WS_Workflow Presentation Outline Part 2
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Creating and Naming Variables

Note: The creating and naming of variables is also an import part of writing documentation

The fundamental principle for creating and naming variables

Never change a variable unless you give it a new name.

The `generate` (AKA `gen`) command creates a new variable.

- Almost ALWAYS `generate = 0` …I have seen many mistakes made when people generate a new variable = .

  EX: `gen newvar = 0`

- If possible, use a source variable when creating new variables—prevents the compounding of mistakes.

  EX: `clonevar newvar = oldvar`

The `clonevar` command creates a new variable as an exact copy of an existing variable with the same storage type, values, and display format as the existing variable. Variable labels, value labels, notes and characteristics will also be copied.

Creating Variables

There are four simple principles:

1. If a variable is new, give it a new name

   EX: Collapse the divorced and separated categories on variable `rmarital` into one category. Create a new variable named, for example: `rmarital_c` OR `rmaritalC` OR `rmaritalV2`

2. Verify that new variables are constructed correctly
   a. You can do this by running crosstabs of the new variable with the source variable(s) used to create the new variable
3. Document new variables with notes and labels (see subsequent sections)
4. Keep the source variables used to create new variables

Naming Variables

1. Use mnemonics—As discussed previously, a mnemonic naming system works best…**it is the easiest for our brains to work with**.
2. Try to use shorter names
   a. Stata allows for 32 characters, but most Stata commands show only 12 characters of a variable name, so…**Use names that are at most 12 characters in length.**
   b. Use capital letters sparingly, will give more meaning when you do use them (see next page for suggestions).

Letter	Meaning	Example
B/D	Binary/Dummy variable	highschlB
N	Negatively coded scale	menhlthN
P	Positively coded scale	phsyhlthP
V	Version # for modified vars.	marstV2
X	A temporary variable	Xtemp

c. Some datasets (e.g., NSFG) have variable names in ALL CAPS. Recommend you convert them to all lowercase.

   EX: `rename *, lower`

d. For household-level variables, I'll create a suffix with the first letter of the HH id variable.

   EX: HH id variable is `serial`, all newly generated household-level variables will have a "`s`" prefix `s_numbiokds`

e. I did some mean substitution for my PAA paper. Because I had two different analytic populations—one for each of my dependent variables—I had to create new variables specific to each set of analyses.

   i. For the analyses predicting young adult coresidence with parents I appended the suffix "`pc`"

      EX: `goodhlth_pc` OR `goodhlthPC`

Label Variables

Every variable should have a variable label.

- Beware of truncation in output
- You can add notes to variables

EX:

```
notes prtmarst: div and sep are coded together
notes prtmarst: source variable is marst
```

To see a variable's notes type:

```
notes prtmarst prtmarst:
1. div and sep are coded together
2. source variable is marst
```

Value Labels

Assign text labels to the numeric values of a variable. ***Categorical variables should have value labels unless the variables has an inherent metric.***

Principles for constructing value labels:

- Keep labels short: Variable labels should be **eight or fewer characters in length**
- Include the category number

- You can include them in the syntax you type

  EX:
  ```
  label define age1929_2c 1 "1. 19-23", modify

  label define age1929_2c 2 "2. 24-29", modify

  label value age1929_2c age1929_2c

  label variable age1929_2c "YA Age Cats."
  ```
- You can also use the `numlabel` command. By running `numlabel, add` values will be prefixed to value labels of the variables in your dataset when run.
- You can also run with a `mask()` option which controls how the values are added.
  - `mask(#)` option adds only numbers (e.g., 1married)
  - `mask(#_)` adds numbers followed by an underscore (e.g., 1_married)
  - `mask(#.)` adds the values followed by a period and a space (e.g., 1. married)
  - mask([#]) adds the value in a bracket (e.g., [1]married)

  EX: Prefix numeric values to `repair` value label using the specified `mask`

  ```
  numlabel repair, add mask([#])
  ```

- Avoid special characters

  EX: `. : = % @ { }`

- Apply *vertically*, **NOT** horizontally! For an explanation, please read the following Technical Note directly taken from the Stata help files:

  Technical Note

  Although we tend to show examples defining value labels using one command, such as

  ```
    . label define answ 1 yes 2 no
  ```

  remember that value labels may include many associations and ***typing them all on one line can be ungainly or impossible***. For instance, if perhaps we have an encoding of 1,000 places, we could imagine typing

  ```
    . label define fips 10060 "Anniston, AL" 10110 "Auburn, AL" 10175
  "Bessemer, AL“ ... 560050 "Cheyenne, WY"
  ```

  Even in an editor, ***we would be unlikely to type the line correctly***. The easy way to enter long value labels is to ***enter the codings one at a time***:

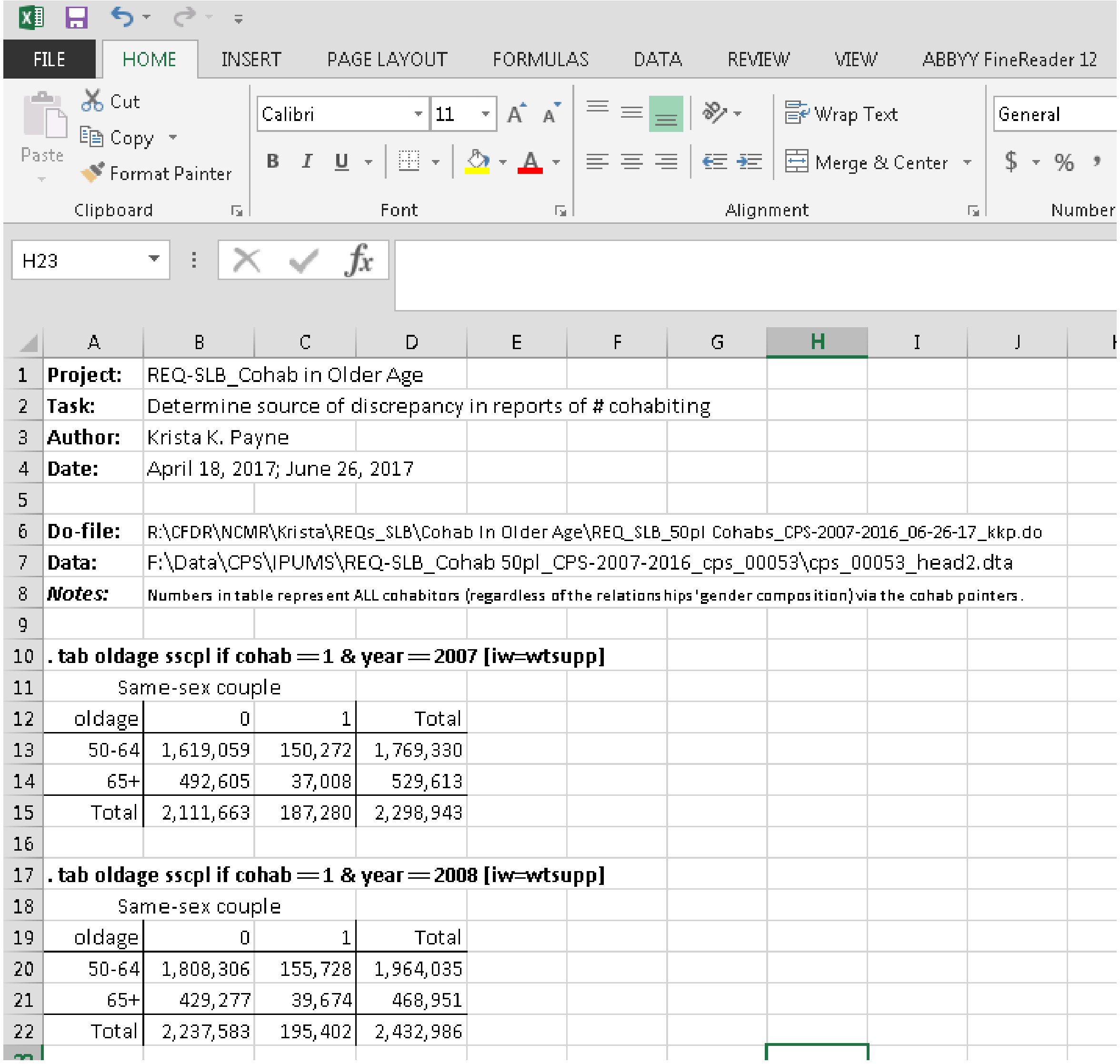
  ```
     . label define fips 10060 "Anniston, AL"

     . label define fips 10175 "Bessemer, AL", add

     ...

     . label define fips 560050 "Cheyenne, WY", add
  ```

Internally labeling documents

Principles for internally labeling documents (Word, Excel, etc.)

