## Socioeconomic Gradients in Morbidity in the Late 19<sup>th</sup> Century: An Examination of Self-Reported Conditions by Households Enumerated in the 1880 Census.

Tami Swenson Senka Hadzic Elaine Hernandez

Minnesota Population Center University of Minnesota Minneapolis, MN 55455

## **Theoretical Background of Health Inequality Research**

For centuries, researchers have recognized the socioeconomic gradient in health (Virchow 1848; Chaplin 1924; Coombs 1941; Kadushin 1964; Antonovsky 1967; Kitagawa and Hauser 1973; McKeown 1976; Duleep 1989; Adler et al. 1994; Colgrove 2002). In recent decades, there has been a renewed interest in socioeconomic gradients in morbidity and mortality over the course of the century (Duleep 1989; Feldman, Makuc, Kleinman, and Cornoni-Huntley 1989; Pappas, Queen, Hadden and Fisher 1993; Link and Phelan 1995; Hayward, Miles, Crimmins and Yang 2000; Lutfey and Freese 2005). However, few studies attempt to reveal trends in socioeconomic status and health in the 1800s. This study focuses on measures of morbidity reported in the 1880 Census; specifically, our analysis focuses on the comparison of socioeconomic gradient effects in infectious and chronic diseases.

## **Research Design and Data**

For our analysis, we use the Integrated Public Use Microdata Sample (IPUMS) of households taken from 1880 Census records (Goeken, et al. 2003). We use self-reported health conditions on the day of enumeration (Ruggles, et al. 2004) as a measure of morbidity. There are twenty-six health condition categories in the 1880 IPUMS data including disability variables (maimed, insane, idiotic, blind and deaf). The 1880 IPUMS sickness data also provide subcategory information on specific types of illness (e.g., tuberculosis) (Ruggles, et al. 2004) allowing us to distinguish between infectious and chronic illnesses.

Our paper focuses on the relationship between socio-economic status and morbidity in 1880 at the regional level. As a measure of socio-economic status (SES), we use the Duncan Socioeconomic Index

that classifies occupations. For the health condition variable, we aggregated at the household-level, using the SES measure from the head of the household. Our analysis focuses on the relationship between SES and morbidity and compares the infectious and chronic disease gradients. Finally, in our analysis we also consider information on symptoms and actual diagnoses categories to test for SES differences in the classification of the morbidity strings (e.g., differences between people who articulate a symptom such as a "chronic cough" that is then coded as "Respiratory – Non-specified" and people that articulate the actual condition such as "tuberculosis").

References

- Adler, Nancy E., Thomas Boyce, Margaret A. Chesney, Sheldon Cohen, Susan Folkman, Robert L. Kahn, and S. Leonard Syme. 1994. "Socioeconomic Status and Health: The Challenge of the Gradient." *American Psychologist* 49:15-24.
- Antonovsky, A. 1967. "Social Class Life Expectancy and Overall Mortality." Milbank Memorial Fund Quarterly, 45, 31-73.
- Chaplin, C.V. 1924. "Death Among Taxpayers and Non-Taxpayers, Providence, 1865." American Journal of Public Health, 4, 647-651.
- Colgrove, J. 2002. "The McKeown Thesis: A Historical Controversy and Its Enduring Influence." American Journal of Public Health, 92(5), 725-729.

Coombs, L.C. 1941. "Economic Differentials in Causes of Death." Medical Care, 1, 246-255.

Crimmins, E.M., & Saito, Y. (2001). "Trends in healthy life expectancy in the United States, 1970-1990: gender, racial, and educational differences." Social Science and Medicine, 52, 1629-1641.

Duleep, H.O. 1989. "Measuring Socioeconomic Mortality Differentials Over Time." Demography, 26(2), 345-351.

Elman, Cheryl and George C. Myers. 1997. "Age and Sex-Differentials in Morbidity at the Start of an Epidemiological Transition: Returns from the 1880 US Census." Social Science and Medicine 45 (6): 943-956.

- Elman, Cheryl and George C. Myers. 1999. "Geographic Morbidity Differentials in the Late Nineteenth-Century United States." *Demography* 36(4):429-43.
- Feldman, J.J., Makuc, D.M., Kleinman, J.C., & Cornoni-Huntley, J. 1989. "National Trends in Educational Differentials in Mortality." American Journal of Epidemiology, 129(5), 919-933.

Ferrie, Joseph P. 2003. "The Rich and the Dead: Socioeconomic Status and Mortality in the United States, 1850-1860" 11-50.

- Goeken, R., C Nguyen, S. Ruggles, and W. Sargent. 2003. "The 1880 United States Population Database." Historical Methods 36(1):27-34.
- Hayward, Mark D., Toni P. Miles, Eileen M. Crimmins, and Yu Yang. 2000. "The Significance of Socioeconomic Status in Explaining the Racial Gap in Chronic Health Conditions." *American Sociological Review* 65:910-930.
- Kadushin, Charles. 1964. "Social Class and the Experience of Ill Health." Sociological Inquiry 34:67-80.

Kitagawa, Evelyn M. and Philip M. Hauser. 1973. Differential Mortality in the United States: A Study in Socioeconomic Epidemiology. Cambridge, Massachusetts: Harvard University Press.

Link, Bruce G. and Jo C. Phelan. 1995. "Social Conditions as Fundamental Causes of Disease." Journal of Health and Social Behavior 35:80-94. Lutfey, Karen and Jeremy Freese. 2005. "Toward some Fundamentals of Fundamental Causality: Socioeconomic Status and Health in the Routine Clinic Visit for Diabetes." American Journal of Sociology 110:1326-1372.

McKeown, Thomas. 1976. The Modern Rise of Population. London: Edward Arnold.

Pappas, G., S. Queen, W. Hadden, and G. Fisher. 1993. "The Increasing Disparity in Mortality Between Socioeconomic Groups in the United States." New England Journal of Medicine 329:103-109.

Ruggles, Steve, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander. 2004. Integrated Public Use Microdata Series: Version 3.0 [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor].

Virchow, Rudolf. 1848. "The Public Health Service (in German)." Medizinische Reform 5:21-22.

<sup>\*\*</sup> Tami Swenson is a Research Fellow at the University of Minnesota with a joint appointment at the Minnesota Population Center (MPC) and the Research Data Assistance Center (ResDAC) in the School of Public Health. She is a second-year PhD candidate in the Health Policy and Management division in the School of Public Health. Senka Hadzic is a Research Assistant at MPC on the 1880 Data Linkage Project and a second-year MPH student in the School of Public Health. Elaine Hernandez is a Research Assistant at MPC on the Flexible Work and Well-Being Project and a third-year PhD candidate in Sociology at the University of Minnesota.