

Synthesis of Recent SAT Validity Findings: Trend Data over Time and Cohorts

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VALIDITY

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Executive Summary

In March 2005, substantial revisions were made to the SAT, to better align test specifications with K–12 curriculum (Lawrence, Rigol, Van Essen & Jackson, 2003). Over the last five years, the College Board has made a concerted effort to collect higher education outcome data to document evidence of the validity of the SAT for use in college admission in light of these changes to the test specifications. Due to this large-scale data collection initiative, numerous reports have been released documenting the validity of the SAT for use in college admission. However, the information is siloed within individual reports, making it particularly difficult to synthesize the results and get a sense of the main take-away points. The purpose of the current report is to summarize the research findings from the various reports into a single document, illuminating patterns across cohorts and years. The document will serve as an overview of the research done to date, in a straightforward, easily digestible manner. The report relies heavily on graphical representations of the data to elucidate the main findings; however, data in tabular form are also provided in appendices for interested readers.

Introduction

In March 2005, substantial revisions were made to the SAT[®], to better align test specifications with K–12 curriculum (Lawrence, Rigol, Van Essen & Jackson, 2003). The most notable revision was the addition of a writing section, comprised of two parts: an essay and multiple-choice items that require students to identify grammatical errors and improve sentences and paragraphs. Additionally, changes were made to both the verbal and mathematics sections. Changes to the verbal section, which was relabeled critical reading, included the elimination of analogies and the addition of shorter reading passages. As for the mathematics section, changes included the removal of quantitative comparisons and the addition of third-year math content, such as exponential growth, absolute value, functional notation, and negative and fractional exponents.

Over the last five years, the College Board has made a concerted effort to collect higher education outcome data to document evidence of the validity of the SAT for use in college admission in light of these changes to the test specifications. Specifically, the College Board has recruited four-year colleges and universities to provide first-year data on their first-year, first-time entering students starting with their 2006 cohort to examine the relationship between performance on the SAT and subsequent performance in college. Through these recruitment efforts, 110 colleges and universities provided data for their 2006 cohort. The intent was also to examine the relationship between SAT performance and more long-term college performance outcomes (i.e., cumulative grade point average, graduation); and, therefore, the original 110 institutions were also asked to provide performance data for subsequent years for the 2006 cohort on an annual basis. Through this effort, the College Board has built a rich database, which includes student-level college performance data through the fifth year that has been matched back to official College Board records, including PSAT/NMSQT[®] scores, AP[®] scores, SAT scores, and SAT Questionnaire responses. Additionally, the College Board has recruited institutions to provide data on more recent cohorts of students entering college in 2007, 2008, 2009, and 2010¹. By collecting information on subsequent cohorts of students, we are afforded the opportunity to examine the stability of the validity results for different samples of students, which provides additional evidence for the validity argument with regard to the appropriateness of using SAT scores to make admission decisions. Additionally, following students over time has provided the opportunity

¹ Recruitment efforts are ongoing and the College Board is currently collecting performance data for the 2011-12 academic year for the 2006 through 2011 cohorts.

to examine whether the SAT retains its predictive power for more distal indicators of college success. Table 1 provides the number of institutions providing data for each cohort and for subsequent years in college.

Table 1.

Number of Institutions Providing College Performance Outcome Data by Cohort and Year in College

Year in College	Entering Cohort					
	2006	2007	2008	2009	2010	2011
1st	110 ^a	110	129	131	160	In process
2nd	66	92	114	114	In process	
3rd	60	85	101	In process		
4th	55	78	In process			
5th	48	In process				
6th	In process					

Due to this large-scale data collection initiative, numerous reports have been released documenting the validity of the SAT for use in college admission. Specifically, each year, a report evaluating the relationship between SAT performance and first-year grade point average (FYGPA) has been produced based upon data for the most recent entering cohort. Therefore, there are currently six reports evaluating the SAT-FYGPA relationship, two reports for the 2006 cohort and one for each of the following cohorts through 2010 (Kobrin, Patterson, Shaw, Mattern, & Barbuti, 2008; Mattern, Patterson, Shaw, Kobrin, & Barbuti, 2008; Patterson & Mattern, 2011; 2012a; 2013; Patterson, Mattern, & Kobrin, 2009). Similarly, the relationship between SAT performance and retention to the second year has been evaluated on an annual basis, resulting in five more reports (Mattern & Patterson, 2009; 2011d; 2012a; 2012b; 2013).

Additionally, research documenting the validity of the SAT in terms of more long-term outcomes as students progress through their college careers has been conducted on the 2006 cohort. Namely, the relationship between SAT performance and cumulative grade point average through four years of college has been examined, resulting in three additional reports that have focused on second-, third- and fourth-year cumulative grade point average (Mattern & Patterson, 2011a; 2011c; 2011f). Similarly, research examining the relationship between SAT performance and retention to the third and fourth year and ultimately graduation within four years has been conducted, resulting in three more reports (Mattern & Patterson, 2011b; 2011e; Mattern, Patterson, & Wyatt, 2013).

Through this research effort, a substantial amount of validity evidence has been accumulated, supporting the use of SAT scores for use in college admission. However, the information is siloed within individual reports, making it particularly difficult to synthesize the results and get a sense of the main take-away points. The purpose of the current report is to summarize the research findings from the reports mentioned previously into a single document, illuminating patterns across cohorts and years. The document will serve as an overview of the research done to date, in a straightforward, easily digestible manner. The report relies heavily on graphical representations of the data to elucidate the main findings; however, data in tabular form are also provided in appendices for interested readers.

FYGPA Results: 2006–2010 Cohorts

This section summarizes the six reports (Kobrin et al., 2008; Mattern et al., 2008; Patterson & Mattern, 2011; 2012a; 2013; Patterson et al., 2009) that examined the relationship² between SAT performance and FYGPA. The same analyses were conducted in each of the reports with the main difference being the sample of students used in the analysis. The first two reports — one examining the SAT-FYGPA relationship overall and by institutional characteristics and one examining the SAT-FYGPA relationship by student characteristics — were based upon the 2006 cohort. For each subsequent cohort (2007 through 2010), one report was produced that included information on the overall relationship and by institutional and student characteristics resulting in four additional reports. By examining the results over multiple cohorts of students, we can examine how stable the SAT-FYGPA results are. That is, do the findings generalize or are the results dependent on the sample on which they are based? If a similar pattern emerges across multiple samples, we can be confident that the SAT-FYGPA findings generalize to other SAT takers and are not due to something unique about the students in the sample.

Key Findings

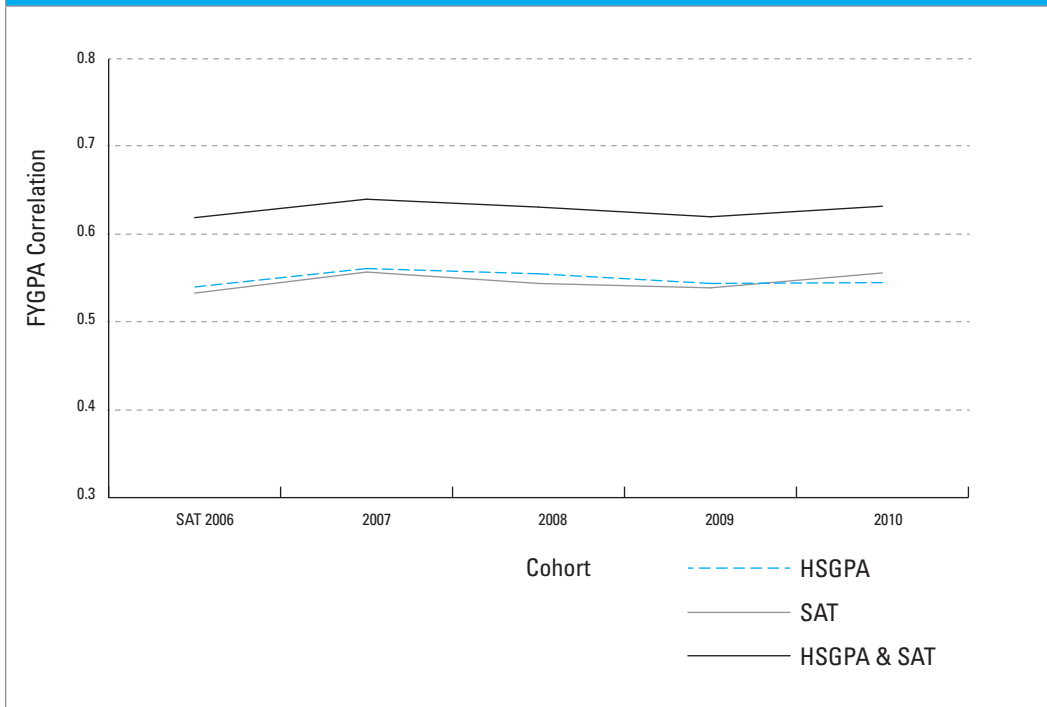
1. SAT and HSGPA are strong predictors of FYGPA, overall and by student and institutional subgroups with the multiple correlation typically in the mid-0.60s. The results are consistent across the five cohorts, providing further validity evidence for the SAT in terms of the generalizability of the results.
2. SAT provides incremental validity above and beyond HSGPA in the prediction of FYGPA.
3. SAT and HSGPA result in minimal differential prediction of FYGPA by student subgroups. When differential prediction occurs, FYGPA is overpredicted for underserved minority students. That is, minority performance is not underpredicted, indicating that the SAT is not biased against minority students.

² All correlations reported in this document were computed within institution, corrected for range restrictions and aggregated, weighted by their respective sample size.

Overall

Figure 1.

Correlations of HSGPA and SAT sections with FYGPA (2006–2010 cohorts).

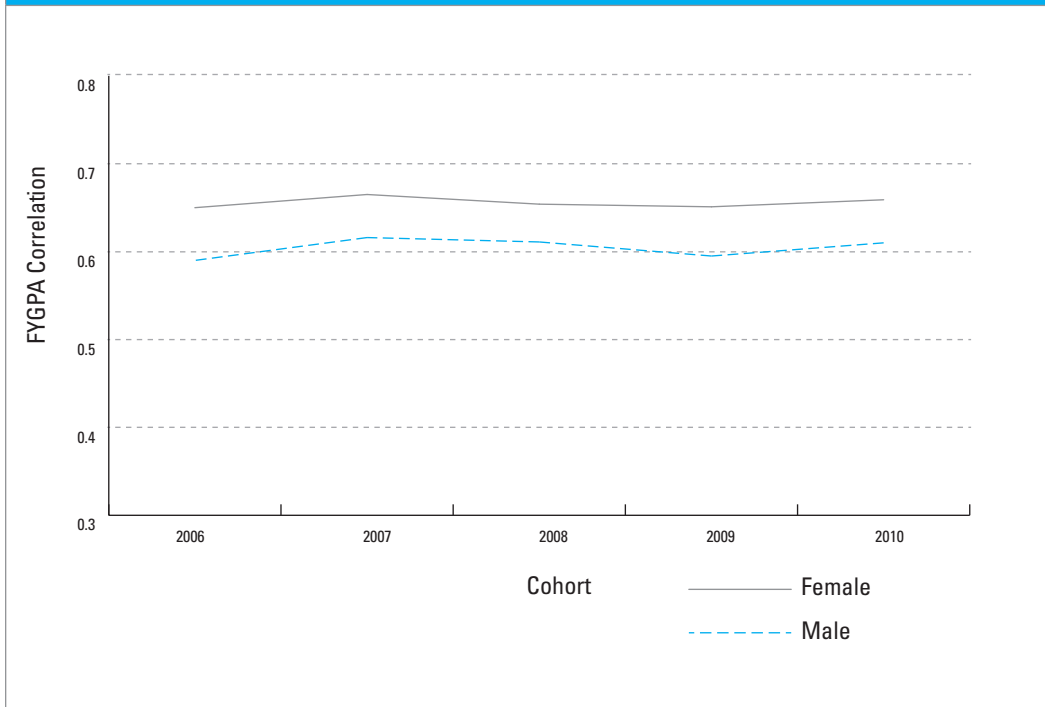


- Figure 1 displays the correlations of SAT, HSGPA, and the combination of SAT and HSGPA with FYGPA for the 2006 through 2010 cohorts. The results clearly show that both SAT scores and HSGPA are strong predictors of FYGPA with correlations in the mid-.50s. Moreover, the figure clearly shows the added benefit of using the combination of SAT scores and HSGPA, as that combination yields the highest predictive validity.
- Also, apparent in Figure 1 is the stability of results over cohort years given the flatness of the trend lines.
 - » For each predictor/predictor set, correlations did not fluctuate more than .02 across cohort years.
- Evident by the consistency of results, the findings indicate that the relative magnitude of the correlations of SAT scores and HSGPA with FYGPA are stable and are not specific to the sample on which these data were observed.
- See Table A1 for correlations and sample sizes for each predictor and cohort.

Subgroup Results: Student Characteristics

Figure 2.

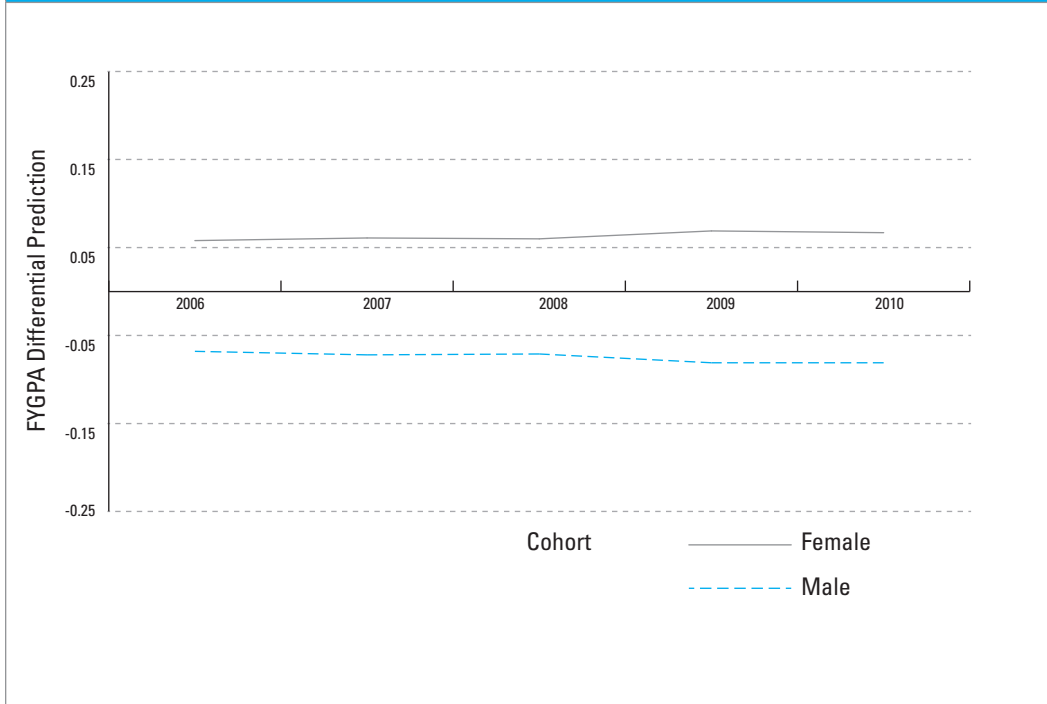
Correlations of HSGPA and SAT sections with FYGPA by gender (2006–2010 cohorts).



- Figure 2 displays the multiple correlations of SAT and HSGPA with FYGPA by gender for the 2006 through 2010 cohorts. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for both males and females with correlations in the high .50s to mid-.60s, though the results do indicate slightly higher correlations for females.
- What is also apparent from Figure 2 is the stability of results over cohort years given the flatness of the trend lines.
 - » Correlations fluctuated by only .02 for females and .03 for males across cohort years.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by gender are stable and are not specific to the sample on which these data were observed.
- See Table A2 for correlations and sample sizes for each cohort by gender.

Figure 3.

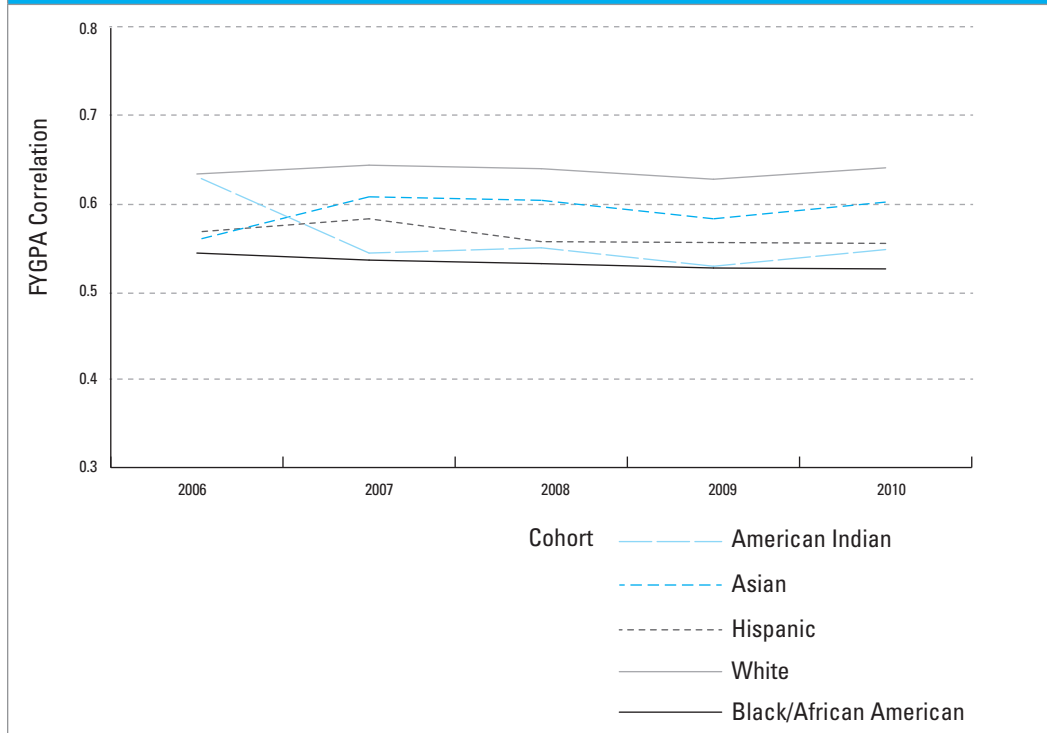
Differential prediction of FYGPA for HSGPA and SAT sections for gender (2006–2010 cohorts).



- Figure 3 shows the average over (-) or under (+) prediction of FYGPA (i.e., mean residuals) by gender based upon a model that included both SAT scores and HSGPA. Negative values indicate overprediction, or that the group of students earned a FYGPA that was lower than what the model predicted. Conversely, positive values indicate underprediction, or that the group of students earned a FYGPA that was higher than the model predicted.
- Figure 3 shows that across cohort years, FYGPA was slightly underpredicted for females with mean residuals ranging from 0.06 to 0.07 and overpredicted for males with mean residuals ranging from -0.07 to -0.08.
 - » The mean residuals are on the same scale as FYGPA; therefore, a mean residual of 0.07 for females indicates that females earned a FYGPA that was 0.07 higher than what the model predicted. For the 2010 cohort, females earned an average FYGPA of 3.07. Therefore, based upon SAT scores and HSGPA, the model predicted an average FYGPA of 3.00 for females.
- The results are stable over cohorts with minimal differential prediction by gender.
- See Table A2 for the sample sizes and mean residuals for each cohort by gender.

Figure 4.

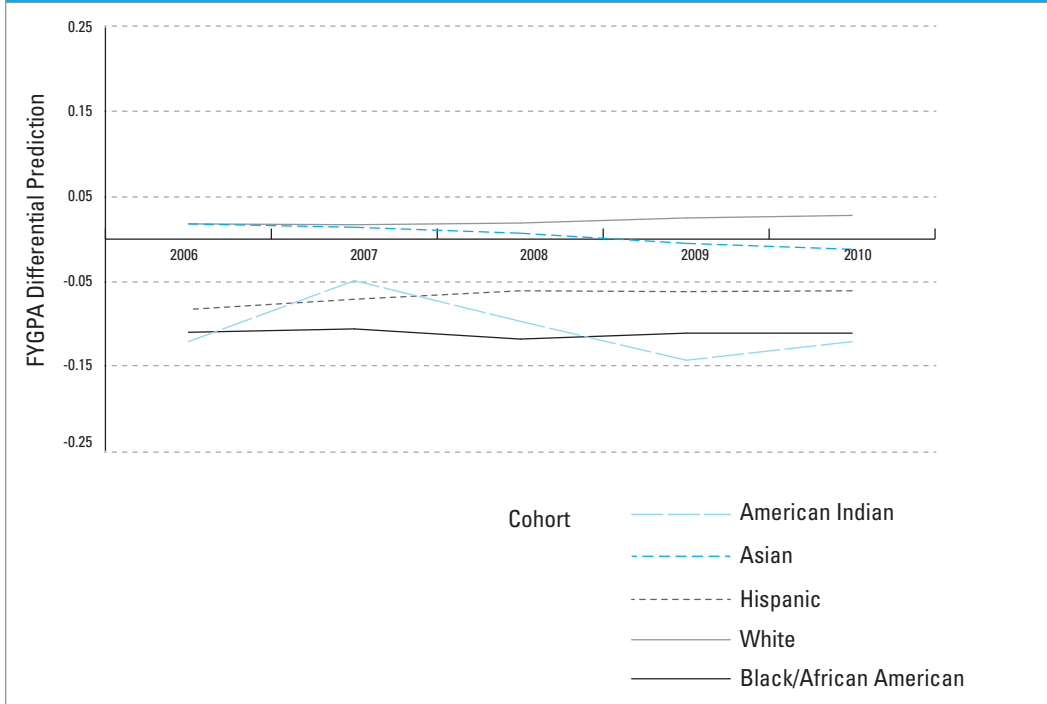
Correlations of HSGPA and SAT sections with FYGPA by racial/ethnic identity (2006–2010 cohorts).



- Figure 4 displays the multiple correlations of SAT and HSGPA with FYGPA for each racial/ethnic subgroup across the five cohorts. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for all subgroups with correlations in the mid-.50s to mid-.60s. That being said, there was some variability in the magnitude of the correlation across subgroups with higher correlations for White and Asian students.
- Figure 4 illuminates the stability of results over cohort years given the flatness of the trend lines. In 2006, multiple correlations were combined differently across institutions, which explains the apparent drop in correlations for American Indian students.
 - » With the exception of the 2006 results for American Indians, correlations fluctuated by only .02 for White, African American and American Indian students; .03 for Hispanic students; and .05 for Asian students across cohort years.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by race/ethnicity are stable and are not specific to the sample on which these data were observed.
- See Table A3 for correlations and sample sizes for each cohort by race/ethnicity.

Figure 5.

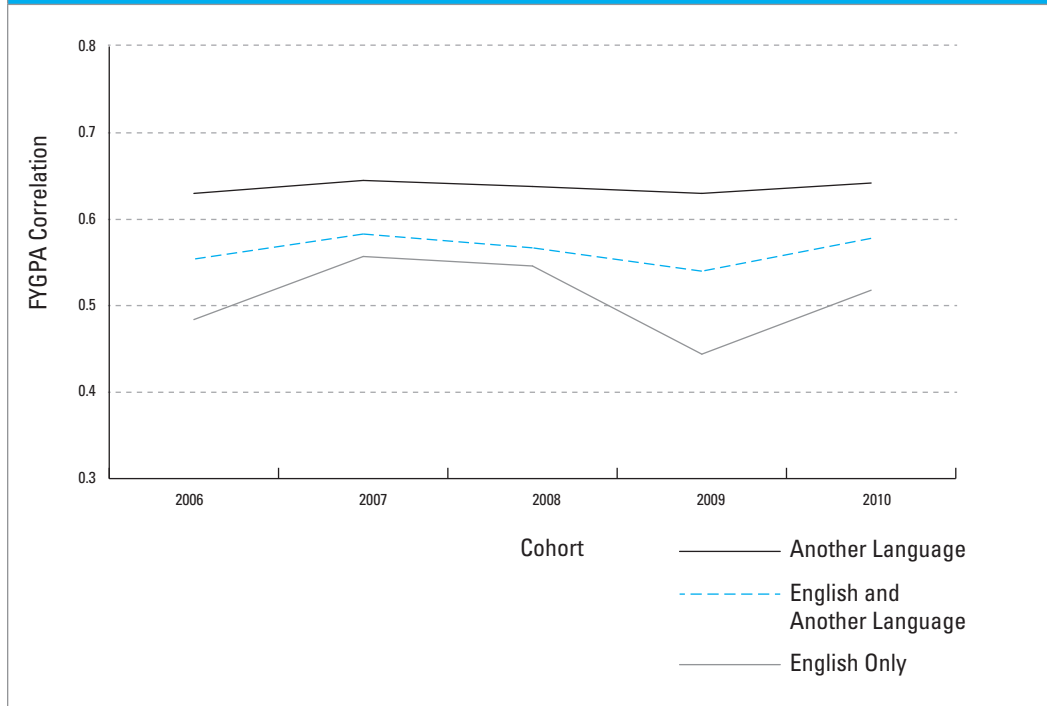
Differential prediction of FYGPA for HSGPA and SAT sections by racial/ethnic identity (2006–2010 cohorts).



- Figure 5 shows the average over (-) or under (+) prediction of FYGPA by race/ethnicity based upon a model that included both SAT scores and HSGPA.
- Figure 5 shows that across cohort years, FYGPA was accurately predicted for White and Asian students with mean residuals hovering around zero. FYGPA was overpredicted for American Indian, African American, and Hispanic students. That is, underserved minority students earned lower FYGPAs than what the model predicted.
 - » In general, the magnitude of the prediction error was small with the largest mean residual for American Indian students in 2009 with a value of -0.14. It should be noted that the results for American Indian students are based upon a small sample and should be interpreted with caution.
- With the exception of American Indian students, the results are stable over cohorts with minimal differential prediction by race/ethnicity. When differential prediction occurred, it overpredicted underserved minority performance. That is, minority students earned lower FYGPAs than what the model predicted, indicating that the SAT is not biased against minority students.
- See Table A3 for the sample sizes and mean residuals for each cohort by racial/ethnic subgroup.

Figure 6.

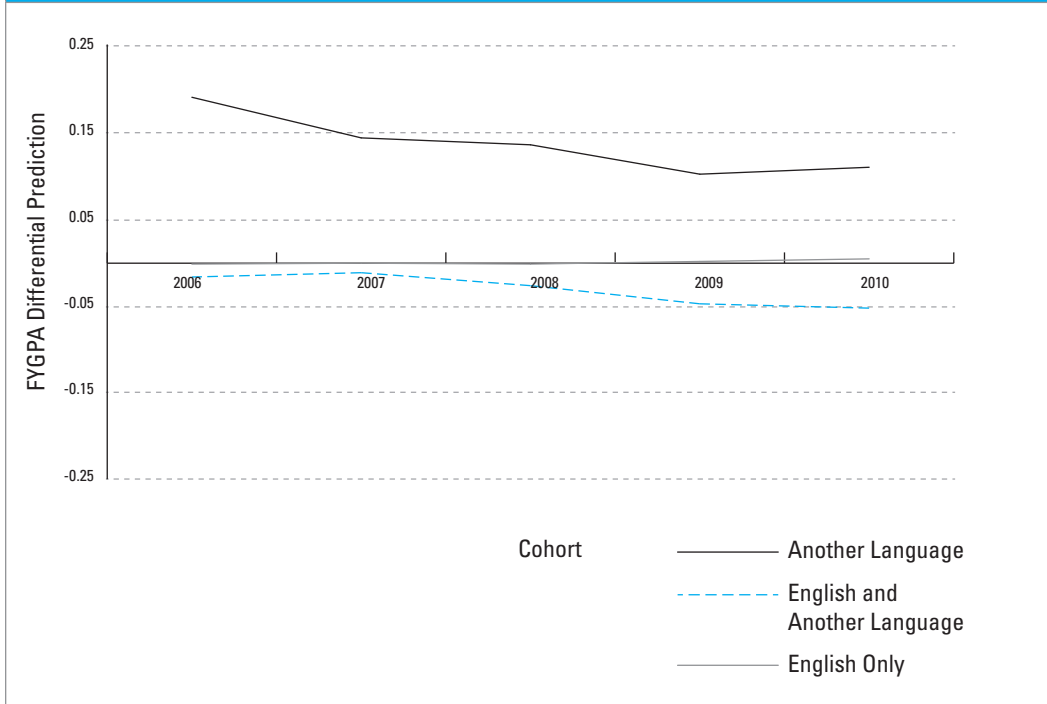
Correlations of HSGPA and SAT sections with FYGPA by best spoken language (2006–2010 cohorts).



