VALIDITY

Validity of the SAT® for Predicting First-Year Grades: 2010 SAT Validity Sample

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COLLEGE BOARD RESEARCH Statistical Report 2013-2

Executive Summary

The continued accumulation of validity evidence for the core uses of educational assessments is critical to ensure that proper inferences will be made for those core purposes. To that end, the College Board has continued to follow previous cohorts of college students and this report provides updated validity evidence for using the SAT® to predict first-year college grade point average (FYGPA) for the 2010 cohort.

Colleges and universities (henceforth, "institutions") provided data on the cohort of first-time, first-year students enrolling in the fall of 2010. The College Board combined those college outcomes data with official SAT scores and SAT Questionnaire response data. In particular, 160 institutions provided data on 287,881 students with 211,403 having complete data on high school grade point average (HSGPA), SAT critical reading (SAT-CR), mathematics (SAT-M), and writing (SAT-W), and FYGPA. As has been shown in previous work (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Patterson, Mattern, & Kobrin, 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012), the correlation of SAT section scores and HSGPA with FYGPA was strong (r = .63). When compared with the correlation of HSGPA alone with FYGPA (r = .54), the addition of the SAT section scores to HSGPA represented a substantial increase (Δr = .09) in the correlation with FYGPA. The patterns of differential validity by institutional and student characteristics and differential prediction by student characteristics also follow the same general patterns, as has been shown in previous work (Mattern, Patterson, Shaw, Kobrin, & Barbuti, 2008; Patterson, et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012).

Table 1. Distribution of Institutional Characteristics

Institutional Characteristic		%
U.S. Region	Midwest	18
	Mid-Atlantic	26
	New England	11
	South	19
	Southwest	9
	West	16
Control	Public	42
	Private	58
Admittance Rate	Under 50%	19
	50 to 75%	60
	Over 75%	21
Undergraduate Enrollment	Small	19
	Medium	42
	Large	18
	Very large	21

Note: Number of institutions (*K*) = 160. Percentages may not sum to 100 due to rounding. Undergraduate enrollment was categorized as follows: small: 750 to 1,999; medium: 2,000 to 7,499; large: 7,500 to 14,999; and very large: 15,000 or more.

- Table 1 shows that the sample of 160 four-year institutions was diverse with respect to region of the U.S., control, size, and undergraduate admittance rate (i.e., selectivity) (College Board, 2010a).

Table 2. Descriptive Statistics for Total Sample

Variable	Mean	SD
HSGPA	3.60	0.498
SAT-CR	554	96.9
SAT-M	572	99.2
SAT-W	548	99.0
FYGPA	2.99	0.722

Note: Number of students (*N*) = 211,403.

- Table 2 shows that the 2010 sample performed similarly to the previous samples in terms of mean high school grade-point average (HSGPA), SAT scores, and first-year grade-point average (FYGPA) (Kobrin, et al., 2008; Patterson, et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012).
- When compared with the population of all college-bound SAT-takers expecting to graduate in 2010 (*n* = 1,547,990) — whose mean (standard deviation) SAT critical reading (SAT-CR), mathematics (SAT-M), and writing scores (SAT-W) were 501 (112), 516 (116), and 492 (111), respectively (College Board, 2010b) — the sample in this study tended to have performed better in terms of SAT section scores. This was expected since the population consisted of all SAT-takers, while students in this sub-sample also applied to, enrolled at, and earned grades at a four-year institution.

Table 3. Corrected (Raw) Correlation Matrix of SAT and HSGPA

Variable	HSGPA	SAT-CR	SAT-M	SAT-W
HSGPA		.45	.49	.49
SAT-CR	(.20)		.72	.84
SAT-M	(.22)	(.50)		.74
SAT-W	(.22)	(.70)	(.50)	

Note: Number of students (N) = 211,403. Pooled within-institution, restriction of range corrected correlations are presented. The raw correlations are shown in parentheses.

- Table 3 shows the restriction of range corrected and raw correlations among the four predictors examined in this study: HSGPA, SAT-CR, SAT-M, and SAT-W. These estimates are consistent with what was reported in research on previous cohorts of students (Kobrin, et al., 2008; Patterson, et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012).

