

**fmm: probit** — Finite mixtures of probit regression models

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## Description

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

## Quick start

Mixture of two probit regression models of `y` on `x1` and `x2`

```
fmm 2: probit y x1 x2
```

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

```
fmm 2, lcp( z1 z2 ): probit y x1 x2
```

With robust standard errors

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

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

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

## Menu

Statistics > FMM (finite mixture models) > Binary outcomes > Probit regression

## Syntax

### Basic syntax

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

### Full syntax

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

where # specifies the number of class models.

<i>options</i>	Description
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Model	
<b>noconstant</b>	suppress the constant term
<b>offset(<i>varname</i>)</b>	include <i>varname</i> in model with coefficient constrained to 1
<b>asis</b>	retain perfect predictor variables

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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] [probit](#).

<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	
<code>vce(<i>vcetype</i>)</code>	<i>vcetype</i> may be <code>oim</code> , <code>opg</code> , <code>robust</code> , or <code>cluster clustvar</code>
Reporting	
<code>level(#)</code>	set confidence level; default is <code>level(95)</code>
<code>nocnsreport</code>	do not display constraints
<code>noheader</code>	do not display header above parameter table
<code>nodvheader</code>	do not display dependent variables information in the header
<code>notable</code>	do not display parameter table
<code>display_options</code>	control columns and column formats, row spacing, line width, display of omitted variables and base and empty cells, and factor-variable labeling
Maximization	
<code>maximize_options</code>	control the maximization process
<code>startvalues(<i>svmethod</i>)</code>	method for obtaining starting values; default is <code>startvalues(factor)</code>
<code>emopts(<i>maxopts</i>)</code>	control EM algorithm for improved starting values
<code>noestimate</code>	do not fit the model; show starting values instead
<code>collinear</code>	keep collinear variables
<code>coeflegend</code>	display legend instead of statistics
<p><i>varlist</i> may contain factor variables; see [U] 11.4.3 <b>Factor variables</b>.</p> <p><code>by</code>, <code>collect</code>, <code>statsby</code>, and <code>svy</code> are allowed; see [U] 11.1.10 <b>Prefix commands</b>.</p> <p><code>vce()</code> and weights are not allowed with the <code>svy</code> prefix; see [SVY] <b>svy</b>.</p> <p><code>fweights</code>, <code>iweights</code>, and <code>pweights</code> are allowed; see [U] 11.1.6 <b>weight</b>.</p> <p><code>collinear</code> and <code>coeflegend</code> do not appear in the dialog box.</p> <p>See [U] 20 <b>Estimation and postestimation commands</b> for more capabilities of estimation commands.</p> <p>For a detailed description of <i>fmmopts</i>, see <i>Options</i> in [FMM] <b>fmm</b>.</p>	
<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 probit regression, see [R] [probit](#). 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] [probit](#) — Probit regression

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

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