Replication

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Contents

In this document, you can find the solutions to the replication exercise of Figure 2 and comlumns 1 and 2 of Table 4 of Acemoglu's settler mortality paper. Solutions are only provided for the `ivreg` command, although it should be possible to replicate the regressions with the more modern `felm` command of the `lfe` package.

Please note that I have always specified `echo=TRUE` in the chunk options, so that you can see the code. In a real document, you want that option to be false. You can adjust more things in your chunk options, e.g. figure size. A cheatsheet can be found here.

Loading Libraries

Here, I load all libraries necessary for the project. I set `message = FALSE`, otherwise the document will be spammed by messages from the libraries.

```
library(AER)       # ivreg command
library(ivpack)    # robust and clustered standard errors
library(dplyr)     # data manipulation
library(ggplot2)   # graphs
library(tibble)    # nice dataframes
library(haven)     # dta files
library(stargazer)# tables
library(sandwich) # robust se
library(lmtest)    # for print robust
```

Exercise 1 : Graph

Read in Data

1. Read in `maketable2.dta` from the tidy-data folder

- Create factor variables out of `africa`, `asia`and `other`
- Only keep the base sample (`baseco==1`)

```
ajr_base <- read_dta("./tidy-data/maketable2.dta") %>%
  mutate(africa = factor(africa),
         asia = factor(asia),
         other = factor(other))  %>%
  filter(baseco == 1)
```

Replicate Figure 2

1. Initiate the plot

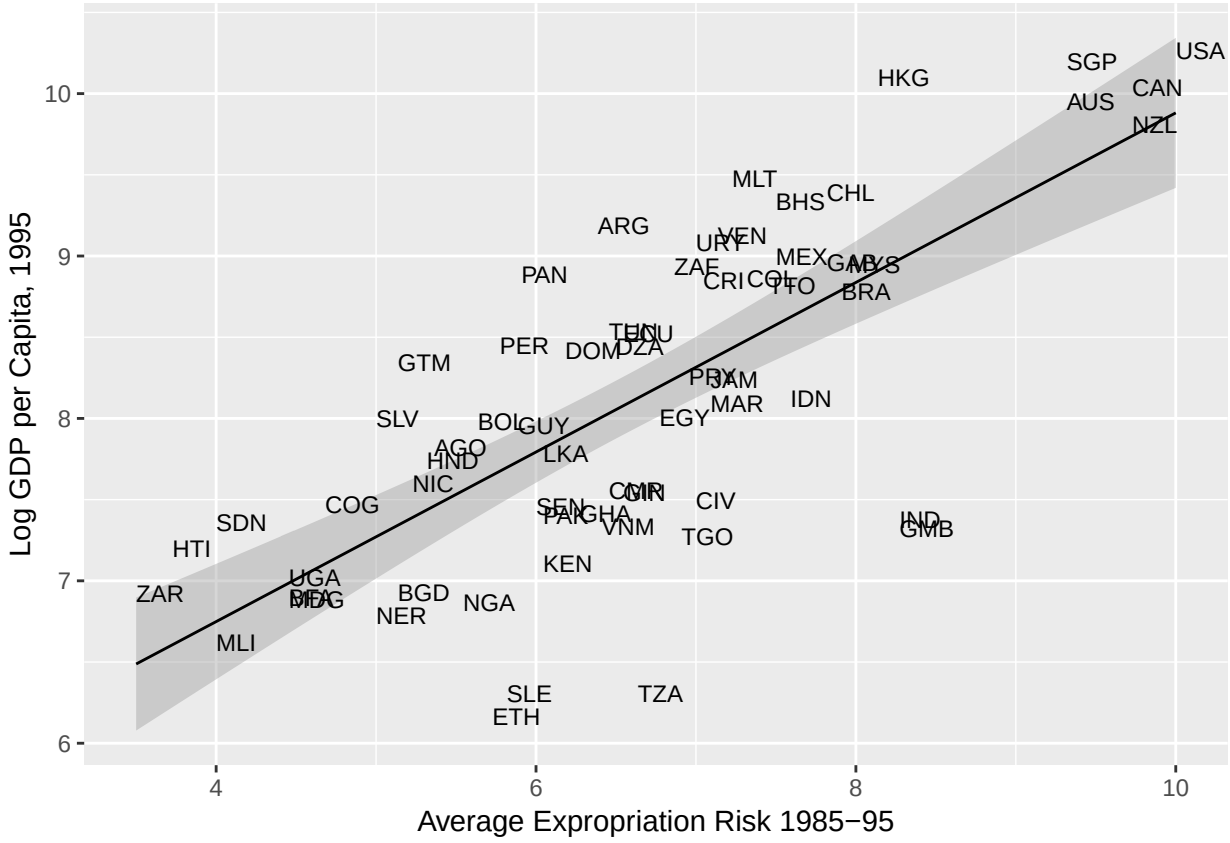
- Average Expropriation Risk is the x axis
- Log GDP per Capita is the y axis

2. Adjust the axis labels
3. Put a regression line in the graph

- you can adjust the color and the size

4. Add the data points as country names

```
ggplot(ajr_base, aes(x = avexpr, y = logpgp95)) +
  labs(x = "Average Expropriation Risk 1985-95",
       y = "Log GDP per Capita, 1995") +
  geom_smooth(method = "lm", color = "Black", size = 0.5) +
  geom_text(aes(label = shortnam), hjust = 0, vjust = 0, size = 3)
```



Exercise 2 : IV Regression

Read in data

1. Read in `maketable4.dta` from the tidy-data folder

- Create factor variables out of `rich4`
- Keep only the base sample (`baseco==1`)

```
ajr_base <- read_dta("./tidy-data/maketable4.dta") %>%
  mutate(rich4 = factor(rich4)) %>%
  filter(baseco == 1)
```

Regressions

Do the first two regressions using the `ivreg` command.

```
iv_1 <- ivreg(logpgp95 ~ avexpr | logem4, data =ajr_base)
iv_2 <- ivreg(logpgp95 ~ avexpr + lat_abst | logem4  + lat_abst, data =ajr_base)
```

Standard Errors

Compute the robust standard errors using the `robust.se` function. Your standard errors will be in the second column.

```
iv_1_se <- robust.se(iv_1)[,2]
```

```
## [1] "Robust Standard Errors"
```

```
iv_2_se <- robust.se(iv_2)[,2]
```

```
## [1] "Robust Standard Errors"
```

Table

Display the first two regressions as a table. (hint: specify the chunk option `results=asis`) - for viewing the table in .Rmd, specify `type="text"` - for a nice output in the .pdf, specify `type="latex"`

```
stargazer(iv_1, iv_2,
          se = list(iv_1_se, iv_2_se),
          dep.var.labels = "Log GDP in 1995",
          covariate.labels = c("Expropriation Risk", "Latitude", "Constant"),
          omit.stat = "ser",
          title = "Instrumental Variable Results",
          type = "latex")
```

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Di, Sep 11, 2018 - 11:34:05

Table 1: Instrumental Variable Results

	Dependent variable:	
	Log GDP in 1995	
	(1)	(2)
Expropriation Risk	0.944***	0.996***
	(0.176)	(0.240)
Latitude		−0.647
		(1.227)
Constant	1.910	1.692
	(1.174)	(1.448)
Observations	64	64
R^2	0.187	0.102
Adjusted R^2	0.174	0.073
Note:	*p<0.1; **p<0.05; ***p<0.01	

Additionally: Referencing variables

I can also reference variables. For instance, the coefficient on avexpr has the value 0.9442794.

Additionally: Latex

I mentioned that markdown also understands Latex. In the text, you can talk about variables like β_1. This works both inline (as before), as well as for an entire line:

$$Y_i = \beta_0 + \beta_1 X_i + u_i$$

The difference is wheter you use one or two dollar signs around your Latex code.

Additionally: Citations

The citations that you know form Latex work as well. For that, you need to specify a bib.tex document with all your citations and a .csl file with your citation style. Other formats are also possible. An example of how a citation looks like is given below. The full reference will be given after the last subtitle. More about citations and their syntax can be found here.

Settler mortality is an amazing instrument (Acemoglu, Johnson, and Robinson 2001).

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *The American Economic Review* 91 (5): 1369–1401. http://www.jstor.org/stable/2677930.