

November 29, 2021

Dr. Di Cook
Editor-in-Chief
The R Journal

Dear Dr. Cook,

We are sending herewith a manuscript entitled "CIMTx: An R package for causal inference with multiple treatments using observational data" by Liangyuan Hu and Jiayi Ji, which we wish to submit for publication in *The R Journal*.

Our work is motivated by the lack of a unified statistical tool for drawing causal inferences about the effects of multiple treatments from observational data. We developed an R package "CIMTx", which implements six modern statistical methods to estimate the comparative effects of multiple treatments. What sets our package apart from other causal inference tools is its four unique features:

1. a streamlined approach to easily implement a wide range of novel causal inference approaches, several of which are machine learning based;
2. a clear guidance on how to simulate datasets that possess the complex data structures in the multiple treatment setting; the simulated datasets will be useful for comparing the practical operating characteristics of different methods;
3. a novel sensitivity analysis to handle the key "no unmeasured confounding" assumption;
4. strategies tailored to different estimation methods for handling the structural "positivity" assumption.

In the attached manuscript, we introduce this R package and provide step-by-step guidance on how to implement the variety of functions to estimate the causal effects via different approaches and on how to handle the causal assumptions. Readers will find quick reviews of the new methodologies that otherwise were introduced in the scattered literature, and clearly annotated examples to implement these methods. We believe this introduction to the R package CIMTx is much needed as it will provide a unique and comprehensive apparatus to many researchers who work with observational data – which has sharply increased availability in the era of Big Data – and wish to draw the cause-and-effects relationships from such data.

We thank you for your consideration and look forward to hearing from you regarding our manuscript.

Sincerely,

A handwritten signature in cursive script, appearing to read "Liangyuan".

Liangyuan Hu