

FEDERATION METHODS AND STATISTICS COMPREHENSIVE EXAM

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

Spring 2008

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**Spring, 2008**

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

Please answer **A, B, and C.**

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

- a. Focus interview and focus group interview
- b. Conceptual definition and operational definition
- c. Panel study and cohort study
- d. Typology and semantic differential scaling
- e. Experimental design and quasi experimental design
- f. Simple random sampling and convenience sampling

B. Select **one** of the following three topics for a quantitative research project:

1. Who Is More Likely to Support Homosexual Marriage?
2. Determinants of Infant Mortality Rates among U.S. Counties
3. Explaining Income Inequality: A Cross-National Study

Address the following issues in designing your chosen project:

- a. identify the dependent variable and one important predictor variable (be sure to define your key concepts, if necessary);
- b. state **one** testable hypothesis and justify it;
- c. describe how you measure the dependent variable and independent variable in your hypothesis;
- d. discuss data collection techniques appropriate for testing your hypothesis;
- e. discuss the appropriate technique(s) of data analysis; and
- f. discuss the limitations of your study.

C. Select **one** of the following three topics for a qualitative research project:

1. How Has Web Surfing Changed American Lives?
2. Why Do Tuition and Fees in Texas Public Universities Keep Climbing up: Perspectives from School Administrators
3. Economic and Social Impacts of Current Mortgage Crisis

Address the following issues in designing your chosen project:

- a. identify the role of theory in qualitative research;
- b. discuss issues of ethics in your research project;
- c. describe the sampling design and recruitment of participants;
- d. discuss data collection;
- e. discuss appropriate technique(s) of data analysis; and
- f. discuss the limitations of your study.

Part 2. FEDERATION STATISTICS COMPREHENSIVE EXAM**Spring, 2008**

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A. For **six** of the following eight pairs, discuss when it is most appropriate to use which technique in the analysis of data.

1. Measures of central tendency and measures of variation
2. Chi-square test and Lambda
3. Pearson's r and Spearman's ρ
4. T test for two independent groups and paired-difference t test
5. F test and Eta
6. One-tailed test and two-tailed test
7. Ordinary least squares regression and path analysis
8. Factor analysis and structural equation model with latent variables

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.

