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THE STATA JOURNAL

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Stata tip 104: Added text and title options

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A frequent desire in graph production is to add explanatory text at appropriate places on a graph. It is a good idea in general to do that sparingly. Similarly, it may be a bad idea in particular to do that at all if a graph is already crowded and likely to prove challenging to readers.

Scatterplots and line plots are the most common examples for which such annotation is wanted. For identifying or commenting on outliers or other particular data points, it is natural to turn to marker labels or added text options, documented in [G-3] *marker_label_options* and [G-3] *added_text_options*. Both kinds of options share the property that they are linked to particular locations specified in terms of the two axes of the graph in the units of the two variables being shown. Sometimes that is exactly the control you need, but it is awkward if what you want is just to put text according to relative position within the data region. Usually, you might want to put the extra text in a corner of the graph. The difficulty then is that Stata's choices of axis limits depend not only on any axis scale options that may be set, but also on the ranges of the variables, what axis labels and ticks have been requested explicitly and implicitly, and so on. Optimizing choices for a single graph can be annoying but is likely to be tolerable. Optimizing choices for several graphs is much more awkward, especially if the aim is to automate a series of graphs though some of the variables' properties are not known exactly in advance.

A point sometimes missed, and the main reason for this tip, is that title and legend options can be moved away from their default positions and placed within the data region. The presumption here is that they are not needed for other purposes. However, there are several title options to choose from, and it is likely that at least one is not currently used. (If you are using all of the options `title()`, `subtitle()`, `note()`, and `caption()`, to say nothing of others that are available, then your graph may be too complicated already.)

The main idea is very simple. The default positions under the graph scheme are precisely that: default choices, or suggestions that may be altered. If you use one of these options, then other defaults may need to be modified too, but that is generally straightforward.

A single example should be enough to show the idea. Imagine that we want to comment generally on the merits of a fitted line.

```

. sysuse auto
(1978 Automobile Data)
. scatter mpg weight, ms(0h) || lfit mpg weight, lc(gs12)
>   note("note that the linear fit" "misses the curvature", ring(0)
>       pos(1) size(*1.6) box)
>   legend(off) ytitle("`": var label mpg")

```

Here we used the `note()` option, varying not only where the note is placed (`ring(0)` `pos(1)`) but also its size and whether it is boxed. The example also shows that multiline comments, a common wish, are easy to produce.

With such tricks, automated production of a series of graphs in a uniform style is much easier to achieve. In this example, the overall correlation is negative, and the top right or northeast corner is a natural place for the extra text. When showing (for example) an increasing time series, the top left corner will seem natural, and other such variations will quickly spring to mind.

As mentioned above, legend options may be used too. In fact, surprising though it may seem, the legend need make no references to any of the variables being shown in the graph, as detailed study of the documentation will make clear.

This tip picks no quarrel with users who prefer to keep such extra text outside the data region or confine it to the caption that will usually be composed as part of the text. The idea is just to indicate what choices are available without moralizing too much about choices you must or should make.