

stack — Stack data

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Description

`stack` stacks the variables in *varlist* vertically, resulting in a dataset with variables *newvars* and $_N \cdot (N_v/N_n)$ observations, where N_v is the number of variables in *varlist* and N_n is the number in *newvars*. `stack` creates the new variable `__stack` identifying the groups.

Quick start

Replace data in memory with *v*, *v2* appended to *v1* and identify original variable by order in `__stack`

```
stack v1 v2, into(v)
```

Same as above, but with *v1* appended to *v2* and do not display warning that data in memory will be replaced

```
stack v2 v1, into(v) clear
```

Same as above, but save result in *v2*

```
stack v2 v1, group(2) clear
```

Append *v2* to *v1* and *v4* to *v3* and save result in *newv1* and *newv2*

```
stack v1 v3 v2 v4, into(newv1 newv2) clear
```

Same as above, but save results in *v1* and *v3*

```
stack v1 v3 v2 v4, group(2) clear
```

Menu

Data > Create or change data > Other variable-transformation commands > Stack data

Syntax

```
stack varlist [if] [in], { into(newvars) | group(#) } [options]
```

| <i>options</i> | Description |
|----------------|-------------|
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| <i>options</i> | Description |
|----------------------------------|---|
| Main | |
| * <u>into</u> (<i>newvars</i>) | identify names of new variables to be created |
| * <u>group</u> (#) | stack # groups of variables in <i>varlist</i> |
| <u>clear</u> | clear dataset from memory |
| <u>wide</u> | keep variables in <i>varlist</i> that are not specified in <i>newvars</i> |

* Either `into(newvars)` or `group(#)` is required.

`stack` does not allow alias variables; see [D] [frunalias](#) for advice on how to get around this restriction.

Options

Main

`into(newvars)` identifies the names of the new variables to be created. `into()` may be specified using variable ranges (for example, `into(v1-v3)`). Either `into()` or `group()`, but not both, must be specified.

`group(#)` specifies the number of groups of variables in *varlist* to be stacked. The created variables will be named according to the first group in *varlist*. Either `group()` or `into()`, but not both, must be specified.

`clear` indicates that it is okay to clear the dataset in memory. If you do not specify this option, you will be asked to confirm your intentions.

`wide` includes any of the original variables in *varlist* that are not specified in *newvars* in the resulting data.

Remarks and examples

[stata.com](https://www.stata.com)

► Example 1: Illustrating the concept

This command is best understood by examples. We begin with artificial but informative examples and end with useful examples.

```
. use https://www.stata-press.com/data/r18/stackxmpl
. list
```

| | a | b | c | d |
|----|---|---|---|---|
| 1. | 1 | 2 | 3 | 4 |
| 2. | 5 | 6 | 7 | 8 |

```
. stack a b c d, into(e f) clear
. list
```

| | _stack | e | f |
|----|--------|---|---|
| 1. | 1 | 1 | 2 |
| 2. | 1 | 5 | 6 |
| 3. | 2 | 3 | 4 |
| 4. | 2 | 7 | 8 |

We formed the new variable *e* by stacking *a* and *c*, and we formed the new variable *f* by stacking *b* and *d*. *_stack* is automatically created and set equal to 1 for the first (*a*, *b*) group and equal to 2 for the second (*c*, *d*) group. (When *_stack*==1, the new data *e* and *f* contain the values from *a* and *b*. When *_stack*==2, *e* and *f* contain values from *c* and *d*.)

There are two groups because we specified four variables in the *varlist* and two variables in the *into* list, and $4/2 = 2$. If there were six variables in the *varlist*, there would be $6/2 = 3$ groups. If there were also three variables in the *into* list, there would be $6/3 = 2$ groups. Specifying six variables in the *varlist* and four variables in the *into* list would result in an error because $6/4$ is not an integer.

◀

▶ Example 2: Stacking a variable multiple times

Variables may be repeated in the *varlist*, and the *varlist* need not contain all the variables:

```
. use https://www.stata-press.com/data/r18/stackxmpl, clear
. list
```

| | a | b | c | d |
|----|---|---|---|---|
| 1. | 1 | 2 | 3 | 4 |
| 2. | 5 | 6 | 7 | 8 |

```
. stack a b a c, into(a bc) clear
. list
```

| | _stack | a | bc |
|----|--------|---|----|
| 1. | 1 | 1 | 2 |
| 2. | 1 | 5 | 6 |
| 3. | 2 | 1 | 3 |
| 4. | 2 | 5 | 7 |

a was stacked on *a* and called *a*, whereas *b* was stacked on *c* and called *bc*.

