

avoid parametric models
microeconometrics

observe units at a point in time

observing the same set of units over time

departures from OLS in a cross-sectional setting or in a longitudinal setting

ECONOMETRICS → focus OLS

we may find that OLS could not be applied to answer a research question

not necessarily applied to "micro" type problems only

time series econometrics / macroeconometrics
↑ financial econometrics
↑ "outdated"

data structure

→ observing a unit over long periods of time →

time dimension has special meaning
- order matters

OLS is usually applied but there are a lot of exceptions in ECONOMETRICS → observations form a random sample (i.i.d)

parametric models show up more often

models are summarized by a finite number of unknown constants
distributions are specified.

discrete choice modeling → regressand (Y) is categorical

example. $Y \in \{0, 1\}$
↳ spam
↳ not spam

$Y \in \{0, 1\}$
↑ do not enter the labor force
↑ enter the labor force

$Y \in \{A, B, C, D\}$
bond ratings.

ECONOMETRICS
- empirical corporate finance
- empirical asset pricing
- Philippine setting: household finance

IDAMS (ipums.org)

business math → rate of return is usually constant

Why bother taking log of returns?

connection to ECONOMETRICS (log transformation)
striking contrast to ECONOMETRICS

Section 2.6

$\ln(Y \sim X)$
 ~~$\ln(\log(Y) \sim X)$~~

review algebra esp. logarithms.

$$\log(1+R_t) = \log \frac{P_t}{P_{t-1}} = \log P_t - \log P_{t-1}$$

multiplication "becomes" addition

$\log(1+x) \approx x$ (calculus result, Taylor series approx)
when x is small