



REGRESSION ANALYSIS (SM 1)

The course will teach the participants the most widely used statistical technique for analyzing the variability of a variable of interest (referred to as the dependent variable) by using information from one or more other variables (referred to as independent variables), known as Regression Analysis. This analysis is appropriate for data from surveys, which aim to answer policy and research questions similar to: “What are the expected changes in the dependent variable as a result of changes, observed or induced, in the independent variable(s)?” The goal is to understand and predict the behavior of the dependent variable given certain conditions as represented by the independent variables.

Purpose

To provide participants the proper knowledge and skills in understanding and explaining relationships among variables.

Benefits to Participants

Hands-on applications of the basic techniques on organization and management of data for regression analysis, as well as understanding of the basics of the statistical model-building process. The knowledge and skills learned in this training prepares the participant to do model building as a process that explains relationship among variables. More so, the participants will be able to execute the model building process using GRET, an open-source statistical package. This software is comparable to EViews® as it also have graphical user interface (GUI) and drop down options.

Target Participants

Technical staff whose work requires examination of data sets for structural relationships, build and use econometric models for making predictions. Participants must have prior knowledge in computer operations, basic data management, and basic statistics up to inferential techniques on hypothesis testing. Equivalent recommended prerequisites are PSRTI training courses on Microsoft Excel for Data Management (SW 1), Basic Statistics 1: Descriptive Statistics (BS 1), and Basic Statistics 2: Estimation and Hypothesis Testing (BS 2).

Course Coverage

- I. Basic Concepts in Regression Analysis
 1. Correlation Analysis
 2. The Model Building Process
 3. The Simple Linear Regression Model (SLRM)
 4. The Multiple Linear Regression Model (MLRM)

- II. Introduction to GRET
 1. The GRET Interface
 2. Basic Data Management in GRET
 3. Simple Descriptive Tools in GRET
 4. Regression Analysis in GRET
 5. Performing Diagnostic Checks

- III. Estimating and Evaluating the Regression Model
 1. Regression Model Assumptions
 2. Analysis of Variance and t-tests in Regression
 3. Model Selection

IV. Transformations, Dummy Variables, and Interaction Terms

1. Log Transformations
2. The Use of Dummy Variables
3. The Use of Interaction Terms

V. Post-estimation Procedures

1. Regression Diagnostics
2. Remedial Measures
3. Dealing with Outliers
4. Prediction

Duration: 5 Days – 8:30am to 4:00pm