Stata Lab Hints: Basic Graphs

Jonathan Jayes

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Intro

For your projects, you can use any kind of plots in addition to the maps we have learned to draw in the first lab.

In this little note, I take you through drawing scatter plots, line plots and bar plots.

I have taken inspiration from Germán Rodríguez' notes.

Graphing

Let's get started!

Load data

As before we will use the `regional_dataset.dta` file saved in our working directories.

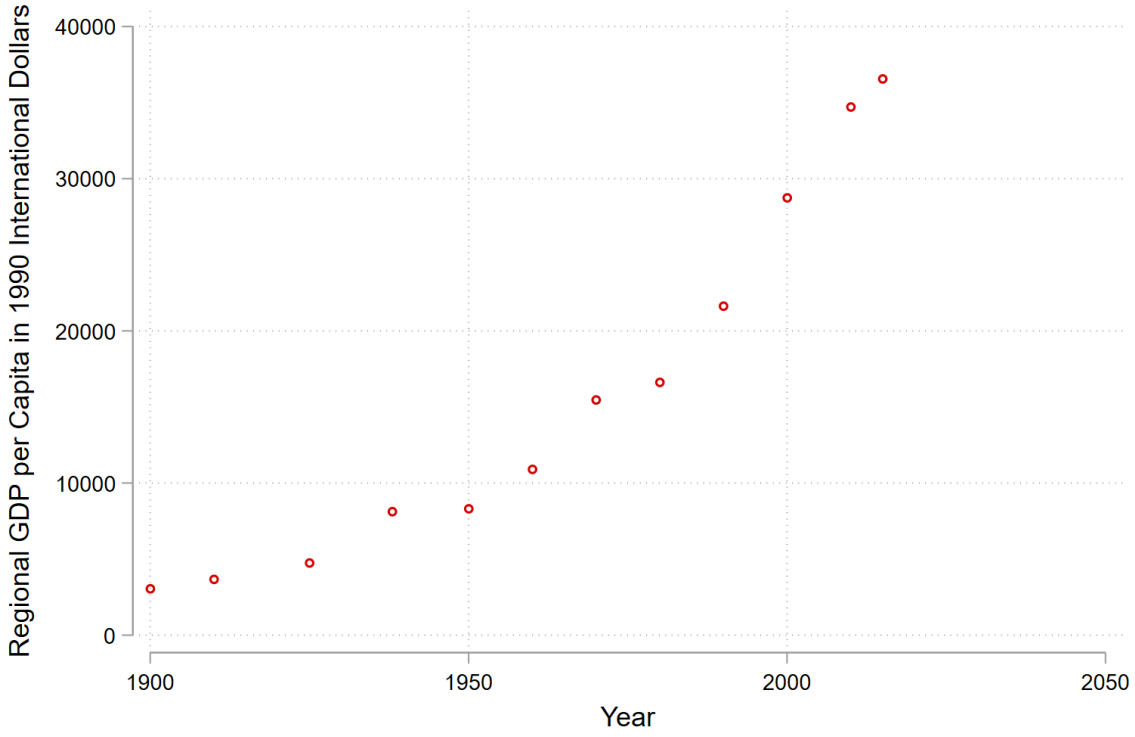
```
cd "C:/Users/User/Documents/Recon/EOSE09/stata_files/" # set your directory
use regional_dataset, clear
```

Scatter plots

Scatterplots show the extent of correlation between two variables (on the x- and y-axes). Including colour and shaped markers can allow us to compare groups of data.

