SAT® Score Relationships with College GPA:
First-Year through Fourth-Year Cumulative GPA

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Key Takeaways

- SAT scores remain consistently predictive of cumulative GPA throughout each year of college -- from first-year GPA through fourth-year GPA.
- For all subgroups of students and institutions studied, including underrepresented minority students, students from high-challenge environments, first-generation college students, and students whose best language is not English, SAT scores retain their predictive power through each year of college.
- The information *added* by SAT scores above HSGPA to predict college GPA remains consistent through the first four years of college. This was true for all subgroups examined, as well.
- Colleges and universities that use SAT scores for admissions, placement, scholarships, and academic advising can be confident that test scores predict how students are expected to perform throughout college.

Introduction

The purpose of this study is to understand how well SAT scores predict college grade point average (GPA) through each year of college. Many previous studies have shown that SAT scores are a consistently strong predictor of first-year GPA and add predictive value beyond high school GPA (HSGPA) alone to understand student performance in the first year of college (e.g. Marini, Westrick, & Shaw, 2021; University of California, 2020; Westrick et. al., 2019; Zwick, 2006, 2019). Other SAT validity studies have focused on the prediction of longer-term college outcomes such as retention (e.g. Marini, Westrick, & Shaw, 2021) or college completion (e.g. Westrick, Marini, & Shaw, 2022) and arrived at similar findings. Another important longer-term outcome of interest in SAT validity research is the cumulative college GPA, to understand whether there is diminished capability (or not) to predict academic performance over the course of the college experience. One key study on this topic showed that SAT scores continued to hold their predictive value with later college GPA and this was true across all subgroups examined (Mattern & Patterson, 2014). The current study aims to update the Mattern and Patterson (2014) findings and gather evidence for the utility of SAT scores to inform important campus decisions about student success, including retention, degree completion, scholarships, and academic advising.

Sample

The sample of students in this study come from the 2018 entering college cohort who initially enrolled at public or private four-year institutions that provided four years of data for the College Board's National SAT Validity Study. To be included, students had to have persisted through their fourth year of college or graduated prior to the fourth year

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from the same institution where they had initially enrolled. Students also had to have SAT scores, a high school grade point average (HSGPA) indicated on the SAT Questionnaire, and have a college GPA each year of the study. The study sample had 111,899 students in the first year. The sample size decreases as not all students are retained to each subsequent year. The second-year sample size is 97,045, third-year sample size is 89,062, and fourth-year sample size is 83,795.

Table 1 shows that the study sample was more female than male, primarily White, Hispanic or Latino, or Asian, have parents with a bachelor's degree or higher, and state that English is their best language. While this sample is not representative of the general SAT taking population, these demographic characteristics closely resemble our validity research samples in larger studies of college-going students. As seen in Table 2, which describes the institutional characteristics of the four-year colleges and universities in the study sample, there were slightly more public (54%) than private institutions (46%). The majority of institutions in the sample were less selective with 34% admitting 51% to 75% and 39% of the institutions admitting over 75% of their applicants. In terms of size, the majority of the institutions are small (40%) followed by very large (31%).

Table 1: *Student Demographics of the Overall Sample*

Student Characteristic		Overall Sample
		(n=111,899)
Gender	Male	44%
	Female	56%
Race/Ethnicity	American Indian or Alaska Native	< 1%
	Asian	12%
	Black or African American	7%
	Hispanic or Latino	16%
	Native Hawaiian or Other Pacific Islander	< 1%
	White	59%
	Two or More Races	4%
	Not Stated	1%
Highest Parental Education Level	No High School Diploma	4%
	High School Diploma	20%
	Associate Degree	7%
	Bachelor's Degree	37%
	Graduate Degree	31%
	Not Stated	1%
Best Language	English Only	84%
	English and Another Language	14%
	Another Language	2%
	Not Stated	<1%

Note: Percentages may not sum to 100% due to rounding.

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Table 2: *Institutional Characteristics of the Sample*

	Category	Total Sample (k=70)
Control	Public	54%
	Private	46%
Admittance Rate	Under 25% Admitted	6%
	25% to 50% Admitted	21%
	51% to 75% Admitted	34%
	Over 75% Admitted	39%
Undergraduate Enrollment	Small (n < 5,000)	40%
	Medium (5,000 ≤ n < 9,999)	13%
	Large (10,000 ≤ n < 19,999)	16%
	Very Large (n ≥ 20,000)	31%

Note: *k* refers to the number of institutions

Measures

SAT Scores. SAT scores were obtained from College Board records and matched to every student in the study sample. The SAT scores included in this study are

SAT Total Score (400 to 1600 scale)—increments of 10, sample mean of 1204 (SD=164).

SAT Evidence-Based Reading and Writing Section Score (200 to 800 scale)—increments of 10, sample mean of 603 (SD=81).

SAT Math Section Score (200 to 800 scale)—increments of 10, sample mean of 601 (SD=95).

High School GPA (HSGPA). Students' self-reported HSGPA was obtained from the SAT Questionnaire when they registered for the SAT and is reported on a 12-point scale, ranging from 0.00 (F) to 4.33 (A+). The HSGPA measure in the current study has a sample mean of 3.67 (SD=0.47)

Cumulative GPAs. Yearly cumulative GPAs were collected from each institution in this study and four cumulative GPAs were examined. Each represents the cumulative GPA for the student at the end of each school year. For students who graduated in less than four years, their last cumulative GPA was carried forward through the fourth year. These are 1st Year Cumulative GPA (CGPA1) with a sample mean of 3.09 (SD=0.79), 2nd Year Cumulative GPA (CGPA2) with a sample mean of 3.27 (SD=0.57), 3rd Year Cumulative GPA (CGPA3) with a sample mean of 3.34 (SD=0.50), and 4th Year Cumulative GPA (CGPA4) with a sample mean of 3.38 (SD=0.47).

Student Subgroups. For this study we conducted additional analyses by student subgroups of interest: gender, underrepresented minority students, first-generation college-going students, best language, students from high-challenge environments, and students majoring in Science, Technology, Engineering, and Mathematics (STEM).

Gender. Self-reported gender was used in this study. In the current study, 49,047 (44%) of students were male and 62,852 (56%) of students were female.

Underrepresented Minority. Using students' self-reported race/ethnicity, we considered who reported themselves as being American Indian or Native Alaskan, Black or African American, Hispanic or Latino, or Native Hawaiian or Other Pacific Islander as being an underrepresented minority student. In the current study, 30,704 students (27%) were categorized as being underrepresented minority students.

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First-Generation College Student. We defined first-generation college students as students whose parents' highest reported level of education was less than an associate's degree. In the current study, 26,537 students (24%) were categorized as being first-generation students.

Best Language. Self-reported best language was used in this study. In the current study, 94,137 (84%) said English only was their best language, 15,154 (14%) said English or another language was their best language, and 2,143 (2%) said another language was their best language.

High-Challenge Environment. We defined students as being from high-challenge environments by using College Board's Landscape data. Landscape is based on six indicators—college attendance, crime, education level, household structure, housing stability, and median family income—with neighborhood and high school percentiles for each indicator. Each indicator is reported on a 1-100 scale, with a higher score indicating greater challenge. Using the six neighborhood indicators, we calculated an average percentile. Using this final average from the national 2018 cohort of students, we defined students in the top 40% as having come from high-challenge environments. In the current study 19,704 students (19%) were considered to have come from high-challenge environments.

