# Title

> **addplot_option** — Option for adding additional twoway plots to command

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## Description

Some commands that draw graphs (but do not start with the word graph) are documented in the other reference manuals. Many of those commands allow the addplot() option. This option allows them to overlay their results on top of graph twoway plots; see [G-2] **graph twoway**.

## Syntax

    *command* ... [ , ... addplot(*plot* ... [ || *plot* ... [ ... ] ] [ , below ]) ... ]

where *plot* may be any subcommand of graph twoway (see [G-2] **graph twoway**), such as scatter, line, or histogram.

## Option

addplot(*plots* [ , below ]) specifies the rest of the graph twoway subcommands to be added to the graph twoway command issued by *command*.

    below is a suboption of the addplot() option and specifies that the added plots be drawn before the plots drawn by the command. Thus the added plots will appear below the plots drawn by *command*. The default is to draw the added plots after the command's plots so that they appear above the command's plots. below affects only the added plots that are drawn on the same $x$ and $y$ axes as the command's plots.

## Remarks and examples

Remarks are presented under the following headings:

> *Commands that allow the addplot() option*
> *Advantage of graph twoway commands*
> *Advantages of graphic commands implemented outside graph twoway*
> *Use of the addplot() option*

### Commands that allow the addplot() option

graph commands never allow the addplot() option. The addplot() option is allowed by commands outside graph that are implemented in terms of graph twoway.

For instance, the histogram command—see [R] **histogram**—allows addplot(). graph twoway histogram—see [G-2] **graph twoway histogram**—does not.

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## Advantage of graph twoway commands

The advantage of `graph twoway` commands is that they can be overlaid, one on top of the other. For instance, you can type

```
. graph twoway scatter yvar xvar || lfit yvar xvar
```

and the separate graphs produced, `scatter` and `lfit`, are combined. The variables to which each refers need not even be the same:

```
. graph twoway scatter yvar xvar || lfit y2var x2var
```

## Advantages of graphic commands implemented outside graph twoway

Graphic commands implemented outside `graph twoway` can have simpler syntax. For instance, the `histogram` command has an option, `normal`, that will overlay a normal curve on top of the histogram:

```
. histogram myvar, normal
```

That is easier than typing

```
. summarize myvar
. graph twoway histogram myvar ||
     function normalden(x,'r(mean)','r(sd)'), range(myvar)
```

which is the `graph twoway` way of producing the same thing.

Thus the tradeoff between `graph` and nongraph commands is one of greater flexibility versus easier use.

## Use of the addplot() option

The `addplot()` option attempts to give back flexibility to nongraph graphic commands. Such commands are, in fact, implemented in terms of `graph twoway`. For instance, when you type

```
. histogram ...
```

or you type

```
. sts graph ...
```

the result is that those commands construct a complicated `graph twoway` command

→  `graph twoway` *something_complicated*

and then run that for you. When you specify the `addplot()` option, such as in

```
. histogram ..., addplot(your_contribution)
```

or

```
. sts graph, addplot(your_contribution)
```

the result is that the commands construct

→ `graph twoway` *something_complicated* || *your_contribution*

Let us assume that you have survival data and wish to visually compare the Kaplan–Meier (that is, the empirical survivor function) with the function that would be predicted if the survival times were assumed to be exponentially distributed. Simply typing

```
. use https://www.stata-press.com/data/r18/cancer, clear
(Patient survival in drug trial)
. quietly stset studytime, fail(died)
. sts graph
```
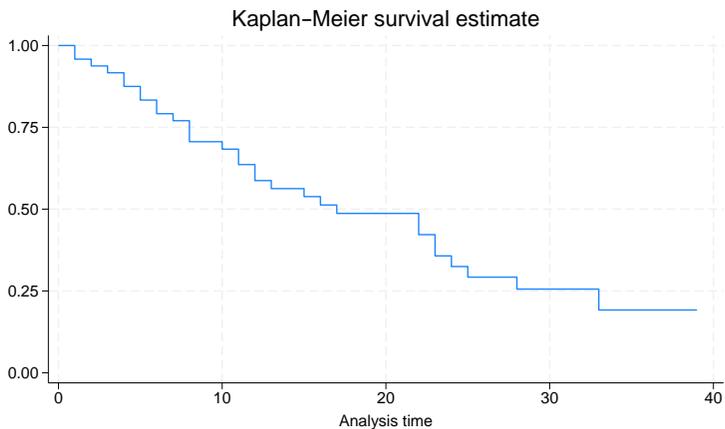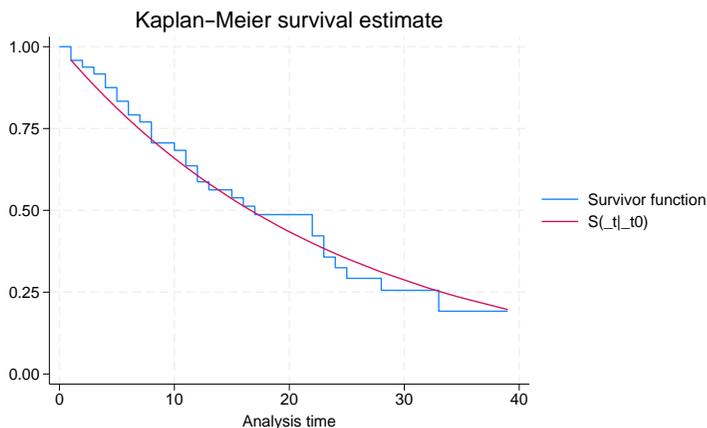


will obtain a graph of the empirical estimate. To obtain the exponential estimate, you might type

```
. quietly streg, distribution(exponential)
. predict S, surv
. graph twoway line S _t, sort
```
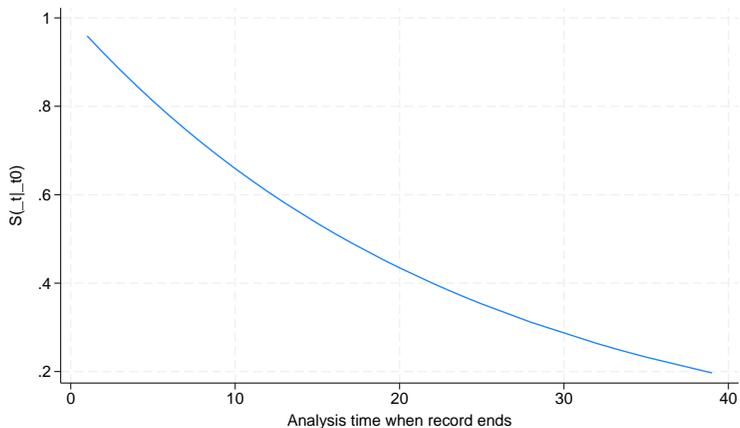
To put these two graphs together, you can type

```
. sts graph, addplot(line S _t, sort)
```



The result is just as if you typed

```
. sts graph || line S _t, sort
```

if only that were allowed.

# Reference

Jann, B. 2015. A note on adding objects to an existing twoway graph. *Stata Journal* 15: 751–755.

# Also see

[G-2] **graph twoway** — Twoway graphs