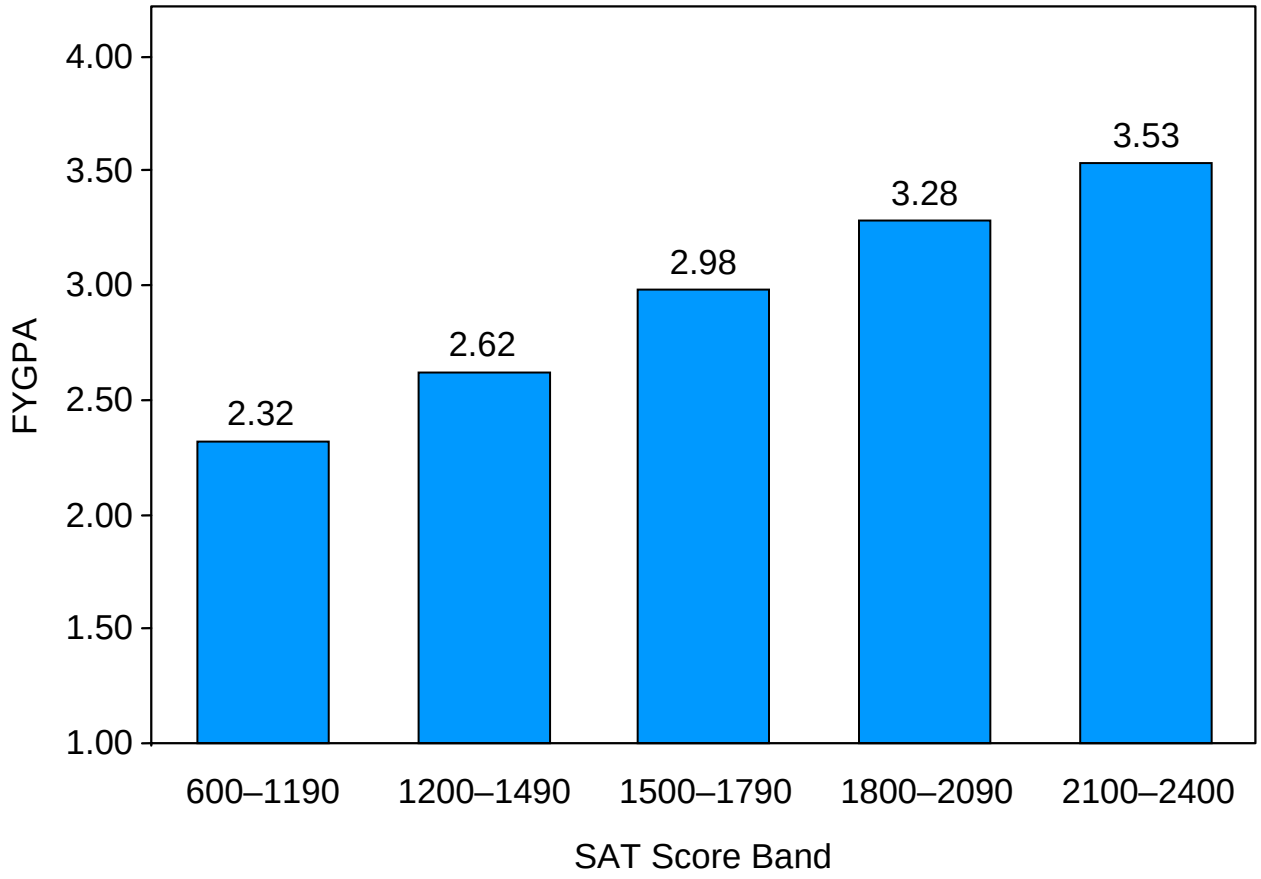
Table 4. Corrected (Raw) Correlations of Predictors with FYGPA

Predictor(s)	Correlation
1. HSGPA	.55 (.36)
2. SAT-CR	.50 (.29)
3. SAT-M	.49 (.27)
4. SAT-W	.54 (.34)
5. SAT-M, SAT-CR	.53 (.33)
6. HSGPA, SAT-M, SAT-CR	.62 (.43)
7. SAT-CR, SAT-M, SAT-W	.56 (.37)
8. HSGPA, SAT-CR, SAT-M, SAT-W	.63 (.46)

Note: Number of students (N) = 211,403. Pooled within-institution, restriction of range corrected correlations are presented. The raw correlations are shown in parentheses.

- The bivariate correlations of each of the four predictors with first-year grade point average (FYGPA) are shown in the first four rows of Table 4 and are similar to what was estimated in previous research (Kobrin, et al., 2008; Patterson, et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012).
- The SAT writing again has the highest correlation with FYGPA among the three sections, as it has in previous studies (Kobrin, et al., 2008; Patterson, et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012).
- The addition of the three SAT sections to HSGPA leads to an increase in the correlation with FYGPA of .08 (=.63 - .55), so the inclusion of the SAT section scores lead to a substantial increase in the strength of the linear relationship with FYGPA, above and beyond HSGPA. On the other hand, adding HSGPA to an SAT-only prediction model increases the correlation with FYGPA by .07 (=.63 - .56).

