Lecture 11

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Introduction to Regression Analysis

- ▶ In the last lecture, we will start the most frequently used econometric technique: linear regression analysis.
- ▶ We focus on simple linear regression: regression analysis with one dependent variable and one independent variable.

Introduction to Regression Analysis

The outline of this part of the lecture will be as follows:

PartI: Regression Analysis for Predictive Modeling

- ► Fit economic models to data
- ► OLS estimation
- ► Properties of the OLS estimator
- ► Sampling distribution of OLS estimator in normal regression
- ► Asymptotic properties of OLS estimator
- ► Discrete choice model

PartII: Regression and Causality

- ► Regression and Causality

Introduction to Regression Analysis

- ▶ In our first lecture, we looked at the relationship between income and consumption, a very important relationship in macroeconomics.
- ▶ More relationships in other fields of economics:
- ▶ Example1: Relationship between campaign expenditure and the votes received in US
- ▶ Example2: Relationship between CEO's payment and company's performance
- ▶ Example3: Relationship between schooling and wage
- ▶ Example4: Relationship between SAT score and college GPA

Introduction to Regression Analysis

► Economic theory itself is not able to fully specify these relationships quantitatively, or theory might suggests some relationship whose correctness is unknown

► We need to take these models to data