Article

Sociological Methods & Research
1-38

DOI: 10.1177/0049124119875958
journals.sagepub.com/home/smr
SAGE

The Future Strikes Back: Using Future Treatments to Detect and Reduce Hidden Bias

Felix Elwert[1] and Fabian T. Pfeffer[2]

Abstract

Conventional advice discourages controlling for postoutcome variables in regression analysis. By contrast, we show that controlling for commonly available postoutcome (i.e., future) values of the treatment variable can help detect, reduce, and even remove omitted variable bias (unobserved confounding). The premise is that the same unobserved confounder that affects treatment also affects the future value of the treatment. Future treatments thus proxy for the unmeasured confounder, and researchers can exploit these proxy measures productively. We establish several new results: Regarding a commonly assumed data-generating process involving future treatments, we (1) introduce a simple new approach and show that it strictly reduces bias, (2) elaborate on existing approaches and show that they can increase bias, (3) assess the relative merits of alternative approaches, and (4) analyze true state dependence and selection as key challenges. (5) Importantly, we also introduce a new nonparametric test that uses future treatments to detect hidden bias even when future-treatment estimation fails to reduce bias. We illustrate these results

[1] University of Wisconsin–Madison, WI, USA
[2] University of Michigan, Ann Arbor, MI, USA

Corresponding Author:
Felix Elwert, University of Wisconsin-Madison, Department of Sociology,1180 Observatory Drive, Madison, WI 53706, USA.
Email: elwert@wisc.edu