Stata Lab Hints: Basic Graphs

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2025-03-11

Table of contents

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.

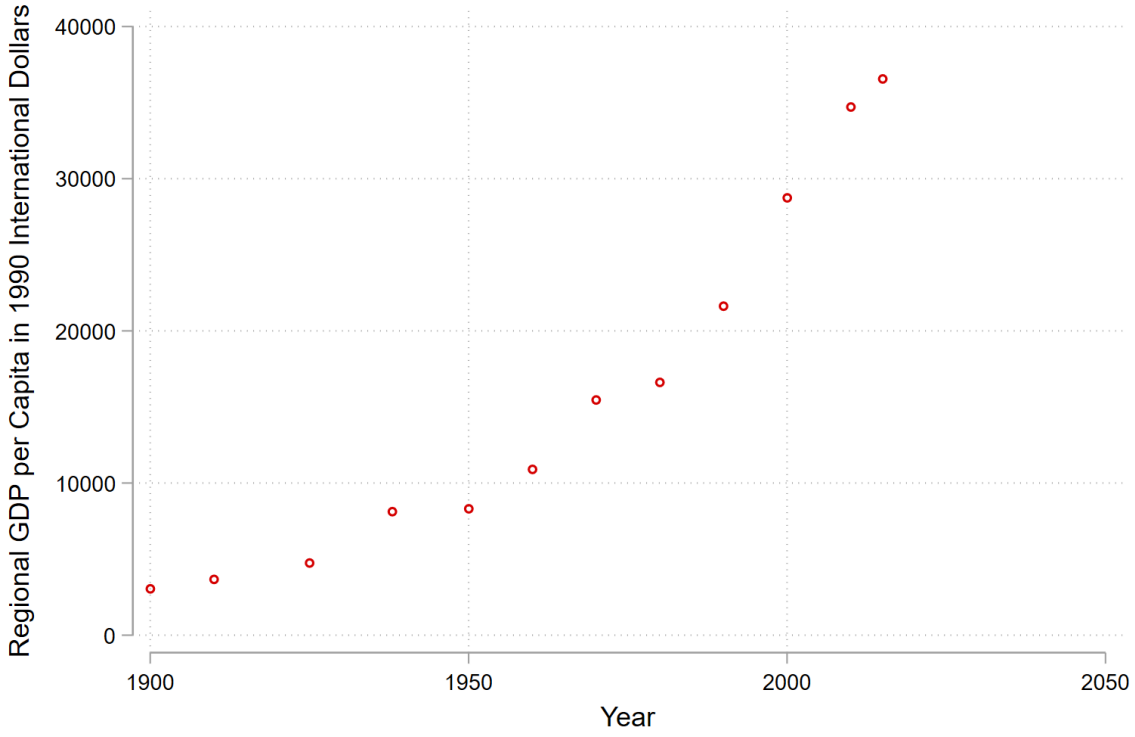
```
cd "C:/Users/User/Documents/Recon/EOSE09/stata_files/" # set your directory
use regional_dataset, clear
```

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.

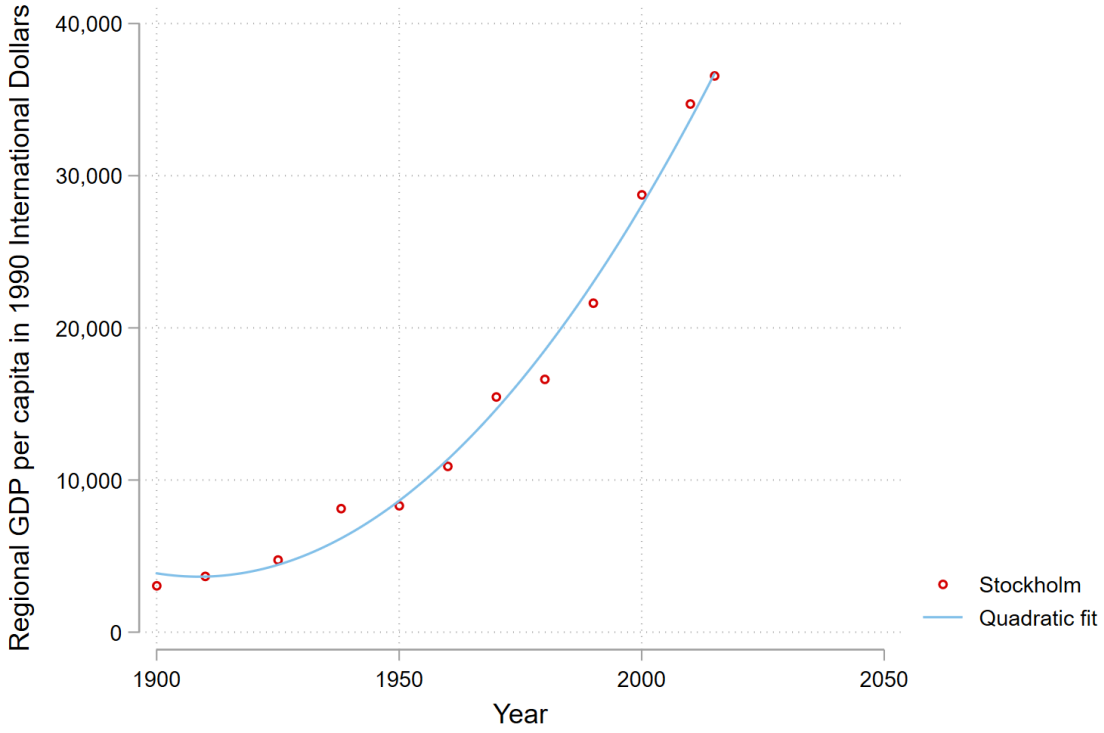
We can draw a basic scatter plot in stata:

```
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)
```