Figure 1. Mean FYGPA by SAT Score Band

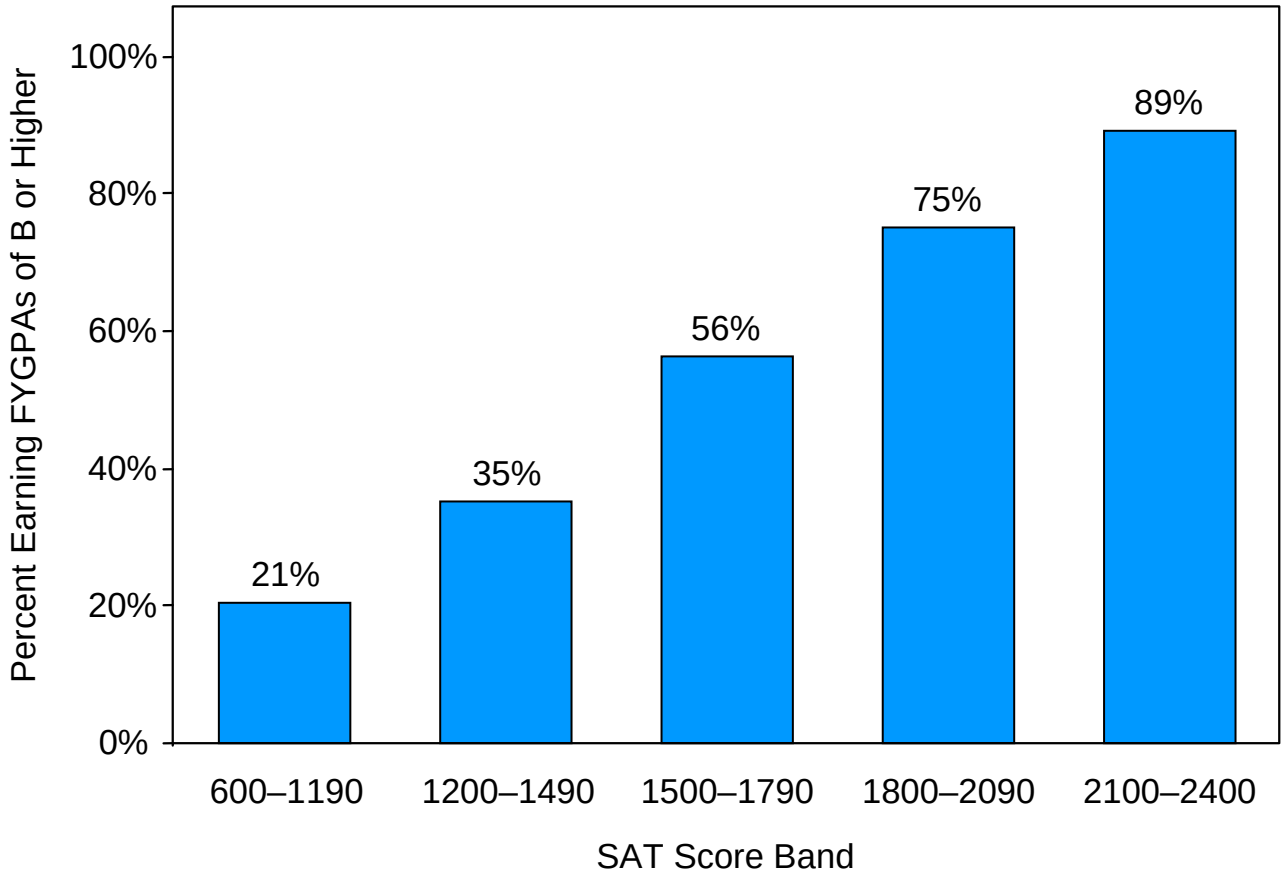


Note: SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W.
Sample sizes by SAT score band were as follows:

SAT	n
600–890	238
900–1190	6,827
1200–1490	47,752
1500–1790	86,183
1800–2090	58,257
2100–2400	12,146

- Figure 1 shows graphically the positive relationship between the composite SAT score band (i.e., discretized sum of SAT-CR, -M, and –W) with mean FYGPA. In particular the difference in mean FYGPA between the highest score band (2100–2400) and the lowest (600–1190) was over 1.2.

