SSS2: Introduction

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Plan

- **Welcome** (10mins)
- **Discussion #1:**
  - why learn about regression… (15 mins)
- **Course structure** (15 mins)
- **Discussion #2:**
  - how would you like the course to be taught (15 mins)
- **Questions** (5 mins)

Welcome to SSS2!

- www.gpryce.com → Statistics & SPSS
- No labs this week.

- **Lectures:** Mondays
  - 1-3pm 10/1 – 7/2 2011 (5 weeks)
  - 2-3pm 14/2 & 28/2 2011 (2 weeks)
  - Sir Alexander Stone Building Room 204

- **Labs:** Mondays
  - 4-5pm OR 5-6pm (attend 1 per week)
  - 17/1 – 7/2 2011 (4 weeks) & 3-5pm OR 5-7pm (attend 1 per week)
  - 14/2 – 14/3 2011 (5 weeks) &
  - 1 Additional drop-in lab, to be arranged.
- All in IT Labs, Adam Smith Bldg

- **Tutorials:** Mondays
- 3-4pm OR 6-7pm (attend 1 per week) 24/1 – 7/2 2011 (3 weeks)
- 3-4pm = Rooms 705, 706 & 1101, Adam Smith Building
- 6-7pm = Room 715 Adam Smith Building

- **No labs this week.**

- **Introduce yourself in 5 seconds**:
  1. Name
  2. Course
  3. + something interesting about yourself
     - E.g.
       - Where you are from or your research interest or career goal or what you are passionate about…

Discussion #1: Why learn about regression?

- *What is regression analysis?*
- *What are its advantages?*
- *What are its limitations/challenges?*
- *How can these be overcome?*

Course Structure

- L1: Correlation and Regression
- L2: Prediction and ANOVA
- L3: Non-Linearities
- L4: F-Tests
- L5: Ommitted Variables & Measurement Errors
- L6: Heteroscedasticity
- L7: Multicolinearity & Modeling Strategies
- L8: Binary Dependent Variable Estimation

L1: Correlation and Regression

- 1. Covariance & Correlation Coefficients
- 2. Multiple Regression
- 3. Interpreting Coefficients
- 4. Inference
- 5. Coefficient of Determination

L2: Prediction and ANOVA

- 1. Prediction
- 2. ANOVA in regression
- 3. F-Test
- 4. Regression assumptions
- 5. Properties of OLS estimates

L3: Non-Linearities

1. Consequences of non-linearities
2. Testing for non-linearities
    - (a) visual inspection of plots
    - (b) t-statistics
    - (c) structural break tests
3. Solutions
    - (a) transform variables
    - (b) split the sample
    - (c) dummies
    - (d) use non-linear estimation techniques

L4: F-Tests

- 1. General Test for a set of linear restrictions
- 2. Testing homogenous restrictions
- 3. Testing for a relationship
- 4. Testing for Structural Breaks

L5: Omitted Variables & Measurement Errors

- 1. Regression Assumptions
- 2. Omitted Variables
- 3. Irrelevant Variables
- 4. Errors in Variables
- 5. Error Term with zero mean

L6: Heteroscedasticity

- 1. What is heteroscedasticity?
- 2. Causes
- 3. Consequences
- 4. Detection
- 5. Solutions

L7: Multicolinearity & Modelling Strategies

- 1. What is multicolinearity?
- 2. Causes
- 3. Consequences
- 4. Detection
  - Tolerance & VIF
  - Condition Index
- 5. Solutions
- 6. Modelling Strategies

Discussion #2: how would you like the course to be taught?

E.g.

- What did you like about the way SSS1 was taught?

- What would you like to change about the way SSS1 was taught?

- What are your main worries about SSS2 and how do you think we can best address them?

Questions: