VALIDITY

Validity of the SAT® for Predicting First-Year Grades: 2012 SAT Validity Sample

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COLLEGE BOARD RESEARCH Statistical Report 2015 2

Executive Summary

The continued accumulation of validity evidence for the intended uses of educational assessment scores is critical to ensure that inferences made using the scores are sound. To that end, the College Board has continued to collect college outcome data to evaluate the relationship between SAT® scores and college success. This report provides updated validity evidence for using the SAT to predict first-year college grade point average (FYGPA) for the 2012 cohort.

Colleges and universities (henceforth, "institutions") provided data on the cohort of first-time, first-year students enrolling in the fall of 2012. The College Board combined those college outcomes data with official SAT scores and SAT Questionnaire response data, which include students' self-reported high school grade point average among other things. In particular, 165 institutions provided data on 300,389 students, 223,109 of whom had complete data on high school grade point average (HSGPA); SAT critical reading (SAT-CR), mathematics (SAT-M), and writing (SAT-W) scores; and FYGPA.

As has been shown in previous research (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Patterson, Mattern, & Kobrin, 2009; Patterson & Mattern, 2011; 2012; 2013a; 2013b), the multiple correlation of SAT section scores and HSGPA with FYGPA continues to be strong for the 2012 cohort (r = .61). When compared with the correlation of HSGPA alone with FYGPA (r = .53), the addition of the SAT section scores to HSGPA represented an increase (Δr = .08) in the correlation with FYGPA. The patterns of differential validity by institutional and student characteristics and differential prediction by student characteristics for the 2012 cohort also follow the same general patterns, as has been shown in previous research (Mattern, Patterson, Shaw, Kobrin, & Barbuti, 2008; Patterson et al., 2009; Patterson & Mattern, 2011; 2012; 2013a; 2013b.

Table 1.
Distribution of Institutional Characteristics

Institutional Characteristic		%
U.S. Region	Midwest	16
	Mid-Atlantic	27
	New England	10
	South	19
	Southwest	12
	West	16
Control	Public	47
	Private	53
Admittance Rate	Under 50%	22
	50 to 75%	56
	Over 75%	21
Undergraduate Enrollment[1]	Small	20
	Medium	40
	Large	20
	Very Large	20

Note: Number of institutions (*K*) = 165. 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 165 four-year institutions was diverse with respect to region of the U.S., control, size, and undergraduate admittance rate.

Table 2.
Descriptive Statistics for Total Sample

Variable	*M*	*SD*
HSGPA	3.62	0.496
SAT-CR	550	97.4
SAT-M	571	99.7
SAT-W	544	99.5
FYGPA	3.02	0.718

Note: Number of students (*N*) = 223,109.

- When compared to the 2011 cohort, Table 2 shows similar mean performance for high school grade point average (HSGPA) and first-year grade point average (FYGPA) for the 2012 cohort, with means differing by at most 0.02. The mean SAT section scores are also quite similar, differing by no more than one point for any one section (Patterson & Mattern, 2013b).
- When compared with the population of all college-bound SAT takers expecting to graduate in 2012 (*n* = 1,664,479) — whose mean and (standard deviation) SAT critical reading (SAT-CR), mathematics (SAT-M), and writing scores (SAT-W) were 496 (114), 514 (117), and 488 (113), respectively (College Board, 2012) — the sample in this study performed better in terms of SAT section scores. Given that students in this subsample not only chose to take the SAT — as did the population of over 1.6 million college-bound seniors — but also applied to, enrolled at, and earned grades at a four-year institution, their higher mean SAT section scores followed the expected pattern.

1. Seven institutions were missing values for Undergraduate Enrollment.

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

Variable	HSGPA	SAT-CR	SAT-M	SAT-W	FYGPA
HSGPA		.45	.48	.48	.53
SAT-CR	(.20)		.72	.84	.48
SAT-M	(.22)	(.49)		.74	.48
SAT-W	(.23)	(.69)	(.51)		.52
FYGPA	(.34)	(.27)	(.26)	(.33)	

Note: Number of students (*N*) = 223,109. 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, as well as FYGPA. In general, SAT sections were more highly correlated with other sections than with HSGPA, and this is most prominent in the correlation of SAT-CR and SAT-W.
- The bivariate correlations shown in Table 3 are similar to what was estimated in previous research (Kobrin et al., 2008; Patterson et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012; Patterson & Mattern, 2013a, 2013b).
- Consistent with prior research, the SAT writing section had the highest correlation with FYGPA among the three SAT section scores (Kobrin et al., 2008; Patterson et al., 2009; Patterson & Mattern, 2011; Patterson & Mattern, 2012; Patterson & Mattern, 2013a, 2013b).

