graph twoway qfit — Two-way quadratic prediction plots

Description

`twoway qfit` calculates the prediction for *yvar* from a linear regression of *yvar* on *xvar* and *xvar*^{2} and plots the resulting curve.

Quick start

Graph showing the quadratic prediction of `y` using `x` and `x`^{2}

```
twoway qfit y x
```

Overlay quadratic prediction graph on a scatterplot of the observed data

```
twoway scatter y x || qfit y x
```

Same as above, but with a separate graph area for each level of `catvar`

```
twoway scatter y x || qfit y x, by(catvar)
```

Same as above, but with an additional graph area for all levels of `catvar` combined

```
twoway scatter y x || qfit y x, by(catvar, total)
```

Same as above, but with all graphs in a single row

```
twoway scatter y x || qfit y x, by(catvar, total row(1))
```

Menu

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

Syntax

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

options	Description
range(# #)	range over which predictions calculated
n(#)	number of prediction points
atobs	calculate predictions at *xvar*
estopts(*regress_options*)	options for regress
predopts(*predict_options*)	options for predict
cline_options	change look of predicted line
axis_choice_options	associate plot with alternative axis
twoway_options	titles, legends, axes, added lines and text, by, regions, name, aspect ratio, etc.

All options are *rightmost*; see [G-4] **Concept: repeated options**.

yvar and *xvar* may contain time-series operators; see **[U] 11.4.4 Time-series varlists**.

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**.

Options

range(# #) specifies the x range over which predictions are calculated. The default is range(. .), meaning the minimum and maximum values of *xvar*. range(0 10) would make the range 0 to 10, range(. 10) would make the range the minimum to 10, and range(0 .) would make the range 0 to the maximum.

n(#) specifies the number of points at which predictions over range() are to be calculated. The default is n(100).

atobs is an alternative to n(). It specifies that the predictions be calculated at the *xvar* values. atobs is the default if predopts() is specified and any statistic other than xb is requested.

estopts(*regress_options*) specifies options to be passed along to regress to estimate the linear regression from which the curve will be predicted; see [R] **regress**. If this option is specified, commonly specified is estopts(nocons).

predopts(*predict_options*) specifies options to be passed along to predict to obtain the predictions after estimation by regress; see [R] **regress postestimation**.

cline_options specify how the prediction line is rendered; 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***.

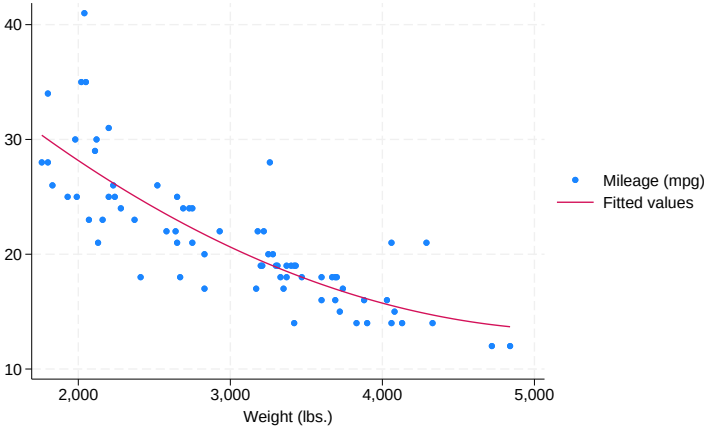
Remarks and examples

Remarks are presented under the following headings:

Typical use

`twoway qfit` is nearly always used in conjunction with other `twoway` plottypes, such as

```
. use https://www.stata-press.com/data/r19/auto
(1978 automobile data)
. scatter mpg weight || qfit mpg weight
```



Results are visually the same as typing

```
. generate tempvar = weight^2
. regress mpg weight tempvar
. predict fitted
. scatter mpg weight || line fitted weight
```

Cautions

Do not use `twoway qfit` when specifying the *axis_scale_options* `yscale(log)` or `xscale(log)` to create log scales. Typing

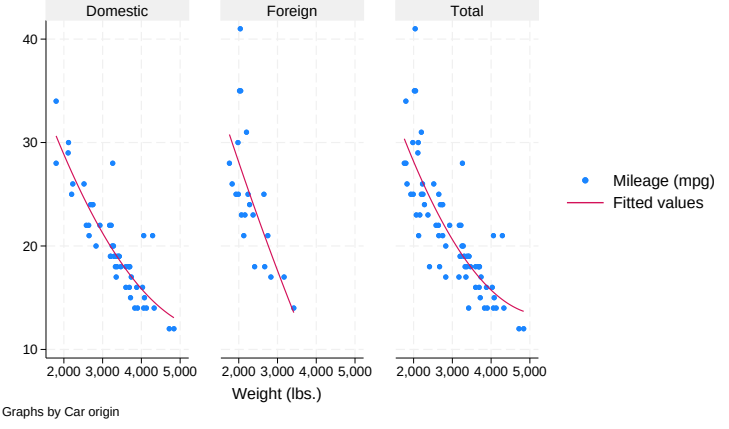
```
. scatter mpg weight, xscale(log) || qfit mpg weight
```

produces something that is not a parabola because the regression estimated for the prediction was for `mpg` on `weight` and `weight^2`, not `mpg` on `log(weight)` and `log(weight)^2`.

Use with by()

qfit may be used with by() (as can all the twoway plot commands):

```
. scatter mpg weight || qfit mpg weight ||, by(foreign, total row(1))
```



Also see

[G-2] **graph twoway fpfit** — Two-way fractional-polynomial prediction plots

[G-2] **graph twoway lfit** — Two-way linear prediction plots

[G-2] **graph twoway line** — Two-way line plots

[G-2] **graph twoway mband** — Two-way median-band plots

[G-2] **graph twoway mspline** — Two-way median-spline plots

[G-2] **graph twoway qfitci** — Two-way quadratic prediction plots with CIs

[R] **regress** — Linear regression