- Every document should include the name of the document file, author's name, and the date it was created.
    - In Word add a header (ensures information shows up on every page)
    - There is no header in a do-file, so the information should just come at the top of each do-file (see previous section on Writing legible do-files)
- Also include page numbers
    - In Word add to footer
    - In do-files, Stata does this automatically
- See this document as an example in Word.

Ex: Proper Header Information for an Excel File



	A	B	C	D
1	**Project:**	REQ-SLB_Cohab in Older Age		
2	**Task:**	Determine source of discrepancy in reports of # cohabiting		
3	**Author:**	Krista K. Payne		
4	**Date:**	April 18, 2017; June 26, 2017		
5				
6	**Do-file:**	R:\CFDR\NCMR\Krista\REQs_SLB\Cohab In Older Age\REQ_SLB_50pl Cohabs_CPS-2007-2016_06-26-17_kkp.do		
7	**Data:**	F:\Data\CPS\IPUMS\REQ-SLB_Cohab 50pl_CPS-2007-2016_cps_00053\cps_00053_head2.dta		
8	***Notes:***	Numbers in table represent ALL cohabitors (regardless of the relationships' gender composition) via the cohab pointers.		
9				
10	**. tab oldage sscpl if cohab == 1 & year == 2007 [iw=wtsupp]**			
11		Same-sex couple		
12	oldage	0	1	Total
13	50-64	1,619,059	150,272	1,769,330
14	65+	492,605	37,008	529,613
15	Total	2,111,663	187,280	2,298,943
16				
17	**. tab oldage sscpl if cohab == 1 & year == 2008 [iw=wtsupp]**			
18		Same-sex couple		
19	oldage	0	1	Total
20	50-64	1,808,306	155,728	1,964,035
21	65+	429,277	39,674	468,951
22	Total	2,237,583	195,402	2,432,986