STEM Majors. Using CIP code information[1] provided by the majority of institutions in our sample, students major in the fourth year (or earlier if they completed prior), was classified as being a STEM major or not. There were 26,955 (24%) students with STEM majors from 56 institutions,

Institution Subgroups. For this study, we subdivided college and universities based on control (public/private) and admission selectivity as reported in the Integrated Postsecondary Education Data System (IPEDS) from the National Center for Education Statistics (NCES, 2018). We classified institutions that admitted less than 50% of applicants as being more selective, and institutions that admitted 50% or more of applicants as being less selective. The number of higher education institutions (k) and students (n) across the institutional subgroups were: private, more selective, k=12, n=13,950; private, less selective, k=20, n=7,324; public, more selective, k=7, n=22,178; public, less selective, k=31, n=68,447.

Table 3 includes descriptive statistics for all measures of interest in this study. The descriptive statistics for each cumulative GPA (CGPA1, CGPA2, CGPA3, CGPA4) reflect the values for the measure-specific sample and not the full study sample.

Table 3: *Descriptive Statistics for Measures of Interest in the Overall Sample*

Variable	N	Mean	Std Dev	Minimum	Maximum
SAT ERW Section Score	111,899	603	81	200	800
SAT Math Section Score	111,899	601	95	200	800
SAT Total Score	111,899	1204	164	400	1600
HSGPA	111,899	3.67	0.47	1.33	4.33
Cumulative GPA Year 1	111,899	3.09	0.79	0.00	4.27
Cumulative GPA Year 2	97,045	3.27	0.57	0.00	4.25
Cumulative GPA Year 3	89,062	3.34	0.50	0.00	4.26
Cumulative GPA Year 4	83,795	3.38	0.47	0.33	4.27

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[1] CIP codes come from the National Center for Education Statistics (NCES) from 2020.Specific STEM designation determined by the U.S. Department of Homeland Security (https://www.ice.gov/sites/default/files/documents/stem-list.pdf).

Methods

Descriptive and graphical analyses were first used to explore the consistency and directionality of the relationship between SAT and yearly cumulative GPA. Correlations and the increase in predictive utility of the SAT over HSGPA to predict cumulative GPA for each year were also analyzed. These analyses are important to understand how the relationship between SAT, HSGPA, and yearly cumulative GPA compare over time. Logistic regression analyses were also employed to predict students' probabilities of earning a 3.0 or higher 4th year cumulative GPA.

Results

Figure 1 allows us to see how SAT total scores differentiate students' academic performance in the fourth year among students with the same HSGPA—essentially controlling for HSGPA to understand the added informational value of SAT scores. For example, for students with an A HSGPA, those with SAT total scores between 1000 and 1190 had a mean 4th year cumulative GPA of 3.41, while those with an SAT total score between 1400 and 1600 had a mean 4th year cumulative GPA of 3.63. Similar patterns are seen for students of all HSGPAs.

Figure 1: *Mean 4th Year Cumulative GPA by HSGPA and SAT Total Score Bands*
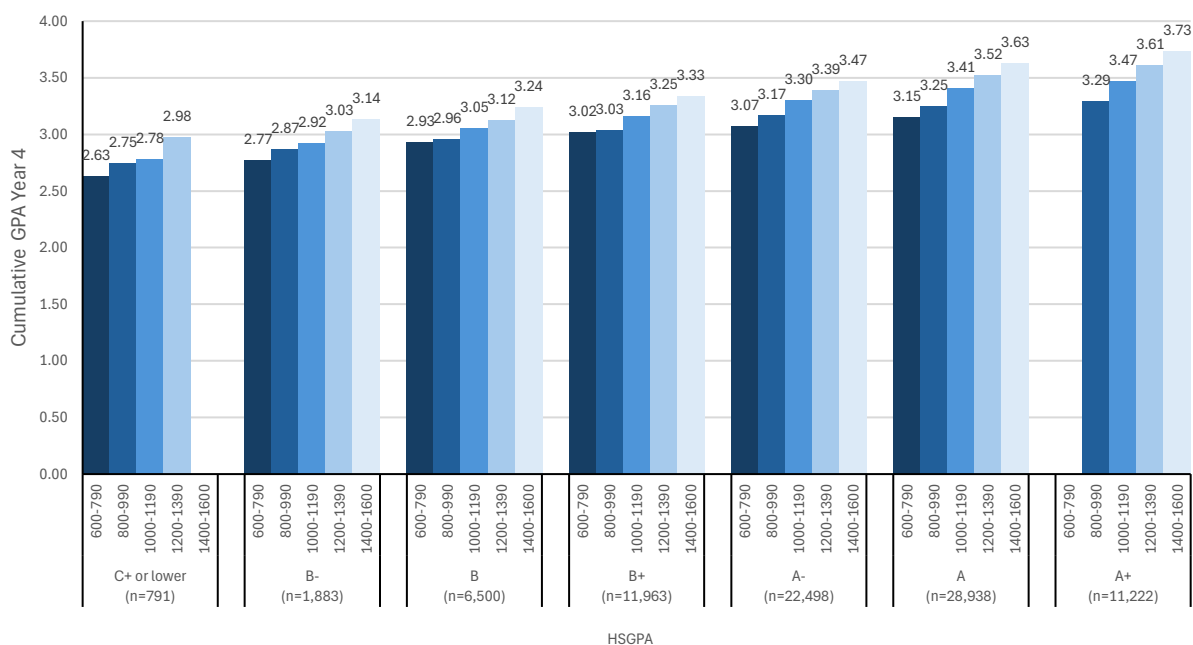
Note: Results are reported for categories with at least 15 students.

Figure 2 compares mean 1st year GPA performance with mean 4th year cumulative GPA performance for students with an "A" or 4.00 HSGPA. We see the same positive trend for both years—as SAT total score increases, so does mean GPA.

Figure 2: *Mean 1st Year and Mean 4th Year Cumulative GPAs by SAT Total Score Bands for all "A" HSGPA Students*
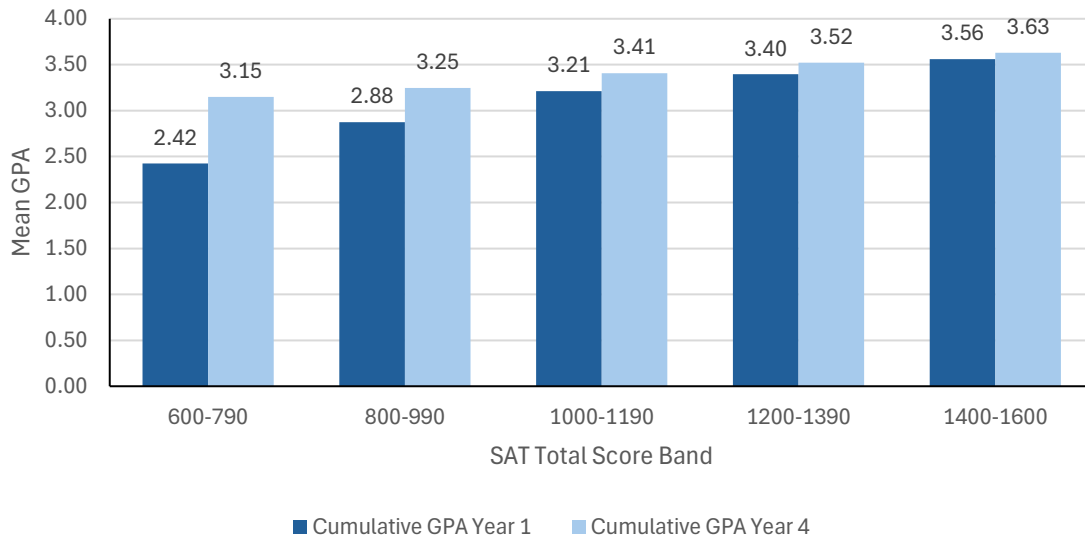

Figure 3 shows the probability of earning a 3.00 or higher 4th year cumulative GPA given HSGPA and SAT Total score. As an example from this figure, a student with a HSGPA of 3.80 and an SAT Total Score of 1000 has a 76% chance of earning a 4th year cumulative GPA of 3.00 or higher. A student with the same HSGPA of 3.80, but a higher SAT Total Score of 1400 has a 90% chance of earning a 4th year cumulative GPA of 3.00 or higher —that's an increase of 14 percentage points. This shows that as SAT scores increase, there is an increased probability of earning a 3.00 or higher 4th year cumulative GPA, even for students with the same HSGPA.

