**Problem Set #5[[1]](#footnote-1)\***

**Instrumental Variables**

A convincing analysis of the causal link between education and wages needs an exogenous source of variation in the former. This Problem Set is based on Card (1993) “Using Geographic Variation in College Proximity to Estimate the Return to Schooling”. It explores the use of college proximity as an instrument for schooling. Read the paper carefully before starting to answer the questions. The database "schooling.dat" is ready to be used.

1. Show descriptive statistics of the relevant variables (as in Table 1 from the paper).

2. Reproduce all the least squares regressions in Table 2.

3. Reproduce all the regressions in Table 4.

4. Can you test the instrument's exogeneity? What about education's exogeneity? If

you knew that the instrument is exogenous, would you be able to test education's exogeneity? Explain and perform the test. Is it useful? You can use, for instance, the basic specification.

5. Take the baseline IV specification and add "Grew up near 2-yr College" and "Grew up near 4-yr public College" as instruments. Perform an over-identifying restrictions test (Sargan-test or J-test). What is the conclusion?

6. Suppose that you consider only education as endogenous (i.e. replace experience by age directly). Perform the weak instrument test suggested by Stock and Watson.

**7.** Criticize the paper in no more than three paragraphs (focus on exogeneity).

1. \* Course: Applied Econometrics – Universidad de San Andrés, Spring 2020. Professor: Martín Rossi. [↑](#footnote-ref-1)