graph twoway rarea — Range plot with area shading

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 y1 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 > Two-way graph (scatter, line, etc.)

Syntax

```
twoway rarea y1var y2var xvar [if] [in] [, options]
```

options	Description
vertical	vertical area plot; the default
horizontal	horizontal area plot
cmissing(y | n)	missing values do not force gaps in area; default is cmissing(y)
sort	sort by *xvar*; recommended
area_options	change look of shaded areas
axis_choice_options	associate plot with alternative axis
twoway_options	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, *y1var* and *y2var* record the minimum and maximum (or maximum and minimum) y values to be graphed against each *xvar* value.

If horizontal is specified, the values recorded in *y1var* and *y2var* are plotted in the x direction and *xvar* is treated as the y value.

cmissing(y | 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	x
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

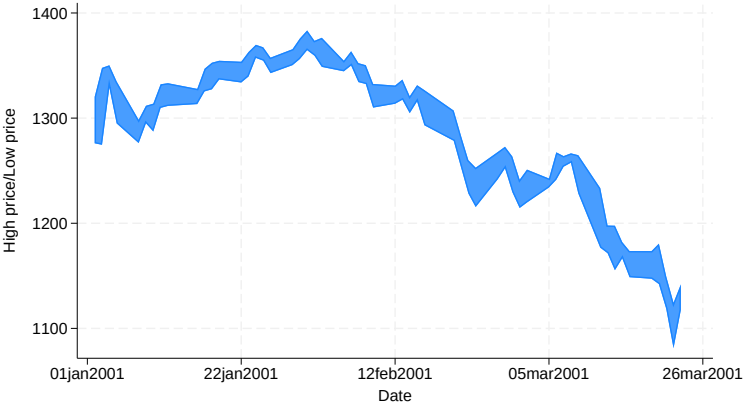
We have daily data recording the values for the S&P 500 in 2001:

```
. use https://www.stata-press.com/data/r19/sp500
(S&P 500)
. list date high low close in 1/5
```

	date	high	low	close
1.	02jan2001	1320.28	1276.05	1283.27
2.	03jan2001	1347.76	1274.62	1347.56
3.	04jan2001	1350.24	1329.14	1333.34
4.	05jan2001	1334.77	1294.95	1298.35
5.	08jan2001	1298.35	1276.29	1295.86

We will use the first 57 observations from these data:

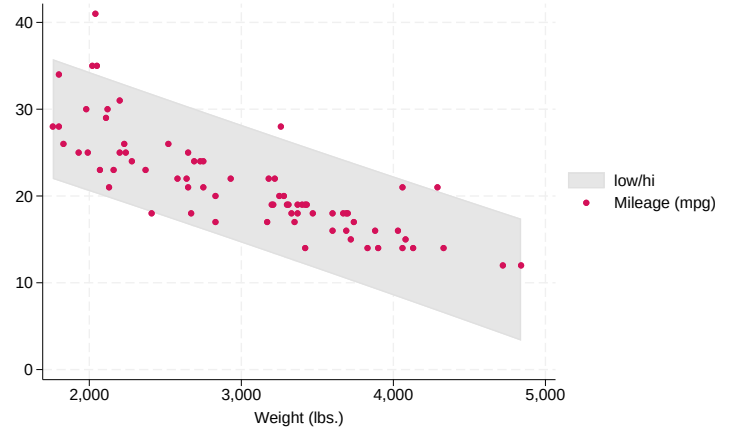
```
. twoway rarea high low date in 1/57
```



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:

```
. use https://www.stata-press.com/data/r19/auto, clear
(1978 automobile data)
. quietly regress mpg weight
. predict hat
(option xb assumed; fitted values)
. predict s, stdf
. generate low = hat - 1.96*s
. generate hi  = hat + 1.96*s
. twoway rarea low hi weight, sort color(gs14) ||
        scatter  mpg weight
```



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** — Two-way 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