- Figure 6 displays the multiple correlations of SAT and HSGPA with FYGPA by a student's best spoken language across the five cohorts. The results reveal that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for the three language subgroups, though the correlations are lower for students whose best language is not English.
- Additionally, there was more variability in results for students whose best language was not English. It should be noted that this group represents a very small percentage of the sample and the results should be interpreted with caution. For the other two language groups, Figure 6 illuminates the stability of results over cohort years, as demonstrated by the flatness of the trend lines. Correlations fluctuated by only .02 for the English only group and .04 for the English and another language group.
- In general, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by best spoken language are stable and are not specific to the sample on which these data were observed.
- See Table A4 for correlations and sample sizes for each cohort by best spoken language subgroup.

Figure 7.

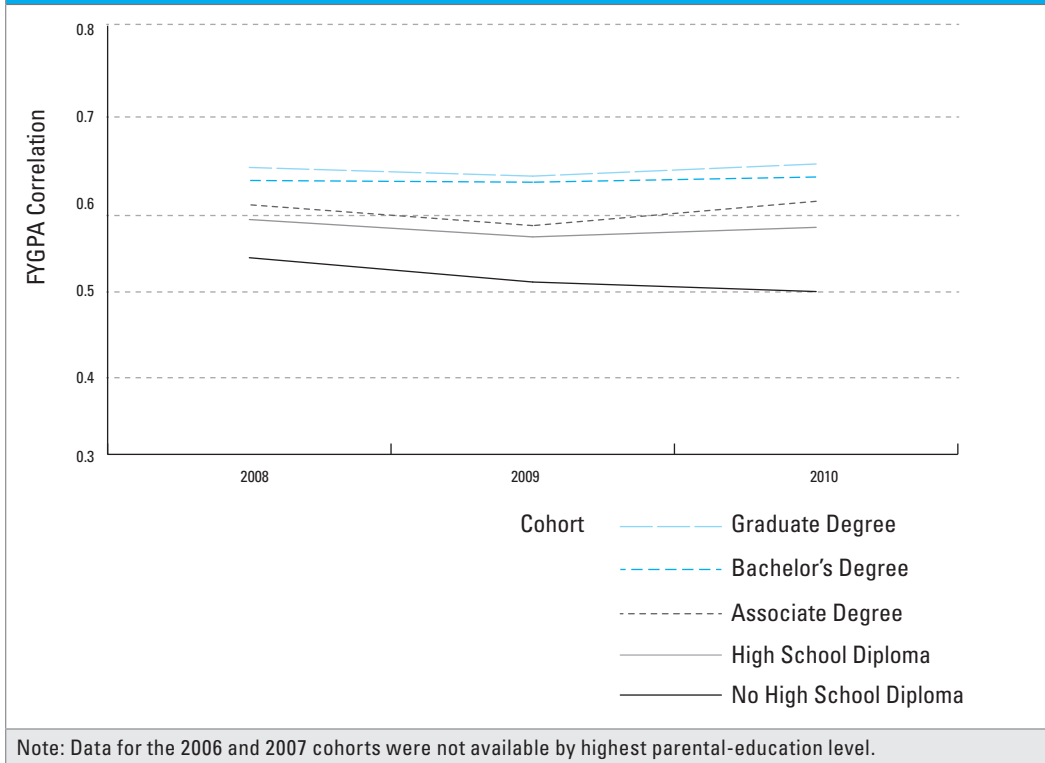
Differential prediction of FYGPA for HSGPA and SAT sections by best spoken language (2006–2010 cohorts).



- Figure 7 shows the average over (-) or under (+) prediction of FYGPA by best spoken language based upon a model that included both SAT scores and HSGPA.
- Figure 7 shows that across cohort years, FYGPA was accurately predicted for the English only and English and another language subgroups with mean residuals hovering around zero. FYGPA was underpredicted for the another language subgroup. That is, students whose best language is not English earned higher FYGPAs than what the model predicted.
 - » When examining the individual SAT section results, it becomes clear that the underprediction is due solely to the critical reading and writing sections, which make sense as these sections test English language. The mean residual for SAT math tended to be around zero for these students (refer to the original reports). Also, note that this group of students makes up a small percentage of the sample and should be interpreted with caution.
- The results are stable over cohorts with the exception of the another language subgroup in which the magnitude of differential prediction appears to decrease over cohorts.
- See Table A4 for the sample sizes and mean residuals for each cohort by best spoken language subgroup.

Figure 8.

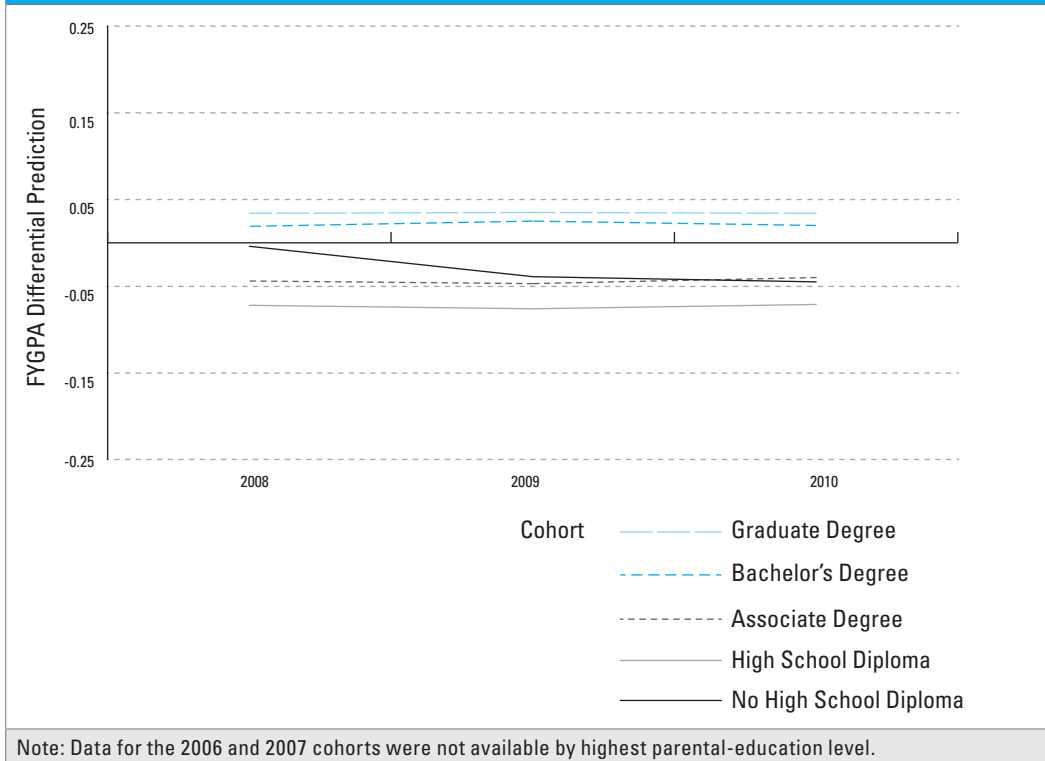
Correlations of HSGPA and SAT sections with FYGPA by highest parental education level (2008–2010 cohorts).



- Figure 8 displays the multiple correlations of SAT and HSGPA with FYGPA by highest parental-education categories across cohorts.
- The results reveal that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for each parental-education level. The relationship is weakest for the “No High School Diploma” group, though the relationship is still strong with correlations in the low to mid-.50s. These results are also based upon a small sample and should be interpreted with caution.
- The flatness of the trend lines in Figure 8 illuminates the stability of results over cohort years. Correlations fluctuated at most by .04 across cohort years within highest parental-education levels.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by highest parental education are stable and are not specific to the sample on which these data were observed.
- See Table A5 for correlations and sample sizes for each cohort by highest parental education.

Figure 9.

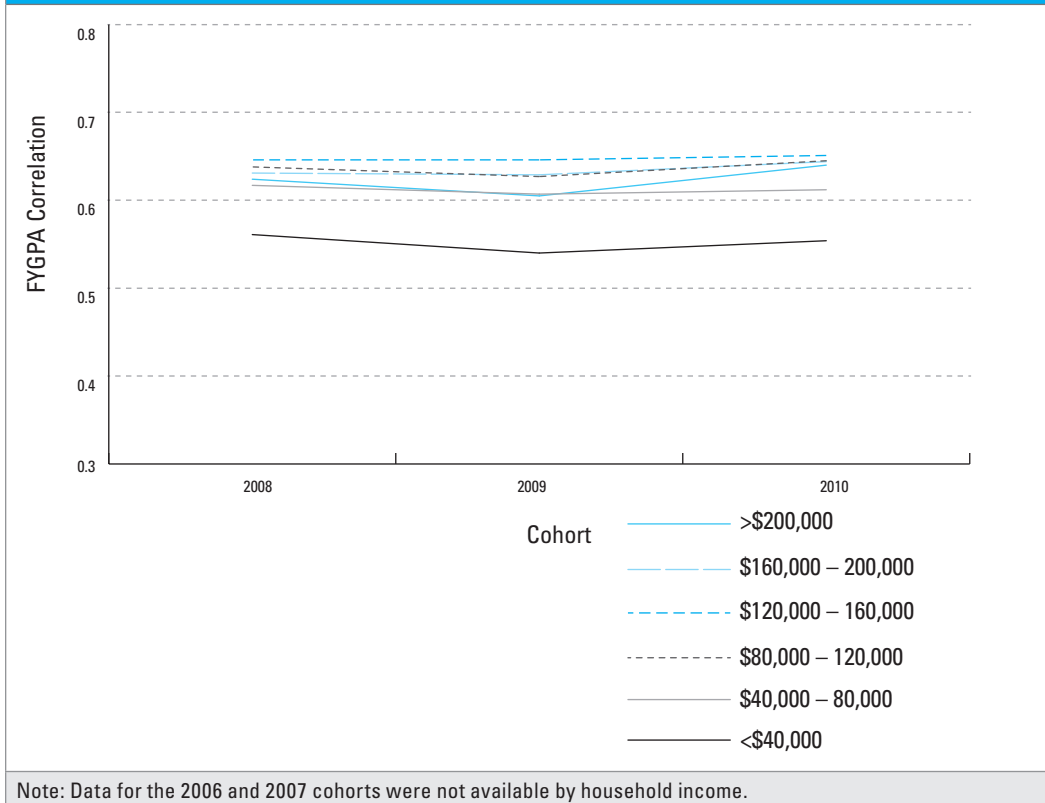
Differential prediction of FYGPA for HSGPA and SAT sections by highest parental education level (2008–2010 cohorts).



- Figure 9 shows the average over (-) or under (+) prediction of FYGPA by highest parental education based upon a model that included both SAT scores and HSGPA.
- Figure 9 shows that across cohort years, FYGPA was accurately predicted for each of the education levels. With the exception of the “High School Diploma” group, the mean residual did not deviate more than 0.05 from zero across education levels and cohort years. There was slightly more prediction error for the “High School Diploma” group; however, note that FYGPA was overpredicted for this group. That is, students in this group earned FYGPAs that were lower than what the model predicted.
- The results were stable over cohorts with minimal differential prediction by highest parental-education level. When differential prediction occurred, it overpredicted performance for low-socioeconomic status (SES) students, indicating that the SAT is not biased against low-SES students.
- See Table A5 for the sample sizes and mean residuals for each cohort by highest parental education.

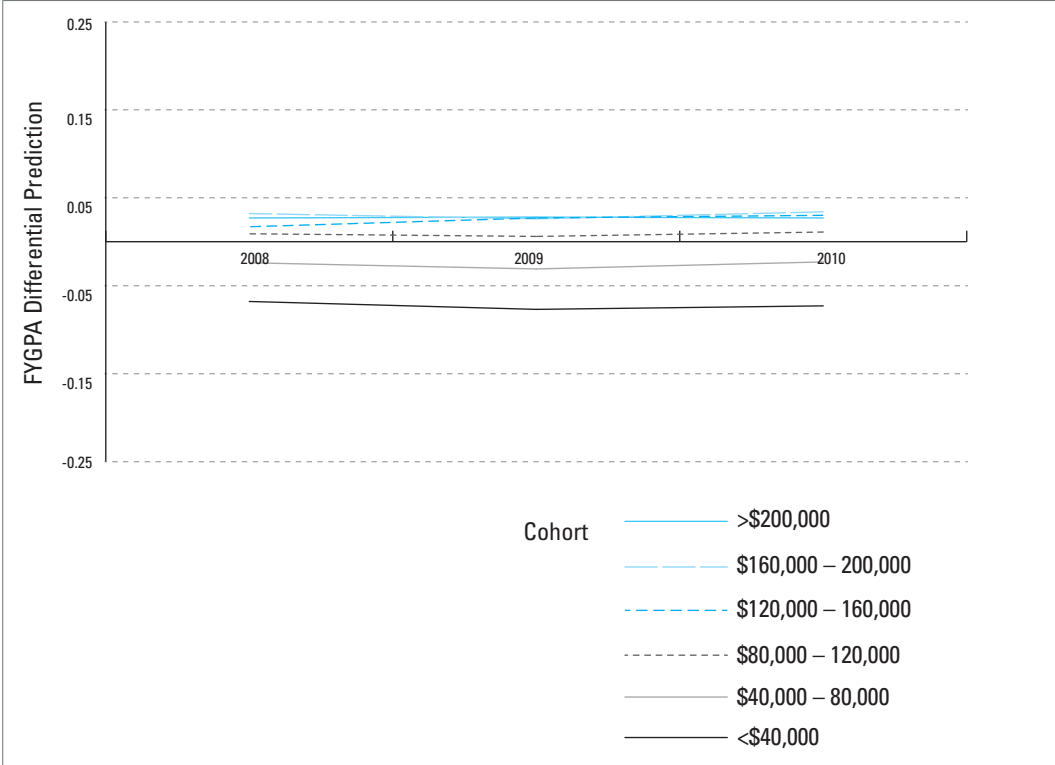
Figure 10.

Correlations of HSGPA and SAT sections with FYGPA by household income (2008–2010 cohorts).



- Figure 10 displays the multiple correlations of SAT and HSGPA with FYGPA by household income categories across cohorts. The results reveal that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for each income group. The relationship is weakest for the lowest income category though still strong with correlations in the mid-.50s.
- Figure 10 illuminates the stability of results over cohort years given the flatness of the trend lines. Within household income categories, correlations fluctuated at most by .04 across the three cohorts.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by household income are stable and are not specific to the sample on which these data were observed.
- See Table A6 for correlations and sample sizes for each cohort by household income.

Figure 11.
 Differential prediction of FYGPA for HSGPA and SAT sections by household income (2008–2010 cohorts).



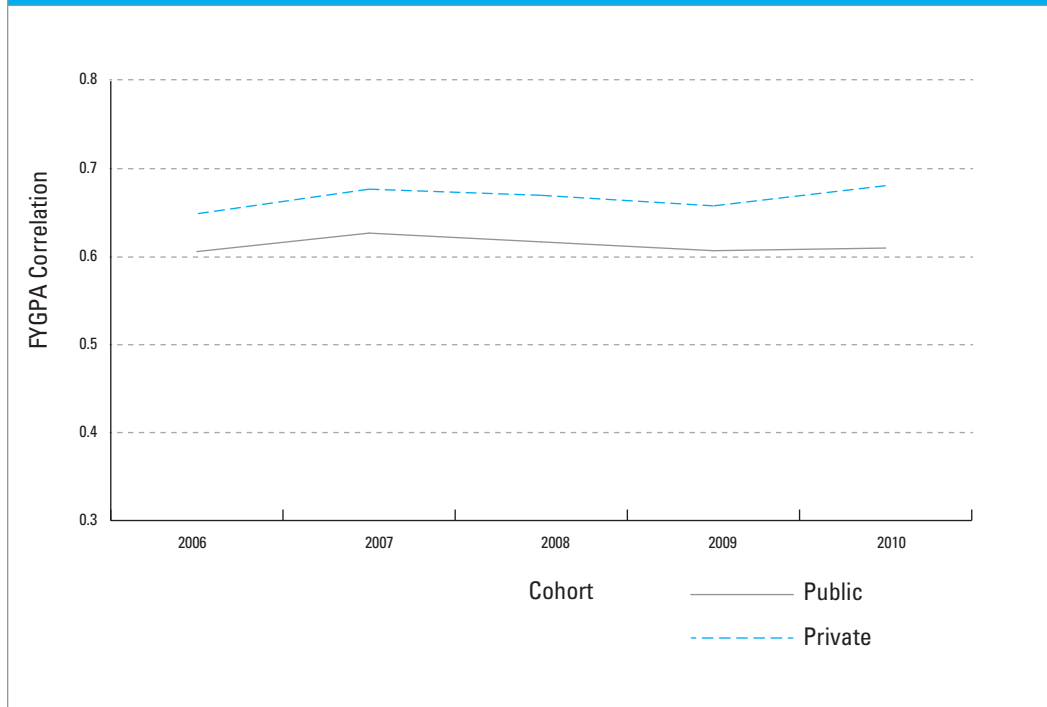
Note: Data for the 2006 and 2007 cohorts were not available by household income.

- Figure 9 shows the average over (-) or under (+) prediction of FYGPA by household income based upon a model that included both SAT scores and HSGPA.
- Figure 9 shows that across cohort years, FYGPA was accurately predicted for each of the income categories. For incomes of \$40,000 or higher, mean residuals fluctuated only slightly from -0.03 to 0.03. There was slightly more prediction error for the lowest income category; however, note that FYGPA for the lowest income group was overpredicted. That is, students in this group earned FYGPAs that were lower than what the model predicted.
- The results are stable over cohorts with minimal differential prediction by household income. When differential prediction occurred, it overpredicted performance for low-income students, indicating that the SAT is not biased against low-income students.
- See Table A6 for the sample sizes and mean residuals for each cohort by household income.

Subgroup Results: Institutional Characteristics

Figure 12.

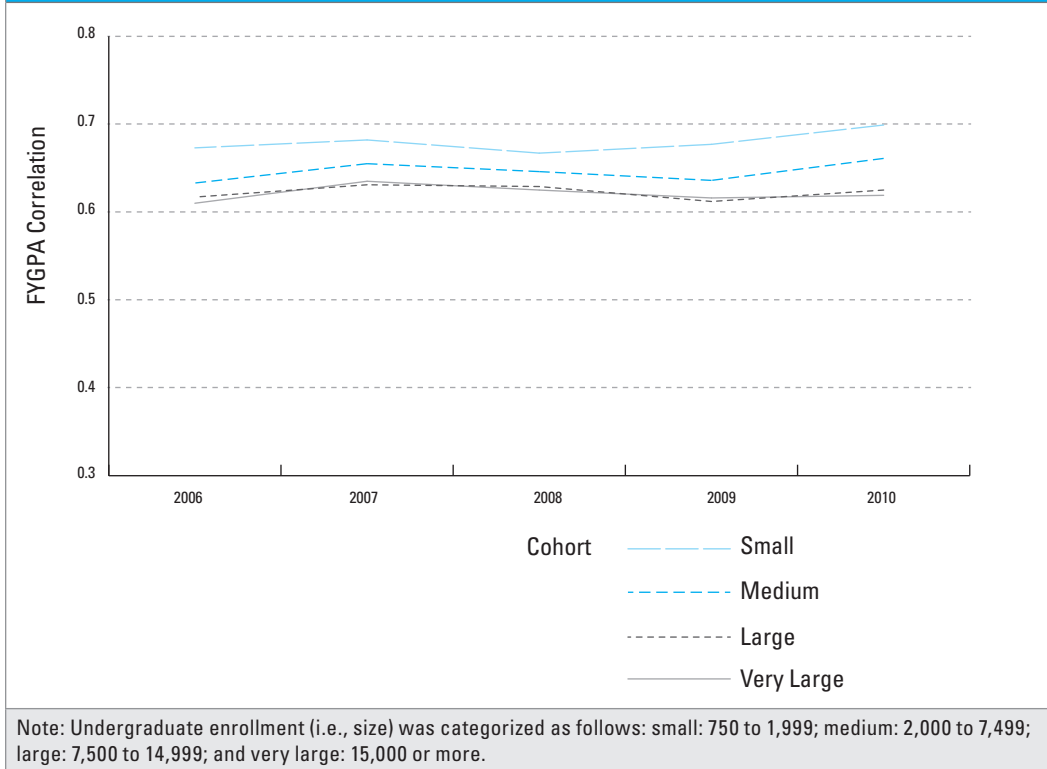
Correlations of HSGPA and SAT sections with FYGPA by institutional control (2006-2010 cohorts).



- Figure 12 displays the multiple correlations of SAT and HSGPA with FYGPA by institutional control across the five cohorts. The results reveal that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for both private and public institutions, though correlations are slightly higher at private institutions.
- Figure 12 illuminates the stability of results over cohort years given the flatness of the trend lines.
 - » Specifically, correlations fluctuated by only .03 for private institutions and .02 for public institutions across cohort years.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by institutional control are stable and are not specific to the sample on which these data were observed.
- See Table A7 for correlations and sample sizes for each cohort by institutional control.

Figure 13.

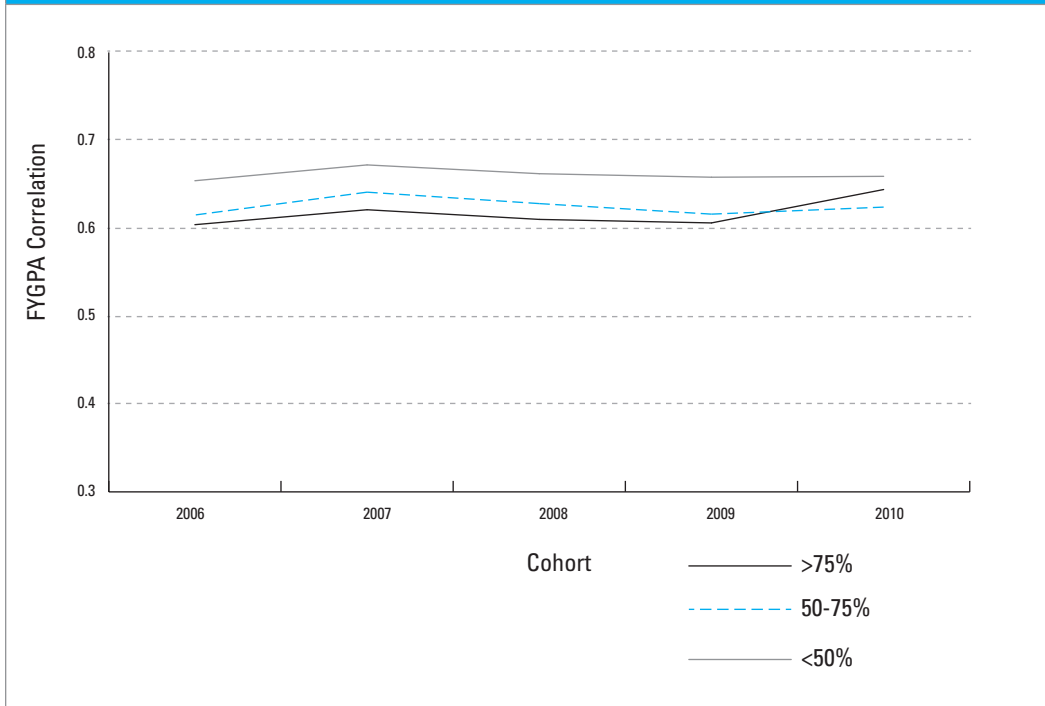
Correlations of HSGPA and SAT sections with FYGPA by institutional size (2006–2010 cohorts).



- Figure 13 displays the multiple correlations of SAT and HSGPA with FYGPA by institutional size across the five cohorts. The results reveal that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for institutions of all sizes with correlations ranging from the low to high .60s. There was some variability in the magnitude of the relationship with slightly higher correlations for smaller institutions as compared to larger institutions.
- With nearly horizontal trend lines, Figure 13 illuminates the stability of results over cohorts.
 - » Specifically, correlations fluctuated by only .02 for large and very large institutions and .03 for small and medium institutions across cohort years.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by institutional size are stable and are not specific to the sample on which these data were observed.
- See Table A8 for correlations and sample sizes for each predictor by institutional size and cohort.

Figure 14.

Correlations of HSGPA and SAT sections with FYGPA by institutional admittance rate (2006–2010 cohorts).



- Figure 14 displays the multiple correlations of SAT and HSGPA with FYGPA by institutional selectivity across the five cohorts. The results reveal that the combination of SAT scores and HSGPA is a strong predictor of FYGPA for institutions of varying selectivity as measured by admittance rates. There was some variability in the magnitude of the relationship with slightly higher correlations for institutions that are more selective, i.e., admit a smaller percentage of applicants.
- Figure 14 illuminates the stability of results over cohort years given the flatness of the trend lines.
 - » Specifically, correlations fluctuated by only .02 for institutions that admitted fewer than 50% of applicants, .03 for institutions that admitted between 50 to 75% of applicants and .04 for institutions that admitted more than 75% of applicants.
- Evident by the consistency of results, the findings indicate that the magnitude of the correlations of SAT scores and HSGPA with FYGPA by institutional selectivity are stable and are not specific to the sample on which these data were observed.
- See Table A9 for correlations and sample sizes for each predictor by institutional selectivity and cohort.

Cumulative GPA Results: Longitudinal Analysis of the 2006 Cohort

This section summarizes the six reports (Kobrin et al., 2008; Mattern et al., 2008; Mattern & Patterson, 2011a; 2011c; 2011f) that examined the relationship between SAT performance and cumulative GPA through the fourth year for the 2006 cohort. Specifically, the 2006 cohort was followed longitudinally as these students progressed through their college careers. Of the original 110 institutions that provided college-performance data on the 2006 cohort, 66 provided second-year data, 60 provided third-year data, and 55 provided fourth-year data. By summarizing the results of these studies, we can examine the relationship between SAT performance and GPA over time. Specifically, does the positive relationship between SAT performance and GPA persist over time? Is the magnitude of the correlation similar, higher, or lower for later years? It should be noted that because some institutions did not continue to provide outcome data over time, the results are not based upon the exact same sample of students each year; and, therefore, differences could be attributable to differences in sample or differences in the outcome being examined (e.g., Year 2 cumulative GPA versus Year 3 cumulative GPA).

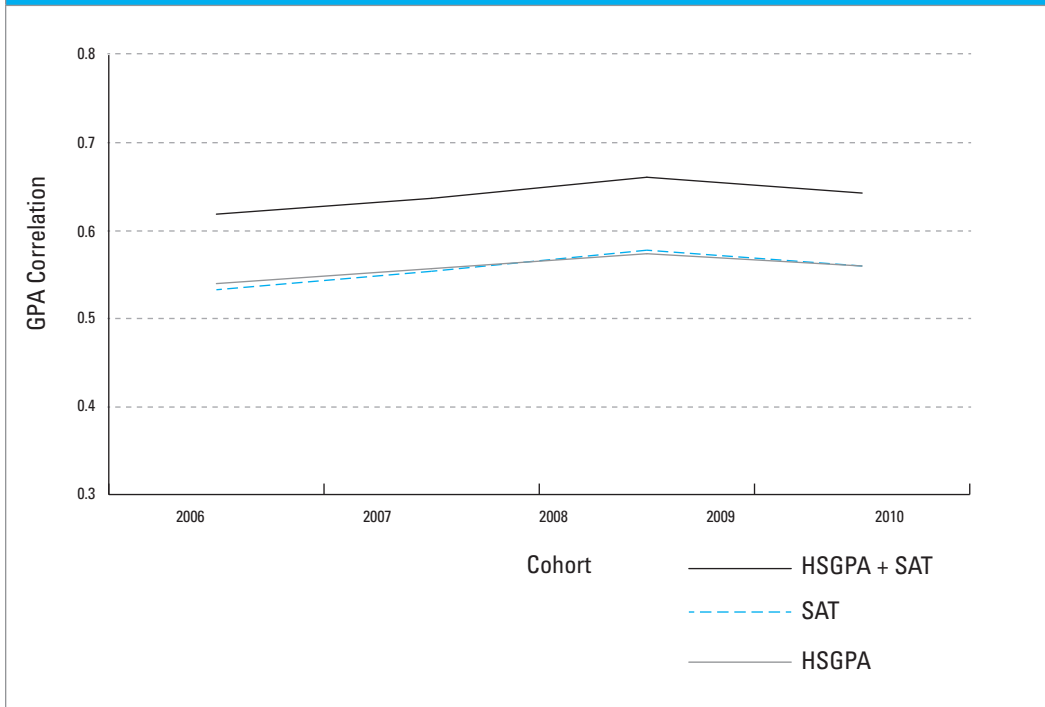
Key Findings

1. SAT and HSGPA are strong predictors of cumulative GPA through the fourth year, overall and by student and institutional subgroups with the multiple correlation typically in the mid-.60s. The validity of the SAT and HSGPA for predicting a student's GPA persists to later years, despite the widely held belief that SAT scores and HSGPA are only predictive of first-year outcomes.
2. SAT provides incremental validity above and beyond HSGPA in the prediction of cumulative GPA.
3. The use of both SAT and HSGPA results in minimal differential prediction of cumulative by student subgroups. When differential prediction occurs, it overpredicts underserved minority performance. For the SAT-only model, minority students tend to earn GPAs that are lower than what was predicted, indicating that the SAT is not biased against minority students.