Figure 3: *Chance of Earning a 3.00 or Higher 4th Year Cumulative GPA Given HSGPA and SAT Total Score*
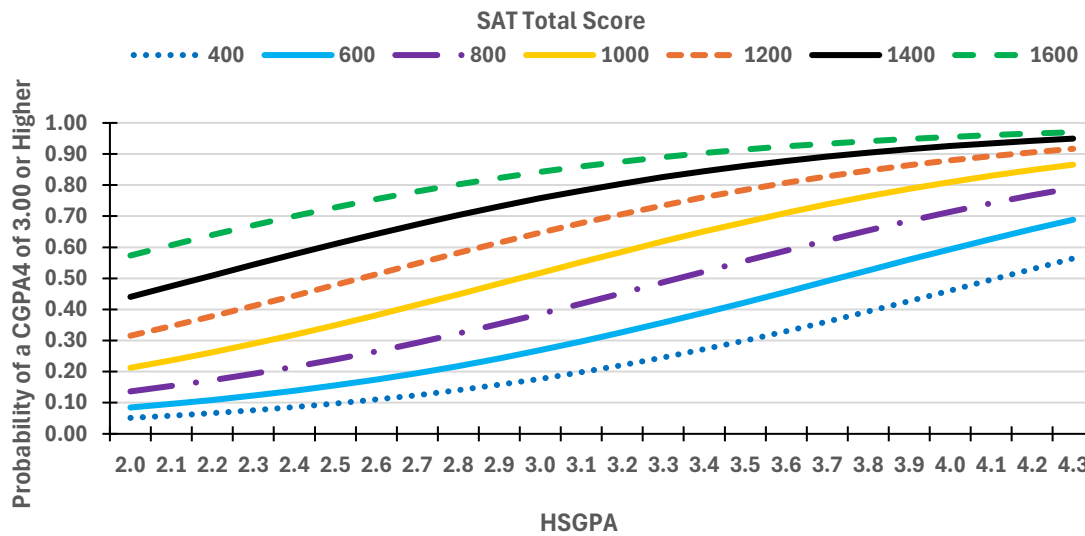
Figure 4 shows three correlations of interest (SAT scores, HSGPA, and SAT & HSGPA with cumulative GPA as the criterion) across each year of college. The correlations for each predictive measure are generally consistent across years, changing very little if at all, from year 1 to year 4. Also, the SAT adds informational value in predictive utility of SAT scores above HSGPA in the prediction of each year's cumulative GPA, and this added predictive power or incremental validity is constant across all four years (0.06 each year). A table of correlations, both raw and corrected for range restriction[2], can be found in Table A1 in the appendix.

Figure 4: *Correlations of HSGPA and SAT with Cumulative GPA Years 1 Through 4*
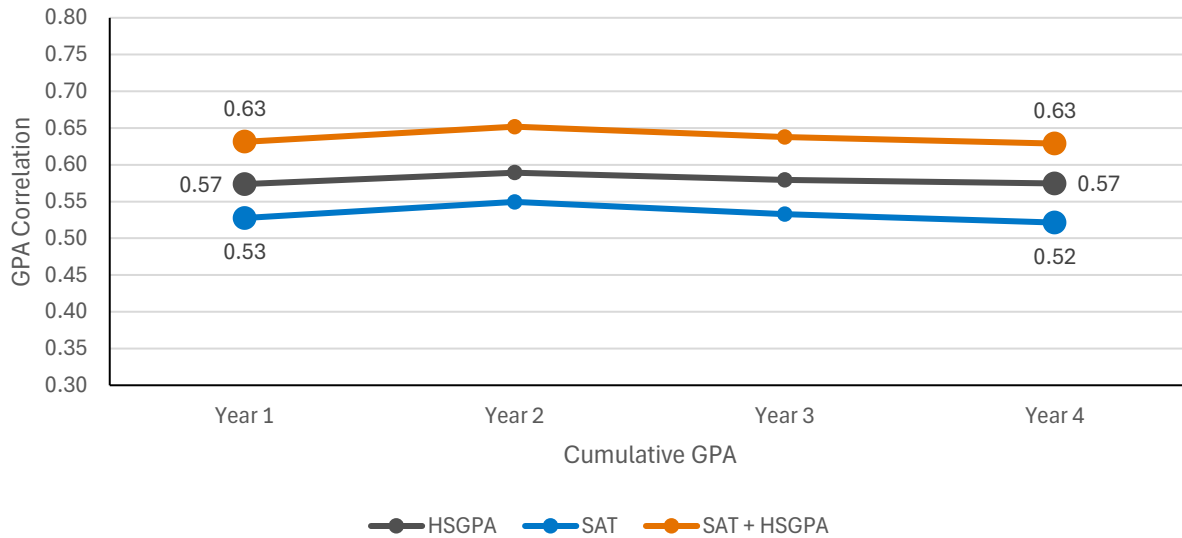
Institution Subgroups

Institutions were divided into four different descriptive subgroups based on their control and admissions selectivity. These institutional groups are: Private, Less Selective; Private, More Selective; Public, Less Selective; and Public, More Selective. Table 4 provides means and standard deviations for the study variables for each institutional subgroup.

