Title

> **graph twoway pcspike —** Paired-coordinate plot with spikes

Description

A paired-coordinate spike plot draws a spike (or line) for each observation in the dataset. The line starts at the coordinate (*y1var*, *x1var*) and ends at the coordinate (*y2var*, *x2var*).

Quick start

Paired-coordinate spike plot with spikes from $(y1, x1)$ to $(y2, x2)$

```
twoway pcspike y1 x1 y2 x2
```

As above, with red lines

```
twoway pcspike y1 x1 y2 x2, lcolor(red)
```

Menu

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

Syntax

<u>tw</u>oway pcspike *y1var x1var y2var x2var* [*if*] [*in*] [, *options*]

options	Description
line_options	change look of spike lines
vertical	orient plot naturally; the default
horizontal	orient plot transposing y and x values
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 *rightmost*, except vertical and horizontal, which are *unique*; see
[G-4] **concept: repeated options**.

Options

line_options specify the look of the lines used to draw the spikes, including pattern, width, and color;
see [G-3] *line_options*.

vertical and horizontal specify whether the y and x coordinates are to be swapped before
plotting—vertical (the default) does not swap the coordinates, whereas horizontal does.

These options are rarely used when plotting only paired-coordinate data; they can, however, be
used to good effect when combining paired-coordinate plots with range plots, such as twoway
rspike or twoway rbar; see [G-2] **graph twoway rspike** and [G-2] **graph twoway rbar**.

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

stata.com

Remarks are presented under the following headings:

Basic use

We have longitudinal data from 1968 and 1988 on the earnings and total experience of U.S. women by occupation.

```
. use http://www.stata-press.com/data/r14/nlswide1
(National Longitudinal Survey.  Young Women 14-26 years of age in 1968)
. list occ wage68 ttl_exp68 wage88 ttl_exp88
```

	occ	wage68	ttl_e~68	wage88	ttl_e~88
1.	Professionals	6.121874	.860618	10.94776	14.11177
2.	Managers	5.426208	1.354167	11.53928	13.88886
3.	Sales	4.836701	.9896552	7.290306	12.62823
4.	Clerical/unskilled	4.088309	.640812	9.612672	11.08019
5.	Craftsmen	4.721373	1.091346	7.839769	12.64364
6.	Operatives	4.364782	.7959284	5.893025	11.99362
7.	Transport	1.987857	.5247414	3.200494	8.710394
8.	Laborers	3.724821	.775966	5.264415	10.56182
9.	Other	5.58524	.8278245	8.628641	12.78389

We graph a spike showing the movement from 1968 values to 1988 values for each observation (each occupation):

```
. twoway pcspike wage68 ttl_exp68 wage88 ttl_exp88
```
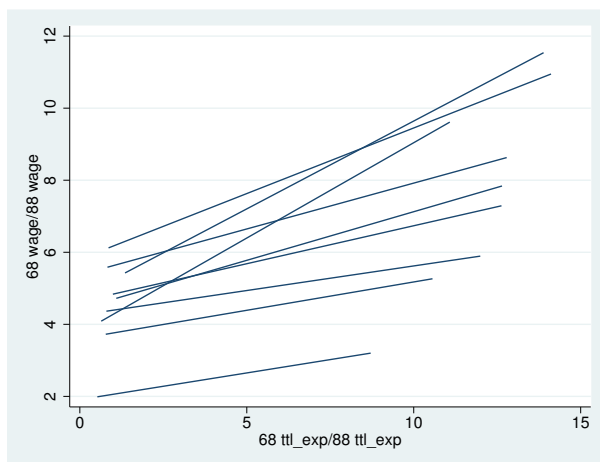
Advanced use

