DEPARTMENT OF POLITICAL SCIENCE
AND
INTERNATIONAL RELATIONS
Research Methods Posc 302

MEASURING CONCEPTS

I.   TODAY'S SESSION:
      A.   Presenting statistical data in reports
            1.   First try
      B.   Measurement
            1.   Theory
            2.   Question writing
            3.   Critical examination
      C.   **Writing tip of the day**:
            1.   Keep it short and sweet: use the simplest expression possible.
            2.   Example: "The proposition that is being tested in the table is the relationship between race and voting." can be written more simply as "The table test the proposition that race and voting are related.."
                  i.   The second sentence contains fewer words and seems more direct.

II.   PRESENTATION:
      A.   Once data have been collected and interpreted they have to be conveyed to the audience, usually in a written report, occasionally in a "presentation."
            1.   For now we'll consider a some elementary and mandatory rules.
      B.   Guidelines:
            1.   Display all necessary information to make a point and no more.
                  i.   Reduce "chart junk."[1]
                  ii.   Maximize data to ink ratio[2]
                  iii. Present the data in the simplest way possible consistent with completeness necessary to draw accurate conclusions.
                  iv.   Integrate figures and tables with the text.
      C.   Example:
            1.   Here's what we get from SDA, a typical statistical analysis program. (See Figure 1.)
                  i.   As we've seen before, it shows the relationship between gender and opinions on government health care.
                  ii.   But the table contains a lot of information and data that will make

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[1]Edward Tufte, *The Visual Display of Quantitative Information*, (Cheshire: Graphic Press, 1983) pp. 107-121

[2]Tufte, *Visual Display*, Chapter 4.

no sense to any reader.

Frequency Distribution				
Cells contain: -Column percent -N of cases		v960066		
		1 Male	2 Female	*ROW TOTAL*
v960479	1 Government insurance plan	**11.8** 81	**16.6** 137	*14.4* *219*
	2 2	**9.5** 65	**11.9** 98	*10.8* *163*
	3 3	**14.7** 101	**13.7** 113	*14.1* *214*
	4 4	**19.1** 131	**22.5** 186	*21.0* *317*
	5 5	**18.5** 128	**14.2** 117	*16.2* *245*
	6 6	**14.7** 102	**10.9** 90	*12.6* *191*
	7 Private insurance plan	**11.7** 81	**10.2** 84	*10.9* *165*
	COL TOTAL	*100.0* *689*	*100.0* *825*	*100.0* *1,514*

Figure 1: Computer Generated Cross-tabulation Table

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            iii.   Consequently we need to type an appropriate table or perhaps
                    graphic figure.
    D.   A simple printed table:

Table Title[1]			
Variable name, not numbers.	**Variable name and column labels (No abbreviations if possible)**		
	Label 1	**Label 2**	**Label 3**
Label 1			
Label 2			
Totals	N_1	N_2	N_3

1.   The table should contain:
   i.   A title.
   ii.   Variable names
   iii.   Category (value) labels.
   iv.   **If** percentages are being displayed, at least include the appropriate N's.
      1)   It's not necessary to include the cell frequencies since the reader could, if necessary, include calculate them.
   v.   Don't use abbreviations or variable numbers or symbols that have little or no meaning to the average reader.
   vi.   Include the table in the text.
   vii.   The first percentages should have a percent sign so that the reader will know that entries are percents.
      1)   Or, the title can contain an indication that the entries are percentages.
   viii.   The row marginal totals are usually unnecessary when displaying column percentages.
      1)   The total N can be included in the title.
   ix.   It's nice to include the question wording at the bottom of the table, although I didn't bother doing so in the table below.
   x.   **Spell check and proofread tables. Don't be like me!**
2.   Example:

Relationship Between Gender and Opinion on Health Insurance (N = 1,514)		
Opinion on health insurance	**Gender**	
	Male	**Female**
Government plan	11.8%	16.6
2	9.5	11.9
3	14.7	13.7
4	19.1	22.5
5	18.5	14.2
6	14.7	10.9
Private plan	11.7	10.2
	100% 689	100% 825

E.   Table creation.
    1.   If time permits, I will show you how I use WordPerfect to create tables.
        i.   The steps and tools are pretty much the same in Word and other word processing packages.
    2.   Some tips and shortcuts that I use:
        i.   Figure out the table measurements before starting, although it is easy enough to add and delete rows and columns.
        ii.   Most of the time if you place the insertion point or cursor in the body of the table you can activate table menus and make general changes.
        iii.   I highlight entire blocks of cells in order to change the font, justification and other layout elements.
        iv.   Use a smaller type face to conserve space.
        v.   I use colors and fills because sometimes the notes appear on web pages. But you shouldn't.
        vi.   Change column widths so that words don't get divided in half.
        vii.   I like to center the table.
        viii.   Use "block protection" features of you word processor to keep tables from crossing page boundaries.
        ix.   Remember that all word processors work alike so even if you use Word and I don't illustrate it, you can find similar features by consulting the help files.