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[2] Without information on how students who were not admitted or those who did not enroll would have performed at an institution, there is only a small glimpse into how the tests work for predicting performance. This restricts the variability or range in test scores available for analysis since the test scores available tend to be the higher scores of students who were admitted, minimizing the test score-criterion relationship. Correlations in this study were corrected or multivariate range restriction (Lawley, 1943) using the 2018 graduating seniors who took the SAT as a reference population.
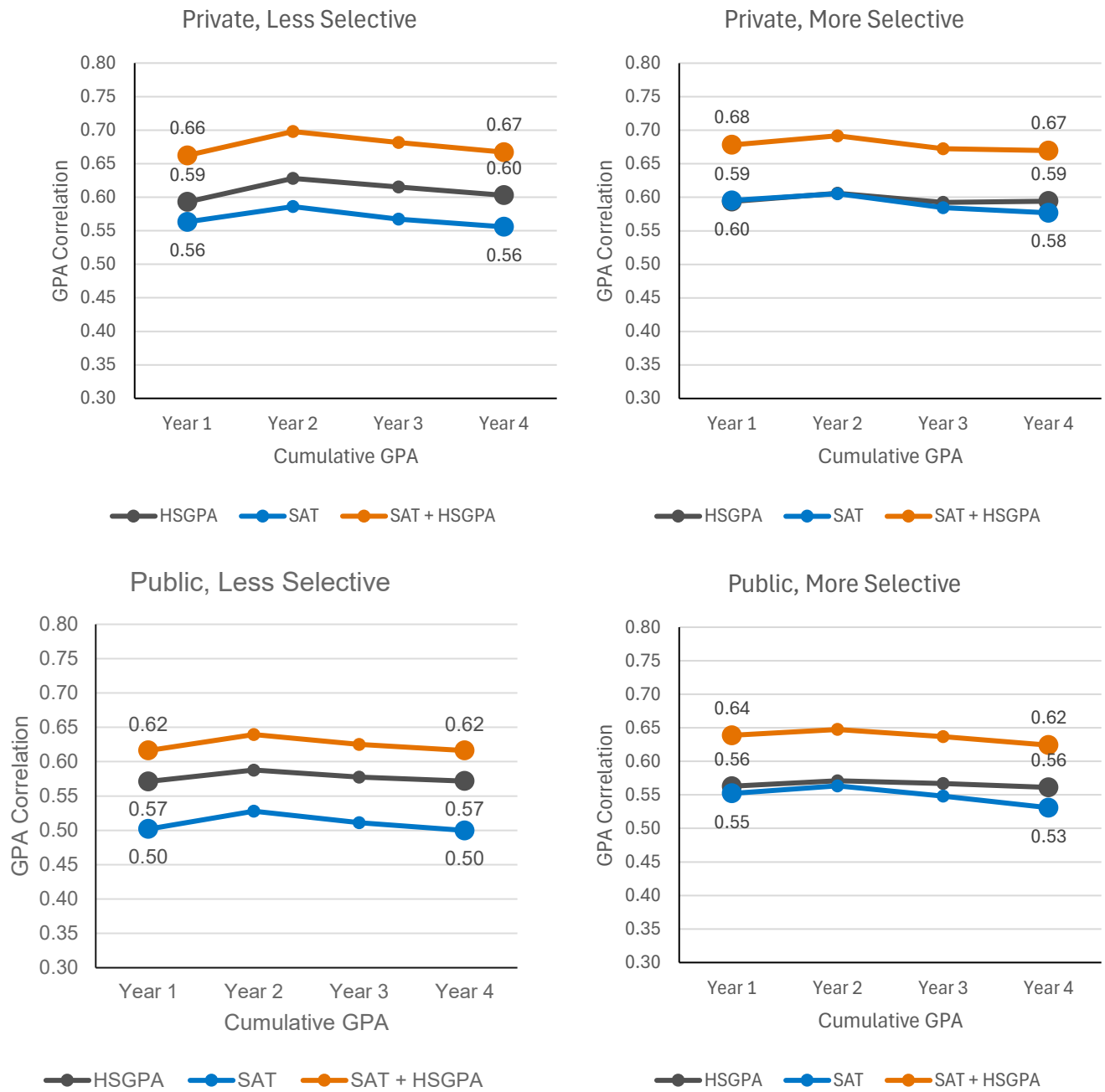
Table 4: *Descriptive Statistics by Institutional Subgroup*

Institutional Subgroup	K	Variable	N	Mean	Std Dev	Minimum	Maximum
Private, Less Selective	20	SAT ERW Section Score	7,324	587	82	320	800
		SAT Math Section Score	7,324	574	88	300	800
		SAT Total Score	7,324	1161	156	670	1580
		HSGPA	7,324	3.61	0.50	1.67	4.33
		Cumulative GPA Year 1	7,324	3.14	0.76	0.00	4.00
		Cumulative GPA Year 2	6,129	3.32	0.55	0.00	4.00
		Cumulative GPA Year 3	5,575	3.38	0.48	1.22	4.00
		Cumulative GPA Year 4	5,291	3.42	0.46	1.32	4.00
Private, More Selective	12	SAT ERW Section Score	13,950	655	67	340	800
		SAT Math Section Score	13,950	667	85	200	800
		SAT Total Score	13,950	1322	137	570	1600
		HSGPA	13,950	3.83	0.37	1.67	4.33
		Cumulative GPA Year 1	13,950	3.31	0.56	0.00	4.00
		Cumulative GPA Year 2	13,014	3.41	0.45	0.00	4.00
		Cumulative GPA Year 3	12,426	3.46	0.42	0.49	4.00
		Cumulative GPA Year 4	12,055	3.48	0.40	1.08	4.00
Public, Less Selective	31	SAT ERW Section Score	68,447	583	81	200	800
		SAT Math Section Score	68,447	578	92	200	800
		SAT Total Score	68,447	1161	160	400	1600
		HSGPA	68,447	3.59	0.50	1.33	4.33
		Cumulative GPA Year 1	68,447	2.98	0.86	0.00	4.27
		Cumulative GPA Year 2	57,226	3.20	0.62	0.00	4.25
		Cumulative GPA Year 3	51,453	3.28	0.54	0.00	4.26
		Cumulative GPA Year 4	47,623	3.33	0.50	0.33	4.27
Public, More Selective	7	SAT ERW Section Score	22,178	636	65	320	800
		SAT Math Section Score	22,178	638	82	250	800
		SAT Total Score	22,178	1274	130	590	1600
		HSGPA	22,178	3.85	0.35	1.67	4.33
		Cumulative GPA Year 1	22,178	3.27	0.59	0.00	4.00
		Cumulative GPA Year 2	20,676	3.36	0.48	0.00	4.00
		Cumulative GPA Year 3	19,608	3.41	0.44	0.85	4.00
		Cumulative GPA Year 4	18,826	3.42	0.44	0.82	4.00

Note: *k* refers to the number of institutions

When examining correlation trends over the four years of cumulative GPAs, you see similar patterns by institutional subgroup as you do in the overall sample. One difference is that for both Private, More Selective and Public, More Selective institutions, the correlation between cumulative GPA and HSGPA and cumulative GPA and SAT are almost the same across years. Figure 5 illustrates these findings. Detailed correlation information for each institutional subgroup can be found in Table A2 in the Appendix. Table A3 contains information about the number of institutions and students in each year.

Figure 5: *Correlations of HSGPA and SAT with Cumulative GPA, Years 1 Through 4 by Institutional Subgroup*

Private, Less Selective

GPA Correlation vs Cumulative GPA (Year 1 – Year 4)

HSGPA: 0.59 ... 0.60
SAT: 0.56 ... 0.56
SAT + HSGPA: 0.66 ... 0.67

Legend: HSGPA, SAT, SAT + HSGPA

Private, More Selective

GPA Correlation vs Cumulative GPA (Year 1 – Year 4)

HSGPA: 0.59 ... 0.59
SAT: 0.60 ... 0.58
SAT + HSGPA: 0.68 ... 0.67

Legend: HSGPA, SAT, SAT + HSGPA

Public, Less Selective

GPA Correlation vs Cumulative GPA (Year 1 – Year 4)

HSGPA: 0.57 ... 0.57
SAT: 0.50 ... 0.50
SAT + HSGPA: 0.62 ... 0.62

Legend: HSGPA, SAT, SAT + HSGPA

Public, More Selective

GPA Correlation vs Cumulative GPA (Year 1 – Year 4)

HSGPA: 0.56 ... 0.56
SAT: 0.55 ... 0.53
SAT + HSGPA: 0.64 ... 0.62

Legend: HSGPA, SAT, SAT + HSGPA

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Student Subgroups

The following figures examine correlation trends by different student subgroups.

Gender

Figure 6 shows correlations between HSGPA and SAT with cumulative GPA over four years for males and separately for females. The trends are very similar to the overall sample—relationships between predictors and cumulative GPA are relatively stable across all four years. For females, SAT and HSGPA have nearly identical correlations with cumulative GPA in each year. Detailed correlation information for males and females can be found in the Table A4 in the Appendix. Table A5 contains information about the number of institutions and students in each year.

