# Two Page Stata

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## 1 Introduction

An introduction to Stata in 2 pages.[1] Commands that you actually type into Stata are represented in `monospace font`. `x` and `y` refer to variables in your data. The treatment here is intended to be extremely brief, in order to create a kind of "cheat sheet" that can be presented in 2 pages. More documentation on any command is available in the printed or PDF Stata manuals, or by typing `help command`.

So many projects have the same, or similar, workflow.


> A little bit of Stata can go a long way.

The general idea of most Stata commands is `command variable(s), options`. Often it is not necessary to use any options since the authors of Stata have done such a good job of thinking about the defaults.

The Stata interface makes it extremely easy to do rapid interactive data analysis. Hit **PAGE-UP** to recall the most recent command, which you can then quickly edit and resubmit.

Use the **DO FILE EDITOR** to save Stata commands that you want to use again in a `.do` file, and to create an *audit trail* of your work so that your workflow is *documented* and *replicable.*

## 2 Get (And Get Acquainted With) Data

Once you are in the right directory, `use "mydata.dta"` will open your data. `save "mydata.dta", replace` will save your data.

It is good practice to start by *looking at* your data. `browse x y z` will open a data window with variables `x`, `y` and `z`.

`codebook x y` will produce a nicely formatted codebook of selected variables, which is especially useful if you have added variable labels and value labels. `codebook` is especially useful for seeing how numerical values are associated with value labels. `codebook` by itself will list every variable in your data and generate a lot of [probably too much] output.

`lookfor` allows you to find variables that contain a specified keyword. This is especially useful in large data sets with many variables. Often abbreviated keywords are the most helpful. e.g. to find a poverty variable, type `lookfor pov`.

With very large data sets, it may be helpful to use `keep x y z` to only keep the variables with which you are working.

`describe` tells you about the contents of a specific variable. E.g. `describe x y`. `describe, short` will tell you very basic things about your data, including the number of observations in the data set, and the size of your data file.

## 3 Process And Clean Data

Data with missing values, often represented as negative numbers (e.g. −99, −9, −8) need to be recoded so that the missing values are represented as a missing value character (".") that Stata knows to exclude from calculations.

[1] Comments, questions and corrections most welcome and may be sent to: Andrew Grogan-Kaylor @ agrogan@umich.edu. This document available on the web @ https://agrogan1.github.io/Stata/

`recode x (oldvalue = newvalue), generate(xR)`[2] will recode a variable into a *new* variable. `recode x (-99/-1 = .), generate(xR)` will recode negative numbers from −99 to −1 to missing for x. `recode x (7/9 = .), generate(xR)` changes 7 through 9 to be missing for x. Indeed, `recode` will change specific values in your data to anything you want, not just missing values. Reverse coding often looks something like `recode x (1=3) (2=2) (3=1), generate(xR)`.

Like many other statistical programs, Stata makes a large distinction between variables that are coded as *numeric*, and variables that are coded as *strings*. `describe x` will help you to ascertain the variable type. `encode x, generate(x_NUMERIC)` is often useful to create a *numeric* version of *string* variables. In the special case where the values of your variables are actually *numbers* but stored as *strings*, `destring x, generate(x_NUMERIC)` may be the more helpful and appropriate command. The differences between the two commands are subtle, so consult Stata help on each command.

It is often convenient to `rename` your variables so that the variables have more intuitively understandable names e.g. `rename x depression`.

You can create new variables out of old variables using `generate newvar = expression` e.g. `generate newvar = oldvar1 + oldvar2`.[3]

It is sometimes useful to `sort` your data. `sort x` will sort your data by the values of x.

# 4 Analyze Data

## 4.1 Descriptive Statistics

`summarize` gives you basic descriptive statistics for a variable, such as the mean (average), especially useful for continuous variables. E.g. `summarize x y` or `summarize x y, detail`. `tabulate` gives you a frequency distribution for your variable, especially useful for categorical variables. e.g. `tabulate x`.

## 4.2 Bivariate Statistics

Tabulating two categorical variables together gives you a cross-tabulation of those variables, e.g `tabulate x y, row col chi2`. `pwcorr x y, sig` gives you the pairwise correlation of two continuous variables. `oneway x z, tabulate` gives you a oneway ANOVA of continuous variable x over categorical variable z.

## 4.3 Multivariate Statistics

`regress y x` regresses y on x.[4] `regress y x z` regresses y on x and z.[5] `regress y x i.z` regresses y on x and z, treating x as continuous and z as a set of categorical indicator variables.[6] `regress y c.x##i.z` regresses y on continuous x and categorical z, providing both main effects for x and z and the interaction of x and z.

# 5 Visualize Data[7][8]

`histogram x` will give you a nice display of one variable.[9]

`twoway scatter y x` gives you a scatterplot of your data. `twoway lfit y x` will give you a linear fit graph. The two syntaxes may be combined e.g. `twoway (scatter y x) (lfit y x)`.

`graph bar, over(x)` is useful for creating a bar graph of the counts of a categorical variable x. `graph bar y, over(x)` will create a bar graph of the means of y over categories of x.

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[2] While generating a new variable is optional, it is almost always a good idea.

[3] `alpha oldvar1 oldvar2` will calculate Cronbach's alpha from this scale.

[4] After running a multivariate model `estat summarize` will give you simple descriptive statistics for the specific sample used in that particular analysis.

[5] Other regression commands follow a very similar format: `command y x z` but are beyond the purview of this 2 page guide.

[6] `i.x` is Stata's notation for treating independent variables as *categorical* or *indicator* variables.

[7] For all graphs, options after a "," will be helpful in titling your graph e.g. `twoway lfit y x, title("...") xtitle("...") ytitle("...")`

[8] Graph schemes can change the overall look of a graph. `, scheme(s1color)` is often a good choice. In newer versions of Stata, `, scheme(stcolor)` works well.

[9] `histogram x, percent` will scale the y-axis more intuitively in terms of percentages. `histogram x, discrete` gives a nicer display for categorical variables. The `percent` and `discrete` options can be combined.