macros and loops

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macros

◇ stata forgets local macros after a run from the dofile

◇ but if you copy-paste, it remembers them...

general idea

◇ macro='a single instruction that expands automatically into a set of instructions to perform a particular task'

◇ macro is just a variable or an object

· under which you can assign something

◇ i guess stata uses term "macro" because there are already variables in dataset

intuition

◇ macro is like a variable that can take on some values

◇ value, string, or actually anything including spaces

◇ hence, a macro can even contain a chunk of code

◇ macro is like an object in Python or R

local/global

◇ there are local and global macros

◇ typically stata users use local

◇ global always persists during the whole stata session

◇ on windows local macros persist within one run (you run a block of code),

· globals persist the whole session

◇ dofile

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general idea

$\diamond$ repeats the code within the loop for different elements

$\cdot$ (vars, values, items, items in macro, etc)

$\diamond$ loops are essential for automation

$\diamond$ loops save time and are fun!

intuition

◇ think of a loop as a simple program:
  provide items for which the job is to be done (e.g. all
  vars)
  and define the job in a loop (e.g. recode -9 to .)

◇ again, you can loop over a list of any items, eg numbers
  or strings

branching

◇ branching simply means "if else":
  if something ... do something... else do something

◇ it makes your code more general

◇ but adds lines

◇ `dofile`

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use

◇ macros useful if you need to **repeat the same thing**

· e.g. path, list of variables, even chunk of code

◇ loops useful if you need to **do/execute the same thing**

· eg replace -9 with ., merge data, run regressions, make graphs

◇ make **repetitive strings** (paths,var lists,etc) into macros

◇ make **repetitive tasks** (graphs, exporting results, etc) into programs

◇ any data management job or really any coding requires macros and loops

tips/tricks

◇ try to define macros (and ados) at the beginning of the dofile/section
  so that it is easy to find

◇ don't overdo with macros and loops

◇ again, do not create fancy code for the sake of fanciness

◇ avoid too long loops, say over 50 lines, difficult to debug, better have it in small steps (though some people disagree)

◇ i don't do it but it is nice to have indentation

use them for descriptive stats!

◇ now that you have merged so much data

◇ it's time for descriptive stats

◇ you have a dream dataset, time to get to know it

◇ and macros and loops are excellent for descriptive stats

· perhaps especially for graphs

· there will be a dedicated class to graphs

· but use macros/loops to crank out bunch of graphs and
  then study them and interpret

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