Title

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jackknife — Jackknife estimation

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Description

jackknife performs jackknife estimation of the specified statistics (or expressions) for a Stata command or a user-written program. Statistics are jackknifed by estimating the command once for each observation or cluster in the dataset, leaving the associated observation or cluster out of the calculations. jackknife is designed for use with nonestimation commands, functions of coefficients, or user-written programs. To jackknife coefficients, we recommend using the vce(jackknife) option when allowed by the estimation command.

jknife is a synonym for jackknife.

Quick start

Jackknife estimate of the standard deviation of v1 returned by summarize in r(sd)

    jackknife sd=r(sd), rclass: summarize v1

Jackknife estimate of the statistic r(mystat) returned by rclass program myprog1 that returns the sample size in r(N)

    jackknife stat=r(mystat), rclass: myprog1 v1

As above, and save the results from each replication in mydata.dta

    jackknife stat=r(mystat), rclass saving(mydata): myprog1 v1

Jackknife estimate of a difference in coefficients estimated by regress

    jackknife diff=(_b[x2]-_b[x1]): regress y x1 x2 x3

Jackknife estimate of the statistic e(mystat) returned by eclass program myprog2 that returns the sample size in e(N)

    jackknife stat=e(mystat), eclass: myprog2 y x1 x2 x3

Jackknife estimates of coefficients stored in e(b) by myprog2

    jackknife _b, eclass: myprog2 y x1 x2 x3

Add variables containing the pseudovalues of the coefficients to the dataset

    jackknife _b, eclass keep: myprog2 y x1 x2 x3

Menu

Statistics > Resampling > Jackknife estimation

Syntax

> jackknife *exp_list* [, *options eform_option*] : *command*

options	Description
Main	
eclass	number of observations used is stored in e(N)
rclass	number of observations used is stored in r(N)
n(*exp*)	specify *exp* that evaluates to the number of observations used
Options	
cluster(*varlist*)	variables identifying sample clusters
idcluster(*newvar*)	create new cluster ID variable
saving(*filename*, ...)	save results to *filename*; save statistics in double precision; save results to *filename* every *#* replications
keep	keep pseudovalues
mse	use MSE formula for variance estimation
Reporting	
level(*#*)	set confidence level; default is level(95)
notable	suppress table of results
noheader	suppress table header
nolegend	suppress table legend
verbose	display the full table legend
nodots	suppress replication dots
dots(*#*)	display dots every *#* replications
noisily	display any output from *command*
trace	trace *command*
title(*text*)	use *text* as title for jackknife results
display_options	control columns and column formats, row spacing, line width, display of omitted variables and base and empty cells, and factor-variable labeling
eform_option	display coefficient table in exponentiated form
Advanced	
nodrop	do not drop observations
reject(*exp*)	identify invalid results
coeflegend	display legend instead of statistics

svy is allowed; see [SVY] **svy jackknife**.

command is any command that follows standard Stata syntax. All weight types supported by *command* are allowed except aweights; see [U] **11.1.6 weight**.

coeflegend does not appear in the dialog box.

See [U] **20 Estimation and postestimation commands** for more capabilities of estimation commands.

exp_list contains	(*name*: *elist*)
	elist
	eexp
elist contains	*newvar* = (*exp*)
	(*exp*)
eexp is	*specname*
	[*eqno*]*specname*
specname is	_b
	_b[]
	_se
	_se[]
eqno is	# #
	name

exp is a standard Stata expression; see [U] **13 Functions and expressions**.

Distinguish between [], which are to be typed, and ⎡⎤, which indicate optional arguments.

Options

> Main

eclass, rclass, and n(*exp*) specify where *command* stores the number of observations on which it based the calculated results. We strongly advise you to specify one of these options.

> eclass specifies that *command* store the number of observations in e(N).

> rclass specifies that *command* store the number of observations in r(N).

> n(*exp*) specifies an expression that evaluates to the number of observations used. Specifying n(r(N)) is equivalent to specifying the rclass option. Specifying n(e(N)) is equivalent to specifying the eclass option. If *command* stores the number of observations in r(N1), specify n(r(N1)).

