**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_

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

Same as above, but using _xtset_ data

```
xline y
```

As above, but overlay line plots for each panel identifier _pvar_

```
xline y, overlay
```

Add “My Title” to graph showing a matrix of line plots

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

Add “My Title” to graph of overlaid line plots

```
xline 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

<table>
<thead>
<tr>
<th>Description</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>use <code>varname_i</code> as the panel ID variable</td>
<td><code>i(varname_i)</code></td>
</tr>
<tr>
<td>use <code>varname_t</code> as the time variable</td>
<td><code>t(varname_t)</code></td>
</tr>
</tbody>
</table>

### cline_options

<table>
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<tr>
<th>Description</th>
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</tr>
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<tbody>
<tr>
<td>affect rendition of the plotted points connected by lines</td>
<td></td>
</tr>
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### Add plots

<table>
<thead>
<tr>
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<tr>
<td>add other plots to the generated graph</td>
<td><code>addplot(plot)</code></td>
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### twoway_options

<table>
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<tr>
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<tbody>
<tr>
<td>any options other than <code>by()</code> documented in [G-3]</td>
<td><code>twoway_options</code></td>
</tr>
</tbody>
</table>

### byopts(byopts)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>affect appearance of the combined graph</td>
<td><code>byopts(byopts)</code></td>
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### overlaid_options

<table>
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<tr>
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<tbody>
<tr>
<td>overlay each panel on the same graph</td>
<td><code>overlay</code></td>
</tr>
<tr>
<td>use <code>varname_i</code> as the panel ID variable</td>
<td><code>i(varname_i)</code></td>
</tr>
<tr>
<td>use <code>varname_t</code> as the time variable</td>
<td><code>t(varname_t)</code></td>
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</table>

### Plot

<table>
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<tr>
<td>affect rendition of the # panel line</td>
<td><code>plot#opts(cline_options)</code></td>
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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

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

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.

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

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/r16/xtline1
. 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

Also see
[XT] *xtset* — Declare data to be panel data
[G-2] *graph twoway* — Twoway graphs
[TS] *tsline* — Time-series line plots