**Syntax**

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

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>line_options</code></td>
<td>change look of spike lines</td>
</tr>
<tr>
<td><code>vertical</code></td>
<td>orient plot naturally; the default</td>
</tr>
<tr>
<td><code>horizontal</code></td>
<td>orient plot transposing y and x values</td>
</tr>
<tr>
<td><code>axis_choice_options</code></td>
<td>associate plot with alternative axis</td>
</tr>
<tr>
<td><code>twoway_options</code></td>
<td>titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc.</td>
</tr>
</tbody>
</table>


All explicit options are rightmost, except vertical and horizontal, which are unique; see [G-4] concept: repeated options.

**Menu**

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

**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 \((y2var,x2var)\).

**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 http://www.stata-press.com/data/r13/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_e-68</th>
<th>wage88</th>
<th>ttl_e-88</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Professionals</td>
<td>6.121874</td>
<td>.860618</td>
<td>10.94777</td>
</tr>
<tr>
<td>2.</td>
<td>Managers</td>
<td>5.426208</td>
<td>1.354167</td>
<td>11.53928</td>
</tr>
<tr>
<td>3.</td>
<td>Sales</td>
<td>4.836701</td>
<td>.9896552</td>
<td>7.290306</td>
</tr>
<tr>
<td>5.</td>
<td>Craftsmen</td>
<td>4.721373</td>
<td>1.091346</td>
<td>7.839769</td>
</tr>
<tr>
<td>6.</td>
<td>Operatives</td>
<td>4.364782</td>
<td>.7959284</td>
<td>5.893025</td>
</tr>
<tr>
<td>7.</td>
<td>Transport</td>
<td>1.987857</td>
<td>.5247414</td>
<td>3.200494</td>
</tr>
<tr>
<td>8.</td>
<td>Laborers</td>
<td>3.724821</td>
<td>.775966</td>
<td>5.264415</td>
</tr>
<tr>
<td>9.</td>
<td>Other</td>
<td>5.58524</td>
<td>.8278245</td>
<td>8.628641</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 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"))
```

```
Professionals
Managers
Sales
Clerical/unskilled
Craftsmen
Operatives
Transport
Laborers
Other

2 4 6 8 10 12

Hourly wages

0 5 10 15

Total experience

1968 1988

Source: National Longitudinal Survey of Young Women
```

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/r13/network1
. twoway pcspike y_c x_c y_l x_l
```

```
0 2 4 6 8 10

y

0 2.5 3 3.5 4

x
```

```
Professionals
Managers
Sales
Clerical/unskilled
Craftsmen
Operatives
Transport
Laborers
Other

2 4 6 8 10 ...

Source: National Longitudinal Survey of Young Women
```
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/r13/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))
```

![Graph diagram](image.png)

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