Title

> **xttab —** Tabulate xt data

Description	Quick start	Menu	Syntax
Option	Remarks and examples	Stored results	Also see

Description

xttab, a generalization of tabulate (see [R] **tabulate oneway**), performs one-way tabulations and decomposes counts into between and within components in panel data.

xttrans, another generalization of tabulate (see [R] **tabulate oneway**), reports transition probabilities (the change in one categorical variable over time).

Quick start

Overall, between, and within one-way tabulation of v1 using xtset data

    xttab v1

Report transition probabilities for v2

    xttrans v2

Add frequency of transitions

    xttrans v2, freq

As above, but for each level of catvar

    bysort catvar: xttrans v2, freq

Menu

xttab

Statistics > Longitudinal/panel data > Setup and utilities > Tabulate xt data

xttrans

Statistics > Longitudinal/panel data > Setup and utilities > Report transition probabilities

Syntax

> xttab *varname* [*if*]
>
> xttrans *varname* [*if*] [, <u>f</u>req]

A panel variable must be specified; use xtset; see [XT] **xtset**.

by is allowed with xttab and xttrans; see [D] **by**.

Option

    &boxed;Main

freq, allowed with xttrans only, specifies that frequencies as well as transition probabilities be displayed.

Remarks and examples

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

▷ Example 1: xttab

Using the nlswork dataset described in [XT] **xt**, variable msp is 1 if a woman is married and her spouse resides with her, and 0 otherwise:

```
. use http://www.stata-press.com/data/r14/nlswork
(National Longitudinal Survey.  Young Women 14-26 years of age in 1968)
. xttab msp
```

	Overall		Between		Within
msp	Freq.	Percent	Freq.	Percent	Percent
0	11324	39.71	3113	66.08	62.69
1	17194	60.29	3643	77.33	75.75
Total	28518	100.00	6756	143.41	69.73

$$(n = 4711)$$

The overall part of the table summarizes results in terms of person-years. We have 11,324 person-years of data in which msp is 0 and 17,194 in which it is 1—in 60.3% of our data, the woman is married with her spouse present. Between repeats the breakdown, but this time in terms of women rather than person-years; 3,113 of our women ever had msp 0 and 3,643 ever had msp 1, for a grand total of 6,756 ever having either. We have in our data, however, only 4,711 women. This means that there are women who sometimes have msp 0 and at other times have msp 1.

The within percent tells us the fraction of the time a woman has the specified value of msp. If we take the first line, conditional on a woman ever having msp 0, 62.7% of her observations have msp 0. Similarly, conditional on a woman ever having msp 1, 75.8% of her observations have msp 1. These two numbers are a measure of the stability of the msp values, and, in fact, msp 1 is more stable among these younger women than msp 0, meaning that they tend to marry more than they divorce. The total within of 69.75% is the normalized between weighted average of the within percents, that is, $(3113 \times 62.69 + 3643 \times 75.75)/6756$. It is a measure of the overall stability of the msp variable.

A time-invariant variable will have a tabulation with within percents of 100:

```
. xttab race
                   Overall                Between              Within
      race    Freq.    Percent        Freq.    Percent        Percent

     white    20180      70.72         3329      70.66         100.00
     black     8051      28.22         1325      28.13         100.00
     other      303       1.06           57       1.21         100.00

     Total    28534     100.00         4711     100.00         100.00
                                     (n = 4711)
```

◁

▷ Example 2: xttrans

xttrans shows the transition probabilities. In cross-sectional time-series data, we can estimate the probability that $x_{i,t+1} = v_2$ given that $x_{it} = v_1$ by counting transitions. For instance

```
. xttrans msp
      1 if
   married,     1 if married, spouse
    spouse            present
   present            0           1         Total

         0         80.49       19.51        100.00
         1          7.96       92.04        100.00

     Total         37.11       62.89        100.00
```

The rows reflect the initial values, and the columns reflect the final values. Each year, some 80% of the msp 0 persons in the data remained msp 0 in the next year; the remaining 20% became msp 1. Although msp 0 had a 20% chance of becoming msp 1 in each year, the msp 1 had only an 8% chance of becoming (or returning to) msp 0. The freq option displays the frequencies that go into the calculation:

```
. xttrans msp, freq
      1 if
   married,     1 if married, spouse
    spouse            present
   present            0           1         Total

         0         7,697       1,866         9,563
                   80.49       19.51        100.00

         1         1,133      13,100        14,233
                    7.96       92.04        100.00

     Total         8,830      14,966        23,796
                   37.11       62.89        100.00
```

◁

❑ Technical note

The transition probabilities reported by xttrans are not necessarily the transition probabilities in a Markov sense. xttrans counts transitions from each observation to the next once the observations have been put in t order within i. It does not normalize for missing periods. xttrans does pay attention to missing values of the variable being tabulated, however, and does not count transitions from nonmissing to missing or from missing to nonmissing. Thus if the data are fully rectangularized, xttrans produces (inefficient) estimates of the Markov transition matrix. fillin will rectangularize datasets; see [D] **fillin**. Thus the Markov transition matrix could be estimated by typing

```
. fillin idcode year
. xttrans msp
  (output omitted )
```

❑

Stored results

xttab stores the following in r():

Scalars
    r(n)   number of panels

Matrices
    r(results)   results matrix

Also see

[XT] **xtdescribe** — Describe pattern of xt data

[XT] **xtsum** — Summarize xt data