Overall

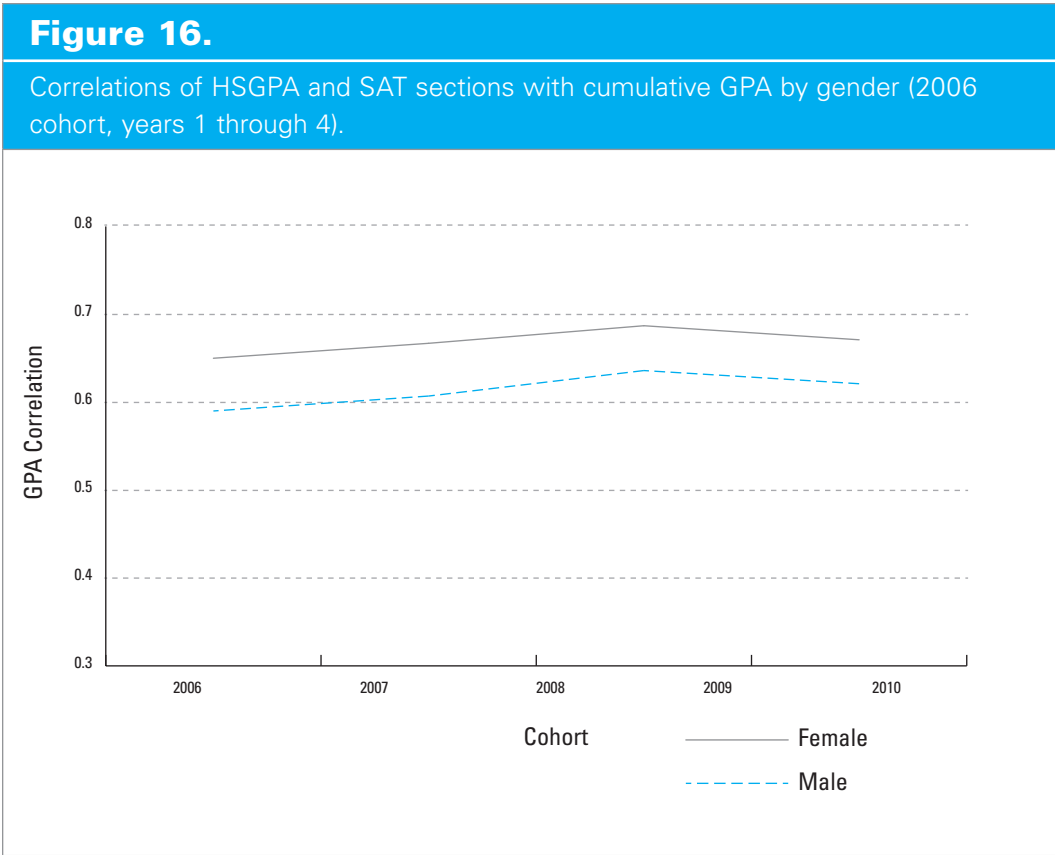
Figure 15.

Correlations of HSGPA and SAT with cumulative GPA (2006 cohort, years 1 through 4).



- Figure 15 displays the correlations of SAT, HSGPA, and the combination of SAT and HSGPA with cumulative GPA through the fourth year for the 2006 cohort. The results clearly illuminate that both SAT scores and HSGPA are strong predictors of cumulative GPA with correlations in the mid-.50s throughout the four years. The strength of HSGPA-cumulative GPA relationship was comparable to that of the SAT-cumulative GPA relationship as indicated by the nearly indistinguishable lines for the two. Moreover, the figure clearly shows the added benefit of using the combination of SAT score and HSGPA, as it yields the highest predictive validity.
- Figure 15 clearly displays that the validity of the SAT scores and HSGPA for predicting a student's GPA persists to later years, despite the belief that SAT scores and HSGPA are only predictive of first-year outcomes. In fact, the magnitude of the correlations appears to increase over time with a small dip for year four. Recall that the sample changed over years, which could explain the differences in results.
 - » Correlations increased .03 to .04 over years across the different predictor combinations.
- See Table B1 for correlations and sample sizes for each predictor and outcome.

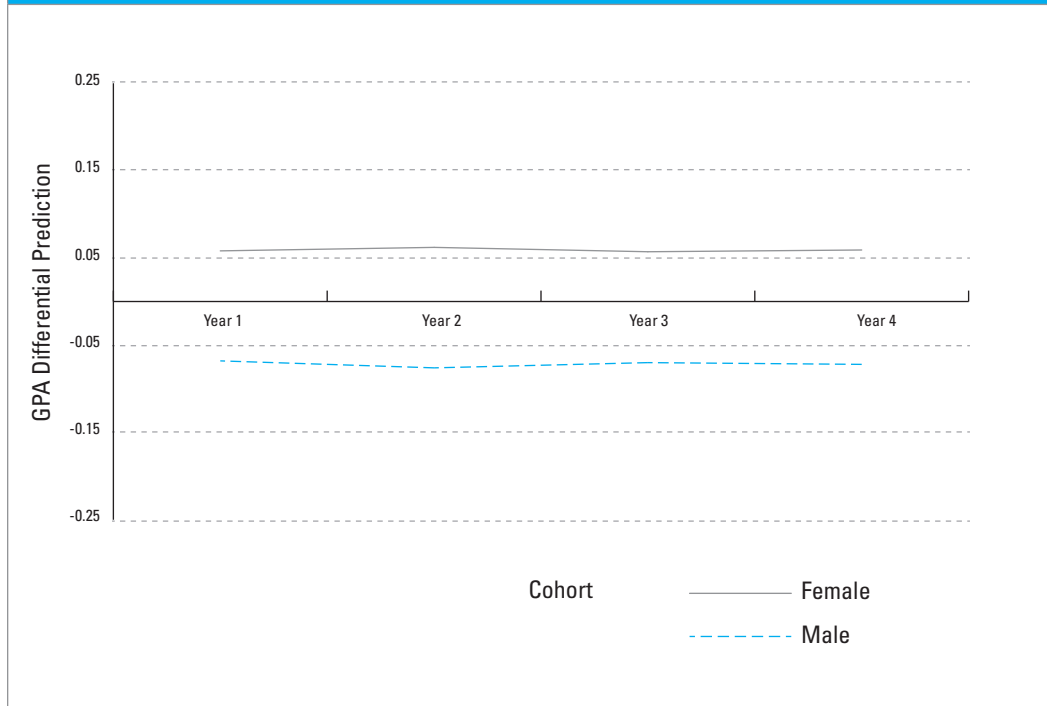
Subgroup Results: Student Characteristics



- Figure 16 displays the multiple correlations of SAT and HSGPA with cumulative GPA through the fourth year by gender for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for both males and females across all four years, though the results do indicate slightly higher correlations for females.
- Figure 16 clearly shows that the validity of SAT scores and HSGPA for predicting a student’s GPA persists to later years. As was the case with the overall results, the magnitude of the correlations appears to have increased over time for both males and females with a small dip for year four. Recall that the sample changed over years, potentially causing the differences in results.
 - » Correlations increased .04 to .05 over years for females and males, respectively.
- See Table B2 for correlations and sample sizes for each outcome by gender.

Figure 17.

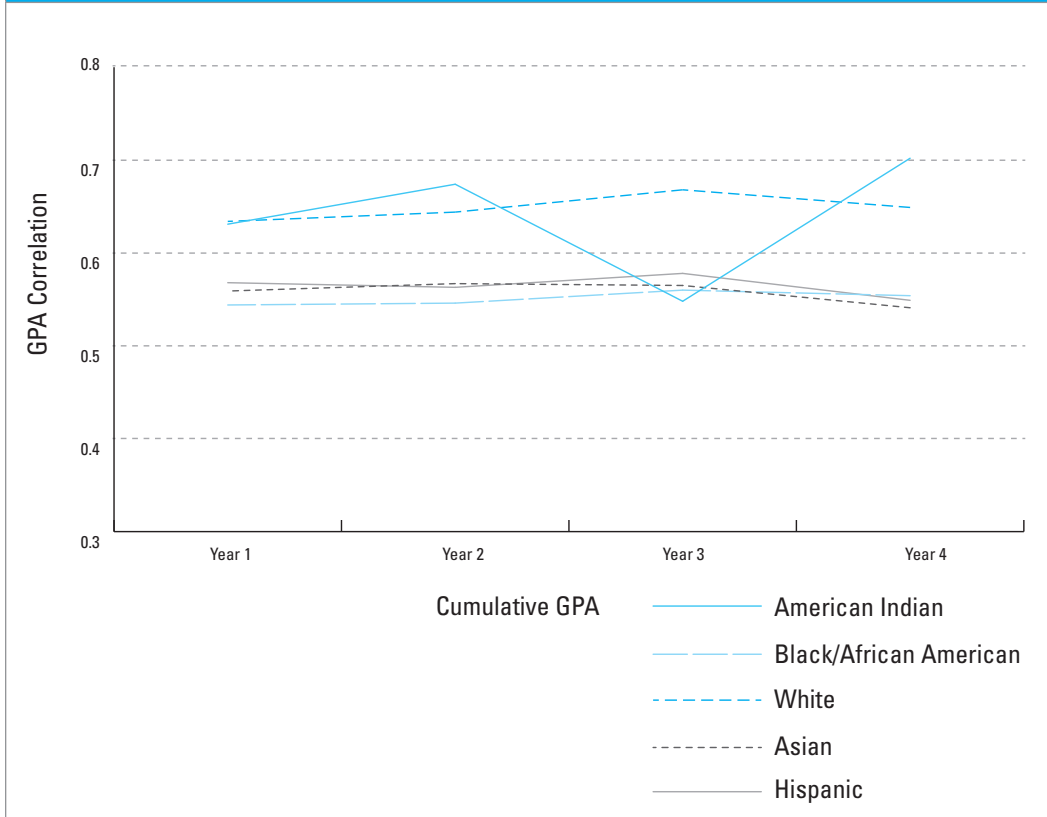
Differential prediction of cumulative GPA for HSGPA and SAT sections by gender (2006 cohort, years 1 through 4).



- Figure 17 shows the average over (+) or under (-) prediction of cumulative GPA (i.e., mean residuals) through the fourth year by gender based upon a model that included both SAT scores and HSGPA. Negative values indicate overprediction, or that the group of students earned a cumulative GPA that was lower than what the model predicted. Conversely, positive values indicate underprediction, or that the group of students earned a cumulative GPA that was higher than the model predicted.
- Figure 17 shows that cumulative GPA through the fourth year was slightly underpredicted for females with a mean residual of 0.06 for all four years and overpredicted for males with mean residuals ranging from -0.07 to -0.08 across years.
 - » The mean residuals are on the same scale as GPA; therefore, a mean residual of 0.06 for females indicates that females earned a GPA that was 0.06 higher than what the model predicted. For the 2006 cohort, females earned an average fourth-year cumulative GPA of 3.27. Therefore, the model predicted an average fourth-year cumulative GPA of 3.21 for females.
- The results are stable over cohorts with minimal differential prediction by gender.
- See Table B2 for the sample sizes and mean residuals for each outcome by gender.

Figure 18.

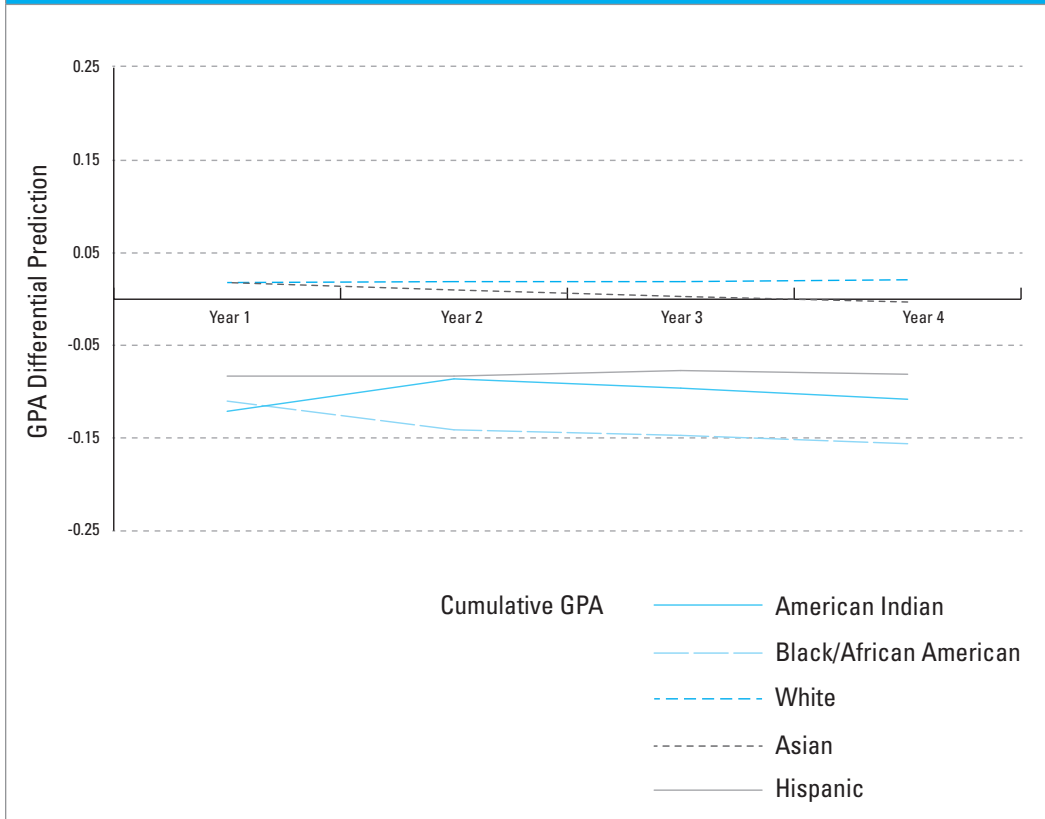
Correlations of HSGPA and SAT sections with cumulative GPA by racial/ethnic identity (2006 cohort, years 1 through 4).



- Figure 18 displays the multiple correlations of SAT and HSGPA with cumulative GPA through the fourth year for each racial/ethnic subgroup for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for all subgroups with correlations in the mid-.50s to mid-.60s. That being said, there is some variability in the magnitude of the correlation across subgroups with higher correlations for white students as compared to the other racial/ethnic subgroups.
- Figure 18 clearly shows that the validity of the SAT scores and HSGPA for predicting a student's GPA persists to later years for all racial/ethnic subgroups. With exception of the American Indian results, which are based upon a small sample especially for later years, the magnitude of the correlations appears stable over time, with correlations only fluctuating by .02 to .03 within racial/ethnic subgroups across years.
- See Table B3 for correlations and sample sizes for each outcome by racial/ethnic subgroup.

Figure 19.

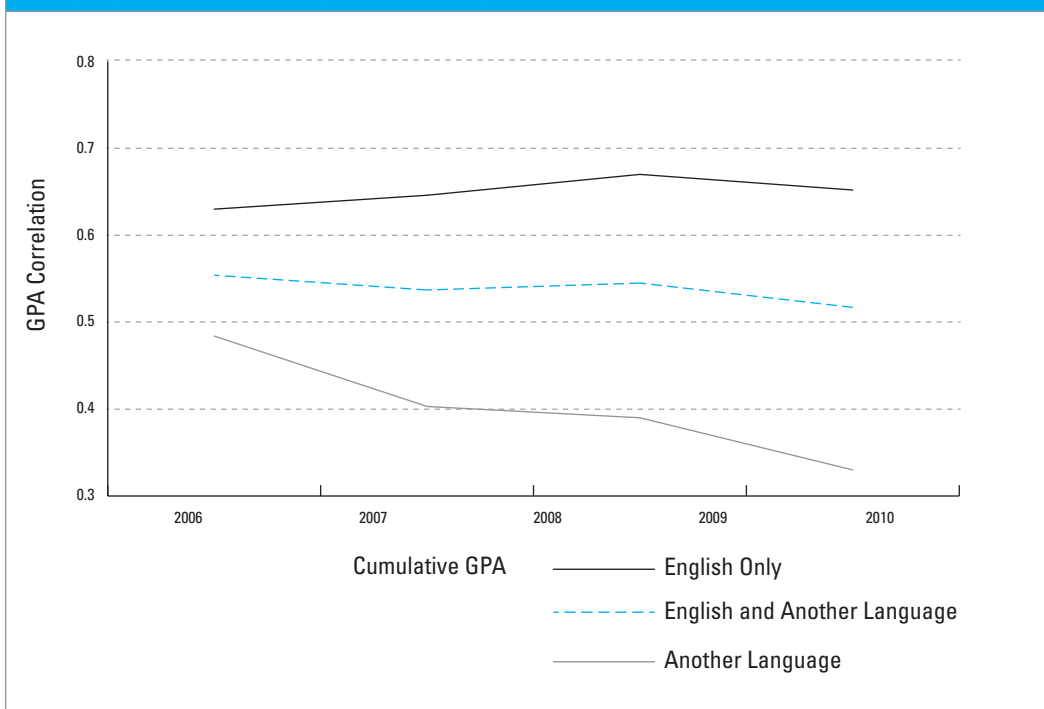
Differential prediction of cumulative GPA for HSGPA and SAT sections by racial/ethnic identity (2006 cohort, years 1 through 4).



- Figure 19 shows the average over (-) or under (+) prediction of cumulative GPA through the fourth year by race/ethnicity based upon a model that included both SAT scores and HSGPA.
- Figure 19 shows that cumulative GPA through the fourth year was accurately predicted for White and Asian students, with mean residuals hovering around zero. Cumulative GPA was overpredicted for American Indian, African American, and Hispanic students. That is, underserved minority students earned lower cumulative GPAs than what the model predicted.
 - » In general, the magnitude of the prediction error was small, with the largest mean residual for African American students for fourth-year cumulative GPA with a value of -0.16.
- The magnitude of prediction error was relatively stable over time with minimal differential prediction by race/ethnicity. When differential prediction occurred, it overpredicted underserved minority performance. That is, minority students earned lower GPAs than what was predicted, indicating that the SAT is not biased against minority students.
- See Table B3 for the sample sizes and mean residuals for each outcome by race/ethnicity.

Figure 20.

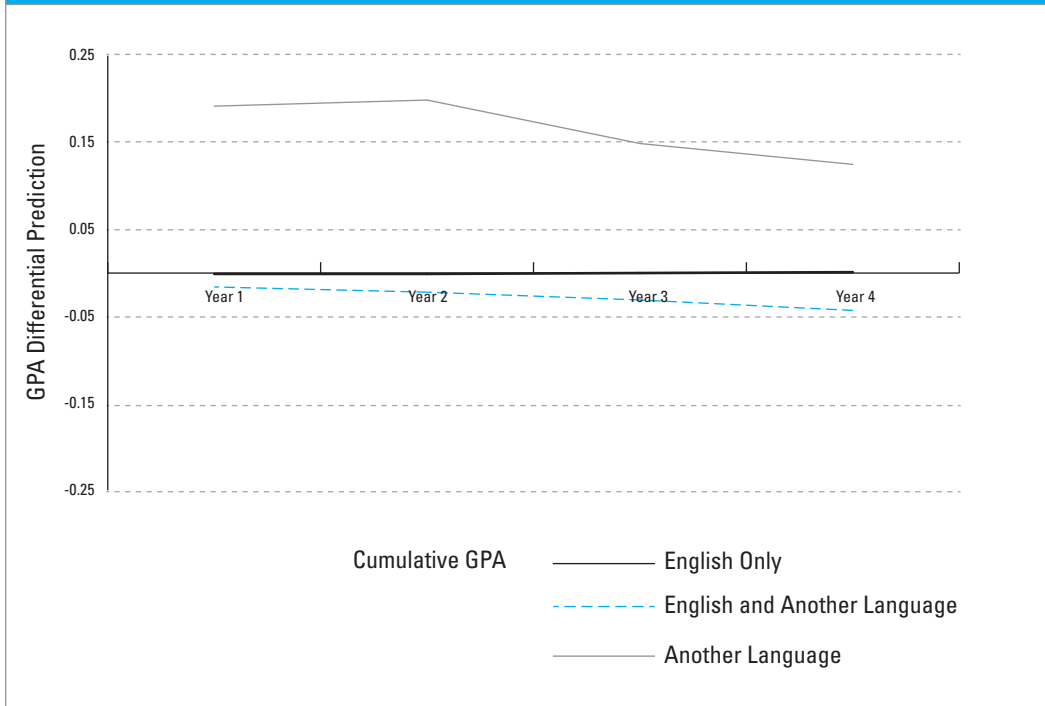
Correlations of HSGPA and SAT sections with cumulative GPA by best spoken language (2006 cohort, years 1 through 4).



- Figure 20 displays the multiple correlations of SAT and HSGPA with cumulative GPA through the fourth year by best spoken language subgroups for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for both English-only and English-and-another-language subgroups; we see lower correlations for students whose best language was not English, especially for later years.
- In terms of the stability of results over time, Figure 20 shows that the magnitude of the correlations between SAT scores and HSGPA with cumulative GPA decreased over time for students whose best language was not English whereas it remained stable for the other two language groups.
 - » Given that two of the three SAT sections assess English language, scores on those sections may not be as predictive of college grades for students whose best language was not English, especially depending upon their major in college. For example, the majority of first-year students have to take an English course to fulfill general requirements, and here we see a strong correlation between SAT scores and HSGPA with FYGPA for these students. However, depending upon one's major, there may be fewer writing requirements as one progresses through his or her college career, and therefore, SAT scores, namely SAT critical reading and writing scores, would be less predictive of college grades, which could potentially explain the downward trend.
- See Table B4 for correlations and sample sizes for each outcome by best spoken language subgroup.

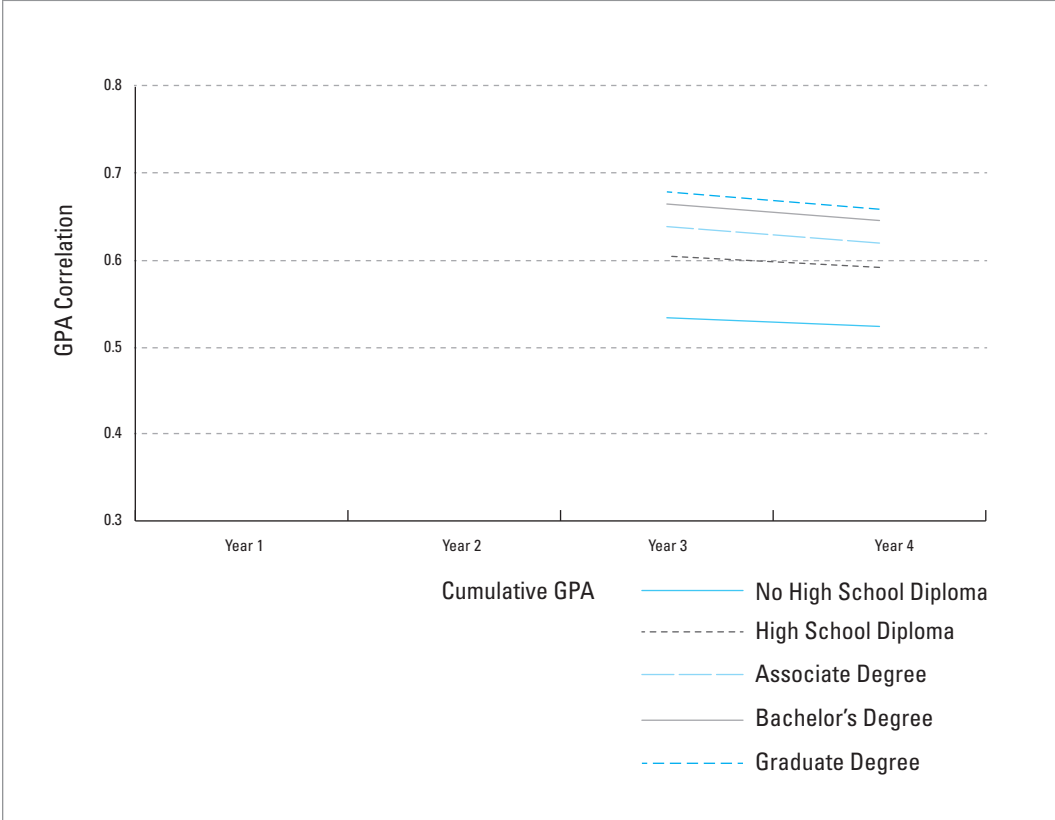
Figure 21.

Differential prediction of cumulative GPA for HSGPA and SAT sections by best spoken language (2006 cohort, years 1 through 4).



- Figure 21 shows the average over (-) or under (+) prediction of cumulative GPA through the fourth year by best spoken language based upon a model that included both SAT scores and HSGPA.
- Figure 21 shows that cumulative GPA through the fourth year was accurately predicted for the English only and English and another language subgroups, with mean residuals hovering around zero. Cumulative GPA was underpredicted for the another language subgroup. That is, students whose best language was not English earned higher cumulative GPAs across the four years than what the model predicted.
 - » For students whose best language was not English, the amount of underprediction appeared to decrease over time as students progressed through the fourth year.
 - » Examining the individual SAT section results, it becomes evident that the underprediction is due solely to the critical reading and writing sections, which make sense as these are tests of English language. The mean residual for SAT math tends to be around zero for these students (refer to the original reports). Also, note that this group of students made up a small percentage of the total sample and should be interpreted with caution.
- The results are stable over time with the exception of the another language subgroup in which the magnitude of differential prediction appeared to decrease for later years.
- See Table B4 for the sample sizes and mean residuals for each outcome by best spoken language subgroup.

Figure 22.
Correlations of HSGPA and SAT sections with cumulative GPA by highest parental education level (2006 cohort, years 3 and 4).

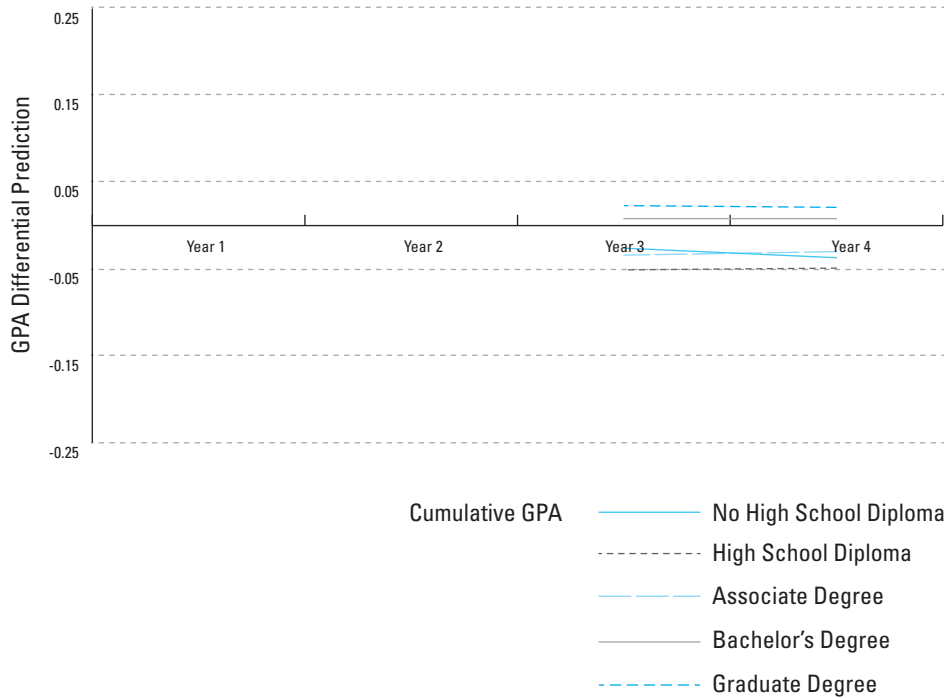


Note: Data for the first- and second-year cumulative GPA were not available by highest parental-education level.

- Figure 22 displays the multiple correlations of SAT and HSGPA with cumulative GPA for the third and fourth year for each of the highest parental-education subgroups for the 2006 cohort.
- The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for all subgroups with correlations in the mid-.50s to high .60s. That being said, there was some variability in the magnitude of the correlations across subgroups with higher correlations for students from higher SES families.
- Also apparent from Figure 22 is that the validity of the SAT scores and HSGPA for predicting a student’s GPA persists to later years for all highest parental-education subgroups, despite the widely-held belief that SAT scores and HSGPA are only predictive of first-year outcomes.
- See Table B5 for correlations and sample sizes for each outcome by highest parental education.

Figure 23.

Differential prediction of cumulative GPA for HSGPA and SAT sections by highest parental education level (2006 cohort, years 3 and 4).