Figure 2. Percent of Students Earning FYGPA of a B or Higher by SAT Score Band

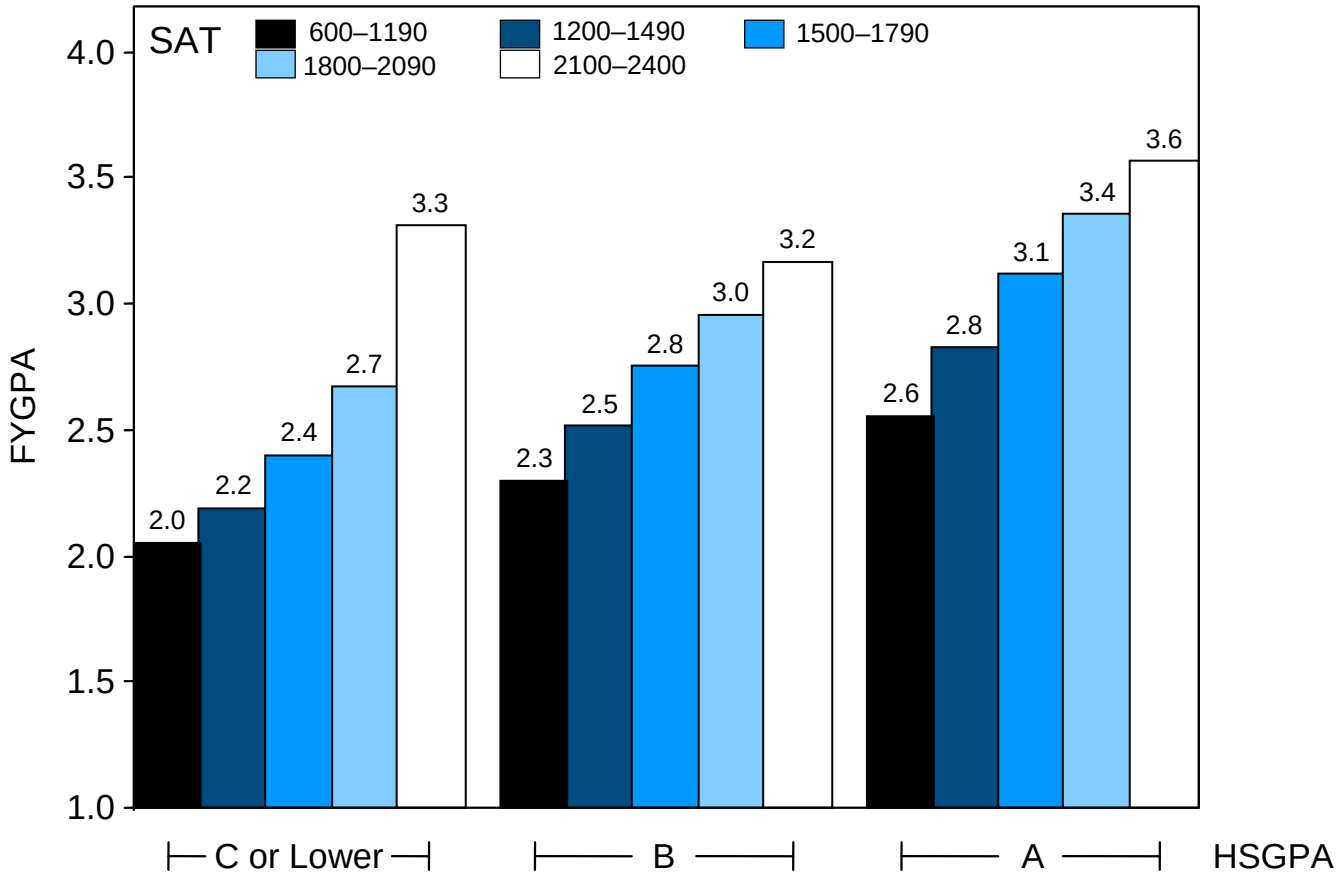


Note: SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W.
Students whose FYGPA was ≥ 3.00 were considered to have earned a B or better.
Sample sizes by SAT score band were as follows:

SAT	n
600–890	238
900–1190	6,827
1200–1490	47,752
1500–1790	86,183
1800–2090	58,257
2100–2400	12,146

- Rather than graphing mean FYGPA, Figure 2 shows graphically the positive relationship between the percent of students earning at least a B in their first year of college with the composite SAT score band. In particular, over four times the number of students in the highest SAT score band (2100–2400) earned at least a B, relative to those in the lowest (600–1190).

Figure 3. Incremental Validity of the SAT: Mean FYGPA by SAT Score Band Controlling for HSGPA



Note: SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W.
HSGPA ranges were defined as follows:

"A" range:	4.33 (A+), 4.00 (A), and 3.67 (A-);
"B" range:	3.33 (B+), 3.00 (B), and 2.67 (B-); and
"C or Lower" range:	2.33 (C+) or lower.

Sample sizes by HSGPA and SAT score band were as follows:

	HSGPA		
SAT	**C or Lower**	**B**	**A**
600–1190	1,008	4,520	1,537
1200–1490	2,579	26,356	18,817
1500–1790	1,438	30,531	54,214
1800–2090	332	10,742	47,183
2100–2400	32	953	11,161

- Figure 3 shows the relationship between SAT score band and mean FYGPA, after controlling for HSGPA band. In particular, within each of the three categories of HSGPA, mean FYGPA increased with SAT score band, showing the additional value that SAT has in predicting FYGPA, above and beyond HSGPA.
- For example, consider two students with HSGPAs in the "A" range; the one whose SAT composite was 600–1190 was expected to earn an FYGPA of 2.6, while the other student, whose SAT composite was 2100–2400, was expected to earn an FYGPA of 3.6.

Table 5. Descriptive Statistics of Study Variables by Institutional Characteristics

Institutional Characteristic		k	n	SAT-CR		SAT-M		SAT-W		HSGPA		FYGPA	
				Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Control	Private	93	67,293	582	96.8	595	98.0	581	99.2	3.66	0.472	3.14	0.598
	Public	67	144,110	541	94.1	561	97.9	532	95.0	3.58	0.507	2.92	0.762
Admittance	Under 50%	31	40,258	605	97.6	625	97.1	607	100.5	3.77	0.439	3.18	0.579
Rate	50 to 75%	96	147,229	545	92.9	564	96.2	537	94.0	3.58	0.499	2.95	0.743
	Over 75%	33	23,916	524	89.0	534	87.3	516	87.0	3.46	0.512	2.89	0.749
Undergraduate	Small	31	9,350	543	99.3	543	93.9	534	97.7	3.52	0.524	2.99	0.690
Enrollment	Medium	67	42,501	555	100.7	565	101.9	552	102.6	3.56	0.516	3.06	0.690
	Large	28	50,846	547	101.9	564	104.3	540	104.6	3.55	0.526	2.94	0.753
	Very large	34	108,706	558	92.3	582	95.0	551	94.6	3.66	0.468	2.99	0.719
Total		160	211,403	554	96.9	572	99.2	548	99.0	3.60	0.498	2.99	0.722

Note: *k*: number of institutions, *n*: subgroup sample size. Undergraduate enrollment was categorized as follows: small: 750 to 1,999; medium: 2,000 to 7,499; large: 7,500 to 14,999; and very large: 15,000 or more.

- Table 5 provides summary statistics on the key study variables by institutional characteristics.
- It shows that, in general, mean SAT section scores, HSGPA, and FYGPA tend to be higher at private institutions, relative to students attending public institituions.
- There is also an apparent negative relationship with undergraduate admittance rate and mean SAT, HSGPA, and FYGPA. Put another way, if admittance rate is an acceptable proxy for institutional selectivity and knowing that more selective institutions have lower admittance rates, Table 5 shows evidence of a positive relationship between selectivity and mean SAT, HSGPA, and FYGPA.
- In terms of undergraduate enrollment (i.e., institution size): small institutions tend to have lower mean SAT section scores and HSGPAs; very large institutions tend to have higher mean SAT section scores and HSGPAs; and there is no discernable relationship between institution size and mean FYGPA.

