mprobit postestimation — Postestimation tools for mprobit

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Postestimation commands

The following postestimation commands are available after `mprobit`:

Command	Description
`contrast`	contrasts and ANOVA-style joint tests of estimates
`estat ic`	Akaike's and Schwarz's Bayesian information criteria (AIC and BIC)
`estat summarize`	summary statistics for the estimation sample
`estat vce`	variance–covariance matrix of the estimators (VCE)
`estat (svy)`	postestimation statistics for survey data
`estimates`	cataloging estimation results
* `forecast`	dynamic forecasts and simulations
* `hausman`	Hausman's specification test
`lincom`	point estimates, standard errors, testing, and inference for linear combinations of coefficients
* `lrtest`	likelihood-ratio test
`margins`	marginal means, predictive margins, marginal effects, and average marginal effects
`marginsplot`	graph the results from margins (profile plots, interaction plots, etc.)
`nlcom`	point estimates, standard errors, testing, and inference for nonlinear combinations of coefficients
`predict`	predicted probabilities, linear predictions, and standard errors
`predictnl`	point estimates, standard errors, testing, and inference for generalized predictions
`pwcompare`	pairwise comparisons of estimates
`suest`	seemingly unrelated estimation
`test`	Wald tests of simple and composite linear hypotheses
`testnl`	Wald tests of nonlinear hypotheses

* `forecast`, `hausman`, and `lrtest` are not appropriate with `svy` estimation results. `forecast` is also not appropriate with `mi` estimation results.

predict

Description for predict

`predict` creates a new variable containing predictions such as probabilities, linear predictions, and standard errors.

Menu for predict

Statistics > Postestimation

Syntax for predict

`predict` [*type*] { *stub** | *newvar* | *newvarlist* } [*if*] [*in*] [, *statistic* `outcome(`*outcome*`)`]

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

statistic	Description
Main	
`pr`	predicted probabilities; the default
`xb`	linear prediction
`stdp`	standard error of the linear prediction

If you do not specify `outcome()`, `pr` (with one new variable specified), `xb`, and `stdp` assume `outcome(#1)`.

You specify one or k new variables with `pr`, where k is the number of outcomes.

You specify one new variable with `xb` and `stdp`.

These statistics are available both in and out of sample; type `predict ... if e(sample) ...` if wanted only for the estimation sample.

Options for predict

Main

`pr`, the default, calculates the predicted probabilities. If you do not also specify the `outcome()` option, you specify k new variables, where k is the number of categories of the dependent variable. Say that you fit a model by typing `mprobit result x1 x2`, and `result` takes on three values. Then you could type `predict p1 p2 p3` to obtain all three predicted probabilities. If you specify the `outcome()` option, you must specify one new variable. Say that `result` takes on values 1, 2, and 3. Typing `predict p1, outcome(1)` would produce the same `p1`.

`xb` calculates the linear prediction, $\mathbf{x}_i\boldsymbol{\alpha}_j$, for alternative j and individual i. The index, j, corresponds to the outcome specified in `outcome()`.

`stdp` calculates the standard error of the linear prediction.

`outcome(`*outcome*`)` specifies the outcome for which the statistic is to be calculated. `equation()` is a synonym for `outcome()`: it does not matter which you use. `outcome()` or `equation()` can be specified using

`#1`, `#2`, ..., where `#1` means the first category of the dependent variable, `#2` means the second category, etc.;

the values of the dependent variable; or

the value labels of the dependent variable if they exist.

`scores` calculates the equation-level score variables. The jth new variable will contain the scores for the jth fitted equation.

margins

Description for margins

`margins` estimates margins of response for probabilities and linear predictions.

Menu for margins

Statistics > Postestimation

Syntax for margins

`margins` [*marginlist*] [, *options*]

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

statistic	Description
default	probabilities for each outcome
`pr`	probability for a specified outcome
`xb`	linear prediction for a specified outcome
`stdp`	not allowed with `margins`

`pr` and `xb` default to the first outcome.

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

For the full syntax, see [R] **margins**.

Remarks and examples

stata.com

Once you have fit a multinomial probit model, you can use `predict` to obtain probabilities that an individual will choose each of the alternatives for the estimation sample, as well as other samples; see [U] **20 Estimation and postestimation commands** and [R] **predict**.

▷ Example 1

In example 1 of [R] **mprobit**, we fit the multinomial probit model to a dataset containing the type of health insurance available to 616 psychologically depressed subjects in the United States (Tarlov et al. 1989; Wells et al. 1989). We can obtain the predicted probabilities by typing

```
. use http://www.stata-press.com/data/r14/sysdsn1
(Health insurance data)
. mprobit insure age male nonwhite i.site
  (output omitted)
. predict p1-p3
(option pr assumed; predicted probabilities)
. list p1-p3 insure in 1/10
```

	p1	p2	p3	insure
1.	.5961306	.3741824	.029687	Indemnity
2.	.4719296	.4972289	.0308415	Prepaid
3.	.4896086	.4121961	.0981953	Indemnity
4.	.3730529	.5416623	.0852848	Prepaid
5.	.5063069	.4629773	.0307158	.
6.	.4768125	.4923548	.0308327	Prepaid
7.	.5035672	.4657016	.0307312	Prepaid
8.	.3326361	.5580404	.1093235	.
9.	.4758165	.4384811	.0857024	Uninsure
10.	.5734057	.3316601	.0949342	Prepaid

`insure` contains a missing value for observations 5 and 8. Because of that, those two observations were not used in the estimation. However, because none of the independent variables is missing, `predict` can still calculate the probabilities. Had we typed

```
. predict p1-p3 if e(sample)
```

`predict` would have filled in missing values for `p1`, `p2`, and `p3` for those observations because they were not used in the estimation.

◁

References

Tarlov, A. R., J. E. Ware, Jr., S. Greenfield, E. C. Nelson, E. Perrin, and M. Zubkoff. 1989. The medical outcomes study. An application of methods for monitoring the results of medical care. *Journal of the American Medical Association* 262: 925–930.

Wells, K. B., R. D. Hays, M. A. Burnam, W. H. Rogers, S. Greenfield, and J. E. Ware, Jr. 1989. Detection of depressive disorder for patients receiving prepaid or fee-for-service care. Results from the Medical Outcomes Survey. *Journal of the American Medical Association* 262: 3298–3302.

Also see

[R] **mprobit** — Multinomial probit regression

[U] **20 Estimation and postestimation commands**