ECO 5350-701 T. Fomby
Intro. Econometrics Spring 2021

EXERCISE 5
KEY

Purpose: To learn how to use the YouTube videos on the website https://www.youtube.com/playlist?list=PLEbg1KdW5Se7-R0EuD-j1ELF-ApXcdkDF to come to understand how econometric methods can be used to evaluate the efficacy of public policies in the presence of observational data. This website is maintained by the Partnership for Economic Policy (PEP). You can find more information on PEP at www.pep-net.org. This exercise is based on the YouTube video entitled **Class 1: Introduction.** Use this class to answer the following questions. You are to hand in this exercise on **Thursday, February 18 at 5:00 pm CT on Canvas**.

(a) What was the purpose of the "Coleman Report?" What were the proposed treatment effects? The Outcome variables? On the face of things, does it look like any of the treatment effects were effective?

Answer: The Coleman Report was concerned with coming up with recommendations for improving the quality of Secondary Education in the U.S. The proposed treatments were (1) teachers should have graduate degrees, (2) the students/teacher ratio should be reduced, and (3) there should be more spending on public education. The outcome variables that were analyzed were High School Graduation Rate and Reading and Math Achievement Test Scores. They did not improve much after treatment. There were both optimistic views (the scores could have performed worse without the treatments) and pessimistic views (the treatments were not that effective.) The lesson learned is that we do not observe the counterfactuals of the treatments which is what the statistical methods we will learn will try to overcome.

(b) What is RCT? Why is it viewed as being the "gold standard" in evaluating the effects of a treatment on an experimental outcome? Describe what is meant by the term quasi-experiment.

Answer: RCT stands for Randomized Control Trials. In the case of RCTs, the endogeneity problem is minimized and thus with a properly conducted RCT we can get at more accurate estimates of causal effects. A quasi experiment is one where the assignment of individuals to treatment and control groups is <u>not</u> random. The danger with quasi experiments is that without random assignment there may be a lack of "balance" between the treatment and control groups in that the individuals in the two groups may be very dissimilar causing a bias in the estimate of causal effects. We will study in the course ways of estimating counterfactuals and more accurately estimating causal (treatment) effects. Some of these statistical techniques include the Difference-in-Differences method, the Method of Regression Discontinuity, and Natural Experiments.

(c) What was the nature of the "Piso Firme" experiment (Lee Cronback (1982)? What was the treatment that was applied in the experiment? What were the 7 outcome measures proposed and discussed in the YouTube video?

Answer: The Piso Firrme experiment was conducted in Mexico. It was designed to determine the treatment effect of providing needy families with concrete floors in their homes and how public health might potentially benefit from the treatment of installing concrete floors. The 7 outcome variables were (1) incidence of diarrhea, (2) malnutrition, (3) micro-nutrients deficiency indices, (4) cognitive development indices, (5) housing satisfaction indices, (6) depression rates, and (7) perceived stress indices.

(d) List the 6 econometrics/statistical methods that are mentioned in the video that help investigators determine the causal effect of a policy in the social sciences including economics.

Answer: (1) Instrumental Variables (IV), (2) Difference-in-Differences, (3) Matching (Propensity Score Matching), (4) Regression Discontinuity design, (5) Natural Experiments, and (6) Laboratory and Field Experiments.