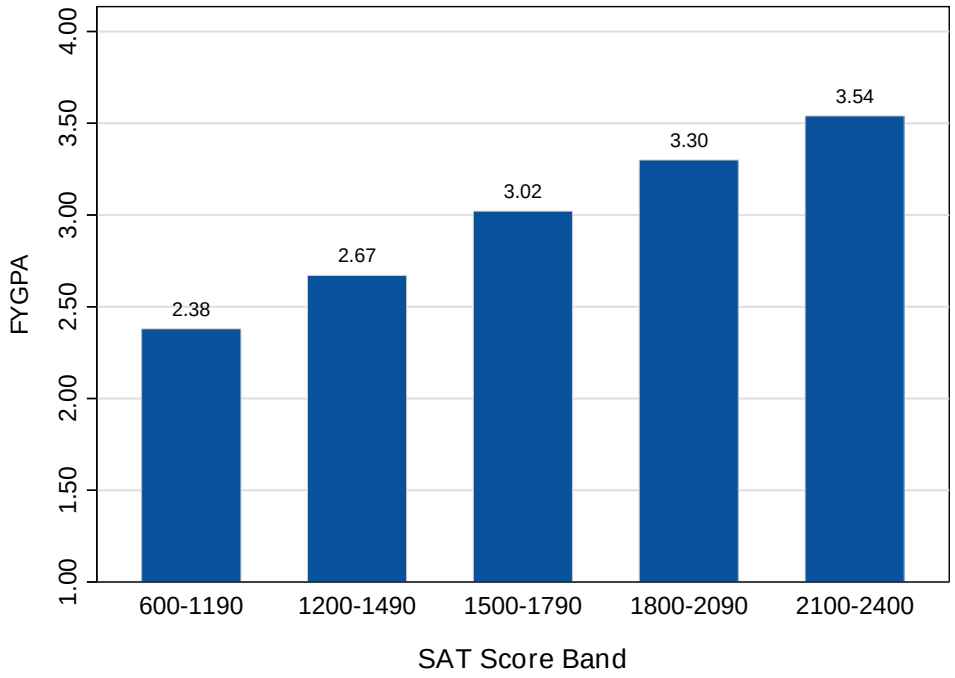
Table 4.
Corrected (Raw) Multiple Correlations of Predictors with FYGPA

Predictor(s)	Correlation
1. SAT-M, SAT-CR	.51 (.31)
2. HSGPA, SAT-M, SAT-CR	.60 (.42)
3. SAT-CR, SAT-M, SAT-W	.54 (.35)
4. HSGPA, SAT-CR, SAT-M, SAT-W	.61 (.44)

Note: Number of students (*N*) = 223,109. Multiple correlations are based on the raw and corrected correlations presented in Table 3. The raw correlations are shown in parentheses.

- SAT-CR, SAT-M, and SAT-W jointly have a similar multiple correlation with FYGPA (.54) as does HSGPA with FYGPA (.53). It is, however, the inclusion of all four predictors that leads to the strongest linear relationship with FYGPA; namely, a multiple correlation of .61.

Figure 1.
Mean FYGPA by SAT score band.