> If you specify no options, jackknife will assume eclass or rclass, depending on which of e(N) and r(N) is not missing (in that order). If both e(N) and r(N) are missing, jackknife assumes that all observations in the dataset contribute to the calculated result. If that assumption is incorrect, the reported standard errors will be incorrect. For instance, say that you specify

> > . jackknife coef=_b[x2]: myreg y x1 x2 x3

> where myreg uses e(n) instead of e(N) to identify the number of observations used in calculations. Further assume that observation 42 in the dataset has x3 equal to missing. The 42nd observation plays no role in obtaining the estimates, but jackknife has no way of knowing that and will use the wrong N. If, on the other hand, you specify

> > . jackknife coef=_b[x2], n(e(n)): myreg y x1 x2 x3

> jackknife will notice that observation 42 plays no role. The n(e(n)) option is specified because myreg is an estimation command but it stores the number of observations used in e(n) (instead of the standard e(N)). When jackknife runs the regression omitting the 42nd observation, jackknife will observe that e(n) has the same value as when jackknife previously ran the regression using all the observations. Thus jackknife will know that myreg did not use the observation.

> ┌─ Options ─

cluster(*varlist*) specifies the variables identifying sample clusters. If cluster() is specified, one
  cluster is left out of each call to *command*, instead of 1 observation.

idcluster(*newvar*) creates a new variable containing a unique integer identifier for each resampled
  cluster, starting at 1 and leading up to the number of clusters. This option may be specified only
  when the cluster() option is specified. idcluster() helps identify the cluster to which a
  pseudovalue belongs.

saving(*filename* [, *suboptions*]) creates a Stata data file (.dta file) consisting of (for each statistic
  in *exp_list*) a variable containing the replicates.

  double specifies that the results for each replication be saved as doubles, meaning 8-byte reals.
    By default, they are saved as floats, meaning 4-byte reals. This option may be used without
    the saving() option to compute the variance estimates by using double precision.

  every(#) specifies that results be written to disk every #th replication. every() should be specified
    only in conjunction with saving() when *command* takes a long time for each replication. This
    option will allow recovery of partial results should some other software crash your computer.
    See [P] postfile.

  replace specifies that *filename* be overwritten if it exists. This option does not appear in the
    dialog box.

keep specifies that new variables be added to the dataset containing the pseudovalues of the requested
  statistics. For instance, if you typed

          . jackknife coef=_b[x2], eclass keep: regress y x1 x2 x3

  new variable coef would be added to the dataset containing the pseudovalues for _b[x2]. Let b
  be the value of _b[x2] when all observations are used to fit the model, and let $b(j)$ be the value
  when the jth observation is omitted. The pseudovalues are defined as

$$\text{pseudovalue}_j = N \left\{ b - b(j) \right\} + b(j)$$

  where N is the number of observations used to produce b.

  When the cluster() option is specified, each cluster is given at most one nonmissing pseudovalue.
  The keep option implies the nodrop option.

mse specifies that jackknife compute the variance by using deviations of the replicates from the
  observed value of the statistics based on the entire dataset. By default, jackknife computes the
  variance by using deviations of the pseudovalues from their mean.

> ┌─ Reporting ─

level(#); see [R] estimation options.

notable suppresses the display of the table of results.

noheader suppresses the display of the table header. This option implies nolegend.

nolegend suppresses the display of the table legend. The table legend identifies the rows of the table
  with the expressions they represent.

verbose specifies that the full table legend be displayed. By default, coefficients and standard errors
  are not displayed.

nodots suppresses display of the replication dots. By default, one dot character is displayed for each
  successful replication. A red 'x' is displayed if *command* returns an error or if one of the values
  in *exp_list* is missing.

dots(*#*) displays dots every *#* replications. dots(0) is a synonym for nodots.

noisily specifies that any output from *command* be displayed. This option implies the nodots option.

trace causes a trace of the execution of *command* to be displayed. This option implies the noisily option.

title(*text*) specifies a title to be displayed above the table of jackknife results; the default title is Jackknife results or what is produced in e(title) by an estimation command.

display_options: noci, nopvalues, <u>noo</u>mitted, vsquish, noemptycells, <u>base</u>levels, <u>all</u>baselevels, <u>nofvlab</u>el, fvwrap(*#*), fvwrapon(*style*), cformat(*%fmt*), pformat(*%fmt*), sformat(*%fmt*), and nolstretch; see [R] **estimation options**.

eform_option causes the coefficient table to be displayed in exponentiated form; see [R] *eform_option*. *command* determines which *eform_option* is allowed (eform(*string*) and eform are always allowed).

