"Improving Out-of-Sample Predictions Using Response Times and a Model of the Decision Process”

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Abstract:

A basic problem in empirical economics involves using data from one domain to make out-of-sample predictions for a different, but related environment. When the choice data are binary, a canonical method for making these types of predictions is the logistic choice model. This paper investigates if it is possible to improve out-of-sample predictions by changing two aspects of the canonical approach: 1) Using response times in addition to the choice data, and 2) Combining them using a model from the psychology and neuroscience literature, the Drift-Diffusion Model (DDM). Two experiments compare the out-of-sample choice prediction accuracies of both methods and in both cases the DDM method outperforms a logistic prediction method. Furthermore, the DDM allows for out-of-sample choice process predictions. Both experiments validate the DDM as a method for predicting out-of-sample response times.