**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 \((y2, x2)\)

```stata
twoway pspike y1 x1 y2 x2
```

As above, with red lines

```stata
twoway pspike y1 x1 y2 x2, lcolor(red)
```

**Menu**

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

```
twoway pcspike y1var x1var y2var x2var [if] [in] [ , options ]
```

**options**

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>line_options</td>
</tr>
<tr>
<td>vertical</td>
</tr>
<tr>
<td>horizontal</td>
</tr>
<tr>
<td>axis_choice_options</td>
</tr>
<tr>
<td>twoway_options</td>
</tr>
</tbody>
</table>

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**

Remarks are presented under the following headings:

- Basic use
- Advanced use
- Advanced use 2
Basic use

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

```
. use https://www.stata-press.com/data/r16/nlswide1
(National Longitudinal Survey. Young Women 14–26 years of age in 1968)
. list occ wage68 ttl_exp68 wage88 ttl_exp88
```

<table>
<thead>
<tr>
<th>occ</th>
<th>wage68</th>
<th>ttl_e68</th>
<th>wage88</th>
<th>ttl_e88</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Managers</td>
<td>5.426208</td>
<td>1.354167</td>
<td>11.53928</td>
<td>13.88886</td>
</tr>
<tr>
<td>3. Sales</td>
<td>4.836701</td>
<td>.9896552</td>
<td>7.290306</td>
<td>12.62823</td>
</tr>
<tr>
<td>5. Craftsmen</td>
<td>4.721373</td>
<td>1.091346</td>
<td>7.839769</td>
<td>12.64364</td>
</tr>
<tr>
<td>6. Operatives</td>
<td>4.364782</td>
<td>.7959284</td>
<td>5.893025</td>
<td>11.99362</td>
</tr>
<tr>
<td>7. Transport</td>
<td>1.987857</td>
<td>.5247414</td>
<td>3.200494</td>
<td>8.710394</td>
</tr>
<tr>
<td>8. Laborers</td>
<td>3.724821</td>
<td>.775966</td>
<td>5.264415</td>
<td>10.56182</td>
</tr>
<tr>
<td>9. Other</td>
<td>5.58524</td>
<td>.8278245</td>
<td>8.628641</td>
<td>12.78389</td>
</tr>
</tbody>
</table>

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 pcespike 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 pcespike wage68 ttl_exp68 wage88 ttl_exp88 ||
  scatter wage68 ttl_exp68, msym(O)
  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"))`

![Paired-coordinate plot with spikes](image)

Advanced use 2

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

`. use https://www.stata-press.com/data/r16/network1
  . twoway pcespike y_c x_c y_l x_l`

![Network diagram](image)
As with our first example, this graph can be made prettier by combining `twoway pcspike` with other plottypes.

```stata
use https://www.stata-press.com/data/r16/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) mlabel(lab_c) mlabpos(3)
   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


### 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 pscatter` — Paired-coordinate plot with markers  
[G-2] `graph twoway rspike` — Range plot with spikes