Lab 1 Exercises

Jonathan Jayes

2023-01-30

Table of contents

Purpose	
Get started	
Question 1	
Question 2	(
Question 3	9
Question 4	12
Ouestion 5	15

Purpose

Stata is a powerful software for data analysis and visualization. This exercise set aims to showcase the capabilities of Stata in creating informative graphics . We will be using data on the UK and Sweden — to demonstrate the process of making a map , a combined plot , and a summary table . The purpose of this accompanying post is to provide a step-by-step guide on how to use Stata's built-in tools — to create effective visualizations — that help communicate insights from your data .

Get started

As before, we want to load our data from the regional_dataset.dta file.

```
cd "C:/Users/User/Documents/Recon/EOSE09/stata_files/" # set your directory
use regional_dataset, clear
format regional_gdp_cap_1990 %12.0fc # 12 numbers left of the decimal point; 0 to the right
```

Question 1

• Map of GDP per capita in Sweden and the United Kingdom in 1990

There are two ways to do this.

Method 1: use their locations on a map

First we create a variable for if the country is Sweden or the UK.

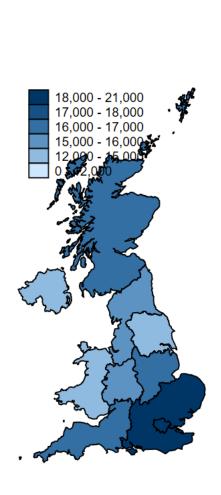
Then we use this vairable to create the map with an if statement.

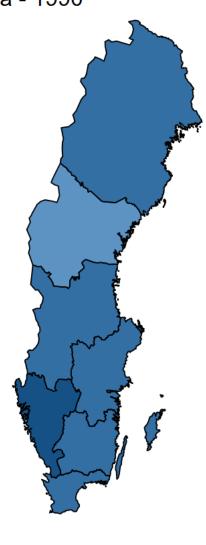
Note that you need to change your breaks in order to display the full range of data.

```
gen uk_sv = .
replace uk_sv = 1 if country == "Sweden" | country == "United Kingdom"

spmap regional_gdp_cap_1990 using "nutscoord.dta" if year == 1990 & uk_sv == 1, id(_ID) for title("Regional GDP per Capita - 1990", size(medium))
    clmethod(custom) clbreaks(0 12000 15000 16000 17000 18000 21000)
```

Regional GDP per Capita - 1990





Method 2: graph combine

Here we make two graphs with the same scale, but only the graph for Sweden includes a legend.

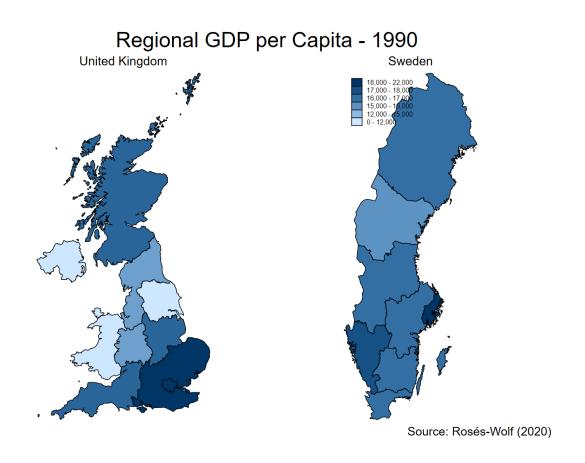
The UK map has the legend suppressed with the leg(off) command.

Then we name each, and combine it with a title in the final step.

```
spmap regional_gdp_cap_1990 using "nutscoord.dta" if year == 1990 & country == "United King title("United Kingdom", size(medium)) ///
    name(UK_GDP_1990, replace) ///
    leg(off)

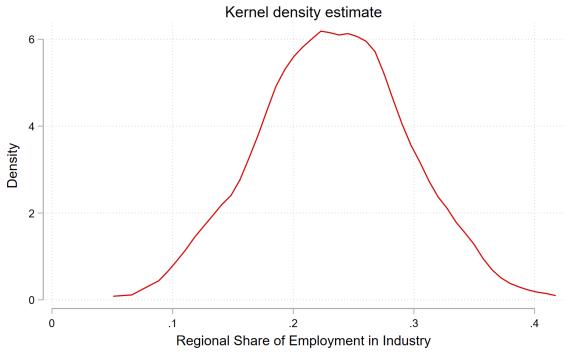
spmap regional_gdp_cap_1990 using "nutscoord.dta" if year == 1990 & country == "Sweden", i title("Sweden", size(medium)) ///
    clmethod(custom) clbreaks(0 12000 15000 16000 17000 18000 22000) ///
    name(SV_GDP_1990, replace)

graph combine UK_GDP_1990 SV_GDP_1990, graphregion(color(white)) ///
    title("Regional GDP per Capita - 1990") ///
    note(Source: Rosés-Wolf (2020), size(small) position(5)) ///
    scheme(s2mono)
```