F. Examples from the real world.
    1. It might be instructive to see how a major research firm presents data.
    2. Here's an excerpt from the Public Agenda, an organization that studies public opinion for the benefit of foundations and other groups.
        i. The first passage pertains to the public's attitudes about marijuana:
            "Overall, polls show little public confidence in government efforts to deal with the drug problem. Roughly half of the American public is convinced that the nation is losing ground in its anti-drug efforts."
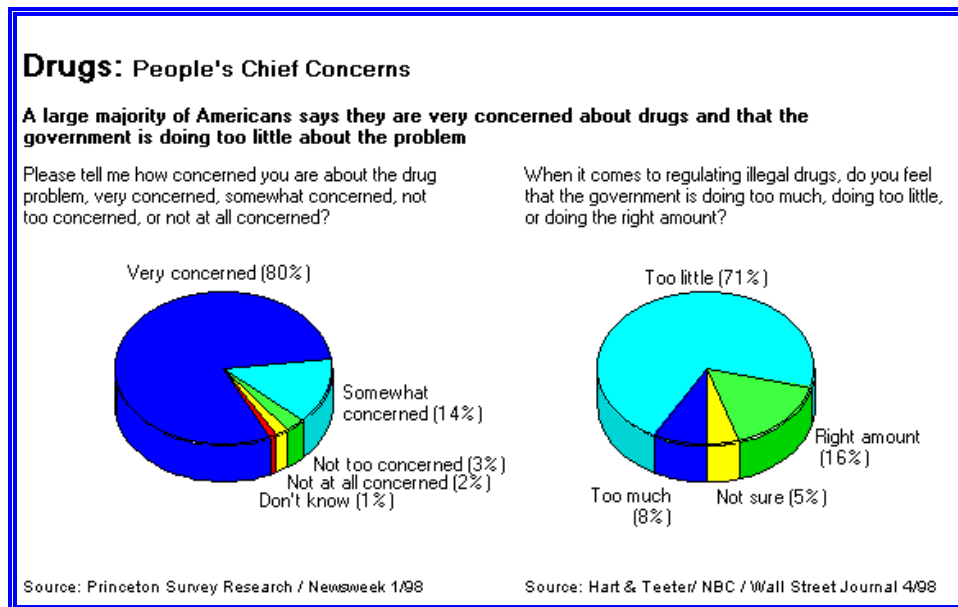   ii. The figure that supports the claim:

Figure 2: Pie Charts From the Public Agenda Fondation

        iii. In a certain sense this presentation violates many of the guidelines mentioned earlier.
            1) Nevertheless, since this way of conveying numerical information seems to be the industry standard, we'll discuss some of the techniques later.

III. MEASUREMENT:
    A. Rough definition: assignment of number or label to value of variable according to a rule.
    B. Concepts: abstract terms or definitions or variables.
        1. Unmeasured or unobserved.
        2. Since they are not immediately observable and their meaning is not entirely

            clear, they must be translated into a words and operations that

            i.   can be applied by researchers

            ii.   understood by the community of researchers and their audiences.

C.   Measurements are the steps and results of efforts to define and "operationalize" concepts.

D.   The problem:

      1.   Measurement almost invariably entails "'slippage" or a gap between our understanding of the concept and the measure we actually end up studying.
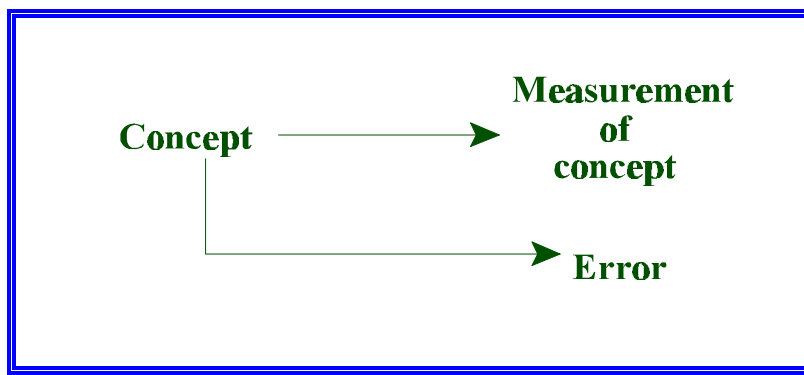
            i.   See Figure 3.

Figure 3: Slippage in Measurement

      2.   The relationship between a concept and a measure of it is sometimes called an "epistemic correlation."

E.   Questionnaires as measurement devices.

      1.   Perhaps the main tool used in public opinion research is simply to ask people to answer questions or respond to "stimuli."

      2.   It is of course the mainstay of public opinion polls.

      3.   But as everyone knows the process is fraught with difficulties that can make interpretation very difficult.

F.   Open-ended versus forced choice.

      1.   Advantages and disadvanages.

G.   Some problems:

      1.   **Reactive** questions: questions state in such a fashion that a particular answer or response is suggested.

            i.   Popularly known as the "loaded question."

      2.   **Demand characteristic**: the question is phrased in such a way or asked in such circumstances that the respondent likely feels compelled to answer in a certain way.

      3.   **Accessibility**: respondents must understand what's expected and must be able to answer.

        i.   **Recall**: respondents have to be able to understand.

        ii.   **Comprehension**: respondents have to understand terms in the question.

4.   **Motivation**: respondents have to want to answer.

        i.   Respondent **fatigue**: people get tired of answering long lists of questions.

IV.   NEXT TIME:

    A.   Measuring social class.

    B.   Statistical inference.

    C.   Reading:

        1.   Once again see Johnson and Joslyn, ***Research Methods***, Chapter 4, pages 73 to 81.

            i.   The remainder of the chapter deals with "validity"–do measures measure what their supposed to measure–and "reliability"--measures consistently give the same results when they should.