

Beating the Odds (BTO) Revised Model

August 20th, 2018

Prepared by:



BTO List of Changes

As the College and Career Ready Performance Index (CCRPI) changed in 2018 to comply with the Every Student Succeeds Act (ESSA), the Governor’s Office of Student Achievement (GOSA) decided to seek feedback about potential changes to the Beating the Odds (BTO) model. Beginning in fall 2017, GOSA received suggestions from district central office staff, local charter school leaders, the Georgia Department of Education (GaDOE), and Georgia’s Educator Effectiveness and Accountability Technical Advisory Committee. Based on this feedback, GOSA contracted with an external evaluator, Dr. Douglas Lauen, (Associate Professor of Public Policy at University of North Carolina-Chapel Hill), to analyze the BTO model and propose recommendations. GOSA has accepted many of his recommendations and will implement the revised model with the release of the 2018 CCRPI. This document provides a high-level overview of the changes.

The table below details the current BTO model and the proposed changes to the model and the number of BTO tiers. Additional details are on the following page.

Variable	Current Model	Proposed Model
School Size*	Enrollment Count	Stratify model by 3 size groups
% Female	N/A	Present; also squared/cubic
% Asian	Present	Present; also squared/cubic
% Black	Present	Present; also squared/cubic
% Hispanic	Present	Present; also squared/cubic
% Multi-racial	Present	Present; also squared/cubic
% Native American	Present	N/A
% Student with Disabilities	Present	Present; also squared/cubic
% English Language Learners	Present	Present; also squared/cubic
% Economically Disadvantaged	Free/Reduced Price Lunch and Direct Certification (2 models)	Direct Certification; also squared/cubic
Churn Rate	Present	Present; also squared/cubic
Grade Cluster	Present	Present
Nontraditional School	N/A	Present
Model Design	Current Model	Proposed Model
Construction of Confidence Interval	Standard Deviation of the Prediction	Standard Deviation of the Forecast
Standard Deviation^	1 Standard Deviation	0.5 Standard Deviation
BTO Tiers^	2	3
*School Size variables in both models based on October FTE K-12 Enrollment		
^These recommendations are solely from GOSA, not the external evaluator.		

The following list provides a brief explanation for each change:

- **Stratify the model by three fixed school sizes**
 - Running the model by three fixed-size categories (small is 0-500 students, medium is 501-1000 students, large is +1000 students) accounts for changes in the predictors based on FTE counts. There is less variability for larger schools than smaller schools and, thus, a smaller error term. Running the models separately better reflects how school size impacts the outcome variable.
- **Include squared and cubic terms**
 - Including both squared and cubic terms addresses the nonlinear nature of the variables in the model. The current model assumes that variables have the same relationship throughout the model, but evidence suggests these relationships change in size and direction as the variable increases. Squared and cubic terms capture these changes.
- **Use percent female as a predictor**
 - This is a significant predictor that was not previously included.
- **Omit percent Native American as a predictor**
 - This is not a significant predictor; over half of schools do not have any Native American students, and schools with the largest Native American presence have fewer than 3%.
- **Use percent direct certification as the socioeconomic status predictor**
 - Direct certification presents a more accurate representation of economically disadvantaged students than other available options. Due to increased participation in the Community Eligible Provision (CEP), Free/Reduced Price Lunch (FRL) is no longer an accurate measure of student poverty because these schools count all students as FRL.
- **Include a binary predictor for nontraditional schools**
 - Nontraditional schools exist for the distinct purpose to serve students who have unique instructional needs that are not adequately addressed in a traditional classroom setting, such as Department of Juvenile Justice schools or special education schools that exist to serve students with severe, specific, and multiple disabilities. This is a significant predictor that was not previously included.
- **Use the Standard Deviation of the Forecast**
 - Standard Deviation of the Forecast reduces influence from outliers and allows the confidence intervals to be more consistent, in contrast to the current use of Standard Deviation of the Predictor, where the confidence intervals vary more by observation.
- **Use 0.5 Standard Deviation**
 - Using half a standard deviation to calculate the confidence intervals recognizes more schools who are performing higher than their predicted score.
- **Divide BTO into three different tiers**
 - Instead of just having “BTO” and “Did not BTO” tiers, one additional tier will provide context for both stakeholders and the media about a school’s performance. These tiers are calculated using half of a standard deviation.
 - *Beating the Odds* - Above Top Confidence Interval
 - *Within Expected Range* – Equal to or Below Top Confidence Interval, Above Bottom Confidence Interval
 - *Below Expected Range* – Equal to or Below Bottom Confidence Interval