command determines which of the following are allowed (eform(*string*) and eform are always allowed):

eform_option	Description
eform(*string*)	use *string* for the column title
eform	exponentiated coefficient, *string* is exp(b)
hr	hazard ratio, *string* is Haz. Ratio
shr	subhazard ratio, *string* is SHR
<u>irr</u>	incidence-rate ratio, *string* is IRR
or	odds ratio, *string* is Odds Ratio
<u>rrr</u>	relative-risk ratio, *string* is RRR

> **Advanced**

nodrop prevents observations outside e(sample) and the if and in qualifiers from being dropped before the data are resampled.

reject(*exp*) identifies an expression that indicates when results should be rejected. When *exp* is true, the resulting values are reset to missing values.

The following option is available with jackknife but is not shown in the dialog box:

coeflegend; see [R] **estimation options**.

Remarks and examples

Remarks are presented under the following headings:

> *Introduction*
> *Using jackknife*
> *Jackknifed standard deviation*
> *Collecting multiple statistics*
> *Collecting coefficients*

Introduction

Although the jackknife—developed in the late 1940s and early 1950s—is of largely historical interest today, it is still useful in searching for overly influential observations. This feature is often forgotten. In any case, the jackknife is

- an alternative, first-order unbiased estimator for a statistic;

- a data-dependent way to calculate the standard error of the statistic and to obtain significance levels and confidence intervals; and

- a way of producing measures called pseudovalues for each observation, reflecting the observation's influence on the overall statistic.

The idea behind the simplest form of the jackknife—the one implemented here—is to repeatedly calculate the statistic in question, each time omitting just one of the dataset's observations. Assume that our statistic of interest is the sample mean. Let y_j be the jth observation of our data on some measurement y, where $j = 1, \ldots, N$ and N is the sample size. If $\overline{y}$ is the sample mean of y using the entire dataset and $\overline{y}_{(j)}$ is the mean when the jth observation is omitted, then

$$\overline{y} = \frac{(N-1)\,\overline{y}_{(j)} + y_j}{N}$$

Solving for y_j, we obtain

$$y_j = N\,\overline{y} - (N-1)\,\overline{y}_{(j)}$$

These are the pseudovalues that `jackknife` calculates. To move this discussion beyond the sample mean, let $\widehat{\theta}$ be the value of our statistic (not necessarily the sample mean) using the entire dataset, and let $\widehat{\theta}_{(j)}$ be the computed value of our statistic with the jth observation omitted. The pseudovalue for the jth observation is

$$\widehat{\theta}_j^* = N\,\widehat{\theta} - (N-1)\,\widehat{\theta}_{(j)}$$

The mean of the pseudovalues is the alternative, first-order unbiased estimator mentioned above, and the standard error of the mean of the pseudovalues is an estimator for the standard error of $\widehat{\theta}$ (Tukey 1958).

The jackknife estimate of variance has been largely replaced by the bootstrap estimate (see [R] **bootstrap**), which is widely viewed as more efficient and robust. The use of jackknife pseudovalues to detect outliers is too often forgotten and is something the bootstrap does not provide. See Mosteller and Tukey (1977, 133–163) and Mooney and Duval (1993, 22–27) for more information.

Using jackknife

Typing

    . jackknife *exp_list*: *command*

executes *command* once for each observation in the dataset, leaving the associated observation out of the calculations that make up *exp_list*.

command defines the statistical command to be executed. Most Stata commands and user-written programs can be used with `jackknife`, as long as they follow standard Stata syntax and allow the `if` qualifier; see [U] **11 Language syntax**. The `by` prefix may not be part of *command*.

exp_list specifies the statistics to be collected from the execution of *command*. If *command* changes the contents in `e(b)`, *exp_list* is optional and defaults to _b.

When the `cluster()` option is given, clusters are omitted instead of observations, and N is the number of clusters instead of the sample size.