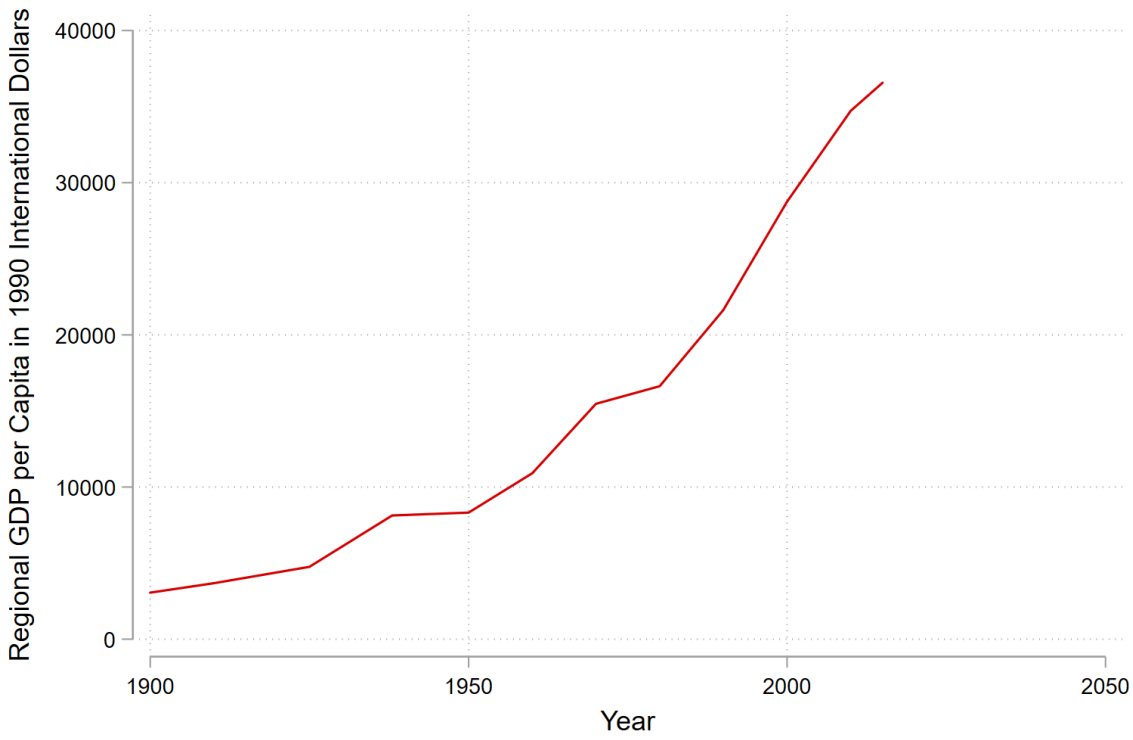


Line plots

Line plots are great for showing trends over time.