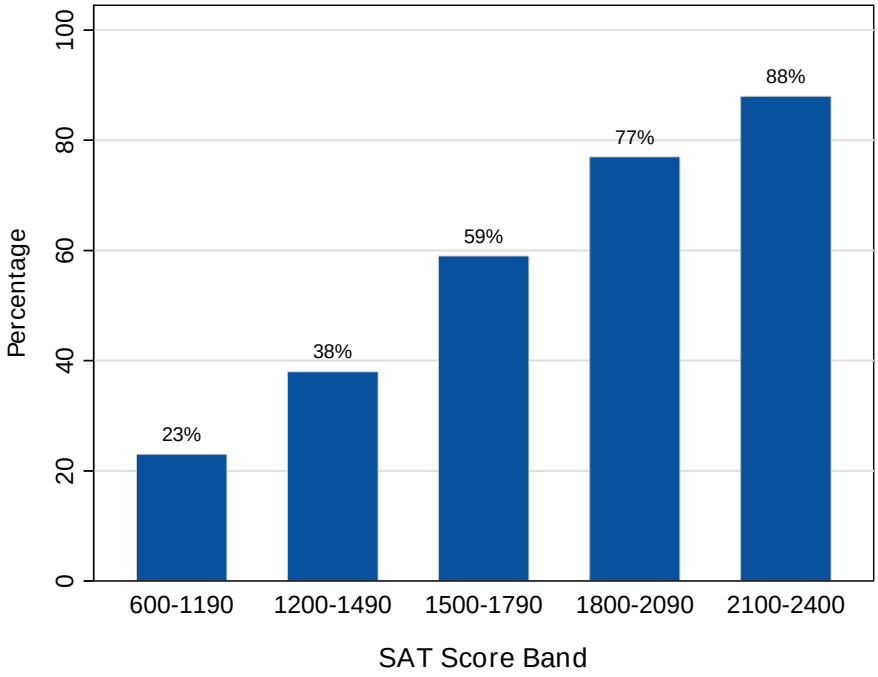


Note: SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W.
Sample sizes by SAT score band were as follows:

SAT	*n*
600–1190	8,239
1200–1490	52,628
1500–1790	90,234
1800–2090	60,054
2100–2400	11,954

- Figure 1 shows graphically the positive relationship between the composite SAT score band (i.e., sum of SAT-CR, SAT-M, and SAT-W, grouped into meaningful categories) with mean FYGPA. In particular, the difference in mean FYGPA between the highest score band (2100–2400) and the lowest (600–1190) was 1.16. In other words, students in the highest SAT score band earned, on average, an FYGPA of A- , compared to students in the lowest SAT score band, who had an average FYGPA of C+.

Figure 2.
Percentage of students earning FYGPA of a B or higher by SAT score band.

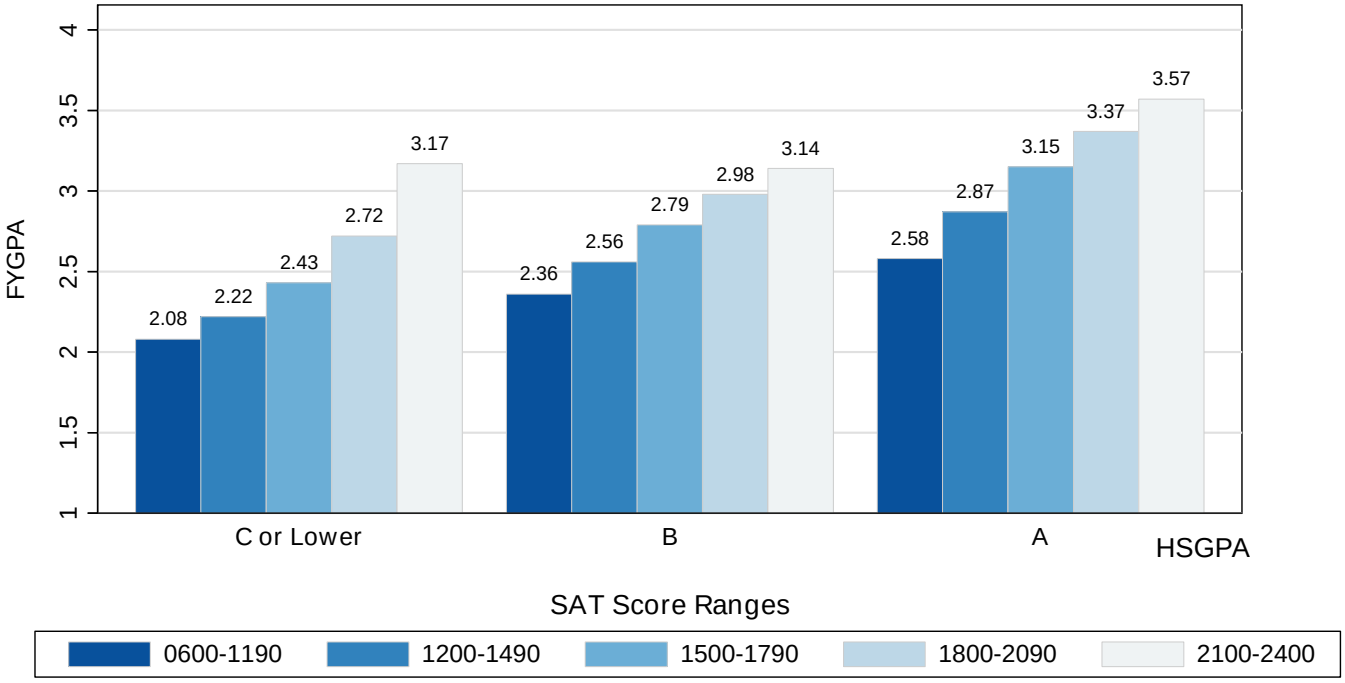


Note: SAT score bands are based on the sum of SAT-CR, SAT-M, and SAT-W.
Students whose FYGPA was ≥ 3.00 were considered to have earned a B or better.
Sample sizes by SAT score band were as follows:

SAT	*n*
600–1190	8,239
1200–1490	52,628
1500–1790	90,234
1800–2090	60,054
2100–2400	11,954

- Figure 2 shows graphically the positive relationship between the percentage of students earning at least a B (i.e., 3.0 FYGPA or higher) in their first year of college with the composite SAT score band. In particular, over three and a half 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	1,040	5,208	1,991
1200–1490	2,685	28,234	21,709
1500–1790	1,371	29,061	59,802
1800–2090	340	9,754	49,960
2100–2400	32	935	10,987

- Figure 3 shows the relationship of composite SAT score band with mean FYGPA at different levels of HSGPA. For each level of HSGPA, higher composite SAT score bands are associated with higher mean FYGPAs, thus demonstrating the value of SAT above and beyond HSGPA in the prediction of FYGPA.
- Consider, for example, 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, which translates to roughly a B-, while the other student, whose SAT composite was 2100–2400, was expected to earn an FYGPA of 3.6, which translates to roughly an A-.

Table 5.
Descriptive Statistics of Study Variables by Institutional Characteristics

Institutional Characteristic		*k*	*n*	SAT-CR		SAT-M		SAT-W		HSGPA		FYGPA	
				M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Control	Private	87	62,391	575	97.8	592	98.8	575	100.9	3.66	0.479	3.17	0.591
	Public	78	160,718	540	95.4	563	98.8	532	96.3	3.61	0.502	2.96	0.754
Admittance	Under 50%	37	51,047	600	91.9	625	90.2	603	95.1	3.79	0.406	3.21	0.551
Rate	50 to 75%	93	144,808	540	93.3	562	96.0	532	93.7	3.60	0.497	2.99	0.738
	Over 75%	35	27,254	507	92.7	516	91.2	497	89.0	3.40	0.535	2.80	0.806
Undergraduate	Small	32	9,527	540	102.8	544	98.5	531	100.3	3.54	0.532	3.02	0.679
Enrollment[2]	Medium	63	42,757	545	102.5	557	103.2	540	105.4	3.53	0.535	3.03	0.738
	Large	31	56,122	547	97.7	566	102.1	541	101.1	3.59	0.505	3.01	0.713
	Very Large	32	104,506	555	93.7	581	95.2	548	95.6	3.68	0.467	3.02	0.724
Total		165	223,109	550	97.4	571	99.7	544	99.5	3.62	0.496	3.02	0.718

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 were higher:
  - at private institutions, compared to public institutions; and
  - at increasingly selective institutions (i.e., those that admit fewer applicants).
- In terms of undergraduate enrollment (i.e., institution size):
  - small institutions had the lowest mean SAT section scores, while very large institutions had the highest mean SAT section scores and HSGPAs; and
  - there is no discernable relationship between institution size and mean FYGPA.

2. Seven institutions (10,197 students) were missing values for Undergraduate Enrollment.

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	87	62,391	.53	.52	.57	.59	.56	.66
	Public	78	160,718	.45	.46	.50	.52	.52	.60
Admittance	Under 50%	37	51,047	.52	.52	.56	.58	.53	.64
Rate	50 to 75%	93	144,808	.46	.47	.51	.53	.53	.61
	Over 75%	35	27,254	.46	.46	.51	.52	.54	.61
Undergraduate	Small	32	9,527	.56	.55	.60	.62	.59	.70
Enrollment[3]	Medium	63	42,757	.48	.48	.53	.54	.55	.63
	Large	31	56,122	.48	.49	.52	.55	.54	.62
	Very Large	32	104,506	.46	.47	.51	.52	.52	.60
Overall		165	223,109	.48	.48	.52	.54	.53	.61

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.
- The correlations of the six combinations of predictors with FYGPA are generally:
  - Higher at private than public institutions
  - Highest at the most selective institutions (i.e., those that admit fewer than 50% of applicants), relative to less selective ones
  - Highest at small institutions, relative to larger ones
- Across many institutional categories, the multiple correlation of SAT with FYGPA was at least as high as the correlation of HSGPA with FYGPA.
- For nearly all institutional subgroups, the combination of SAT section scores and HSGPA represented an increase in at least .07 for the correlation with FYGPA over either predictor alone.

