

## PROBLEM SET VI

DUE: 9AM, TUESDAY FEBRUARY 22<sup>st</sup>, 2022

For this problem set you have to use the data set `census.dta`. It contains the data used in the Angrist and Krueger paper that estimates the returns to education using quarter of birth as an instrument. Again I will ask the groups to present their analysis and results.

1. Create a new variable `wage` defined as  $\text{wage} = \exp(\ln(\text{wage}))$ . Summarize the wage variable. Do you think this is hourly, weekly, or annual wages?
2. Estimate the returns to schooling by least squares regression of log wages on years of education.
3. Include state of birth and year of birth dummies in the regression. Does this change the estimated effect of years of education on earnings?
4. Regress years of education on the dummy for quarter of birth being equal to 4. Is the effect statistically significant?
5. Regress years of education on the four quarter of birth dummies. Test jointly whether the three coefficients are statistically significantly different from zero.
6. How do you interpret these effects qualitatively?
7. Regress log wages on years of education using the four quarter of birth dummies as instruments. Does the estimated effect differ much from the least squares estimates in (2)?
8. Include the state of birth and year of birth dummies as additional exogenous variables. Does this change your estimates?
9. How credible do you find these estimates? Discuss potential sources of problems that may make the results less credible.