cmclogit postestimation — Postestimation tools for cmclogit

Postestimation commands predict margins Remarks and examples
Also see

Postestimation commands

The following postestimation commands are available after `cmclogit`:

Command	Description
`contrast`	contrasts and ANOVA-style joint tests of parameters
`estat ic`	Akaike's, consistent Akaike's, corrected Akaike's, and Schwarz's Bayesian information criteria (AIC, CAIC, AICc, and BIC, respectively)
`estat summarize`	summary statistics for the estimation sample
`estat vce`	variance–covariance matrix of the estimators (VCE)
`estimates`	cataloging estimation results
`etable`	table of estimation results
`hausman`	Hausman's specification test
`lincom`	point estimates, standard errors, testing, and inference for linear combinations of parameters
`lrtest`	likelihood-ratio test
`margins`	adjusted predictions, predictive margins, and 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 parameters
`predict`	probabilities, etc.
`predictnl`	point estimates, standard errors, testing, and inference for generalized predictions
`pwcompare`	pairwise comparisons of parameters
`test`	Wald tests of simple and composite linear hypotheses
`testnl`	Wald tests of nonlinear hypotheses

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*] *newvar* [*if*] [*in*] [, *statistic* `nooffset`]

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

statistic	Description
Main	
`pr`	probability alternative is chosen; the default
`xb`	linear prediction
`stdp`	standard error of the linear prediction

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

`predict` omits missing values casewise if `cmclogit` used casewise deletion (the default); if `cmclogit` used alternativewise deletion (option `altwise`), `predict` uses alternativewise deletion.

Options for predict

Main

`pr`, the default, calculates the probability of choosing each alternative.

`xb` calculates the linear prediction.

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

`nooffset` is relevant only if you specified `offset(`*varname*`)` for `cmclogit`. It modifies the calculations made by predict so that they ignore the offset variable; the linear prediction is treated as $\mathbf{x}\boldsymbol{\beta}$ rather than as $\mathbf{x}\boldsymbol{\beta}$ + offset.

`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 the *stub*`*` syntax to have `predict` generate enumerated variables with prefix *stub*.

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
`pr`	probability alternative is chosen; the default
`xb`	linear prediction
`stdp`	not allowed with `margins`
`scores`	not allowed with `margins`

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

For more details, see [CM] **margins**.

Remarks and examples

Remarks are presented under the following headings:

Testing coefficient estimates
Predicted probabilities
    Casewise versus alternativewise sample selection
Obtaining estimation statistics for the alternatives

Testing coefficient estimates

The output of `cmclogit` is displayed and stored as a multiple-equation model. Let's illustrate this with example 1 of [CM] **cmclogit**.

▷ Example 1

We load the data, `cmset` the data, and run `cmclogit`.

```
. use https://www.stata-press.com/data/r19/carchoice
(Car choice data)

. cmset consumerid car
note: alternatives are unbalanced across choice sets; choice sets of different
      sizes found.

     Case ID variable: consumerid
Alternatives variable: car

. cmclogit purchase dealers, casevars(i.gender income)
  (output omitted)
```

The coefficient estimates for `i.gender` and `income` are stored under the equation names `Japanese`, `European`, and `Korean`, that is, the names of the alternatives, except for the base alternative `American`. To test whether the coefficient estimates for `i.gender` are the same for the Japanese and Korean alternatives relative to the American base alternative, we type

```
. test [Japanese]:1.gender = [Korean]:1.gender
 ( 1)  [Japanese]1.gender - [Korean]1.gender = 0
           chi2(  1) =    1.00
         Prob > chi2 =    0.3169
```

The following shorthand syntax is useful for testing across the alternatives:

```
. test [Japanese = European = Korean]:1.gender
 ( 1)  [Japanese]1.gender - [European]1.gender = 0
 ( 2)  [Japanese]1.gender - [Korean]1.gender = 0
           chi2(  2) =   15.62
         Prob > chi2 =    0.0004
```

See [R] **test** for details.

Predicted probabilities

After running `cmclogit`, you can use `predict` to obtain the estimated probability that each alternative is chosen for each case conditional on its observed data.

Example 2

Continuing with the previous example, we calculate predicted probabilities and list them for the first four cases:

```
. predict p
(option pr assumed; Pr(car))
. format p %6.3f
. list consumerid car purchase gender income p
> if consumerid <= 4, sepby(consumerid) abbr(10)
```

	consumerid	car	purchase	gender	income	p
1.	1	American	1	Male	46.7	0.391
2.	1	Japanese	0	Male	46.7	0.374
3.	1	European	0	Male	46.7	0.183
4.	1	Korean	0	Male	46.7	0.053
5.	2	American	1	Male	26.1	0.493
6.	2	Japanese	0	Male	26.1	0.274
7.	2	European	0	Male	26.1	0.095
8.	2	Korean	0	Male	26.1	0.138
9.	3	American	0	Male	32.7	0.524
10.	3	Japanese	1	Male	32.7	0.337
11.	3	European	0	Male	32.7	0.138
12.	4	American	1	Female	49.2	0.391
13.	4	Japanese	0	Female	49.2	0.496
14.	4	European	0	Female	49.2	0.113

To get predicted probabilities and marginal effects averaged across the sample or for hypothetical cases (that is, predictor values set to particular values), use the `margins` postestimation command; see [CM] **Intro 1** and [CM] **margins** for more information and examples.

◁

Casewise versus alternativewise sample selection

Missing values in CM data are handled in two possible ways: casewise deletion (the default) and alternativewise (`altwise`) deletion. Casewise deletion omits the whole case whenever any observation within the case has a missing value. Alternativewise deletion omits only the observations with missing values.

`predict` uses whatever was used with `cmclogit`. If `cmclogit` used casewise deletion, `predict` uses casewise deletion. If `cmclogit` was used with the option `altwise`, `predict` uses alternativewise deletion. Should you wish to select the sample for `predict` yourself, you can use an `if` restriction with `predict`.

See example 3 in [CM] **cmclogit** for more on casewise versus alternativewise deletion.

Obtaining estimation statistics for the alternatives

▷ Example 3

`cmtab` can be used to obtain a table of the alternatives for the estimation sample. If there are missing values in the data used to fit the model, you will need to restrict `cmtab` to the estimation sample by specifying `if e(sample)`.

```
. cmtab if e(sample), choice(purchase)
Tabulation of chosen alternatives (purchase = 1)
```

Nationality of car	Freq.	Percent	Cum.
American	376	43.62	43.62
Japanese	316	36.66	80.28
European	130	15.08	95.36
Korean	40	4.64	100.00
Total	862	100.00	

`cmchoiceset` is useful for obtaining a table of the choice-set patterns.

```
. cmchoiceset if e(sample)
Tabulation of choice-set possibilities
```

Choice set	Freq.	Percent	Cum.
1 2 3	373	43.27	43.27
1 2 3 4	489	56.73	100.00
Total	862	100.00	

```
Note: Total is number of cases.
```

If you have missing data or see notes mentioning cases being dropped, `cmsample` can identify omitted observations and show the reason they were omitted from the estimation sample. See [CM] **cmsample**.

◁

Also see

[CM] **cmclogit** — Conditional logit (McFadden's) choice model

[CM] **margins** — Adjusted predictions, predictive margins, and marginal effects

[U] 20 Estimation and postestimation commands

Stata, Stata Press, Mata, NetCourse, and NetCourseNow are registered trademarks of StataCorp LLC. Stata and Stata Press are registered trademarks with the World Intellectual Property Organization of the United Nations. StataNow is a trademark 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.