# Problem Set 2
MGMT 737

Spring 2021

1. PART I: This problem studies instrumental variables. We explore Angrist and Evan (1998), who study the impact of children on parents' supply. This paper has two instruments: 1) whether the first two children of a mother are the same sex *Same sex*; 2) whether the second (successful) pregnancy is twins *Twins-2*. The 1980 Data for this paper is available in the repository in a csv `ang_ev_1980c̲sv`.

   I was not able to perfectly match AE's sample but it is very close. As a result, the point estimates are not identical, but are close enough that you should be able to feel confident.

   *More than 2 children* is `morekids`, *Number of children* is `kidcount`, *worked for pay* is `mom_worked`, *Weeks worked* is `mom_weeks_worked` and the two dummy instruments are `samesex` and `twins_2`.

   (a) Replicate the coefficients from Table 5, Column 1, rows 1-4, using a linear regression.

   (b) Replicate the coefficients from Table 5, Column 2, rows 3-4, using 2SLS. Convince yourself you could construct this estimate by hand using the result in the previous answer.

   (c) Replicate the coefficients from Table 5, Column 7, rows 1-4, using a linear regression.

   (d) For the endogeneous vairable "More than 2 children", what is the complier share for each of the two instruments?

   (e) For the endogeneous vairable "More than 2 children" and each of the two instruments, what is the average share of the complier population with an education greater than high school (`moreths`)? What about different mother race shares?

   (f) Using the Same sex instrument, construct the Weak IV robust Anderson-Rubin confidence intervals using the algorithm outlined in Chernozhukov and Hansen (2007) (see the slides)