

The Added Value of More Accurate Predictions for School Rankings

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Abstract: This paper illustrates how big data methods can be used to improve the assessment of school quality. School rankings based on value-added (VA) estimates are subject to prediction errors, since VA is defined as the difference between predicted and actual performance. More accurate predictions result in more informative school rankings, and better policies. We introduce a more flexible random forest (RF), rooted in the machine learning literature, to minimize prediction errors and to improve school rankings. Monte Carlo simulations demonstrate the advantages of this approach. Applying the proposed method to administrative data on Italian middle schools indicates that school rankings are sensitive to prediction errors, even when extensive controls are added.

Keywords: Value Added, School Ranking, Machine Learning, Monte Carlo.

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