6. *Creating Effective Charts*

SUGGESTED COURSE EXTENSIONS

A. Reviewing

1. In a journal article from your field,

    a. Find a chart that presents the relationship between two variables. Use table 6.1 on pp. 140–41 of *Writing about Multivariate Analysis, 2nd Edition* to assess whether that type of chart is appropriate for the types of variables involved.
    b. Evaluate whether you can understand the meaning of the numbers in the chart based only on the information in the chart. Suggest ways to improve labeling and layout.
    c. Using information in the article, revise the chart to correct those errors.
    d. Consider whether a different chart format would be more effective.
    e. Pick a table from the article. Draft a chart to present the same information, including complete title, axis labels, legend, and notes.

2. Repeat question A.1 with a chart that portrays the relationship among three variables (e.g., two independent variables and a dependent variable).

3. In a journal article from your field, find a chart that presents the relationship between a nominal independent variable with more than two categories, and a dependent variable.

    a. Identify the principle used to organize the categories of the nominal variable on the axis of the chart, with reference to the criteria in chapter 6.
    b. Critique whether that organization coordinates with the associated narrative.
    c. Sketch a revised version of the chart that addresses any shortcomings you identified in part b.

B. Applying Statistics

1. Create a chart to show the frequency distribution of a variable from your data set. See table 6.1 on pp. 140–41 of *Writing about Multivariate Analysis, 2nd Edition* to decide on the most suitable type of chart for that variable's level of measurement.

2. Estimate a difference in means for a continuous dependent variable according to values of a categorical independent variable. Create a chart to present the results, using the checklist in chapter 6.

3. Estimate a logistic regression model of a binary dependent variable as a function of three or four dummy variables. Using the criteria in chapter 6, create a chart to show the 95% confidence intervals around the log-odds estimate for each of the independent variables, including a reference line to convey the null hypothesis.

4. Obtain a copy of the instructions for authors for a leading journal in your field. Revise the charts you created in questions B.1 through B.3 to satisfy their criteria.

C. Writing and Revising

1. Design a chart to portray results of a bivariate analysis involving a nominal independent variable with more than two categories. Specify which principle you would use to decide in what order to display values of the independent variable the on the *x* axis, referring to the criteria in chapter 6 of *Writing about Multivariate Analysis, 2nd Edition*. Explain your choice of organizing principle, with reference to the specific objectives of your analysis.

2. Design a chart to portray the frequencies or mean values of a series of related items (e.g., symptoms, sources of income) in your data set. Specify which of the organizing principle(s) in chapter 6 you would use to organize those items on the *x* axis, and explain your choice:

   a. For a description in the results section of an academic paper;
   b. For a chart to be used as a source of secondary data for other users.

3. Evaluate a chart you created previously for a paper about a multivariate analysis, using the checklist for chapter 6 and the instructions for authors for your selected journal.

4. Peer-edit another student's charts after he or she has revised them, again using the checklist and the instructions for authors for their selected journal.

5. Read through a results section you have written previously. Identify topics or statistics for which to create additional charts such as net effects of interactions or multiterm specifications from your multivariate model. Draft them using pencil and paper, including complete title, labels, legend, and notes.

6. Identify a table or portion of a table in your paper that would be more effective as a chart. Draft that chart, including complete title, labels, legend, and notes.