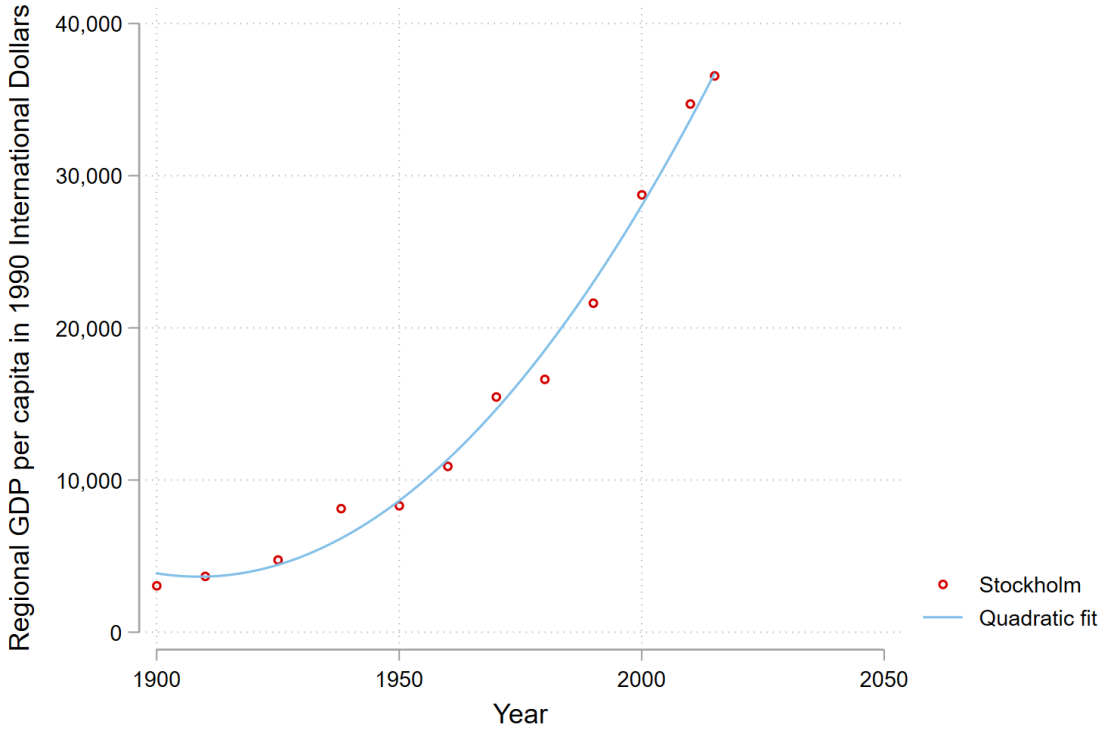
We can draw a basic scatter plot in stata:

```
graph twoway scatter regional_gdp_cap_1990 year if region == "Stockholm"
```



We can add a line of best fit with a quadratic curve by using the `qfit` or **quadratic fit** command. Notice that we are layering two plots on one set of axes (the scatter plot and the line of best fit) with the `twoway` command. In addition we add some labels and format the y-axis.

```
graph twoway (scatter regional_gdp_cap_1990 year if region == "Stockholm") ///
             (qfit regional_gdp_cap_1990 year if region == "Stockholm") ///
                    ,legend(order(1 "Stockholm" 2 "Quadratic fit")) ///
                    ylabel(,format(%9.0fc)) ///
                    ytitle(Regional GDP per capita in 1990 International Dollars)
```

