

## **Do Standardized Tests Work: The Case of Texas STAAR and TAKS Tests?**

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### **Introduction**

Texas has a long history of standardized tests. The first standardized test began in the 1980s, and since then the Texas Education Agency has adjusted its testing system almost every ten years. The State of Texas Assessments of Academic Readiness (STAAR) program was implemented in 2011-2012 school year. This was the fifth generation standardized test in Texas following the TAKS (Texas Assessment of Knowledge and Skills). STAAR is an assessment program designed to measure the extent to which students have learned and are able to apply the knowledge and skills from grade 3 to grade 8 and high school End of Course (EOC) assessment (Algebra I, English I, English II, biology, and U.S. history). Meanwhile, the STAAR test has built an indicator for students' post-secondary education performance, a student who achieves a final level II proficiency has a better than 60% chance of passing freshman college level math & English course. However, since the implementation of STAAR testing, it has received criticisms from students, parents, educators and lawmakers. High school students have to pass 15 exit-level STAAR tests instead of six of TAKS in order to graduate, a single STAAR test failure may affect their graduation and admission to universities, and schools may concentrate on how to improve students' performance on STAAR in order to receive more funding from the government. Criticisms are especially harsh for the new A-F rating system to evaluate campuses in four categories including student achievement, student progress, closing performance gaps and postsecondary readiness, which of those first three criteria primarily rely on STAAR test performance. Despite criticisms, STAAR testing is play an important role in Texas education system.

Objectives: In this paper, we discuss three major concerns related to STAAR testing: 1) How STAAR tests affect postsecondary readiness, including SAT/ACT scores; 2) How STAAR tests perform compared to TAKS test, i.e. which one is more effective for students who intend to pursue higher education; and 3) How students from rural campuses perform on STAAR compared to those of urban/sub-urban campuses.

### **Data and Methodology**

Campus level data related to SAT/ACT scores, STAAR and TEKS test average scores, school rating, and campus finances were obtained from Texas Education Agency (TEA) for 2009-2016 school years. Campus district level data related to population, education, household income, and rural or urban dummy by zip code were obtained from United States Census Bureau.

A hierarchical model is used in the estimation. Given the unique nested structure of the data we are using, this model provides an advantage by allowing us to account for the different units of observations and let the parameters estimated from one level in the model become the outcome variables at the next level. HLM accounts for the shared variance in hierarchically structured data.

Level 1 is campus,

$$\begin{aligned}
 SAT_{ijt} \text{ or } ACT_{ijt} &= \beta_{0jt} + \beta_{1jt}STAAR_{ijt} + \beta_{2jt}school\ rating_{ij} + \beta_{3jt}funding_{ijt} \\
 &+ \beta_{4jt}\%econ\ disability_{ijt} + \beta_{5jt}\%free\ lunch_{ijt} + e_{ijt}
 \end{aligned}$$

and level 2 is district,

$$\begin{aligned}
 \beta_{kjt} &= \gamma_{k0t} + \gamma_{k1t}population_{jt} + \gamma_{k2t}education_{jt} + \gamma_{k3t}householdincome_{jt} \\
 &+ \gamma_{k4t}poverty_{jt} + \gamma_{k5t}area\ dummy_j + U_{jt}
 \end{aligned}$$

$i$  = public high schools in Texas,  $i = 1, 2, \dots, n$ ,  $j$  = districts based on campus zip code,  $j = 1, 2, \dots, m$ ,  $k$  = parameters in level 1 model,  $k = 1, 2, \dots, 5$

### **Preliminary Findings and Discussion**

We collected data from 1,435 high schools from 1,247 school districts in Texas. We specified four geographic regions based on the USDA Rural-Urban Continuum Codes. The preliminary results showed that both TAKS (2009-11) and STAAR (2012-14) test scores significantly affect total SAT score. STAAR mathematics score (coefficient=0.19) had a greater impact than TAKS (coefficient=0.10) on SAT scores. On the other hand, TAKS reading scores (coefficient=0.59) had much stronger effect on SAT scores than STAAR scores (coefficient=0.05). Meanwhile, average passing rate of economically disadvantage schools was 5%~7% lower than the average state level for all End of Course assessments in the past five years.

Although, both STAAR and TAKS scores significantly influenced the SAT scores, the magnitude of the effect was small. Many other factors influence students' postsecondary readiness. We further investigate other factors such as household income, parents' education level, school funding, English language learner (ELL), teacher experience and location specific regional characteristics etc.