Regression: nagdmc_basic_reg

Purpose

 $nagdmc_basic_reg$ computes a regression model with p parameters and is a simplified interface to $nagdmc_linear_reg$.

Declaration

Parameters

1:	rec1 – long On entry: the index in the data of the first data record used in the analysis. Constraint: rec1 ≥ 0 .	Input
2:	nvar - longOn entry: the number of variables in the data.Constraint: $nvar > 1$.	Input
3:	<pre>nrec - long On entry: the number of consecutive records, beginning at rec1, used in the analysis. Constraint: nrec > 1.</pre>	Input
4:	$dblk - long$ On entry: the total number of records in the data block.Constraint: $dblk \ge rec1 + nrec$.	Input
5:	data[dblk * nvar] - double On entry: the data values for the <i>j</i> th variable (for $j = 0, 1,, nvar-1$) are stored in data[<i>i</i> *nvar for $i = 0, 1,, dblk - 1$.	Input $\mathbf{r}+j],$
6:	nxvar – long On entry: the number of independent variables. If nxvar = 0 then all variables in the excluding yvar , are treated as independent variables. Constraint: $0 \leq \mathbf{nxvar} < \mathbf{nvar}$.	Input data,
7:	xvar [nxvar] - long On entry: the indices indicating the position in data in which values of the independent variation are stored. If nxvar = 0 then xvar must be 0, and the indices of independent variables are given $j = 0, 1,, $ nvar - 1; $j \neq$ yvar . Constraints: if nxvar > 0, $0 \leq$ xvar [i] < nvar , for $i = 0, 1,,$ nxvar - 1; otherwise xvar muto.	<i>Input</i> iables en by ast be
8:	yvar – long On entry: the index in data in which values of the dependent variable are stored. Constraints: $0 \leq$ yvar $<$ nvar; if nxvar > 0 , yvar \neq xvar $[i]$, for $i = 0, 1,,$ nxvar -1 .	Input
9:	$\mathbf{R2}$ - double * O $On \ exit:$ the R^2 -value for the fitted model.	utput
10:	rms - double * O On exit: the residual mean square for the fitted model. O	utput

11: df - long * Output

 $On\ exit:$ the degrees of freedom for the residual mean square.

12: $\mathbf{b}[p] - \mathtt{double}$

On exit: the parameter estimates. $\mathbf{b}[0]$ is the mean parameter. $\mathbf{b}[i]$ is the coefficient of the *i*th variable included in the model, for i = 1, 2, ..., p - 1. If $\mathbf{nxvar} > 0$ then the order the independent variables are added to the model is defined by \mathbf{xvar} , otherwise the order is defined by indices in the data.

13: se[p] - double

On exit: the standard errors of the parameters in \mathbf{b} .

14: $\operatorname{cov}[p*(p+1)/2] - \operatorname{double}$

On exit: the first p * (p + 1)/2 elements of **cov** contain the upper triangular part of the variancecovariance matrix of the p parameters in **b**. They are stored packed by column, i.e., the covariance between the parameter estimate given in $\mathbf{b}[i]$ and the parameter estimate given in $\mathbf{b}[j]$, $j \ge i$, is stored in $\mathbf{cov}[j(j+1)/2+i]$, for $i = 0, 1, \ldots, p-1$ and $j = i, i+1, \ldots, p-1$.

15: model[(3 * p * (p + 1))/2 + nvar + 14] - double Output

On exit: if not 0, information on the fitted model for use in the functions described in 'See Also'.

16: info - int *

On exit: info gives information on the success of the function call:

- 0: the function successfully completed its task.
- $i; i = 1, 2, \dots, 8$: the specification of the *i*th formal parameter was incorrect.
- 57: there are no degrees of freedom for the error estimates.
- 58: the fit is exact, no error estimates.
- 98: there is an underlying computational problem (this is an unlikely error exit).
- 99: the function failed to allocate enough memory.

Notation

See the notation for **nagdmc_linear_reg**.

Description

See the description for **nagdmc_linear_reg**.

References and Further Reading

Draper N R and Smith H (1985) Applied Regression Analysis (2nd Edition) Wiley. McCullagh P and Nelder J A (1983) Generalized Linear Models Chapman and Hall. Searle S R (1971) Linear Models Wiley.

See Also

nagdmc_extrcomputes fitted values, residuals and leverages for a regression.nagdmc_linear_reglinear model with Normal errors.nagdmc_predict_regcomputes predictions given a fitted regression model.nagdmc_stepwise_regstepwise linear regression with Normal errors.basic_reg_ex.cthe example calling program.

Output

Output

Output

Also'. Output