Graduate School of Social Work and Social Research
Bryn Mawr College

Data Analysis
#131
Spring Semester 2003

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Web Page Address: http://www.brynmawr.edu/Acads/GSSW/Vartanian/
Then click on: Data Analysis, SW131

Course Description

This course will prepare the student to seek answers to fundamental questions about social work practice, social policy and social programs through the analysis of quantitative data. Basic skills in the statistical analysis of data will be taught with an emphasis on the legitimate and illegitimate uses of these techniques. Particular attention will be paid to the misuse of data in support of discriminatory positions and practices toward women and minority groups. Students will be familiarized with statistical methods used to examine issues related to poverty and other social welfare issues.

Learning Objectives

Students will be expected to demonstrate the following competencies:

1. ability to use the computer, statistical software, and basic statistics to perform univariate, bivariate, and simple multivariate analyses of quantitative data;
2. ability to design and execute an original analysis of quantitative data;
3. ability to select appropriate descriptive statistics;
4. ability to generate and test hypotheses;
5. enhanced skill in writing a research article;
6. awareness of the ways in which statistics can be misapplied or misinterpreted to permit false conclusions, often in support of erroneous or biased positions with respect to women and racial, ethnic, and other minority groups;
7. ability to comprehend and effectively criticize research articles;
8. ability to engage in dialogues with social science researchers about interpretations of current research findings and important directions for further inquiry; and,
9. ability to conduct and interpret research on issues related to poverty and social welfare.
Course Requirements

Students are expected to complete assigned readings in advance of class meetings. Class attendance is a routine expectation, and it is assumed that students will take an active role in class discussions.

Late submission of assignments must be negotiated in advance with the instructor. It is assumed that all written work will be completed independently, unless otherwise specified. All written work must be produced with a word processing program (e.g., MS Word, WordPerfect).

Grades for this course are “Satisfactory” and “Unsatisfactory”, and include written and computer assignments, as well as class participation, in accordance with School policy. In order to achieve the intended outcomes for the course, the student must complete all work satisfactorily.

Grades for the class will be determined on the basis of five factors (with the proportion of your final grade for each factor):

Mid-term exam: 25%
Final Exam: 25%
Paper: 20%
Class Participation: 20%
Computer Projects: 10%

Assignments

In addition to the required readings listed in the course outline below, other reading assignments will be made from time to time.

Computer exercises will be provided to familiarize students with basic statistical tools in both SPSS and Microsoft Excel.

There will be a formal midterm and final exam.

Each student will develop and conduct an original analysis of data from the 1992/1999 Panel Study of Income Dynamics (PSID), the Child/Adolescent sample, or the Child Development Supplement. The data will be available on the computers in the computing lab in the school. All three of these data sets originate from the Survey Research Center at the University of Michigan. We have extensively manipulated the data sets so that they contain variables of interest to social work students.

The first two data sets explained here come from the Panel Study of Income Dynamics (PSID). The PSID is a longitudinal data set that started in 1968 and has continued for 32 years, with the last version available for 1999. The PSID is a representative data set of the U.S. population when weighted (the sample is a disproportionate stratified sample -- we’ll talk more about weighting later). The first data set, the Panel Study of Income Dynamics 1992/1999, includes over 4,000 individuals from the United States. I have included information for a group of individuals that were in the sample in both 1992 and in 1999. The data include information on such characteristics as income, race, education, economic situation while growing up, health status, religious preferences, housing status, whether the person was born with low birth weight, and government income assistance. The variables from 1999 contain information on such health conditions as whether the individual has cancer, heart disease, has ever had a stroke or a heart attack, has mental loss or emotional problems, or has a learning disability, and the number of years the person has had these conditions. You will be able to determine the relationship between variables for the entire sample or for particular subgroups (such as the elderly, the poor, single mothers, people of different races, husbands, wives, single adults, or those with little education). The PSID is used by a great number of researchers throughout the country because it provides a wealth of information on a nationally representative group of individuals and families.
The Child/Adolescent Sample comes from the 1968 to 1997 panels of the PSID. We examine variables for children aged 10-14 (generally – some variables are from when the child was born) and then examine these same children when they become adults. For example, we examine such childhood/adolescent variables as parental level of education, whether parents are married or not, marital status of the child’s mother when the child was born, birth weight, income, wealth, and government assistance. Also included in the data are adult variables such as age when first married, number of marriages, number of children, health status, religious preference, level of education, income, occupation, wealth and government assistance received (such as welfare). From this data, you can determine which childhood/adolescent factors help predict adult outcomes. There are nearly 4,000 individuals in this child/adolescent sample.

