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THE STATA JOURNAL

Editor

H. Joseph Newton
Department of Statistics
Texas A & M University
College Station, Texas 77843
979-845-3142; FAX 979-845-3144
jnewton@stata-journal.com

Editor

Nicholas J. Cox
Geography Department
Durham University
South Road
Durham City DH1 3LE UK
n.j.cox@stata-journal.com

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Stata tip 24: Axis labels on two or more levels

Nicholas J. Cox
Durham University
n.j.cox@durham.ac.uk

Text shown as graph axis labels is by default shown on one level. For example, a label `Foreign cars` would be shown just like that. Sometimes you want the text of a label to be shown on two or even more levels, as one way of reducing crowding or even overprinting of text; thus you might want `Foreign` written above `cars`. Other ways of fighting crowding include varying the size or angle at which text is printed (see [G] *axis_label_options* for details), or in some cases reconsidering which variable should go on which axis.

To specify multiple levels, the text to go on each level should appear within double quotes " ", and the whole text label should appear within compound double quotes " ". For more explanation of the latter, see [U] **18.3.5 Double quotes**. That way, Stata's parser has a clear idea of parts and wholes.

Here are some examples:

```
. sysuse auto
. dotplot mpg, over(foreign)
> xlabel(0 " " "Domestic" "cars" " " 1 " " "Foreign" "cars" " ") xtitle("")
. graph box mpg,
> over(foreign, relabel(1 " " "Domestic" "cars" " " 2 " " "Foreign" "cars" " "))
. graph hbar (mean) mpg,
> over(foreign, relabel(1 " " "Domestic" "cars" " " 2 " " "Foreign" "cars" " "))
```

Note the subtle difference between these examples. `dotplot` is really a wrapper for `twoway` and, as is characteristic of `twoway` graphs, it takes its variables literally so that the values of `foreign` are indeed treated as 0 and 1. On the other hand, graphs with so-called categorical axes (`graph bar`, `graph hbar`, `graph box`, `graph hbox`, and `graph dot`) consider the categories shown to be 1, 2, and so forth, regardless of the precise numeric or string values of the variables concerned. The numbers increase from left to right or from top to bottom, as the case may be. Thus matrix users will feel at home with this convention.