Map of share of employment in industry in 2010 across the whole dataset
 First we must ask where the cutoffs should be in the legend.
 We can draw a density plot to find out.

kdensity employment_share_industry if year == 2010

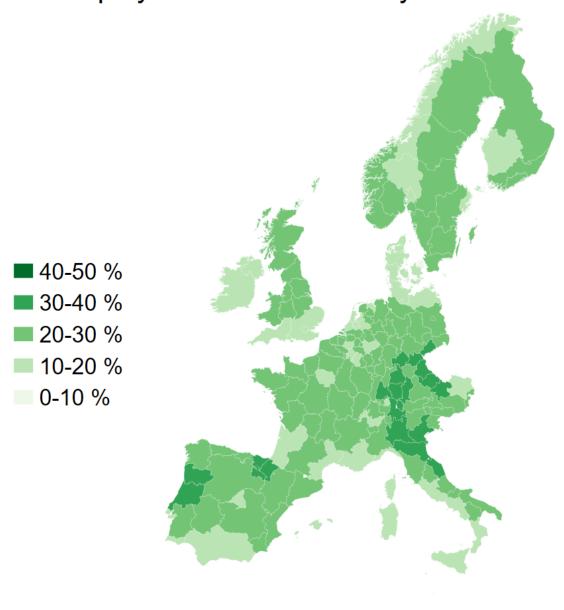


kernel = epanechnikov, bandwidth = 0.0183

Next we use this information to create breaks between 10 percent and 40 percent, where the bulk of the distribution is.

```
spmap employment_share_industry using "nutscoord.dta" if year == 2010, id(_ID) fcolor(Gree title("Employment Share Industry - 2010", size(large)) ///
    osize(0.02 ..) ocolor(white ..) ///
    clmethod(custom) clbreaks(0 (0.1) 0.5) ///
    legend(pos(9) size(medium) rowgap(1.5) label(6 "40-50 %") label(5 "30-40 %") ///
    label(4 "20-30 %") label(3 "10-20 %") label(2 "0-10 %") label(1 "No Data")) ///
    ndfcolor(gray) ndocolor(white ..) ndsize(0.02 ..)
```

Employment Share Industry - 2010



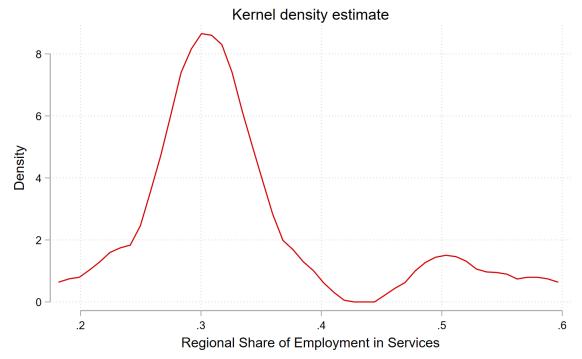
• Map of share of employment in services in 1950 in Scandinavia

Generate variable for Scandnavian countries

```
gen scandinavia = .
replace scandinavia = 1 if country == "Sweden" | country == "Denmark" | country == "Norway
```

Check where the weight of the distribution is

```
kdensity employment_share_services if year == 1950 & scandinavia == 1
```