3. Seven institutions were missing values for Undergraduate Enrollment.

Table 7.
Descriptive Statistics of Study Variables by Student Characteristics

Student Characteristic		*k*	*n*	SAT-CR		SAT-M		SAT-W		HSGPA		FYGPA	
				M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Gender	Male	162	100,739	557	97.0	595	98.3	541	100.1	3.58	0.511	2.93	0.754
	Female	165	122,370	544	97.3	551	96.5	547	98.9	3.66	0.481	3.10	0.678
Racial / Ethnic Identity	African American	165	19,326	483	89.2	486	87.6	470	88.8	3.37	0.555	2.62	0.798
	American Indian	145	991	540	91.2	554	92.6	526	92.1	3.57	0.513	2.85	0.774
	Asian	164	25,399	567	105.4	637	99.3	580	108.1	3.70	0.448	3.13	0.641
	Hispanic	165	24,787	507	96.4	525	95.2	502	94.2	3.55	0.512	2.82	0.752
	Other	163	6,135	560	99.2	572	100.9	556	102.5	3.59	0.503	3.00	0.718
	White	165	144,464	563	90.9	578	90.8	554	92.9	3.66	0.480	3.09	0.688
	Not Stated	163	2,007	546	102.4	555	103.6	535	104.2	3.53	0.545	2.93	0.735
Best Language	English Only	165	190,113	555	95.2	571	97.0	546	97.7	3.63	0.495	3.03	0.717
	English and Another	165	28,411	525	102.6	559	109.6	530	106.6	3.59	0.501	2.92	0.727
	Another Language	150	3,856	478	103.3	642	118.2	521	116.8	3.67	0.480	3.10	0.659
	Not Stated	140	729	543	104.6	558	109.2	529	108.3	3.51	0.631	2.96	0.725
Household Income	< $40,000	165	19,820	503	96.5	527	103.0	494	96.4	3.54	0.540	2.78	0.809
	$40,000–80,000	165	25,308	536	93.9	553	96.5	524	94.5	3.62	0.509	2.93	0.765
	$80,000–120,000	165	24,714	554	92.1	574	94.2	544	94.6	3.65	0.497	3.04	0.710
	$120,000–160,000	165	12,199	562	91.3	583	92.9	555	93.9	3.65	0.488	3.07	0.678
	$160,000–200,000	165	6,696	569	92.2	592	93.3	566	94.0	3.63	0.495	3.11	0.652
	> $200,000	162	12,516	586	88.5	612	89.6	588	93.3	3.64	0.475	3.15	0.609
	Not Stated	165	121,856	554	97.9	574	99.9	549	99.6	3.63	0.488	3.05	0.702
Highest Parental Education Level	No High School Diploma	161	7,314	470	90.9	512	103.7	470	90.0	3.50	0.526	2.76	0.780
	High School Diploma	165	44,289	512	90.0	532	95.3	503	91.3	3.55	0.519	2.83	0.786
	Associate Degree	165	14,802	520	87.6	537	90.9	507	88.7	3.58	0.516	2.89	0.765
	Bachelor's Degree	165	78,556	558	89.4	580	92.3	552	91.7	3.66	0.479	3.08	0.677
	Graduate Degree	165	65,745	591	93.3	608	94.5	587	95.9	3.70	0.464	3.17	0.637
	Not Stated	165	12,403	500	95.2	525	100.5	498	96.5	3.41	0.526	2.81	0.765
Total		165	223,109	550	97.4	571	99.7	544	99.5	3.62	0.496	3.02	0.718

Note: *n*: subgroup sample size.

