JACKNIFE ... PLOT

PURPOSE

Generates a jacknife plot for a given statistic.

DESCRIPTION

The jacknife is a non-parametric method for estimating a sampling distribution for a statistic. Given a sample data set and a desired statistic (e.g., the mean), the jacknife works by computing the desired statistic with an element deleted. This is done for each element of the data set. The collection of these statistics is used as an estimate of the sampling distribution. For the jacknife plot, the vertical axis contains the computed value of the statistic and the horizontal axis contains the sample number (for k = 1, 2, ..., N). The number of response variables depends on the number of variables required to compute the statistic (e.g., the MEAN uses one while the LINEAR INTERCEPT uses two). The jacknife plot is typically followed by some type of distributional plot such as a histogram.

SYNTAX 1

JACKNIFE <stat> PLOT <y> <SUBSET/EXCEPT/FOR qualification>
where <y> is the first response variable;
<stat> is one of the following statistics:
MEAN, MIDMEAN, MEDIAN, TRIMMED MEAN, WINDSORIZED MEAN,
SUM, PRODUCT, SIZE (or NUMBER or COUNT), MINIMUM, MAXIMUM,
STANDARD DEVIATION, VARIANCE, STANDARD DEVIATION OF MEAN, VARIANCE OF MEAN,
AVERAGE ABSOLUTE DEVIATION (AAD), MEDIAN ABSOLUTE DEVIATION (MAD),
RELATIVE STANDARD DEVIATION, RELATIVE VARIANCE (or COEFFICIENT OF VARIATION),
RANGE, MIDRANGE, LOWER HINGE, UPPER HINGE, LOWER QUARTILE, UPPER QUARTILE,
<FIRST/SECOND/THIRD/FOURTH/FIFTH/SIXTH/SEVENTH/EIGTH/NINTH> DECILE,
SKEWNESS, KURTOSIS,
AUTOCORRELATION, AUTOCOVARIANCE,
SINE FREQUENCY, SINE AMPLITUDE,
TAGUCHI SN0 (or SN), TAGUCHI SN+ (or SNL), TAGUCHI SN- (or SNS), TAGUCHI SN00 (SN2);
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

This syntax is used for statistics requiring one response variable to compute.

SYNTAX 2

JACKNIFE <stat> PLOT <y1> <y2> <SUBSET/EXCEPT/FOR qualification>
where <y1> is the first response variable;
<y2> is the optional second response variable;
<stat> is one of the following statistics:
LINEAR INTERCEPT, LINEAR SLOPE, LINEAR RESSD, LINEAR CORRELATION;
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

This syntax is used for statistics requiring two response variables to compute.

EXAMPLES

JACKNIFE MEAN PLOT Y
JACKNIFE LINEAR SLOPE PLOT Y1 X1

NOTE

The bootstrap is similar to the jacknife. However, in the bootstrap the sampling is done with replacement.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

LINES	=	Sets the type for plot lines.
HISTOGRAM	=	Generates a histogram.
BOOTSTRAP SAMPLE	=	Set the sample size for the jacknife.

PLOT	=	Generates a data or function plot.
BOOTSTRAP PLOT	=	Generates a bootstrap plot.

REFERENCE

"A Leisurely Look at the Bootstrap, the Jacknife, and Cross-Validation," Efron and Gong, The American Statistician, February, 1983.

APPLICATIONS

Sample Distribution of a Statistic

IMPLEMENTATION DATE

89/2

PROGRAM

```
TITLE AUTOMATIC
MULTIPLOT 2 1
MULTIPLOT CORNER COORDINATES 0 0 100 100
LET Y1 = NORMAL RANDOM NUMBERS FOR I = 1 1 1000
JACKNIFE MEAN PLOT Y1
LET YPLOT2 = YPLOT
HISTOGRAM YPLOT2
END OF MULTIPLOT
```