Table 6. Corrected Correlations of SAT and HSGPA with FYGPA by Institutional Characteristics

Institutional Characteristic		k	n	SAT-CR	SAT-M	SAT-W	SAT*	HSGPA	SAT*, HSGPA
Control	Private	93	67,293	.55	.54	.58	.61	.58	.68
	Public	67	144,110	.47	.47	.51	.53	.53	.61
Admittance	Under 50%	31	40,258	.55	.54	.58	.61	.54	.66
Rate	50 to 75%	96	147,229	.48	.48	.52	.54	.54	.62
	Over 75%	33	23,916	.50	.49	.54	.56	.56	.64
Undergraduate	Small	31	9,350	.55	.54	.59	.61	.60	.70
Enrollment	Medium	67	42,501	.52	.51	.56	.58	.57	.66
	Large	28	50,846	.48	.49	.53	.55	.54	.62
	Very large	34	108,706	.49	.49	.53	.55	.53	.62
Overall		160	211,403	.50	.49	.54	.56	.55	.63

Note: *k*: number of institutions, *n*: subgroup sample size. *: SAT refers to the inclusion of all three sections in the relevant multiple correlation. The correlations were corrected for restriction of range within institutions and pooled. Undergraduate enrollment was categorized as follows: small: 750 to 1,999; medium: 2,000 to 7,499; large: 7,500 to 14,999; and very large: 15,000 or more. For raw correlations by institutional characteristics, see Appendix B.

- Table 6 shows the correlations of various combinations of the predictors with FYGPA by key institutional characteristics.
- Looking at correlations by institutional control, the correlations of the six combinations of predictors with FYGPA are higher at private as compared to public institutions.
- In terms of differential validity by institutional admittance rate, the SAT tended to be more predictive of FYGPA at the most selective institutions (i.e., those with admittance rate under 50%), HSGPA was slightly more predictive at less selective institutions (i.e., those with admittance rate over 75%), and their combination was slightly more predictive at the most selective instititutions.
- Finally, correlations of SAT, HSGPA, and their combination with FYGPA tended to be higher among small- and medium-sized institutions — those with undergraduate enrollments of between 750 to 1,999 and 2,000 to 7,499, respectively — relative to larger institutions.
- Across all institutional categories, the combination of SAT section scores and HSGPA had the highest correlation with FYGPA among all predictor sets.

Table 7. Descriptive Statistics of Study Variables by Student Characteristics

Student Characteristic		n	SAT-CR		SAT-M		SAT-W		HSGPA		FYGPA	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender	Male	95,075	560	97.1	597	97.9	544	99.3	3.56	0.515	2.89	0.753
	Female	116,328	549	96.4	552	95.8	551	98.6	3.64	0.480	3.07	0.684
Racial / Ethnic Identity	African American	18,310	487	90.1	489	87.8	476	89.6	3.37	0.550	2.55	0.805
	American Indian	879	544	92.9	549	88.7	530	91.5	3.57	0.510	2.82	0.794
	Asian	21,267	568	104.2	636	99.9	578	107.5	3.67	0.456	3.07	0.675
	Hispanic	21,024	513	96.1	526	95.2	506	94.8	3.53	0.523	2.78	0.758
	Other	4,832	559	99.5	570	103.7	556	103.6	3.56	0.510	2.95	0.751
	White	140,341	566	91.0	580	91.1	558	92.8	3.63	0.482	3.07	0.682
	Not Stated	4,750	585	101.2	590	99.4	575	102.8	3.64	0.501	3.07	0.698
Best Language	English Only	182,843	559	95.0	573	96.9	551	97.5	3.61	0.496	3.01	0.717
	English and Another	24,131	527	100.4	554	108.0	529	103.6	3.57	0.507	2.86	0.746
	Another Language	3,508	480	105.5	629	121.6	508	116.0	3.63	0.497	3.05	0.695
	Not Stated	921	557	106.9	575	110.6	547	111.5	3.59	0.596	2.98	0.745
Household Income	< $40,000	23,663	506	96.6	525	101.0	497	96.1	3.53	0.537	2.75	0.813
	$40,000–80,000	35,649	540	92.8	555	95.0	530	93.4	3.60	0.509	2.92	0.751
	$80,000–120,000	36,518	559	91.6	576	93.1	550	92.7	3.63	0.492	3.02	0.698
	$120,000–160,000	16,862	568	90.9	586	92.4	561	92.5	3.63	0.488	3.06	0.672
	$160,000–200,000	9,204	574	90.4	593	91.3	571	93.2	3.62	0.484	3.08	0.655
	> $200,000	16,225	589	88.7	613	89.3	592	91.6	3.62	0.464	3.13	0.618
	Not Stated	73,282	560	98.7	579	101.3	557	101.1	3.60	0.491	3.02	0.706
Highest Parental Education Level	No High School Diploma	5,455	475	92.7	508	99.1	472	90.4	3.49	0.540	2.70	0.792
	High School Diploma	42,406	512	89.4	529	93.7	503	90.1	3.51	0.526	2.77	0.792
	Associate Degree	14,152	523	86.8	537	89.4	512	87.7	3.56	0.517	2.86	0.759
	Bachelor's Degree	70,355	558	90.0	577	92.5	551	92.0	3.62	0.487	3.03	0.689
	Graduate Degree	68,916	591	92.6	607	94.5	587	94.8	3.67	0.467	3.14	0.642
	Not Stated	10,119	539	104.9	566	109.5	537	108.0	3.54	0.523	2.95	0.738
Total		211,403	554	96.9	572	99.2	548	99.0	3.60	0.498	2.99	0.722

Note: *n*: subgroup sample size.