- Table 7 shows that female students tended to outperform males on SAT-W, HSGPA, and FYGPA, while the opposite was true for SAT-CR and SAT-M.
- Some differences exist across racial/ethnic identities, with white and Asian students having higher mean SAT section scores, HSGPA, and FYGPA relative to African American and Hispanic students.
- When considering best spoken language, students whose best language was English had the highest SAT-CR and SAT-W scores, whereas students whose best language was something other than English had the highest SAT-M scores and slightly higher HSGPA and FYGPA means.
- Students who reported higher household incomes had higher mean SAT section scores and FYGPA, but there was no apparent relationship with HSGPA.
- As with household-income level, mean SAT section scores and FYGPA increased as highest parental education level increased; with respect to mean HSGPA, there was a positive relationship with 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	162	100,739	.46	.48	.50	.52	.52	.60
	Female	165	122,370	.52	.53	.55	.58	.53	.64
Racial / Ethnic Identity	African American	134	19,033	.42	.40	.46	.47	.44	.52
	American Indian	17	437	.33	.32	.39	.40	.36	.44
	Asian	121	25,066	.45	.48	.48	.52	.49	.58
	Hispanic	139	24,566	.43	.42	.47	.48	.46	.54
	Other	102	5,671	.44	.46	.48	.51	.49	.57
	White	165	144,464	.47	.47	.52	.54	.55	.63
	Not Stated	51	1,336	.36	.38	.41	.42	.44	.50
Best Language	English Only	165	190,113	.48	.48	.53	.55	.54	.63
	English and Another	152	28,291	.43	.43	.47	.48	.46	.54
	Another Language	52	3,336	.38	.41	.41	.44	.40	.48
	Not Stated	8	156	.34	.40	.43	.45	.29	.46
Household Income	< $40,000	156	19,732	.40	.41	.44	.46	.45	.52
	$40,000–80,000	162	25,268	.45	.46	.49	.51	.52	.59
	$80,000–120,000	162	24,682	.46	.46	.50	.52	.54	.61
	$120,000–160,000	136	11,927	.45	.45	.50	.51	.55	.61
	$160,000–200,000	105	6,293	.45	.45	.49	.51	.55	.61
	> $200,000	107	12,119	.47	.45	.50	.52	.55	.61
	Not Stated	165	121,856	.49	.49	.53	.55	.54	.63
Highest Parental Education Level	No High School Diploma	74	6,712	.41	.45	.44	.48	.43	.52
	High School Diploma	162	44,257	.43	.44	.48	.50	.49	.57
	Associate Degree	144	14,634	.44	.45	.50	.51	.51	.59
	Bachelor's Degree	165	78,556	.47	.47	.51	.53	.54	.62
	Graduate Degree	163	65,718	.49	.49	.53	.55	.56	.64
	Not Stated	142	12,220	.41	.41	.45	.46	.46	.53
Overall		165	223,109	.48	.48	.52	.54	.53	.61

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 in any subgroup were excluded. For raw correlations by institutional characteristics, see Appendix C.

- Table 8 shows that predictive validity for all predictors and combinations of FYGPA was higher for:
  - Female students than for male students;
  - White and Asian students relative to the other racial/ethnic identities;
  - Students whose best spoken language was English only as compared to the other language groups;
  - Students with a household income level of at least $80,000 than those with lower incomes; and
  - Students whose parents have higher education levels as compared to lower education levels.
- Across all student subgroups, predictive validity of FYGPA was maximized using the combination of SAT section scores and HSGPA.

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	162	100,739	-0.110	-0.142	-0.083	-0.107	-0.072	-0.079
	Female	165	122,370	0.091	0.117	0.069	0.088	0.059	0.065
Racial / Ethnic Identity	African American	165	19,326	-0.184	-0.155	-0.154	-0.122	-0.195	-0.101
	American Indian	145	991	-0.141	-0.129	-0.120	-0.118	-0.127	-0.106
	Asian	164	25,399	0.038	-0.041	0.009	-0.013	0.028	-0.003
	Hispanic	165	24,787	-0.081	-0.075	-0.071	-0.053	-0.118	-0.051
	Other	163	6,135	-0.049	-0.032	-0.050	-0.044	-0.023	-0.029
	White	165	144,464	0.036	0.044	0.035	0.031	0.044	0.025
	Not Stated	163	2,007	-0.082	-0.061	-0.066	-0.062	-0.052	-0.045
Best Language	English Only	165	190,113	0.003	0.011	0.006	0.005	0.011	0.005
	English and Another	165	28,411	-0.043	-0.063	-0.056	-0.046	-0.077	-0.043
	Another Language	150	3,856	0.181	-0.068	0.126	0.091	0.016	0.087
	Not Stated	140	729	-0.046	-0.035	-0.018	-0.019	-0.012	0.004
Household Income	< $40,000	165	19,820	-0.092	-0.099	-0.075	-0.064	-0.143	-0.076
	$40,000–80,000	165	25,308	-0.035	-0.031	-0.023	-0.022	-0.058	-0.040
	$80,000–120,000	165	24,714	0.013	0.014	0.015	0.011	0.014	0.004
	$120,000–160,000	165	12,199	0.020	0.018	0.016	0.011	0.033	0.014
	$160,000–200,000	165	6,696	0.028	0.025	0.018	0.013	0.068	0.035
	> $200,000	162	12,516	0.005	-0.001	-0.007	-0.010	0.060	0.027
	Not Stated	165	121,856	0.015	0.017	0.012	0.012	0.019	0.014
Highest Parental Education Level	No High School Diploma	161	7,314	-0.050	-0.087	-0.037	-0.022	-0.142	-0.027
	High School Diploma	165	44,289	-0.067	-0.070	-0.056	-0.048	-0.105	-0.060
	Associate Degree	165	14,802	-0.034	-0.031	-0.017	-0.012	-0.071	-0.033
	Bachelor's Degree	165	78,556	0.032	0.031	0.028	0.026	0.036	0.024
	Graduate Degree	165	65,745	0.034	0.043	0.025	0.018	0.074	0.028
	Not Stated	165	12,403	-0.076	-0.089	-0.072	-0.060	-0.079	-0.035
Overall		165	223,109	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 FYGPA.

