

# Homework 1

Econ 6243

January 16, 2008

The rice data file available on the website contains 352 observations on 44 rice farmers in the Tarlac region of the Phillipines for the years 1990-1997. Variables in the data include tons of freshly threshed rice (PROD), hectares planted (AREA), person-days of hired and family labor (LABOR), and kilograms of fertilizer (FERT).

$$\ln(\text{PROD}_{it}) = \beta_{1i} + \beta_2 \ln(\text{AREA}_{it}) + \beta_3 \ln(\text{LABOR}_{it}) + \beta_4 \ln(\text{FERT}_{it}) + e_{it} \quad (1)$$

1. Using Stata, estimate the model using pooled least squares, the within estimator, the between estimator, and the random effects (GLS) estimator. Compare estimates of the elasticities (a table works).
2. In the fixed effects regression, test the hypothesis that all individual effects are equal to one another against the hypothesis that they are not (you can use the 5% level for all of these tests). What does the evidence tell you?
3. Use the LM test to test whether random effects are random against the null hypothesis that they are fixed.
4. Use the Hausman test to determine whether the random effects are correlated with the regressors.
5. Given the results above, which set of estimates do you think are the most reliable? Remember, justify your answer in terms of the estimators properties.