If we had wanted the resulting variables to be called simply *a* and *b*, we could have used

```
. stack a b a c, group(2) clear
```

which is equivalent to

```
. stack a b a c, into(a b) clear
```

◀

▷ Example 3: Keeping the original variables

In this artificial but informative example, the `wide` option includes the variables in the original dataset that were specified in `varlist` in the output dataset:

```
. use https://www.stata-press.com/data/r18/stackxmpl, clear
. list
```

| | a | b | c | d |
|----|---|---|---|---|
| 1. | 1 | 2 | 3 | 4 |
| 2. | 5 | 6 | 7 | 8 |

```
. stack a b c d, into(e f) clear wide
. list
```

| | _stack | e | f | a | b | c | d |
|----|--------|---|---|---|---|---|---|
| 1. | 1 | 1 | 2 | 1 | 2 | . | . |
| 2. | 1 | 5 | 6 | 5 | 6 | . | . |
| 3. | 2 | 3 | 4 | . | . | 3 | 4 |
| 4. | 2 | 7 | 8 | . | . | 7 | 8 |

In addition to the stacked `e` and `f` variables, the original `a`, `b`, `c`, and `d` variables are included. They are set to missing where their values are not appropriate.

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▷ Example 4: Using wide with repeated variables

This is the last artificial example. When you specify the `wide` option and repeat the same variable name in both the `varlist` and the `into` list, the variable will contain the stacked values:

```
. use https://www.stata-press.com/data/r18/stackxmpl, clear
. list
```

| | a | b | c | d |
|----|---|---|---|---|
| 1. | 1 | 2 | 3 | 4 |
| 2. | 5 | 6 | 7 | 8 |

```
. stack a b a c, into(a bc) clear wide
. list
```

| | _stack | a | bc | b | c |
|----|--------|---|----|---|---|
| 1. | 1 | 1 | 2 | 2 | . |
| 2. | 1 | 5 | 6 | 6 | . |
| 3. | 2 | 1 | 3 | . | 3 |
| 4. | 2 | 5 | 7 | . | 7 |

◀

▷ Example 5: Using stack to make graphs

We want one graph of y against x_1 and y against x_2 . We might be tempted to type `scatter y x1 x2`, but that would graph y against x_2 and x_1 against x_2 . One solution is to type

```
. save mydata
. stack y x1 y x2, into(yy x12) clear
. generate y1 = yy if _stack==1
. generate y2 = yy if _stack==2
. scatter y1 y2 x12
. use mydata, clear
```

The names `yy` and `x12` are supposed to suggest the contents of the variables. `yy` contains (y,y) , and `x12` contains (x_1,x_2) . We then make `y1` defined at the x_1 points but missing at the x_2 points—graphing `y1` against `x12` is the same as graphing y against x_1 in the original dataset. Similarly, `y2` is defined at the x_2 points but missing at x_1 —graphing `y2` against `x12` is the same as graphing y against x_2 in the original dataset. Therefore, `scatter y1 y2 x12` produces the desired graph.

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▷ Example 6: Plotting cumulative distributions

We wish to graph `y1` against `x1` and `y2` against `x2` on the same graph. The logic is the same as above, but let's go through it. Perhaps we have constructed two cumulative distributions by using `cumul` (see [R] [cumul](#)):

```
. use https://www.stata-press.com/data/r18/citytemp
(City temperature data)
. cumul tempjan, gen(cjan)
. cumul tempjuly, gen(cjuly)
```

We want to graph both cumulatives in the same graph; that is, we want to graph `cjan` against `tempjan` and `cjuly` against `tempjuly`. Remember that we could graph the `tempjan` cumulative by typing

```
. scatter cjan tempjan, c(1) m(o) sort
(output omitted)
```

We can graph the `tempjuly` cumulative similarly. To obtain both on the same graph, we must stack the data:

```
. stack cjuly tempjuly cjan tempjan, into(c temp) clear
. generate cjan = c if _stack==1
(958 missing values generated)
. generate cjuly = c if _stack==2
(958 missing values generated)
. scatter cjan cjuly temp, c(1 1) m(o o) sort
(output omitted)
```

Alternatively, if we specify the `wide` option, we do not have to regenerate `cjan` and `cjuly` because they will be created automatically:

```
. use https://www.stata-press.com/data/r18/citytemp, clear
(City temperature data)
. cumul tempjan, gen(cjan)
. cumul tempjuly, gen(cjuly)
. stack cjuly tempjuly cjan tempjan, into(c temp) clear wide
. scatter cjan cjuly temp, c(1 1) m(o o) sort
(output omitted)
```

◀

□ Technical note

There is a third way, not using the `wide` option, that is exceedingly tricky but is sometimes useful:

```
. use https://www.stata-press.com/data/r18/citytemp, clear
(City temperature data)
. cumul tempjan, gen(cjan)
. cumul tempjuly, gen(cjuly)
. stack cjuly tempjuly cjan tempjan, into(c temp) clear
. sort _stack temp
. scatter c temp, c(L) m(o)
(output omitted)
```

Note the use of `connect`'s capital `L` rather than lowercase `l` option. `c(L)` connects points only from left to right; because the data are sorted by `_stack temp`, `temp` increases within the first group (`cjuly` vs. `tempjuly`) and then starts again for the second (`cjan` vs. `tempjan`); see [G-4] [connectstyle](#).

□

Reference

Baum, C. F. 2016. *An Introduction to Stata Programming*. 2nd ed. College Station, TX: Stata Press.

Also see

- [D] [contract](#) — Make dataset of frequencies and percentages
- [D] [frunalias](#) — Change storage type of alias variables
- [D] [reshape](#) — Convert data from wide to long form and vice versa
- [D] [xpose](#) — Interchange observations and variables

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