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## Description

A range plot has two $y$ variables, such as high and low daily stock prices or upper and lower $95 \%$ confidence limits.
twoway rarea plots range as a shaded area.
Also see [G-2] graph twoway area for area plots filled to the axis.

## Quick start

A range plot with area shading and sorted by ascending values of $x$ twoway rarea y1 y2 x, sort

A horizontal area plot
twoway rarea $y 1$ y2 $x$, sort horizontal
Allow missing values to create gaps in the area
twoway rarea y1 y2 x , sort cmissing( n )
Specify navy area and lines
twoway rarea y1 y2 x, sort fcolor (navy) lcolor (navy)
Same as above, but reduce the area color intensity to $30 \%$
twoway rarea y1 y2 x, sort fcolor(navy) fintensity(30) lcolor(navy)

## Menu

Graphics > Twoway graph (scatter, line, etc.)

## Syntax

```
twoway rarea ylvar y2var xvar [if] [in] [, options]
```

options
Description
vertical
horizontal
cmissing ( $\mathrm{y} \mid \mathrm{n}$ )
sort
area_options
axis_choice_options
twoway_options
vertical area plot; the default
horizontal area plot
missing values do not force gaps in area; default is cmissing ( y )
sort by xvar; recommended
change look of shaded areas
associate plot with alternative axis
titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc.

All explicit options are unique; see [G-4] Concept: repeated options.

## Options

vertical and horizontal specify whether the high and low $y$ values are to be presented vertically (the default) or horizontally.
In the default vertical case, ylvar and y2var record the minimum and maximum (or maximum and minimum) $y$ values to be graphed against each $x v a r$ value.
If horizontal is specified, the values recorded in $y 1 v a r$ and $y 2 v a r$ are plotted in the $x$ direction and xvar is treated as the $y$ value.
cmissing ( $\mathrm{y} \mid \mathrm{n}$ ) specifies whether missing values are to be ignored when drawing the area or if they are to create breaks in the area. The default is cmissing(y), meaning that they are ignored. Consider the following data:

|  | y | x |
| :--- | ---: | ---: |
| 1. | 1 | 1 |
| 2. | 3 | 2 |
| 3. | 5 | 3 |
| 4. | . |  |
| 5. | 6 | 5 |
| 6. | 11 | 8 |
|  |  |  |

Say that you graph these data by using twoway rarea y x. Do you want a break in the area between 3 and 5? If so, you type

```
. twoway rarea y x, cmissing(n)
```

and two areas will be drawn, one for the observations before the missing values at observation 4 and one for the observations after the missing values.

If you omit the option (or type cmissing(y)), the data are treated as if they contained

|  | $y$ | y |
| :--- | ---: | ---: |
| 1. | 1 | 1 |
| 2. | 3 | 2 |
| 3. | 5 | 3 |
| 4. | 6 | 5 |
| 5. | 11 | 8 |

meaning that one contiguous area will be drawn over the range $(1,8)$.
sort specifies that the data be sorted by xvar before plotting.
area_options set the look of the shaded areas. The most important of these options is color (colorstyle), which specifies the color and opacity of both the area and its outline; see [G-4] colorstyle for a list of color choices. See [G-3] area_options for information on the other area_options.
axis_choice_options associate the plot with a particular $y$ or $x$ axis on the graph; see [G-3] axis_choice_options.
twoway_options are a set of common options supported by all twoway graphs. These options allow you to title graphs, name graphs, control axes and legends, add lines and text, set aspect ratios, create graphs over by () groups, and change some advanced settings. See [G-3] twoway_options.

## Remarks and examples

Remarks are presented under the following headings:
Typical use
Advanced use
Cautions

## Typical use

We have daily data recording the values for the S\&P 500 in 2001:

```
. use https://www.stata-press.com/data/r18/sp500
(S&P 500)
. list date high low close in 1/5
```

| date | high | low | close |
| ---: | ---: | ---: | ---: |
| 02jan2001 | 1320.28 | 1276.05 | 1283.27 |
| 03jan2001 | 1347.76 | 1274.62 | 1347.56 |
| 04jan2001 | 1350.24 | 1329.14 | 1333.34 |
| 05jan2001 | 1334.77 | 1294.95 | 1298.35 |
| 08jan2001 | 1298.35 | 1276.29 | 1295.86 |

We will use the first 57 observations from these data:
. twoway rarea high low date in $1 / 57$


## Advanced use

rarea works particularly well when the upper and lower limits are smooth functions and when the area is merely shaded rather than given an eye-catching color:


Notice the use of option color() to change the color of the shaded area. Also, we graphed the shaded area first and then the scatter. Typing

```
. twoway scatter ... || rarea ...
```

would not have produced the desired result because the shaded area would have covered up the scatterplot.
Also see [G-2] graph twoway lfitci.

## Cautions

Be sure that the data are in the order of xvar, or specify rarea's sort option. If you do neither, you will get something that looks like modern art; see Cautions in [G-2] graph twoway area for an example.

## Also see

[G-2] graph twoway area - Twoway line plot with area shading
[G-2] graph twoway rbar - Range plot with bars
[G-2] graph twoway rcap - Range plot with capped spikes
[G-2] graph twoway rcapsym - Range plot with spikes capped with marker symbols
[G-2] graph twoway rconnected - Range plot with connected lines
[G-2] graph twoway rline - Range plot with lines
[G-2] graph twoway rscatter - Range plot with markers
[G-2] graph twoway rspike - Range plot with spikes

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