# An Automated Machine Learning Approach For More Efficient Marine Corps Recruiter Prospecting

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Abstract

- High school recruiting.
- Recruiters may be wasting time and resources on underperforming schools while missing out on better opportunities
- Using open-source demographic data, can machine learning be used to accurately assign priority designations for public high schools?
  - Is an AutoML approach ls are the primary source for Marine Corps is better than current methods?
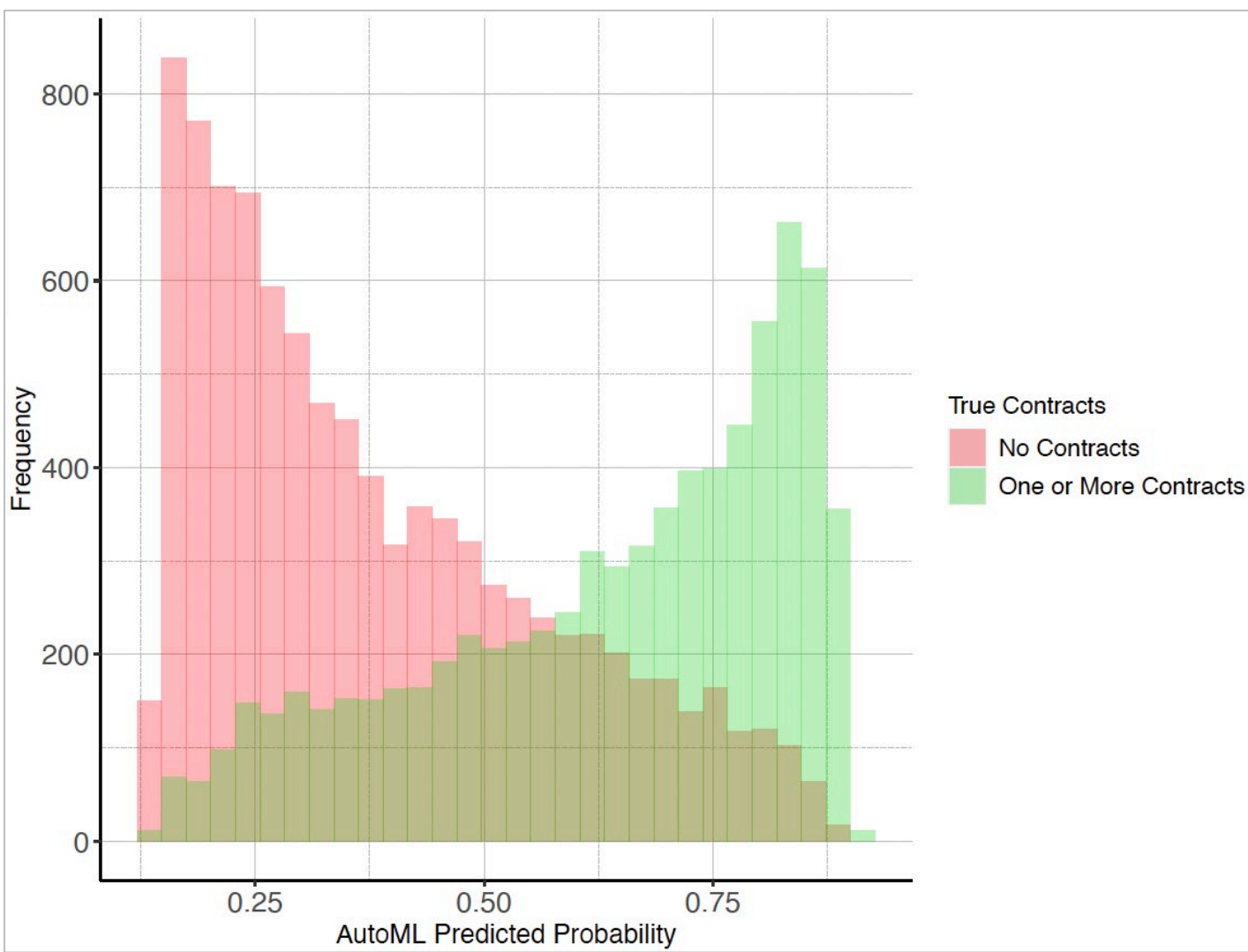
*AutoML prediction performance: 74.3% accurate, 0.818 AUC*
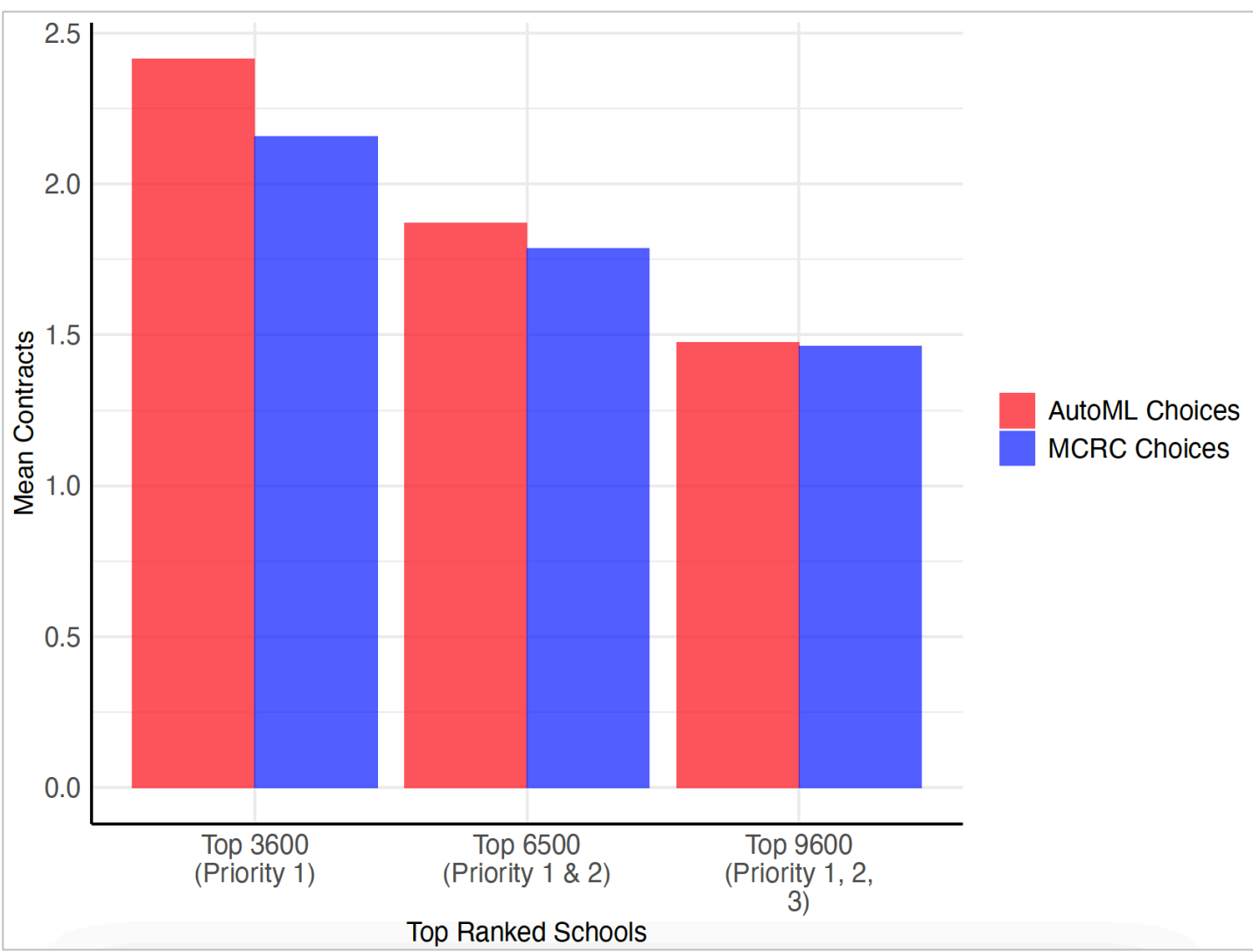
AutoML model yields more predicted contracts than MCRC choices of priority schools for recruiter effort.

