fmm: cloglog — Finite mixtures of complementary log-log regression models

Description

fmm: cloglog fits mixtures of complementary log-log regression models; see [FMM] fmm and [R] cloglog for details.

Quick start

Mixture of two clog-log regression models of \( y \) on \( x_1 \) and \( x_2 \)

\[
fmm 2: \text{cloglog } y \ x_1 \ x_2
\]

As above, but with class probabilities depending on \( z_1 \) and \( z_2 \)

\[
fmm 2, \text{lcprob}(z_1 \ z_2): \text{cloglog } y \ x_1 \ x_2
\]

With robust standard errors

\[
fmm 2, \text{vce(robust)}: \text{cloglog } y \ x_1 \ x_2
\]

Constrain coefficients on \( x_1 \) and \( x_2 \) to be equal across classes

\[
fmm 2, \text{lcinvariant(coef)}: \text{cloglog } y \ x_1 \ x_2
\]

Menu

Statistics > FMM (finite mixture models) > Binary outcomes > Complementary log-log regression
Syntax

Basic syntax

\[ \text{fmm \# : cloglog depvar [indepvars] [, options]} \]

Full syntax

\[ \text{fmm \# [if] [in] [weight] [, fmnopts] : cloglog depvar [indepvars] [, options]} \]

where \# specifies the number of class models.

**options**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>noconstant</td>
<td>suppress the constant term</td>
</tr>
<tr>
<td>offset(varname)</td>
<td>include varname in model with coefficient constrained to 1</td>
</tr>
<tr>
<td>asis</td>
<td>retain perfect predictor variables</td>
</tr>
</tbody>
</table>

\textit{indepvars} may contain factor variables; see [U] 11.4.3 Factor variables.
\textit{depvar} and \textit{indepvars} may contain time-series operators; see [U] 11.4.4 Time-series varlists.

For a detailed description of \textit{options}, see Options in [R] clog.
### fmmopts

<table>
<thead>
<tr>
<th>fmmopts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td></td>
</tr>
<tr>
<td>lcinvariant(\textit{pclassname})</td>
<td>specify parameters that are equal across classes; default is lcinvariant(none)</td>
</tr>
<tr>
<td>lcprob(\textit{varlist})</td>
<td>specify independent variables for class probabilities</td>
</tr>
<tr>
<td>lclabel(\textit{name})</td>
<td>name of the categorical latent variable; default is lclabel(Class)</td>
</tr>
<tr>
<td>lcbase(#)</td>
<td>base latent class</td>
</tr>
<tr>
<td>constraints(\textit{constraints})</td>
<td>apply specified linear constraints</td>
</tr>
<tr>
<td><strong>SE/Robust</strong></td>
<td></td>
</tr>
<tr>
<td>vce(\textit{vcetype})</td>
<td>\textit{vcetype} may be oim, robust, or \texttt{cluster} \textit{clustvar}</td>
</tr>
<tr>
<td><strong>Reporting</strong></td>
<td></td>
</tr>
<tr>
<td>level(#)</td>
<td>set confidence level; default is level(95)</td>
</tr>
<tr>
<td>nocnsreport</td>
<td>do not display constraints</td>
</tr>
<tr>
<td>noheader</td>
<td>do not display header above parameter table</td>
</tr>
<tr>
<td>nodvheader</td>
<td>do not display dependent variables information in the header</td>
</tr>
<tr>
<td>notable</td>
<td>do not display parameter table</td>
</tr>
<tr>
<td>display_options</td>
<td>control columns and column formats, row spacing, line width, display of omitted variables and base and empty cells, and factor-variable labeling</td>
</tr>
<tr>
<td><strong>Maximization</strong></td>
<td></td>
</tr>
<tr>
<td>maximize_options</td>
<td>control the maximization process</td>
</tr>
<tr>
<td>startvalues(\textit{svmethod})</td>
<td>method for obtaining starting values; default is startvalues(factor)</td>
</tr>
<tr>
<td>emopts(\textit{maxopts})</td>
<td>control EM algorithm for improved starting values</td>
</tr>
<tr>
<td>noestimate</td>
<td>do not fit the model; show starting values instead</td>
</tr>
<tr>
<td>collinear</td>
<td>keep collinear variables</td>
</tr>
<tr>
<td>coeflegend</td>
<td>display legend instead of statistics</td>
</tr>
</tbody>
</table>

\textit{varlist} may contain factor variables; see [U] 11.4.3 Factor variables.

by, statsby, and svy are allowed; see [U] 11.1.10 Prefix commands.

vce() and weights are not allowed with the svy prefix; see [SVY] svy.

fweights, iweights, and pweights are allowed; see [U] 11.1.6 weight.

coeflegend does not appear in the dialog box.

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

For a detailed description of fmmopts, see Options in [FMM] fmm.

### \textit{pclassname}

<table>
<thead>
<tr>
<th>\textit{pclassname}</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cons</td>
<td>intercepts and cutpoints</td>
</tr>
<tr>
<td>coef</td>
<td>fixed coefficients</td>
</tr>
<tr>
<td>errvar</td>
<td>covariances of errors</td>
</tr>
<tr>
<td>scale</td>
<td>scaling parameters</td>
</tr>
<tr>
<td>all</td>
<td>all the above</td>
</tr>
<tr>
<td>none</td>
<td>none of the above; the default</td>
</tr>
</tbody>
</table>
Remarks and examples

For a general introduction to finite mixture models, see [FMM] fmm intro. For general information about complementary log-log regression, see [R] cloglog. For examples using fmm, see examples in Contents.

Stored results

See Stored results in [FMM] fmm.

Methods and formulas

See Methods and formulas in [FMM] fmm.

Also see

[FMM] fmm — Finite mixture models using the fmm prefix
[FMM] fmm intro — Introduction to finite mixture models
[FMM] fmm postestimation — Postestimation tools for fmm
[FMM] Glossary
[R] cloglog — Complementary log-log regression
[SVY] svy estimation — Estimation commands for survey data