

Postestimation commands

predict

margins

Remarks and examples

Methods and formulas

Also see

## Postestimation commands

The following postestimation commands are of special interest after estimation with `fmm`:

Command	Description
<code>estat eform</code>	display exponentiated parameters
<code>estat lcmean</code>	latent class marginal means
<code>estat lcprob</code>	latent class marginal probabilities
<code>lcstats</code>	latent class model-comparison statistics

The following standard postestimation commands are also available:

Command	Description
<code>contrast</code>	contrasts and linear hypothesis tests
<code>estat ic</code>	Akaike's, consistent Akaike's, corrected Akaike's, and Schwarz's Bayesian information criteria (AIC, CAIC, AICC, and BIC, respectively)
<code>estat summarize</code>	summary statistics for the estimation sample
<code>estat vce</code>	variance–covariance matrix of the estimators (VCE)
<code>estat (svy)</code>	postestimation statistics for survey data
<code>estimates</code>	cataloging estimation results
<code>etable</code>	table of estimation results
* <code>hausman</code>	Hausman's specification test
<code>lincom</code>	linear combination of parameters
* <code>lrtest</code>	likelihood-ratio test
<code>margins</code>	marginal means, predictive margins, marginal effects, and average marginal effects
<code>marginsplot</code>	graph the results from margins (profile plots, interaction plots, etc.)
<code>nlcom</code>	point estimates, standard errors, testing, and inference for nonlinear combinations of parameters
<code>predict</code>	predictions, residuals, influence statistics, and other diagnostic measures
<code>predictnl</code>	point estimates, standard errors, testing, and inference for generalized predictions
<code>pwcompare</code>	pairwise comparisons of parameters
<code>test</code>	Wald tests of simple and composite linear hypotheses
<code>testnl</code>	Wald tests of nonlinear hypotheses

\* `hausman` and `lrtest` are not appropriate with `svy` estimation results.

Postestimation commands such `lincom` and `nlcom` require referencing estimated parameter values, which are accessible via `_b[name]`. To find out what the names are, type `fmm, coeflegend`.

# predict

## Description for predict

predict after fmf creates new variables containing predictions such as means, probabilities, linear predictions, densities, or latent class probabilities.

## Menu for predict

Statistics > Postestimation

## Syntax for predict

```
predict [type] { stub* | newvarlist } [if] [in] [ , statistic options ]
```

```
predict [type] stub* [if] [in] , scores
```

statistic	Description
Main	
mu	expected value of <i>depvar</i> ; the default
eta	linear prediction of <i>depvar</i>
density	density function at <i>depvar</i>
distribution	distribution function at <i>depvar</i>
survival	survivor function at <i>depvar</i>
classpr	latent class probability
classposteriorpr	posterior latent class probability

options	Description
Main	
marginal	compute <i>statistic</i> marginally with respect to the latent classes
pmarginal	compute mu marginally with respect to the posterior latent class probabilities
nooffset	make calculation ignoring offset or exposure
* outcome( <i>depvar</i> [#])	specify observed response variable (default all)
class(#)	specify latent class (default all)

\*outcome(*depvar* #) is allowed only if *depvar* is from mlogit, ologit, or oprobit.  
outcome(*depvar* #) may also be specified as outcome(#*depvar*) or outcome(*depvar* ##).  
outcome(*depvar* #3) means the third outcome value. outcome(*depvar* #3) would mean the same as outcome(*depvar* 4) if outcomes were 1, 3, and 4.

## Options for predict

Main

mu, the default, calculates the expected value of the outcomes.

eta calculates the fitted linear prediction.

`density` calculates the density function. This prediction is computed using the current values of the observed variables, including the dependent variable.

`distribution` calculates the distribution function. This prediction is computed using the current values of the observed variables, including the dependent variable. This option is not allowed for `mlogit` outcomes.

`survival` calculates the survivor function. This prediction is computed using the current values of the observed variables, including the dependent variable. This option is allowed only for `streg` outcomes.

