

PAPER NO - 5

STATISTICAL METHODS IN ECONOMICS-II

Course Description

This is the second part in the two part course on statistical methods. It begins with a discussion on sampling techniques used to collect survey data. It introduces the notion of sampling distributions that act as a bridge between probability theory and statistical inference. It then covers topics in inference that include point estimation, statistical intervals and hypothesis testing. It concludes with a discussion of the simple linear regression model.

Course Outline

1. Sampling

Principal steps in a sample survey; methods of sampling; the role of sampling theory; properties of random samples.

2. Point and Interval Estimation

Procedures; properties of estimators; confidence intervals for population parameters.

3. Hypothesis Testing

Defining statistical hypotheses; distributions of test statistics; testing hypotheses related to population parameters; Type I and Type II errors; power of a test; tests for comparing parameters from two samples.

4. Simple Linear Regression

Estimation of the slope and intercept parameters; inference and prediction.

Readings

1. Jay L. Devore, *Probability and Statistics for Engineers*, Cengage Learning, 2010.
2. William G. Cochran, *Sampling Techniques*, John Wiley, 2007.
3. Richard J. Larsen and Morris L. Marx, *An Introduction to Mathematical Statistics and its Applications*, Prentice Hall, 2011.