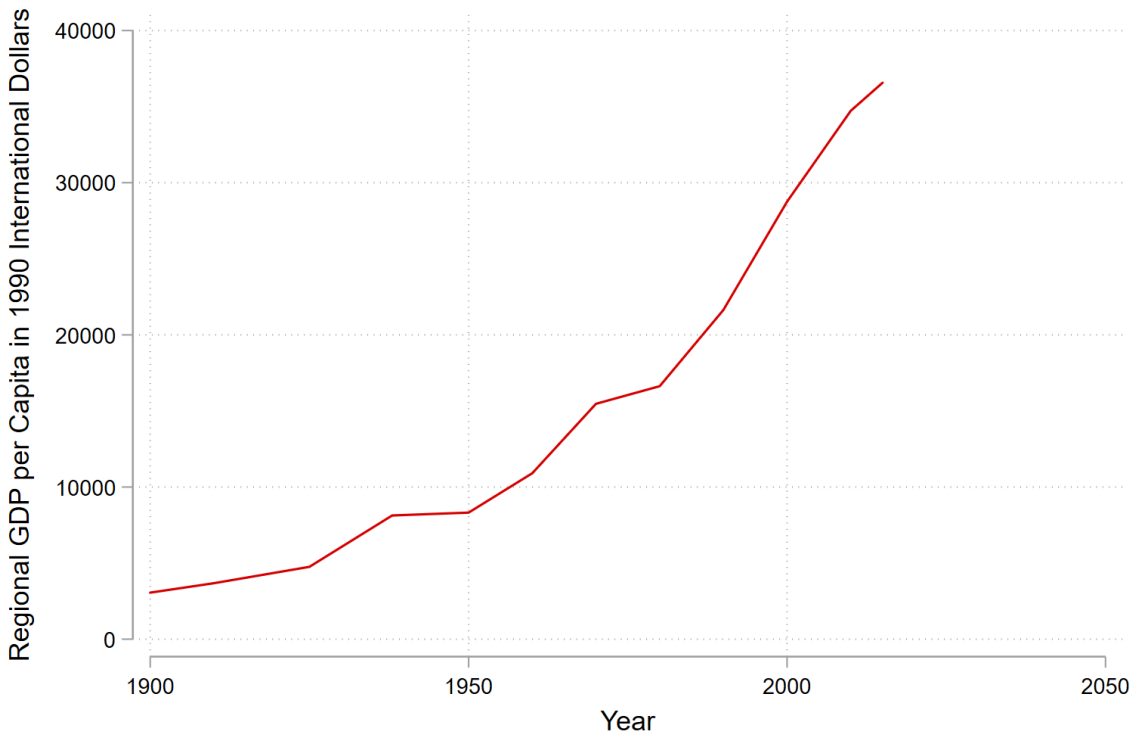


Line plots

Line plots are great for showing trends over time.

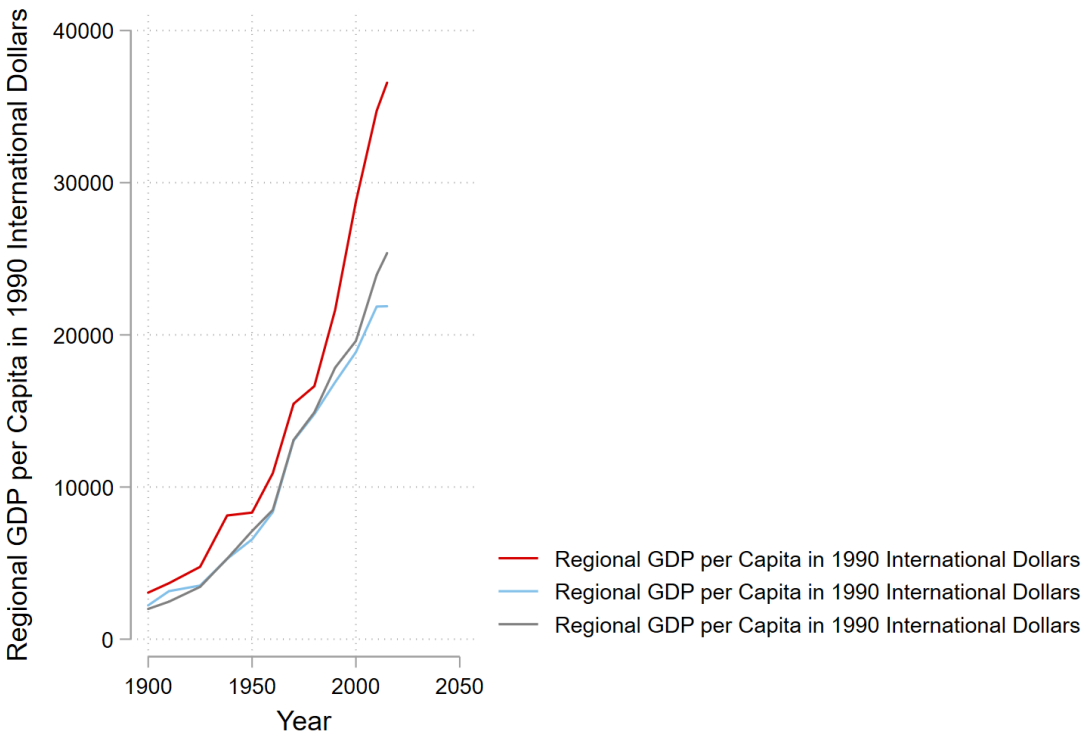
We can draw a basic line plot with the `line` command in Stata:

```
line regional_gdp_cap_1990 year if region == "Stockholm"
```



