EE325

The Significance of the Stochastic Disturbance Term

Vagueness of theory

- Weekly income X influences weekly consumption expenditure Y
- We might be ignorant or unsure about the other variables affecting Y
- Therefore u_i may be used as a substitute for all the excluded or omitted variables from the model

Unavailability of data

- We may not have quantitative information about these variables
- E.g. family wealth

Core variables versus peripheral variables

- Assume in our consumption-income example that besides income, the number of children, gender, religion, education, and geographic region also affect consumption expenditure
- But it is quite possible that the joint influence of all or some of these variables may be so small and at best nonsystematic or random that as a practical matter and for cost considerations it does not pay to introduce them into the model explicitly

Intrinsic randomness in human behavior

- Even if we succeed in introducing all the relevant variables into the model, there is bound to be some “intrinsic” randomness in individual Y’s that cannot be explained no matter how hard we try

Poor proxy variables

- Although the classical regression model assumes that the variables Y and X are measured accurately, in practice the data may be plagued by errors of measurement

Wrong functional form

- Even if we have theoretically correct variables explaining a phenomenon and even it we can obtain data on these variables, very often we do not know the form of the functional relationship between the regressand and the regressors.