a normal prior for the intercept

```
bayes, prior({y: x1 x2}, uniform(-10,10)) ///
prior({y:_cons}, normal(0,10)): truncreg y x1 x2, ll(17)
```

Save simulation results to `simdata.dta` and use a random-number seed for reproducibility

```
bayes, saving(simdata) rseed(123):, ///
truncreg y x1 x2, ll(17)
```

Specify 20,000 MCMC samples, set length of the burn-in period to 5,000, and request that a dot be displayed every 500 simulations

```
bayes, mcmcsample(20000) burnin(5000) dots(500):, ///
truncreg y x1 x2, ll(17)
```

In the above, request that the 90% HPD credible interval be displayed instead of the default 95% equal-tailed credible interval

```
bayes, clevel(90) hpd
```

Also see [Quick start](#) in [\[BAYES\] bayes](#) and [Quick start](#) in [\[R\] truncreg](#).

Menu

Statistics > Linear models and related > Bayesian regression > Truncated regression

Syntax

```
bayes [ , bayesopts ] : truncreg deivar [indepvars] [if] [in] [weight] [ , options ]
```

<i>options</i>	Description
Model	
<code>noconstant</code>	suppress constant term
<code>ll(<i>varname</i> #)</code>	left-truncation variable or limit
<code>ul(<i>varname</i> #)</code>	right-truncation variable or limit
<code>offset(<i>varname</i>)</code>	include <i>varname</i> in model with coefficient constrained to 1
<code>collinear</code>	keep collinear variables
Reporting	
<code>display_options</code>	control spacing, line width, and base and empty cells
<code>level(#)</code>	set credible level; default is level(95)
<i>indepvars</i> may contain factor variables; see [U] 11.4.3 Factor variables.	
<i>deivar</i> and <i>indepvars</i> may contain time-series operators; see [U] 11.4.4 Time-series varlists.	
fweights are allowed; see [U] 11.1.6 weight.	
bayes: truncreg, level() is equivalent to bayes, clevel(): truncreg.	
For a detailed description of <i>options</i> , see <i>Options</i> in [R] truncreg.	
<i>bayesopts</i>	Description
Priors	
* <code>normalprior(#)</code>	specify standard deviation of default normal priors for regression coefficients; default is normalprior(100)
* <code>igammaprior(# #)</code>	specify shape and scale of default inverse-gamma prior for variance; default is igammaprior(0.01 0.01)
<code>prior(<i>priorspec</i>)</code>	prior for model parameters; this option may be repeated
<code>dryrun</code>	show model summary without estimation
Simulation	
<code>mcmcsize(#)</code>	MCMC sample size; default is mcmcsize(10000)
<code>burnin(#)</code>	burn-in period; default is burnin(2500)
<code>thinning(#)</code>	thinning interval; default is thinning(1)
<code>rseed(#)</code>	random-number seed
<code>exclude(<i>paramref</i>)</code>	specify model parameters to be excluded from the simulation results
Blocking	
* <code>blocksize(#)</code>	maximum block size; default is blocksize(50)
<code>block(<i>paramref</i> [, <i>blockopts</i>])</code>	specify a block of model parameters; this option may be repeated
<code>blocksummary</code>	display block summary
* <code>noblocking</code>	do not block parameters by default

Initialization

<u>initial</u> (<i>initspec</i>)	initial values for model parameters
<u>nomleinitial</u>	suppress the use of maximum likelihood estimates as starting values
<u>initransom</u>	specify random initial values
<u>initsummary</u>	display initial values used for simulation
* <u>noisily</u>	display output from the estimation command during initialization

Adaptation

<u>adaptation</u> (<i>adaptopts</i>)	control the adaptive MCMC procedure
<u>scale</u> (#)	initial multiplier for scale factor; default is <code>scale(2.38)</code>
<u>covariance</u> (<i>cov</i>)	initial proposal covariance; default is the identity matrix

Reporting

<u>clevel</u> (#)	set credible interval level; default is <code>clevel(95)</code>
<u>hpd</u>	display HPD credible intervals instead of the default equal-tailed credible intervals
<u>eform</u> [(<i>string</i>)]	report exponentiated coefficients and, optionally, label as <i>string</i>
<u>batch</u> (#)	specify length of block for batch-means calculations; default is <code>batch(0)</code>
<u>saving</u> (<i>filename</i> [, <code>replace</code>])	save simulation results to <i>filename.dta</i>
<u>nomodelsummary</u>	suppress model summary
[<code>no</code>] <u>dots</u>	suppress dots or display dots every 100 iterations and iteration numbers every 1,000 iterations; default is <code>nodots</code>
<u>dots</u> (# [, <code>every</code> (#)])	display dots as simulation is performed
[<code>no</code>] <u>show</u> (<i>paramref</i>)	specify model parameters to be excluded from or included in the output
<u>notable</u>	suppress estimation table
<u>noheader</u>	suppress output header
<u>title</u> (<i>string</i>)	display <i>string</i> as title above the table of parameter estimates
<u>display_options</u>	control spacing, line width, and base and empty cells

Advanced

<u>search</u> (<i>search_options</i>)	control the search for feasible initial values
<u>corrlag</u> (#)	specify maximum autocorrelation lag; default varies
<u>corrtol</u> (#)	specify autocorrelation tolerance; default is <code>corrtol(0.01)</code>

*Starred options are specific to the `bayes` prefix; other options are common between `bayes` and `bayesmh`. Options `prior()` and `block()` can be repeated.

priorspec and *paramref* are defined in [BAYES] `bayesmh`.

paramref may contain factor variables; see [U] 11.4.3 Factor variables.

See [U] 20 Estimation and postestimation commands for more capabilities of estimation commands.

Model parameters are regression coefficients {*depvar: indepvars*} and variance {*sigma2*}. Use the `dryrun` option to see the definitions of model parameters prior to estimation.

For a detailed description of *bayesopts*, see *Options* in [BAYES] `bayes`.

Remarks and examples

stata.com

For a general introduction to Bayesian analysis, see [BAYES] `intro`. For a general introduction to Bayesian estimation using an adaptive Metropolis–Hastings algorithm, see [BAYES] `bayesmh`. For

remarks and examples specific to the `bayes` prefix, see [\[BAYES\] bayes](#). For details about the estimation command, see [\[R\] truncreg](#).

For a simple example of the `bayes` prefix, see *Introductory example* in [\[BAYES\] bayes](#).

Stored results

See *Stored results* in [\[BAYES\] bayesmh](#).

Methods and formulas

See *Methods and formulas* in [\[BAYES\] bayesmh](#).

Also see

[\[BAYES\] bayes](#) — Bayesian regression models using the `bayes` prefix

[\[R\] truncreg](#) — Truncated regression

[\[BAYES\] bayesian postestimation](#) — Postestimation tools for `bayesmh` and the `bayes` prefix

[\[BAYES\] bayesian estimation](#) — Bayesian estimation commands

[\[BAYES\] bayesian commands](#) — Introduction to commands for Bayesian analysis

[\[BAYES\] intro](#) — Introduction to Bayesian analysis

[\[BAYES\] Glossary](#)