Description

snapspan converts snapshot data for a given subject to time-span data required for use with survival analysis commands, such as stcox, streg, and stset. snapspan replaces the data in the specified variables. Transformed variables may be “events” that occur at the instant of the snapshot or retrospective variables that are to apply to the time span ending at the time of the current snapshot.

Quick start

Create a time-span dataset from data containing subject identifier id, event variable evar occurring at the time in tvar, and other variables measured at that time

    snapspan id tvar evar

As above, and create new variable time0 containing the entry time for each record

    snapspan id tvar evar, generate(time0)

Menu

Statistics > Survival analysis > Setup and utilities > Convert snapshot data to time-span data
Syntax

```
  snapspan idvar timevar varlist [, generate(newt0var) replace]
```

`idvar` records the subject ID and may be string or numeric.

`timevar` records the time of the snapshot; it must be numeric and may be recorded on any scale: date, hour, minute, second, etc.

`varlist` are the “event” variables, meaning that they occur at the instant of `timevar`. `varlist` can also include retrospective variables that are to apply to the time span ending at the time of the current snapshot. The other variables are assumed to be measured at the time of the snapshot and thus apply from the time of the snapshot forward. See `Specifying varlist` below.

Options

`generate(newt0var)` adds `newt0var` to the dataset containing the entry time for each converted time-span record.

`replace` specifies that it is okay to change the data in memory, even though the dataset has not been saved on disk in its current form.

Remarks and examples

Remarks are presented under the following headings:

- `Snapshot and time-span datasets`
- `Specifying varlist`

Snapshot and time-span datasets

`snapspan` converts a snapshot dataset to a time-span dataset. A snapshot dataset records a subject `id`, a `time`, and then other variables measured at the `time`:

<table>
<thead>
<tr>
<th>idvar</th>
<th>timevar</th>
<th>x1</th>
<th>x2</th>
<th>...</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>12</td>
<td>5</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>42</td>
<td>5</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>55</td>
<td>5</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>idvar</th>
<th>datevar</th>
<th>x1</th>
<th>x2</th>
<th>...</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>14jul1998</td>
<td>5</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>12aug1998</td>
<td>5</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>08sep1998</td>
<td>5</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>idvar</th>
<th>year</th>
<th>x1</th>
<th>x2</th>
<th>...</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>1994</td>
<td>5</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>1995</td>
<td>5</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>1997</td>
<td>5</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
A time-span dataset records a span of time \((\text{time}_0, \text{time}_1]\):

\[
\begin{array}{c}
\text{time}_0 & \text{time}_1 \\
\hline
\text{some variables assumed to occur at time}_1 \\
\text{other variables assumed constant over span} \\
\rightarrow \text{time}
\end{array}
\]

Time-span data are required, for instance, by \texttt{stset} and the \texttt{st} system. The variables assumed to occur at \textit{time1} are the failure or event variables. All the other variables are assumed to be constant over the span.

Time-span datasets:

\begin{verbatim}
idvar time0 time1 x1 x2 ... event
47 0 12 5 13 ... 0
47 12 42 5 27 ... 0
47 42 55 5 18 ... 1
idvar time0 time1 x1 x2 ... event
122 01jan1998 14jul1998 5 13 ... 0
122 14jul1998 12aug1998 5 27 ... 0
122 12aug1998 08sep1998 5 18 ... 1
idvar time0 time1 x1 x2 ... event
122 1993 1994 5 13 ... 0
122 1994 1995 5 27 ... 0
122 1995 1997 5 18 ... 1
\end{verbatim}

To convert snapshot data to time-span data, you need to distinguish between event and nonevent variables. Event variables happen at an instant.

Say that you have a snapshot dataset containing variable \(e\) recording an event (\(e = 1\) might record surgery, death, becoming unemployed, etc.) and the rest of the variables—call them \(x_1, x_2, \text{etc.}\)—recording characteristics (such as sex, birth date, blood pressure, or weekly wage). The same data, in snapshot and time-span form, would be

\begin{verbatim}
In snapshot form:
id time x1 x2 e
1 5 a1 b1 e1
1 7 a2 b2 e2
1 9 a3 b3 e3
1 11 a4 b4 e4

In time-span form:
id time0 time x1 x2 e
1 . 5 . . e1
1 5 7 a1 b1 e2
1 7 9 a2 b2 e3
1 9 11 a3 b3 e4
\end{verbatim}

\texttt{snapspan} converts data from the form on the left to the form on the right:

\texttt{. snapspan id time e, generate(time0) replace}

The form on the right is suitable for use by \texttt{stcox} and \texttt{stset} and the other survival analysis commands.
Specifying varlist

The *varlist*—the third variable on—specifies the “event” variables.

In fact, the *varlist* specifies the variables that apply to the time span ending at the time of the current snapshot. The other variables are assumed to be measured at the time of the snapshot and thus apply from the time of the snapshot forward.

Thus *varlist* should include retrospective variables.

For instance, say that the snapshot recorded *bp*, blood pressure; *smokes*, whether the patient smoked in the last 2 weeks; and *event*, a variable recording examination, surgery, etc. Then *varlist* should include *smokes* and *event*. The remaining variables, *bp* and the rest, would be assumed to apply from the time of the snapshot forward.

Suppose that the snapshot recorded *ecs*, employment change status (hired, fired, promoted, etc.); *wage*, the current hourly wage; and *ms*, current marital status. Then *varlist* should include *ecs* and *ms* (assuming snapshot records are not generated for reason of *ms* change). The remaining variables, *wage* and the rest, would be assumed to apply from the time of the snapshot forward.

Also see

*[ST] stset* — Declare data to be survival-time data