- Table 7 shows that male students tended to outperform females on SAT-CR and SAT-M, while female students tended to outperform males on SAT-W, HSGPA, and FYGPA.
- Some differences exist across racial / ethnic identities, in particular African American and Hispanic students tended to underperform White and Asian students across the SAT section scores, HSGPA, and FYGPA.
- In terms of SAT-CR and SAT-W, students whose best spoken language was English only tended to outperform those who spoke English and another language equally well. That group who in turn outperformed those whose best spoken language was something other than English. Those whose best spoken language was not English outperformed the other two groups on SAT-M and there was no clear pattern with respect to HSGPA or FYGPA.
- As household income level increased, so too did mean SAT section scores and FYGPA, while mean HSGPA was fairly consistent across the range of household-income categories.
- Similar to household-income level, mean SAT section scores and FYGPA increased as highest parental education level increased, but in contrast to household-income level, mean HSGPA also increased with higher levels of highest parental education level.

Table 8. Corrected Correlation of SAT Scores and HSGPA with FYGPA by Student Subgroups

Student Characteristic		k	n	SAT-CR	SAT-M	SAT-W	SAT*	HSGPA	SAT*, HSGPA
Gender	Male	156	95,075	.47	.49	.51	.54	.53	.61
	Female	160	116,328	.54	.55	.56	.60	.55	.66
Racial / Ethnic Identity	African American	126	18,026	.42	.41	.45	.47	.45	.53
	American Indian	15	361	.41	.44	.48	.50	.46	.55
	Asian	113	20,922	.47	.51	.50	.55	.50	.60
	Hispanic	132	20,782	.44	.43	.48	.49	.47	.56
	Other	91	4,386	.47	.48	.53	.54	.51	.61
	White	158	140,329	.49	.48	.53	.55	.57	.64
	Not Stated	92	4,267	.48	.48	.51	.54	.51	.60
Best Language	English Only	160	182,843	.50	.49	.54	.56	.55	.64
	English and Another	149	24,031	.46	.47	.49	.52	.49	.58
	Another Language	51	3,035	.40	.44	.43	.46	.44	.52
	Not Stated	9	231	.44	.48	.51	.53	.49	.59
Household Income	< $40,000	154	23,598	.42	.44	.46	.48	.48	.55
	$40,000– 80,000	160	35,649	.48	.47	.51	.53	.53	.61
	$80,000– 120,000	159	36,506	.50	.49	.54	.56	.57	.64
	$120,000– 160,000	145	16,734	.50	.49	.54	.55	.58	.65
	$160,000– 200,000	110	8,816	.49	.47	.53	.55	.57	.64
	> $200,000	115	15,907	.50	.47	.53	.54	.57	.64
	Not Stated	160	73,282	.51	.50	.54	.57	.55	.64
Highest Parental Education Level	No High School Diploma	67	4,914	.41	.43	.44	.47	.41	.51
	High School Diploma	156	42,361	.45	.45	.49	.51	.51	.58
	Associate Degree	138	13,964	.46	.47	.51	.53	.53	.61
	Bachelor's Degree	160	70,355	.49	.48	.53	.55	.56	.64
	Graduate Degree	159	68,906	.51	.50	.55	.57	.57	.65
	Not Stated	132	9,883	.47	.48	.50	.53	.49	.59
Overall		160	211,403	.50	.49	.54	.56	.55	.63

Note: *k*: number of institutions, *n*: subgroup sample size. *: SAT refers to the inclusion of all three sections in the relevant multiple correlation. The correlations were corrected for restriction of range within institutions and pooled. Institutions with fewer than 15 students any subgroup were excluded. For raw correlations by institutional characteristics, see Appendix C.

- Table 8 shows that correlations between FYGPA and each predictor or predictor(s) were higher for female than for male students.
- Correlations with FYGPA tended to be higher for Asian and White students than for African American or Hispanic students in general.
- Each predictor or set of predictors was more predictive of FYGPA for students with greater mastery of spoken English.
- FYGPA correlations among students whose household income levels were $80,000 or above tended to be higher than for those with lower household incomes.
- As highest parental education level increased, so too did the correlation of FYGPA and each predictor or group of predictors.
- Across all student sub-groups, the combination of SAT section scores and HSGPA had the highest correlation with FYGPA.

Table 9. Average Overprediction (-) and Underprediction (+) of FYGPA for SAT Scores and HSGPA

