**bayes: clogit** — Bayesian conditional logistic regression

**Description**

`bayes: clogit` fits a Bayesian conditional logistic regression to matched case-control data; see `[BAYES] bayes` and `[R] clogit` for details.

**Quick start**

Bayesian conditional logistic regression of `y` on `x1` and `x2`, using default normal priors for regression coefficients

```
bayes: clogit y x1 x2, group(id)
```

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

```
bayes, normalprior(10): clogit y x1 x2, group(id)
```

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)): clogit y x1 x2, group(id)
```

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

```
bayes, saving(simdata) rseed(123): clogit y x1 x2, group(id)
```

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, mcmcsize(20000) burnin(5000) dots(500): clogit y x1 x2, group(id)
```

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
```

Display odds ratios instead of coefficients

```
bayes: clogit y x1 x2, group(id) or
```

Display odds ratios on replay

```
bayes, or
```

Also see **Quick start** in `[BAYES] bayes` and **Quick start** in `[R] clogit**.

**Menu**

Statistics > Binary outcomes > Bayesian regression > Conditional logistic regression

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## Syntax

```plaintext
bayes [, bayesopts] : clogit depvar [ indepvars ] [ if ] [ in ] [ weight ] ,
                 group(varname) [ options ]
```

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td></td>
</tr>
<tr>
<td><em>group(varname)</em></td>
<td>matched group variable</td>
</tr>
<tr>
<td>offset(varname)</td>
<td>include varname in model with coefficient constrained to 1</td>
</tr>
<tr>
<td>Reporting</td>
<td></td>
</tr>
<tr>
<td>display_options</td>
<td>control spacing, line width, and base and empty cells</td>
</tr>
<tr>
<td>level(#)</td>
<td>set credible level; default is level(95)</td>
</tr>
</tbody>
</table>

*group(varname) is required.

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

fweights are allowed; see [U] 11.6 weight. fweights are interpreted to apply to groups as a whole, not to individual observations. See Use of weights in [R] clogit.

bayes: clogit, level() is equivalent to bayes, clevel(): clogit.

For a detailed description of options, see Options in [R] clogit.

## bayesopts

<table>
<thead>
<tr>
<th>Priors</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*normalprior(#)</td>
<td>specify standard deviation of default normal priors for regression coefficients; default is normalprior(100)</td>
</tr>
<tr>
<td>prior(priorspec)</td>
<td>prior for model parameters; this option may be repeated</td>
</tr>
<tr>
<td>dryrun</td>
<td>show model summary without estimation</td>
</tr>
</tbody>
</table>

## Simulation

<table>
<thead>
<tr>
<th>Simulation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>nchains(#)</td>
<td>number of chains; default is to simulate one chain</td>
</tr>
<tr>
<td>mcmcsize(#)</td>
<td>MCMC sample size; default is mcmcsize(10000)</td>
</tr>
<tr>
<td>burnin(#)</td>
<td>burn-in period; default is burnin(2500)</td>
</tr>
<tr>
<td>thinning(#)</td>
<td>thinning interval; default is thinning(1)</td>
</tr>
<tr>
<td>rseed(#)</td>
<td>random-number seed</td>
</tr>
<tr>
<td>exclude(paramref)</td>
<td>specify model parameters to be excluded from the simulation results</td>
</tr>
</tbody>
</table>

## Blocking

<table>
<thead>
<tr>
<th>Blocking</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>*blocksize(#)</td>
<td>maximum block size; default is blocksize(50)</td>
</tr>
<tr>
<td>block(paramref[, blockopts])</td>
<td>specify a block of model parameters; this option may be repeated display block summary</td>
</tr>
<tr>
<td>*noblocking</td>
<td>do not block parameters by default</td>
</tr>
</tbody>
</table>
Initialization

**initial**(initspec) specify initial values for model parameters with a single chain
**init#**(initspec) specify initial values for #th chain; requires nchains()
**initall**(initspec) specify initial values for all chains; requires nchains()
**nomleinit** suppress the use of maximum likelihood estimates as starting values
**initrandom** specify random initial values
**initsummary** display initial values used for simulation
**noisy** display output from the estimation command during initialization

Adaptation

**adaptation**(adaptopts) control the adaptive MCMC procedure
**scale(#)** initial multiplier for scale factor; default is scale(2.38)
**covariance**(cov) initial proposal covariance; default is the identity matrix

Reporting

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

Advanced

**search**(search_options) control the search for feasible initial values
**corrlag(#)** specify maximum autocorrelation lag; default varies
**corrtol(#)** specify autocorrelation tolerance; default is corrtol(0.01)

*Starred options are specific to the bayes prefix; other options are common between bayes and bayesmh.
Options prior() and block() may 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}. 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

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] clogit.

For a simple example of the bayes prefix, see Introductory example in [BAYES] bayes.

Stored results

See Stored results in [BAYES] bayes.

Methods and formulas

See Methods and formulas in [BAYES] bayesmh.

Also see

[BAYES] bayes — Bayesian regression models using the bayes prefix
[R] clogit — Conditional (fixed-effects) logistic 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