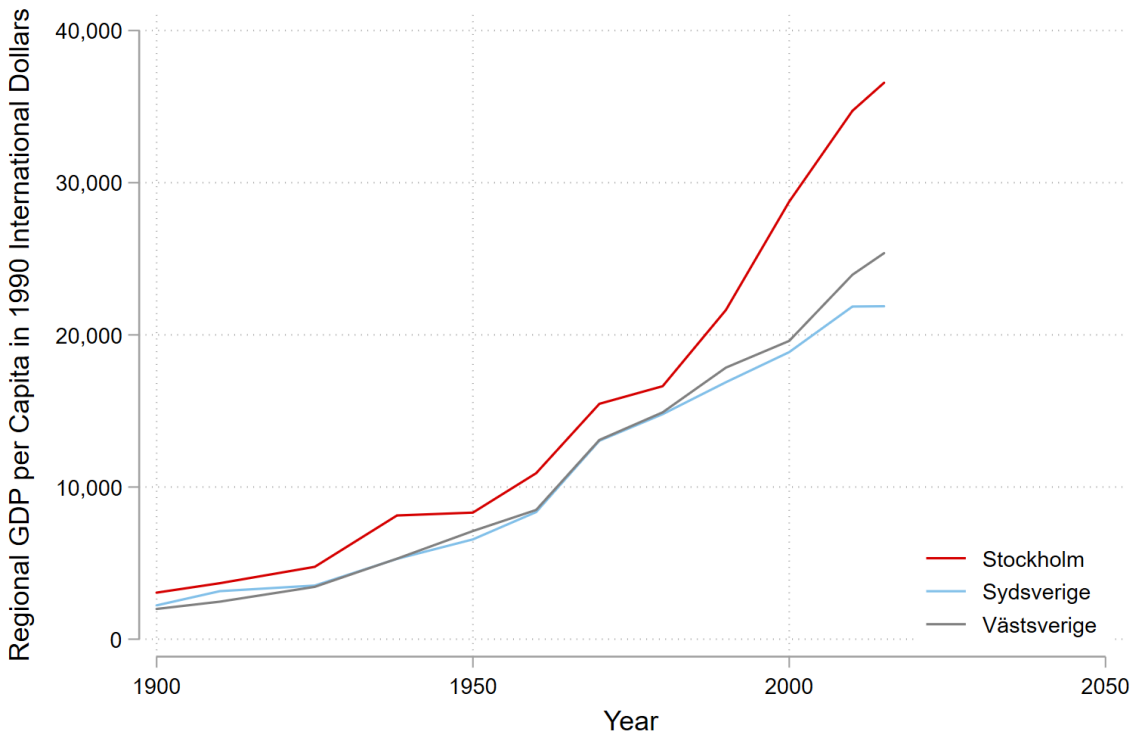
Again we can use the `twoway` command to plot different regions on our line plot. The legend provided by Stata is not super helpful, either in its information or placement.

```
graph twoway (line regional_gdp_cap_1990 year if region == "Stockholm") ///
             (line regional_gdp_cap_1990 year if region == "Sydsverige") ///
                   (line regional_gdp_cap_1990 year if region == "Västsverige")
```



We can change that by specifying labels in our legend with the `legend` option and placement with the `pos` option.

```
graph twoway (line regional_gdp_cap_1990 year if region == "Stockholm") ///
             (line regional_gdp_cap_1990 year if region == "Sydsverige") ///
                   (line regional_gdp_cap_1990 year if region == "Västsverige") ///
                  ,legend(order(1 "Stockholm" 2 "Sydsverige" 3 "Västsverige") ///
                  ring(0) pos(5)) ylabel(,format(%9.0fc))
```