Student Characteristic		k	n	SAT-CR	SAT-M	SAT-W	SAT*	HSGPA	SAT*, HSGPA
Gender	Male	156	95,075	-0.110	-0.147	-0.085	-0.111	-0.072	-0.081
	Female	160	116,328	0.090	0.120	0.069	0.091	0.059	0.067
Racial / Ethnic Identity	African American	160	18,310	-0.196	-0.167	-0.170	-0.131	-0.217	-0.111
	American Indian	135	879	-0.148	-0.127	-0.131	-0.122	-0.152	-0.121
	Asian	159	21,267	0.029	-0.059	0.002	-0.023	0.018	-0.012
	Hispanic	160	21,024	-0.094	-0.086	-0.080	-0.062	-0.135	-0.061
	Other	157	4,832	-0.051	-0.040	-0.054	-0.046	-0.034	-0.034
	White	159	140,341	0.038	0.045	0.037	0.032	0.047	0.028
	Not Stated	159	4,750	-0.011	0.018	-0.001	-0.006	0.023	-0.005
Best Language	English Only	160	182,843	0.003	0.011	0.005	0.004	0.012	0.005
	English and Another	160	24,131	-0.052	-0.071	-0.062	-0.051	-0.093	-0.052
	Another Language	147	3,508	0.198	-0.058	0.160	0.120	0.022	0.111
	Not Stated	142	921	-0.030	-0.031	-0.013	-0.014	-0.028	-0.012
Household Income	< $40,000	160	23,663	-0.087	-0.092	-0.071	-0.057	-0.148	-0.073
	$40,000–80,000	160	35,649	-0.014	-0.009	-0.007	-0.004	-0.041	-0.023
	$80,000–120,000	160	36,518	0.022	0.024	0.024	0.019	0.022	0.011
	$120,000–160,000	160	16,862	0.032	0.034	0.029	0.023	0.055	0.030
	$160,000–200,000	159	9,204	0.027	0.027	0.018	0.013	0.066	0.034
	> $200,000	160	16,225	0.009	0.001	-0.008	-0.011	0.065	0.027
	Not Stated	160	73,282	0.012	0.011	0.007	0.006	0.021	0.012
Highest Parental Education Level	No High School Diploma	152	5,455	-0.065	-0.100	-0.050	-0.032	-0.169	-0.045
	High School Diploma	160	42,406	-0.080	-0.083	-0.069	-0.058	-0.124	-0.071
	Associate Degree	160	14,152	-0.033	-0.030	-0.022	-0.016	-0.076	-0.040
	Bachelor's Degree	160	70,355	0.024	0.022	0.021	0.019	0.028	0.020
	Graduate Degree	160	68,916	0.037	0.046	0.029	0.022	0.079	0.034
	Not Stated	159	10,119	-0.001	-0.019	-0.001	0.000	-0.012	0.006
Overall		160	211,403	0.000	0.000	0.000	0.000	0.000	0.000

Note: *k*: number of institutions, *n*: subgroup sample size. *: SAT refers to the inclusion of all three sections in the relevant regression model. Negative and positive values indicate over- and underprediction, respectively. FYGPA regressions were estimated for each institution separately. Residuals were the difference of predicted and observed raw FYGPA.

- Table 9 shows that across all predictor sets, FYGPA was overpredicted (i.e., observed FYGPA < predicted FYGPA) for males and it was underpredicted for females. Using HSGPA alone tended to result in the least differential prediction across genders.
- African American, American Indian, and Hispanic students' FYGPAs tended to be overpredicted, while White students' were underpredicted. HSGPA and SAT sections yielded the smallest differential prediction across racial / ethnic identities.
- All predictor sets led to the overprediction of students' FYGPAs whose best spoken language was English and another language, and all but SAT-M alone underpredicted FYGPAs for students whose best spoken language was something other than English. The predictor set that led to the smallest absolute differential prediction for best language was the three SAT sections.
- Students whose household incomes were $80,000 or less tended to have their FYGPAs overpredicted and those with higher incomes tended to be underpredicted; and the three SAT sections together tended to have the smallest mean absolute differential prediction.
- FYGPA tended to be overpredicted for students whose parents had less than a bachelor's degree and underpredicted for those whose with at least one parent completing at least a bachelor's degree. Across highest parental education levels, the combination of the three SAT sections led to the smallest absolute magnitude of differential prediction.

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Appendix A. Institutions Providing First-Year Outcomes Data for the 2010 Cohort

Institution Name	
Albany College of Pharmacy and Health Sciences	Indiana University, Northwest
Appalachian State University	Indiana University, Purdue University Indianapolis
Augusta State University	Indiana University, South Bend
Austin College	Indiana University, Southeast
Baldwin-Wallace College	Indiana Wesleyan University
Barnard College	Iona College
Baylor University	John Brown University
Beloit College	John Carroll University
Binghamton University, State University of New York	John Jay College of Criminal Justice
Boston College	Kenyon College
Boston University	Lafayette College
Brandeis University	Lasell College
Bucknell University	Lawrence University
Caldwell College	Lewis and Clark College
California State University, Los Angeles	Linfield College
Case Western Reserve University	Long Island University, Brooklyn
Chapman University	Long Island University, C.W. Post
Claremont Mckenna College	Longwood University
Clemson University	Lycoming College
Coastal Carolina University	Marywood University
Cornell College	Meredith College
Daemen College	Messiah College
Dominican University of California	Miami University
Drew University	Misericordia University
Earlham College	Missouri State University
East Carolina University	Moravian College
Eastern Connecticut State University	North Georgia College & State University
Eastern Washington University	Northern Arizona University
Emory University	Northwestern University
Florida State University	Nyack College
Fordham University	Oklahoma City University
Framingham State University	Pepperdine University
Furman University	Philadelphia University
George Washington University	Portland State University
Georgia Institute of Technology	Presbyterian College
Georgia Southern University	Providence College
Gonzaga University	Purdue University
Indiana University, Bloomington	Quinnipiac University
Indiana University, East	Rochester Institute of Technology
Indiana University, Kokomo	Rutgers University

Note: The remaining 80 instituitons are listed on the following page.

