**SAT Achievement and Post-Secondary Outcomes**

A Research Report Submitted to Maryland State Department of Education (MSDE)

Maryland Assessment Research Center (MARC)

**Executive Summary**

This research study is to investigate the relationships between post-secondary academic outcomes and SAT test scores. This project uses the SAT Math and EBRW test score data from 2015 to 2017 and college cumulative grade point average (GPA) data from 2015 to 2018. The following analyses were conducted.

1. Correlational analyses between the end-of-first-year college cumulative GPA and SAT Math, SAT EBRW test scores respectively;
2. Regression analyses using the SAT Math and SAT EBRW test scores to predict the end-of-first-year college cumulative GPA;
3. Concordance relationships established using the samples of students whose SAT test scores and the end-of-first-year college cumulative GPA are both available. The SAT equivalents of the GPA cut scores are obtained accordingly. The empirical SAT cut scores corresponding to the end-of-first-year college cumulative GPA of 3.0 and to the PARCC cut scores dividing the adjacent performance levels are suggested.

**Major Findings/Talking Points**

1. This study was conducted based on samples of students whose end-of-first-year college cumulative GPA and SAT scores are both available (i.e., longitudinal samples). The end-of-first-year college cumulative GPA from 2015 to 2018 were analyzed. This study used two rules to define the end-of-first-year college cumulative GPA and the results were compared across the rules. In the first rule, the end-of-first-year college cumulative GPA was defined as the cumulative GPA reported at the earliest term when a student earned 30 or more cumulative credits from an institution. In the second rule, the end-of-first-year college cumulative GPA was defined as the weighted average of the cumulative GPA across institutions by cumulative credits calculated at the earliest term when a student earned a total of 30 or more cumulative credits from all the institutions he or she has attended. This study conducted analyses using SAT scores up to 2017. Students’ latest attempts were used in all the analyses.
2. Three longitudinal samples with adequate sample sizes (i.e., a minimum of 30) were used for the correlational analyses and regression analyses. The results showed that both the SAT Math and SAT EBRW tests were moderately correlated with the end-of-first-year college cumulative GPA. Also, there was a moderate linear relationship between the SAT sub-tests and the end-of-first-year college cumulative GPA. The SAT sub-tests were statistically significant predictors of the end-of-first-year college cumulative GPA. SAT scores, as predictors, explained 14% to 17% of the total variance in the end-of-first-year college cumulative GPA.
3. The SAT test equivalents of the GPA cut scores were identified from the concordance tables obtained by linking the SAT sub-test scores to the end-of-first-year college cumulative GPA. Two concordance tables (see Appendix B) were constructed to show the linkage between student performance on SAT Math and EBRW tests and the end-of-first-year college cumulative GPA, respectively.
4. According to the concordance tables between the SAT test scores and the end-of-first-year college cumulative GPA, the SAT Math and EBRW scores of 555 and 563 are equivalent to an end-of-first-year college cumulative GPA of 3.0, respectively. The differences are not interpretable as the tests are not on the same scale. These scores can be deemed as the empirical SAT cut scores for college readiness if obtaining an end-of-first-year college cumulative GPA equal or higher than 3.0 is defined as college readiness.
5. SAT equivalents to the GPA cut values that correspond to the PARCC cut scores dividing the adjacent performance levels were found. Specifically, the end-of-first-year college cumulative GPA cut values equivalent to the PARCC cut scores were found based on the PARCC-GPA concordance tables developed by Maryland Assessment Research Center (2019), and the SAT equivalents to the GPA cut values were found based on the GPA-SAT concordance tables in Appendix B. The SAT math scores equivalent to the PARCC ALG01 and ALG02 cut scores determining whether students have met the expectations for their grade level/course (i.e., dividing performance levels of 3 and 4) are 559 and 603, respectively. The SAT EBRW scores equivalent to the PARCC ELA10 and ELA11 cut scores determining whether students have met the expectations for their grade level/course (i.e., dividing performance levels of 3 and 4) are 572 and 566, respectively.
6. All the results were similar across the two rules of the end-of-first-year college cumulative GPA definition.