Title

> **tsline** — Plot time-series data

Syntax

Time-series line plot

$\big[\underline{\text{tw}}\text{oway}\big]$ tsline *varlist* $\big[\,\textit{if}\,\big]$ $\big[\,\textit{in}\,\big]$ $\big[\,$, *tsline_options* $\big]$

Time-series range plot with lines

$\big[\underline{\text{tw}}\text{oway}\big]$ tsrline y_1 y_2 $\big[\,\textit{if}\,\big]$ $\big[\,\textit{in}\,\big]$ $\big[\,$, *tsrline_options* $\big]$

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

tsline_options	Description
Plots	
scatter_options	any of the options documented in [G-2] **graph twoway scatter** with the exception of *marker_options*, *marker_placement_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 of the 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*

Menu

Statistics > Time series > Graphs > Line plots

Description

tsline draws line plots for time-series data.

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

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. Being plot types, these commands may be combined with other plot types in the twoway family, as in,

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

which can equivalently be written

. tsrline ... || tsline ... || lfit ... || ...

Options

> [Plots]

scatter_options are any of the options allowed by the graph twoway scatter command except that *marker_options*, *marker_placement_option*, 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*), 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   stata.com

Remarks are presented under the following headings:

> Basic examples
> Video example

Basic examples

▷ Example 1

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 http://www.stata-press.com/data/r13/tsline1
. tsset lags
        time variable:  lags, 0 to 199
                delta:  1 unit
. tsline ar ma
```


◁
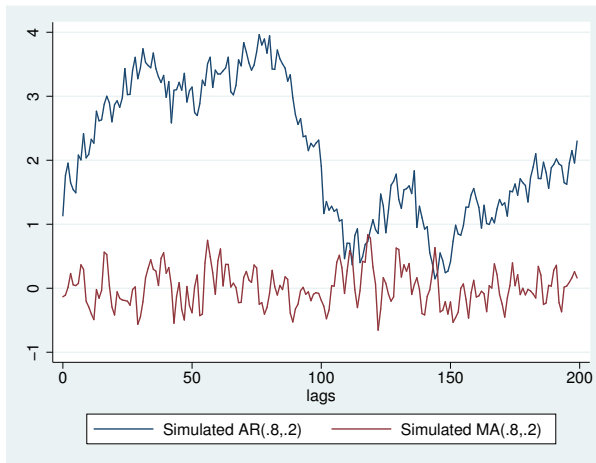
▷ Example 2

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 these days out on the time axis.

```
. use http://www.stata-press.com/data/r13/tsline2
. 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))
```
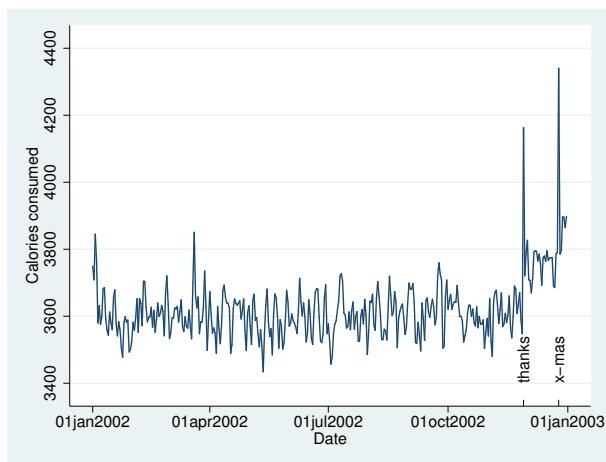

We were uncertain of the exact values we logged, so we also gave a range for each day. Here is a plot of the summer months.

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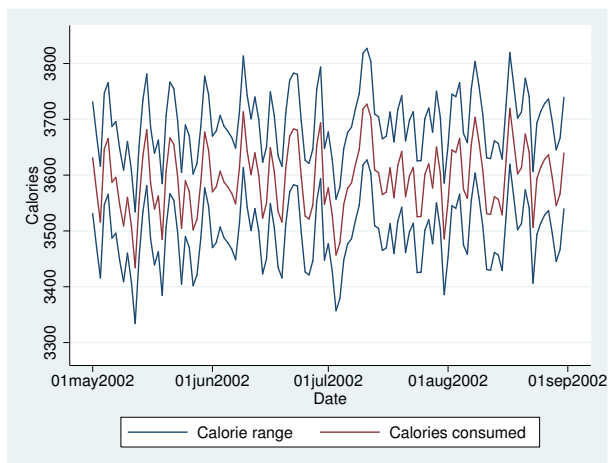

Options associated with the time axis allow dates (and times) to be specified in place of numeric date (and time) values. For instance, we used

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

to place tick marks at the specified dates. This works similarly for `tlabel`, `tmlabel`, and `tmtick`.
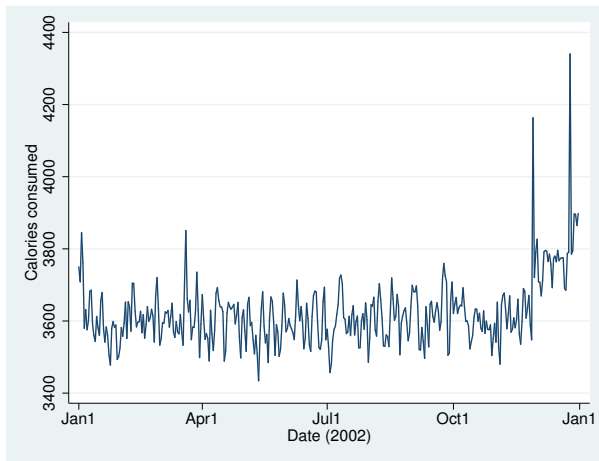
Suppose that we wanted to place vertical lines for the previously mentioned holidays. We could specify the dates in the `tline()` option as follows:

```
. tsline calories, tline(28nov2002 25dec2002)
```
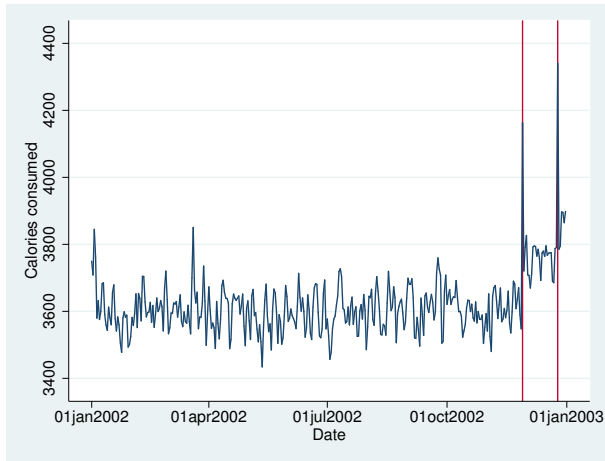

We could also modify the format of the time axis so that only the day in the year is displayed in the labeled ticks:

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


◁

Video example

[Time series, part 2: Line graphs and tin()](#)

References

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

———. 2009b. Stata tip 76: Separating seasonal time series. *Stata Journal* 9: 321–326.

———. 2012. Speaking Stata: Transforming the time axis. *Stata Journal* 12: 332–341.

Also see

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

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

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