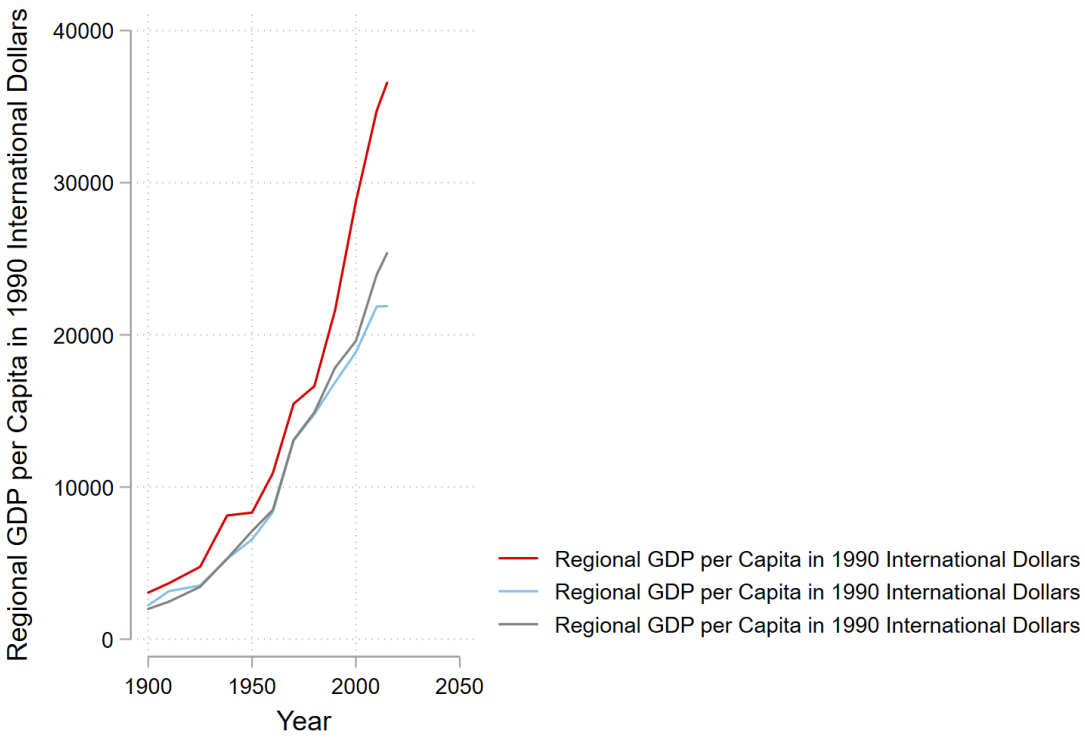
We can draw a basic line plot with the `line` command in Stata:

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



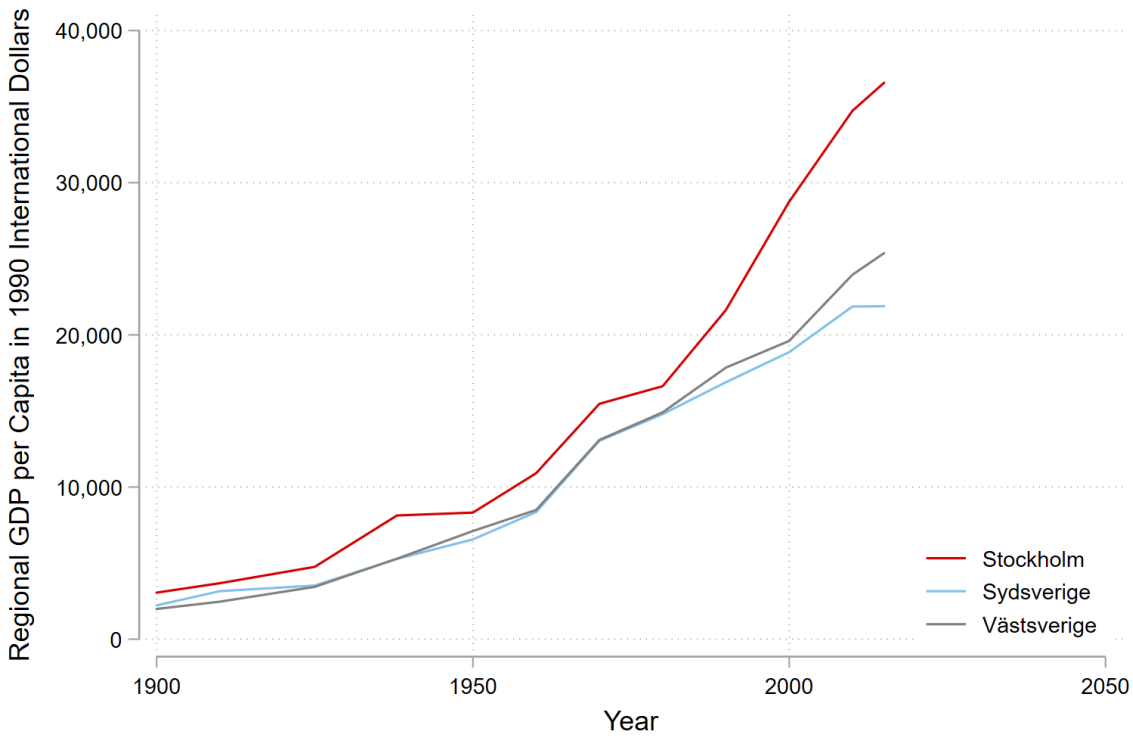
Again we can use the `twoway` command to plot different regions on our line plot. The legend provided by Stata is not super helpful, either in its information or placement.

```
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

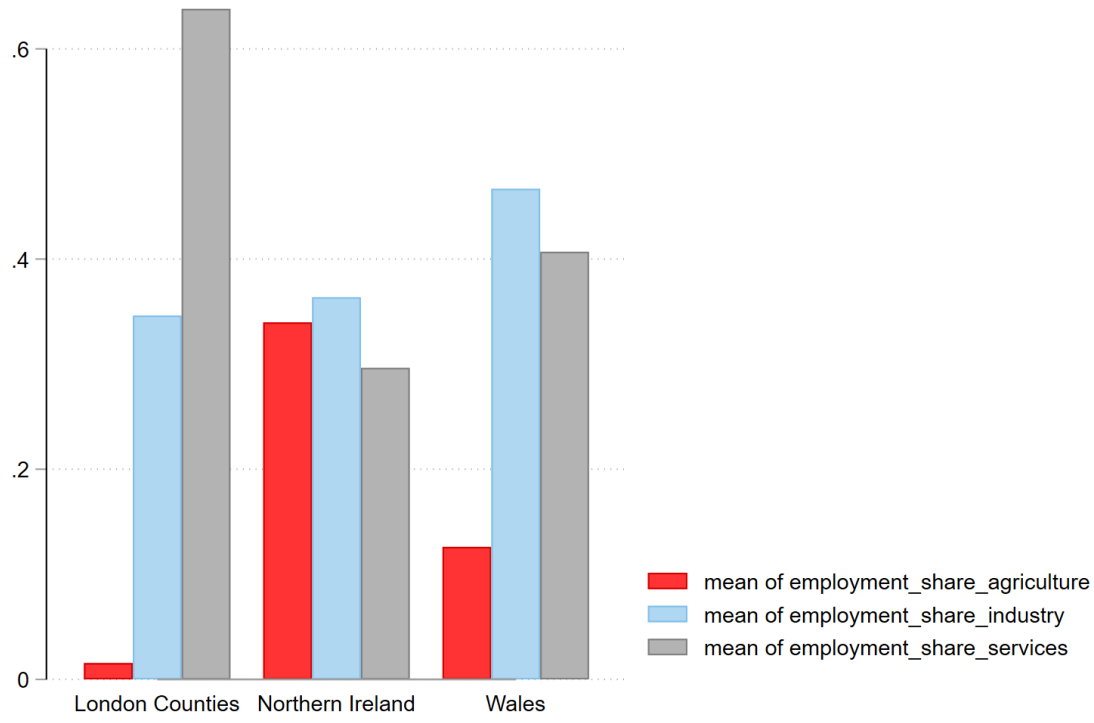
Bar plots are a great way to show compaisons between groups.

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
```