▷ Example 1

As our first example, we will show that the jackknife standard error of the sample mean is equivalent to the standard error of the sample mean computed using the classical formula in the `ci means` command. We use the `double` option to compute the standard errors with the same precision as the `ci means` command.

```
. use http://www.stata-press.com/data/r15/auto
(1978 Automobile Data)
. jackknife r(mean), double: summarize mpg
(running summarize on estimation sample)
Jackknife replications (74)
 ─────┼─── 1 ───┼─── 2 ───┼─── 3 ───┼─── 4 ───┼─── 5
.................................................  50
......................
Jackknife results                        Number of obs      =        74
                                         Replications       =        74
      command:  summarize mpg
       _jk_1:  r(mean)
         n():  r(N)
```

		Jackknife				
	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
_jk_1	21.2973	.6725511	31.67	0.000	19.9569	22.63769

```
. ci means mpg
```

Variable	Obs	Mean	Std. Err.	[95% Conf. Interval]	
mpg	74	21.2973	.6725511	19.9569	22.63769

◁

Jackknifed standard deviation

▷ Example 2

Mosteller and Tukey (1977, 139–140) request a 95% confidence interval for the standard deviation of the 11 values:

$$0.1, \quad 0.1, \quad 0.1, \quad 0.4, \quad 0.5, \quad 1.0, \quad 1.1, \quad 1.3, \quad 1.9, \quad 1.9, \quad 4.7$$

Stata's `summarize` command calculates the mean and standard deviation and stores them as `r(mean)` and `r(sd)`. To obtain the jackknifed standard deviation of the 11 values and save the pseudovalues as a new variable, `sd`, we would type

```
. clear
. input x
            x
  1. 0.1
  2. 0.1
  3. 0.1
  4. 0.4
  5. 0.5
  6. 1.0
  7. 1.1
  8. 1.3
  9. 1.9
 10. 1.9
 11. 4.7
 12. end
. jackknife sd=r(sd), rclass keep: summarize x
(running summarize on estimation sample)
Jackknife replications (11)
─────┼─── 1 ───┼─── 2 ───┼─── 3 ───┼─── 4 ───┼─── 5
...........
Jackknife results                          Number of obs    =         11
                                           Replications     =         11
        command:  summarize x
             sd:  r(sd)
            n():  r(N)
```

	Coef.	Jackknife Std. Err.	t	P>|t|	[95% Conf. Interval]
sd	1.343469	.624405	2.15	0.057	−.047792	2.73473

Interpreting the output, the standard deviation reported by `summarize mpg` is 1.34. The jackknife standard error is 0.62. The 95% confidence interval for the standard deviation is −0.048 to 2.73.

By specifying `keep`, `jackknife` creates in our dataset a new variable, `sd`, for the pseudovalues.

```
. list, sep(4)
```

	x	sd
1.	.1	1.139977
2.	.1	1.139977
3.	.1	1.139977
4.	.4	.8893147
5.	.5	.824267
6.	1	.632489
7.	1.1	.6203189
8.	1.3	.6218889
9.	1.9	.835419
10.	1.9	.835419
11.	4.7	7.703949

The jackknife estimate is the average of the `sd` variable, so `sd` contains the individual values of our statistic. We can see that the last observation is substantially larger than the others. The last observation is certainly an outlier, but whether that reflects the considerable information it contains or indicates that it should be excluded from analysis depends on the context of the problem. Here Mosteller

and Tukey created the dataset by sampling from an exponential distribution, so the observation is informative.

◁

▷ Example 3

Let's repeat the example above using the automobile dataset, obtaining the standard error of the standard deviation of mpg.

```
. use http://www.stata-press.com/data/r15/auto, clear
(1978 Automobile Data)

. jackknife sd=r(sd), rclass keep: summarize mpg
(running summarize on estimation sample)

Jackknife replications (74)
─────┼─── 1 ───┼─── 2 ───┼─── 3 ───┼─── 4 ───┼─── 5
.................................................. 50
......................

Jackknife results                          Number of obs    =        74
                                           Replications     =        74

      command:  summarize mpg
           sd:  r(sd)
          n():  r(N)
```

		Jackknife				
	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
sd	5.785503	.6072509	9.53	0.000	4.575254	6.995753

Let's look at sd more carefully:

```
. summarize sd, detail

                        pseudovalues: r(sd)
```

	Percentiles	Smallest		
1%	2.870471	2.870471		
5%	2.870471	2.870471		
10%	2.906255	2.870471	Obs	74
25%	3.328489	2.870471	Sum of Wgt.	74
50%	3.948335		Mean	5.817374
		Largest	Std. Dev.	5.22377
75%	6.844418	17.34316		
90%	9.597018	19.7617	Variance	27.28777
95%	17.34316	19.7617	Skewness	4.07202
99%	38.60905	38.60905	Kurtosis	23.37823

```
. list make mpg sd if sd > 30
```

	make	mpg	sd
71.	VW Diesel	41	38.60905

Here the VW Diesel is the only diesel car in our dataset.