Figure 6: *Correlations of HSGPA and SAT with Cumulative GPA, Years 1 Through 4 by Gender*
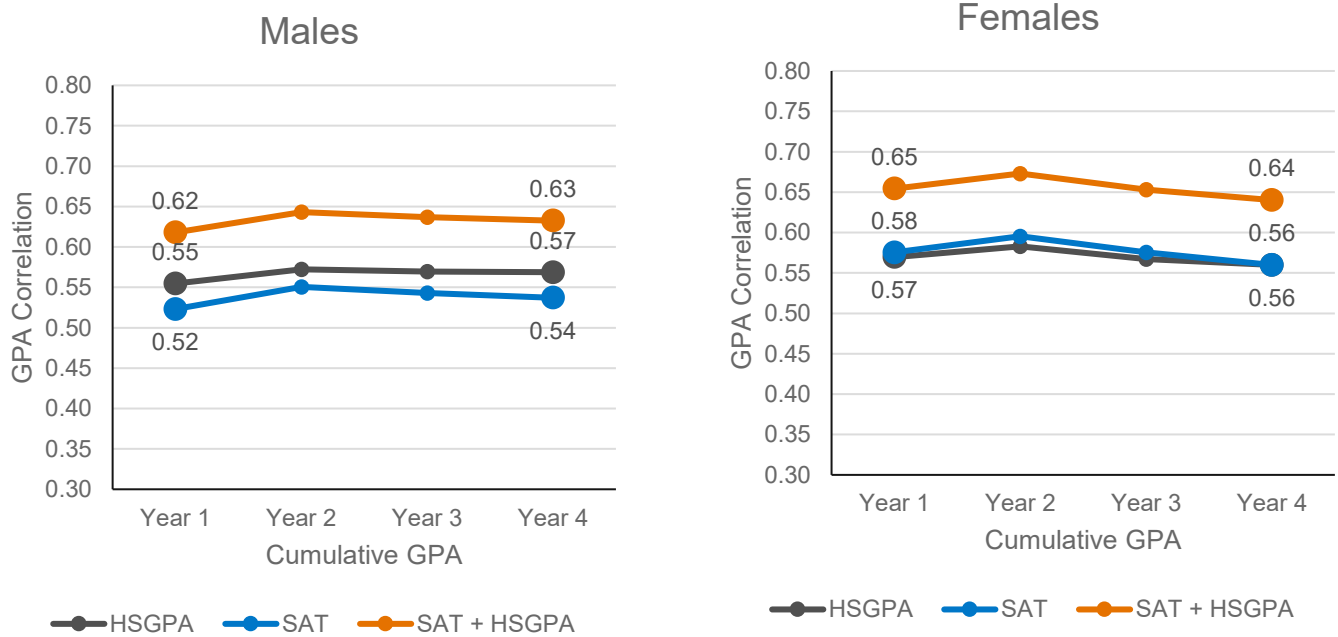
Underrepresented Minority Students

Figure 7 shows correlation trends over time for underrepresented minority (URM) students. These students are defined as those who are Black, Hispanic or Latino, Native American, Native Hawaiian/Pacific Islander, and Two or More Races. For both URM and non-URM students, correlations remain consistent across time. Detailed correlation information for URM and non-URM students can be found in Table A6 in the Appendix. Table A7 contains information about the number of institutions and students in the sample each year.

Figure 7: *Correlations of HSGPA and SAT with Cumulative GPA Years 1 Through 4 for URM and Non-URM Students*
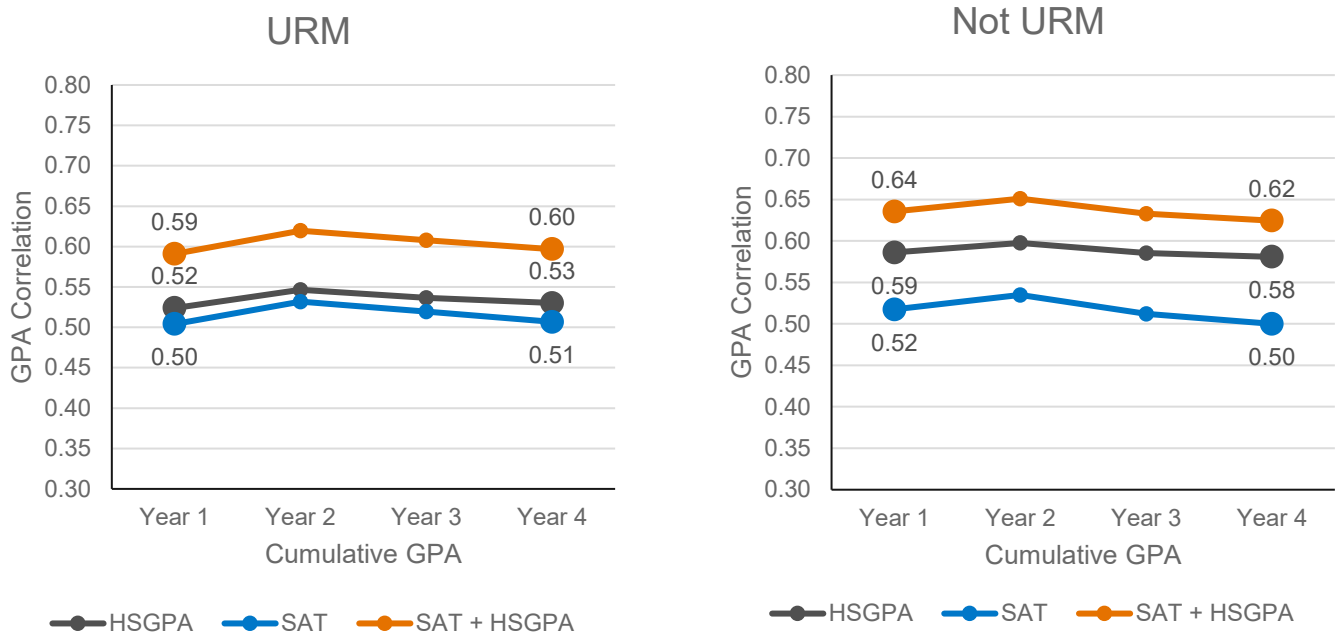
First Generation

