Description

tsline draws line plots for time-series data.

tsrline draws a range plot with lines for time-series data.

Quick start

Line plot for the time series y1 using tsset data

    tsline y1

Add plots of time series y2 and y3

    tsline y1 y2 y3

Range plot with lines for the lower and upper values of time series y1 stored in y1_lower and y1_upper, respectively

    tsrline y1_lower y1_upper

Overlay a range plot of the lower and upper values of time series y1 stored in y1_lower and y1_upper, respectively, on a plot of y1

    tsline y1 || tsrline y1_lower y1_upper

Menu

Statistics > Time series > Graphs > Line plots

Syntax

Time-series line plot

    [<u>tw</u>oway] tsline *varlist* [*if*] [*in*] [, *tsline_options*]

Time-series range plot with lines

    [<u>tw</u>oway] tsrline y_1 y_2 [*if*] [*in*] [, *tsrline_options*]

where the time variable is assumed set by tsset (see [TS] **tsset**), *varlist* has the interpretation $y_1 [y_2 \ldots y_k]$.

tsline_options	Description
Plots	
scatter_options	any options documented in [G-2] **graph twoway scatter** with the exception of *marker_options* and *marker_label_options*, which will be ignored if specified
Y axis, Time axis, Titles, Legend, Overall, By	
twoway_options	any options documented in [G-3] ***twoway_options***

tsrline_options	Description
Plots	
rline_options	any options documented in [G-2] **graph twoway rline**
Y axis, Time axis, Titles, Legend, Overall, By	
twoway_options	any options documented in [G-3] ***twoway_options***

Options

       Plots

scatter_options are any of the options allowed by the graph twoway scatter command except that *marker_options* and *marker_label_options* will be ignored if specified; see [G-2] **graph twoway scatter**.

rline_options are any of the options allowed by the graph twoway rline command; see [G-2] **graph twoway rline**.

       Y axis, Time axis, Titles, Legend, Overall, By

twoway_options are any of the options documented in [G-3] ***twoway_options***. These include options for titling the graph (see [G-3] ***title_options***), options for saving the graph to disk (see [G-3] ***saving_option***), and the by() option, which will allow you to simultaneously plot different subsets of the data (see [G-3] ***by_option***).

Also see the recast() option discussed in [G-3] ***advanced_options*** for information on how to plot spikes, bars, etc., instead of lines.

Remarks and examples

Remarks are presented under the following headings:

Basic examples
*Advanced example*
Video example

Basic examples

▷ Example 1: A time-series line plot

We simulated two separate time series (each of 200 observations) and placed them in a Stata dataset, `tsline1.dta`. The first series simulates an AR(2) process with $\phi_1 = 0.8$ and $\phi_2 = 0.2$; the second series simulates an MA(2) process with $\theta_1 = 0.8$ and $\theta_2 = 0.2$. We use `tsline` to graph these two series.

```
. use https://www.stata-press.com/data/r19/tsline1
(Two simulated time series)
. tsset lags
Time variable: lags, 0 to 199
        Delta: 1 unit
. tsline ar ma
```
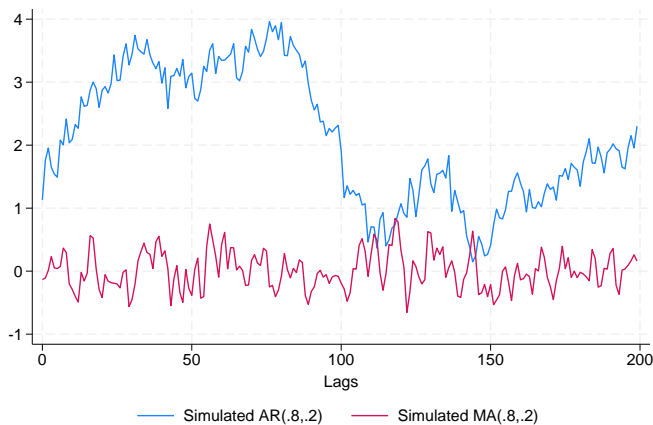

▷ Example 2: Using options to highlight information

Suppose that we kept a calorie log for an entire calendar year. At the end of the year, we would have a dataset (for example, `tsline2.dta`) that contains the number of calories consumed for 365 days. We could then use `tsset` to identify the date variable and `tsline` to plot calories versus time. Knowing that we tend to eat a little more food on Thanksgiving and Christmas day, we use the `ttick()` and `ttext()` options to point out these days on the time axis.

```
. use https://www.stata-press.com/data/r19/tsline2
(Simulated data of calories consumed for 365 days)
. tsset day
Time variable: day, 01jan2002 to 31dec2002
        Delta: 1 day
. tsline calories, ttick(28nov2002 25dec2002, tpos(in))
> ttext(3470 28nov2002 "thanks" 3470 25dec2002 "x-mas", orient(vert))
```
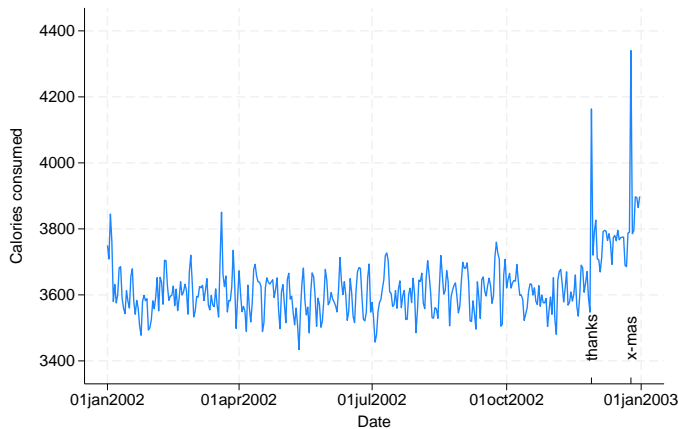

Options associated with the time axis allow dates (and times) to be specified in place of numeric date (and time) values. For instance, we used

```
ttick(28nov2002 25dec2002, tpos(in))
```

to place tick marks at the specified dates. This works similarly for `tlabel()`, `tmlabel()`, and `tmtick()`.

