

EE325 Computer Exercise I

Please also submit your do files.

- 1) This file CEOSAL2.DTA contains data on 177 chief executive officers and can be used to examine the effects of firm performance on CEO salary
 - (i) Estimate a model relating annual salary to firm values and market value. Make the model of the constant elasticity variety for both independent variables. Write the results out in equation form.
 - (ii) Add *profits* to the model from part (i). Why can this variable not be included in log form? Would you say that these firm performance variables explain most of the variation in CEO salaries?
 - (iii) Add the variable *cotton* to the model in part (ii). What is the estimated percentage return for another year of CEO tenure, holding other factors constant?
 - (iv) Find the sample correlation coefficient between the variables $\log(\text{mktval})$ and *profits*. Are these variables highly correlated? What does this say about the OLS estimators?

- 2) Use the data in WAGE2.DTA for this exercise,
 - (i) Consider the standard wage equation;
$$\log(\text{wage}) = \beta_0 + \beta_1 \text{educ} + \beta_2 \text{exper} + \beta_3 \text{tenure} + u.$$
State the null hypothesis that another year of general workforce experience has the same effect on $\log(\text{wage})$ as another year of tenure with the current employer.
 - (ii) Test the null hypothesis in part (i) against a two-sided alternative, at the 5% significance level, by constructing a 95% confidence interval. What do you conclude?

- 3) Use the data in DISCRIM.DTA to answer this question.
 - (i) Use OLS to estimate the model
$$\log(\text{psoda}) = \beta_0 + \beta_1 \text{prpblck} + \beta_2 \log(\text{income}) + \beta_3 \text{prppov} + u,$$
and report the results in the usual form. Is $\hat{\beta}_1$ statistically different from zero at the 5% level against a two-sided alternative? What about at 1% level?
 - (ii) To the regression in part (i), add the variable $\log(\text{hseval})$. Interpret its coefficient and report the two-sided p-value for $H_0: \beta_{\log(\text{hseval})} = 0$.
 - (iii) In the regression in part (iii), what happens to the individual statistical significance of $\log(\text{income})$ and *prppov*? Are these variables jointly significant? (compute a p-value.) What do you make of your answers?
 - (iv) Given the result of the previous regressions, which one would you report as most reliable in determining whether the racial makeup of a zip code influences local fast-food prices?