Methods

- Open-source data on ~17,000 U.S. public high schools from National Center for Education Statistics and zip-code level Census data
- Employ AutoML to predict the probability of a school producing at least one contract (Implementation tool: Microsoft Azure AI)
- Training and Testing

- Compare results with 2022 MCRC data using number of contracts per school

Results & Their Impact

- Proof-of-concept: AutoML using open-source data can be used to predict which high schools produce the most recruits
- The AutoML predictions produced more contracts than the Marines' priority schools
- Most predictive variables include number of Grade 11 males/rising seniors, number of grade 9-12 students, prior year contracts in that school, and number of students that received free or reduced lunch.
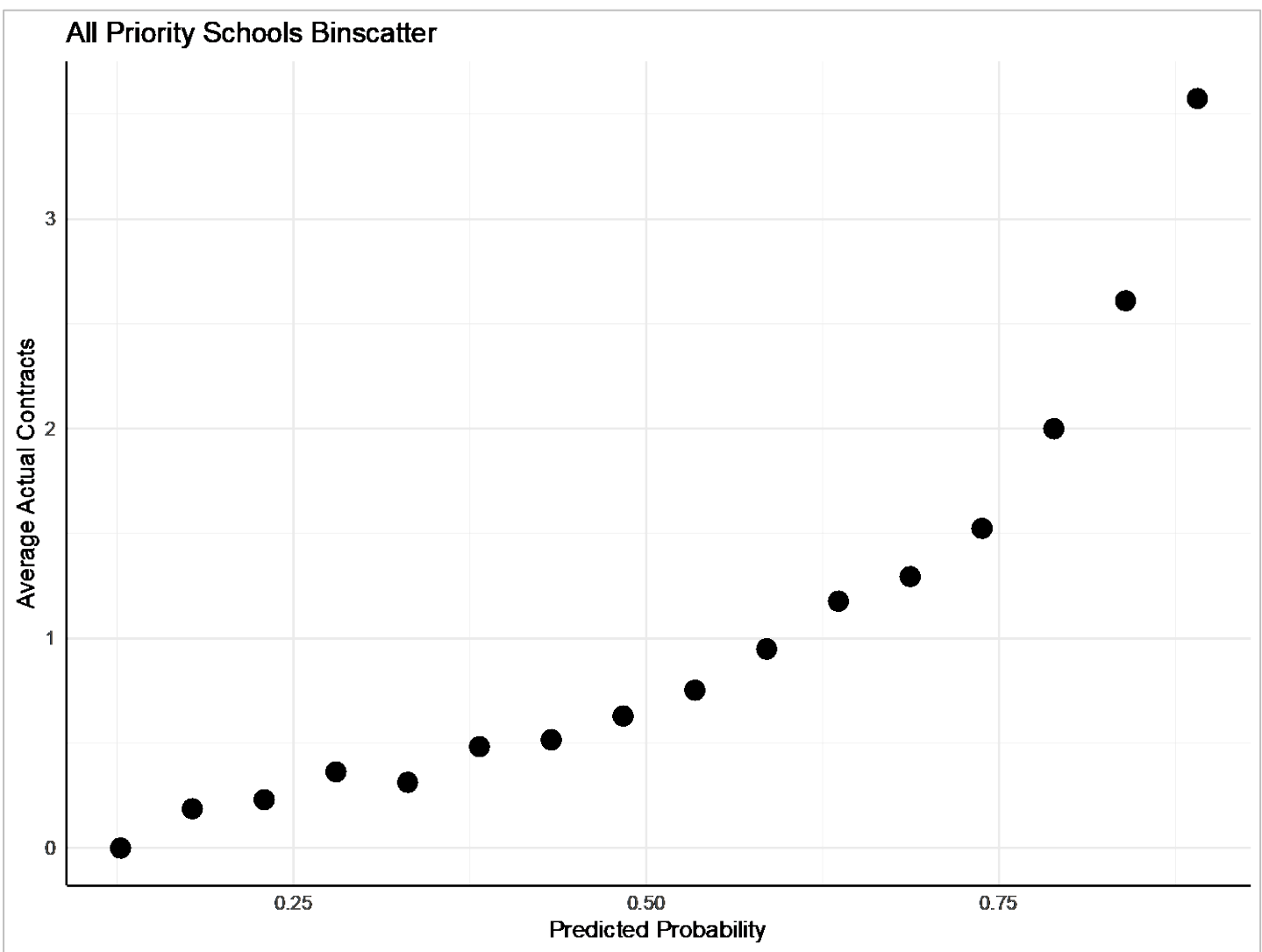
As AutoML model's predicted probability increases, so does number of contracts per school.

Recommendations

- Testing at RS and RSS with control and test groups
- Continued refinement of model

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