Outline

See Better, Look Better

Everybody has some ability to predict and estimate.
Statistics enhances and sharpens this ability with stat/comp powers.

Conceptual framework

- Intuition vs. Educated Intuition and Educated Guess
- Whole might be easier to be understood than part.
- Raw data is not helpful; organized or summarized data is.
- Systematic way of organizing, analyzing, understanding what happened and predicting the future.
  - Estimation/Evaluation from partial sample to whole population.
  - Prediction from the observation from the past.

The Stat Edge

- Why statistics? Alternatives?
- Questions to be answered, the way to be answered, the way of formulating the problem.
- Concepts: Population, sample, probability distribution, density, parameter, errors

Evolution:

$x \;!\; X \;!\; Xj \;!\; \hat{}$

$X \quad x_1; \quad ;x_n \;!\; X_1; \quad ;X_n$

Possible projects

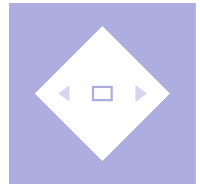
- Data sets are everywhere but not necessarily easily analysis
- Refer to JSE or your favorite portal
- JSE, Statlib
- Public data on google

Evaluation

- Homework
- Team projects and presentations
- Exams (written, oral, onsite and quiz)

RA Strategy 0: Preliminary

- What is the problem?
- How the result will be used or interpreted (impact of the study)?
- How the data was obtained (say, nature of the study: Observational vs. Experimental, Cross-sectional vs. Longitudinal, etc)?



RA Strategy 2-1

Model Development

1. Develop one or more tentative (regression) models
2. Check if these models are suitable for the data at hand
3. If not back to the rst step; otherwise, proceed identify most suitable models

Beyond Numbers

- Statistical signi cance vs. practical signi cance.
- What is the ultimate decision and the criterion of evaluation of the decision?
- The limitation and scope of the inferences. What can go wrong?

Graphs and Stat gures: Ways of seeing

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Reading and Practice

1. Review Simple Linear Regression
2. KNNL, Ch. 1, 2 and 5 (NWNK, Ch. 6), Matrix Approach to Simple Linear Regression
3. Download, install and play **R**. Read the sample programs from R classroom.
4. Browse StatLab. Particularly, read the stories and data in