

Trends of Educational Attainment from 1950 to 2008
Secondary Data Analysis Assignment
SOC 397: Sociological Research Methods
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Census Data and American Community Survey Data:

Every 10 years the United States conducts a census. The first census was conducted in 1790 and the most recent in 2010. The U.S. government is constitutionally mandated to conduct a complete count of the population to properly distribute congressional representatives. Additionally, data collected in the census help us learn more about how our country is changing. For example, while counting the number of people in each community, the Census Bureau also collects a lot of sociodemographic information that is very important for planners and researchers.

The Census data is available as summaries by state, county, and other geographic areas, however, the Census Bureau also makes available a smaller randomly selected set of respondents for researchers, called the Public Use Microdata Sample (PUMS). With PUMS data researchers can compare the characteristics of different social groups without disturbing anyone's privacy.

Because the census data is collected every 10 years, the Census Bureau has been conducting the American Community Survey (ACS) to provide vital information on a yearly basis about our nation and its people. Information from the survey generates data that help determine how more than \$400 billion in federal and state funds are distributed each year. Through the ACS, we know more about jobs and occupations, educational attainment, veterans, whether people own or rent their home, and other topics. Public officials, planners, and entrepreneurs use this information to assess the past and plan the future.

The Social Science Data Analysis Network has made some of those data available to sociology students through the online WebCHIP program.

Purpose of the Assignment:

In this exercise you will explore trends of educational attainment from 1950 to 2008. The purpose of this assignment is to give you some familiarity with how sociologists use datasets to both **describe** and **analyze** the social world. Your task is to use data from the 1950 to 2008 ACS to present population change in both tabular and graphical form. You will access that data through an online data analysis program called WebCHIP. In class I will demonstrate exactly what you have to do. You can help one another with the computing part, but you are honor-bound to fill in the sheet on your own.

Learning Objectives:

Skill

- Using software to access and analyze data from ACS
- Identifying independent and dependent variables
- Employing control variables
- Learning how to construct, read, and interpret bivariate tables displaying frequencies and percentages
- Creating visual tools representing quantitative data in the form of charts or graphs

- Identifying trends of educational attainment over time
- Using real world data to enhance and support key course concepts

Substance

- Describing trends of educational attainment in the US
- Applying sociological perspectives to understand trends of education attainment by gender and race
- Using a sociological imagination to relate education trends to broader social contexts

Teaching/facilitation notes:

Instructions on how to gather data from the census and ACS data using WebCHIP are included.

Assessment:

The module contains instruments for pre/post assessment.

Getting started:

1. Discuss what you expect to see how the educational attainment has changed over time in the US, and give some reasons why you expect the trend.
2. Do you think that the average level of educational attainment varies by gender and race? Why or why not?
3. Do you think the overall trend of educational attainment is consistent for men and women, and black and non-black? Why or why not?

Exercise 1. Univariate Analysis: Examining marginal and frequency distributions

Here are the steps to follow to access the data you need to complete Exercise 1:

- a. Go to <http://ssdan.net/webchip/webchip4/>
- b. Click on the space below “Choose Dataset” on the left sidebar.
- c. Scroll down through the list of data sets until you find “acs2008trend.”
- d. Look for “Educ” under it and click “Educ.”
- e. You can click “Frequency,” “Percent Across” and/or “Percent Down” to generate necessary tables to answer the questions below.

Now you have data showing the trend of educational attainments (with four categories) from 1950 to 2008. Please fill in the tables below.

Table 1a. Trends of Educational Attainment (1950-2008)								
	1950	1960	1970	1980	1990	2000	2008	Total
	n	n	n	n	n	n	n	n
Less than High School								
High School								
Some College								
College or more								

	1950	1960	1970	1980	1990	2000	2008	Total
	%	%	%	%	%	%	%	%
Less than High School								100
High School								100
Some College								100
College or more								100

According to your data in the above tables,

- 1-1. Which educational category is the largest in 1950, in terms of frequency and percentage?
- 1-2. Which educational category is the largest in 2008, in terms of frequency and percentage?
- 1-3. In which educational category is the largest absolute change (either increase or decrease) observed between 1950 and 2008?
- 1-4. In which educational category is the largest relative change (either increase or decrease) observed between 1950 and 2008?