◁

Collecting multiple statistics

▷ Example 4

jackknife is not limited to collecting just one statistic. For instance, we can use summarize, detail and then obtain the jackknife estimate of the standard deviation and skewness. summarize, detail stores the standard deviation in r(sd) and the skewness in r(skewness), so we might type

```
. use http://www.stata-press.com/data/r15/auto, clear
(1978 Automobile Data)

. jackknife sd=r(sd) skew=r(skewness), rclass: summarize mpg, detail
(running summarize on estimation sample)

Jackknife replications (74)
───┼─── 1 ───┼─── 2 ───┼─── 3 ───┼─── 4 ───┼─── 5
.................................................    50
......................
Jackknife results                          Number of obs     =          74
                                           Replications      =          74

      command:  summarize mpg, detail
           sd:  r(sd)
         skew:  r(skewness)
          n():  r(N)
```

	Coef.	Jackknife Std. Err.	t	P>|t|	[95% Conf. Interval]	
sd	5.785503	.6072509	9.53	0.000	4.575254	6.995753
skew	.9487176	.3367242	2.82	0.006	.2776272	1.619808

◁

Collecting coefficients

▷ Example 5

jackknife can also collect coefficients from estimation commands. For instance, using auto.dta, we might wish to obtain the jackknife standard errors of the coefficients from a regression in which we model the mileage of a car by its weight and trunk space. To do this, we could refer to the coefficients as _b[weight], _b[trunk], _se[weight], and _se[trunk] in the *exp_list*, or we could simply use the extended expressions _b. In fact, jackknife assumes _b by default when used with estimation commands.

```
. use http://www.stata-press.com/data/r15/auto
(1978 Automobile Data)

. jackknife: regress mpg weight trunk
(running regress on estimation sample)

Jackknife replications (74)
 ——┼—— 1 ——┼—— 2 ——┼—— 3 ——┼—— 4 ——┼—— 5
.................................................   50
......................
```

Linear regression

					Number of obs	=	74
					Replications	=	74
					F(2, 73)	=	78.10
					Prob > F	=	0.0000
					R-squared	=	0.6543
					Adj R-squared	=	0.6446
					Root MSE	=	3.4492

mpg	Coef.	Jackknife Std. Err.	t	P>|t|	[95% Conf. Interval]	
weight	-.0056527	.0010216	-5.53	0.000	-.0076887	-.0036167
trunk	-.096229	.1486236	-0.65	0.519	-.3924354	.1999773
_cons	39.68913	1.873324	21.19	0.000	35.9556	43.42266

If you are going to use jackknife to estimate standard errors of model coefficients, we recommend using the vce(jackknife) option when it is allowed with the estimation command; see [R] *vce_option*.

```
. regress mpg weight trunk, vce(jackknife, nodots)
```

Linear regression

					Number of obs	=	74
					Replications	=	74
					F(2, 73)	=	78.10
					Prob > F	=	0.0000
					R-squared	=	0.6543
					Adj R-squared	=	0.6446
					Root MSE	=	3.4492

mpg	Coef.	Jackknife Std. Err.	t	P>|t|	[95% Conf. Interval]	
weight	-.0056527	.0010216	-5.53	0.000	-.0076887	-.0036167
trunk	-.096229	.1486236	-0.65	0.519	-.3924354	.1999773
_cons	39.68913	1.873324	21.19	0.000	35.9556	43.42266

◁

John Wilder Tukey (1915–2000) was born in Massachusetts. He studied chemistry at Brown and mathematics at Princeton and afterward worked at both Princeton and Bell Labs, as well as being involved in a great many government projects, consultancies, and committees. He made outstanding contributions to several areas of statistics, including time series, multiple comparisons, robust statistics, and exploratory data analysis. Tukey was extraordinarily energetic and inventive, not least in his use of terminology: he is credited with inventing the terms bit and software, in addition to ANOVA, boxplot, data analysis, hat matrix, jackknife, stem-and-leaf plot, trimming, and winsorizing, among many others. Tukey's direct and indirect impacts mark him as one of the greatest statisticians of all time.

