xtline — Panel-data line plots

Description

`xtline` draws line plots for panel data.

Quick start

Matrix of line plots of `y` against time variable `tvar` with panel identifier `pvar`

```
xtline y, i(pvar) t(tvar)
```

Same as above, but using `xtset` data

```
xtline y
```

Same as above, but overlay line plots for each panel identifier `pvar`

```
xtline y, overlay
```

Add "My Title" to graph showing a matrix of line plots

```
xtline y, byopts(title(My Title))
```

Add "My Title" to graph of overlaid line plots

```
xtline y, overlay title(My Title)
```

Menu

Statistics > Longitudinal/panel data > Line plots

Syntax

Graph by panel

```
xtline varlist [if] [in] [, panel_options]
```

Overlaid panels

```
xtline varname [if] [in], overlay [overlaid_options]
```

panel_options	Description
Main	
`i(`*varname*$_i$`)`	use *varname*$_i$ as the panel ID variable
`t(`*varname*$_t$`)`	use *varname*$_t$ as the time variable
Plot	
cline_options	affect rendition of the plotted points connected by lines
Add plots	
`addplot(`*plot*`)`	add other plots to the generated graph
Y axis, Time axis, Titles, Legend, Overall	
twoway_options	any options other than `by()` documented in [G-3] ***twoway_options***
`byopts(`*byopts*`)`	affect appearance of the combined graph

overlaid_options	Description
Main	
`overlay`	overlay each panel on the same graph
`i(`*varname*$_i$`)`	use *varname*$_i$ as the panel ID variable
`t(`*varname*$_t$`)`	use *varname*$_t$ as the time variable
Plots	
`plot`#`opts(`*cline_options*`)`	affect rendition of the # panel line
Add plots	
`addplot(`*plot*`)`	add other plots to the generated graph
Y axis, Time axis, Titles, Legend, Overall	
twoway_options	any options other than `by()` documented in [G-3] ***twoway_options***

A panel variable and a time variable must be specified. Use `xtset` (see [XT] **xtset**) or specify the `i()` and `t()` options. The `t()` option allows noninteger values for the time variable, whereas `xtset` does not.

Options for graph by panel

Main

`i(`*varname*$_i$`)` and `t(`*varname*$_t$`)` override the panel settings from `xtset`; see [XT] **xtset**. *varname*$_i$ is allowed to be a string variable. *varname*$_t$ can take on noninteger values and have repeated values within panel. That is to say, it can be any numeric variable that you would like to specify for the x-dimension of the graph. It is an error to specify `i()` without `t()` and vice versa.

Plot

cline_options affect the rendition of the plotted points connected by lines; see [G-3] ***cline_options***.

Add plots

`addplot(`*plot*`)` provides a way to add other plots to the generated graph; see [G-3] ***addplot_option***.

Y axis, Time axis, Titles, Legend, Overall

twoway_options are any of the options documented in [G-3] ***twoway_options***, excluding `by()`. These include options for titling the graph (see [G-3] ***title_options***) and for saving the graph to disk (see [G-3] ***saving_option***).

`byopts(`*byopts*`)` allows all the options documented in [G-3] ***by_option***. These options affect the appearance of the by-graph. `byopts()` may not be combined with `overlay`.

Options for overlaid panels

Main

`overlay` causes the plot from each panel to be overlaid on the same graph. The default is to generate plots by panel. This option may not be combined with `byopts()` or be specified when there are multiple variables in *varlist*.

`i(`*varname*$_i$`)` and `t(`*varname*$_t$`)` override the panel settings from `xtset`; see [XT] **xtset**. *varname*$_i$ is allowed to be a string variable. *varname*$_t$ can take on noninteger values and have repeated values within panel. That is to say, it can be any numeric variable that you would like to specify for the x-dimension of the graph. It is an error to specify `i()` without `t()` and vice versa.

Plots

`plot`#`opts(`*cline_options*`)` affect the rendition of the #th panel (in sorted order). The *cline_options* can affect whether and how the points are connected; see [G-3] ***cline_options***.

Add plots

`addplot(`*plot*`)` provides a way to add other plots to the generated graph; see [G-3] ***addplot_option***.

Y axis, Time axis, Titles, Legend, Overall

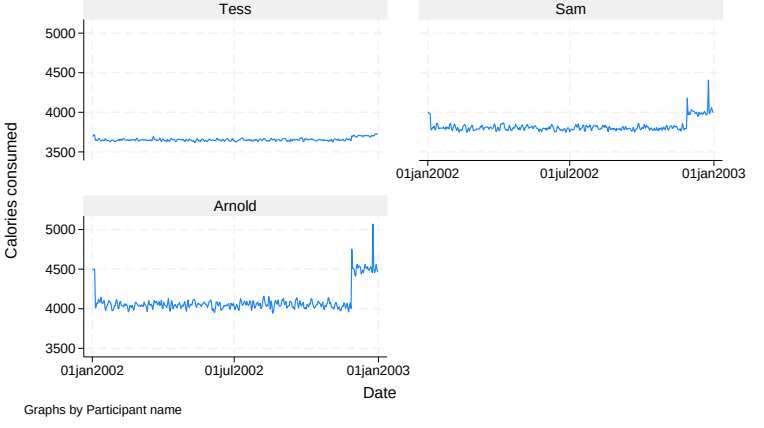
twoway_options are any of the options documented in [G-3] ***twoway_options***, excluding `by()`. These include options for titling the graph (see [G-3] ***title_options***) and for saving the graph to disk (see [G-3] ***saving_option***).

Remarks and examples

Example 1

Suppose that Tess, Sam, and Arnold kept a calorie log for an entire calendar year. At the end of the year, if they pooled their data together, they would have a dataset (for example, `xtline1.dta`) that contains the number of calories each of them consumed for 365 days. They could then use `xtset` to identify the date variable and treat each person as a panel and use `xtline` to plot the calories versus time for each person separately.

```
. use https://www.stata-press.com/data/r19/xtline1
(Simulated data of calories consumed for 365 days)
. xtset person day
Panel variable: person (strongly balanced)
 Time variable: day, 01jan2002 to 31dec2002
         Delta: 1 day
. xtline calories, tlabel(#3)
```



Specify the `overlay` option so that the values are plotted on the same graph to provide a better comparison among Tess, Sam, and Arnold.

```
. xtline calories, overlay
```

References

Chatfield, M. D. 2018. Graphing each individual's data over time. *Stata Journal* 18: 503–516.

Gallup, J. L. 2020. Added-variable plots for panel-data estimation. *Stata Journal* 20: 30–50.

Also see

[XT] **xtset** — Declare data to be panel data

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

[TS] **tsline** — Time-series line plots