Bayesian generalized linear model of $y$ on $x_1$ and $x_2$, using the Gaussian family and log link and using default normal priors for regression coefficients
\[
\text{bayes: glm y x1 x2, family(gaussian) link(log)}
\]
Use a standard deviation of 10 instead of 100 for the default normal priors
\[
\text{bayes, normalprior(10): glm y x1 x2, family(gaussian) link(log)}
\]
Use uniform priors for the slopes and a normal prior for the intercept
\[
\text{bayes, prior({y: x1 x2}, uniform(-10,10)) ///}
\text{prior({y:_cons}, normal(0,10)): ///}
\text{glm y x1 x2, family(gaussian) link(log)}
\]
Save simulation results to simdata.dta, and use a random-number seed for reproducibility
\[
\text{bayes, saving(simdata) rseed(123): ///}
\text{glm y x1 x2, family(gaussian) link(log)}
\]
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
\[
\text{bayes, mcmcsize(20000) burnin(5000) dots(500): ///}
\text{glm y x1 x2, family(gaussian) link(log)}
\]
In the above, request that the 90\% HPD credible interval be displayed instead of the default 95\% equal-tailed credible interval
\[
\text{bayes, clevel(90) hpd}
\]
Fit a logit model and display results as odds ratios
\[
\text{bayes: glm z x1 x2, family(binomial) eform}
\]
Display odds ratios on replay
\[
\text{bayes, eform}
\]
Also see Quick start in [BAYES] bayes and Quick start in [R] glm.
## Syntax

```
bayes [ , bayesopts ] : glm depvar [ indepvars ] [ if ] [ in ] [ weight ] [ , options ]
```

### options

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<tr>
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<td><code>family(familyname)</code></td>
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<td><code>link(linkname)</code></td>
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<table>
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<td><code>exposure(varname)</code></td>
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<td><code>offset(varname)</code></td>
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<td><code>asis</code></td>
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<tr>
<td><code>mu(varname)</code></td>
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<td><code>init(varname)</code></td>
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### Reporting

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<tr>
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<tr>
<td><code>display_options</code></td>
</tr>
<tr>
<td><code>level(#)</code></td>
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</tbody>
</table>

`indepvars` may contain factor variables; see [U] 11.4.3 Factor variables.
`depvar` and `indepvars` may contain time-series operators; see [U] 11.4.4 Time-series varlists.
`fweights` are allowed; see [U] 11.1.6 weight.

bayes: glm, level() is equivalent to bayes, clevel(): glm.
For a detailed description of `options`, see Options in [R] glm.

### bayesopts

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<td><code>normalprior(#)</code></td>
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<tr>
<td><code>prior(priorspec)</code></td>
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<td><code>dryrun</code></td>
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<td><strong>Simulation</strong></td>
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<td><code>rseed(#)</code></td>
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<td><code>exclude(varname)</code></td>
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<tr>
<td><strong>Blocking</strong></td>
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<tr>
<td><code>blocksize(#)</code></td>
</tr>
<tr>
<td><code>block(varname[, blockopts])</code></td>
</tr>
<tr>
<td><code>block_summary</code></td>
</tr>
<tr>
<td><code>noblocking</code></td>
</tr>
</tbody>
</table>
Initialization

\textbf{initial}([initspec]) \hspace{1cm} \text{specify initial values for model parameters with a single chain}
\textbf{init#}([initspec]) \hspace{1cm} \text{specify initial values for \textit{#}th chain; requires \texttt{nchains()}}
\textbf{initall}([initspec]) \hspace{1cm} \text{specify initial values for all chains; requires \texttt{nchains()}}
\textbf{nomleinit} \hspace{1cm} \text{suppress the use of maximum likelihood estimates as starting values}
\textbf{initrandom} \hspace{1cm} \text{specify random initial values}
\textbf{initsummary} \hspace{1cm} \text{display initial values used for simulation}
\*\texttt{noisily} \hspace{1cm} \text{display output from the estimation command during initialization}

Adaptation

\textbf{adaptation}([adaptopts]) \hspace{1cm} \text{control the adaptive MCMC procedure}
\textbf{scale}(#) \hspace{1cm} \text{initial multiplier for scale factor; default is \texttt{scale(2.38)}}
\textbf{covariance}(cov) \hspace{1cm} \text{initial proposal covariance; default is the identity matrix}

Reporting

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

Advanced

\textbf{search}([\textit{search_options}]) \hspace{1cm} \text{control the search for feasible initial values}
\textbf{corrlag}(#) \hspace{1cm} \text{specify maximum autocorrelation lag; default varies}
\textbf{corrtol}(#) \hspace{1cm} \text{specify autocorrelation tolerance; default is \texttt{corrtol(0.01)}}

*Starred options are specific to the \texttt{bayes} prefix; other options are common between \texttt{bayes} and \texttt{bayesmh}.
Options \texttt{prior()} and \texttt{block()} may be repeated.
\texttt{priorspec} and \texttt{paramref} are defined in \texttt{[BAYES] bayesmh}.
\texttt{paramref} may contain factor variables; see \texttt{[U] 11.4.3 Factor variables}.
See \texttt{[U] 20 Estimation and postestimation commands} for more capabilities of estimation commands.
Model parameters are regression coefficients \{\texttt{depvar:indepvars}\}. Use the \texttt{dryrun} option to see the definitions of model parameters prior to estimation.
For a detailed description of \texttt{bayesopts}, see \texttt{Options} in \texttt{[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] glm.

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

bayes: glm does not estimate the scale parameter but uses a fixed value as provided by the glm command. If you want to fit a GLM and estimate the scale parameter, use bayes: meglm without specifying random effects.

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] glm — Generalized linear models
[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