Creating graphs in Stata

Below we review some diagnostic plots available in Stata, and we demonstrate how to overlay plots. We use `auto.dta`, which contains pricing and mileage data for 1978 automobiles.

Plotting predictions

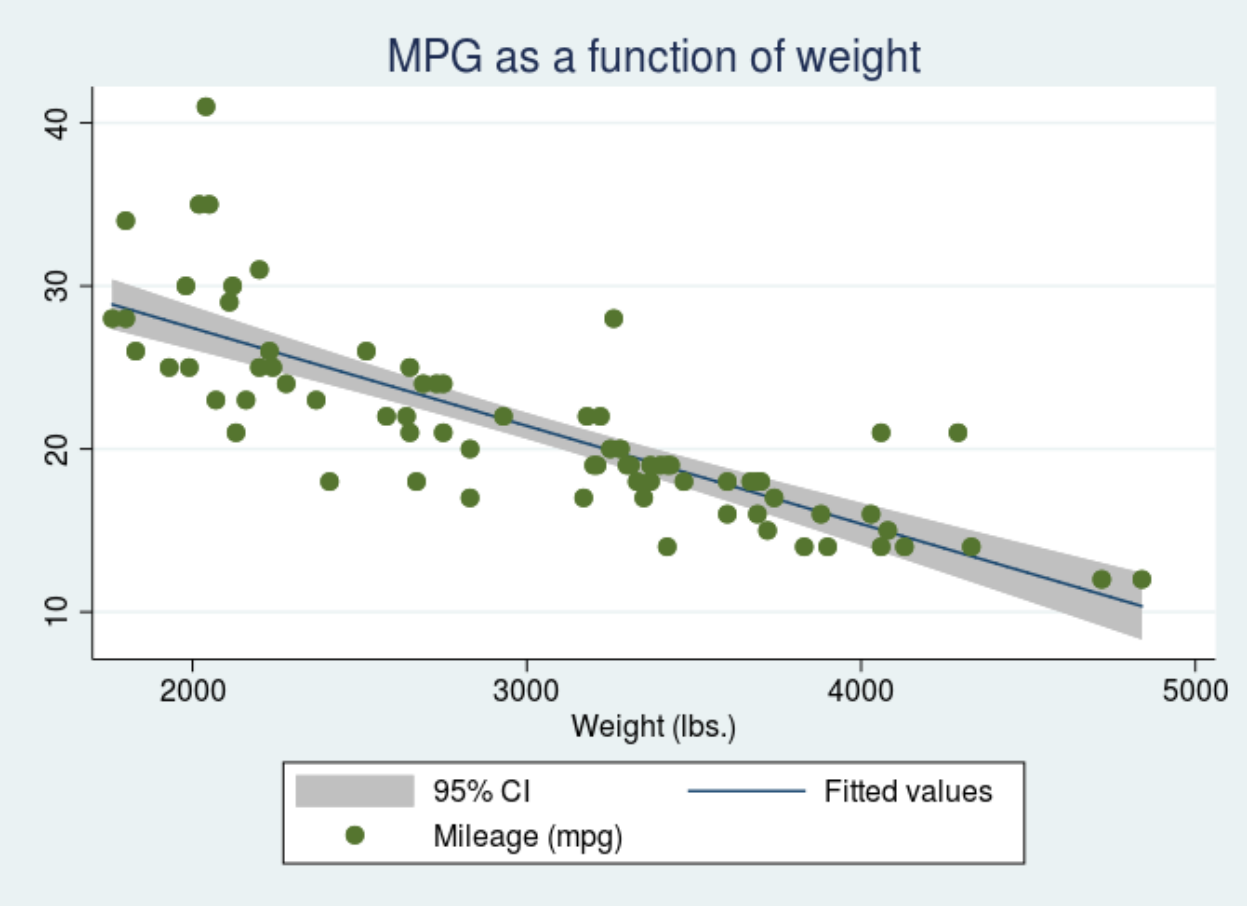
We are interested in modeling the mean of **mpg**, miles per gallon, as a function of **weight**, car weight in pounds. We can use **twoway lfitci** to graph the predicted miles per gallon from a linear regression, as well as the confidence interval:

```
sysuse auto, clear
twoway lfitci mpg weight
```

To see how these predictions compare to our data, we can overlay a scatterplot of the actual data

```
twoway lfitci mpg weight || scatter mpg weight, title(MPG as a function of
weight)
```

which produces the following graph:



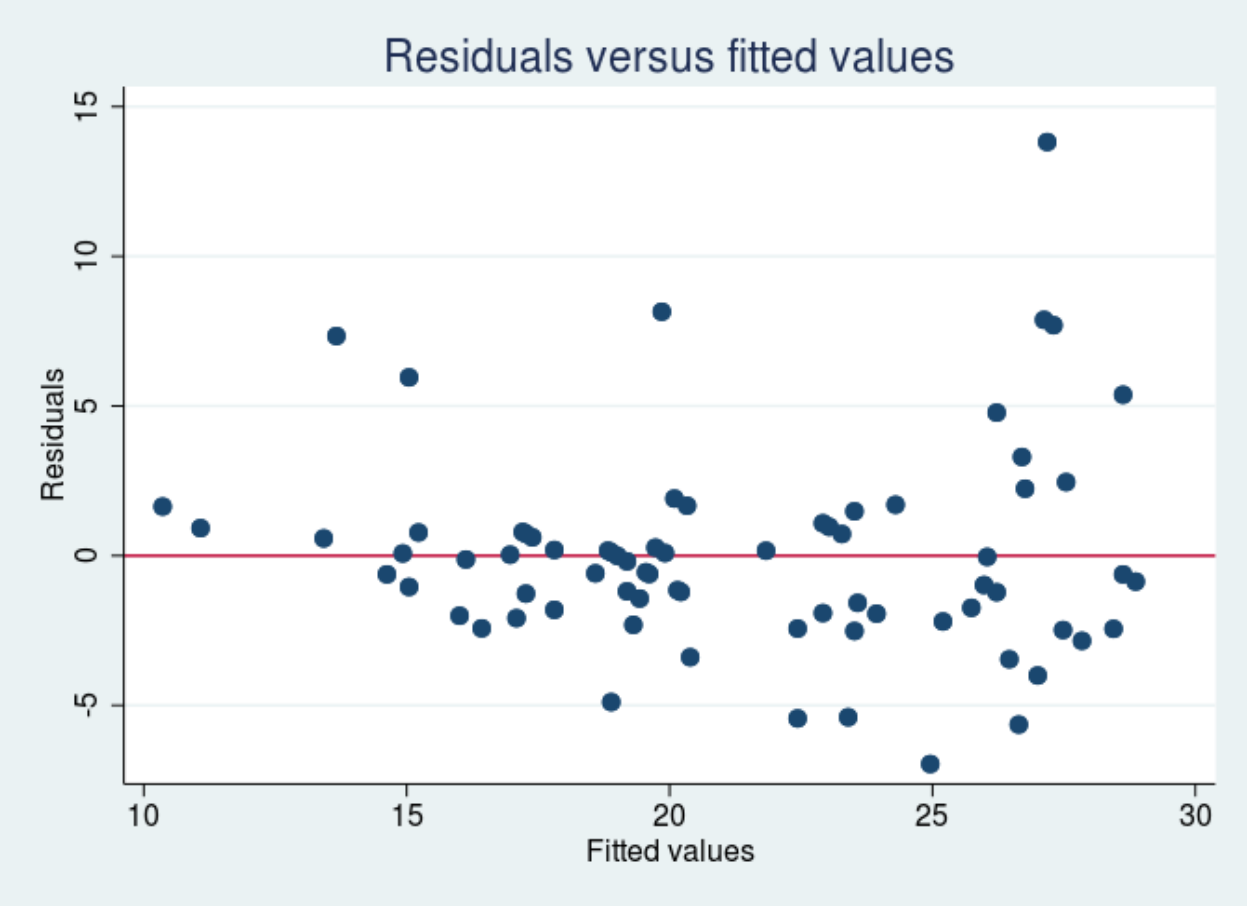
We could have also created separate graphs for domestic and foreign cars with the **by()** option. See graph twoway lfitci in the Stata Graphics Reference Manual for details.

Diagnostic plot

There are multiple diagnostic plots available for use after **regress**. Here, we use **rvfplot** to graphically check for a relationship between the residuals and fitted values from our model. We regress **mpg** on **weight** and then issue **rvfplot**.

```
regress mpg weight
rvfplot, yline(0) title(Residuals versus fitted values)
```

The commands above produce the following graph:


Residuals versus fitted values
Residuals
15
10
5
0
-5
10
15
20
25
30
Fitted values