

ECON582 Econometrics III

Homework 2 – Instrumental Variable Estimation

Due: 13th April 2007

Your main job this week is to read the Nelson and Startz (1988 working paper version) weak instrument paper carefully.

Analytical Exercise

Greene Chapter 5 Exercise 4.

Matlab Exercise

(Nelson and Startz (1988) Weak Instrument Paper) – Consider the following data generating process (DGP):

$$x = \lambda u + \varepsilon$$

$$z = \gamma \varepsilon + v$$

$$y = \beta x + u$$

$$\begin{pmatrix} \varepsilon \\ v \\ u \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \right)$$

We assume that z and ε are fixed (i.e. you only draw them once in each experiment, and they are outside the “for loop”).

a) Now write some programs in Matlab to replicate Tables 1 to 4 in Nelson and Startz (1988) (Of course, all experiments are “random” and you will not get exactly the same numbers as those in the paper), all with 5000 trials and a sample size of 100.

Please put your results in tables similar to what you see in the paper.

Please also provide an m-file with clear comments.

b) Now read the paper carefully, and explain briefly what we can learn from Tables 1 to 4.