The third data set is called the Child Development Supplement (CDS). It is a supplement to the Panel Study of Income Dynamics. These data contain information on children, aged 0 to 12, and their primary caregivers. From these data, you can help determine what factors affect children’s health, behavior, cognitive ability, and a great variety of other outcomes. For example, you can determine how family circumstances while growing up, such as the mother’s emotional state, parental expectations of the child, parental disciplinary practices, whether the child comes from an immigrant family, the level of cognitive stimulation for the child, child’s perception of self, family income, perceived neighborhood safety, race, wealth, family composition, welfare receipt, religious practices, and many other variables, affect how children fare. Some of the principle outcome variables for these data include reading and math abilities, both internal and external behavioral problems as well as overall behavioral problems, health issues, including a great variety of problems, and many other possibilities.

Warning: All data used in this class are the property of Professor Vartanian. Under no conditions can any student claim title to any of these data or publish without the written consent of Professor Vartanian.

Each of you is advised to take a close look at the codebooks for each of the data sets to get a more complete picture of what each set of data contains. You will be using one of these data sets for the rest of the semester. Each student will select variables to use in hypothesis testing and use SPSS for Windows to execute appropriate analyses of the relationships between these variables. Three written assignments will be produced:

#1 A two to three page paper containing a problem statement, significance for social work, and the hypothesis to be tested. You need to identify the independent, dependent, and control variables and their SPSS names. Indicate the level of measurement of each of these variables. This assignment is due in the fourth class session.

#2 A two to four page paper including a statement of the research problem and a review of the relevant literature. This assignment is due in the eighth class session.

#3 A term paper including a statement of the research problem, a review of relevant literature, a description of the data and research methods, presentation of the findings, and a discussion of the implication of the findings for social work practice. This paper should be written in the form of a journal article (10-12 pages plus a bibliography). This assignment is due in the 12th class session.

All three of these assignments are explained in further detail on the web page for the class.

http://www.brynmawr.edu/Acads/GSSW/Vartanian/PaperAsg.htm

Required Text


Note: All reserve reading is on e-reserves, located on the web at:

http://www.brynmawr.edu/library/reserves/

Then click on Electronic Reserves and Course Materials, then go to Social Work, then to SW131.
<table>
<thead>
<tr>
<th>Session Number</th>
<th>Dates</th>
<th>Topic and Assignments</th>
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<tbody>
<tr>
<td>1</td>
<td>Jan. 21,22</td>
<td><strong>INTRODUCTION AND OVERVIEW OF THE COURSE</strong>&lt;br&gt;<strong>DESCRIBING AND ANALYZING DATA</strong>&lt;br&gt;<strong>FREQUENCY DISTRIBUTIONS AND GRAPHS</strong>&lt;br&gt;Readings: Weinbach and Grinnell, Chapters 1 and 2&lt;br&gt;Computer assignments #1, available on the web page for the course. This is due in week 2.</td>
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<td>2</td>
<td>Jan. 27,28,29</td>
<td><strong>CENTRAL TENDENCY AND DISPERSION</strong>&lt;br&gt;Measures of central tendency include the mean, median and mode. Measures of dispersion include the standard deviation and the variance. We will be analyzing how hidden family factors may affect poverty among African American teenagers.&lt;br&gt;Readings: Weinbach and Grinnell, Chapter 3&lt;br&gt;Corcoran and Kunz, “Do Unmarried Births Among African-American Teens Lead to Adult Poverty,” <em>Social Service Review</em>, June, 1997. Pages 274-287. On reserve.&lt;br&gt;Computer assignments #2, available on the web page for the course. This is due in week 3.</td>
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<td>3</td>
<td>Feb. 3,4,5</td>
<td><strong>NORMAL DISTRIBUTIONS AND Z-SCORES</strong>&lt;br&gt;Readings: Weinbach and Grinnell, Chapter 4 and 6</td>
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<td>4</td>
<td>Feb. 10,11,12</td>
<td><strong>INTRODUCTION TO HYPOTHESIS TESTING</strong>&lt;br&gt;The logic of hypothesis testing&lt;br&gt;The meaning of statistical significance&lt;br&gt;Readings: Weinbach and Grinnell, Chapters 5 and 7&lt;br&gt;Due: Written assignment #1 (2-3 page paper) due</td>
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<td>5</td>
<td>Feb. 17,18,19</td>
<td><strong>CROSS-TABULATION AND CHI-SQUARE</strong>&lt;br&gt;We will learn how to conduct significance tests when using two nominal scale variables. We will use chi-square analysis to compare groups of sexually abused and non-abused children.&lt;br&gt;Readings: Weinbach and Grinnell, Chapter 10&lt;br&gt;Smith and Howard, “The Impact of Previous Sexual Abuse On Children’s Adjustment in Adoptive Placement”, <em>Social Work</em>, September, 1994. Pages 491-501. On Reserve.</td>
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Computer assignment #3, available on the web page for the course. Due in week 6.

