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 \( pvar \)
\[ \text{xtline } y, \text{i(pvar) t(tvar)} \]

Same as above, but using \texttt{xtset} data
\[ \text{xtline } y \]

As above, but overlay line plots for each panel identifier \( pvar \)
\[ \text{xtline } y, \text{overlay} \]

Add “My Title” to graph showing a matrix of line plots
\[ \text{xtline } y, \text{byopts(title(My Title))} \]

Add “My Title” to graph of overlaid line plots
\[ \text{xtline } y, \text{overlay title(My Title)} \]

Menu

Statistics > Longitudinal/panel data > Line plots
Syntax

Graph by panel

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

Overlaid panels

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

### panel_options

<table>
<thead>
<tr>
<th>Description</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td></td>
</tr>
<tr>
<td><code>i(varname_1)</code></td>
<td>use <code>varname_1</code> as the panel ID variable</td>
</tr>
<tr>
<td><code>t(varname_1)</code></td>
<td>use <code>varname_1</code> as the time variable</td>
</tr>
<tr>
<td>Plot</td>
<td></td>
</tr>
<tr>
<td><code>cline_options</code></td>
<td>affect rendition of the plotted points connected by lines</td>
</tr>
<tr>
<td>Add plots</td>
<td></td>
</tr>
<tr>
<td><code>addplot(plot)</code></td>
<td>add other plots to the generated graph</td>
</tr>
<tr>
<td>Y axis, Time axis, Titles, Legend, Overall</td>
<td>any options other than by() documented in [G-3] <code>twoway_options</code></td>
</tr>
</tbody>
</table>

### overlaid_options

<table>
<thead>
<tr>
<th>Description</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td></td>
</tr>
<tr>
<td><code>overlay</code></td>
<td>overlay each panel on the same graph</td>
</tr>
<tr>
<td><code>i(varname_1)</code></td>
<td>use <code>varname_1</code> as the panel ID variable</td>
</tr>
<tr>
<td><code>t(varname_1)</code></td>
<td>use <code>varname_1</code> as the time variable</td>
</tr>
<tr>
<td>Plots</td>
<td></td>
</tr>
<tr>
<td><code>plot#opts(cline_options)</code></td>
<td>affect rendition of the # panel line</td>
</tr>
<tr>
<td>Add plots</td>
<td></td>
</tr>
<tr>
<td><code>addplot(plot)</code></td>
<td>add other plots to the generated graph</td>
</tr>
<tr>
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<td>any options other than by() documented in [G-3] <code>twoway_options</code></td>
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</table>

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 \texttt{xtset}; see \cite[\texttt{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

\texttt{cline_options} affect the rendition of the plotted points connected by lines; see \cite[\texttt{cline_options}.

Add plots

\texttt{addplot(plot)} provides a way to add other plots to the generated graph; see \cite[\texttt{addplot_option}.

Y axis, Time axis, Titles, Legend, Overall

\texttt{twoway_options} are any of the options documented in \cite[\texttt{twoway_options}, excluding \texttt{by}(). These include options for titling the graph (see \cite[\texttt{title_options}) and for saving the graph to disk (see \cite[\texttt{saving_option}.

\texttt{byopts(byopts)} allows all the options documented in \cite[\texttt{by_option}. These options affect the appearance of the by-graph. \texttt{byopts()} may not be combined with \texttt{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 \texttt{byopts()} or be specified when there are multiple variables in \texttt{varlist}.

\(i(varname_i)\) and \(t(varname_t)\) override the panel settings from \texttt{xtset}; see \cite[\texttt{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

\texttt{plot#opts(cline_options)} affect the rendition of the \#th panel (in sorted order). The \texttt{cline_options} can affect whether and how the points are connected; see \cite[\texttt{cline_options}.

Add plots

\texttt{addplot(plot)} provides a way to add other plots to the generated graph; see \cite[\texttt{addplot_option}.

Y axis, Time axis, Titles, Legend, Overall

\texttt{twoway_options} are any of the options documented in \cite[\texttt{twoway_options}, excluding \texttt{by}(). These include options for titling the graph (see \cite[\texttt{title_options}) and for saving the graph to disk (see \cite[\texttt{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