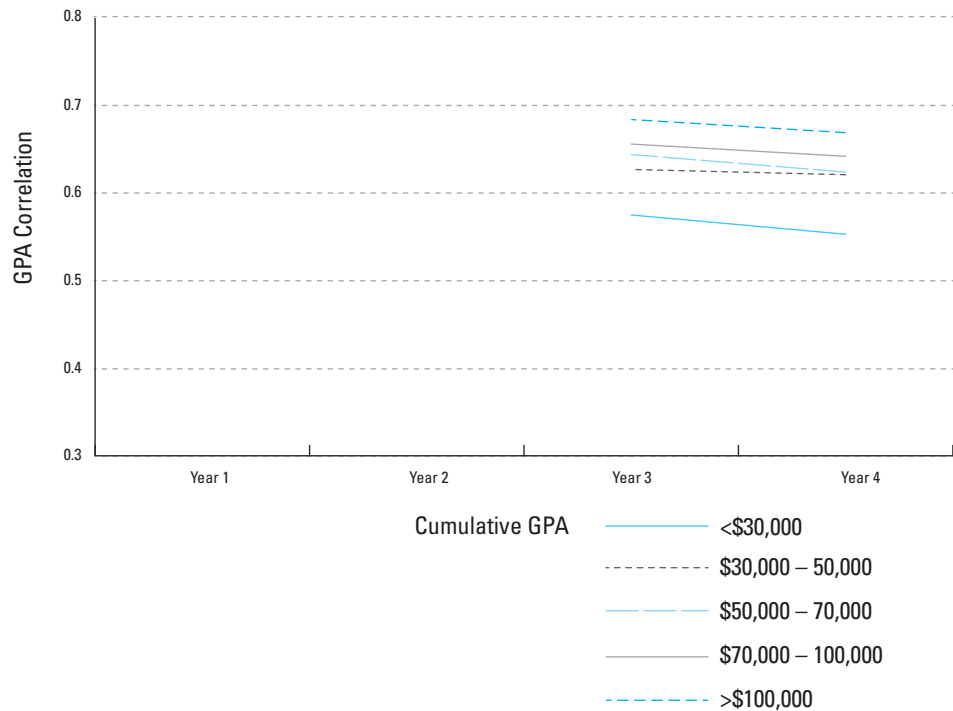


Note: Data for the first- and second-year cumulative GPA were not available by highest parental-education level.

- Figure 23 shows the average over (-) or under (+) prediction of cumulative GPA for the third and fourth year by highest parental education based upon a model that included both SAT scores and HSGPA.
- Figure 23 shows that cumulative GPA for the last two years was accurately predicted for all highest parental-education subgroup with mean residuals hovering around zero.
 - » In general, the magnitude of the prediction error was small with the largest mean residual for the “High School Diploma” group; however, the prediction error was still quite small for this group, with mean residual values of -0.05 for both years.
- When differential prediction occurred, it overpredicted cumulative GPA for students from low-SES families. That is, those students earned lower GPAs in college than what was predicted based upon their HSGPA and SAT scores, indicating that the SAT is not biased against low-SES students.
- See Table B5 for the sample sizes and mean residuals for each outcome by highest parental education.

Figure 24.

Correlations of HSGPA and SAT sections with cumulative GPA by household income (2006 cohort, years 3 and 4).

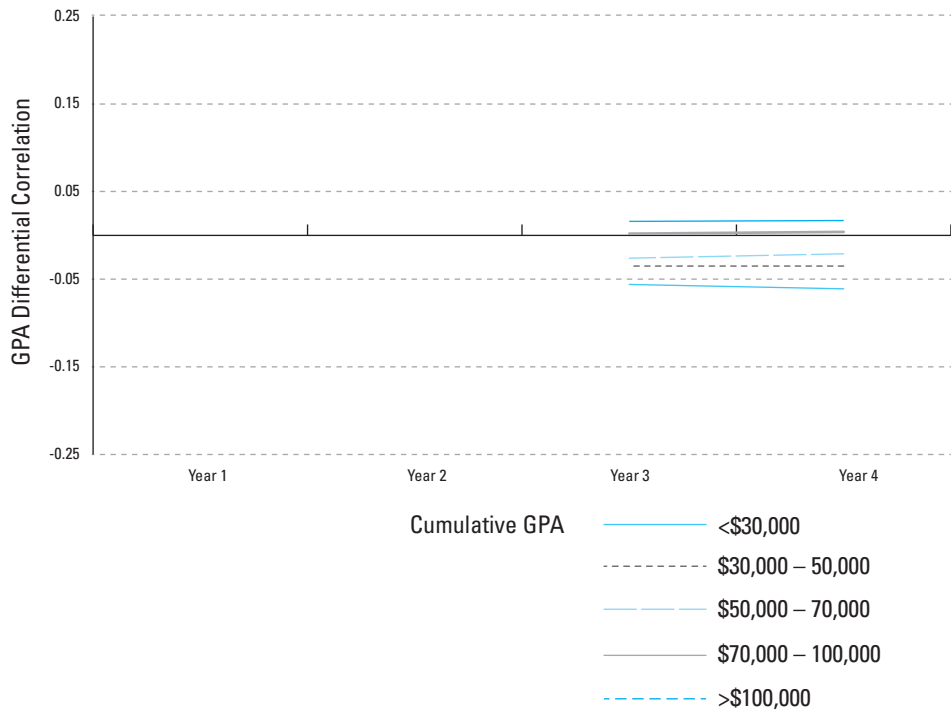


Note: Data for the first- and second-year cumulative GPA were not available by household income.

- Figure 24 displays the multiple correlations of SAT and HSGPA with cumulative GPA for the third and fourth year for each household income category for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for all subgroups with correlations in the mid-.50s to high .60s. That being said, there is some variability in the magnitude of the correlation across subgroups with higher correlations for higher-income categories.
- Figure 22 clearly shows that the validity of the SAT scores and HSGPA for predicting a student's GPA persists to later years for all income subgroups, despite the belief that SAT scores and HSGPA are only predictive of first-year outcomes.
- See Table B6 for correlations and sample sizes for each outcome by household income.

Figure 25.

Differential prediction of cumulative GPA for HSGPA and SAT sections by household income (2006 cohort, years 3 and 4).



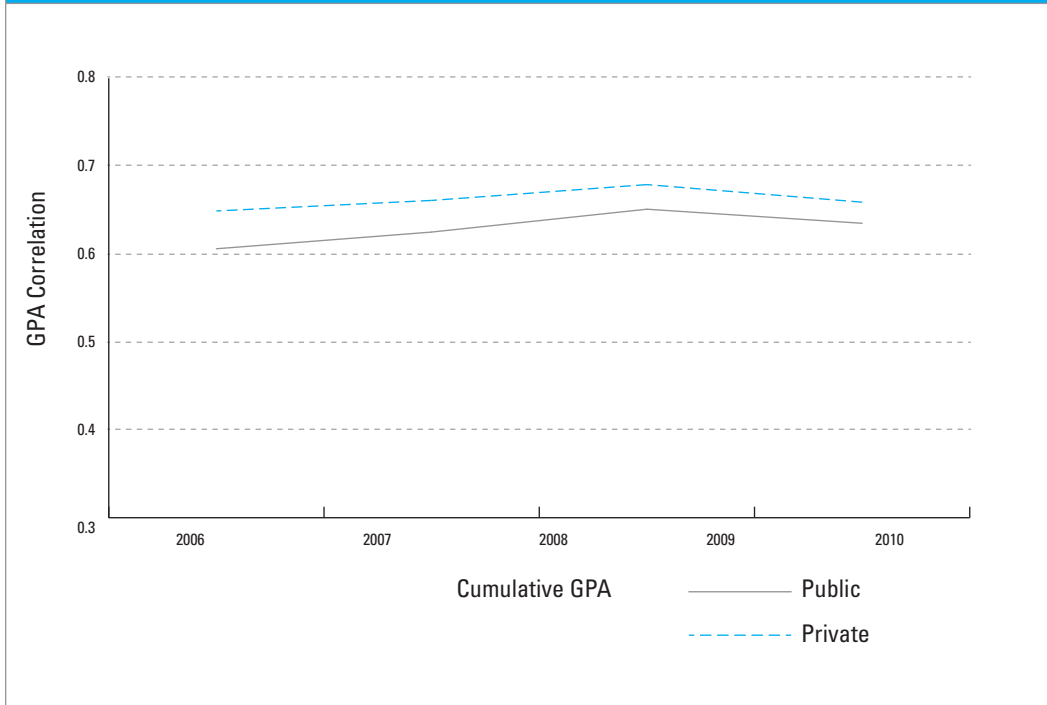
Note: Data for the first- and second-year cumulative GPA were not available by household income.

- Figure 25 shows the average over (-) or under (+) prediction of cumulative GPA for the third and fourth year by income groups based upon a model that included both SAT scores and HSGPA.
- Figure 25 clearly displays that cumulative GPA for the third and fourth year is accurately predicted for each of the income categories with mean residuals varying on slightly from -0.06 to 0.02. There was slightly more prediction error for the lower-income category; however, note that for income groups of \$70,000 or less, cumulative GPA was overpredicted. That is, students in these income groups earned cumulative GPAs that were lower than what the model predicted.
- The results were stable over the two years with minimal differential prediction by household income. When differential prediction occurred, it overpredicted performance for low-income students, indicating that the SAT is not biased against low-income students. See Table B6 for the sample sizes and mean residuals for each cohort by household income.

Subgroup Results: Institutional Characteristics

Figure 26.

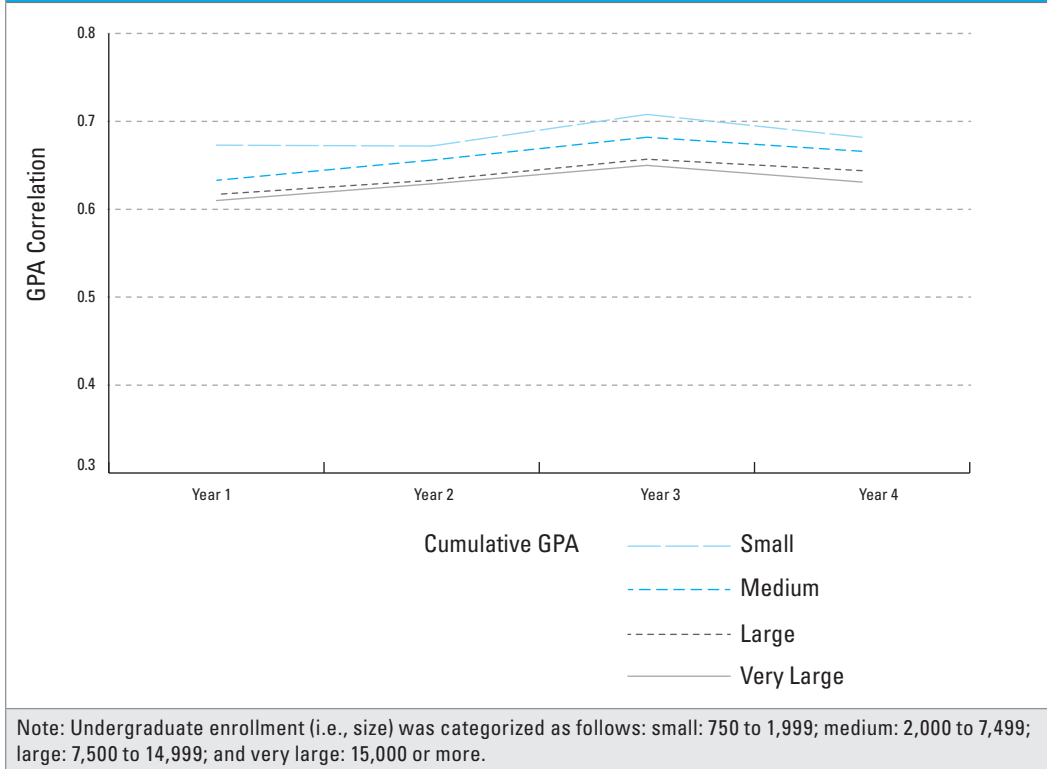
Correlations of HSGPA and SAT sections with cumulative GPA by institutional control (2006 cohort, years 1 through 4).



- Figure 26 displays the multiple correlations of SAT and HSGPA with cumulative GPA through the fourth year by institutional control for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA at both public and private institutions across all four years, though the results do indicate slightly higher correlations at private institutions.
- Figure 26 clearly shows that the validity of the SAT scores and HSGPA for predicting a student's GPA persists to later years. In fact, the magnitude of the correlations appears to have increased over time at both private and public institutions with a small dip for year four. Recall that the sample changed over years, which could explain the small fluctuations in results.
- See Table B7 for correlations and sample sizes for each outcome by institutional control.

Figure 27.

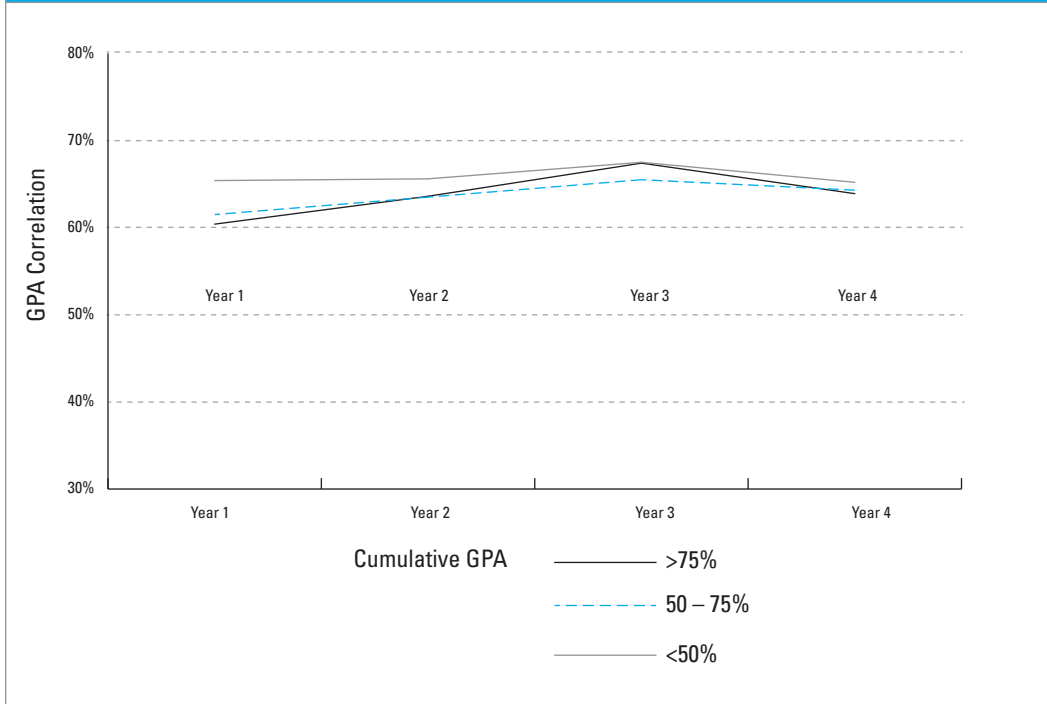
Correlations of HSGPA and SAT sections with cumulative GPA by institutional size (2006 cohort, years 1 through 4).



- Figure 27 displays the multiple correlations of SAT and HSGPA with cumulative GPA through the fourth year by institutional size for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for institutions of varying sizes across all four years, though the results do indicate slightly higher correlations for smaller institutions.
- It is also clear from Figure 27 that the validity of the SAT scores and HSGPA for predicting a student's GPA persists to later years. As was the case with previous analyses, the magnitude of the correlations appears to have increased over time for all institutional-size subgroups with a small dip for year four. Recall that the sample changed over years and could be the reason for the changes in results.
 - » Correlations increased roughly .04–.05 over years within each institutional size subgroup.
- See Table B8 for correlations and sample sizes for outcome by institutional size.

Figure 28.

Correlations of HSGPA and SAT sections with cumulative GPA by institutional admittance rate (2006 cohort, years 1 through 4).



- Figure 28 displays the multiple correlations of SAT and HSGPA with cumulative GPA by institutional selectivity through the fourth year for the 2006 cohort. The results clearly illuminate that the combination of SAT scores and HSGPA is a strong predictor of cumulative GPA for institutions of varying selectivity across all four years.
 - » We do see slightly higher correlations for more selective institutions though the differences by selectivity groups tend to decrease over time. For year 1, the correlation was .05 higher at highly selective institutions (< 50%) as compared to the least selective institutions (> 75%). The difference dropped to .01 for year four.
- Despite the belief that SAT scores and HSGPA are only predictive of first-year outcomes, Figure 28 clearly shows that the validity of the SAT scores and HSGPA for predicting a student's GPA persists to later years. In fact, the magnitude of the correlations appears to have increased over time for each of the institutional selectivity categories with a small dip for year four. Recall that the sample changed over years and could be the reason for the changes in results.
- See Table B9 for correlations and sample sizes for each outcome by institutional selectivity.

Retention to 2nd Year: 2006–2010 Cohorts

This section summarizes the five reports (Mattern & Patterson, 2009; 2011d; 2012a; 2012b; 2013) that examined the relationship between SAT performance and retention to the second year. The same analyses were conducted in each of the reports. The only difference among reports was the sample of students. The first report was based upon the 2006 cohort; the second report was based upon the 2007 cohort, etc. By examining the results over multiple cohorts of students, we can examine how stable the SAT-retention findings are. That is, do we see a similar pattern of results across multiple samples of students or are the results dependent upon the sample on which they are based? In particular, do results reveal a positive relationship between SAT scores and retention to the second year across cohorts? If a similar pattern emerges across multiple samples, we can be confident that the SAT-retention findings generalize to other SAT takers who subsequently enroll at four-year institutions and are not only applicable to the students in the sample.

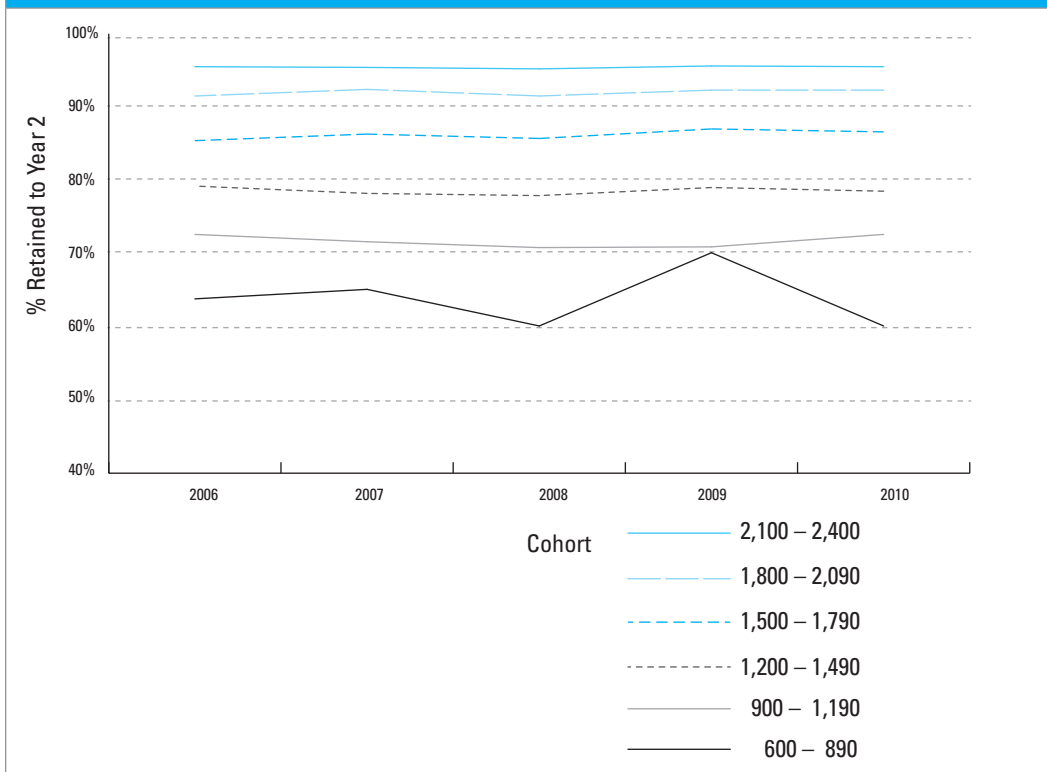
Key Findings

1. Higher SAT scores are associated with higher second-year retention rates.
2. Even after controlling for institutional and student characteristics, a positive relationship between SAT scores and returning for the second year remains.
 - » For example, African American students with higher SAT scores return for their second year at a higher rate than African American students with lower SAT scores.
3. Differences in second-year retention rates by student and institutional subgroups are minimized and sometimes eliminated after controlling for SAT scores.
 - » For example, research has shown that overall Asian students return for their second year at a higher rate than Hispanic students. However, Asian and Hispanic students with the same SAT scores have a similar likelihood of returning for their second year.

Overall

Figure 29.

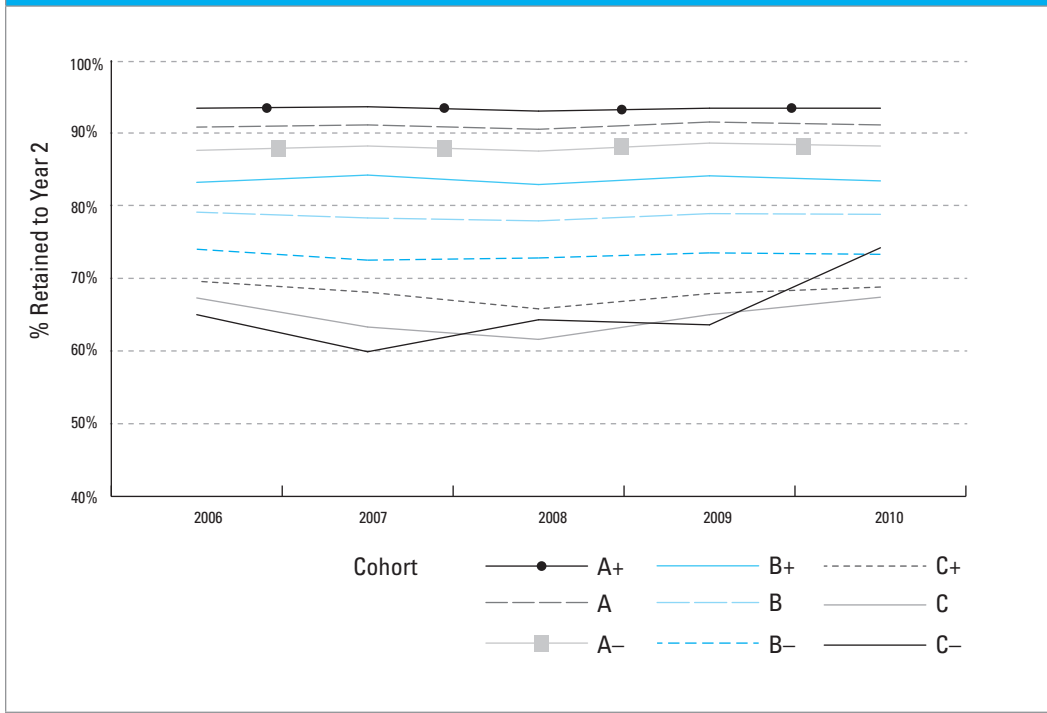
Retention to year 2 by SAT (2006–2010 cohorts).



- Figure 29 displays the second-year retention rates by SAT score band for the 2006 through 2010 cohorts. The results clearly illuminate that students with higher SAT scores have higher second-year retention rates; this is true across the five cohorts. Specifically, students in the top SAT score band (2100–2400) have second-year retention rates in the mid-0.90s, whereas students in the bottom SAT score band (600–890) have second-year retention rates in the 0.60s.
- The percentage of students returning for their second year by SAT scores band has remained stable across cohorts as indicated by the flat trend lines.
 - » For each SAT score band, results did not vary more than 2 percentage points across cohorts with the exception of the lowest SAT score band.
 - » For students with an SAT score of 890 or lower, retention rates varied from 60% to 70% across cohorts; however, those results are based upon a very small percentage of the sample and should be interpreted with caution.
- Evident by the consistency of results, the findings indicate that the percentage of students returning by SAT score band are stable and are not specific to the sample on which these data were observed.
- See Table C1 for retention rate means and sample sizes for each SAT score band and cohort.

Figure 30.

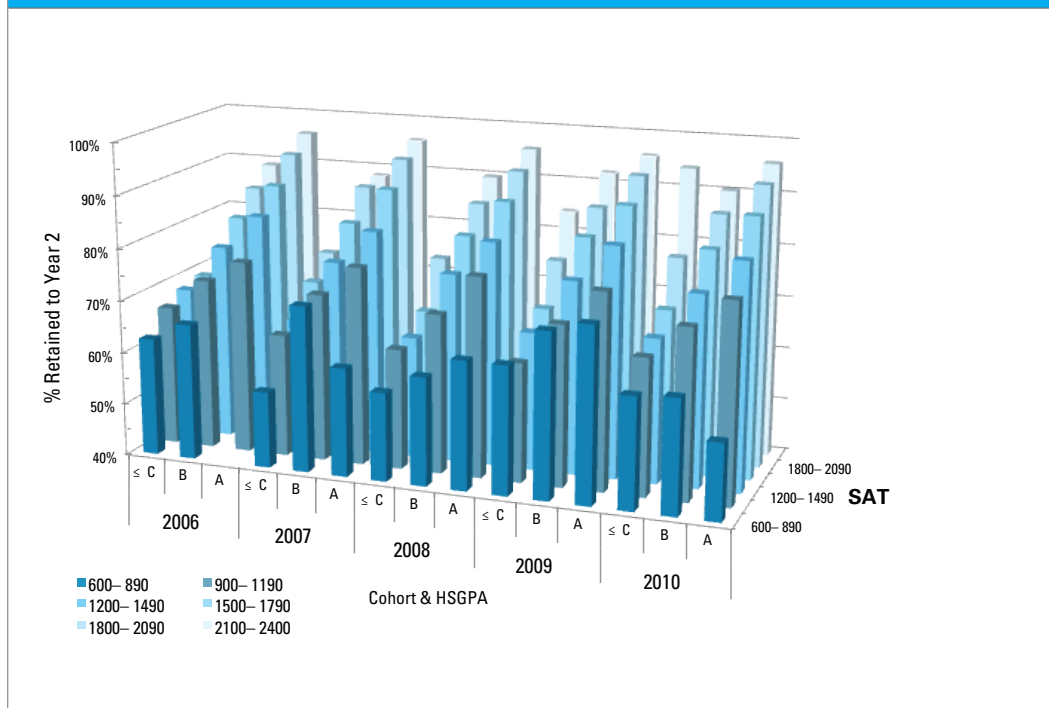
Retention to year 2 by HSGPA (2006-2010 cohorts).



- Figure 30 displays the second-year retention rates by HSGPA for the 2006 through 2010 cohorts. As was the case with SAT, the results indicate that students with higher HSGPAs generally have higher second-year retention rates. Specifically, students with an A+ HSGPA have a second-year retention rate in the mid-0.90s whereas students with a HSGPA of C+ or lower tend to have retention rates below 70%.
- The percentage of students returning for their second year by HSGPA has remained stable across cohorts as indicated by the flat trend lines.
 - » For students with a B- or higher HSGPA, retention rates varied by at most 2 percentage points across the five cohorts.
 - » For students with lower HSGPAs, there was more variability in results across cohort years. For example, retention rates ranged from 66% to 70% for C+ students, 62% to 67% for C students, and 60% to 74% for students with a C- or lower HSGPA; however, the percentage of students with a HSGPA of C+ or lower is small and should be interpreted with caution.
- As was the case for the SAT results, the findings indicate that the results are stable across cohorts and are not sample specific.
- See Table C2 for retention rate means and sample sizes for each HSGPA and cohort.

Figure 31.

Retention to year 2 by SAT and HSGPA (2006–2010 cohorts).

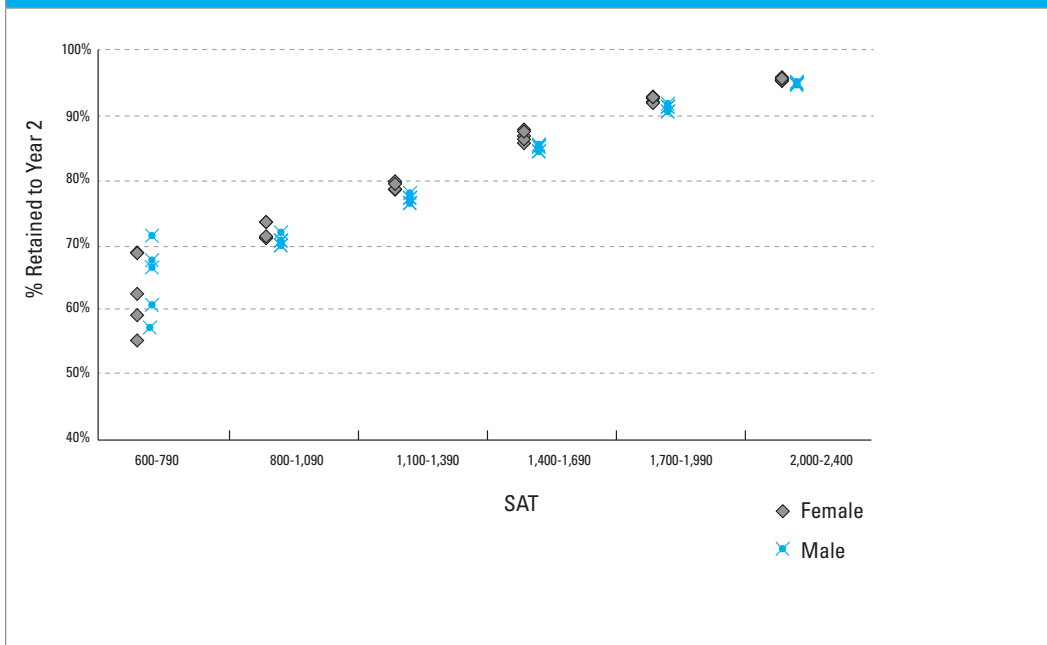


- Figure 31 presents mean retention rates by SAT score band, controlling for HSGPA.
 - » The graph shows that within a cohort year, higher SAT scores are associated with higher retention rates. Specifically, as you move from front to back, the bars increase.
 - » Likewise, higher HSGPAs are associated with higher retention rates. Specifically, as you move from left to right, the bars increase within cohorts.
- Moreover, for each of the five cohorts, Figure 31 shows that higher SAT scores are associated with higher retention rates, even for the same HSGPA. The same is true for HSGPA. In other words, for a specific HSGPA or SAT score band, the positive relationship with retention remains indicating that both measures provide unique information in terms of whether a student is likely to return for a second year.
 - » For example, focusing on students with an A HSGPA for the 2009 cohort, retention rates increased as SAT score band increased—from 73% for students with an SAT score of 890 or lower to 96% for students with an SAT score of 2100 or higher.
- Refer to Table C3 for retention rate means and sample sizes for each SAT score band by HSGPA and cohort. Results in Figure 31 and in the appendix table are suppressed if based upon fewer than 15 students.

