

8. *Basic Types of Quantitative Comparisons*

SUGGESTED COURSE EXTENSIONS

A. Reviewing

1. Find a report about recent patterns in mortality, fertility (National Center for Health Statistics website), or unemployment (Bureau of Labor Statistics website).
 - a. Identify an example of each of the following: rank, difference, ratio, and percentage difference or change.
 - b. For each example, identify the reference value. Does it come from within their data or some other source (e.g., a historic value or a reference population)?
 - c. Read the explanations of those examples. Is each one clear? If not, use the criteria outlined in chapter 8 of *Writing about Multivariate Analysis, 2nd Edition* to improve the explanation.
 - d. Identify at least one instance where a different (or additional) comparison would be useful. Perform the calculations and write a sentence to present the results.
2. Find a journal article about an application of a multivariate model.
 - a. Identify which kinds of basic quantitative comparisons are used to contrast and interpret numeric findings.
 - b. Repeat questions A.1b through A.1d for the quantitative comparisons in that article.

B. Applying Statistics

1. For a continuous independent variable from your data set
 - a. Identify a pair of values to contrast.
 - b. Choose two ways to compare the numbers. Explain your choice of types of quantitative comparisons, with reference to common usage in your field.
 - c. Calculate the pertinent comparisons.
 - d. Write a paragraph to explain the results of your calculations from part c.
 - e. Use the checklist at the end of chapter 8 of *Writing about Multivariate Analysis, 2nd Edition* to evaluate the completeness and clarity of your explanation.

2. List all of the categorical variables used in your multivariate model, either as a dependent or independent variable. For each,
 - a. Identify the modal value.
 - b. Read the literature to see which value of that variable is most commonly used as the reference category.
 - c. Consider the role of that variable in your research question and whether that affects your choice of a reference category.
 - d. Cross-tabulate the independent variables to identify the modal categories of the variables in bivariate combination with one another.
 - e. Using the information in parts a through d and the criteria in chapter 8, specify which category you will use as the reference category and explain the basis for your choice.

3. Calculate attributable risk for a risk factor and outcome in your data.
 - a. Use logistic regression to estimate the relative odds (odds ratio) of a categorical dependent variable for a dichotomous risk factor (independent variable).
 - b. In conjunction with information on the prevalence of that risk factor, calculate the attributable risk.
 - c. Write a sentence interpreting the results of the attributable risk calculation with reference to the specific variables involved.

C. Writing and Revising

1. Identify a numeric background fact to compare with information for other time periods or cases as part of the introductory section of a research paper.
 - a. Select two pertinent types of quantitative comparisons for that fact. Explain your choice, with reference to the topic of your paper.
 - b. Look up the relevant data, and calculate the comparisons.
 - c. Write a paragraph that integrates those quantitative comparisons, including citations.
 - d. Use the checklist at the end of chapter 8 of *Writing about Multivariate Analysis, 2nd Edition* to evaluate the completeness and clarity of your description.

2. Repeat question C.1 for the results section of your paper.