FEDERATION METHODS AND STATISTICS COMPREHENSIVE EXAM

Federated Graduate Sociology Program of:
Texas Woman's University
University of North Texas

Fall, 2006

GENERAL INSTRUCTIONS FOR TAKING THE EXAM

Before you begin the exam, it is advisable that you read through all the questions. Plan your time wisely. You have until 5:00 p.m. to complete the exam.

Please **WRITE ONLY ON EVERY OTHER LINE on ONE SIDE OF THE PAPER**. Please answer each question thoroughly. Answer in complete sentences. Write as neatly as possible—you will not get credit for what cannot be read!

DO NOT PUT YOUR NAME ON THE PAPER

PUT ONLY YOUR ASSIGNED NUMBER _____

Part 1. FEDERATION METHODS COMPREHENSIVE EXAM Fall, 2006

(Remember: WRITE ONLY ON EVERY OTHER LINE on ONE SIDE OF THE PAPER).

A. Define and provide an example of **four** of the following:

a. Experiment and unobtrusive research
b. Content validity and construct validity
c. Test-retest reliability and inter-rater reliability
d. Cross-sectional study and retrospective study
e. Likert scaling and semantic differential scaling
f. Ethnography and ethnomethodology

B. Select **three** of the following populations and, for each, discuss an appropriate sampling procedure. You must use three different sampling procedures.

a. High schools in the Dallas-Fort Worth metroplex
b. Voters of Orange County
c. Female householders in the United States
d. Undocumented immigrants in Texas

C. Discuss differences between quantitative research and qualitative research in conceptualization, operationalization, data collection, and data analysis. Use dropout among U.S. high school students as a research problem to illustrate these differences (Note: The April 17, 2006 issue of the *Time* magazine had a special report entitled "Dropout Nation" on this subject).

Part 2. FEDERATION STATISTICS COMPREHENSIVE EXAM Fall, 2006

(Remember: WRITE ONLY ON EVERY OTHER LINE on ONE SIDE OF THE PAPER).

A. For **four** of the following seven pairs of variables (measurements or the categories of a variable are given in parentheses), assuming random sampling, indicate clearly the most appropriate measure of association and test of statistical significance. Justify your choices.

   a. Unemployment rate (%) and crime rate (%) in U.S. cities

   b. Race (White, Black, Other) and political party preference (Democrat, Republican, Independent, Other)

   c. Frequency of attendance at religious services at age 16 (Less than once a month, 1-3 times a month, Every week or more) and frequency of attendance at religious services currently as an adult (Less than once a month, 1-3 times a month, Every week or more)

   d. Region of the United States (Northeast, Midwest, South, West) and family income ($)

   e. Parents' expectation for post high-school education (No post-high-school education, Some college education but less than four years of college, Completion of four-year college education only, Completion of college and pursuit of an advanced degree) and student's post-high-school educational plan (No post-high-school educational plan, Some post-high-school education planned but less than four years of college, Plan to receive four-year college education only, Plan to complete college and study for an advanced degree)

   f. Father's occupational prestige score and son's occupational prestige score

   g. Religious preference (Catholic, Protestant, Other, None) and support for death penalty for murderers (Yes, No)

B. Answer **one** of the following questions: question 1 **or** question 2.

   1. Write a brief essay substantively interpreting the path analysis presented in Figures 1 and 2.

   2. Write a brief essay substantively interpreting the logistic regression analysis presented in Table 1.

C. Answer **all** of the questions below.

1. List and briefly explain the assumptions that must be made to use ordinary least squares regression analysis.

2. What does each of the following tell us?

   a. Unstandardized regression coefficient estimate (b)
   b. Standardized regression coefficient estimate (β, or Beta)
   c. Level of significance (α, or alpha)
   d. Coefficient of determination (R^2)

