Challenges in the Interpretation of Research Results: Errors, Biases, and Temporal Dynamics

Irene Scopelliti
City, University of London
Shwetha Mariadassou
Erasmus University Rotterdam
Guy Voichek
Imperial College London
Kristin Diehl
University of Southern California

Cite as:
Scopelliti Irene, Mariadassou Shwetha, Voichek Guy, Diehl Kristin (2024), Challenges in the Interpretation of Research Results: Errors, Biases, and Temporal Dynamics. *Proceedings of the European Marketing Academy*, 53rd, (119545)

Paper from the 53rd Annual EMAC Conference, Bucharest, Romania, May 28-31, 2024

Challenges in the Interpretation of Research Results: Errors, Biases, and Temporal Dynamics

Abstract

This special session features four empirical papers that identify critical issues in the interpretation of research results. Each paper contributes novel insights into prevalent pitfalls researchers and users of scientific results face, spanning from errors in interpreting binary dependent variables and correlations observed on big data, to the neglect of analytical issues affecting the control group and of the temporal dimension of empirical studies. In the first paper, Mariadassou, Bechler, McShane, and Wheeler identify two errors researchers make when interpreting analyses of binary dependent variables. The authors reviewed all articles published in the 2022 issues of the five leading marketing journals that included logistic regression analyses and conducted surveys among authors of these journals to provide empirical evidence that researchers make such errors. The authors not only expose these pitfalls, but also offer practical recommendations for improving the interpretation and reporting of binary dependent variables. They also created easy-to-use websites that facilitate the implementation of these recommendations. In the second paper, Vosgerau, Giambastiani, and Scopelliti identify a novel bias affecting the interpretation of evidence obtained on large datasets: correlational evidence is more likely to be misinterpreted as causal when sample sizes are large. This bias, the big data fallacy, is prevalent and consequential. It affects both experienced decision-makers and experts with strong scientific reasoning skills, even when the results do not align with preexisting beliefs. Notably, training interventions on correlation, causation, and confounding variables fail to alleviate this bias. These results highlight the risks of communicating statistical findings derived from big data. In the third paper, Voichek, Dhar, and Frederick identify a bias affecting the interpretation of experimental results that compare a treatment group and a control group, comparisons typical when assessing the benefits of treatments or services. The authors demonstrate that analytic decisions (e.g., participant exclusions) that affect control group data evoke less concern and receive less scrutiny than analogous decisions regarding treatment group data, despite those decision may have the same impact in amplifying the apparent benefits of the treatment. In the fourth paper, Dutton and Diehl emphasize the importance of considering changes over time in empirical studies. Focusing on the preference for improving sequences, empirically observed across various contexts, the authors suggest that heightened uncertainty in the world prompts a shift in consumer preferences. As life becomes more uncertain, individuals exhibit a greater inclination toward declining sequences, a pattern of results opposite to what had been observed in prior studies. This research advocates for a broader consideration of a temporal perspective in empirical studies, urging researchers to explore how changes over time may influence established effects and their

replicability. Together, these four papers offer novel perspectives on the challenges inherent in the interpretation of research results, and provide actionable insights for researchers across different areas of marketing.