- Table 9 shows that across all predictor sets, FYGPA was:
  - Overpredicted (i.e., observed FYGPA < predicted FYGPA) for males and underpredicted for females;
  - Generally overpredicted for African American, American Indian, and Hispanic students;
  - Generally underpredicted (except for SAT-M alone) for students whose best spoken language was not English; and
  - Overpredicted for students from lower socioeconomic status families (household income levels ≤ $80,000, highest parental education level of an associate degree or less).
- In terms of the relative differential prediction of HSGPA, SAT sections, and their combination:
  - Using HSGPA alone generally yielded the least differential prediction across genders;
  - Using HSGPA and SAT generally yielded the least differential prediction across racial / ethnic identities; and
  - Using SAT sections alone generally yielded the least differential prediction across household income and parental education levels.

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Appendix A.

Institutions Providing First-Year Outcomes Data for the 2012 Cohort

Institution Name	
Abilene Christian University	Indiana University Bloomington
Albany College of Pharmacy and Health Sciences	Indiana University East
Appalachian State University	Indiana University Kokomo
Austin College	Indiana University Northwest
Azusa Pacific University	Indiana University South Bend
Baldwin Wallace University	Indiana University Southeast
Barnard College	Indiana Wesleyan University
Binghamton University, State University of New York	John Brown University
Boston College	Lafayette College
Boston University	Lasell College
Brandeis University	Lawrence University
Bucknell University	Linfield College
Caldwell University	Lock Haven University
California State University, Dominguez Hills	Long Island University, Brooklyn
Capital University	Long Island University, Post
Case Western Reserve University	Longwood University
Chapman University	Lycoming College
Chowan University	Marywood University
Claremont McKenna College	Meredith College
Clemson University	Messiah College
Coastal Carolina University	Miami University
Colorado Mesa University	Missouri State University, Springfield
Cornell College	Moravian College
Dominican University of California	Mount St. Mary's University
Drexel University	New Jersey Institute of Technology
Earlham College	North Carolina State University
East Carolina University	Penn State University Park
Eastern Connecticut State University	Pennsylvania College of Technology
Eastern Washington University	Philadelphia University
Elms College	Presbyterian College
Emory University	Purdue University
Florida State University	Quinnipiac University
Framingham State University	Randolph-Macon College
Franklin & Marshall College	Saint Anselm College
Furman University	Saint Michael's College
Georgia Institute of Technology	Seton Hill University
Georgia Southern University	Shenandoah University
Gonzaga University	Siena College
Grinnell College	Smith College
Indiana University–Purdue University Indianapolis	Southeastern University

Note: The remaining institutions are listed on the following page.

