### Syntax

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

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Option `level()` is *rightmost*; `nofit`, `fitplot()`, and `ciplot()` are *unique*; see [G-4] `concept: repeated options`.

Aweights, `fweights`, and `pweights` are allowed. Weights, if specified, affect estimation but not how the weighted results are plotted. See [U] 11.1.6 `weight`.

### Menu

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

### Description

`twoway fpfitci` calculates the prediction for `yvar` from estimation of a fractional polynomial of `xvar` and plots the resulting curve along with the confidence interval of the mean.

### Options

`fpfit_options` refers to any of the options of `graph twoway fpfit`; see [G-2] `graph twoway fpfit`. These options are seldom specified.

`level(#)` specifies the confidence level, as a percentage, for the confidence intervals. The default is `level(95)` or as set by `set level`; see [U] 20.7 Specifying the width of confidence intervals.

`nofit` prevents the prediction from being plotted.
fitplot(plottype) is seldom specified. It specifies how the prediction is to be plotted. The default is fitplot(line), meaning that the prediction will be plotted by `graph twoway line`. See [G-2] `graph twoway` for a list of `plottype` choices. You may choose any plottypes that expect one `y` variable and one `x` variable.

ciplot(plottype) specifies how the confidence interval is to be plotted. The default is ciplot(rarea), meaning that the prediction will be plotted by `graph twoway rarea`.

A reasonable alternative is ciplot(rline), which will substitute lines around the prediction for shading. See [G-2] `graph twoway` for a list of `plottype` choices. You may choose any plottypes that expect two `y` variables and one `x` variable.

`fcline_options` specify how the prediction line is rendered; see [G-3] `fcline_options`. If you specify fitplot(), then rather than using `fcline_options`, you should select options that affect the specified `plottype` from the options in `scatter`; see [G-2] `graph twoway scatter`.

`fitarea_options` specify how the confidence interval is rendered; see [G-3] `fitarea_options`. If you specify ciplot(), then rather than using `fitarea_options`, you should specify whatever is appropriate.

`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:

`Typical use`
`Advanced use`
`Cautions`
`Use with by()`

Typical use

twoway fpfitci by default draws the confidence interval of the predicted mean:

```
. use http://www.stata-press.com/data/r13/auto
(1978 Automobile Data)
. twoway fpfitci mpg weight
```

![Graph of 95% CI and predicted mpg](image.png)
If you specify the `ciplot(rline)` option, the confidence interval will be designated by lines rather than shading:

```
. twoway fpfitci mpg weight, ciplot(rline)
```

![Graph showing two lines representing 95% CI and predicted mpg](image)

**Advanced use**

`fpfitci` can be usefully overlaid with other plots:

```
. use http://www.stata-press.com/data/r13/auto, clear
   (1978 Automobile Data)
. twoway fpfitci mpg weight || scatter mpg weight
```

![Graph showing a scatter plot with 95% CI and predicted mpg](image)

In the above graph, the shaded area corresponds to the 95% confidence interval for the mean.
It is of great importance to note that we typed
\[
{\text{twoway fpfitci}} \ldots || {\text{scatter}} \ldots
\]
and not
\[
{\text{twoway scatter}} \ldots || {\text{fpfitci}} \ldots
\]
Had we drawn the scatter diagram first, the confidence interval would have covered up most of the points.

**Cautions**

Do not use `twoway fpfitci` when specifying the `axis_scale_options` `yscale(log)` or `xscale(log)` to create log scales. Typing
\[
{\text{twoway fpfitci mpg weight || scatter mpg weight ||, xscale(log)}}
\]
will produce a curve that will be fit from a fractional polynomial regression of `mpg` on `weight` rather than `log(weight)`.

See **Cautions** in [G-2] `graph twoway lfitci`.

**Use with by()**

`fpfitci` may be used with `by()` (as can all the `twoway` plot commands):
\[
{\text{twoway fpfitci mpg weight ||}}
\]
\[
{\text{scatter mpg weight ||}}
\]
\[
{\text{, by(foreign, total row(1))}}
\]

Also see

[G-2] `graph twoway lfitci` — Twoway linear prediction plots with CIs

[G-2] `graph twoway qfitci` — Twoway quadratic prediction plots with CIs

[G-2] `graph twoway fpfit` — Twoway fractional-polynomial prediction plots plots