Exercise 2. Bivariate Analysis: Looking at Associations between Variables

- 2-1. Write a definition in your own words for the following concepts:
 - a. Independent variable:
 - b. Dependent variable:
 - c. Hypothesis:

- 2-2. Indicate whether each of the following statements are hypotheses (T) or not (F).
 - a. In 1950, the majority of people in the US did not have a high school diploma. ____
 - b. More people in 2008 have obtained college degree compared to 1950. ____
 - c. Non-blacks are more likely to obtain a higher level of education than blacks. ____
 - d. Gender gap in education attainment is likely to grow. ____

- 2-3. Identify the independent and dependent variables in each of the following hypotheses.
 - a. Being a racial minority is negatively associated with the likelihood of completing a college degree.
 - b. Non-blacks have higher levels of education than blacks.
 - c. Between 1950 and 2008, the overall level of education has increased.
 - d. Men are more likely to drop out high school than women.

- 2-4. Now you will test Hypothesis b at the above Question 3. Create a crosstab with Race as the row and Educ as the column using webchip4. Use percentages to fill in the table below.

	Less than High School	High School	Some College	College or more	Total
	%	%	%	%	%
Non-black					100
Black					100

According to Table 2,

- 2-5. What percent of non-black did not complete high school?
- 2-6. What percent of black had college degree or more?
- 2-7. Does race appear to affect educational attainment? Explain your answer by describing the results of Table 2.

Exercise 3. Examining the Effect of Control Variables on Relationships

- 3-1. Create a crosstab with Educ as the row variable and Year as the column as you did for Exercise 1b, but use Gender as the control variable. You will produce two separate tables for each gender. Use percentage to fill in the tables below.

	Less than High School	High School	Some College	College or more	Total
	%	%	%	%	%
Non-black					100
Black					100

	Less than High School	High School	Some College	College or more	Total
	%	%	%	%	%
Non-black					100
Black					100

According to Table 3a and Table 3b,

- 3-2. Describe the relationship between race and educational attainment for men.
- 3-3. Describe the relationship between race and educational attainment for women.
- 3-4. Does the relationship between race and educational attainment appear to be different by gender? Explain your answer by describing the results of the tables.

Exercise 4. Presentation of the Results Using Figures

- 4-1. Now let's look at how the relationship between race and educational attainment has changed over time by gender. Calculate cross-tabulations of educational attainment by race separately by gender. Fill in the following tables with the percentages from the results.

		1950	1960	1970	1980	1990	2000	2008
		%	%	%	%	%	%	%
Less than high school	Non-blacks							
	Blacks							
High school	Non-blacks							
	Blacks							
Some college	Non-blacks							
	Blacks							
College or more	Non-blacks							
	Blacks							

Table 4b. Trends of Educational Attainment by Race for Women (1950-2008)		1950	1960	1970	1980	1990	2000	2008
		%	%	%	%	%	%	%
Less than high school	Non-blacks							
	Blacks							
High school	Non-blacks							
	Blacks							
Some college	Non-blacks							
	Blacks							
College or more	Non-blacks							
	Blacks							

4-2. To make the comparison easier to see, create two bar graphs (Figure 1 for men and Figure 2 for women) to show the trends. You can copy and paste the above tables in Excel to create graphs.

According to Figure 1,

- 4-3. What is the trend of the educational attainment from 1950 to 2008 for men?
- 4-4. Is the overall trend differ by race among men?
- 4-5. If your answer is yes to Q4-4, what do you think might explain the racial difference?

According to Figure 2,

- 4-6. What is the trend of the educational attainment from 1950 to 2008 for women?
- 4-7. Is the overall trend differ by race among women?
- 4-8. If your answer is yes to Q4-7, what do you think might explain the racial difference?

Exercise 5. Writing up the results

- 5-1. Write two or three complete sentences that summarize the results shown in Table 1b. What have been the trends in educational attainment in the past 50 years?
- 5-2. Write a paragraph that summarizes the results shown Table 2, Table 3a and Table 3b. How is race related to educational attainment? Does the relationship appear different for men and women?
- 5-3. Write a paragraph that summarizes the results shown Table 4a and Table 4b. How does the relationship between race and educational attainment have changed in the past 50 years for men and women?
- 5-4. In two or three complete sentences, how would you explain: (1) the trends in the overall educational attainment; and (2) variations by race with gender controlled for.