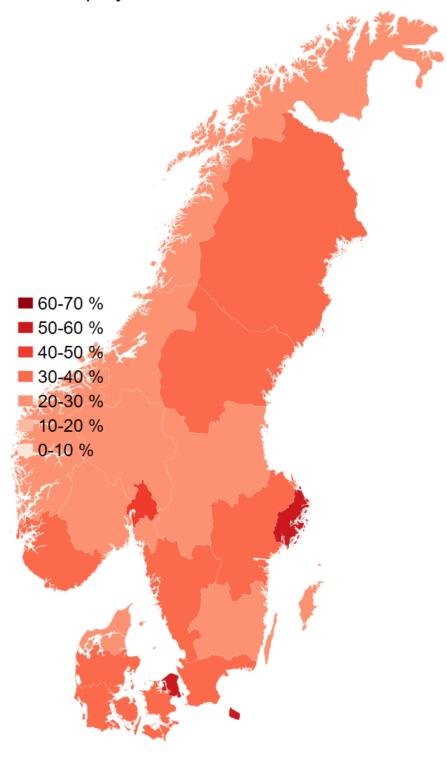


kernel = epanechnikov, bandwidth = 0.0209

```
spmap employment_share_services using "nutscoord.dta" if year == 1950 & scandinavia == 1,
    title("Employment Share Services - 1950", size(large)) ///
    osize(0.02 ..) ocolor(white ..) ///
    clmethod(custom) clbreaks(0 (0.1) .7) ///
    legend(pos(9) size(medium) rowgap(1.5) label(8 "60-70 %") label(7 "50-60 %") ///
    label(6 "40-50 %") label(5 "30-40 %") ///
```

```
label(4 "20-30 %") label(3 "10-20 %") label(2 "0-10 %") label(1 "No Data")) ///
ndfcolor(gray) ndocolor(white ..) ndsize(0.02 ..)
```

Employment Share Services - 1950



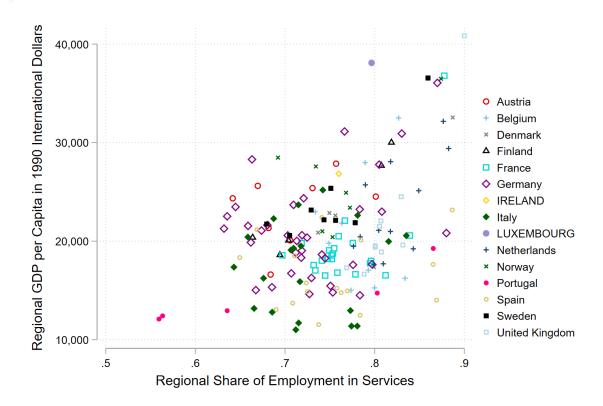
Scatterplot of GDP per capita in 1990 dollars on the x-axis and share of employment in services on the y-axis for the year 2015. Make the colour of the points on the scatter plot show what country it is.

Here we need an additional package to help us.

```
ssc install sepscatter
```

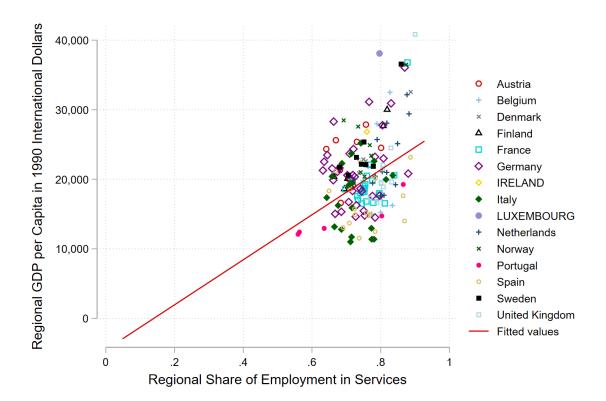
Basic scatter plot

```
sepscatter regional_gdp_cap_1990 employment_share_services if year == 2015, separate(count
```



Add in linear regression line

```
sepscatter regional_gdp_cap_1990 employment_share_services if year == 2015, separate(count
```



• Make a table of the mean GDP per capita by country in 2000. Export it with the Outreg2 command.

Remember how we made a national GDP per capita variable

```
bysort country year: egen national_gdp_1990 = total(regional_gdp_1990)
bysort country year: egen national_population = total(regional_population)
gen national_gdp_cap_1990 = national_gdp_1990 / national_population
```

Now format this number

```
format national_gdp_cap_1990 %12.0fc # 12 numbers left of the decimal point; 0 to the right
```

We could do this with Outreg2. We can also just keep the data that we want, and export it as a csv file. This is quick and dirty, but it works.

```
keep country national_gdp_cap_1990 year
keep if year == 2000
duplicates drop
export delimited using national_gdp_cap_1990.csv, replace
```

Open this file in excel Go to the data tab, select text to columns, delimited, comma, and then format it.

We can make a nice little bar graph with in Excel too.

