tsline — Plot time-series data

Syntax

Time-series line plot

[ twoway ] tsline varlist [ if ] [ in ] [ , tsline_options ]

Time-series range plot with lines

[ twoway ] tsrline y1 y2 [ 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 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

Menu

Statistics > Time series > Graphs > Line plots

Description

tsline draws line plots for time-series data.
tsrl ine draws a range plot with lines for time-series data.
tsline and tsrline are both commands and plottypes 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

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)
```

![Graph with vertical lines for holidays](image1)

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)"
```

![Graph with day format](image2)

**Video example**

Time series, part 2: Line graphs and `tin()`
References


Also see

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

[G-2] graph twoway — Twoway graphs

[XT] xline — Panel-data line plots