Semiparametric Additive Isotonic Regression

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Abstract: Abstract. This paper is about the efficient estimation of semiparametric additive isotonic regression model, i.e. $Y = X'\beta + \sum_{j=1}^{J} h_j(W_j) + \epsilon$. Each additive component h_j is assumed to be a monotone function. It is shown that the least square estimator of the parametric component is asymptotically normal. Moreover, the isotonic estimator for each additive functional component is proved to have the oracle property, which means it can be estimated with the highest asymptotic accuracy, equivalently, as if the other components were known.