Stored results

jknife stores the following in e():

Scalars
e(N)	sample size
e(N_reps)	number of complete replications
e(N_misreps)	number of incomplete replications
e(N_clust)	number of clusters
e(k_eq)	number of equations in e(b)
e(k_extra)	number of extra equations
e(k_exp)	number of expressions
e(k_eexp)	number of extended expressions (_b or _se)
e(df_r)	degrees of freedom

Macros
e(cmdname)	command name from *command*
e(cmd)	same as e(cmdname) or jackknife
e(command)	*command*
e(cmdline)	command as typed
e(prefix)	jackknife
e(wtype)	weight type
e(wexp)	weight expression
e(title)	title in estimation output
e(cluster)	cluster variables
e(pseudo)	new variables containing pseudovalues
e(nfunction)	e(N), r(N), n() option, or empty
e(exp#)	expression for the #th statistic
e(mse)	from mse option
e(vce)	jackknife
e(vcetype)	title used to label Std. Err.
e(properties)	b V

Matrices
e(b)	observed statistics
e(b_jk)	jackknife estimates
e(V)	jackknife variance–covariance matrix
e(V_modelbased)	model-based variance

When *exp_list* is _b, jackknife will also carry forward most of the results already in e() from *command*.

Methods and formulas

Let $\widehat{\theta}$ be the observed value of the statistic, that is, the value of the statistic calculated using the original dataset. Let $\widehat{\theta}_{(j)}$ be the value of the statistic computed by leaving out the jth observation (or cluster); thus $j = 1, 2, \ldots, N$ identifies an individual observation (or cluster), and N is the total number of observations (or clusters). The jth pseudovalue is given by

$$\widehat{\theta}_j^* = \widehat{\theta}_{(j)} + N\{\widehat{\theta} - \widehat{\theta}_{(j)}\}$$

When the mse option is specified, the standard error is estimated as

$$\widehat{se} = \left\{ \frac{N-1}{N} \sum_{j=1}^{N} (\widehat{\theta}_{(j)} - \widehat{\theta})^2 \right\}^{1/2}$$

and the jackknife estimate is

$$\bar{\theta}_{(.)} = \frac{1}{N} \sum_{j=1}^{N} \widehat{\theta}_{(j)}$$

Otherwise, the standard error is estimated as

$$\widehat{se} = \left\{ \frac{1}{N(N-1)} \sum_{j=1}^{N} (\widehat{\theta}_j^* - \bar{\theta}^*)^2 \right\}^{1/2} \qquad \bar{\theta}^* = \frac{1}{N} \sum_{j=1}^{N} \widehat{\theta}_j^*$$

where $\bar{\theta}^*$ is the jackknife estimate. The variance–covariance matrix is similarly computed.

References

Brillinger, D. R. 2002. John W. Tukey: His life and professional contributions. *Annals of Statistics* 30: 1535–1575.

Canette, I. 2014. Using resampling methods to detect influential points. *The Stata Blog: Not Elsewhere Classified.* http://blog.stata.com/2014/05/08/using-resampling-methods-to-detect-influential-points/.

Gould, W. W. 1995. sg34: Jackknife estimation. *Stata Technical Bulletin* 24: 25–29. Reprinted in *Stata Technical Bulletin Reprints*, vol. 4, pp. 165–170. College Station, TX: Stata Press.

Mooney, C. Z., and R. D. Duval. 1993. *Bootstrapping: A Nonparametric Approach to Statistical Inference.* Newbury Park, CA: Sage.

Mosteller, C. F., and J. W. Tukey. 1977. *Data Analysis and Regression: A Second Course in Statistics.* Reading, MA: Addison–Wesley.

Tukey, J. W. 1958. Bias and confidence in not-quite large samples. Abstract in *Annals of Mathematical Statistics* 29: 614.

Also see

[R] **jackknife postestimation** — Postestimation tools for jackknife

[R] **bootstrap** — Bootstrap sampling and estimation

[R] **permute** — Monte Carlo permutation tests

[R] **simulate** — Monte Carlo simulations

[SVY] **svy jackknife** — Jackknife estimation for survey data

[U] **13.5 Accessing coefficients and standard errors**

[U] **13.6 Accessing results from Stata commands**

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