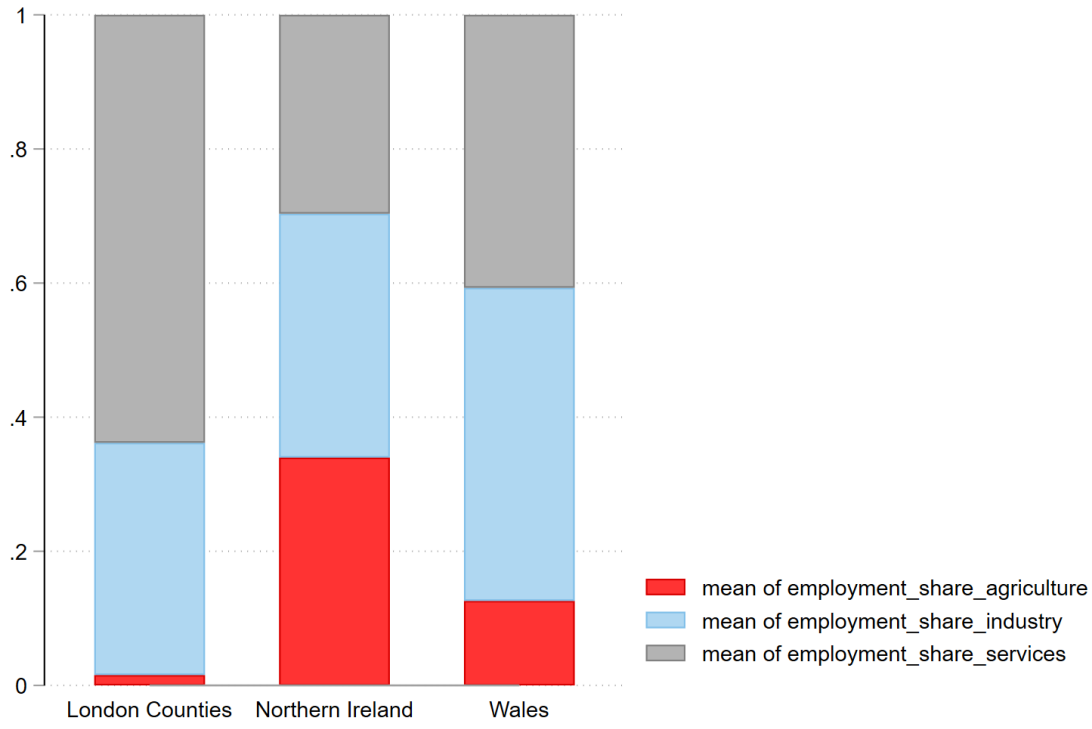
Then we can draw a basic bar graph. Here the variables we want to compare are named before the `if` command specifies which segment of the data we want to use. The `over` option tells Stata that we want to use of bar graph to compare different regions.

