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Stata tip 10: Fine control of axis title positions

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`ytitle()`, `xtitle()`, and other similar options specify the titles that appear on the axes of Stata graphs (see [G] *axis_title_options*). Usually, Stata's default settings produce titles with a satisfactory format and position relative to the axis. Sometimes, however, you will need finer control over position, especially if there is inadequate separation of the title and the numeric axis labels. This might happen, for example, with certain combinations of the font of the axis labels, the angle the labels make with the axis, the length of the labels, and the size of the graph region.

Although the options `ylabel()` and `xlabel()` have a suboption `labgap()` allowing user control of the gap between tick marks and labels (see [G] *axis_label_options*), the axis title options have no such suboption. The flexibility needed is provided by options controlling the textbox that surrounds the axis title (see [G] *textbox_options*). This box is invisible by default but can be displayed using the `box` suboption on the axis title option:

```
. graph twoway scatter price weight,
    ytitle("Price of Cars in {c S}|US", box)
    ylab(0(1000)15000, angle(horizontal) labsize(medium))
```

(Note the use of a SMCL directive to render the dollar sign; see [P] *smcl*, page 393.) We can manipulate the relative size of the height of the textbox or the margins around the text within the box to induce the appearance of a larger or smaller gap between the axis title and the axis labels. For a larger gap, we might try one of these solutions:

```
. graph twoway scatter price weight,
    ytitle("Price of Cars in {c S}|US", height(10))
    ylab(0(1000)15000, ang(hor) labsize(medium))

. graph twoway scatter price weight,
    ytitle("Price of Cars in {c S}|US", margin(0 10 0 0))
    ylab(0(1000)15000, ang(hor) labsize(medium))
```

For a smaller gap, specify negative arguments, say, `height(-1)` in the first command or `margin(0 -4 0 0)` in the second. A bit of trial and error will quickly give a satisfactory result.

Note that a sufficiently large negative argument in either `height()` or `margin()` will permit an axis title to be placed within the inner plot region, namely, inside of the axis. However, this, in turn, may cause the axis labels to disappear off the graph, so that some fiddling with the `graphregion()` option and its own `margin()` suboption may then be required (see [G] *region_options* and [G] *marginstyle*). For example,

```
. graph twoway scatter price weight,
    ytitle("Price of Cars in {c S}|US", height(-20))
    ylab(0(1000)15000, ang(hor) labsize(medium))
```

```
. graph twoway scatter price weight,  
    ytitle("Price of Cars in {c S}|US", height(-20))  
    ylab(0(1000)15000, ang(hor) labsize(medium))  
    graphregion(margin(l+20))
```

`margin()` allows more flexibility in axis title positioning than does `height()`, but the price is a slightly more complicated syntax. For example, the y axis title may be moved farther from the axis labels and closer to the top of the graph by specifying both the right-hand margin and the bottom margin of the text within the box:

```
. graph twoway scatter price weight,  
    ytitle("Price of Cars in {c S}|US", margin(0 10 40 0))  
    ylab(0(1000)15000, ang(hor) labsize(medium))
```