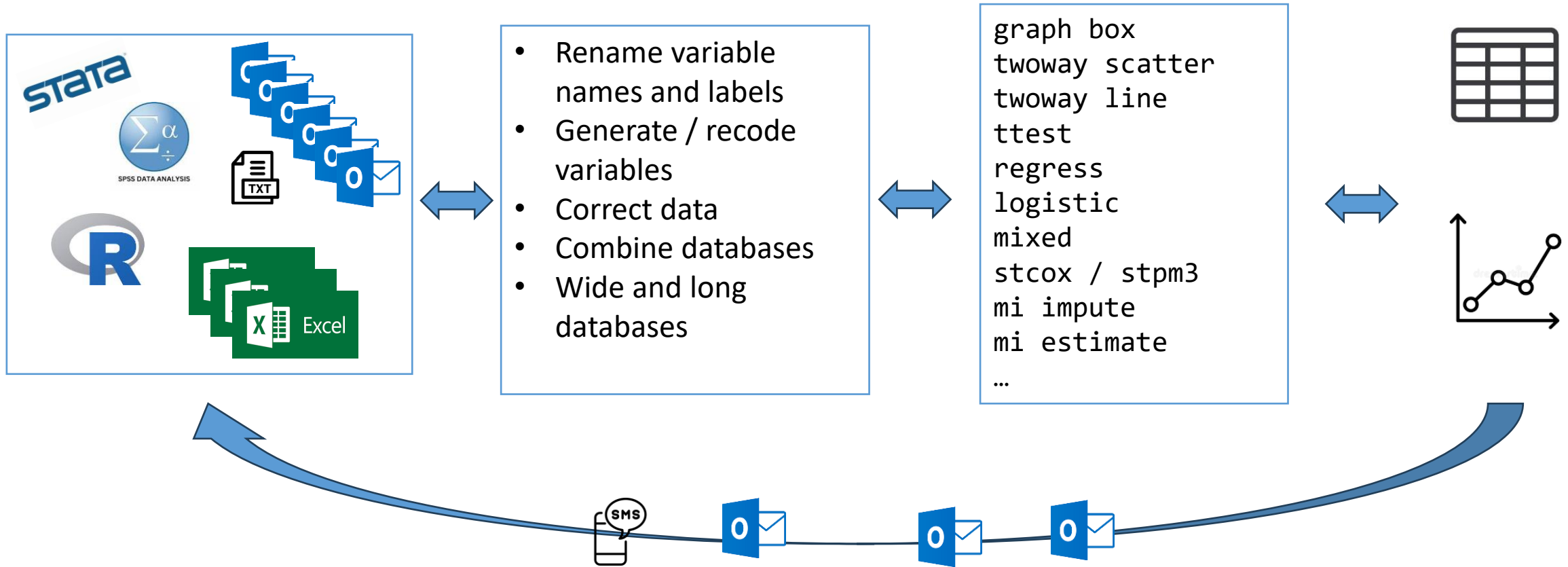


Are Hugo Pripp
Using Stata with
many datasets,
methods, and
variables



ChatGPT image generator

Workflow



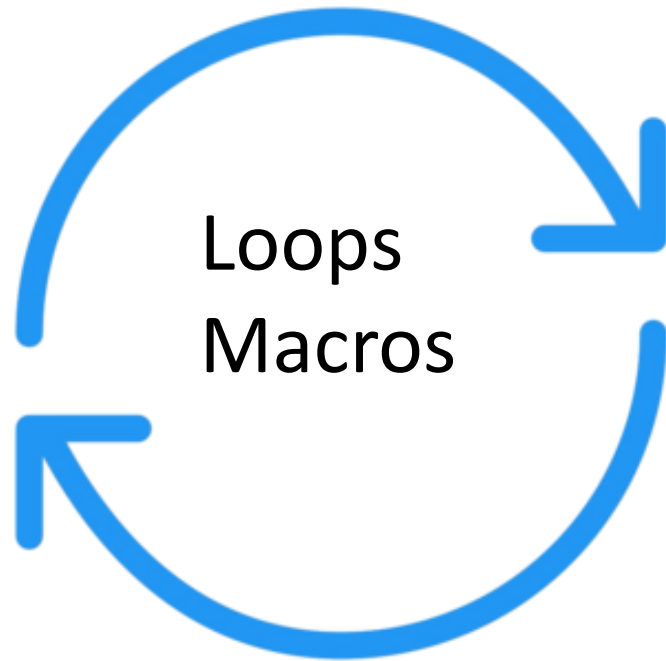
Building the database(s)

```
Do-file Editor - database.do
File Edit View Language Project Tools
database.do x
1 /* SOME HARD LEARNED LESSONS:
2
3 1) Save the raw data in a separate folder as a backup.
4
5 2) Build (one) work database with code in one do-file.
6
7 3) Keep the imported variables as they are for reference.
8
9 4) Coding is easier using only lowercase – it's easy to
10 change in the database.
11 5) The code should be able to rebuild the work database
12 from scratch. If something happens to your database,
just rerun the code.
*/
```

Line: 1, Col: 18 CAP NUM OVR

- use
- import excel
- import spss
- duplicates
- merge
- append
- generate
- replace
- rename
- label variable
- label define
- label values
- drop
- keep

DRY or WET



- DRY (Don't Repeat Yourself)
- WET (Write Everything Twice)

- A DRY STATA
 - foreach – Loop of items
 - forvalues – Loop over consecutive values
 - local (define macro)