Final Suggestions for Writing Documentation

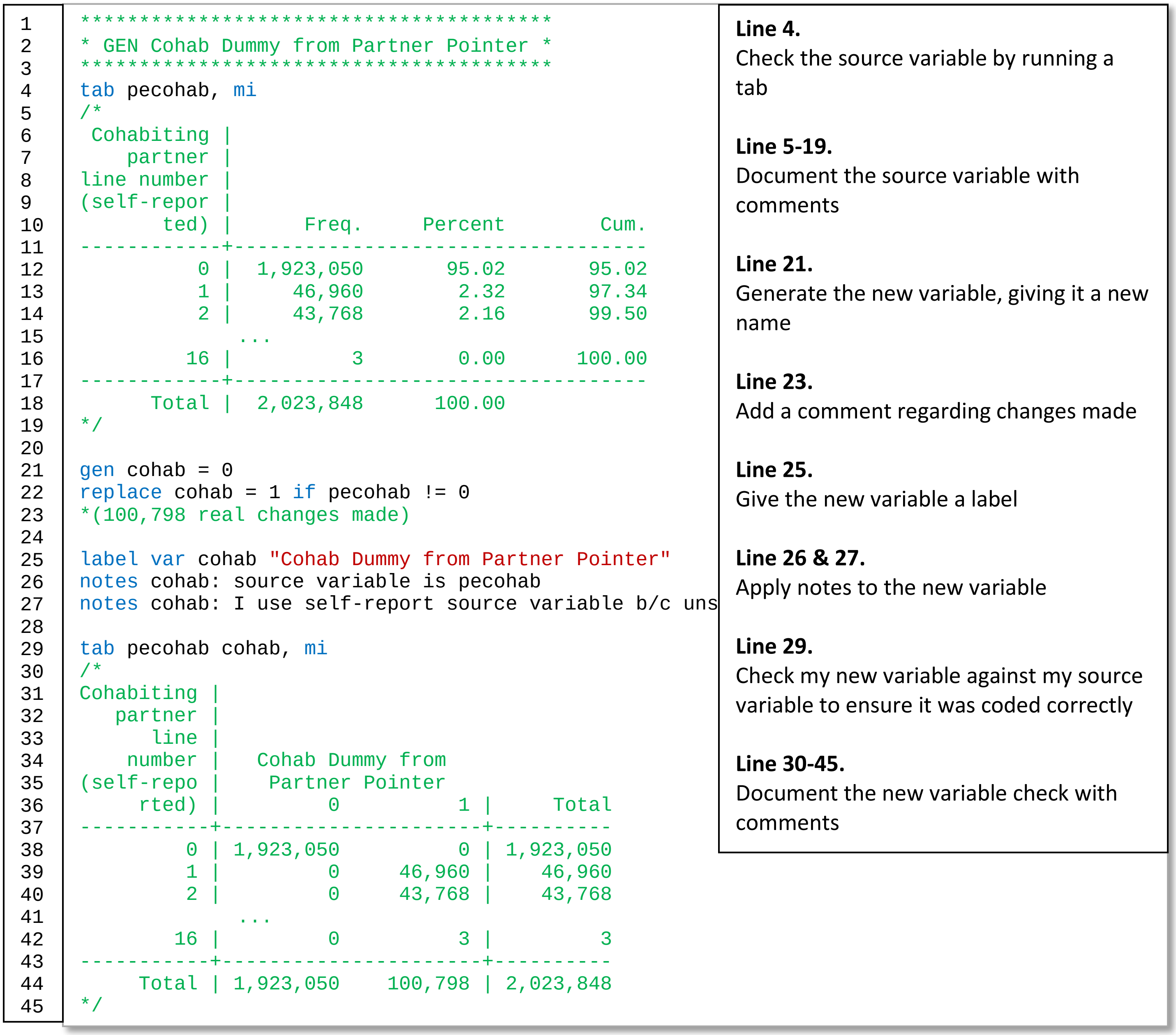
Do it TODAY!

Check it later

Know where the documentation is

Include full dates and names

Ex: Do-File—Annotated



```
1  ****************************************
2  * GEN Cohab Dummy from Partner Pointer *
3  ****************************************
4  tab pecohab, mi
5  /*
6   Cohabiting |
7      partner |
8  line number |
9  (self-repor |
10        ted) |      Freq.     Percent        Cum.
11 ------------+-----------------------------------
12           0 |  1,923,050       95.02       95.02
13           1 |     46,960        2.32       97.34
14           2 |     43,768        2.16       99.50
15              ...
16          16 |          3        0.00      100.00
17 ------------+-----------------------------------
18       Total |  2,023,848      100.00
19 */
20
21 gen cohab = 0
22 replace cohab = 1 if pecohab != 0
23 *(100,798 real changes made)
24
25 label var cohab "Cohab Dummy from Partner Pointer"
26 notes cohab: source variable is pecohab
27 notes cohab: I use self-report source variable b/c uns
28
29 tab pecohab cohab, mi
30 /*
31 Cohabiting |
32    partner |
33       line |
34     number |   Cohab Dummy from
35 (self-repo |    Partner Pointer
36      rted) |         0          1 |     Total
37 -----------+----------------------+----------
38         0 | 1,923,050          0 | 1,923,050
39         1 |         0     46,960 |    46,960
40         2 |         0     43,768 |    43,768
41             ...
42        16 |         0          3 |         3
43 -----------+----------------------+----------
44      Total | 1,923,050    100,798 | 2,023,848
45 */
```

Line 4.
Check the source variable by running a tab

Line 5-19.
Document the source variable with comments

Line 21.
Generate the new variable, giving it a new name

Line 23.
Add a comment regarding changes made

Line 25.
Give the new variable a label

Line 26 & 27.
Apply notes to the new variable

Line 29.
Check my new variable against my source variable to ensure it was coded correctly

Line 30-45.
Document the new variable check with comments

Note: I truncated the tabs of the variables in order to get the crucial elements included in this annotated example.