

Fall 2009: Econometrics I

Homework Assignment #5 (Due Wednesday, 11/04, in class)

1. Suppose a family chooses annual consumption c_i (in dollars) and charitable contributions q_i (in dollars) to maximize their utility:

$$\begin{aligned} \max_{c_i, q_i} \quad & U(c_i, q_i) = c_i + \alpha \log(1 + q_i) \\ \text{s.t.} \quad & c_i + p_i q_i = y_i \end{aligned}$$

where p_i that depends on the marginal tax rate is the “price” of charitable donations. We observe a sample of families on their contribution amount and their income. We may also calculate each family the marginal tax rate.

- a. Obtain a linear empirical model to estimate the effect of price on the charitable contributions.
- b. Suppose we are interested how individual and family characteristics, denoted as x_i , may affect the charitable contributions. Suggest an empirical model to estimate this model.
Hint: the vector x_i may affect the parameter α in the utility function. One possibility is to let $\alpha_i = \exp(x_i\beta)$, and build an empirical model based on this.
- c. The price of charitable contributions p_i actually depends on the amount of contributions. How would this fact affect the estimation suggested before?

2. page 179, #7.2
3. page 181, #7.4
4. page 181, #7.8
5. page 206, #8.6