Bar plots

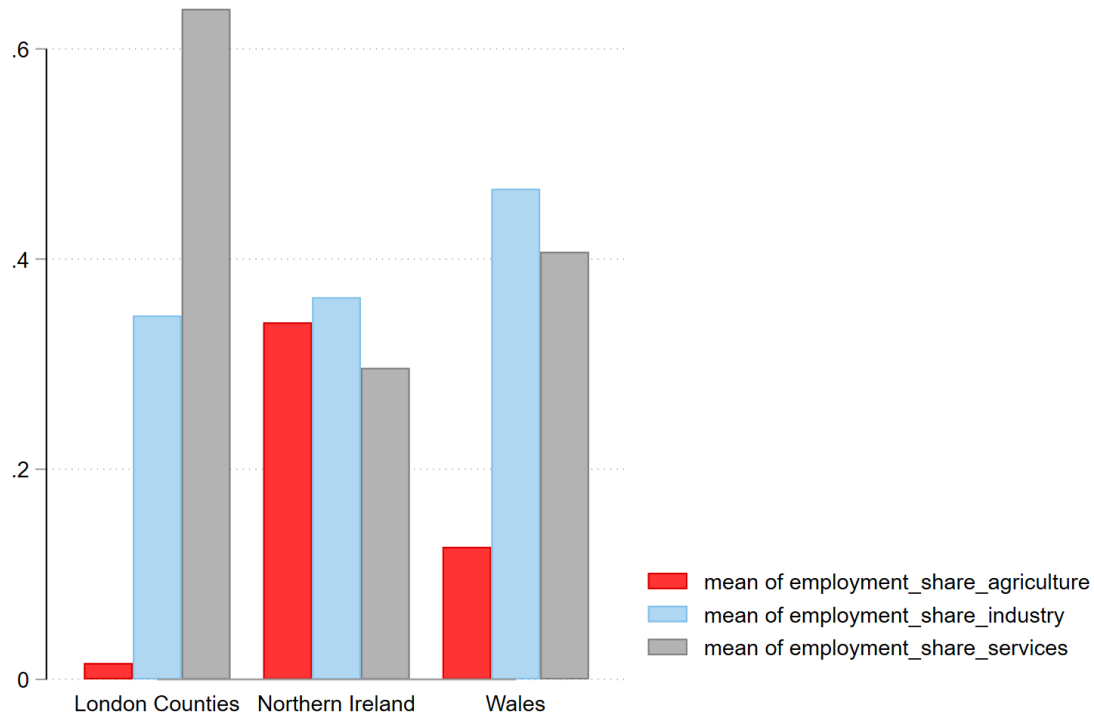
Bar plots are a great way to show compaisons between groups.

First we create a variable to select three regions in our plot with the `gen` command:

```
gen include_in_bar = .
replace include_in_bar = 1 if region == "London Counties" | region == "Wales" | region == "No
```

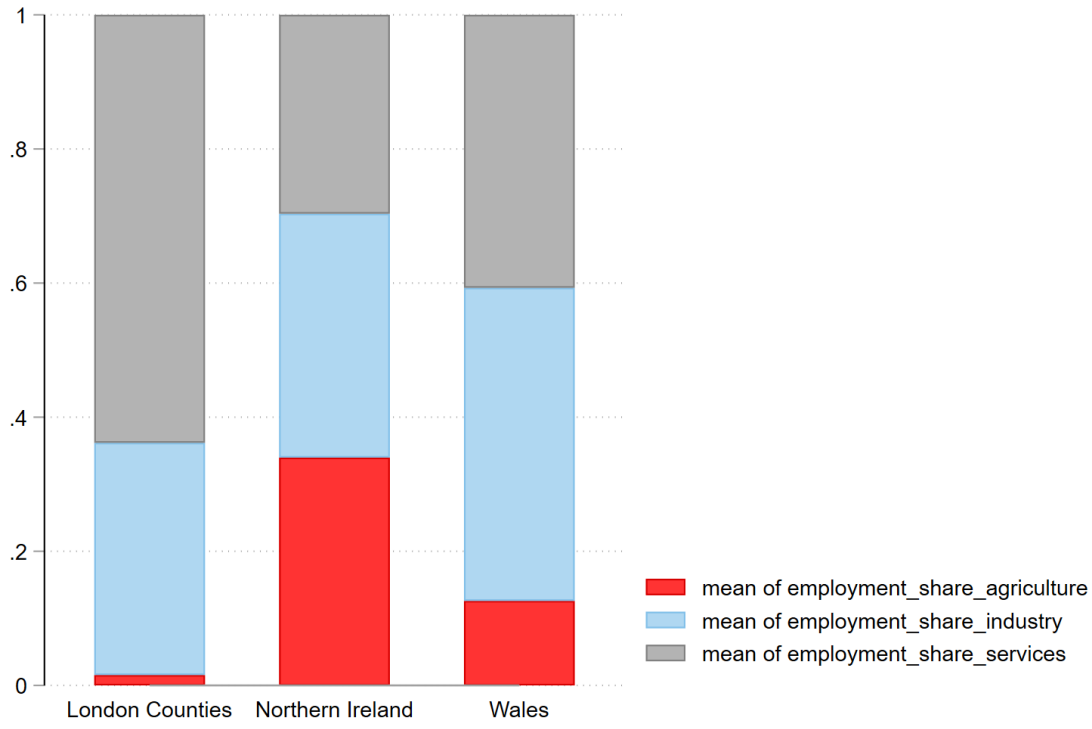
Then we can draw a basic bar graph. Here the variables we want to compare are named before the `if` command specifies which segment of the data we want to use. The `over` option tells Stata that we want to use of bar graph to compare different regions.

```
graph bar employment_share_agriculture employment_share_industry ///
employment_share_services if include_in_bar == 1 & year == 1900 ///
,over(region)
```



