Econ 5100 - Quantitative Methods and Applications
In-class problem set 2

What determines wages?

What factors determine a person's wage is of just importance for policy. Today we are do some simple analyses using a dataset on individual characteristics and wage outcomes in 1980. You can find the CVS dataset under data in Canvas (Wages).

The variables in the data set are:

- 1. wage monthly earnings
- 2. hours average weekly hours
- 3. IQ IQ score
- 4. KWW knowledge of world work score
- 5. educ years of education
- 6. exper years of work experience
- 7. tenure years with current employer
- 8. age age in years
- 9. married =1 if married
- 10. black =1 if black
- 11. south =1 if live in south
- 12. urban =1 if live in SMSA
- 13. sibs number of siblings
- 14. brthord birth order
- 15. meduc mother's education
- 16. feduc father's education
- 17. lwage natural log of wage

The dependent variable is going to be monthly earnings. We are going to use a combination of average weekly hours, IQ score, years of education, years of work experience, years with current employer, age in years, mother's education, and father's education.

1. Do the normal descriptive statistics for the variables we are going to use. Anything stand out among these numbers?

2. Find the correlations between the variables we will use. What stands out here?

3. Run a regression with hours and IQ score as the explanatory variables. What are the coefficients for both and their interpretation (remember to include whether they are statistically significant).

4. Run the same regression as in Q3, but now add education as an additional explanatory variable. What are the coefficients and their interpretations (remember to include whether they are statistically significant).

5. Explain why the coefficients change between the two regression. Are the changes in the direction you would expect?

6. Run a regression with hours, IQ score, education, age, experience, and tenure as the explanatory variables. Interpret the results.

7. Explain why the coefficients change from the model in Q4. Does this make sense and why? (Hint: think what is behind the correlations you observed)

8. What does the F-test tell you about the model in Q6? What about the R^2 and adjusted R^2?

9. Can we drop tenure and hours? (Do a joint test). What are the results and how do we interpret them?

10. Can you rule out that the effect of experience overall and tenure at the current job have the same effect on wage?

11. If you have time, try to add parental education to the last model. Think about what changes. Also, try some joint hypotheses (for example, parental education have similar effect; difference between age and experience).