Subgroup Results: Student Characteristics

Figure 32.

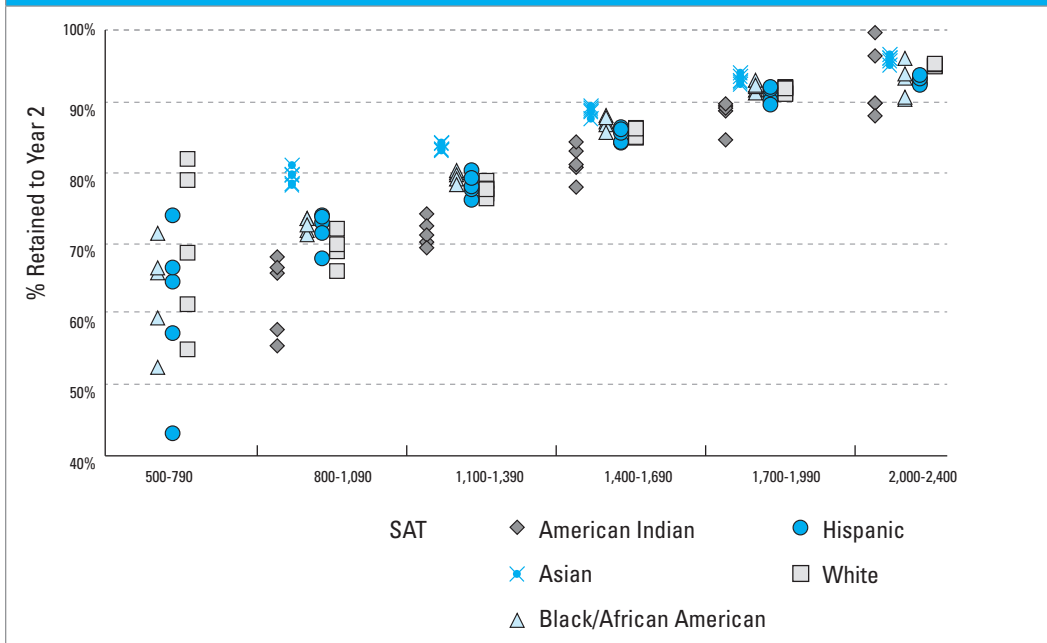
Retention to year 2 by SAT and gender (2006–2010 cohorts).



- Figure 32 displays the second-year retention rates separately for males and females by SAT score band for the 2006 through 2010 cohorts. The results clearly illuminate that both females and males with higher SAT scores have higher second-year retention rates.
- The pattern of results over cohorts is stable with the data points grouped closely together within each SAT score band. For example, for the 2,100–2,400 score band, the results for the five cohorts are nearly indistinguishable with the five gray squares that represent the female results for each cohort right on top of each other. Likewise, the male findings are also very consistent over cohorts with the five blue squares right on top of each other.
- Moreover, the figure illuminates that females and males in the same SAT score band have roughly equivalent retention rates.
 - » For example, males and females in the top SAT score band (2100–2400) have roughly equivalent second-year retention rates, around 96% across the five cohort years.
 - » For the lowest score band, there was more variability across cohorts with second-year retention rates ranging from 55% to 69% for females and 57% to 72% for males though these results are based upon very small sample sizes and should be interpreted with caution.
- Evident by the consistency of results, the findings indicate that second-year retention rates by SAT score band and gender are stable and are not sample specific. Additionally, given the same SAT score, males and females have a similar likelihood of returning for their second year.
- See Table C4 for retention rate means and sample sizes for each SAT score band by gender and cohort.

Figure 33.

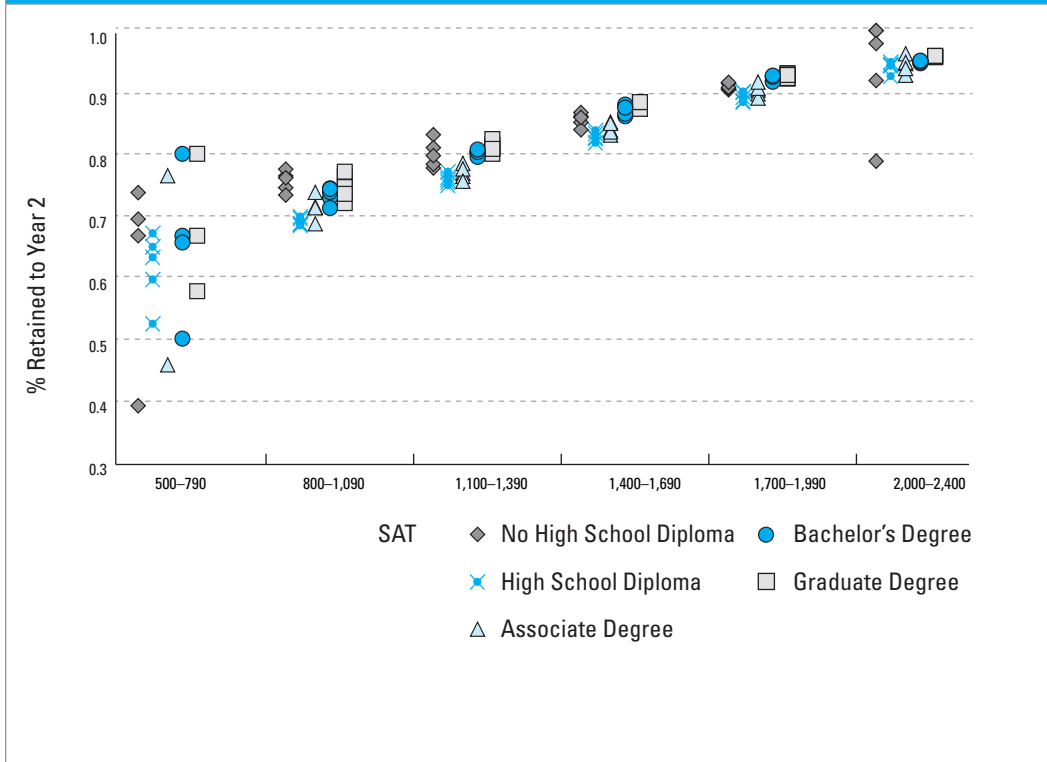
Retention to year 2 by SAT and racial/ethnic identity (2006–2010 cohorts).



- Figure 33 displays the second-year retention rates by SAT score band and ethnicity for the 2006 through 2010 cohorts. The results clearly illuminate that for all ethnic/racial subgroups, higher SAT scores are associated with higher second-year retention rates.
- The pattern of results over cohorts is stable with the data points grouped closely together within each SAT score band, with the exception of the lowest SAT score band in which there is much more variability. It should also be noted that the sample sizes for the bottom score band are small and, therefore, variability in results is not surprising.
- Moreover, this figure shows that all racial/ethnic subgroups in the same SAT score band have similar retention rates, though controlling for SAT performance does not completely eliminate differences in second-year retention rates across subgroups.
 - » For example, second-year retention rates for the top SAT score band (2100–2400) ranged from 88% to 100% across all subgroups and cohort years.
 - » The results for American Indian students deviated the most from the other groups though American Indian students represent a very small portion of each sample and should be interpreted with caution.
- Evident by the consistency of results, the findings indicate that second-year retention rates by SAT score band and ethnicity are stable and are not sample specific. Additionally, given the same SAT score, ethnic/racial subgroups have a similar likelihood of returning for their second year.
- See Table C5 for retention-rate means and sample sizes for each SAT score band by ethnicity and cohort. Results are suppressed if based upon fewer than 15 students.

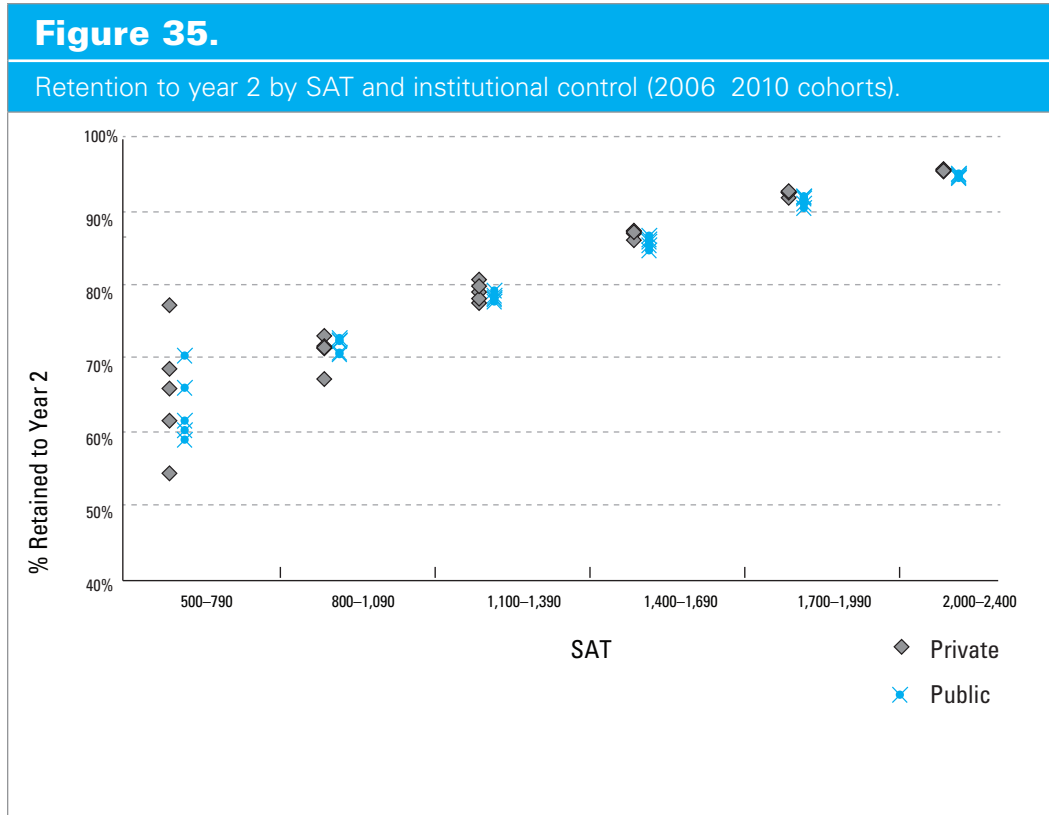
Figure 34.

Retention to year 2 by SAT and highest parental education (2006–2010 cohorts).



- Figure 34 displays the second-year retention rates by SAT score band and highest parental education for the 2006 through 2010 cohorts. The results demonstrate that for all parental-education subgroups, higher SAT scores are associated with higher second-year retention rates.
- The pattern of results over cohorts is stable with the data points grouped closely together within each SAT score band, with the exception of the lowest SAT score band. Again, there tends to be more variability across cohorts when results are based upon small samples, such as was the case with the lowest score band and the “No High School Diploma” group in the top SAT score band.
- Moreover, the figure clearly displays that all highest parental-education subgroups in the same SAT score band have similar retention rates.
 - » With the exception of the “No High School Diploma” group, second-year retention rates for the top SAT score band (2100–2400) ranged from 93% to 96% across all subgroups and cohort years.
- Evident by the consistency of results, the findings indicate that second-year retention rates by SAT score band and highest parental education are stable and are not sample specific. Additionally, given the same SAT score, parental-education subgroups have a similar likelihood of returning for their second year.
- See Table C6 for retention-rate means and sample sizes for each SAT score band by highest parental education and cohort. Results are suppressed if based upon fewer than 15 students.

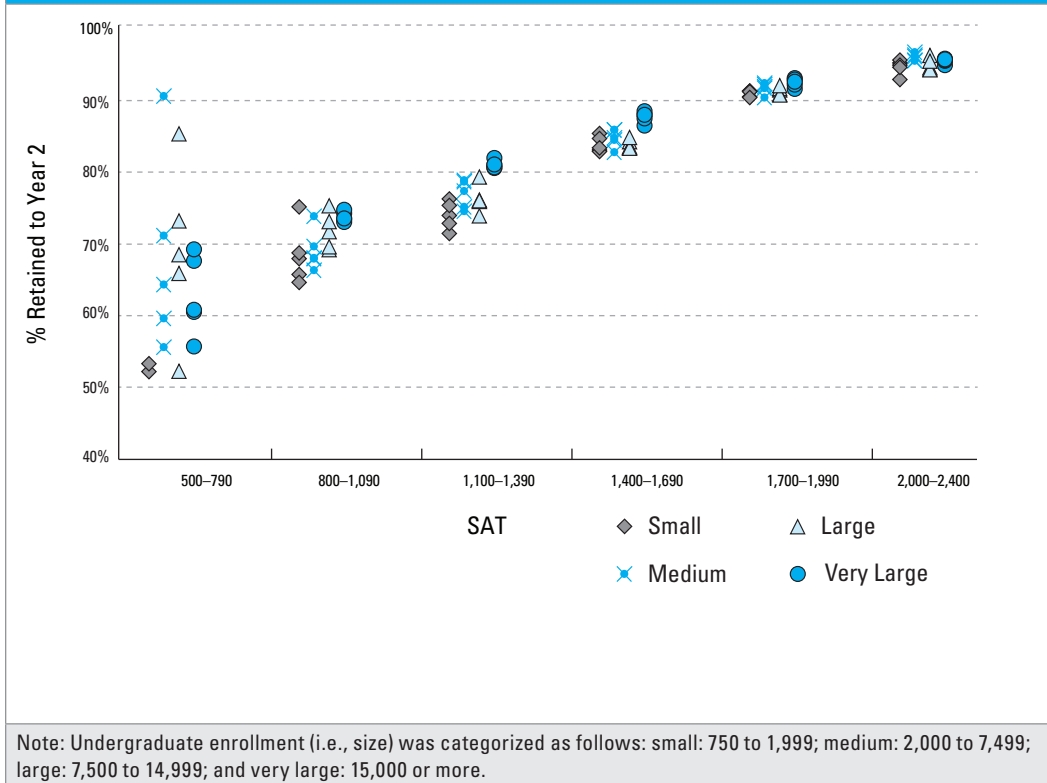
Subgroup Results: Institutional Characteristics



- Figure 35 displays the second-year retention rates by SAT score band and institutional control for the 2006 through 2010 cohorts. The results demonstrate that for both private and public institutions, higher SAT scores are associated with higher second-year retention rates.
- The pattern of results over cohorts is stable with the data points grouped closely together within each SAT score band, with the exception of the lowest SAT score band. As was the case with previous results, there tends to be more variability across cohorts when results are based upon small samples such as the case with the lowest score band.
- Moreover, the figure clearly displays that second-year retention rates are similar at private and public institutions when controlling for SAT scores, though slightly higher retention rates at private institutions remain.
 - » For example, second-year retention rates for the top SAT score band (2100–2400) ranged from 95% to 96% across institutional control and cohort years.
- Evident by the consistency of results, the findings indicate that second-year retention rates by SAT score band and institutional control are stable and are not sample specific. Additionally, given the same SAT score, students at a public institution have a similar likelihood of returning for their second year as compared to students at a private institution.
- See Table C7 for retention-rate means and sample sizes for each SAT score band by institutional control and cohort.

Figure 36.

Retention to year 2 by SAT and institutional size (2006–2010 cohorts).

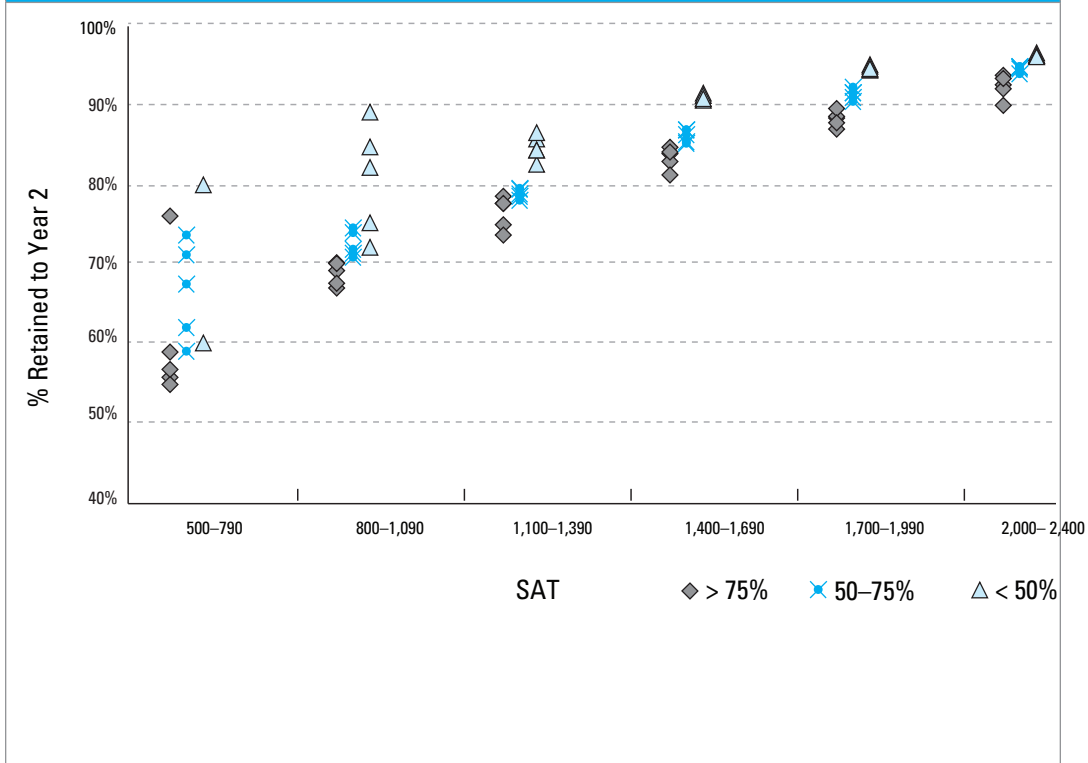


Note: Undergraduate enrollment (i.e., size) was categorized as follows: small: 750 to 1,999; medium: 2,000 to 7,499; large: 7,500 to 14,999; and very large: 15,000 or more.

- Figure 36 displays the second-year retention rates by SAT score band and institutional size for the 2006 through 2010 cohorts. The results demonstrate that for institutions of all sizes, higher SAT scores are associated with higher second-year retention rates.
- The pattern of results over cohorts is stable with the data points grouped closely together within each SAT score band, with the exception of the lowest SAT score band. As was the case with previous results, there tends to be more variability across cohorts when results are based upon small samples.
- Moreover, the figure clearly displays that second-year retention rates are similar across institutional size when controlling for SAT scores.
 - » For example, second-year retention rates for the top SAT score band (2100–2400) ranged from 93% to 97% across institutional size and cohort years.
- Evident by the consistency of results, the findings indicate that second-year retention rates by SAT score band and institutional size are stable and are not sample specific. Additionally, given the same SAT score, students have a similar likelihood of returning for their second year, regardless of the size of the institution.
- See Table C8 for retention-rate means and sample sizes for each SAT score band by institutional size and cohort. Results are suppressed if based upon fewer than 15 students.

Figure 37.

Retention to year 2 by SAT and institutional selectivity (admittance rate) — (2006–2010 cohorts).



- Figure 37 displays the second-year retention rates by SAT score band and institutional selectivity (i.e., undergraduate admittance rate) for the 2006 through 2010 cohorts. The results demonstrate that for all three selectivity levels, higher SAT scores are associated with higher second-year retention rates.
- The pattern of results over cohorts is stable with the data points grouped closely together within each SAT score band, with the exception of the lowest SAT score band. This variability across cohorts is particularly apparent for the most selective category (< 50%) since the number of students with SAT scores in the lower SAT score bands is much fewer. Results based upon small samples are prone to sampling error and fluctuate more.
- Moreover, the figure shows that second-year retention rates are similar across institutional selectivity categories when controlling for SAT scores, though a positive relationship between selectivity and retention does still persist. That is, more selective institutions have higher retention rates, even after controlling for SAT scores.
 - » For example, second-year retention rates for the top SAT score band (2100–2400) ranged from a low of 90% for the least selective institutions to a high of 97% for the most selective institutions across cohort years.
- Evident by the consistency of results, the findings indicate that the second-year retention rates by SAT score band and institutional selectivity are stable and are not sample specific. Additionally, controlling for the SAT scores of the admitted class, the difference in retention rates among institutions of varying selectivity is reduced but not completely eliminated.

- See Table C9 for retention-rate means and sample sizes for each SAT score band by institutional selectivity and cohort. Results are suppressed if based upon fewer than 15 students.

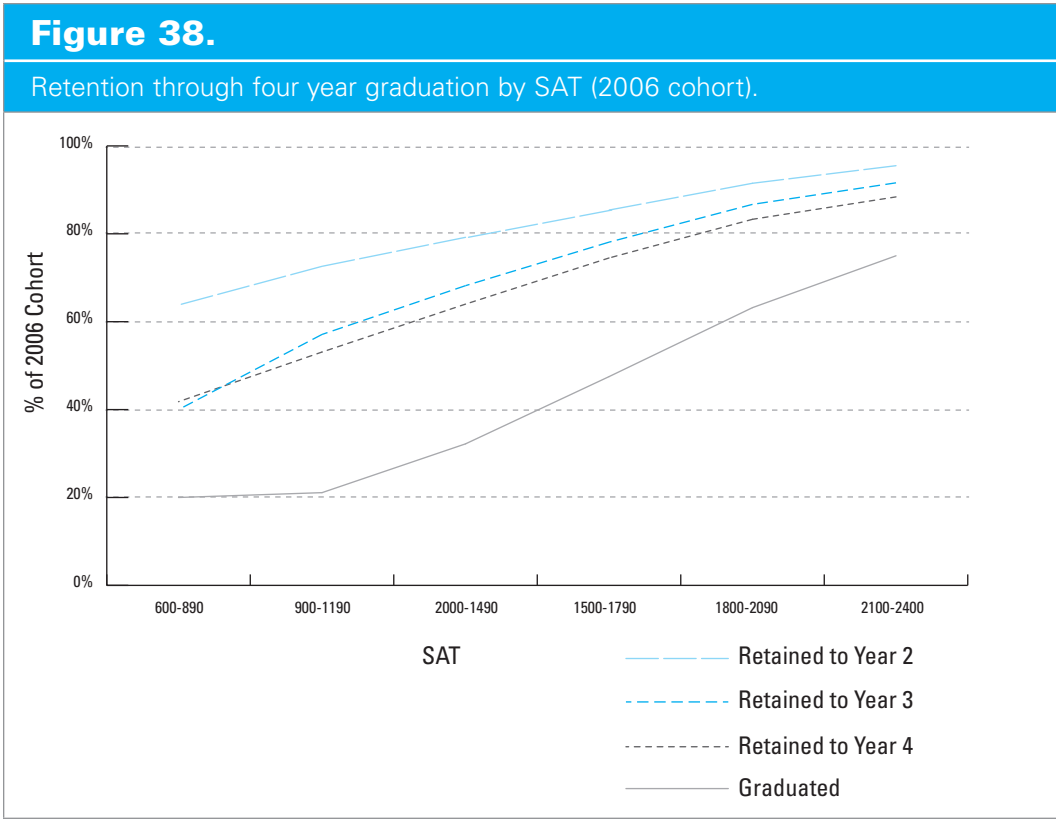
Retention through Graduation: 2006 Cohort

This section summarizes the four reports (Mattern & Patterson, 2009, 2011b; 2011e; Mattern, Patterson, & Wyatt, 2013) that examined the relationship between SAT performance and retention through the fourth year and, ultimately, graduation for the 2006 cohort. Specifically, the 2006 cohort was followed longitudinally as these students progressed through their college career. Of the original 110 institutions to provide college performance data on the 2006 cohort, 66 provided second-year data, 60 provided third-year data, and 55 provided fourth-year data. By summarizing the results of these studies, we can examine the relationship between SAT performance and retention over time. Specifically, does the positive relationship between SAT performance and retention persist over years? It should be noted that as not all institutions continued to provide outcome data over time, the results are not based upon the exact same sample of students each year, and therefore, differences could be attributable to differences in sample or differences in the outcome being examined (e.g., retention to second year versus retention to third year).

Key Findings

1. Higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and higher four-year graduation rates.
2. Even after controlling for institutional and student characteristics, a positive relationship between SAT scores and retention through the fourth year and, ultimately, graduation remains.
 - » For example, Hispanic students with higher SAT scores return for their second, third and fourth year at a higher rate than Hispanic students with lower SAT scores.
3. Differences in second-year retention rates by student and institutional subgroups are minimized and sometimes eliminated after controlling for SAT scores.
 - » For example, research has shown that overall white students are more likely to be retained through the fourth year and graduate than African American students. However, white and African American students with the same SAT scores have a similar likelihood of being retained and graduate within four years.

