

Title

intro — Introduction to survival analysis manual

Description

This entry describes this manual and what has changed since Stata 8. See the next entry, [ST] **survival analysis**, for an introduction to Stata's survival analysis capabilities.

Remarks

This manual documents commands for survival analysis and epidemiological tables and is referred to as [ST] in cross-references. Following this entry, [ST] **survival analysis** provides an overview of the commands.

This manual is arranged alphabetically. If you are new to Stata's survival analysis and epidemiological tables commands, we recommend that you read the following sections first:

| | |
|-------------------------------|---|
| [ST] survival analysis | Introduction to survival analysis & epidemiological tables commands |
| [ST] st | Survival-time data |
| [ST] stset | Set variables for survival data |

Stata is continually being updated, and Stata users are always writing new commands. To find out about the latest survival analysis features, type `search survival` after installing the latest official updates; see [R] **update**. To find out about the latest epidemiological features, type `search epi`.

What's new

This section is intended for previous Stata users. If you are new to Stata, you may as well skip it.

1. Existing estimation commands `stcox` and `streg` have a new `vce()` option for selecting how the variance–covariance estimates (VCE) of the estimated parameters are estimated. This new option provides direct support for bootstrapping or jackknifing the estimated parameters.

`vce(bootstrap)` specifies that the standard errors, significance tests, and confidence intervals be normal-based bootstrap estimates, rather than the default analytic estimates based on the observed information matrix (OIM). You can also produce percentile-based or bias-corrected confidence intervals after estimation using `estat bootstrap`; see [R] **bootstrap postestimation**. All standard `bootstrap` options, such as the number of replicates, can be supplied as suboptions of `vce()`; see [R] **bootstrap**.

`vce(jackknife)` specifies that the standard errors, significance tests, and confidence intervals be jackknife estimates. All standard `jackknife` options can be supplied as suboptions of `vce()`; see [R] **jackknife**.

Both `vce(bootstrap)` and `vce(jackknife)` automatically perform either observation or cluster sampling, whichever is appropriate, based on how your survival data is `stset` (see [ST] **stset**).

Notably, both `vce(bootstrap)` and `vce(jackknife)` compute bootstrapped or jackknifed estimates of the complete VCE matrix, so most of Stata's postestimation commands are available. You can form linear and nonlinear combinations or functions of the parameters and obtain jackknife or normal-based bootstrap standard errors and confidence intervals for the combinations using `lincom` (see [R] **lincom**) and `nlcom` (see [R] **nlcom**). Similarly, you can perform linear and nonlinear tests using `test` (see [R] **test**) and `testnl` (see [R] **testnl**).

2. This manual now has a glossary that defines commonly used terms in survival (or duration) analysis and explains how these terms are used in the manual; see the glossary of [ST].
3. The new `estat` command for producing statistics after estimation can be used after `stcox` and `streg`. In addition to the standard `estat` statistics—information criteria, produced by `estat ic`; estimation sample summary, produced by `estat summarize`; and formatted variance–covariance matrix (VCE), produced by `estat vce`—statistics specific to the proportional-hazards estimator are available after `stcox`. These statistics are
 - a. The new `estat concordance` after `stcox` computes Harrell’s C and Somer’s D statistics measuring concordance (agreement of predictions with observed failure order).
 - b. `estat phtest` after `stcox` replaces the existing `stphtest` for computing tests and graphs of the proportional-hazards assumption; `stphtest` continues to work.A host of other postestimation tests, statistical reports, and linear and nonlinear combinations and predictions continue to be available and are now documented in entries immediately following the estimation commands; see [ST] **stcox postestimation** and [ST] **streg postestimation**.
4. The existing command `sts graph` has four new options:
 - a. `cihazard` draws pointwise confidence bands around the smoothed hazard function.
 - b. `per(#)` specifies the units used to report the survival or failure rate.
 - c. `atriskopts(marker_label_options)` and `lostopts(marker_label_options)` let you control how the labels for at-risk and lost observations look (their color, font size, etc.).

See [ST] **sts graph**.

5. The existing command `stcurve`, available after `streg`, now plots over an evenly spaced grid, producing smooth-looking curves, even in small samples.
6. The existing `stci` command now has options for controlling how the plotted survival line looks (color, thickness, etc.) and for adding titles, controlling legends, and all other characteristics of the graph; see [ST] **stci**.

For a complete list of all the new features in Stata 9, see [U] **1.3 What’s new**.

Reference

Cleves, M. A., W. W. Gould, and R. G. Gutierrez. 2004. *An Introduction to Survival Analysis Using Stata*. rev. ed. College Station, TX: Stata Press.

Also See

Complementary: [U] **1.3 What’s new**

Background: [R] **intro**