3. Write a brief essay substantively interpreting Table 2.

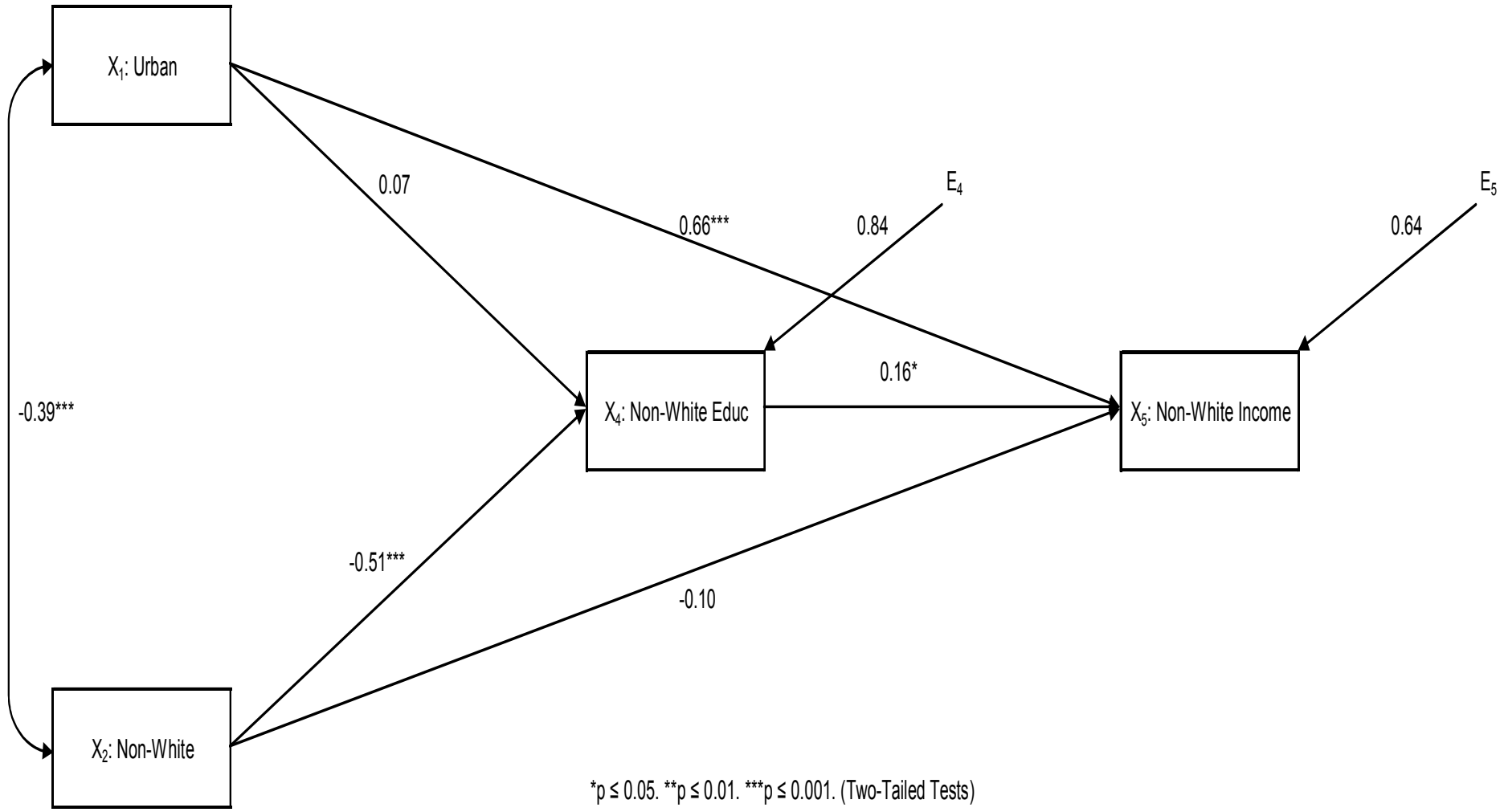

Figure 1. Standardized Coefficient Estimates for Path Model, 150 Randomly-Selected Southern Counties, the 1950 Census

Note: Non-White Income (X_5) is measured by percent of non-white family incomes above $1,500; Non-White Educ ($X_4$) is measured by percent of adult males with more than 6 years of education; Non-White (X_2) is measured by percent of non-whites in the county; and Urban (X_1) is measured by percent of the county's population that is urban.

