

fmm: nbreg — Finite mixtures of negative binomial regression models

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Description

`fmm: nbreg` fits mixtures of negative binomial regression models; see [FMM] [fmm](#) and [R] [nbreg](#) for details.

Quick start

Mixture of two negative binomial distributions of `y`

```
fmm 2: nbreg y
```

Mixture of two negative binomial regression models of `y` on `x1` and `x2`

```
fmm 2: nbreg y x1 x2
```

Same as above, but with class probabilities depending on `z1` and `z2`

```
fmm 2, lcprob(z1 z2): nbreg y x1 x2
```

With robust standard errors

```
fmm 2, vce(robust): nbreg y x1 x2
```

Constrain coefficients on `x1` and `x2` to be equal across classes

```
fmm 2, lcinvariant(coef): nbreg y x1 x2
```

Menu

Statistics > FMM (finite mixture models) > Count outcomes > Negative binomial regression

Syntax

Basic syntax

```
fmm # : nbreg depvar [indepvars] [, options]
```

Full syntax

```
fmm # [if] [in] [weight] [, fmmopts]: nbreg depvar [indepvars] [, options]
```

where # specifies the number of class models.

options

Description

Model

| | |
|---|---|
| <code>noconstant</code> | suppress the constant term |
| <code>dispersion(<u>m</u>ean)</code> | parameterization of dispersion; the default |
| <code>dispersion(<u>c</u>onstant)</code> | constant dispersion for all observations |
| <code>exposure(<i>varname_e</i>)</code> | include $\ln(\textit{varname}_e)$ in model with coefficient constrained to 1 |
| <code>offset(<i>varname_o</i>)</code> | include <i>varname_o</i> in model with coefficient constrained to 1 |

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**.

For a detailed description of *options*, see *Options for nbreg* in [R] **nbreg**.

| <i>fmmopts</i> | Description |
|--|---|
| Model | |
| <code>lcinvariant(<i>pclassname</i>)</code> | specify parameters that are equal across classes; default is <code>lcinvariant(none)</code> |
| <code>lcprob(<i>varlist</i>)</code> | specify independent variables for class probabilities |
| <code>lclabel(<i>name</i>)</code> | name of the categorical latent variable; default is <code>lclabel(Class)</code> |
| <code>lcbase(#)</code> | base latent class |
| <code>constraints(<i>constraints</i>)</code> | apply specified linear constraints |

SE/Robust

`vce(vcetype)` *vcetype* may be `oim`, `opg`, `robust`, or `cluster clustvar`

Reporting

`level(#)` set confidence level; default is `level(95)`
`nocnsreport` do not display constraints
`noheader` do not display header above parameter table
`nodvheader` do not display dependent variables information in the header
`notable` do not display parameter table
`display_options` control columns and column formats, row spacing, line width, display of omitted variables and base and empty cells, and factor-variable labeling

Maximization

`maximize_options` control the maximization process
`startvalues(svmethod)` method for obtaining starting values; default is `startvalues(factor)`
`emopts(maxopts)` control EM algorithm for improved starting values
`noestimate` do not fit the model; show starting values instead
`collinear` keep collinear variables
`coeflegend` display legend instead of statistics

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

`by`, `collect`, `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.

`collinear` and `coeflegend` do 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`.

| <i>pclassname</i> | Description |
|---------------------|--------------------------------|
| <code>cons</code> | intercepts and cutpoints |
| <code>coef</code> | fixed coefficients |
| <code>errvar</code> | covariances of errors |
| <code>scale</code> | scaling parameters |
| <code>all</code> | all the above |
| <code>none</code> | none of the above; the default |

Remarks and examples

For a general introduction to finite mixture models, see [FMM] [fmm intro](#). For general information about negative binomial regression, see [R] [nbreg](#). 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] [nbreg](#) — Negative binomial regression

[SVY] [svy estimation](#) — Estimation commands for survey data

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