Figure 8 shows correlation trends for students who are first-generation college-going students. As in the other student subgroup figures, correlational relationships remain steady over time for both the first-generation students and the non-first-generation students. Detailed correlation information for first-generation and non-first-generation students can be found in Table A8 in the Appendix. Table A9 contains information about the number of institutions and students in the sample each year.
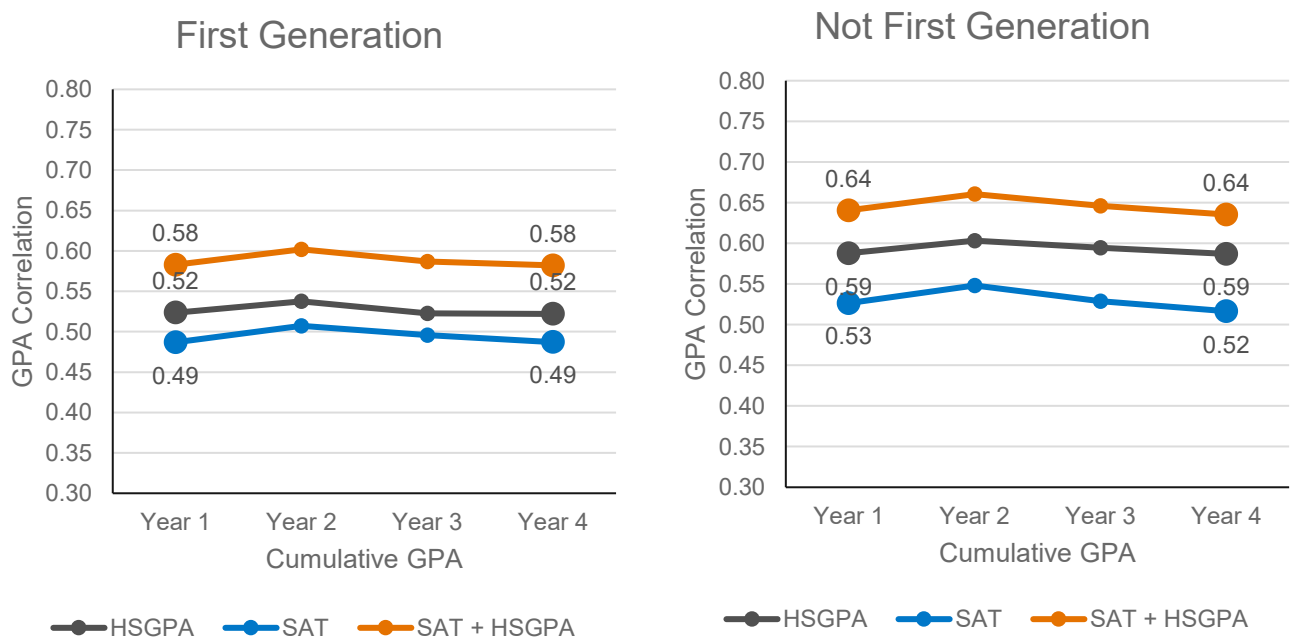
Figure 8: *Correlations of HSGPA and SAT with Cumulative GPA Years 1 Through 4 for First-Generation and Non-First-Generation Students*

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though there is a slight decrease in the HSGPA-college cumulative GPA correlation for students whose best language is Another language. Also, unlike most other subgroups studied, the SAT score correlations with college GPA were stronger than the correlations between HSGPA and college GPA for the Another language as best language subgroup. Detailed correlation information for Best Language categories can be found in Table A10 in the Appendix. Table A11 contains information about the number of institutions and students in the sample each year.

Figure 9: *Correlations of HSGPA and SAT with Cumulative GPA, Years 1 Through 4 for Best Language Subgroups*
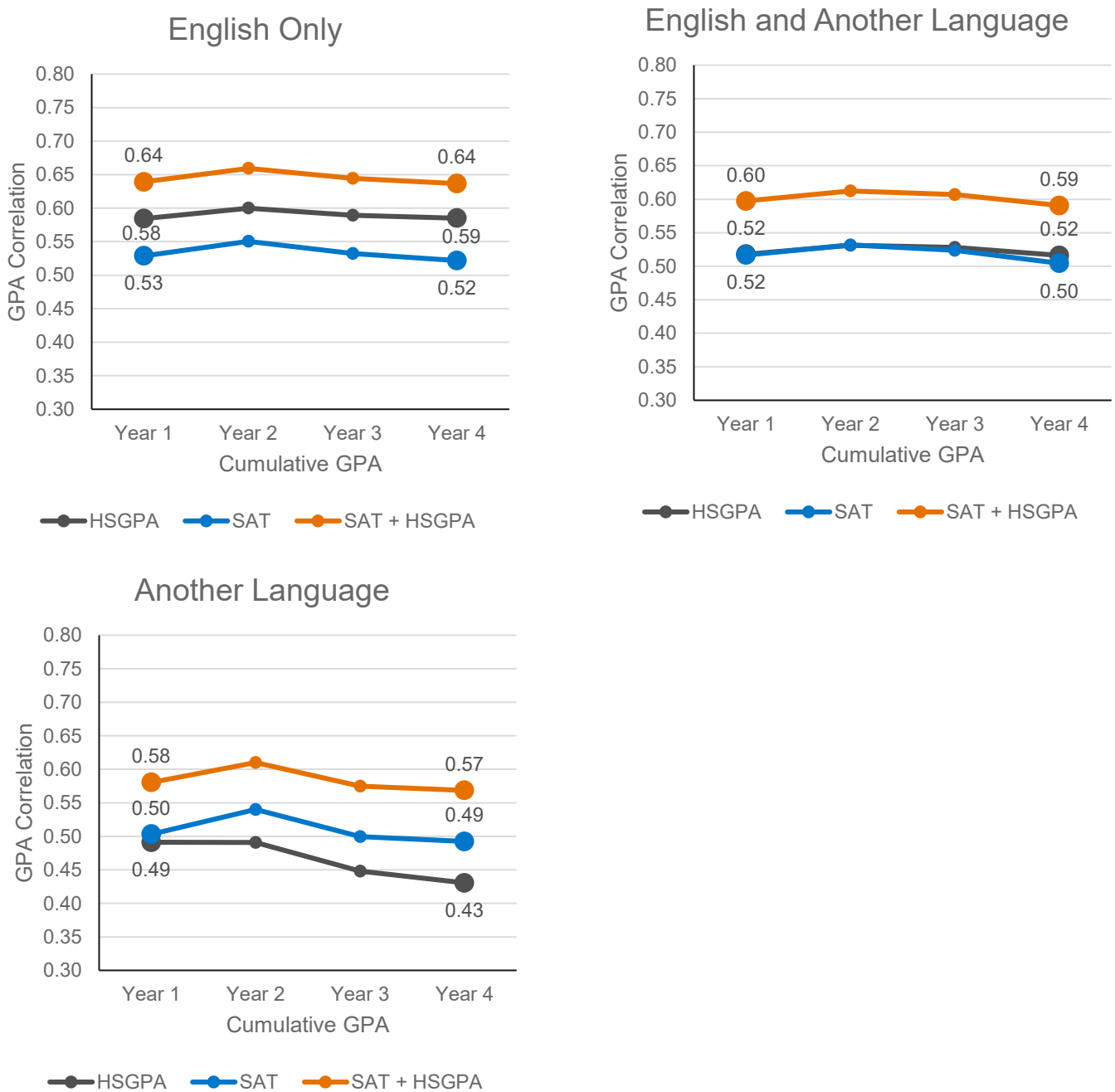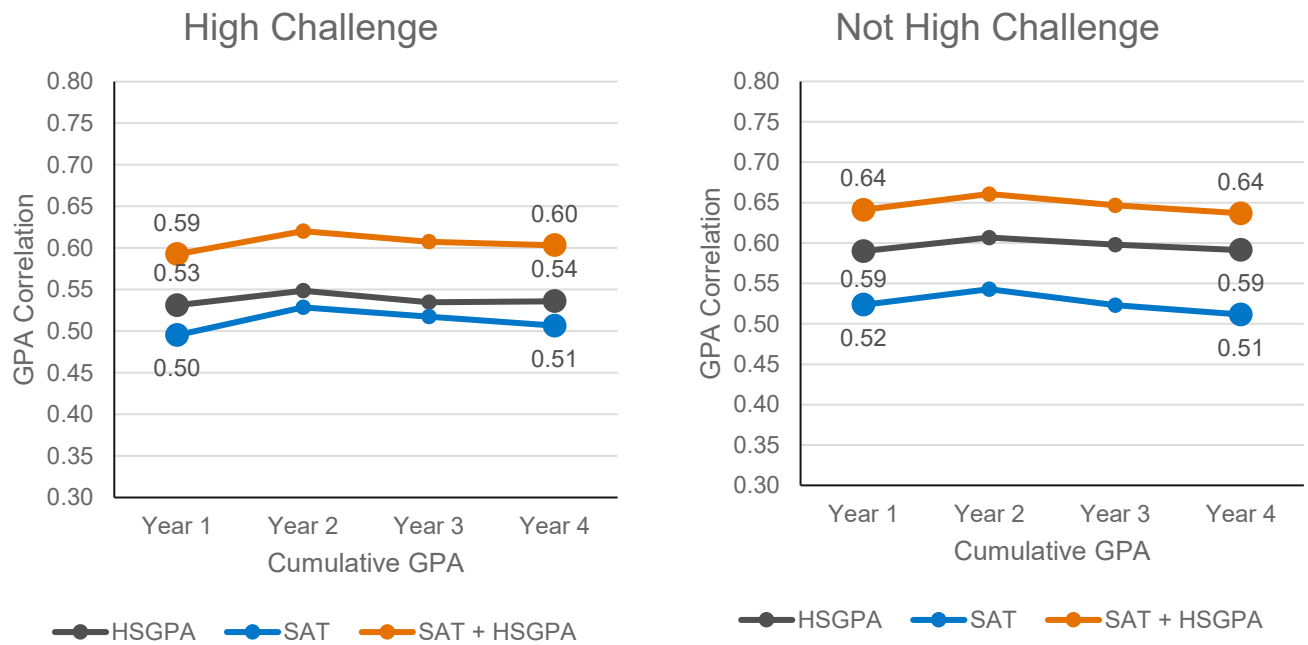
Figure 10 shows the correlational trends for students who come from high-challenge environments and those who do not. For both subgroups, the correlations remain steady over time. Detailed correlation information for students from high-challenge environments and those who are not can be found in Table A12 in the Appendix. Table A13 contains information about the number of institutions and students in the sample each year.

