ECON 7920
Econometrics II
Philip Shaw
Problem Set 5
Due Date: April 20th, 2023

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 structual 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?

---

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