**graph twoway lowess** — Local linear smooth plots

### Syntax

```stata
twoway lowess yvar xvar [if] [in] [, options]
```

<table>
<thead>
<tr>
<th>options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bwidth(#)</td>
<td>smoothing parameter</td>
</tr>
<tr>
<td>mean</td>
<td>use running-mean smoothing</td>
</tr>
<tr>
<td>noweight</td>
<td>use unweighted smoothing</td>
</tr>
<tr>
<td>logit</td>
<td>transform the smooth to logits</td>
</tr>
<tr>
<td>adjust</td>
<td>adjust smooth’s mean to equal yvar’s mean</td>
</tr>
<tr>
<td>cline_options</td>
<td>change look of the line</td>
</tr>
<tr>
<td>axis_choice_options</td>
<td>associate plot with alternative axis</td>
</tr>
<tr>
<td>twoway_options</td>
<td>titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc.</td>
</tr>
</tbody>
</table>


### Menu

Graphics ➤ Two-way graph (scatter, line, etc.)

### Description

**graph twoway lowess** plots a lowess smooth of `yvar` on `xvar` using `graph twoway line`; see [G-2] `graph twoway line`.

### Options

- `bwidth(#)` specifies the bandwidth. `bwidth(.8)` is the default. Centered subsets of \(N\times bwidth()\) observations, \(N\) = number of observations, are used for calculating smoothed values for each point in the data except for endpoints, where smaller, uncentered subsets are used. The greater the `bwidth()`, the greater the smoothing.
- `mean` specifies running-mean smoothing; the default is running-line least-squares smoothing.
- `noweight` prevents the use of Cleveland’s (1979) tricube weighting function; the default is to use the weighting function.
logit transforms the smoothed yvar into logits.

adjust adjusts by multiplication the mean of the smoothed yvar to equal the mean of yvar. This is useful when smoothing binary (0/1) data.

cline_options specify how the lowess line is rendered and its appearance; see [G-3] cline_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

graph twoway lowess yvar xvar uses the lowess command—see [R] lowess—to obtain a local linear smooth of yvar on xvar and uses graph twoway line to plot the result.

Remarks are presented under the following headings:

Typical use
Use with by()

Typical use

The local linear smooth is often graphed on top of the data, possibly with other regression lines:

```
. use http://www.stata-press.com/data/r13/auto
   (1978 Automobile Data)
. twoway scatter mpg weight, mcolor(*.6) ||
   lfit mpg weight ||
   lowess mpg weight
```

Notice our use of mcolor(*.6) to dim the points and thus make the lines stand out; see [G-4] colorstyle.
Notice also the $y$-axis title: “Mileage (mpg)/Fitted values/lowess mpg weight”. The “Fitted values” was contributed by `twoway lfit` and “lowess mpg weight” by `twoway lowess`. When you overlay graphs, you nearly always need to respecify the axis titles using the `axis_title_options ytitle()` and `xtitle()`; see [G-3] axis_title_options.

**Use with by()**

`graph twoway lowess` may be used with by():

```
use http://www.stata-press.com/data/r13/auto, clear
(1978 Automobile Data)
. twoway scatter mpg weight, mcolor(*.6) || lfit mpg weight ||
   lowess mpg weight ||, by(foreign)
```

### References


### Also see

[R] lowess — Lowess smoothing

[G-2] graph twoway mspline — Twoway median-spline plots