Figure 10: *Correlations of HSGPA and SAT with Cumulative GPA Years 1 Through 4 for Students from High-Challenge Environments and Those who Aren't*

STEM Major Students

Figure 11 shows the correlational trends for students who majored in a STEM field[3], a subsample of 26,062 students attending 56 four-year institutions. Over time, the correlations all decreased slightly, yet still remain stronger than those for the overall sample (Figure 3). Also, the SAT adds informational value in the predictive utility of SAT scores above HSGPA in the prediction of each year's cumulative GPA, which also remains relatively constant across all four years. Detailed correlation information for STEM majors can be found in Table A14 in the Appendix. Table A15 contains information about the number of institutions and students in the sample each year.

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[3] Not all institutions provided information on student majors. This figure represents only those students whose institutions provided that information that was classified as a STEM major using CIP codes. There were 26,062 students with STEM majors from 56 institutions included in these analyses.

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Figure 11: *Correlations of HSGPA and SAT with Cumulative GPA Years 1 Through 4 for STEM Majors*
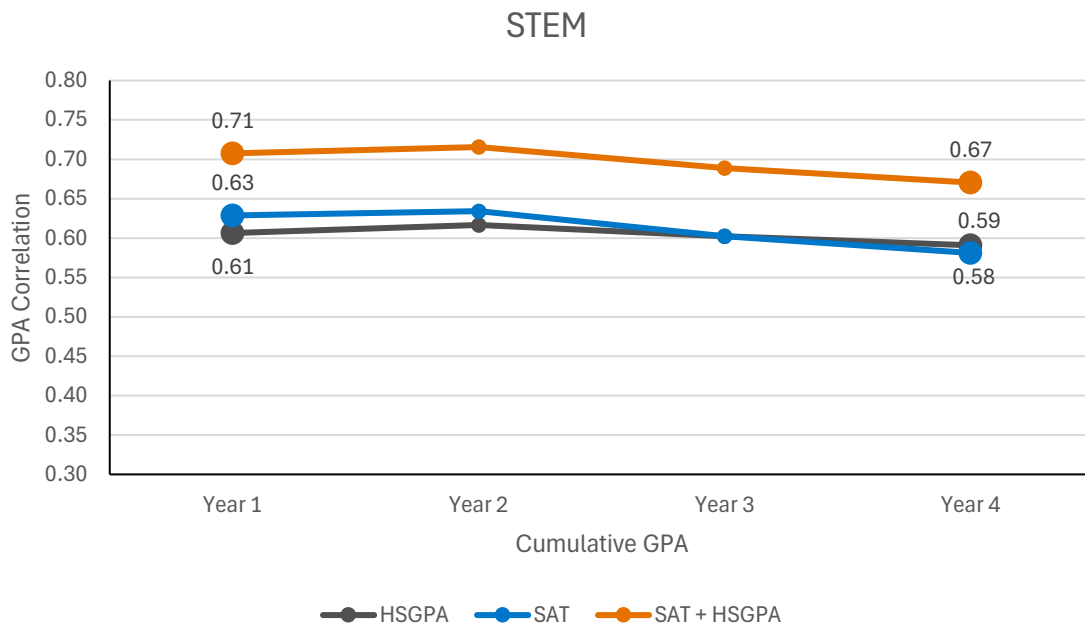
Conclusion

The purpose of this study was to understand whether the validity of SAT scores, as well as HSGPA, to predict college GPA remains stable over time. It is not uncommon to hear an unfounded criticism of the SAT, that scores are only predictive of first-year GPA and nothing more (Fagioli, 2013) This study empirically examines the veracity of that claim or if instead, SAT scores retain their predictive value over time (through cumulative GPA at completion). Findings in this study were quite clear and universal across subgroups—like HSGPA, SAT scores remain essentially just as predictive of fourth-year cumulative GPA as they do of first-year GPA. Moreover, the added predictive value of SAT scores above HSGPA is stable through analyses of each yearly cumulative GPA. For institutions that use SAT scores to understand how students are expected to perform in college, whether for admission or scholarships decisions or for academic advising, these findings provide critical validity evidence that scores predict performance well beyond the first year for all student and institutional subgroups studied.

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Appendix

Table A1: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA for the Overall Sample*

Predictors	Year 1	Year 2	Year 3	Year 4
HSGPA	0.57 (0.37)	0.59 (0.37)	0.58 (0.36)	0.57 (0.35)
SAT	0.53 (0.32)	0.55 (0.34)	0.53 (0.32)	0.52 (0.31)
SAT + HSGPA	0.63 (0.43)	0.65 (0.44)	0.64 (0.43)	0.63 (0.41)
	N = 111,899	N = 97,045	N = 89,062	N = 83,795

Table A2: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA for the Institutional Subgroups*

	Predictors	Year 1	Year 2	Year 3	Year 4
Private, Less Selective	HSGPA	0.59 (0.42)	0.63 (0.45)	0.62 (0.43)	0.60 (0.42)
	SAT	0.56 (0.38)	0.59 (0.40)	0.57 (0.38)	0.56 (0.37)
	SAT + HSGPA	0.66 (0.49)	0.70 (0.52)	0.68 (0.51)	0.67 (0.49)
Private, More Selective	HSGPA	0.59 (0.33)	0.61 (0.34)	0.59 (0.33)	0.59 (0.33)
	SAT	0.60 (0.35)	0.61 (0.35)	0.58 (0.33)	0.58 (0.32)
	SAT + HSGPA	0.68 (0.43)	0.69 (0.44)	0.67 (0.42)	0.67 (0.41)
Public, Less Selective	HSGPA	0.57 (0.40)	0.59 (0.40)	0.58 (0.39)	0.57 (0.38)
	SAT	0.50 (0.32)	0.53 (0.34)	0.51 (0.32)	0.50 (0.31)
	SAT + HSGPA	0.62 (0.44)	0.64 (0.46)	0.63 (0.44)	0.62 (0.43)
Public, More Selective	HSGPA	0.56 (0.27)	0.57 (0.28)	0.57 (0.27)	0.56 (0.27)
	SAT	0.55 (0.31)	0.56 (0.31)	0.55 (0.30)	0.53 (0.27)
	SAT + HSGPA	0.64 (0.38)	0.65 (0.38)	0.64 (0.37)	0.62 (0.35)