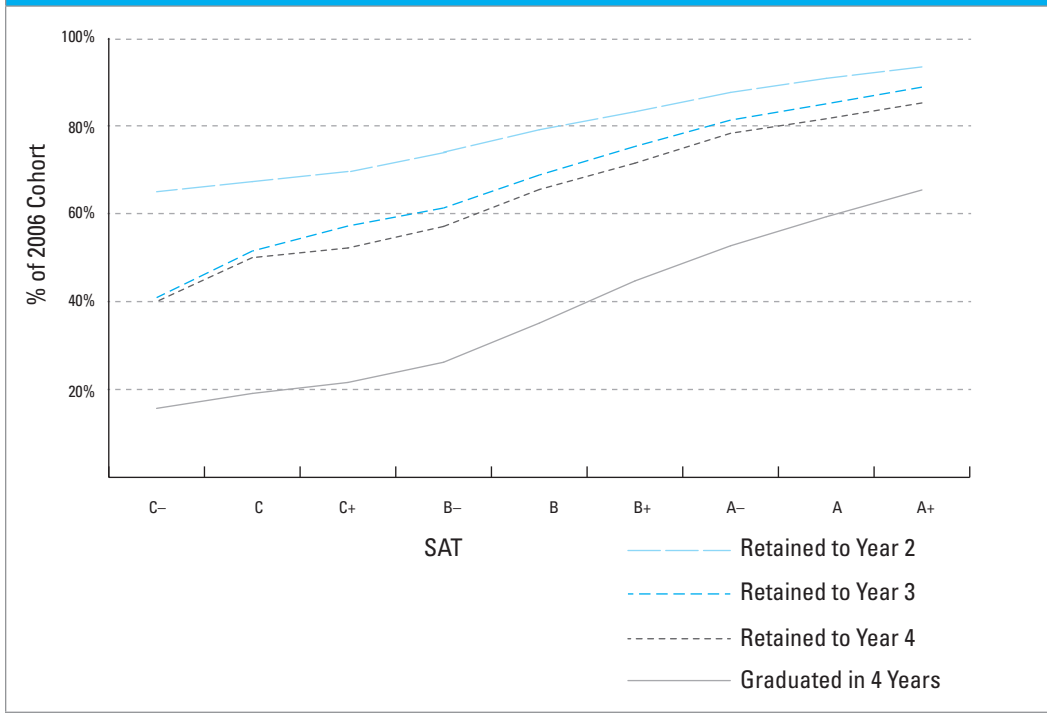
Overall



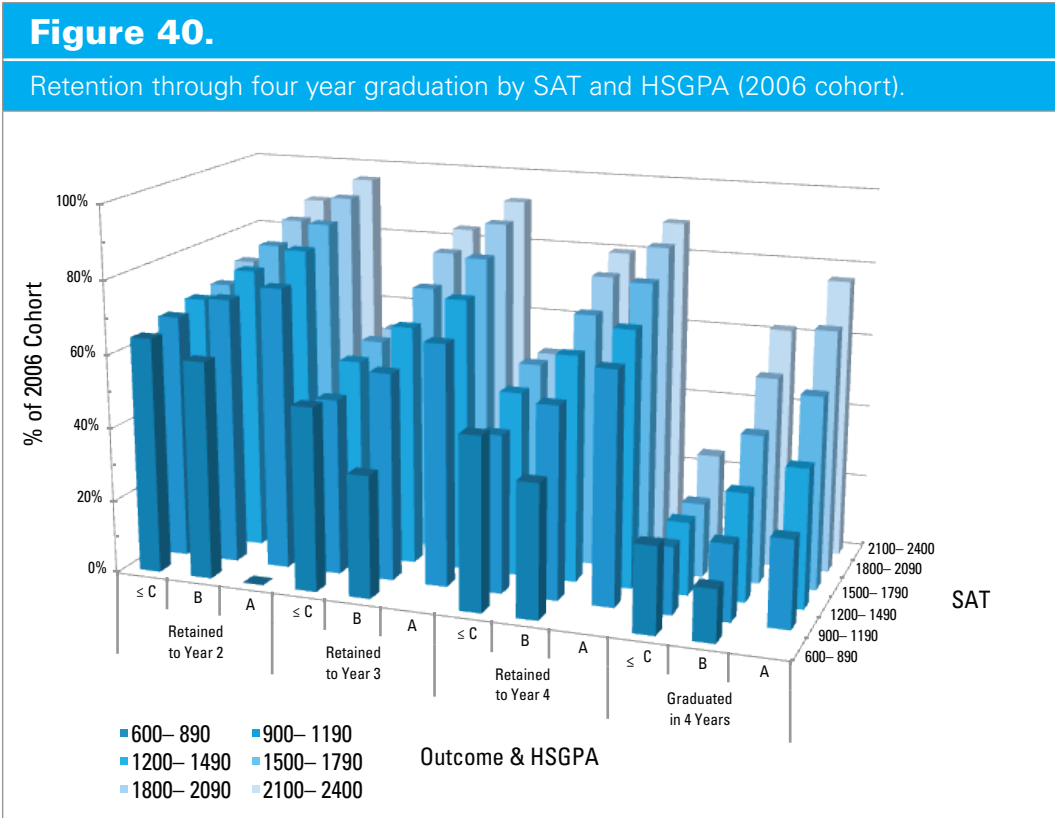
- Figure 38 displays the second-, third-, and fourth-year retention rates and four-year graduation rates by SAT score band for the 2006 cohort. The results demonstrate that higher SAT scores are associated with retention and graduation rates.
- Additionally, we see that as more time lapses, the percentage of students returning decreases, as one would expect. Additionally, the decreases over time are larger for lower-performing students. For example:
 - » Of students with an SAT score of 2100 or higher, 95% returned for their second year as compared to 88% for the fourth year; and 75% graduated within four years.
 - » At the other end of the spectrum, 64% of students with an SAT score of less than 900 returned for their second year as compared to 42% for the fourth year; only 20% graduated within four years.
- See Table D1 for the second-, third-, and fourth-year retention rates and four-year graduation rates and sample sizes for each SAT score band for the 2006 cohort.

Figure 39.

Retention through four year graduation by high school GPA (2006 cohort).



- Figure 39 displays the second-, third-, and fourth-year retention rates and four-year graduation rates by HSGPA for the 2006 cohort. The results demonstrate that higher HSGPAs are associated with higher retention and graduation rates.
- As was the case for the SAT, the results indicate that as more time lapses, the percentage of students returning decreases. Likewise, the decreases over time are larger for lower performing students. For example:
 - » Of students with an A+ HSGPA, 93% returned for their second year as compared to 85% for the fourth year; and 65% graduated within four years.
 - » At the other end of the spectrum, 65% of students with a HSGPA of C- or lower returned for their second year as compared to 40% for the fourth year; only 16% graduated within four years.
- See Table D2 for the second-, third-, and fourth-year retention rates and four-year graduation rates and sample sizes for each HSGPA for the 2006 cohort.

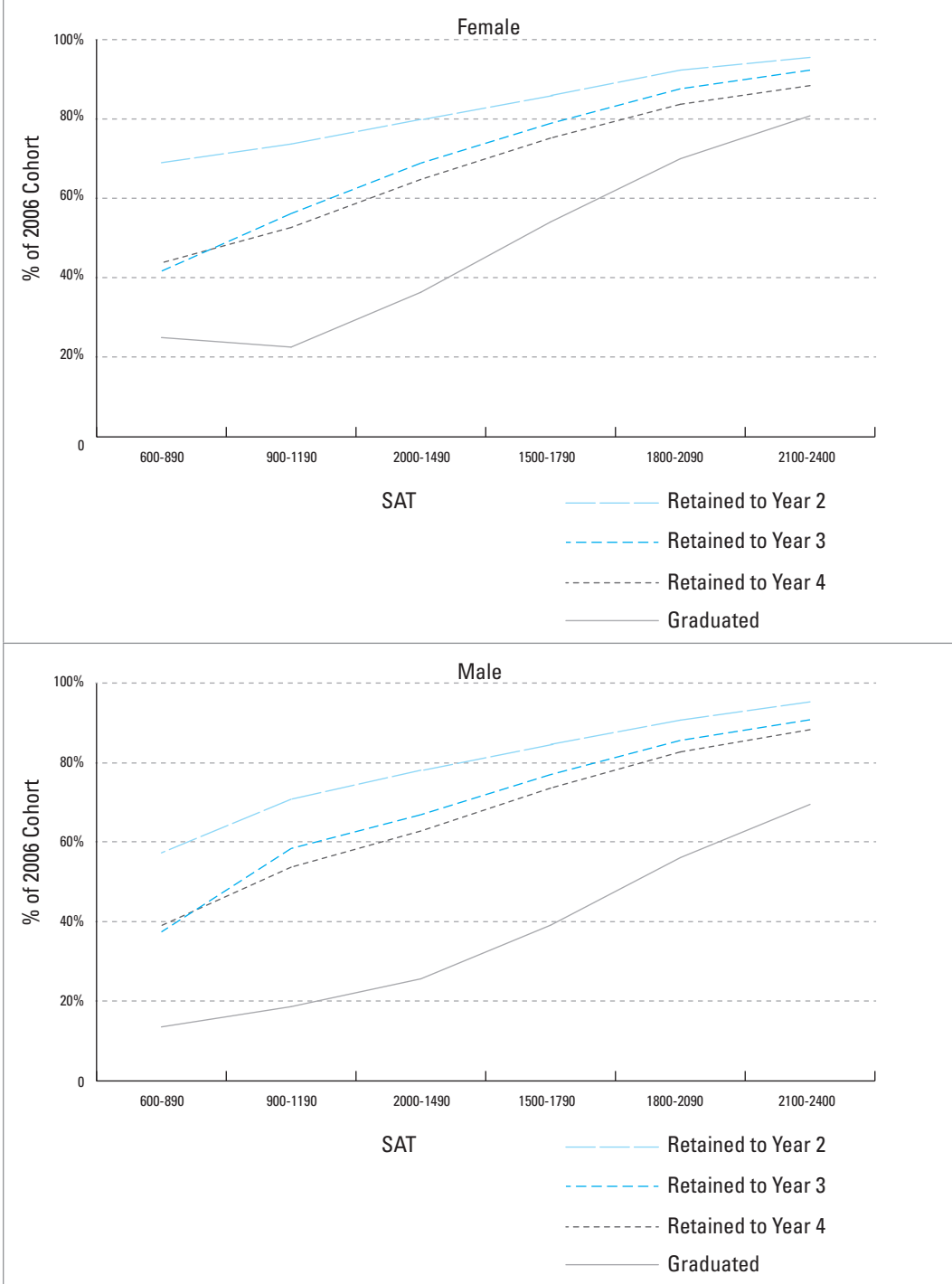


- Figure 40 presents second-, third-, and fourth-year retention rates and four-year graduation by SAT score band, controlling for HSGPA. The graph shows that for each outcome, higher SAT scores are associated with higher retention and graduation rates. In other words, as you move from front to back, the bars increase.
- Likewise, higher HSGPAs are associated with higher retention and graduation rates. As you move from left to right, the bars increase for each outcome (e.g., second-year retention).
- Moreover, for each of the four outcomes, the figure shows that higher SAT scores are associated with a higher likelihood of returning and ultimately graduating, even for the same HSGPA. The same is true for HSGPA. In other words, for a specific HSGPA or SAT score band, the positive relationship with retention and graduation remains, indicating that both measures provide unique information in terms of whether a student is likely to return and ultimately graduate. There are some deviations from the overall trend, but this is mainly attributable to small sample sizes (i.e., very few students have an SAT score of less than 900).
 - » For example, focusing on the year four retention results for students with an A HSGPA, retention rates increased as SAT score band increased from 63% for students with an SAT score of 900 to 1190 to 89% for students with an SAT score of 2100 or higher.
- Refer to Table D3 for the second-, third-, and fourth-year retention rates and four-year graduation rates and sample sizes for each SAT score band by HSGPA for the 2006 cohort. Results are suppressed if based upon fewer than 15 students.

Subgroup Results: Student Characteristics

Figure 41.

Retention through four year graduation by SAT and gender (2006 cohort).



- Figure 41 provides line graphs of retention through four-year graduation rates by SAT score band, separately for males and females for the 2006 cohort. The results clearly illuminate that both females and males with higher SAT scores have higher second-, third-, and fourth-year retention rates and four-year graduation rates.
- Comparing the female and male plots, the pattern of results by gender is similar with roughly equivalent retention rates by SAT score band. For example, for the 2100–2400 score band:
 - » Females have a second-year retention rate of 96% as compared to 95% for males.
 - » For third year retention rates, the corresponding values are 92% and 91%, respectively. Both males and females have fourth-year retention rates of 88%.
 - » The findings diverge when examining four-year graduation rates, with 81% of females graduating in four years as compared to 70% of males.
- See Table D4 for retention and graduations rates and sample sizes for each SAT score band by gender.

Figure 42.

Retention through four year graduation by SAT and racial/ethnic identity (2006 cohort).

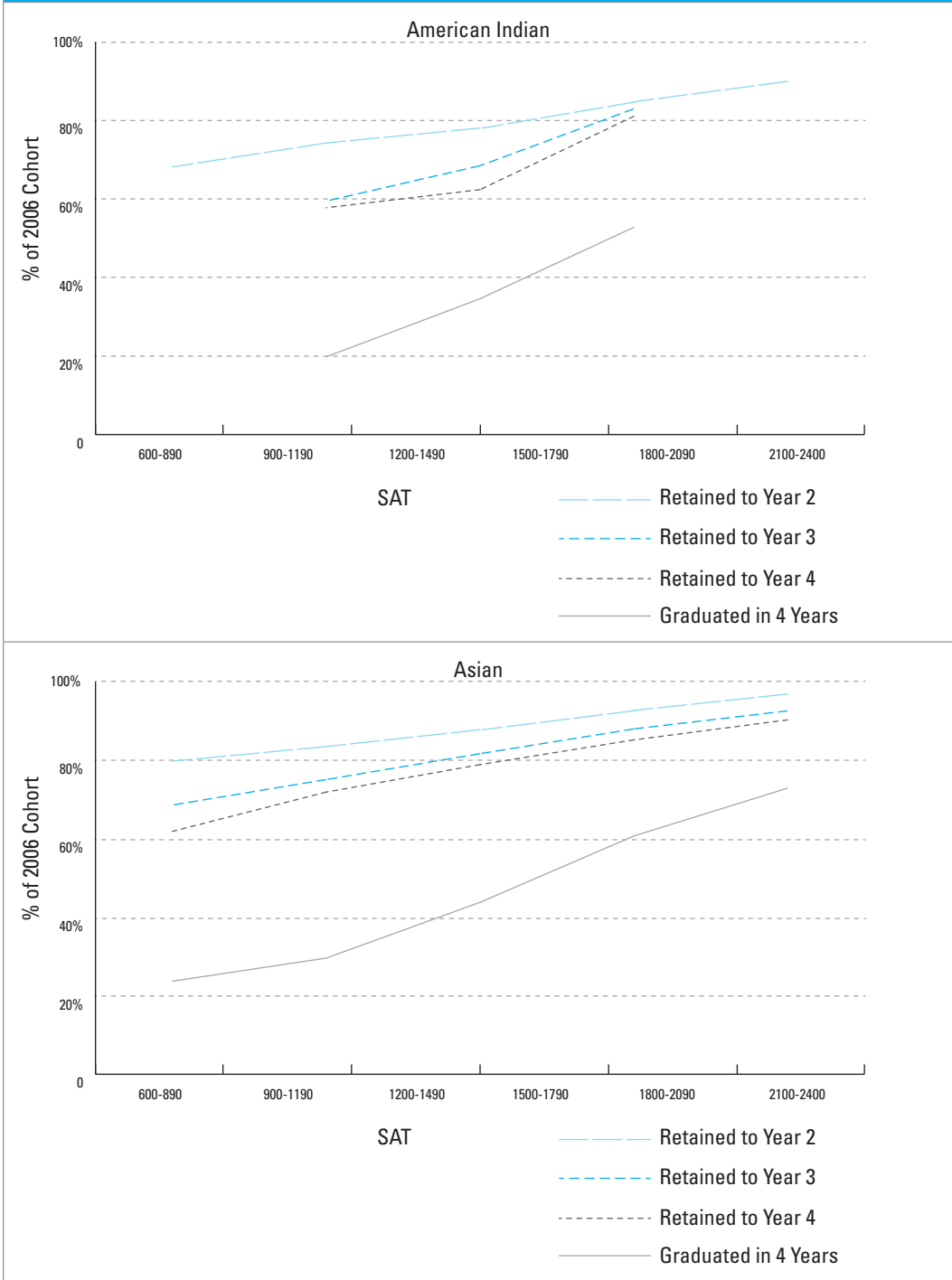


Figure 42 (continued)
 Retention through four year graduation by SAT and racial/ethnic identity (2006 cohort).

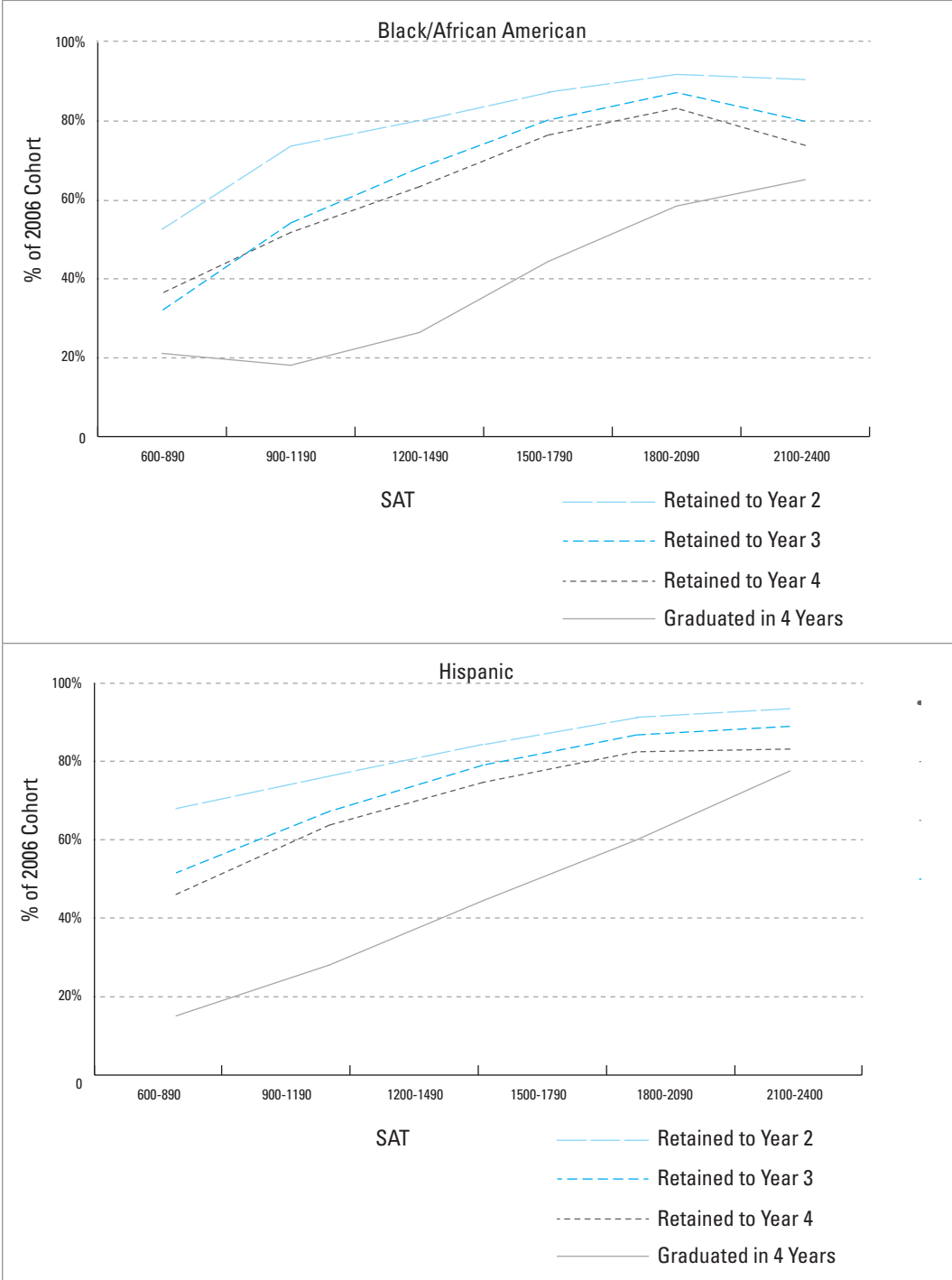
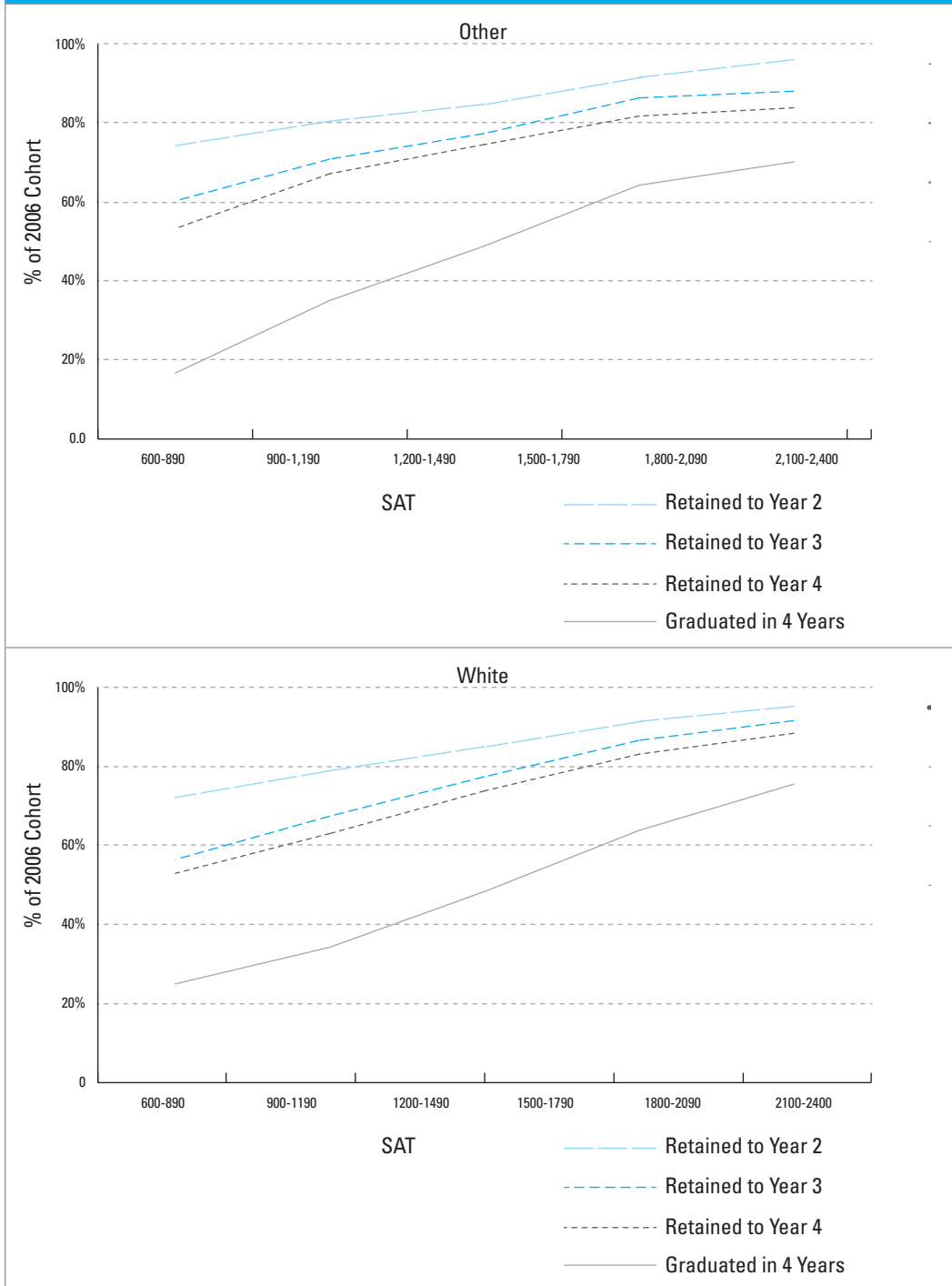


Figure 42 (continued)

Retention through four year graduation by SAT and racial/ethnic identity (2006 cohort).



- Figure 42 provides line graphs of retention through four-year graduation rates by SAT score band for each racial/ethnic subgroup for the 2006 cohort. The results clearly illuminate that higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and four-year graduation rates for all racial/ethnic subgroups as indicated by the upward sloping lines. There are some slight deviations from the overall pattern, but this is likely due to small sample sizes (i.e., black/African American students in the 2100–2400 score band have lower rates as compared to the 1800–2090 score band).
- Across the racial/ethnic plots, the retention and graduation rates by SAT score band are similar. Note that many of the data points for American Indian students are not provided due to small sample sizes. For example, for the 1800–2090 score band
 - » Second-year retention rates ranged from a low of 85% for American Indian students to a high of 93% for Asian students. For the third year, retention rates ranged from 83 to 88%.
 - » Similarly, for the fourth year, the percentage of students returning ranged from 81% to 85% and the percentage that graduated within four years ranged from 53% to 64%.
- See Table D5 for retention- and graduation-rate means and sample sizes for each SAT score band by race/ethnicity. Results are suppressed if based upon fewer than 15 students.

Figure 43.

Retention through four year graduation by SAT and highest parental education (2006 cohort).

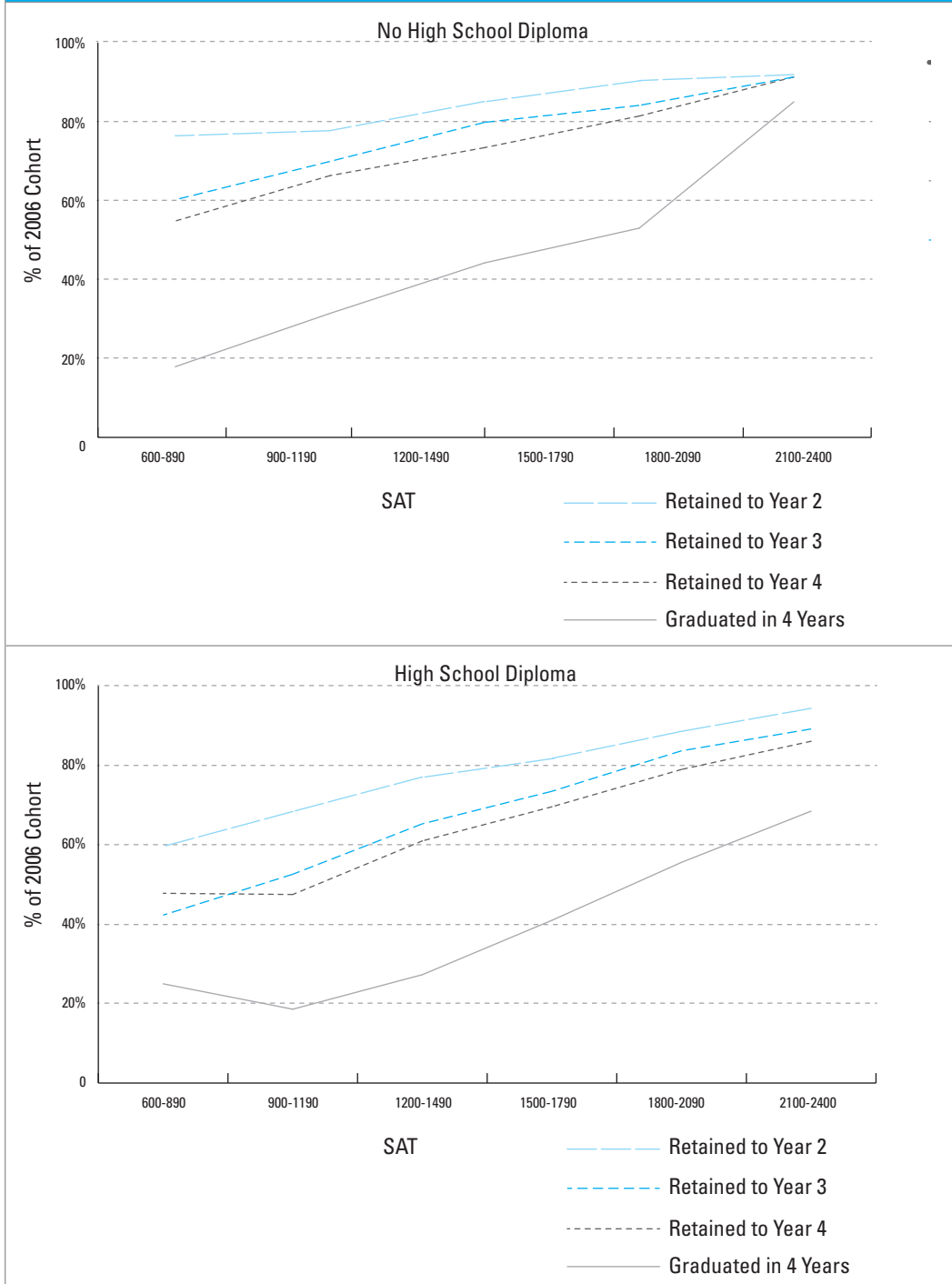


Figure 43 (continued)
 Retention through four year graduation by SAT and highest parental education (2006 cohort).

