

Introduction to Econometrics

Fall 2006

Assignment 6

Today's Date: 10/30

Due Date: 11/06

Please show all of your work and clearly indicate your final response to each question.

1. Text 17.1
2. Text 17.5
3. Text 17.6
4. In a population, each individual has preferences defined over leisure, l , and consumption of a good purchased in the market, x , that has a price per unit of 1. Utility is given by

$$u_i(x_i, l_i) = \alpha_i \ln l_i + (1 - \alpha_i) \ln x_i.$$

Each individual has a time endowment (T) of 1 unit, and has a wage rate w_i and nonlabor income equal to Y_i . In the population the preference weight for leisure, α_i , is independently and identically distributed according to the power distribution

$$F(\alpha) = \alpha^\delta, \alpha \in (0, 1), \delta > 0,$$

with probability density function

$$f(\alpha) = \delta \alpha^{\delta-1}.$$

- a. Assume that everyone in the population has the same wage offer and the same level of nonlabor income, with $w_i = 3$ and $Y_i = 5$. In a random sample of size N drawn from this population, you observe that 60 percent of the sample members work. Define a consistent estimator of δ , and determine its value based on this sample information.
- b. Why is it possible to estimate the parameters of a model in which there is no variability in sample values of the “regressors” w and Y ?
- c. Among the 60 percent of the sample members who work, you get to observe their hours of work $h_i (= T - l_i)$. If wages and nonlabor income are equal for all population members, is this information valuable, in the sense of permitting “better” estimates of δ , given that we already know the sample participation rate? Is it valuable if wages and/or nonlabor income are heterogeneous in the population and the sample? Why?