

Modified Poisson Mixture Regression of Urban Violent Victimization in the United States

Dr. Qiang Fu¹, Dr. Yushu Zhu², Dr. Xin Guo³

¹Department of Sociology, The University of British Columbia, Canada

²Urban Studies Program and School of Public Policy, Simon Fraser University, Canada

³School of Mathematics and Physics, The University of Queensland, Australia

Abstract

Violent victimization has been a complex and persistent problem in American cities. Yet, efforts to estimate school violent victimization are thwarted by the lack of measures for repeat victimization, unspecified risk of victimization, and reliance on exact victimization reports, which all contribute to underestimated victimization. Drawing on 44 waves of nationally representative data, this study develops modified Poisson mixture models to overcome these challenges, analyze grouped and right-censored counts, and estimate incidence, risk and intensity of violent victimization since the 1970s. We find that the widely observed reduction in violent victimization since the 1990s is actually associated with a strong upward trend in intensity of violent incidents. While both normative and instrumental mechanisms are at work, socially disadvantaged individuals are more likely to be (repeat) victims.

Keywords: risk; intensity; grouped and right censored counts; modified Poisson model