

REVIEW SHEET FOR FINAL EXAM

- I. Properties of Estimators
 - A. Finite-Sample Properties (Bias, Efficiency)
 - B. Asymptotic Properties (Consistency, Asymptotic Efficiency)
- II. Moments and Parameters in a Bivariate Linear Model.
 - A. Algebra of Expectations.
 - B. Moments in terms of Parameters.
 - C. Parameters in terms of Moments.
 - D. Correlations and Standardized Coefficients
 - E. Estimation and Testing.
 - F. Invariance
- III. Decomposing Effects in Recursive Models
 - A. Moments and Parameters
 - B. Reduced Form
 - C. Total Effects, Direct Effects, Indirect Effects.
 - D. Decomposing Effects in a Three-Equation Model.
- IV. Consequences of Random Measurement Error in Linear Regression Models.
 - A. Independent Variable.
 - B. Dependent Variable.
- V. Walking Dog Model.
 - A. Moments in terms of Parameters.
 - B. Parameters in terms of Moments.
 - C. Overidentifying Restriction.
 - D. Estimation and Testing.
- VI. General LISREL Model in Matrix Form.
 - A. Specification of Matrices.
 - B. Moments in terms of Parameters.
- VII. LISREL 8 and PRELIS 2 Programs.
 - A. Setting up Models.
 - B. Interpreting Output.
- VIII. Identification of Models.
 - A. Confirmatory Factor Models.
 - B. Multiple-Indicator Multiple-Indicator Cause Models.
 - C. Non-Recursive Models.
 - D. Practical Ways of Checking Identification.
- IX. MIMIC Models
 - A. Moments in terms of Parameters.
 - B. Overidentifying Restriction on Moments.
 - C. Reduced Form: Overidentifying Restriction on Reduced-Form Parameters.
- X. Non-Recursive Models.
 - A. Identification.
 - B. Bias of OLS.
 - C. Instrumental Variables, 2SLS, ML.
 - D. Partially Identified Model.

Be Prepared to:

1. Know the difference between a structural parameter and an observed moment.
2. Compute moments in terms of parameters for simple models (e.g., walking dog model).
3. Decompose effects into total, direct, and indirect effects for a simple model.

4. Discuss the consequences of random measurement error.
5. Discuss the notion of invariance, structure, scientific parsimony.
6. Discuss finite sample and asymptotic properties of estimators.
7. Identify and discuss a model specified in LISREL code only.
8. Understand the specification of the general LISREL model in matrix form.
9. Discuss rules for identifying models.
10. Know why OLS will give biased estimates of nonrecursive models.
11. Know how instrumental variables work.
12. Discuss the relationship between $\Sigma, \Sigma(\theta), S, \Sigma(\hat{\theta})$
13. Know why maximum likelihood is often needed to estimate structural equation models.
14. Know that equation-by-equation OLS gives estimates with optimal properties for recursive models in observables.