Tutorial 2
Specification and Interaction Terms - Due on 04.05.2020 12:00

Empirical Banking and Finance
Konrad Adler

Summer, 2020

This excercise is based[1] on the articles by [La Porta et al., 2002] and [Koerner and Schnabel, 2011]. The original data can be found on Rafael La Porta's Webpage.

1. Regression 1
   a) Please load the file *dataEmpBF_Tutorial2.dta* into STATA.
   b) Run an OLS regression of *gdpgrowth* on *public_banks_1970* with *loggdp_1960* as a control.
   c) Compare the estimated coefficient of *public_banks_1970* to the first column in Table V of [La Porta et al., 2002]. Comment very briefly.
2. Descriptive statistics
   a) Compute summary statistics for all the variables in the dataset. Comment briefly your findings.
   b) Create a scatterplot of *gdpgrowth* and *public_banks_1970*.
   c) Exclude the (1) outlier. Why can we safely assume that there is a problem with that observation? From now on work with the dataset without the outlier.
   d) Re-create the scatterplot.
3. Regression 2
   a) Re-run OLS regression 1. Compare your results again to the first column in Table V of [La Porta et al., 2002]. Comment and explain the intuition in two sentences why OLS is so sensitive to outliers.
   b) Why are the authors using government ownership of banks in 1970 and not, for example average ownership share between 1970 and 1995? Would it be preferable to use government ownership in 1960, and if yes, why?
   c) Are the coefficients statistically significant?
   d) Interpret the sign of each coefficient.

[1]Thanks to Ulrich Schüwer

e) How good are the X variables at explaining *gdpgrowth*? Which measure is usually considered?

4. Regression 3

a) Add the variables *schooling* and *birth_rate_1970* to Regression 2. Why does it make sense to include these variables?

b) Which coefficients are statistically significant?

c) Interpret the sign of the coefficients if they are statistically significant. What is the economic size implied by these coefficients?

d) Test for the joint significance of *schooling* and *birth_rate_1970*. Provide H_0, H_A, the test statistic, its distribution and the result of the test.

e) Compare the goodness of fit to regression 2. Which measure do you use?

5. Regression 4

a) [Koerner and Schnabel, 2011] suggest interacting public ownership of banks with the initial level of private credit to GDP. Without running the regression yet, provide theoretical arguments why this might be a good idea.

b) Run the regression of *gdpgrowth* on *public_banks_1970*, *private_credit_1960*, the interaction between the latter two and *loggdp_1960*.

c) Interpret the sign of *public_banks_1970* and *private_credit_1960*. What exactly do they measure?

d) Interpret the sign of the interaction term.

e) What is the impact of an increase in public ownership of banks on gdp growth holding all other variables fixed at their mean?

f) At which levels of finanical development (as measured by *private_credit_1960*) does *public_banks_1970* what impact on *gdpgrowth*? Where is this effect significant?

6. Regression 5

a) Run a new regression of *gdpgrowth* on *public_banks_1970* and *loggdp_1960*. Add interactions of both X variables with the *oecd* dummy variable. In addition create a dummy for non-OECD countries and include it in the regression

b) What is the interpetation of the constant? What is the interpretation of the non-OECD country dummy?

c) What is the interpretation of the interaction term coefficients?

7. Regression 6

a) Run a new regression of *gdpgrowth* on interactions of *public_banks_1970* and *loggdp_1960* with both the *oecd* dummy and a non-OECD country dummy. Also include both dummies, but exclude the constant.

b) How do you interpret the two dummies?

c) Why do you have to exclude the constant? What happens if you keep it?

d) How are the results different from Regression 5?

References

[Koerner and Schnabel, 2011] Koerner, T. and Schnabel, I. (2011). Public ownership of banks and economic growth. *The Economics of Transition*, 19(3):407–441.

[La Porta et al., 2002] La Porta, R., Lopez-De-Silanes, F., and Shleifer, A. (2002). Government ownership of banks. *The Journal of Finance*, 57(1):265–301.