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



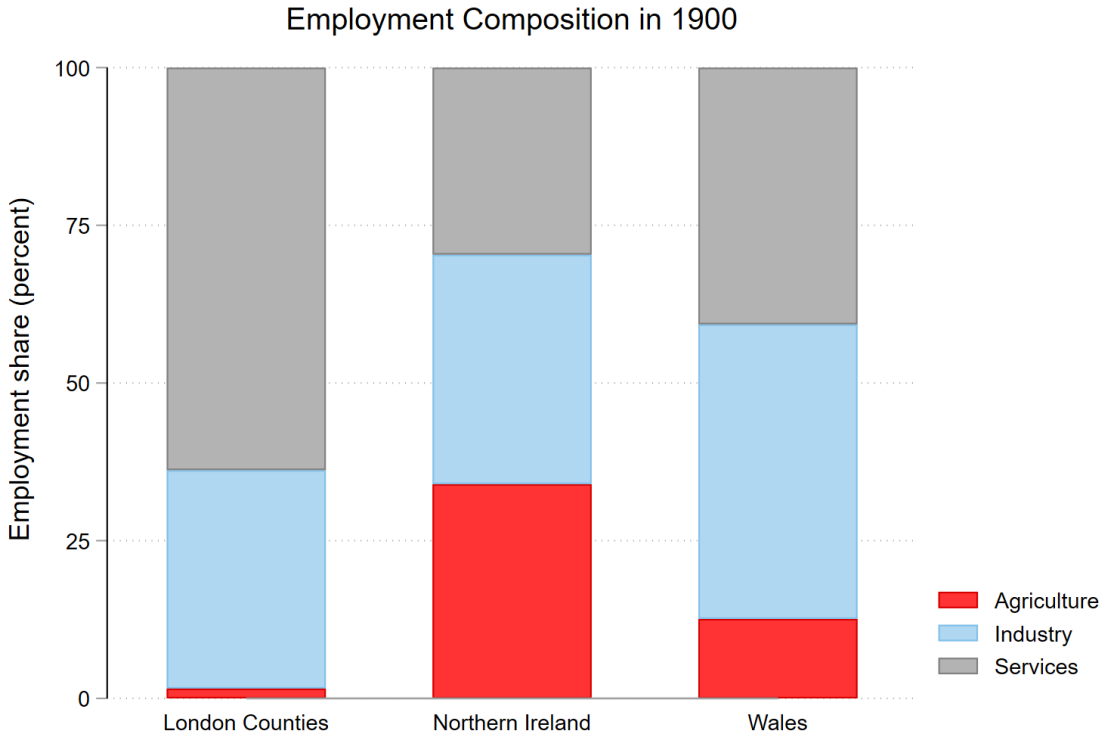
We can turn this into a stacked bar graph that makes it easier to compare the proportions between regions (as by definition they must sum to 100 percent) with the `stack` option.

```
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:

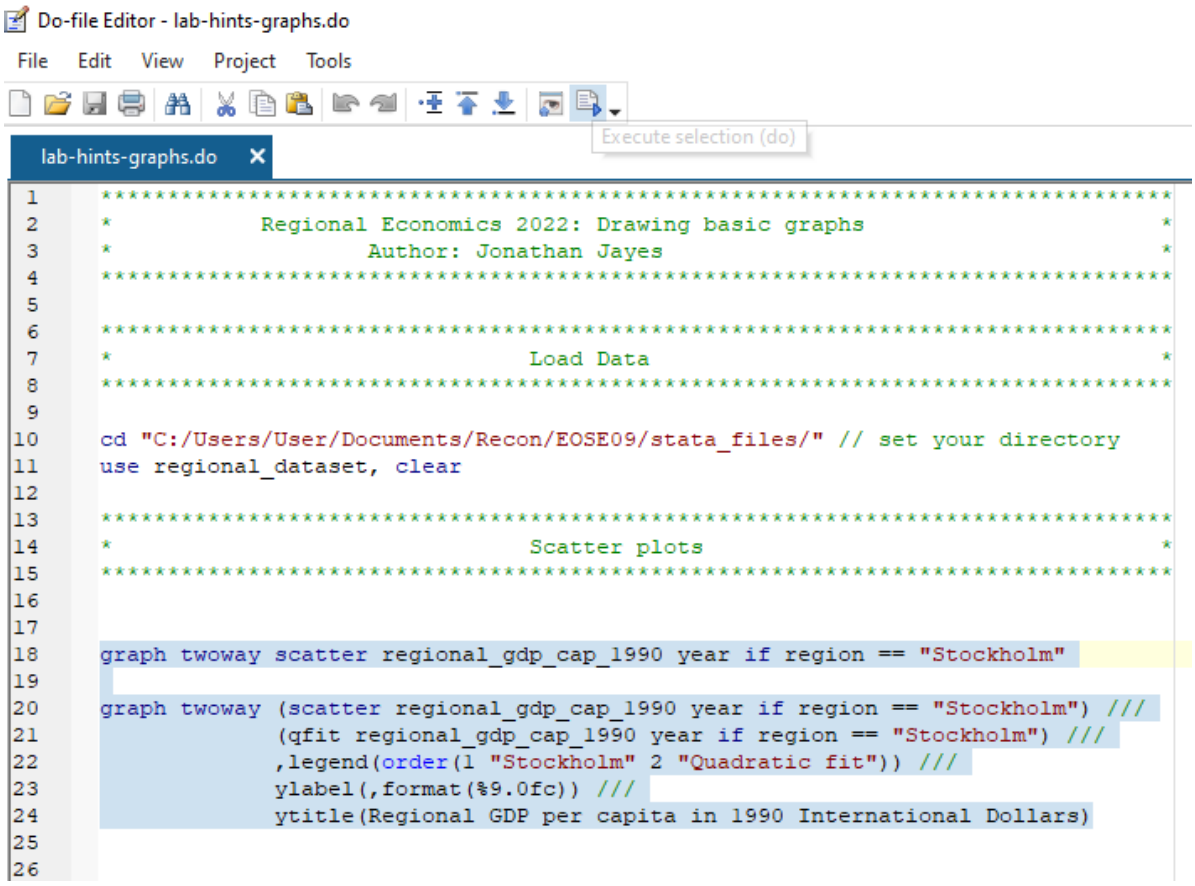
```
graph bar employment_share_agriculture employment_share_industry ///
employment_share_services if include_in_bar == 1 & year == 1900 ///
    ,over(region) stack title(Employment Composition in 1900) ///
    legend(order(1 "Agriculture" 2 "Industry" 3 "Services")) ///
    ylab(0 "0" .25 "25" .5 "50"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