Appendix A. (continued)

Institution Name	
Saint Anselm College	University of North Texas
Saint Edward's University	University of Notre Dame
Saint John Fisher College	University of Oregon
Saint Mary's College of California	University of Pittsburgh
Saint Michael's College	University of Portland
Seton Hill University	University of Puget Sound
Shenandoah University	University of Rhode Island
Siena College	University of San Francisco
Smith College	University of Southern California
Southeastern University	University of Southern Indiana
Southern Connecticut State University	University of Utah
Spelman College	Vanderbilt University
State University of New York at New Paltz	Virginia Wesleyan College
Stephen F. Austin State University	Washington State University, Pullman
Stetson University	Washington State University, Vancouver
Syracuse University	Wesleyan University
Texas A&M International University	Western New England University
Texas A&M University	Western Washington University
Texas Christian University	Wheaton College
Texas State University, San Marcos	Whittier College
Texas Woman's University	Wilkes University
The Ohio State University	Willamette University
The Pennsylvania State University	Wingate University
The University of Georgia	Institution A
The University of Scranton	Institution B
The University of Texas, Austin	Institution C
The University of Texas, Pan American	Institution D
Transylvania University	Institution E
University of California, Santa Barbara	Institution F
University of Cincinnati	Institution G
University of Dayton	Institution H
University of Delaware	Institution I
University of Denver	Institution J
University of Houston	Institution K
University of Illinois	Institution L
University of Iowa	Institution M
University of Kentucky	Institution N
University of Mary Washington	Institution O
University of Massachusetts, Dartmouth	Institution P
University of North Carolina, Greensboro	Institution Q

Note: The remaining 80 instituitons are listed on the previous page.

Appendix B. Raw Correlations of SAT and HSGPA with FYGPA by Institutional Characteristics

Institutional Characteristic		k	n	SAT-CR	SAT-M	SAT-W	SAT*	HSGPA	SAT*, HSGPA
Control	Private	93	67,293	.33	.30	.37	.41	.38	.49
	Public	67	144,110	.27	.26	.33	.35	.34	.44
Admittance	Under 50%	31	40,258	.33	.30	.37	.40	.29	.45
Rate	50 to 75%	96	147,229	.28	.26	.33	.35	.37	.45
	Over 75%	33	23,916	.32	.28	.36	.38	.41	.49
Undergraduate	Small	31	9,350	.37	.33	.41	.44	.46	.55
Enrollment	Medium	67	42,501	.31	.28	.36	.38	.39	.48
	Large	28	50,846	.26	.25	.32	.34	.36	.44
	Very large	34	108,706	.29	.28	.34	.36	.33	.44
Overall		160	211,403	.29	.27	.34	.37	.36	.46

Note: *k*: number of institutions, *n*: subgroup sample size. *: SAT refers to the inclusion of all three sections in the relevant multiple correlation. The correlations were corrected for restriction of range within institutions and pooled. Undergraduate enrollment was categorized as follows: small: 750 to 1,999; medium: 2,000 to 7,499; large: 7,500 to 14,999; and very large: 15,000 or more. For restriction of range corrected correlations by institutional characteristics, see Table 6.

Appendix C. Raw Correlation of SAT Scores and HSGPA with FYGPA by Subgroups

Student Characteristic		k	n	SAT-CR	SAT-M	SAT-W	SAT*	HSGPA	SAT*, HSGPA
Gender	Male	156	95,075	.27	.29	.31	.35	.34	.44
	Female	160	116,328	.33	.34	.36	.41	.35	.47
Racial / Ethnic Identity	African American	126	18,026	.21	.19	.26	.27	.28	.36
	American Indian	15	361	.19	.20	.26	.28	.31	.39
	Asian	113	20,922	.23	.27	.27	.32	.27	.39
	Hispanic	132	20,782	.24	.21	.28	.29	.28	.38
	Other	91	4,386	.27	.27	.35	.36	.32	.44
	White	158	140,329	.28	.24	.33	.35	.37	.45
	Not Stated	92	4,267	.28	.26	.32	.35	.32	.43
Best Language	English Only	160	182,843	.30	.27	.35	.37	.37	.46
	English and Another	149	24,031	.26	.26	.30	.32	.29	.40
	Another Language	51	3,035	.16	.22	.20	.26	.24	.33
	Not Stated	9	231	.39	.37	.42	.45	.30	.49
Household Income	< $40,000	154	23,598	.23	.26	.28	.31	.32	.40
	$40,000–80,000	160	35,649	.28	.26	.33	.35	.36	.44
	$80,000–120,000	159	36,506	.29	.26	.35	.37	.38	.47
	$120,000–160,000	145	16,734	.29	.25	.34	.36	.39	.47
	$160,000–200,000	110	8,816	.28	.23	.34	.35	.37	.46
	> $200,000	115	15,907	.28	.21	.31	.33	.36	.44
	Not Stated	160	73,282	.30	.28	.35	.37	.35	.46
Highest Parental Education Level	No High School Diploma	67	4,914	.20	.23	.24	.28	.23	.34
	High School Diploma	156	42,361	.25	.25	.30	.32	.34	.42
	Associate Degree	138	13,964	.26	.26	.33	.35	.37	.45
	Bachelor's Degree	160	70,355	.28	.25	.33	.35	.38	.46
	Graduate Degree	159	68,906	.29	.25	.34	.36	.37	.46
	Not Stated	132	9,883	.28	.29	.33	.36	.31	.43
Overall		160	211,403	.29	.27	.34	.37	.36	.46

Note: *k*: number of institutions, *n*: subgroup sample size. *: SAT refers to the inclusion of all three sections in the relevant multiple correlation. The correlations were corrected for restriction of range within institutions and pooled. Institutions with fewer than 15 students any subgroup were excluded. For restriction of range corrected correlations by student characteristics, see Table 8.