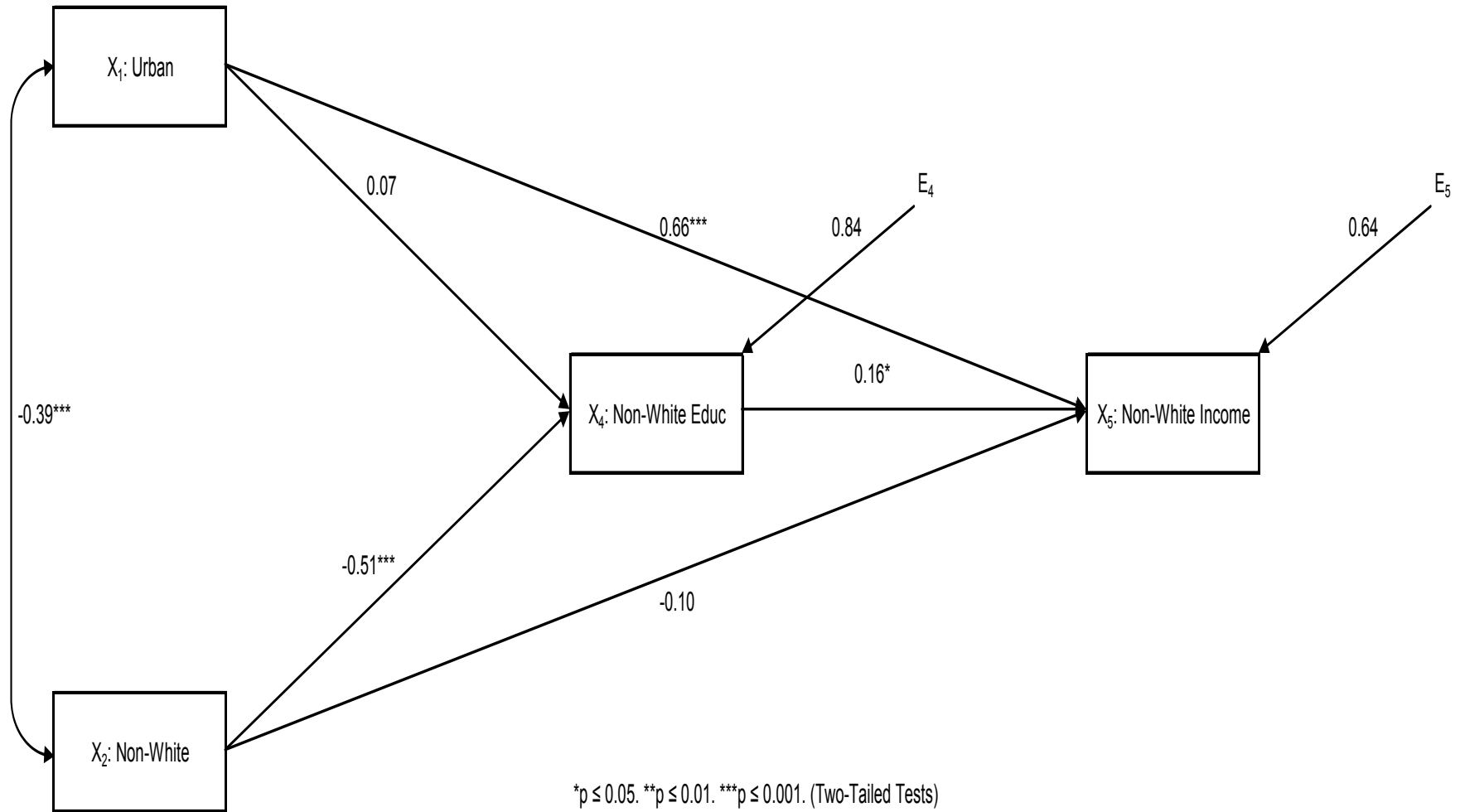


Figure 1. Standardized Coefficient Estimates for Path Model, 150 Randomly-Selected Southern Counties, the 1950 Census

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.

