

**The Impact of Race, Ethnicity and Occupational Status on  
Income: An Examination of the STEM Field Population in the  
United States, 1980-2008**

**Hayward Derrick Horton  
Global Center for Critical Demography and Public Sociology  
State University of New York at Albany**

# **The Impact of Race, Ethnicity and Occupational Status on Income: An Examination of the STEM Field Population in the United States, 1980-2008**

## Abstract

Demographers have long studied the disparity in occupational status and income between the white and the various disadvantaged minority populations in the United States. However, for nearly a generation there has been an appreciation of the role of social class in determining the levels of achievement of the latter to the extent that they mirror those of the former. Most studies have found that while minorities have yet to reach parity with the majority white population, there has been a substantial decrease in the gap in professional attainment between college educated workers across race and ethnicities. This paper builds upon prior research by examining the differences across race and ethnicity in among workers in the STEM (Science Technology Engineering and Mathematics) fields in the United States. The data for the study are from the 1980-2008 Integrated Public Use Micro-data Series, Current Population Survey (IPUMS-CPS). The findings are placed in the context of the changes in the American occupational structure and the implications for future studies of the STEM field population.

# **The Impact of Race, Ethnicity and Occupational Status on Income: An Examination of the STEM Field Population in the United States, 1980-2008**

## **Proposal**

Demographers have long studied the disparity in occupational status and income between the white and the various disadvantaged minority populations in the United States.

However, for nearly a generation there has been an appreciation of the role of social class in determining the levels of achievement of the latter to the extent that they mirror those of the former. Most studies have found that while minorities have yet to reach parity with the majority white population, there has been a substantial decrease in the gap in professional attainment between college educated workers across race and ethnicities.

This paper builds upon prior research by examining the differences across race and ethnicity in among workers in the STEM (Science Technology Engineering and Mathematics) fields in the United States. The findings are placed in the context of the changes in the American occupational structure and the implications for future studies of the STEM field population.

## **Data and Methods**

### *Data*

The data for the study are from the 1980-2008 Integrated Public Use Micro-data Series, Current Population Survey (IPUMS-CPS). This study is limited to college educated labor force participants. The following are the variables to be used in the analysis:

Income- -An interval level variable described as the sum total from all sources of income.

STEM status- -a dummy variable where the code 1 refers to the occupations in science, technology, engineering and mathematics (STEM) and 0 for all non-STEM fields.

Age- -An interval level variable that represents the actual age of the individual. This study is limited to persons 25-55.

Gender- -A dummy variable where 1 equals female and 0 equals male.

Race/ethnicity- -A dummy variable that combines the race and ethnicity variables in the dataset with various codes for black, Latino and Asian ethnic groups. Whites represent the reference category.

Region- -A dummy variable representing the geographic regions of the United States.

West is the reference category.

Time- -A dummy variable representing calendar year. There will be four points in time used: 1980, 1990, 2000 and 2008 with 1980 representing the reference category.

Metropolitan Area- -Based upon the census codes, the metropolitan area within which the individual's household resides.

### *Methods*

This study will use three-level hierarchical linear models due to the nested nature of the data (i.e. individuals in the context of metropolitan areas which are in turn within regions). In addition, this analysis will be conducted in two stages. Stage one involves the use of STEM status as a dependent variable to determine the extent to which change has occurred in the proportion of minorities relative to whites in the STEM fields over the near thirty-year period. The second stage of the analysis employs STEM status as an

independent variable to determine its impact on income differences between college educated minorities and whites.

### **Conclusion**

The purpose of this proposal was to outline a paper to be presented at the 2009 Annual Meeting of the Population Association of America. This paper examines the STEM (Science, Technology, Engineering and Mathematics) field population and compares minority and majority groups relative to their overall proportions therein and changes in those proportions over time. In addition, the paper examines the impact of STEM status on income differences between college educated minority and majority persons. Finally, the paper will conclude with a discussion of the implications of the findings relative to changes in the occupational structure as well as future studies of race and the STEM population in the United States.