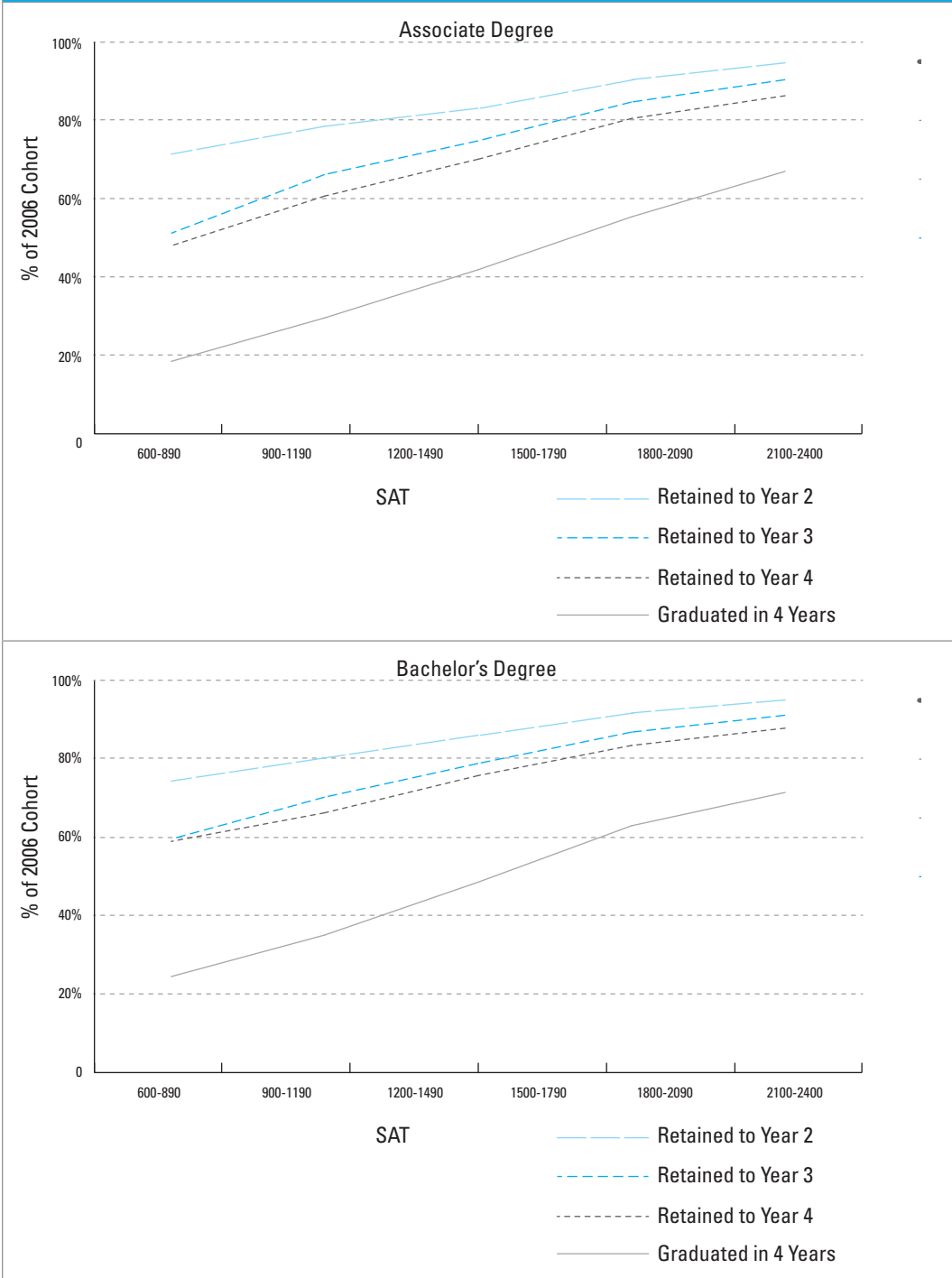
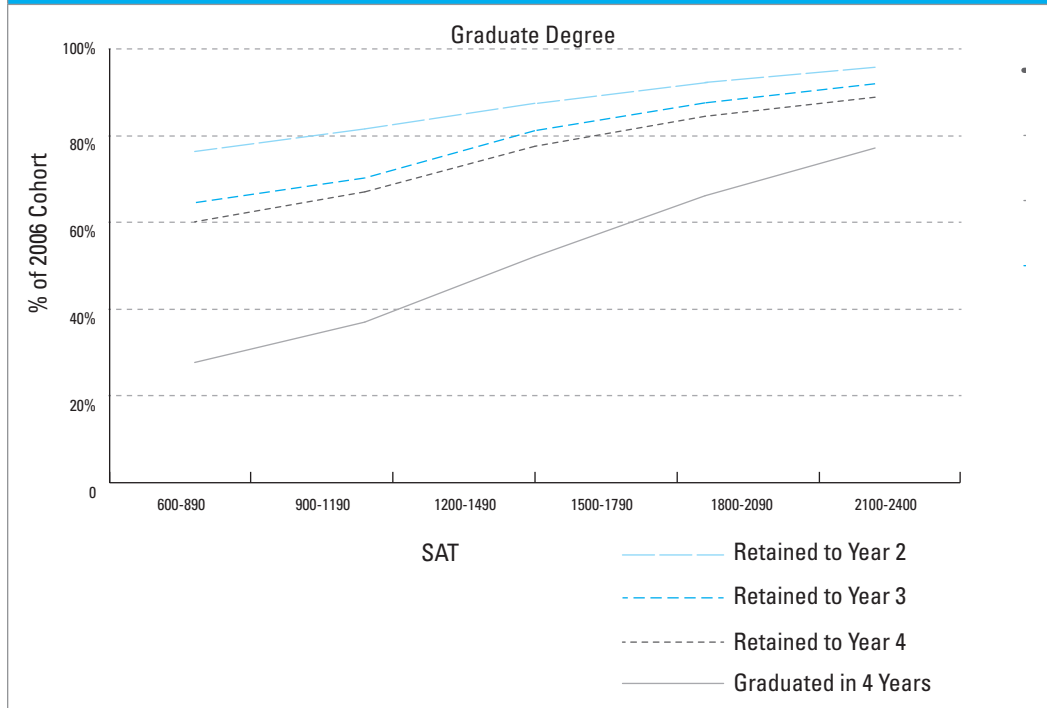


Figure 43 (continued)

Retention through four year graduation by SAT and highest parental education (2006 cohort).



- Figure 43 provides line graphs of retention through four-year graduation rates for each highest parental-education subgroup by SAT score band for the 2006 cohort. The results clearly illuminate that higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and four-year graduation rates for all education levels as indicated by the upward sloping lines.
- Comparing performance across plots, the pattern of results is similar with roughly equivalent retention rates by highest parental education by SAT score band. For example, for the 1800–2090 score band:
 - » Second-year retention rates varied slightly from a low of 89% to a high of 92% across the five education levels.
 - » For the third year, retention rates ranged from 84% to 88%.
 - » Similarly for the fourth year, the percentage of students returning ranged from 79% to 84%, and the percentage that graduated within four years ranged from 53% to 66%.
- See Table D6 for retention- and graduation-rate means and sample sizes for each SAT score band by highest parental education.

Figure 44. Retention through four year graduation by SAT and household income (2006 cohort).

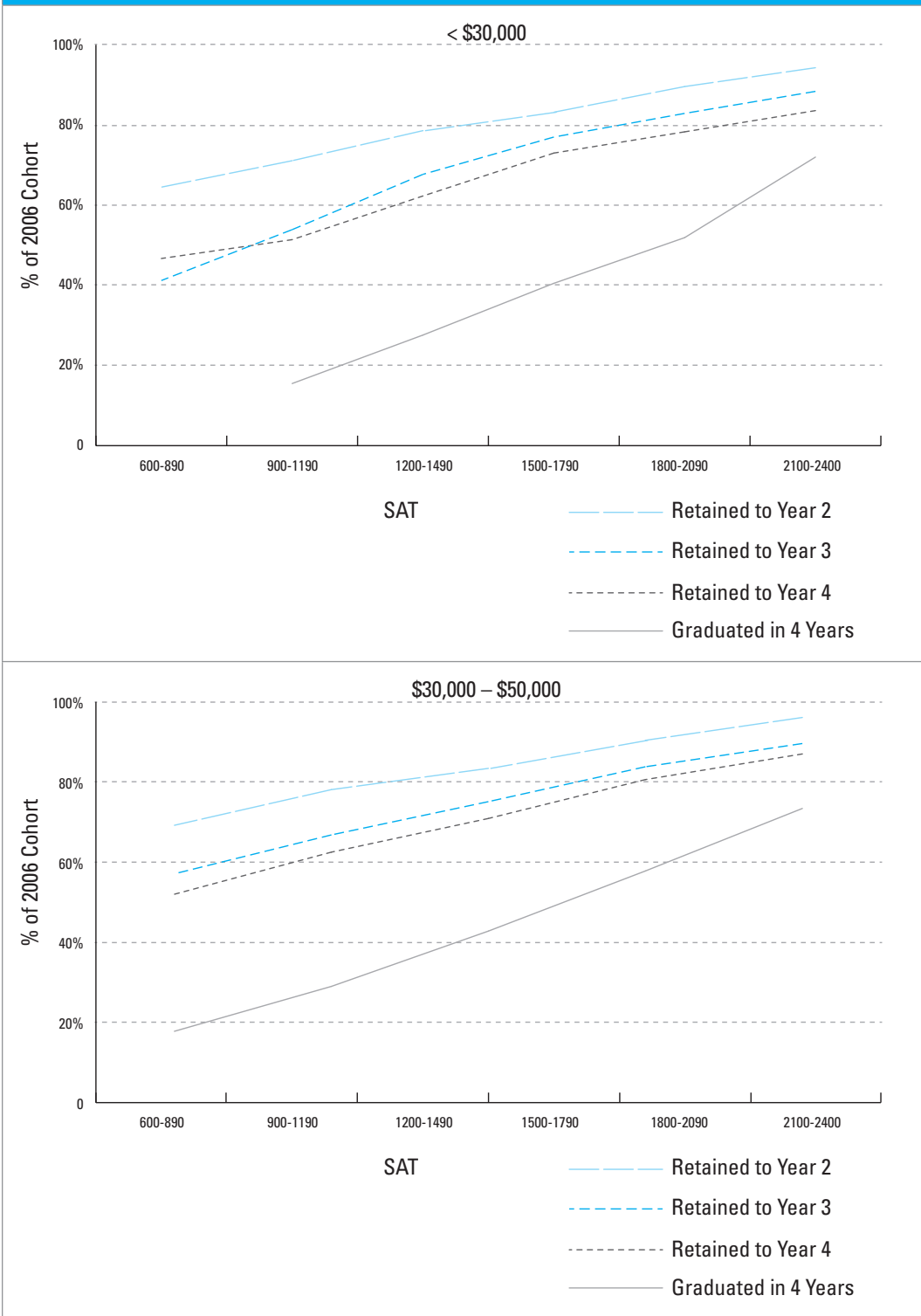


Figure 44 (continued)

Retention through four year graduation by SAT and household income (2006 cohort).

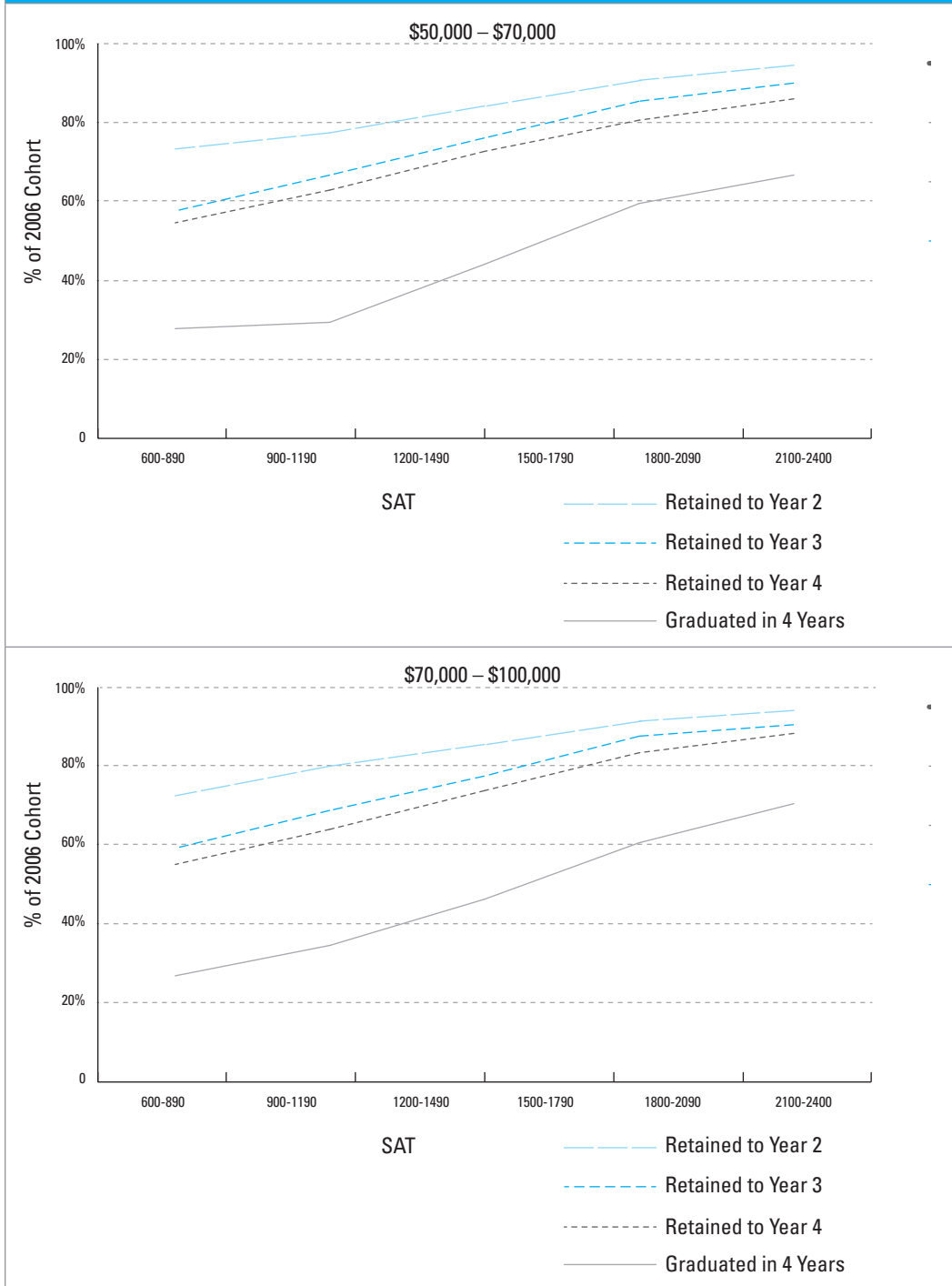
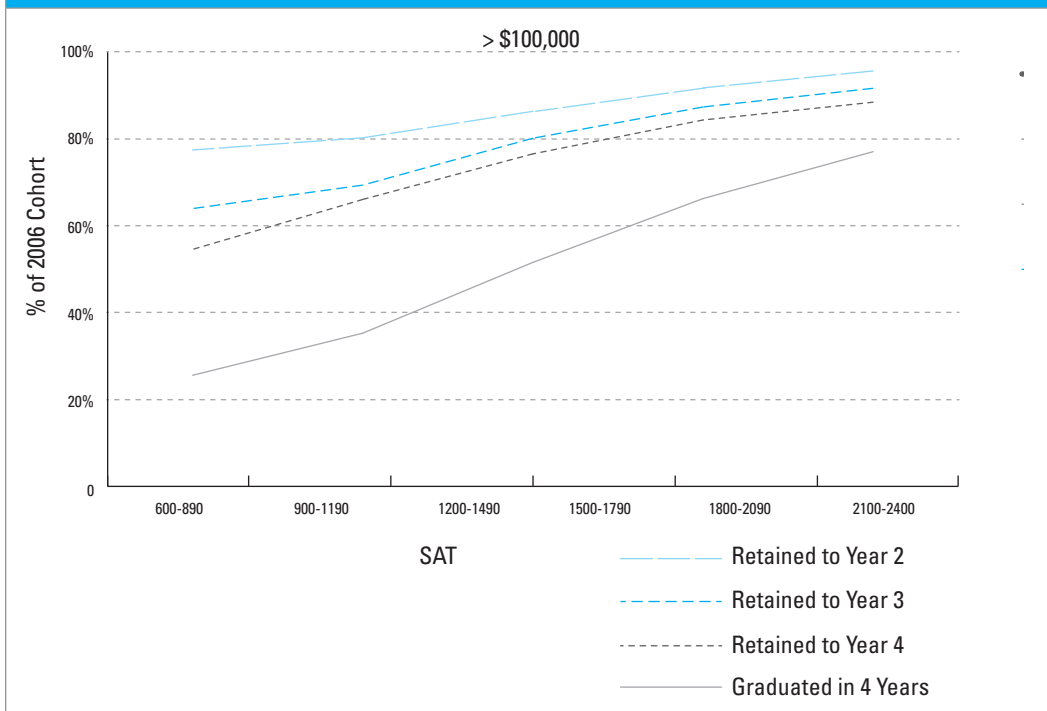


Figure 44 (continued)

Retention through four year graduation by SAT and household income (2006 cohort).

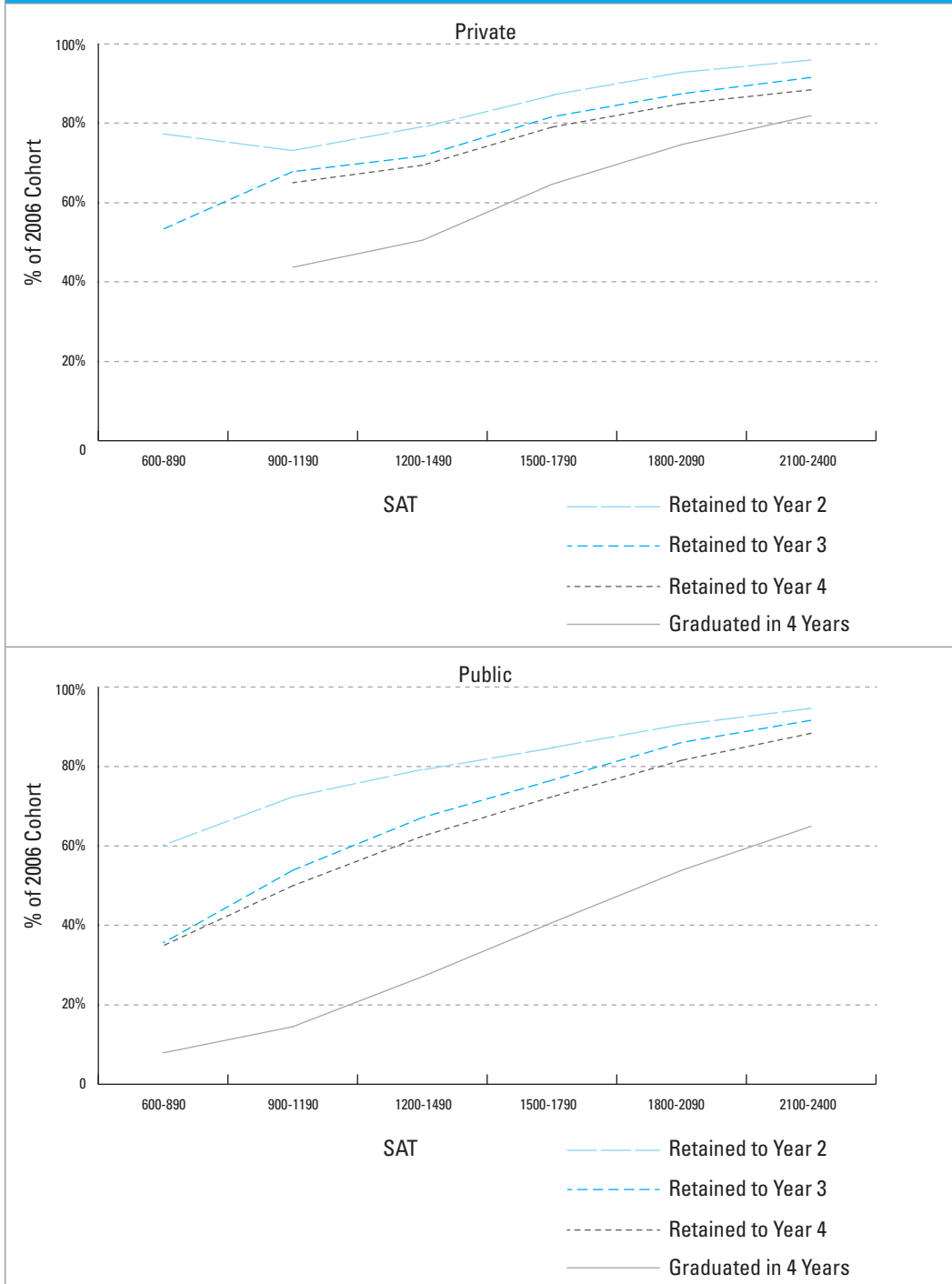


- Figure 44 provides line graphs of retention through four-year graduation rates by SAT score band for each household income level for the 2006 cohort. The results clearly illuminate that higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and four-year graduation rates for all income groups as indicated by the upward sloping lines.
- Comparing performance across plots, the pattern of results is similar with roughly equivalent retention and graduation rates by SAT score band by household income. For example, for the 1800 to 2090 score band:
 - » Second-year retention rates varied slightly from a low of 90% to a high of 92% across the five income levels.
 - » For the third year, retention rates ranged from 83% to 88%.
 - » Similarly for the fourth year, the percentage of students returning ranged from 78 to 84%.
 - » There was more variability in four-year graduation rates ranging from a low of 52% for the lowest income band to 66% for the highest.
- See Table D7 for retention and graduations rates and sample sizes for each SAT score band by household income. Results are suppressed if based upon fewer than 15 students.

Subgroup Results: Institutional Characteristics

Figure 45.

Retention through four year graduation by SAT and institutional control (2006 cohort).



- Figure 45 provides line graphs of retention through four-year graduation rates by SAT score band for private and public institutions separately for the 2006 cohort. The results clearly illuminate that higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and four-year graduation rates at both private and public institutions as indicated by the upward sloping lines.
- Comparing the plots for private and public institutions, a similar pattern emerges, in particular for the retention results; however, there is more divergence when comparing graduation rates. For example, for the 1800–2090 score band:
 - » 93% of students attending a private institution returned for their second year as compared to 91% of students attending a public institution.
 - » In terms of third year retention rates, the percentage of students returning was 87% and 86% for private and public institutions, respectively.
 - » Fourth-year retention rates diverged slightly more with 85% and 82% of students returning at private and public institutions, respectively.
 - » However, we see the largest discrepancies in four-year graduation rates with 75% of students attending a private institution graduating in four years as compared to 54% at public institutions.
 - » Institutional control seems to have little impact on retention rates once SAT scores are considered, but that does not appear to be the case in terms of four-year graduation rates.
- See Table D8 for retention- and graduation-rate means and sample sizes for each SAT score band by institutional control. Results are suppressed if based upon fewer than 15 students.

Figure 46.

Retention through four year graduation by SAT and institution size (2006 cohort)

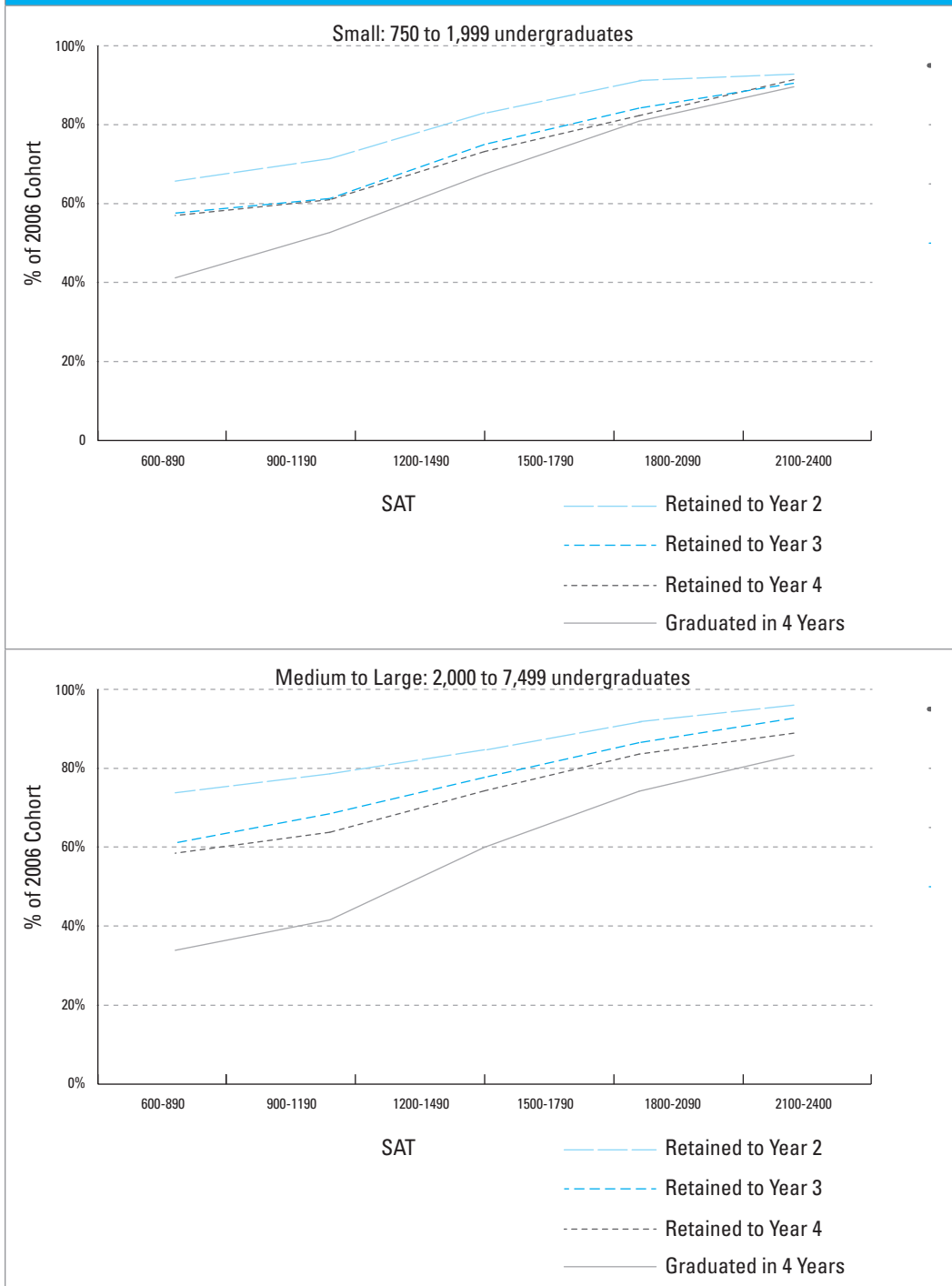
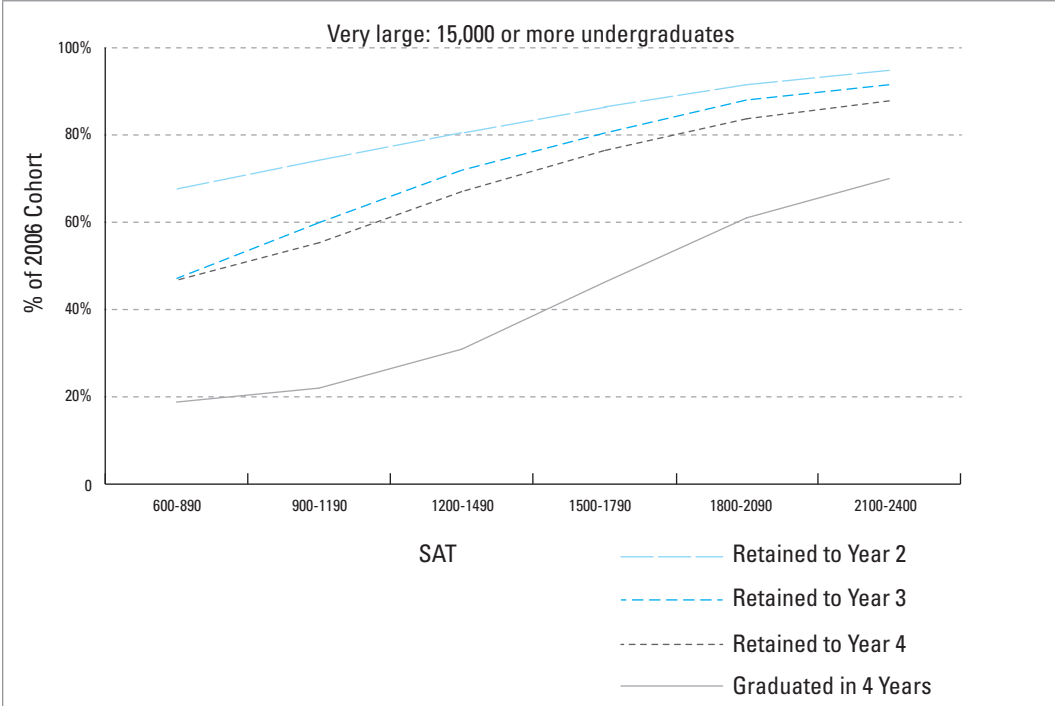
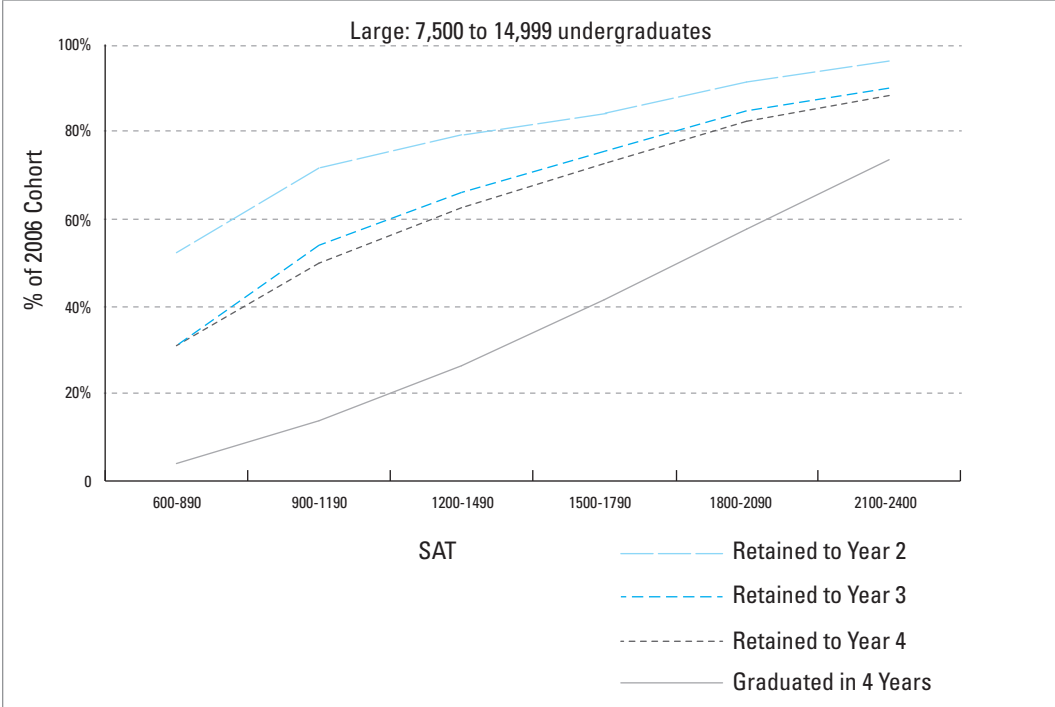


Figure 46 (continued)

Retention through four year graduation by SAT and institution size (2006 cohort)



Note: Undergraduate enrollment (i.e., size) 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.