Feb. 24,25,26  WRITING AND EVALUATING RESEARCH REPORTS
Important components
Criteria for evaluating reports
Narrative presentation of data
Table construction
Presenting information in graphs and charts


March 3,4,5  MIDTERM EXAM
March 10,11,12  SPRING BREAK

March 17,18,19  CORRELATION AND SIMPLE REGRESSION
We will learn how simple regression and correlation are used to study issues related to poverty and social welfare. Examples from the Panel Study of Income Dynamics will be used to examine factors affecting poverty for ethnic minority populations and women.

Readings: Weinbach and Grinnell, Chapters 8 and 9

Computer assignment #4, available on the web page for the course. Due in week 9.

Due: Written assignment #2 (2-4 pages. Research questions, hypotheses, and literature review.)

Mar. 24,25,26  MULTIVARIATE OPTIONS
We will examine how bivariate regression and correlation may misrepresent relationships. We will learn how to use control variables to partial out factors and find true relationships. We will also learn how to use nominal scale variables as independent variables within regression models. From this, we will examine the differential effects of economic conditions and family factors on minority populations and women.


Computer assignment #5, available on the web page for the course. Due in week 10.
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<th>Date</th>
<th>Topic</th>
<th>Details</th>
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<tr>
<td>10 March 31, April 1, 2</td>
<td>LOGISTIC REGRESSION</td>
<td>We will focus on how to use regression analysis with a nominal scale dependent variable. We will examine such issues as how childhood factors affect poverty status as an adult for different groups, including African Americans, Whites, men and women. Readings: Guttmacher, Lieberman, Ward, Freudenberg, Radosh, and Des Jarlais, “Condom Availability in New York City Public High Schools: Relationships to Condom Use and Sexual Behavior,” <em>American Journal of Public Health</em>, September, 1997, volume 87, No. 9, pp. 1427-1433. On reserve. Computer assignment #6, available on the web page for the course. Due in week 11.</td>
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<td>12 April 14, 15, 16</td>
<td>GROUP T-TESTS AND ANALYSIS OF VARIANCE</td>
<td>We will learn how to conduct research on groups as independent variable, for interval/ratio scale dependent variables. We will be examining issues related to differences in racial, ethnic and gender groups, for factors such as income, education and welfare. Due: Written Assignment #3, Term paper Readings: Weinbach and Grinnell, Chapter 11 Rose and Meezan, “Variations in Perceptions of Child Neglect.” <em>Child Welfare</em>, March/April, 1996, Pages 139-160. On reserve. Computer assignment #7, available on the web page for the course. Due in week 13.</td>
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<td>13 April 21, 22, 23</td>
<td>GROUP T-TESTS AND ANALYSIS OF VARIANCE and REVIEW</td>
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<td>14 April 28, 29, 30</td>
<td>FINAL EXAM</td>
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