Title

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binreg postestimation — Postestimation tools for binreg

Description

The following postestimation commands are available after `binreg`:

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)
`estimates`	cataloging estimation results
`forecast`[1]	dynamic forecasts and simulations
`lincom`	point estimates, standard errors, testing, and inference for linear combinations of coefficients
`linktest`	link test for model specification
`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`	predictions, residuals, influence statistics, and other diagnostic measures
`predictnl`	point estimates, standard errors, testing, and inference for generalized predictions
`pwcompare`	pairwise comparisons of estimates
`test`	Wald tests of simple and composite linear hypotheses
`testnl`	Wald tests of nonlinear hypotheses

[1] `forecast` may not be used with `mi` estimation results.

Syntax for predict

```
predict [type] newvar [if] [in] [, statistic options]
```

statistic	Description
Main	
`mu`	expected value of y; the default
`xb`	linear prediction $\eta = \mathbf{x}\widehat{\boldsymbol{\beta}}$
`eta`	synonym for `xb`
`stdp`	standard error of the linear prediction
`anscombe`	Anscombe (1953) residuals
`cooksd`	Cook's distance
`deviance`	deviance residuals
`hat`	diagonals of the "hat" matrix
`likelihood`	weighted average of the standardized deviance and standard Pearson residuals
`pearson`	Pearson residuals
`response`	differences between the observed and fitted outcomes
`score`	first derivative of the log likelihood with respect to $\mathbf{x}_j\boldsymbol{\beta}$
`working`	working residuals

options	Description
Options	
`nooffset`	modify calculations to ignore the offset variable
`adjusted`	adjust deviance residual to speed up convergence
`standardized`	multiply residual by the factor $(1-h)^{1/2}$
`studentized`	multiply residual by one over the square root of the estimated scale parameter
`modified`	modify denominator of residual to be a reasonable estimate of the variance of *depvar*

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

Menu for predict

Statistics > Postestimation > Predictions, residuals, etc.

Options for predict

Main

`mu`, the default, specifies that `predict` calculate the expected value of y, equal to $g^{-1}(\mathbf{x}\widehat{\boldsymbol{\beta}})$ [$ng^{-1}(\mathbf{x}\widehat{\boldsymbol{\beta}})$ for the binomial family].

`xb` calculates the linear prediction $\eta = \mathbf{x}\widehat{\boldsymbol{\beta}}$.

`eta` is a synonym for `xb`.

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

`anscombe` calculates the Anscombe (1953) residuals to produce residuals that closely follow a normal distribution.

`cooksd` calculates Cook's distance, which measures the aggregate change in the estimated coefficients when each observation is left out of the estimation.

`deviance` calculates the deviance residuals, which are recommended by McCullagh and Nelder (1989) and others as having the best properties for examining goodness of fit of a GLM. They are approximately normally distributed if the model is correct and may be plotted against the fitted values or against a covariate to inspect the model's fit. Also see the `pearson` option below.

`hat` calculates the diagonals of the "hat" matrix, analogous to linear regression.

`likelihood` calculates a weighted average of the standardized deviance and standardized Pearson (described below) residuals.

`pearson` calculates the Pearson residuals, which often have markedly skewed distributions for nonnormal family distributions. Also see the `deviance` option above.

`response` calculates the differences between the observed and fitted outcomes.

`score` calculates the equation-level score, $\partial \ln L/\partial(\mathbf{x}_j\boldsymbol{\beta})$.

`working` calculates the working residuals, which are response residuals weighted according to the derivative of the link function.

Options

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

`adjusted` adjusts the deviance residual to make the convergence to the limiting normal distribution faster. The adjustment deals with adding to the deviance residual a higher-order term depending on the variance function family. This option is allowed only when `deviance` is specified.

`standardized` requests that the residual be multiplied by the factor $(1-h)^{-1/2}$, where h is the diagonal of the hat matrix. This step is done to take into account the correlation between *depvar* and its predicted value.

`studentized` requests that the residual be multiplied by one over the square root of the estimated scale parameter.

`modified` requests that the denominator of the residual be modified to be a reasonable estimate of the variance of *depvar*. The base residual is multiplied by the factor $(k/w)^{-1/2}$, where k is either one or the user-specified dispersion parameter and w is the specified weight (or one if left unspecified).

References

Anscombe, F. J. 1953. Contribution of discussion paper by H. Hotelling "New light on the correlation coefficient and its transforms". *Journal of the Royal Statistical Society, Series B* 15: 229–230.

McCullagh, P., and J. A. Nelder. 1989. *Generalized Linear Models*. 2nd ed. London: Chapman & Hall/CRC.

Also see

[R] **binreg** — Generalized linear models: Extensions to the binomial family

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