

ECO 6416: Simple Regression

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Linear Equations

A linear equation in “slope-intercept” form has the following form:

$$y = mx + b$$

where y is the dependent variable, x is the independent variable, m is the slope, b is the intercept.

A linear equation allows us to perform the following tasks:

- ▶ summarize the relationship among variables in an equation
- ▶ predict variable from data on related variables
- ▶ sensitivity of variable to a related variable

Advantages of Regression vs Descriptive Statistics

Descriptive Statistics:

- ▶ Univariate analysis describes the center, shape, and spread
- ▶ Bivariate analysis describes direction, strength, and form

Regression Analysis:

- ▶ Both simple and multivariate regression measure and explain the variation of the dependent variable (y)
- ▶ Make Decisions
- ▶ Analyze Data
- ▶ Identify Patterns, Trends, and Relationships
- ▶ Identify and understand variation
- ▶ Use samples to draw conclusions about the population