

ECON 7920
Econometrics II
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Problem Set 6
Due Date: May 3, 2022

Chapter 14 Problems:
14.1, 14.2

Problem 1

Consider the population model: $gr6085_i = \theta_{01} + \theta_{02}gdp60_i + \theta_{03}gpop6085_i + \theta_{04}sec60_i + \theta_{05}corruption_i + u_i$.¹

- a. Under what assumptions is the structural model identified? Be specific.
- b. Estimate the population mode via two-step efficient GMM using each variable as an instrument for itself. What are the moment conditions implied by this assumption?
- c. Test the null hypothesis that each of the population coefficients are equal to zero? What do you conclude?
- d. Now use *ptrade* as an IV for *corruption*. State the moment conditions implied by using *ptrade* as an IV for *corruption*. What conditions are required so that *ptrade* is a valid and relevant IV for corruption?
- e. Compute an F-stat to test whether *ptrade* is sufficiently strong. What do you conclude?
- f. Now use *ptrade* and *elf* as IVs for corruption. Do you reject the validity assumption on your IVs? Are the IVs sufficiently strong?

¹For this problem you will need the script files `gfunction.R` and `qderivfungmm.R`. You will also be using the data set `Mauro1995.csv`.