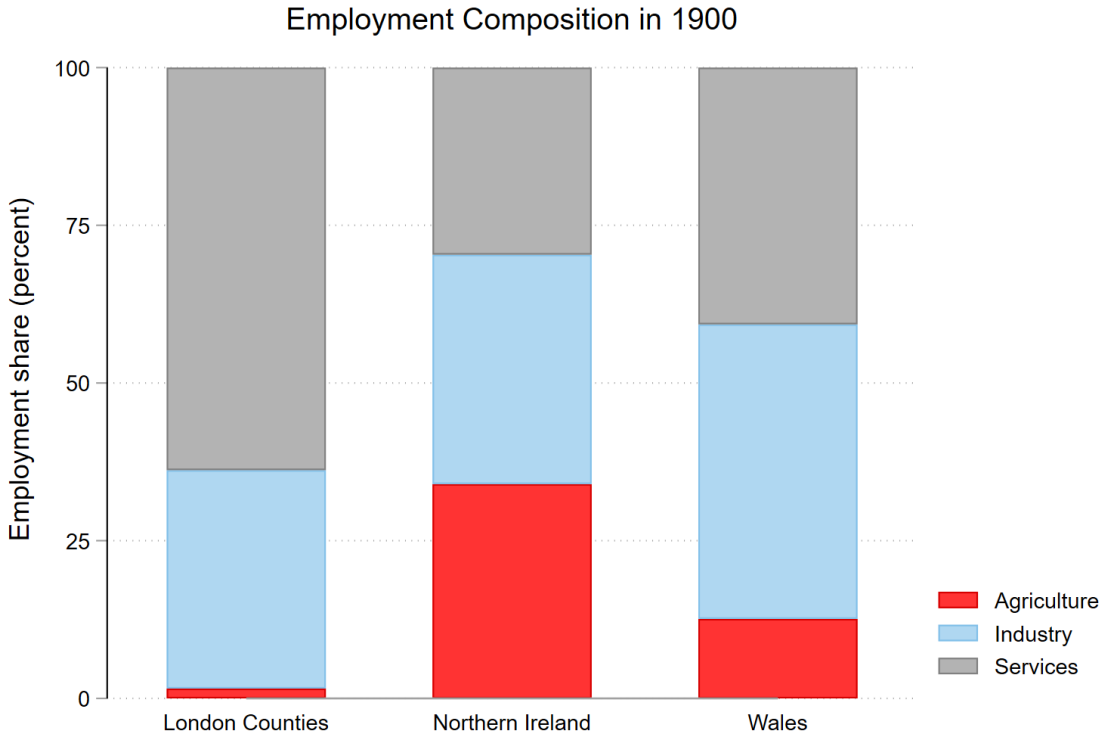
We can turn this into a stacked bar graph that makes it easier to compare the proportions between regions (as by definition they must sum to 100 percent) with the `stack` option.

```
graph bar employment_share_agriculture employment_share_industry ///
employment_share_services if include_in_bar == 1 & year == 1900 ///
,over(region) stack
```



Finally we can add some nice labels, a y-axis that makes sense and a title:

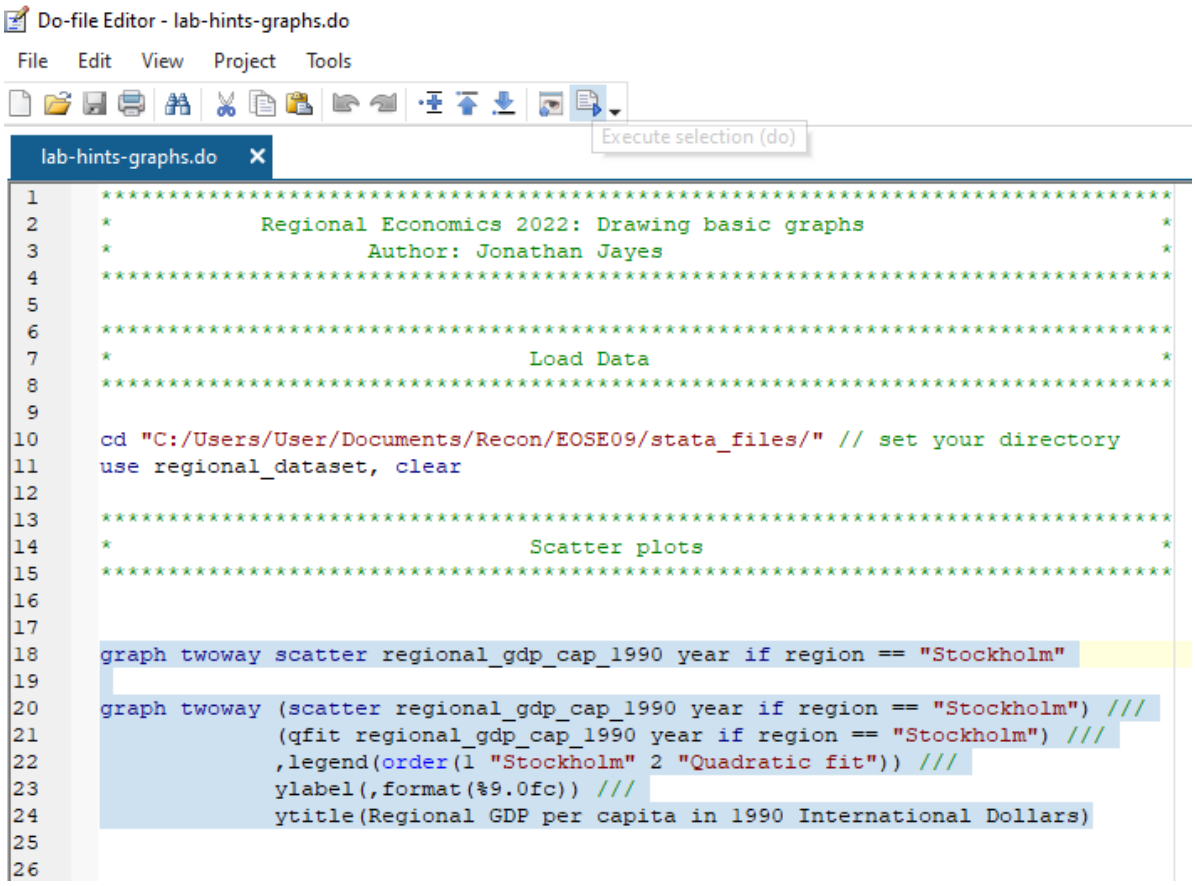
```
graph bar employment_share_agriculture employment_share_industry ///
employment_share_services if include_in_bar == 1 & year == 1900 ///
    ,over(region) stack title(Employment Composition in 1900) ///
    legend(order(1 "Agriculture" 2 "Industry" 3 "Services")) ///
    ylab(0 "0" .25 "25" .5 "50" .75 "75" 1 "100") ///
    ytitle("Employment share (percent)")
```



I hope that this is useful!

Tip on executing code in `.do` files

To execute a command in Stata you can highlight the code and then run it with the **execute section** button, or click `ctrl + d` on windows or `cmd + d` on mac.



If you choose to copy the code from the `.do` file into the console, you need to remove the linebreak indicators (`///`) which tell Stata that the code line continues after the break.