Table A3: *Institution (k) and Student (n) Count by Institution Subgroup by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
Private, Less Selective	7,324	20	6,129	20	5,5575	20	5,291	20
Private, More Selective	13,950	12	13,014	12	12,426	12	12,055	12
Public, Less Selective	68,447	31	57,226	31	51,453	31	47,623	31
Public, More Selective	22,178	7	20,676	7	19,608	7	18,826	7

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Table A4: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA by Gender*

	Predictors	Year 1	Year 2	Year 3	Year 4
Male	HSGPA	0.55 (0.36)	0.57 (0.37)	0.57 (0.36)	0.57 (0.35)
	SAT	0.52 (0.33)	0.55 (0.35)	0.54 (0.34)	0.54 (0.33)
	SAT + HSGPA	0.62 (0.43)	0.64 (0.45)	0.63 (0.43)	0.63 (0.42)
Female	HSGPA	0.57 (0.35)	0.58 (0.35)	0.57 (0.34)	0.56 (0.33)
	SAT	0.58 (0.37)	0.60 (0.38)	0.58 (0.36)	0.56 (0.34)
	SAT + HSGPA	0.65 (0.45)	0.67 (0.46)	0.65 (0.43)	0.64 (0.42)

Table A5: *Institution (k) and Student (n) Count by Gender Group by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
Male	49,047	69	42,033	69	38,213	69	35793	69
Female	62,852	70	55,012	70	50,849	70	48,002	70

Table A6: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA for URM and Non-URM Students*

	Predictors	Year 1	Year 2	Year 3	Year 4
URM	HSGPA	0.52 (0.34)	0.55 (0.35)	0.54 (0.33)	0.53 (0.33)
	SAT	0.50 (0.30)	0.53 (0.33)	0.52 (0.32)	0.51 (0.30)
	SAT + HSGPA	0.59 (0.41)	0.62 (0.43)	0.61 (0.42)	0.60 (0.40)
Not URM	HSGPA	0.59 (0.37)	0.60 (0.37)	0.59 (0.36)	0.58 (0.35)
	SAT	0.52 (0.30)	0.53 (0.31)	0.51 (0.29)	0.50 (0.28)
	SAT + HSGPA	0.64 (0.42)	0.65 (0.43)	0.63 (0.41)	0.62 (0.40)

Table A7: *Institution (k) and Student (n) Count by URM Group by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
URM	30,693	69	25,772	69	23,183	68	21,427	67
Not URM	81,195	70	71,265	70	65,859	70	62,336	70

Table A8: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA for First-Generation and Non-First-Generation Students*

	Predictors	Year 1	Year 2	Year 3	Year 4
First Generation	HSGPA	0.52 (0.34)	0.54 (0.34)	0.52 (0.32)	0.52 (0.32)
	SAT	0.49 (0.29)	0.51 (0.31)	0.50 (0.30)	0.49 (0.29)
	SAT + HSGPA	0.58 (0.41)	0.60 (0.41)	0.59 (0.40)	0.58 (0.39)
Not First Generation	HSGPA	0.59 (0.37)	0.60 (0.38)	0.59 (0.37)	0.59 (0.36)
	SAT	0.53 (0.31)	0.55 (0.33)	0.53 (0.31)	0.52 (0.30)
	SAT + HSGPA	0.64 (0.43)	0.66 (0.44)	0.65 (0.43)	0.64 (0.41)

Table A9: *Institution (k) and Student (n) Count by First-Generation Group by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
First Generation	26,527	69	21,498	69	19,078	67	17,535	67
Not First Generation	84,074	70	74,493	70	69,037	70	65,385	70

Table A10: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA by Best Language*

	Predictors	Year 1	Year 2	Year 3	Year 4
English Only	HSGPA	0.58 (0.38)	0.60 (0.38)	0.59 (0.37)	0.59 (0.36)
	SAT	0.53 (0.32)	0.55 (0.34)	0.53 (0.32)	0.52 (0.31)
	SAT + HSGPA	0.64 (0.44)	0.66 (0.45)	0.64 (0.43)	0.63 (0.42)
English and Another Language	HSGPA	0.52 (0.31)	0.53 (0.31)	0.53 (0.30)	0.52 (0.29)
	SAT	0.52 (0.32)	0.53 (0.32)	0.52 (0.32)	0.50 (0.30)
	SAT + HSGPA	0.60 (0.41)	0.61 (0.42)	0.61 (0.41)	0.59 (0.39)
Another Language	HSGPA	0.49 (0.28)	0.49 (0.27)	0.45 (0.24)	0.43 (0.24)
	SAT	0.50 (0.28)	0.54 (0.31)	0.50 (0.30)	0.49 (0.31)
	SAT + HSGPA	0.58 (0.37)	0.61 (0.40)	0.57 (0.38)	0.57 (0.39)

Table A11: *Institution (k) and Student (n) Count by Best Language Group by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
English Only	94,137	70	81,624	70	74,975	70	70,602	70
English and Another Language	15,072	62	13,069	60	11,941	55	11,187	55
Another Language	1,971	28	1,741	27	1,508	23	1,402	21

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Table A12: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA for Students from High-Challenge Environments and Those who are not from High-Challenge Environments*

	Predictors	Year 1	Year 2	Year 3	Year 4
High Challenge	HSGPA	0.53 (0.36)	0.55 (0.36)	0.53 (0.35)	0.54 (0.34)
	SAT	0.50 (0.31)	0.53 (0.34)	0.52 (0.33)	0.51 (0.32)
	SAT + HSGPA	0.59 (0.43)	0.62 (0.44)	0.61 (0.43)	0.60 (0.42)
Not High Challenge	HSGPA	0.59 (0.38)	0.61 (0.38)	0.60 (0.37)	0.59 (0.36)
	SAT	0.52 (0.31)	0.54 (0.33)	0.52 (0.31)	0.51 (0.29)
	SAT + HSGPA	0.64 (0.43)	0.66 (0.44)	0.65 (0.43)	0.64 (0.41)

Table A13: *Institution (k) and Student (n) Count by Challenge Group by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
High Challenge	19,692	69	15,994	68	14,255	68	13,069	68
Not High Challenge	84,368	70	74,274	70	68,565	70	64,805	70

Table A14: *Corrected (and Raw) Correlations Between Predictors and Yearly Cumulative GPA for STEM Majors*

	Predictors	Year 1	Year 2	Year 3	Year 4
STEM Majors	HSGPA	0.60 (0.32)	0.61 (0.33)	0.60 (0.32)	0.59 (0.32)
	SAT	0.63 (0.38)	0.63 (0.38)	0.60 (0.35)	0.57 (0.33)
	SAT + HSGPA	0.70 (0.45)	0.71 (0.46)	0.68 (0.43)	0.66 (0.41)

Table A15: *Institution (k) and Student (n) Count for STEM Students by Year*

	Year 1		Year 2		Year 3		Year 4	
	n	k	n	k	n	k	n	k
STEM	26,916	56	26,593	56	26,379	56	26,379	56