

Second Exam: Economics 388, Econometrics      Fall 2000 in R. Butler's section

**YOUR NAME:** \_\_\_\_\_

Section I (30 points) Questions 1-10 (3 points each)

Section II (40 points) Questions 11-14 (10 points each)

Section III (30 points) Questions

Section I. Define or explain the following terms (3 points each)

1. log-likelihood ratio test-

2. dummy variable trap-

3. central limit theorem-

4. probit-

5. maximum likelihood estimation--

6. Goldfield-Quandt test-

7. Breusch\_Pagan test--

8. standardized beta coefficients--

9. Chow test--

10. HETCOV (option in Shazam)-

II. Some Fun Stuff: True, False or Uncertain Questions (11-13) and a consulting question (14)

11. T, F or U: “The linearity or boundedness problem with the linear probability model is that the errors are sometimes heteroskedastic.”

12. T,F or U: “Instrumental variable estimators are always more efficient than OLS estimators.”



### III. Really Fun Stuff

15. Some Applications--Describe the models corresponding to the following Shazam programs, and tell what the Shazam does and why it does it, (and if there is a test statistic generated, what is the distribution of the test statistic under the null hypothesis):

A.     OLS Y X1 X2 / RESID=E  
       GENR ESQ = E\*E  
       GENR X1SQ = X1\*X1  
       GENR X2SQ = X2\*X2  
       GENR X1X2 = X1\*X2  
       OLS E2 X1 X2 X1SQ X2SQ X1X2  
       GEN1 LM = \$N\*\$R2  
       PRINT LM

B.             GENR WT=1/(X1\*X1)  
               OLS Y X1 X2 / WEIGHT=WT

16. Prove that, under certain general assumptions (state those assumptions), that the least squares estimator is a consistent estimator of  $\beta$  in the linear model:

$$y = X\beta + \mu.$$