**Syntax**

```
twoway lpoly yvar xvar [if] [in] [weight] [ , options ]
```

<table>
<thead>
<tr>
<th>options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>kernel(kernel)</code></td>
<td>kernel function; default is <code>kernel(epanechnikov)</code></td>
</tr>
<tr>
<td><code>bw(#)</code></td>
<td>kernel bandwidth</td>
</tr>
<tr>
<td><code>degree(#)</code></td>
<td>degree of the polynomial smooth; default is <code>degree(0)</code></td>
</tr>
<tr>
<td><code>n(#)</code></td>
<td>obtain the smooth at # points; default is <code>min(N, 50)</code></td>
</tr>
<tr>
<td><code>cline_options</code></td>
<td>change look of the line</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>


**kernel**

<table>
<thead>
<tr>
<th>kernel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>epanechnikov</code></td>
<td>Epanechnikov kernel function; the default</td>
</tr>
<tr>
<td><code>epan2</code></td>
<td>alternative Epanechnikov kernel function</td>
</tr>
<tr>
<td><code>biweight</code></td>
<td>biweight kernel function</td>
</tr>
<tr>
<td><code>cosine</code></td>
<td>cosine trace kernel function</td>
</tr>
<tr>
<td><code>gaussian</code></td>
<td>Gaussian kernel function</td>
</tr>
<tr>
<td><code>parzen</code></td>
<td>Parzen kernel function</td>
</tr>
<tr>
<td><code>rectangle</code></td>
<td>rectangle kernel function</td>
</tr>
<tr>
<td><code>triangle</code></td>
<td>triangle kernel function</td>
</tr>
</tbody>
</table>

fweights and aweights are allowed; see [U] 11.1.6 weight.

**Menu**

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

**Description**

`graph twoway lpoly` plots a local polynomial smooth of `yvar` on `xvar`. 
Options

kernel(kernel) specifies the kernel function for use in calculating the weighted local polynomial estimate. The default is kernel(epanechnikov). See [R] kdensity for more information on this option.

bwidth(#) specifies the half-width of the kernel, the width of the smoothing window around each point. If bwidth() is not specified, a rule-of-thumb bandwidth estimator is calculated and used; see [R] lpoly.

degree(#) specifies the degree of the polynomial to be used in the smoothing. The default is degree(0), meaning local mean smoothing.

n(#) specifies the number of points at which the smooth is to be calculated. The default is min(N,50), where N is the number of observations.

cline_options specify how the 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 lpoly yvar xvar uses the lpoly command—see [R] lpoly—to obtain a local polynomial 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 polynomial smooth is often graphed on top of the data, possibly with other smoothers or regression lines:

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

We used `mcolor(*.6)` to dim the points and thus make the lines stand out; see [G-4] `colorstyle`.

Notice the `y`-axis title: “Mileage (mpg)/lpoly smooth: Mileage (mpg)/lowess mpg weight”. The “lpoly smooth: Mileage (mpg)” was contributed by `twoway lpoly` and “lowess mpg weight” by `twoway lowess`. When you overlay graphs, you nearly always need to respecify the axis titles by using the `axis_title_options` `ytitle()` and `xtitle()`; see [G-3] `axis_title_options`.

Use with by()

graph twoway lpoly may be used with by():

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

Graphs by Car type

References


Also see

[R] lpoly — Kernel-weighted local polynomial smoothing

[G-2] graph twoway lpolyci — Local polynomial smooth plots with CIs