twoway pcspike can be usefully combined with other twoway plottypes (see [G-2] **graph twoway**). Here we add markers and labeled markers along with titles and such to improve the graph:

```
. twoway pcspike wage68 ttl_exp68 wage88 ttl_exp88          ||
        scatter wage68 ttl_exp68, msym(O)                   ||
        scatter wage88 ttl_exp88, msym(O) pstyle(p4)
        mlabel(occ) xscale(range(17))
        title("Change in US Women's Experience and Earnings")
        subtitle("By Occupation -- 1968 to 1988")
        ytitle(Earnings) xtitle(Total experience)
        note("Source: National Longitudinal Survey of Young Women")
        legend(order(2 "1968" 3 "1988"))
```
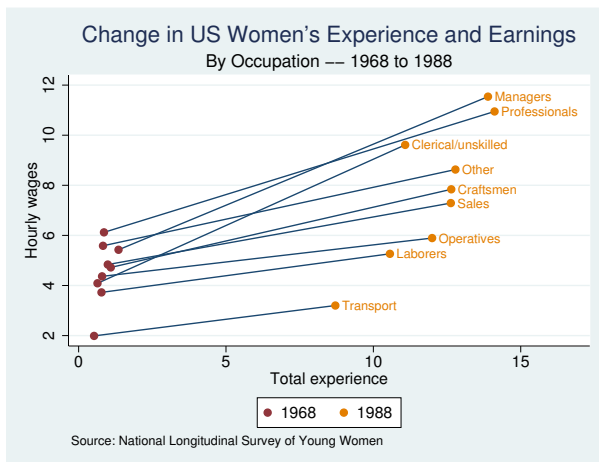

Advanced use 2

Drawing the edges of network diagrams is often easier with twoway pcspike than with other plottypes.

```
. use http://www.stata-press.com/data/r14/network1
. twoway pcspike y_c x_c y_l x_l
```
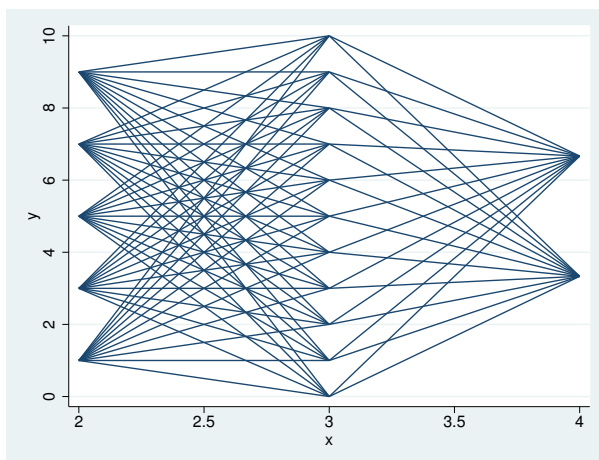
As with our first example, this graph can be made prettier by combining `twoway pcspike` with other plottypes.

```
. use http://www.stata-press.com/data/r14/network1a

. twoway pcspike y_c x_c y_l x_l, pstyle(p3)                        ||
               pcspike y_c x_c y_r x_r, pstyle(p4)                  ||
               scatter y_l x_l, pstyle(p3) msize(vlarge) msym(O)
                                   mlabel(lab_l) mlabpos(9)         ||
               scatter y_c x_c, pstyle(p5) msize(vlarge) msym(O)    ||
               scatter y_r x_r, pstyle(p4) msize(vlarge) msym(O)
                                   mlabel(lab_r) mlabpos(3)
           yscale(off) xscale(off) ylabels(, nogrid) legend(off)
           plotregion(margin(30 15 3 3))
```
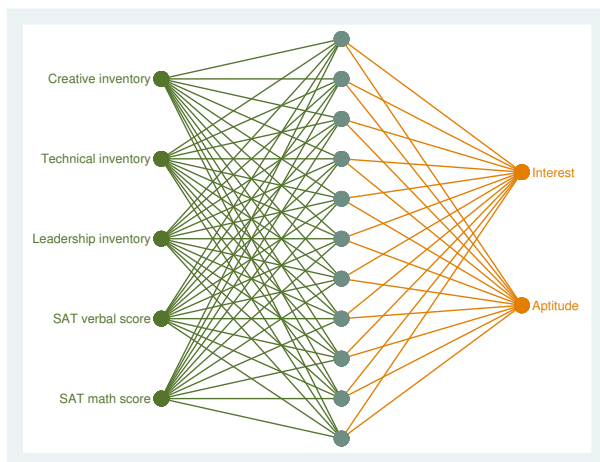

Reference

Cox, N. J. 2009. Speaking Stata: Paired, parallel, or profile plots for changes, correlations, and other comparisons. *Stata Journal* 9: 621–639.

Also see

[G-2] **graph twoway** — Twoway graphs

[G-2] **graph twoway line** — Twoway line plots

[G-2] **graph twoway pcarrow** — Paired-coordinate plot with arrows

[G-2] **graph twoway pccapsym** — Paired-coordinate plot with spikes and marker symbols

[G-2] **graph twoway pci** — Twoway paired-coordinate plot with immediate arguments

[G-2] **graph twoway pcscatter** — Paired-coordinate plot with markers

[G-2] **graph twoway rspike** — Range plot with spikes