

**MKT 791--Research II**  
**Spring 1996**  
**R. Kleine**

**SESSION 11: Multiple Regression and Discriminant Analysis**

**READINGS**

Hair, Joseph F., Jr., Rolph E. Anderson, Ronald L. Tatham, and William C. Black (1995), *Multivariate Data Analysis with Readings*, 4th ed., Englewood Cliffs, NJ: Prentice-Hall.

◆ Chapter 3: Multiple Regression Analysis

Mason, Charlotte H. and William D. Perreault, Jr. (1991), "Collinearity, Power, and Interpretation of Multiple Regression Analysis, *Journal of Marketing Research*, 27 (August), 268-280.

Hair, Joseph F., Jr., Rolph E. Anderson, Ronald L. Tatham, and William C. Black (1995), *Multivariate Data Analysis with Readings*, 4th ed., Englewood Cliffs, NJ: Prentice-Hall.

◆ Chapter 4: Multiple Discriminant Analysis

Pedhazur, Elazar J. (1982), Chapter 18: "Canonical and Discriminant Analysis, and Multivariate Analysis of Variance," Read pp. 750-end.

Klecka, William R. (1980), *Discriminant Analysis*, Newbury Park, CA: Sage, QASS #19.

Pedhazur, Elazar J. (1982), Chapter 17: "Multiple Regression, Discriminant Analysis, and Multivariate Analysis of Variance," Read pp. 685-710.

## YOUR TURN

This assignment has two distinct parts. Part 1 has you perform a path analysis using (a) regression and (b) PROC CALIS with observed variables. Through this you will experience the costs/benefits of examining structural relations between observed variables rather than between latent variables. Part 2 requires that you run a discriminant analysis. Have fun!

### Part 1

Do the following to explore additional ways you can investigate a set of hypothesized structural relations. Specifically, I ask you to rerun the structural analysis you performed recently except this time I want you to use observed rather than latent variables.

1a. Study PROC GLM and PROC REG. How are they different? When might you prefer one over the other?

1b . Run a multiple regression analysis using PROC GLM or PROC REG. If feasible, use the same constructs you used in your structural analysis last week. Create sum scales for purposes of this analysis. Estimate the same paths as you estimated in your structural analysis. NOTE: More than one regression analysis may be necessary to model all relations included in your CSA. Do the results of this analysis differ from your CSA?

1c. Now, use your sum scales and examine these construct relations using PROC CALIS. Note that you will specify relations between *observed*, not latent--i.e., you will perform a *path analysis*, variables. Compare this analysis with the full structural analysis and your regression analysis(es). Any differences?

1d. What are the pros/cons of analyzing these construct relations using multiple regression, path analysis, and/or a full CSA?

1e. Bring all three analyses (i.e., regression, path analysis with observed variables, full structural analysis using latent variables) to class.

### Part 2

Run a discriminant analysis. Run it once using PROC CANDISC. Run it again using PROC DISCRIM. Interpret the results. Bring these analyses to class.

## SESSION 9 SUPPLEMENT

Crask, M. and William Perreault (1977), "Validation of Discriminant Analysis in Marketing Research," *Journal of Marketing Research*, ?? (February), ??.

Dillon, William R. and Stuart Westin (1982), "Scoring Frequency Data for Discriminant Analysis: Perhaps Discrete Procedures Can Be Avoided," *Journal of Marketing Research*, ?? (February), 44-56.

Frank, Ronald E., William F. Massy, and Donald G. Morrison (1965), "Bias in Multiple Discriminant Analysis," *Journal of Marketing Research*, ?? (August), 250-258.

Morrison, Donald G. (1969), "On the Interpretation of Discriminant Analysis," *Journal of Marketing Research*, ?? (May), 156-163.

Robertson, Thomas S. and James N. Kennedy (1968), "Predictions of Consumer Innovators: Application of Multiple Discriminant Analysis," *Journal of Marketing Research*, ?? (??), 64-69.

In conclusion, an example:

Dant, Rajiv P. and Patrick L. Schul (1992), "Conflict Resolution Processes in Contractual Channels of Distribution," *Journal of Marketing*, 56 (January), 38-54.