CHAPTER 1

STATISTICS AND PUBLIC ADMINISTRATION

Objectives

This chapter is intended to introduce the text. The chapter discusses the advantages of statistics for effective administration in the public and nonprofit sectors, presents options for managers in learning and using statistics, and explains the role of calculation in mastering this material. The chapter outlines standards for accreditation of master’s-level degree programs in public affairs, policy and administration, promulgated by the National Association of Schools of Public Affairs and Administration (NASPAA). The NASPAA curriculum components call for developing background and skills in policy and program implementation and evaluation as well as in decision-making and problem-solving. Statistics are very important to these tasks. Finally, the chapter provides a guide or road map to the rest of the text.

Major Points

The major point of this chapter is to relate courses in research methods and statistics to the MPA curriculum as an essential element.

Difficult Points

This chapter is introductory to the text and should not raise any difficulties.

Answers to Computational Problems

Given the nature and content of the chapter, it does not present computational problems for students.

Examination Questions and Answers

1.1 Discuss the role of statistical information, as opposed to other types of information, in making decisions in public or nonprofit administration, and in becoming an effective manager.

Answer

Open-ended.

1.2 Discuss the advantages -- and any disadvantages -- of statistics for the study and practice of public and nonprofit administration.

Answer

Open-ended.

1.3 The MPA curriculum incorporates a great variety of analytical tools and larger social and public values and perspectives. The curriculum has significant breadth. How large a part should statistics play in the curriculum of MPA programs? What priority should be given to statistics in the MPA curriculum?

Answer

Open-ended.

CHAPTER 2

MEASUREMENT

Objectives

This chapter is intended to present the fundamentals of measurement in the social sciences as applied to public administration. The major objective is to acquaint students with the concepts of the validity and reliability of an indicator and to point out the distinctions in levels of measurement of variables and their implications for quantitative description and analysis.

Major Points

Measurement is the assignment of numbers or category labels (for example, ‘disagree’, ‘neutral’, ‘agree’, or ‘female’, ‘male’) to a phenomenon. In public and nonprofit management we have three levels of measurement--interval, ordinal, and nominal. The level of measurement determines what statistics can be calculated. The two key issues in measurement are reliability (the stability of scores, for example, if we measure a phenomenon twice, will we get the same value?) and validity (are we measuring what we think we are measuring?).

Difficult Points

Students sometimes have trouble interpreting nominal level variables. For example, if gender is coded as a dummy variable (1=male, 2=female), some students may think that since 2 is greater than 1,the values for females are substantively “larger” than those for males. Similar problems are encountered with the interpretation of ordinal level variables. Asking students to interpret examples of nominal and ordinal variables is helpful.

Students may also wonder how to choose the numbers to represent nominal or ordinal variables. You may want to emphasize that when coding a nominal and ordinal variables, there is no inherently “correct” numbering scheme. A nominal variable does not have to be coded as “0 or 1" or “1 or 2.” These are simply easy to remember and logical starting points. Similarly, if students are coding an ordinal variable with 5 categories, there is no one “correct” set of numbers for the category labels. “Zero through 4,” “1 through 5," or “10 through 14" would all be fine. The main point to get across is that each category needs to have a different number, but the initial numbers selected are the choice of the analyst.

Aside from difficulties with nominal and ordinal variables, this chapter is largely substantive, as opposed to statistical, in orientation and generally raises few difficulties for students. Distinguishing validity from reliability can be a problem. In sum, this chapter is one of the easiest in the text for students to understand.

Answers to Computational Problems

Given the nature and content of the chapter, it does not present many computational problems for students. Answers are provided only for problems 2.9 through 2.12.

2.9 A unique number should be selected to represent each category. Since there are 4 categories, numbering the categories 1 through 4 is logical, but other numbers are acceptable.

1=Friend

2=Silver

3=Gold

4=Platinum

Interval version Ordinal version

$25 1

$150 2

$75 1

$450 3

$100 2

$750 4

$90 1

$175 2

$250 3

$50 1

2.10 Establish a coding scheme for each variable. Since the choice of numbers used to label each category is up to the student or instructor, the version presented here is just one of many possible variations.

Gender

1=male

2=female

Delivery of meals

0=no

1=yes

Assistance with transportation

1=Never

2=Rarely

3=Frequently

Since there is an inherent ranking, assistance with transportation is an ordinal level variable.

Apply the above numbers to the table. Ask the students to explain in words what the numbers for each client mean. Using the coding scheme above, the row of data for first client has values of 1, 1,1. Substantively, this means the first client is male, utilizes meal delivery, and never requires assistance with transportation.

You might even suggest that students write the appropriate numbers directly onto the table to help them remember what the numbers for each observation represent in words.