ICPSRCDA - 2017
Assignment 4: Testing and fit
Grading Guidelines

1. Q2, 5, 7, & 9: Failure to state any one of: (1) mathematical hypothesis; (2) hypothesis in prose; (3) interpretation. (-2 ea/q)
2. When using z-statistic, report if test is one-tailed or two-tailed. (-0)
3. Wald-test is the square of the z-test statistic when only testing one coefficient. (-1 to -3)
4. There is no uncertainty in a hypothesis (do not include significance level). (-2)
5. The effects are simultaneously equal to zero (not neither has an effect). The simultaneously part is important because you can do two tests and conclude that neither betas has an effect, yet they may simultaneously have an effect. (-1 to -3)
6. Chi-square tests are always one-tailed. (-0)
7. Include degrees of freedom when reporting a chi-square test – the distribution, and thus the critical value is different dependent on the number of degrees of freedom. (-2)
8. The Wald and LR tests are asymptotically equivalent, but can differ in finite samples. (-1 to -4)
9. Highlight the values in the output that were used to answer the questions. (-0 to -3)
10. Wrong significance level reported. (-1)
11. Use standard interpretations, e.g.,: (-0 to -3).
    - z-test: The effect of X is significant at the .05 level ($z = xx$, $p<.05$, 2-tailed).
    - Wald test: The effect of X is significant at the .05 level ($X^2(df) = xx$, $p<.05$).
    - LR test: The effect of X is significant at the .05 level ($LRX^2(df) = xx$, $p<.05$).
12. Smaller (most negative) BIC & AIC are preferred. Also, the BIC penalizes the model more for additional parameters than the AIC, which could lead to endorsement of different models by different statistics. (-0 to -3)
13. For BIC comparisons, cite Raftery's criteria for level of evidence & present information on the degree of evidence in your comparisons. (-1 to -4)
14. Log files need to be clean, free of errors, and free of wrapping. Both log files and assignments need to not have extraneous/unnecessary output. (-2 to -5)
15. A few further re: residuals (-0 to -5)
    A. As a practical suggestion: it's helpful to put low & high residuals on the same page to help with the search for patterns.
    B. A certain proportion of residuals will be large by chance alone; the presence of residuals >|2| does not necessarily imply model misspecification.
    C. The largest residuals will be associated with observations where the levels of the independent variables do not correspond to the effect of that variable—e.g., if your model predicts that high prior productivity will be associated with high present productivity, individuals with high prior productivity but low present productivity will have large residuals.
    D. Remember that in Stata residuals will be computed over covariate patterns; therefore overpredictions/underpredictions of your model & the sign of the residual may not correspond cleanly.
16. For Stata output, please use `Courier New` 9 pt font. Use a different font for your written answers (-3)