**xtsum — Summarize xt data**

**Description**

`xtsum`, a generalization of `summarize` (see `[R] summarize`), reports means and standard deviations for panel data; it differs from `summarize` in that it decomposes the standard deviation into between and within components.

**Quick start**

Report means and overall, between, and within standard deviations for all numeric variables in `xtset` data

```
xtsum
```

As above, but restrict to v1, v2, and v3

```
xtsum v1 v2 v3
```

As above, but calculate statistics separately for each level of `catvar`

```
bysort catvar: xtsum v1 v2 v3
```

**Menu**

Statistics > Longitudinal/panel data > Setup and utilities > Summarize xt data
Syntax

xtsum [varlist] [if]

A panel variable must be specified; use xtset; see [XT] xtset.
varlist may contain time-series operators; see [U] 11.4.4 Time-series varlists.
by is allowed; see [D] by.

Remarks and examples

If you have not read [XT] xt, please do so.

xtsum provides an alternative to summarize. For instance, in the nlswork dataset described in
[XT] xt, hours contains the usual hours worked:

. use https://www.stata-press.com/data/r16/nlswork
   (National Longitudinal Survey. Young Women 14-26 years of age in 1968)
. summarize hours

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>hours</td>
<td>28,467</td>
<td>36.55956</td>
<td>9.869623</td>
<td>1</td>
<td>168</td>
</tr>
</tbody>
</table>

. xtsum hours

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>overall</td>
<td>36.55956</td>
<td>9.869623</td>
<td>1</td>
<td>168</td>
<td>N = 28467</td>
</tr>
<tr>
<td>between</td>
<td>7.846585</td>
<td>83.5</td>
<td>1</td>
<td>130.1</td>
<td>n = 4710</td>
</tr>
<tr>
<td>within</td>
<td>7.520712</td>
<td>-2.154726</td>
<td>130.0596</td>
<td>T-bar = 6.04395</td>
<td></td>
</tr>
</tbody>
</table>
Stored results

`xtsum` stores the following in `r()`: 

Scalars 
- `r(N)` number of observations 
- `r(n)` number of panels 
- `r(Tbar)` average number of years under observation 
- `r(mean)` mean 
- `r(sd)` overall standard deviation 
- `r(min)` overall minimum 
- `r(max)` overall maximum 
- `r(sd_b)` between standard deviation 
- `r(min_b)` between minimum 
- `r(max_b)` between maximum 
- `r(sd_w)` within standard deviation 
- `r(min_w)` within minimum 
- `r(max_w)` within maximum 

Also see

[XT] `xtdescribe` — Describe pattern of xt data 
[XT] `xttab` — Tabulate xt data