`classpr` calculates predicted probabilities for each latent class.

`classposteriorpr` calculates predicted posterior probabilities for each latent class. The posterior probabilities are a function of the latent-class predictors and the fitted outcome densities.

`marginal` specifies that the prediction be computed marginally with respect to the latent classes. The marginal prediction is computed by combining the class specific predictions using the latent-class probabilities.

This option is allowed only with `mu` and `density`.

`pmarginal` specifies that the prediction is computed by combining the class specific expected values using the posterior latent-class probabilities.

This option is allowed only with `mu`.

`nooffset` is relevant only if option `offset()` or `exposure()` was specified at estimation time. `nooffset` specifies that `offset()` or `exposure()` be ignored, which produces predictions as if all subjects had equal exposure.

`outcome(depvar [#])` specifies the *depvar* for which predictions should be calculated. Predictions for all observed response variables are computed by default. Most models have only one *depvar*. If *depvar* is an `mlogit`, `ologit`, or `oprobit` outcome, then `#` optionally specifies which outcome level to predict. The default is the first level.

`class(#)` specifies that predictions for latent class `#` be calculated. Predictions for all latent classes are computed by default.

`scores` calculates the scores for each coefficient in  $e(b)$ . This option requires a new variable list of length equal to the number of columns in  $e(b)$ . Otherwise, use *stub\** to have `predict` generate enumerated variables with prefix *stub*.

# margins

## Description for margins

margins estimates margins of response for outcome means, outcome probabilities, and latent-class probabilities.

## Menu for margins

Statistics > Postestimation

## Syntax for margins

```
margins [marginlist] [ , options ]
margins [marginlist] , predict(statistic ...) [predict(statistic ...) ...] [options]
```

statistic	Description
default	calculate expected values for each <i>depvar</i>
mu	calculate expected value of <i>depvar</i>
eta	calculate expected value of linear prediction of <i>depvar</i>
classpr	calculate latent class prior probabilities
density	not allowed with margins
distribution	not allowed with margins
survival	not allowed with margins
classposteriorpr	not allowed with margins
scores	not allowed with margins

mu defaults to the first *depvar* if option outcome() is not specified. If *depvar* is mlogit, ologit, or oprobit, the default is the first level of the outcome. The default is the first latent class if class() is not specified.

eta defaults to the first *depvar* if option outcome() is not specified. If *depvar* is mlogit, the default is the first level of the outcome.

classpr defaults to the first latent class if option class() is not specified.

predict's option marginal is assumed if predict's option class() is not specified.

Statistics not allowed with margins are functions of stochastic quantities other than e(b).

For the full syntax, see [R] margins.

## Remarks and examples

- For examples using estimates stats to compare models based on Akaike information criterion and Bayesian information criterion, see [FMM] Example 1a, [FMM] Example 1b, and [FMM] Example 1d.
- For examples using estat lcprob to obtain marginal latent class probabilities and estat lcmean to obtain marginal predicted means, see [FMM] Example 2 and [FMM] Example 3.
- For examples using test and contrast to test equality of coefficients across classes, see [FMM] Example 1c.
- For examples using predict, see [FMM] Example 2, [FMM] Example 3, and [FMM] Example 4.

## Methods and formulas

See *Methods and formulas* in [FMM] [fmm](#).

## Also see

[FMM] [fmm](#) — Finite mixture models using the fmm prefix

[FMM] [fmm estimation](#) — Fitting finite mixture models

[FMM] [fmm intro](#) — Introduction to finite mixture models

Stata, Stata Press, and Mata are registered trademarks of StataCorp LLC. Stata and Stata Press are registered trademarks with the World Intellectual Property Organization of the United Nations. StataNow and NetCourseNow are trademarks of StataCorp LLC. Other brand and product names are registered trademarks or trademarks of their respective companies. Copyright © 1985–2025 StataCorp LLC, College Station, TX, USA. All rights reserved.

For suggested citations, see the FAQ on [citing Stata documentation](#).

