

Predicting Intersectional Inequalities Using Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA)

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Abstract

Multilevel Analysis of Individual Heterogeneity and Discriminatory Accuracy (MAIHDA) is a recently developed multilevel regression modeling approach for investigating social inequalities in individual outcomes. Grounded in intersectionality theory, MAIHDA quantifies social inequalities across intersections of multiple social identities (e.g., gender, ethnicity, social class) rather than examining identities in isolation.

Proponents of MAIHDA argue that its predicted intersectional means are statistically superior to simple means derived from descriptive statistics or conventional regression models. However, this claim has yet to be formally tested. In this study, we derive and analyze analytical expressions to compare the bias, variance, and mean squared error properties of two competing MAIHDA-based mean estimators against simple means.

Our findings show that MAIHDA means outperform simple means, with the best results achieved by the approach that decomposes intersectional means into additive and non-additive components. However, the relative advantages of the two MAIHDA estimators depend on the nature of intersectional inequalities and the sample data. All three prediction methods converge as the overall magnitude of inequalities increases, departures from additivity decrease, and intersection sizes grow.

Thus, the benefits of MAIHDA are most pronounced when inequalities are subtle—whether in magnitude or in hidden processes affecting only certain social identity combinations—and when data on some intersections, such as multiply marginalized groups, are sparse.

Keywords

Multilevel modeling, MAIHDA, intersectionality, inequalities

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