serrbar — Graph standard error bar chart

Description

`serrbar` is typically used with a dataset containing means, standard deviations or standard errors, and an *xvar*. `serrbar` uses these data to create a standard error bar chart. The means are plotted against *xvar*, and error bars around the means have a width determined by the standard deviation or standard error. While it is most common to use `serrbar` with this type of data, `serrbar` may also be used to create a scatterplot with error bars for other types of data.

Quick start

Plot of `y` versus `x` with error bars representing $\texttt{y} \pm \texttt{s}$

```
serrbar y s x
```

Same as above, but with error bars for $\texttt{y} \pm 2 \times \texttt{s}$

```
serrbar y s x, scale(2)
```

Menu

Statistics > Other > Quality control > Standard error bar chart

Syntax

```
serrbar mvar svar xvar [if] [in] [, options]
```

options	Description
Main	
`scale(#)`	scale length of graph bars; default is `scale(1)`
Error bars	
rcap_options	affect rendition of capped spikes
Plotted points	
`mvopts(`*scatter_options*`)`	affect rendition of plotted points
Add plots	
`addplot(`*plot*`)`	add other plots to generated graph
Y axis, X axis, Titles, Legend, Overall	
twoway_options	any options other than `by()` documented in [G-3] ***twoway_options***

Options

Main

`scale(#)` controls the length of the bars. The upper and lower limits of the bars will be *mvar*+`scale()`×*svar* and *mvar* − `scale()` × *svar*. The default is `scale(1)`.

Error bars

rcap_options affect the rendition of the plotted error bars (the capped spikes). See [G-2] **graph twoway rcap**.

Plotted points

`mvopts(`*scatter_options*`)` affects the rendition of the plotted points (*mvar* versus *xvar*). See [G-2] **graph twoway scatter**.

Add plots

`addplot(`*plot*`)` provides a way to add other plots to the generated graph; see [G-3] ***addplot_option***.

Y axis, X axis, Titles, Legend, Overall

twoway_options are any of the options documented in [G-3] ***twoway_options***, excluding `by()`. These include options for titling the graph (see [G-3] ***title_options***) and for saving the graph to disk (see [G-3] ***saving_option***).

Remarks and examples

Example 1

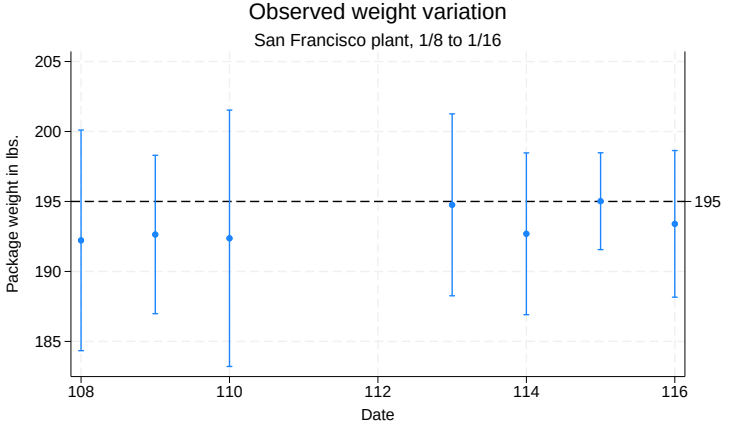
In quality-control applications, the three most commonly used variables with this command are the process mean, process standard deviation, and time. For instance, we have data on the average weights and standard deviations from an assembly line in San Francisco for the period January 8 to January 16. Our data are

```
. use https://www.stata-press.com/data/r19/assembly
. list, sep(0) divider
```

	date	mean	std
1.	108	192.22	3.94
2.	109	192.64	2.83
3.	110	192.37	4.58
4.	113	194.76	3.25
5.	114	192.69	2.89
6.	115	195.02	1.73
7.	116	193.40	2.62

We type `serrbar mean std date, scale(2)` but, after seeing the result, decide to make it fancier:

```
. serrbar mean std date, scale(2) title("Observed weight variation")
> sub("San Francisco plant, 1/8 to 1/16") yline(195) yaxis(1 2)
> ylab(195, axis(2)) ytitle("", axis(2))
```



Acknowledgment

`serrbar` was written by Nicholas J. Cox of the Department of Geography at Durham University, UK, who is coeditor of the *Stata Journal* and author of *Speaking Stata Graphics*.

Also see

[R] **QC** — Quality control charts