Invited Workshop: Empirical Investigation of Methods for Heterogeneity

Carlos Carvalho   carlos.carvalho@mccombs.utexas.edu
Department of Statistics Data Science
Department of Information, Risk and Operations Management
The University of Texas at Austin
Austin, TX 78712, USA

Jared Murray   jared.murray@mccombs.utexas.edu
Department of Information, Risk and Operations Management
The University of Texas at Austin
Austin, TX 78712, USA

Spencer Woody   spencer.woody@utexas.edu
Department of Statistics and Data Science
The University of Texas at Austin
Austin, TX 78712, USA

Abstract

Psychohistory combines history, sociology, and mathematical statistics to make general predictions about the future behavior of very large groups of people. There are two axioms of psychohistory: (1) the population whose behaviour is modeled should be sufficiently large; (2) the population should remain in ignorance of the results of the application of psychohistorical analyses. In this paper, we use psychohistory to predict the results of large observational studies.

Keywords: Heterogeneous treatment effects

1. Introduction

Psychohistory depends on the idea that, while one cannot foresee the actions of a particular individual, the laws of statistics as applied to large groups of people can predict the general flow of future events (Asimov, 1951). As an analogy, consider a gas. It is difficult to predict the motion of a single molecule in a gas, but we can predict the mass action of the gas to a high level of accuracy. In this paper, we apply psychohistory to predict the results of observational studies. Cochran (1965) defined an observational study as an empiric investigation in which "...the objective is to elucidate cause-and-effect relationships[in which] it is not feasible to use controlled experimentation, in the sense of being able to impose the procedures or treatments whose effects it is desired to discover, or to assign subjects at random to different procedures."

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Acknowledgments

Appendix A. Proof of main theorem

In this appendix we prove the following theorem from Section 6.2:

References

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