Suppose that we wanted to place vertical lines for the previously mentioned holidays. We could specify the dates in the `tline()` option as follows:
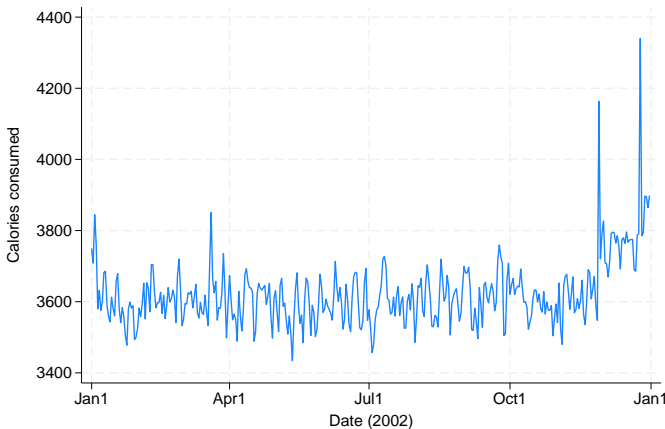
```
. tsline calories, tline(28nov2002 25dec2002)
```
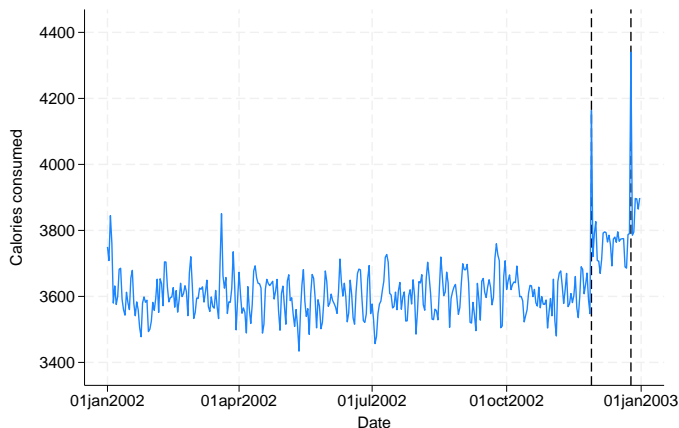
▷ Example 3: Formatting the time axis

We could also modify the format of the time axis so that the labeled ticks display only the day in the year:

```
. tsline calories, tlabel(, format(%tdmd)) ttitle("Date (2002)")
```


◁

Advanced example

tsline and tsrline are both commands and *plottype*s as defined in [G-2] **graph twoway**. Thus the syntax for tsline is

```
. graph twoway tsline ...
. twoway tsline ...
. tsline ...
```

and similarly for tsrline. However, when graph twoway tsline, twoway tsline, graph twoway tsrline, or twoway tsrline is specified, the stcolor scheme will be used by default. On the other hand, when tsline or tsrline is specified without graph twoway or twoway preceding it, the stcolor_alt scheme will be used by default.

Being plot types, the tsline and tsrline commands may be combined with other plot types in the twoway family, as in,

```
. twoway (tsrline ...) (tsline ...) (lfit ...) ...
```

▷ Example 4: Combining line and range plots

In the first plot of example 2, we were uncertain of the exact values we logged, so we also gave a range for each day. Here is a plot of the summer months.

```
. tsrline lcalories ucalories if tin(1may2002,31aug2002) || tsline calories ||
> if tin(1may2002,31aug2002), ytitle(Calories)
```
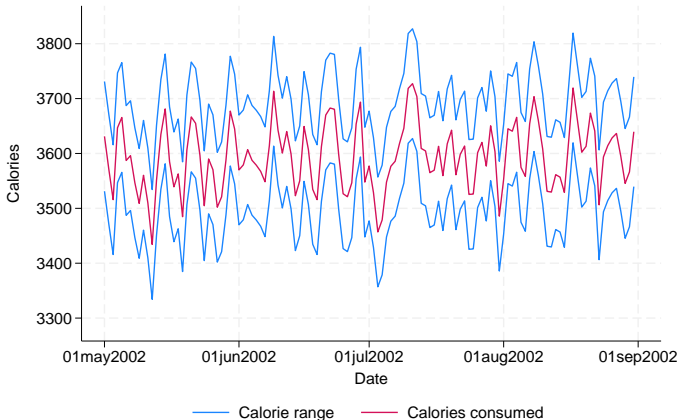

Video example

Line graphs and tin()

References

Boffelli, S., and G. Urga. 2016. *Financial Econometrics Using Stata*. College Station, TX: Stata Press.

Cox, N. J. 2009a. Speaking Stata: Graphs for all seasons. *Stata Journal* 6: 397–419.

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Dicle, M. F. 2019. Candle charts for financial technical analysis. *Stata Journal* 19: 200–209.

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Also see

[TS] **tsset** — Declare data to be time-series data

[G-2] **graph twoway** — Two-way graphs

[XT] **xtline** — Panel-data line plots

For suggested citations, see the FAQ on citing Stata documentation.