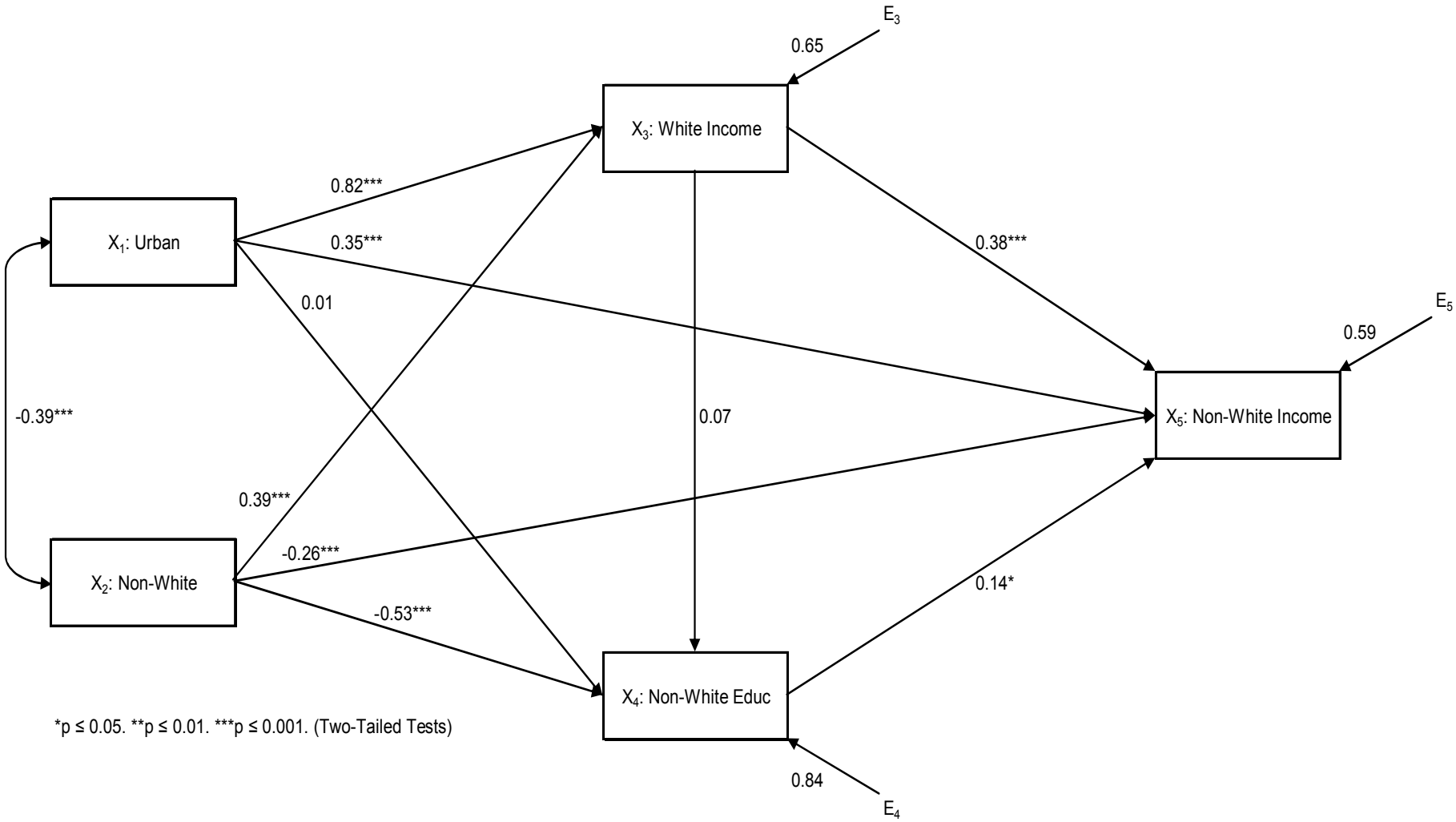

Figure 2. Standardized Coefficient Estimates for Path Model, 150 Randomly-Selected Southern Counties, the 1950 Census

Note: Non-White Income (X_5) is measured by percent of non-white family incomes above $1,500; Non-White Educ ($X_4$) is measured by percent of adult males with more than 6 years of education; White Income (X_3) is measured by percent of white family incomes above $1,500; Non-White ($X_2$) is measured by percent of non-whites in the county; and Urban (X_1) is measured by percent of the county's population that is urban.

Table 1. Logistic Regression Estimates Predicting Labor Force Participation,[a] White Women Aged 35 in 1980—a Subsample of the 1968-1980 National Longitudinal Survey of the Labor Market Experiences of Young Women

Predictor	b	Odds ratio
Planned (in 1968) to work at age 35 (Yes=1, No=0)	.596**	1.815
Respondent's attitudes toward women's Employment (ordinal scale) [b]	.098***	1.103
Husband's attitudes toward his wife's potential or actual employment (ordinal scale) [b]	.374***	1.454
Husband's income in 1979 (in $1,000)	-.022*	.978
Currently not married in 1980 (Yes=1, No=0)	1.044**	2.841
Ever divorced (Yes=1, No=0)	-.013	.987
One or more children under age 6 (Yes=1, No=0)	-.795***	.452
Years of schooling completed in 1980	.118*	1.125
Constant	-5.626	.004
-2 log likelihood	537.67	
Model χ^2	160.56	
Pseudo R^2	.35	
N	533	

*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$

[a] Labor force participation is coded 1 for being in the labor force and coded 0 otherwise.

[b] A higher score indicates a more positive attitude.

Source: Adapted from Table 3 of Cynthia Rexroat and Constance Shehan (1984), "Expected Versus Actual Work Roles of Women." *ASR* 49(3): 349-358.

Table 2. Ordinary Least Squares Regression Estimates Predicting Years of Schooling Completed, Women Aged 29-33, Illinois, 1973-1974

Predictor	Unstandardized estimate (b)	Standardized estimate (β)
Mother's education (years)	.0396**	.052**
Father's education (years)	.0352**	.055**
Father's occupation prestige score	.0107*	.070*
Family income ($)	.0030*	.055*
IQ score	.0156*	.087*
GPA (points)	.5670***	.185***
Enrollment in college preparatory curriculum (Yes=1, No=0)	.4299***	.094***
% of respondent's friends who planned to attend college	.5703***	.091***
Age at the first date (years)	-.0447	-.033
Frequency of dating per month during high school	-.0044	-.007
Ever went "steady" during high school (Yes=1, No=0)	-.2326	-.035
Plan to go to college (Yes=1, No=0)	.6525***	.144***
Expected occupational prestige score	.0335**	.131**
Expected to be a housewife (Yes=1, No=0)	-.3677**	-.081**
Age at the birth of first child	.1599***	.304***
Constant	4.2162	
R^2	.641	
N	3,433	

*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$ (two-tailed test)

Source: Adapted from Table 2 of Margaret Marini (1984), "Women's Educational Attainment and the Timing of Entry into Parenthood." *ASR* 49(4): 491-511.