

**fmm: betareg** — Finite mixtures of beta regression models[Description](#)[Remarks and examples](#)[Also see](#)[Quick start](#)[Stored results](#)[Menu](#)[Methods and formulas](#)[Syntax](#)[Reference](#)

## Description

`fmm: betareg` fits mixtures of beta regression models to a fractional outcome whose values are greater than 0 and less than 1; see [FMM] [fmm](#) and [R] [betareg](#) for details.

## Quick start

Mixture of two beta distributions of  $y$

```
fmm 2: betareg y
```

Mixture of two beta regression models of  $y$  on  $x_1$  and  $x_2$

```
fmm 2: betareg y x1 x2
```

As above, but with class probabilities depending on  $z_1$  and  $z_2$

```
fmm 2, lcpob(z1 z2): betareg y x1 x2
```

With robust standard errors

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

Constrain coefficients on  $x_1$  and  $x_2$  to be equal across classes

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

## Menu

Statistics > FMM (finite mixture models) > Beta regression

## Syntax

### Basic syntax

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

### Full syntax

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

where # specifies the number of class models.

<i>options</i>	Description
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Model	
<u>noconstant</u>	suppress the constant term
<u>link</u> ( <i>linkname</i> )	specify link function for the conditional mean; default is link(logit)

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*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* in [R] **betareg**.

<i>linkname</i>	Description
logit	logit
probit	probit
cloglog	complementary log-log

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<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`, `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`, `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 beta regression, see [R] [betareg](#). 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](#).

## Reference

Gray, L. A., and M. Hernández-Alava. 2018. *A command for fitting mixture regression models for bounded dependent variables using the beta distribution*. *Stata Journal* 18: 51–75.

## 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] [betareg](#) — Beta regression

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