Appendix A. (continued)

Institution Name		
Southern Connecticut State University	University of North Georgia	Anonymous A
Southern Methodist University	University of North Texas	Anonymous B
Southwestern University	University of Portland	Anonymous C
St. Edward's University	University of Rhode Island	Anonymous D
St. John Fisher College	University of Richmond	Anonymous E
St. John's University	University of San Francisco	Anonymous F
St. Joseph's College	University of Southern California	Anonymous G
Stephen F. Austin State University	University of Southern Indiana	Anonymous H
Stetson University	University of Southern Maine	Anonymous I
Stony Brook University, The State University of New York	University of Washington Tacoma	Anonymous J
Swarthmore College	University of Washington, Seattle	Anonymous K
Syracuse University	Valdosta State University	Anonymous L
Taylor University	Vanderbilt University	Anonymous M
Texas A&M International University	Villanova University	Anonymous N
Texas A&M University	Virginia Wesleyan College	Anonymous O
Texas Christian University	Washington State University Vancouver	Anonymous P
Texas State University	Washington State University, Pullman	Anonymous Q
Texas Woman's University	West Chester University of Pennsylvania	Anonymous R
The Ohio State University: Columbus Campus	Western Washington University	Anonymous S
The State University of New York at New Paltz	Wheaton College (Ill.)	Anonymous T
The University of Georgia	Whittier College	Anonymous U
The University of North Carolina at Greensboro	Wilkes University	
The University of Texas at Austin	Willamette University	
The University of Texas at Dallas	Wingate University	
The University of Texas–Pan American		
The University of Utah		
Transylvania University		
Tulane University		
University of Arkansas		
University of California, Santa Cruz		
University of Cincinnati		
University of Dayton		
University of Delaware		
University of Denver		
University of Houston		
University of Illinois at Urbana-Champaign		
University of Maine		
University of Mary Washington		
University of Massachusetts Dartmouth		
University of Michigan		

Note: There were 21 institutions that wished to remain anonymous, hence the listing of Institutions A through U.
Note: The remaining institutions 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	87	62,391	.32	.29	.37	.40	.38	.48
	Public	78	160,718	.26	.25	.32	.33	.33	.42
Admittance	Under 50%	37	51,047	.30	.27	.34	.37	.29	.43
Rate	50 to 75%	93	144,808	.26	.26	.33	.34	.35	.44
	Over 75%	35	27,254	.29	.27	.34	.36	.41	.48
Undergraduate	Small	32	9,527	.37	.34	.42	.45	.43	.54
Enrollment	Medium	63	42,757	.28	.26	.35	.36	.39	.47
	Large	31	56,122	.27	.26	.33	.35	.35	.44
	Very Large	32	104,506	.26	.25	.32	.34	.32	.42
Overall		165	223,109	.27	.26	.33	.35	.34	.44

Note: *k*: number of institutions, *n*: subgroup sample size. SAT* refers to the inclusion of all three sections in the relevant multiple correlation. 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	162	100,739	.25	.28	.30	.33	.34	.42
	Female	165	122,370	.31	.33	.35	.39	.33	.45
Racial / Ethnic Identity	African American	134	19,033	.21	.18	.26	.27	.27	.36
	American Indian	17	437	.19	.19	.27	.28	.24	.33
	Asian	121	25,066	.22	.25	.27	.30	.26	.38
	Hispanic	139	24,566	.23	.20	.28	.29	.27	.36
	Other	102	5,671	.24	.25	.30	.32	.32	.41
	White	165	144,464	.25	.24	.32	.34	.36	.44
	Not Stated	51	1,336	.20	.22	.28	.29	.31	.38
Best Language	English Only	165	190,113	.28	.27	.34	.36	.36	.45
	English and Another	152	28,291	.24	.23	.28	.30	.27	.37
	Another Language	52	3,336	.16	.21	.22	.25	.20	.31
	Not Stated	8	156	.20	.32	.32	.37	.23	.38
Household Income	< $40,000	156	19,732	.21	.23	.27	.29	.29	.37
	$40,000–80,000	162	25,268	.25	.25	.31	.33	.34	.42
	$80,000–120,000	162	24,682	.26	.24	.31	.33	.37	.44
	$120,000–160,000	136	11,927	.25	.24	.31	.33	.37	.44
	$160,000–200,000	105	6,293	.23	.23	.30	.32	.37	.44
	> $200,000	107	12,119	.24	.21	.28	.31	.35	.42
	Not Stated	165	121,856	.28	.27	.34	.36	.35	.45
Highest Parental Education Level	No High School Diploma	74	6,712	.19	.26	.24	.29	.25	.35
	High School Diploma	162	44,257	.24	.24	.30	.32	.33	.41
	Associate Degree	144	14,634	.24	.23	.32	.33	.34	.42
	Bachelor's Degree	165	78,556	.25	.24	.31	.33	.35	.43
	Graduate Degree	163	65,718	.27	.25	.32	.34	.36	.45
	Not Stated	142	12,220	.23	.22	.29	.30	.31	.39
Overall		165	223,109	.27	.26	.33	.35	.34	.44

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