- STATA Project Manager

Export results to an Excel file

```
. regress mpg weight foreign
```

Source	SS	df	MS	Number of obs	=	74
Model	1619.2877	2	809.643849	F(2, 71)	=	69.75
Residual	824.171761	71	11.608053	Prob > F	=	0.0000
Total	2443.45946	73	33.4720474	R-squared	=	0.6627
				Adj R-squared	=	0.6532
				Root MSE	=	3.4071

mpg	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
weight	-.0065879	.0006371	-10.34	0.000	-.0078583	-.0053175
foreign	-1.650029	1.075994	-1.53	0.130	-3.7955	.4954422
_cons	41.6797	2.165547	19.25	0.000	37.36172	45.99768

putexcel

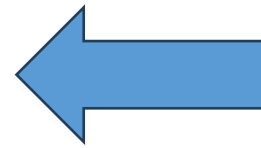


dtable – Create a table of descriptive statistics

A case study

- Many outcome variables
- Several follow-up time points
- “It would be nice to have”:
 - Basic descriptive graphs and statistics for all outcome and time points
 - T-tests and ANCOVA (adjusted for covariates) at each time point, in addition to mixed models for repeated measurements.
- Manuscript in progress

```
Do-file Editor - example.do*
File Edit View Language Project Tools
example.do* x database.do* Untitled
1
2 putexcel set "results.xlsx", replace
3
4 putexcel E1 = "Descriptive statistics", bold
5 putexcel I1 = "Linear mixed model of repeated measurement", bold
6 putexcel Y1 = "ANCOVA", bold
7 putexcel A01 = "Regression t-test", bold
8
9 local row = 2
10 putexcel A`row' = "Measurement"
11 putexcel B`row' = "Time of observation"
12 putexcel C`row' = "Group"
13 *D
14 putexcel E`row' = "Number of observation"
15 putexcel F`row' = "Mean"
16 putexcel G`row' = "SD"
17 *H
18 *I
19 putexcel J`row' = "Mean"
20 putexcel K`row' = "Standard error"
21 putexcel L`row' = "z"
22 putexcel M`row' = "P-value"
23 putexcel N`row' = "ll 95ci"
24 putexcel O`row' = "ul 95ci"
25 *P
26 *Q
27 putexcel R`row' = "Mean difference"
28 putexcel S`row' = "Standard error"
29 putexcel T`row' = "z"
30 putexcel U`row' = "P-value"
31 putexcel V`row' = "ll 95ci"
```



Structure the
Excel sheet

```
Do-file Editor - example.do*
File Edit View Language Project Tools
example.do* x database.do* Untitled
67 local timeobs timeobs2
68 local rand ran_trt
69 local outcome pain strength bloodpressure bmi /// (and many more...)
70
71 foreach y of varlist `outcome' {
72
73 * Boxplot
74 graph box `y' , over(`rand', label(angle(vertical) labsz(vsmall)) gap(40))
75 over(`timeobs', label(labsz(small))) ytitle("`y'- `:variable label `y'",
76 size(small)) ylabel(, angle(horizontal))
77 graph export "`y' boxplot.png", as(png) width(2000) replace
78
79 mixed `y' `y'_bl i.`timeobs'##i.`rand' if `timeobs' > 1 || subjectid: , base
80 margins i.`timeobs'##i.`rand'
81 marginsplot, title("") ytitle("`y' - `:variable label `y'", size(small))
82 ylabel(, angle(horizontal)) xtitle("") legend( rows(1) position(6))
83 graph export "`y' marginsplot.png", as(png) width(2000) replace
84
85 * Baseline
86 local t 1
87 local row1 = `row' + 1
88 local row2 = `row' + 2
89 local row = `row2'
90
91 capture: putexcel A`row1' = "`y' - `:variable label `y'"
92 capture: putexcel A`row2' = "`y' - `:variable label `y'"
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```
Do-file Editor - example.do*
File Edit View Language Project Tools
example.do* x database.do* Untitled
149
150 regress `y' `y'_bl i.`rand' if `timeobs' == `t'
    , base
151 margins i.`rand', pwcompare(effects)
152 matrix table = r(table)'
153 matrix table = table[.,1..6]
154 matrix table_vs = r(table_vs)'
155 matrix table_vs = table_vs[.,1..6]
156 putexcel Y`row1' = matrix(table), rownames
157 putexcel AG`row2' = matrix(table_vs), rownames
158
159
160
161
Line: 149, Col: 1 CAP NUM OVR
```

← Analyses looped within outcome variable and time points

← return - Return stored results

← Export selected results to Excel sheet

Reporting the results

Excel document with selected results

Y	Time	Group	N	mean	sd
pain	1	Trmt	50	8.5	2.1
pain	1	Ctrl	49	8.2	2.0
pain	2	Trmt	48	6.3	2.0
pain	2	Ctrl	49	7.3	2.3
pain	3	Trmt	47	5.1	1.9
pain	3	Ctrl	42	7.0	2.2
pain	4	Trmt	45	4.2	2.0
pain	4	Ctrl	40	7.1	2.1

List of graphical files

pain boxplot.png

pain marginsplot.png

strength boxplot.png

strength marginsplot.png

bmi boxplot.png

bmi marginsplot.png

...

A case study

Hi,

I'm sorry, but I found a mistake in the journal for patient 152.

Could you please correct the data and check the results?

- Update the do-file for the database.
- Rerun the database do-file.
- Run the analysis do-file to "automatically" export results to Excel or other formats.
- No need for "copy and paste."
- Ensure traceability and reproducibility.

Concluding remarks



Data management with traceable
and reproducible results

- The Unsung Hero of Statistics

ChatGPT image generator