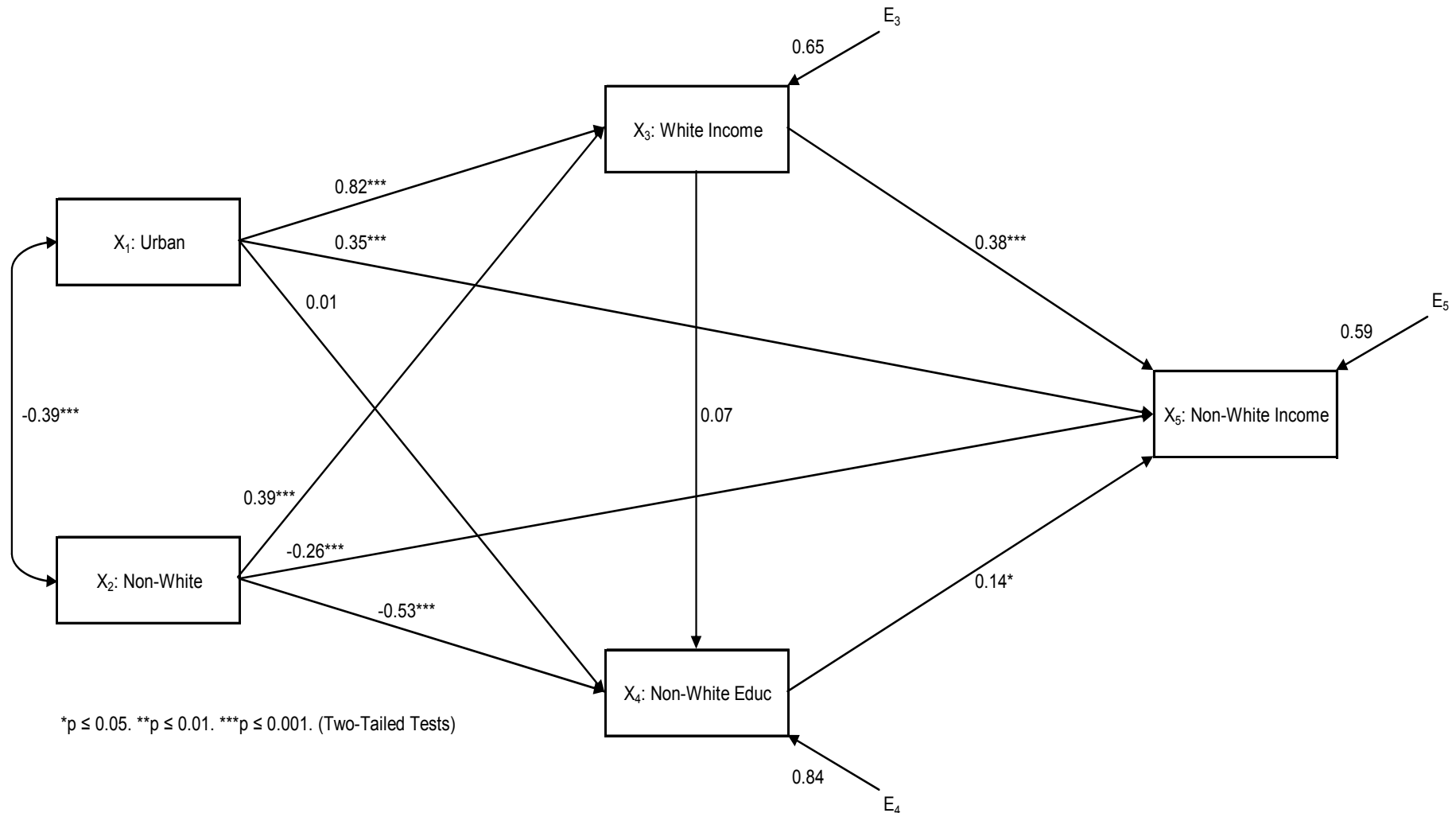


Figure 2. Standardized Coefficient Estimates for Path Model, 150 Randomly-Selected Southern Counties, the 1950 Census

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 Marital Dissolution,^a U.S. Married Couples,^b 1976-1987

Predictor	b	S.E.	Odds ratio
Age	-.044 ^{***}	(.009)	.957
Black	.771 ^{***}	(.119)	2.162
Female	.454 ^{***}	(.119)	1.575
Catholic	.130	(.130)	1.139
Long-term cohabitation before marriage	-.255	(.281)	.775
Combined earnings (ln)	-.554 ^{***}	(.087)	.575
Constant	3.338 ^{***}	(.789)	.036
Model χ^2	290.676 ^{***}		
Degrees of freedom	6		
Pseudo R ²	.25		
N	8,711		

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

^a Marital dissolution is coded 1 for “dissolved” and coded 0 otherwise.

^b Most characteristics pertain to the partners who were surveyed.

Source: Adapted from Table 2 of Julie Brines and Kara Joyner (1999), “The Ties That Bind: Principles of Cohesion in Cohabitation and Marriage.” *ASR* 64(3): 333-355.

Table 2. Ordinary Least Squares Regression Estimates Predicting Frequency of Labor Strikes, U.S. Industries, 1963-1977

Predictor	Model 1		Model 2	
	b	β	b	β
% of workers in labor unions	100.021**	.130**	198.060**	.189**
Sales/inventory ratio			-.213**	-.053**
% change in industry employment			143.650**	.097**
% change in profits per worker			-.122	-.031
% of corporate sales held by the industry's largest firms			-10.430**	-.063**
Average value of assets per firm in the industry			.053	.017
Average # of employees per firm in the industry			-.229**	-.085**
Mining industry (Mining = 1, other=0)			677.230**	.749**
Constant	-90.011***		-183.790	
R ²	.177		.819	
N	120		120	

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

Source: Adapted from Table 4 of Michael Wallace, Larry Griffin, and Beth Rubin (1989), "The Positional of American Labor, 1963-1977." *ASR* 54(2): 197-214.