- Figure 46 provides line graphs of retention through four-year graduation rates by SAT score band for each institutional size category for the 2006 cohort. The results clearly illuminate that higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and four-year graduation rates for institutions of varying sizes as indicated by the upward sloping lines.
- Comparing the pattern of results across plots, a similar pattern emerges, in particular for the retention results; however, as we have seen with previous results, there is more divergence when comparing graduation rates. For example, for the 1800 to 2090 score band:
 - » Second-year retention rates ranged from a low of 91% for small institutions as compared to 92% for medium and very large institutions.
 - » In terms of third year, retention rates ranged from 84% to 88% across institutional sizes.
 - » Similarly, fourth-year retention rates diverged slightly, ranging from 82% to 84%.
 - » However, as was the case with previous analyses, we see the largest discrepancies in four-year graduation rates with 58% of students attending a large institution graduating in four years as compared to 81% at small institutions.
- See Table D9 for retention- and graduation-rate means and sample sizes for each SAT score band by institutional size. Results are suppressed if based upon fewer than 15 students.

Figure 47. Retention through four year graduation by SAT and institution admittance rate (2006 cohort).

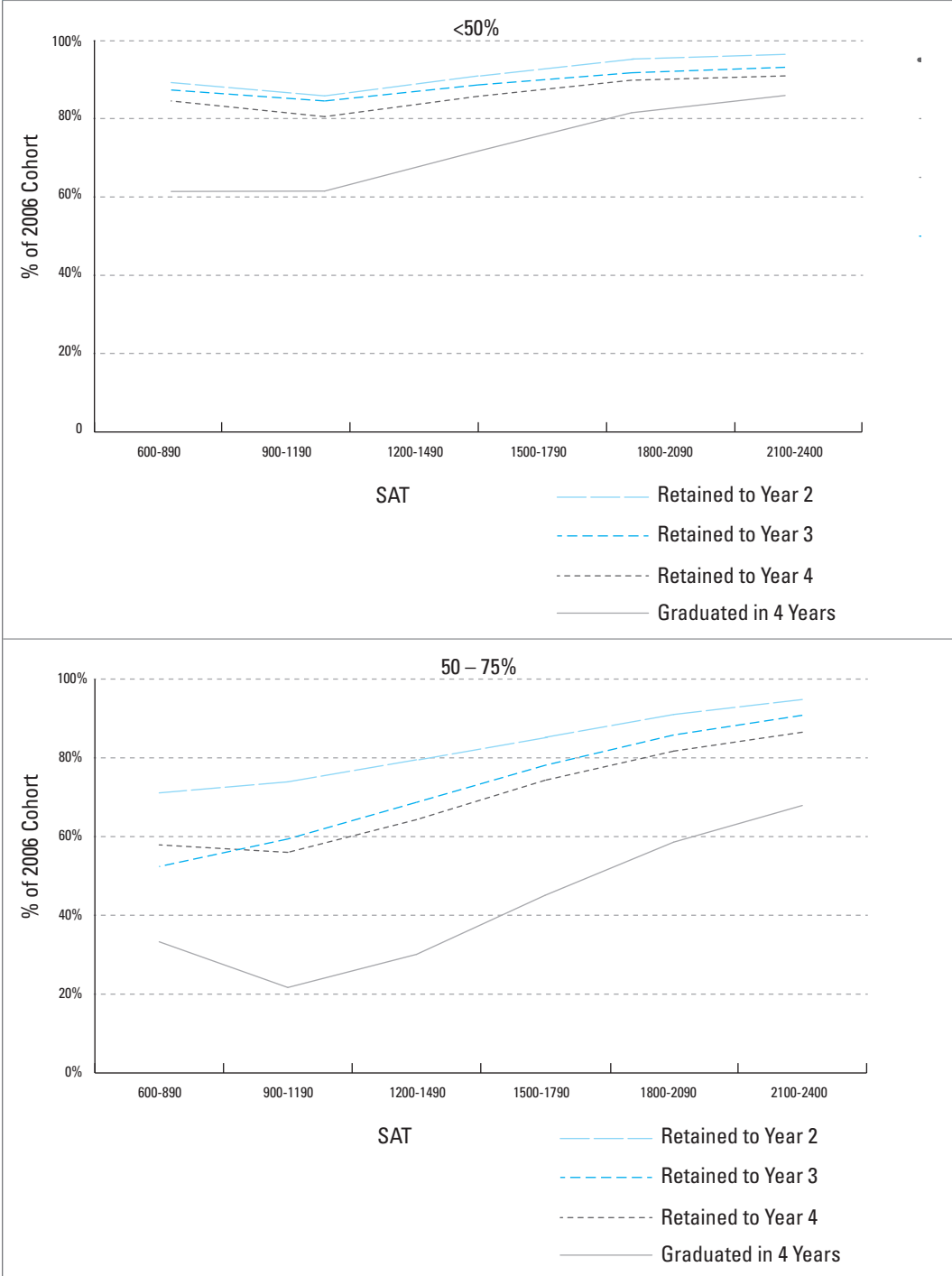
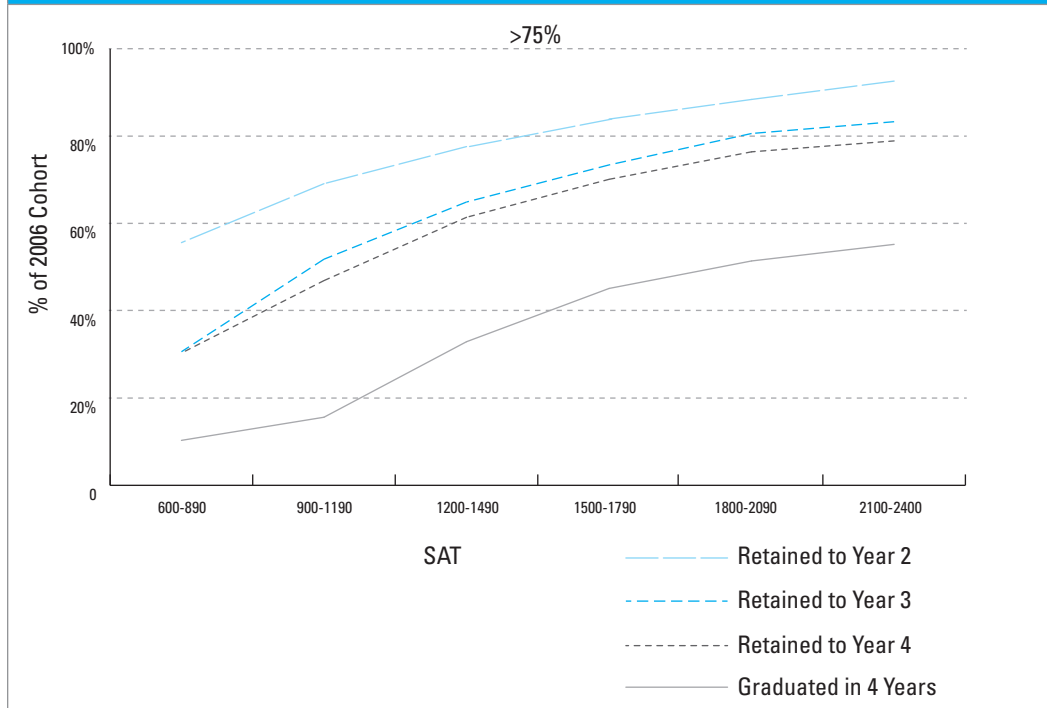


Figure 47 (continued)

Retention through four year graduation by SAT and institution admittance rate (2006 cohort).



- Figure 47 provides line graphs of retention through four-year graduation rates by SAT score band for each institutional selectivity category for the 2006 cohort. The results clearly illuminate that higher SAT scores are associated with higher second-, third-, and fourth-year retention rates and four-year graduation rates for all institutional selectivity categories as indicated by the upward sloping lines. Though it should be pointed out that the lines are less steep for the most-selective institutions (< 50%), indicating that regardless of SAT performance, students at those institutions have a high likelihood of returning and graduating.
- Comparing the pattern of results across plots, a similar pattern emerges with students in the same SAT score band having a similar likelihood of returning and ultimately graduating. That being said, there is a systematic trend for slightly higher retention rates and graduation rates at more selective institutions. For example, for the 1800 to 2090 score band:
 - » Second-year retention rates ranged from a low of 88% for the least-selective institutions (> 75%), followed by 91% at moderately selective institutions (50–75%), to a high of 95% at the most-selective institutions (< 50%).
 - » Third year retention rates ranged from a low of 81% at the least-selective institutions to a high of 92% at the most-selective institutions.
 - » Similarly, fourth-year retention rates ranged from 76% at the least selective institutions to a high of 90% at the most selective institutions.
 - » However, as was the case with previous analyses, we see the largest discrepancies

in four-year graduation rates with 82% of students attending the most-selective institutions graduating in four years as compared to 51% at the least-selective institutions.

- See Table D10 for retention- and graduation-rate means and sample sizes for each SAT score band by institutional selectivity. Results are suppressed if based upon fewer than 15 students.

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Appendix A

Table A1.

FYGPA Correlations by Cohort					
	2006 Cohort <i>N</i> = 151,316	2007 Cohort <i>N</i> = 159,286	2008 Cohort <i>N</i> = 173,963	2009 Cohort <i>N</i> = 198,253	2010 Cohort <i>N</i> = 211,403
Predictors	Corr	Corr	Corr	Corr	Corr
HSGPA	.540	.561	.555	.544	.545
SAT	.533	.557	.544	.539	.556
SAT + HSGPA	.619	.640	.631	.620	.632

Table A2.

FYGPA Correlations and Differential Prediction by Gender and Cohort					
Cohort	Gender	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
2006	Male	.590	(69,765)	-0.068	(69,765)
	Female	.650	(81,551)	0.058	(81,551)
2007	Male	.616	(72,894)	-0.072	(72,894)
	Female	.665	(86,392)	0.061	(86,392)
2008	Male	.611	(79,233)	-0.071	(79,233)
	Female	.654	(94,730)	0.060	(94,730)
2009	Male	.595	(91,087)	-0.081	(91,088)
	Female	.651	(107,165)	0.069	(107,165)
2010	Male	.610	(95,075)	-0.081	(95,075)
	Female	.659	(116,328)	0.067	(116,328)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the FYGPA for the relevant cohort.

Table A3.

FYGPA Correlations and Differential Prediction by Racial/Ethnic Identity and Cohort

Cohort	Gender	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
2006	American Indian	.631	(384)	-0.121	(798)
	Asian	.559	(14,109)	0.018	(14,296)
	Black/African American	.544	(10,096)	-0.110	(10,304)
	Hispanic	.568	(10,486)	-0.083	(10,659)
	White	.634	(104,017)	0.018	(104,024)
	Other	.613	(4,175)	-0.010	(4,497)
	No Response	.628	(6,544)	0.005	(6,738)
2007	American Indian	.544	(456)	-0.049	(823)
	Asian	.608	(14,363)	0.014	(14,555)
	Black/African American	.536	(9,998)	-0.106	(10,224)
	Hispanic	.583	(12,717)	-0.071	(12,934)
	White	.644	(109,153)	0.017	(109,153)
	Other	.607	(4,147)	-0.010	(4,480)
	No Response	.637	(6,901)	0.002	(7,117)
2008	American Indian	.550	(433)	-0.097	(852)
	Asian	.604	(17,916)	0.007	(18,183)
	Black/African American	.532	(11,412)	-0.118	(11,696)
	Hispanic	.557	(14,750)	-0.061	(14,961)
	White	.640	(119,633)	0.019	(119,651)
	Other	.562	(4,104)	0.011	(4,523)
	No Response	.604	(3,777)	-0.018	(4,097)
2009	American Indian	.529	(539)	-0.143	(977)
	Asian	.583	(21,663)	-0.005	(21,864)
	Black/African American	.527	(15,815)	-0.111	(16,039)
	Hispanic	.556	(18,327)	-0.062	(18,541)
	White	.628	(131,520)	0.025	(131,531)
	Other	.597	(4,810)	-0.027	(5,194)
	No Response	.609	(3,689)	0.007	(4,107)
2010	American Indian	.548	(361)	-0.121	(879)
	Asian	.602	(20,922)	-0.012	(21,267)
	Black/African American	.526	(18,026)	-0.111	(18,310)
	Hispanic	.555	(20,782)	-0.061	(21,024)
	White	.641	(140,329)	0.028	(140,341)
	Other	.606	(4,386)	-0.034	(4,832)
	No Response	.603	(4,267)	-0.005	(4,750)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the FYGPA for the relevant cohort.

Table A4.

FYGPA Correlations and Differential Prediction by Best Spoken Language and Cohort

Cohort	Best-Spoken Language	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
2006	Another Language	.484	(1,292)	0.192	(1,718)
	English and Another Language	.554	(7,237)	-0.016	(7,458)
	English Only	.630	(140,559)	-0.001	(140,559)
	No Response	.690	(1,171)	-0.042	(1,581)
2007	Another Language	.557	(1,227)	0.145	(1,556)
	English and Another Language	.583	(8,304)	-0.011	(8,521)
	English Only	.645	(147,117)	0.000	(147,117)
	No Response	.582	(1,678)	-0.031	(2,092)
2008	Another Language	.546	(2,267)	0.137	(2,571)
	English and Another Language	.567	(10,851)	-0.026	(11,142)
	English Only	.638	(157,217)	-0.001	(157,217)
	No Response	.609	(2,491)	0.017	(3,033)
2009	Another Language	.444	(2,866)	0.103	(3,217)
	English and Another Language	.540	(13,868)	-0.047	(14,131)
	English Only	.630	(179,558)	0.002	(179,558)
	No Response	.557	(735)	-0.001	(1,347)
2010	Another Language	.518	(3,035)	0.111	(3,508)
	English and Another Language	.578	(24,031)	-0.052	(24,131)
	English Only	.642	(182,843)	0.005	(182,843)
	No Response	.589	(231)	-0.012	(921)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the FYGPA for the relevant cohort.

Table A5.

FYGPA Correlations and Differential Prediction by Highest Parental Education and Cohort

Cohort	Highest Parental Education	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
2008	No H.S. Diploma	.545	(3,588)	-0.004	(3,970)
	H.S. Diploma	.589	(35,707)	-0.072	(35,744)
	Associate Degree	.606	(11,266)	-0.044	(11,433)
	Bachelor's Degree	.634	(57,564)	0.019	(57,564)
	Graduate Degree	.649	(55,472)	0.034	(55,475)
	No Response	.599	(9,577)	0.006	(9,777)
2009	No H.S. Diploma	.517	(4,400)	-0.039	(4,800)
	H.S. Diploma	.569	(40,228)	-0.076	(40,267)
	Associate Degree	.582	(12,967)	-0.047	(13,107)
	Bachelor's Degree	.632	(64,831)	0.025	(64,831)
	Graduate Degree	.639	(62,644)	0.035	(62,657)
	No Response	.586	(12,453)	-0.001	(12,591)
2010	No H.S. Diploma	.506	(4,914)	-0.045	(5,455)
	H.S. Diploma	.580	(42,361)	-0.071	(42,406)
	Associate Degree	.610	(13,964)	-0.040	(14,152)
	Bachelor's Degree	.638	(70,355)	0.020	(70,355)
	Graduate Degree	.653	(68,906)	0.034	(68,916)
	No Response	.585	(9,883)	0.006	(10,119)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the FYGPA for the relevant cohort. Data for the 2006 and 2007 cohorts were not available by highest parental education.

Table A6.

FYGPA Correlations and Differential Prediction by Household Income and Cohort

Cohort	Household Income	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
2008	< \$40,000	.561	(19,193)	-0.068	(19,236)
	\$40,000–80,000	.617	(33,872)	-0.024	(33,872)
	\$80,000–120,000	.638	(33,255)	0.009	(33,268)
	\$120,000–160,000	.646	(13,632)	0.017	(13,806)
	\$160,000–200,000	.631	(6,746)	0.032	(7,131)
	> \$200,000	.624	(11,525)	0.027	(11,706)
	No Response	.641	(54,944)	0.020	(54,944)
2009	< \$40,000	.540	(22,022)	-0.077	(22,062)
	\$40,000–80,000	.607	(36,246)	-0.031	(36,246)
	\$80,000–120,000	.627	(36,193)	0.006	(36,206)
	\$120,000–160,000	.646	(16,368)	0.027	(16,487)
	\$160,000–200,000	.629	(8,470)	0.026	(8,701)
	> \$200,000	.605	(14,341)	0.028	(14,545)
	No Response	.632	(64,006)	0.024	(64,006)
2010	< \$40,000	.554	(23,598)	-0.073	(23,663)
	\$40,000–80,000	.612	(35,649)	-0.023	(35,649)
	\$80,000–120,000	.645	(36,506)	0.011	(36,518)
	\$120,000–160,000	.651	(16,734)	0.030	(16,862)
	\$160,000–200,000	.644	(8,816)	0.034	(9,204)
	> \$200,000	.640	(15,907)	0.027	(16,225)
	No Response	.641	(73,282)	0.012	(73,282)

Table A7.

FYGPA Correlations by Institutional Control and Cohort

Cohort	Control	Correlation (<i>M</i>)	
2006	Private	.649	(45,786)
	Public	.606	(105,530)
2007	Private	.677	(42,615)
	Public	.627	(116,671)
2008	Private	.670	(47,722)
	Public	.617	(126,241)
2009	Private	.658	(52,460)
	Public	.607	(145,793)
2010	Private	.681	(67,293)
	Public	.610	(144,110)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort.

Table A8.

FYGPA Correlations by Institutional Size and Cohort

Cohort	Size	Correlation (<i>M</i>)	
2006	Small	.673	(6,471)
	Medium	.633	(30,333)
	Large	.617	(40,861)
	Very Large	.610	(73,651)
2007	Small	.682	(7,678)
	Medium	.655	(29,242)
	Large	.631	(33,428)
	Very Large	.635	(88,938)
2008	Small	.667	(7,044)
	Medium	.646	(33,452)
	Large	.629	(33,143)
	Very Large	.625	(100,324)
2009	Small	.677	(6,809)
	Medium	.636	(33,602)
	Large	.612	(39,024)
	Very Large	.616	(118,818)
2010	Small	.699	(9,350)
	Medium	.661	(42,501)
	Large	.625	(50,846)
	Very Large	.619	(108,706)

Note: Undergraduate enrollment (i.e., size) 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. Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort.

Table A9.			
FYGPA Correlations by Institutional Admittance Rate and Cohort			
Cohort	Admit. Rate	Correlation (M)	
2006	> 75%	.604	(39,611)
	50–75%	.615	(84,433)
	< 50%	.654	(27,272)
2007	> 75%	.621	(32,129)
	50–75%	.641	(108,482)
	< 50%	.672	(18,675)
2008	> 75%	.610	(25,795)
	50–75%	.628	(114,619)
	< 50%	.662	(33,549)
2009	> 75%	.606	(33,397)
	50–75%	.616	(129,442)
	< 50%	.658	(35,414)
2010	> 75%	.644	(23,916)
	50–75%	.624	(147,229)
	< 50%	.659	(40,258)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with FYGPA for the relevant cohort

Appendix B

Table B1.				
2006 Cohort GPA Correlations by Year				
	Year 1 <i>N</i> = 151,316	Year 2 <i>N</i> = 80,958	Year 3 <i>N</i> = 63,736	Year 4 <i>N</i> = 56,939
Predictors	Corr	Corr	Corr	Corr
HSGPA	.540	.557	.574	.560
SAT	.533	.554	.578	.560
SAT + HSGPA	.619	.637	.661	.643

Table B2.					
2006 Cohort GPA Correlations and Differential Prediction by Gender and Year					
Outcome	Gender	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
Year 1 GPA	Male	.590	(69,765)	-0.068	(69,765)
	Female	.650	(81,551)	0.058	(81,551)
Year 2 GPA	Male	.607	(36,389)	-0.076	(36,389)
	Female	.667	(44,569)	0.062	(44,569)
Year 3 GPA	Male	.636	(28,551)	-0.070	(28,551)
	Female	.687	(35,185)	0.057	(35,185)
Year 4 GPA	Male	.621	(25,730)	-0.072	(25,730)
	Female	.671	(31,209)	0.059	(31,209)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the relevant GPA.

Table B3.

2006 Cohort GPA Correlations and Differential Prediction by Racial/Ethnic Identity and Year

Outcome	Racial/Ethnic Identity	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
Year 1 GPA	American Indian	.631	(384)	-0.121	(798)
	Asian	.559	(14,109)	0.018	(14,296)
	Black/African American	.544	(10,096)	-0.110	(10,304)
	Hispanic	.568	(10,486)	-0.083	(10,659)
	White	.634	(104,017)	0.018	(104,024)
	Other	.613	(4,175)	-0.010	(4,497)
	No Response	.628	(6,544)	0.005	(6,738)
Year 2 GPA	American Indian	.674	(168)	-0.086	(419)
	Asian	.567	(7,720)	0.010	(7,835)
	Black/African American	.546	(4,614)	-0.141	(4,728)
	Hispanic	.563	(5,223)	-0.083	(5,326)
	White	.644	(56,604)	0.019	(56,604)
	Other	.579	(2,214)	-0.023	(2,410)
	No Response	.602	(3,537)	0.013	(3,636)
Year 3 GPA	American Indian	.548	(70)	-0.096	(295)
	Asian	.565	(6,450)	0.003	(6,586)
	Black/African American	.560	(3,516)	-0.147	(3,648)
	Hispanic	.578	(3,817)	-0.077	(3,954)
	White	.668	(44,431)	0.019	(44,431)
	Other	.619	(1,691)	-0.003	(1,902)
	No Response	.625	(2,864)	0.008	(2,920)
Year 4 GPA	American Indian	.702	(52)	-0.108	(263)
	Asian	.541	(5,711)	-0.003	(5,832)
	Black/African American	.554	(3,135)	-0.156	(3,277)
	Hispanic	.549	(3,394)	-0.081	(3,514)
	White	.649	(39,785)	0.021	(39,785)
	Other	.587	(1,481)	-0.009	(1,691)
	No Response	.602	(2,503)	0.002	(2,577)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the relevant GPA.

Table B4.

2006 Cohort GPA Correlations and Differential Prediction by Best Spoken Language and Year

Outcome	Best-Spoken Language	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
Year 1 GPA	Another Language	.484	(1,292)	0.192	(1,718)
	English and Another Language	.554	(7,237)	-0.016	(7,458)
	English Only	.630	(140,559)	-0.001	(140,559)
	No Response	.690	(1,171)	-0.042	(1,581)
Year 2 GPA	Another Language	.403	(502)	0.199	(748)
	English and Another Language	.537	(3,550)	-0.022	(3,727)
	English Only	.646	(75,671)	-0.001	(75,671)
	No Response	.544	(524)	-0.032	(812)
Year 3 GPA	Another Language	.390	(402)	0.149	(627)
	English and Another Language	.545	(2,966)	-0.031	(3,118)
	English Only	.670	(59,373)	0.000	(59,373)
	No Response	.589	(350)	-0.007	(618)
Year 4 GPA	Another Language	.330	(337)	0.125	(548)
	English and Another Language	.517	(2,605)	-0.043	(2,741)
	English Only	.652	(53,102)	0.001	(53,102)
	No Response	.533	(297)	-0.016	(548)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the relevant GPA. Data for the first- and second-year cumulative GPA were not available by highest parental education.

Table B5.

2006 Cohort GPA Correlations and Differential Prediction by Highest Parental Education and Year

Outcome	Highest Parental Education	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
Year 3 GPA	No H.S. Diploma	.534	(793)	-0.026	(1,010)
	H.S. Diploma	.605	(11,566)	-0.051	(11,591)
	Associate Degree	.639	(3,676)	-0.034	(3,805)
	Bachelor's Degree	.665	(21,319)	0.008	(21,319)
	Graduate Degree	.679	(22,895)	0.023	(22,895)
	No Response	.630	(3,024)	0.018	(3,116)
Year 4 GPA	No H.S. Diploma	.524	(691)	-0.037	(879)
	H.S. Diploma	.592	(10,031)	-0.049	(10,053)
	Associate Degree	.620	(3,241)	-0.030	(3,350)
	Bachelor's Degree	.646	(19,235)	0.008	(19,235)
	Graduate Degree	.659	(20,639)	0.021	(20,665)
	No Response	.609	(2,661)	0.011	(2,757)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the relevant GPA. Data for the first- and second-year cumulative GPA were not available by highest parental education.

Table B6.

2006 Cohort GPA Correlations and Differential Prediction by Household Income and Year

Outcome	Household Income	Correlation (<i>M</i>)		Diff.	Pred. (<i>M</i>)
Year 3 GPA	< \$30,000	.575	(4,270)	-0.056	(4,371)
	\$30,000– 50,000	.627	(5,615)	-0.035	(5,658)
	\$50,000– 70,000	.644	(6,697)	-0.026	(6,734)
	\$70,000– 100,000	.656	(10,793)	0.002	(10,817)
	> \$100,000	.684	(15,310)	0.016	(15,330)
	No Response	.663	(20,826)	0.017	(20,826)
Year 4 GPA	< \$30,000	.553	(3,723)	-0.061	(3,820)
	\$30,000– 50,000	.621	(4,959)	-0.035	(5,013)
	\$50,000– 70,000	.624	(5,926)	-0.021	(5,960)
	\$70,000– 100,000	.642	(9,663)	0.004	(9,683)
	> \$100,000	.669	(13,861)	0.017	(13,879)
	No Response	.641	(18,584)	0.013	(18,584)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA. Similarly, differential prediction is based upon models of HSGPA and separate SAT sections predicting the relevant GPA. Data for the first- and second-year cumulative GPA were not available by household income.

Table B7.

2006 Cohort GPA Correlations and Differential Prediction by Institutional Control and Year

Outcome	Control	Correlation (<i>M</i>)	
Year 1 GPA	Private	.649	(45,786)
	Public	.606	(105,530)
Year 2 GPA	Private	.661	(28,415)
	Public	.625	(52,543)
Year 3 GPA	Private	.679	(23,733)
	Public	.651	(40,003)
Year 4 GPA	Private	.659	(20,720)
	Public	.635	(36,219)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA.

Table B8.

2006 Cohort GPA Correlations and Differential Prediction by Institutional Size and Year

Outcome	Size	Correlation (<i>M</i>)	
Year 1 GPA	Small	.673	(6,471)
	Medium	.633	(30,333)
	Large	.617	(40,861)
	Very Large	.610	(73,651)
Year 2 GPA	Small	.672	(3,697)
	Medium	.656	(16,958)
	Large	.633	(25,231)
	Very Large	.629	(35,072)
Year 3 GPA	Small	.708	(2,653)
	Medium	.682	(12,383)
	Large	.657	(20,790)
	Very Large	.650	(27,910)
Year 4 GPA	Small	.682	(2,573)
	Medium	.666	(9,498)
	Large	.644	(18,648)
	Very Large	.631	(26,220)

Note: Undergraduate enrollment (i.e., size) 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. Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA.

Table B9.

2006 Cohort GPA Correlations and Differential Prediction by Admittance Rate and Year

Outcome	Admit. Rate	Correlation (<i>M</i>)	
Year 1 GPA	> 75%	.604	(39,611)
	50–75%	.615	(84,433)
	< 50%	.654	(27,272)
Year 2 GPA	> 75%	.636	(13,599)
	50–75%	.635	(55,577)
	< 50%	.656	(11,782)
Year 3 GPA	> 75%	.674	(10,574)
	50–75%	.655	(42,282)
	< 50%	.675	(10,880)
Year 4 GPA	> 75%	.639	(9,051)
	50–75%	.643	(38,141)
	< 50%	.652	(9,747)

Note: Correlations are multiple correlations of HSGPA and separate SAT sections with the relevant GPA.

Appendix C

Table C1.

Retention to Year 2 by SAT Score Band and Cohort

SAT Score	Cohort									
	2006		2007		2008		2009		2010	
	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
600–890	105	0.638	189	0.651	183	0.601	187	0.701	253	0.601
900–1190	3,172	0.726	4,616	0.716	5,107	0.708	6,022	0.709	7,034	0.726
1200–1490	32,393	0.792	35,365	0.782	38,422	0.779	42,326	0.790	48,942	0.785
1500–1790	63,319	0.854	68,243	0.863	76,452	0.857	82,759	0.870	87,950	0.866
1800–2090	40,276	0.915	46,919	0.924	49,252	0.915	57,132	0.923	59,224	0.923
2100–2400	8,734	0.955	9,030	0.954	8,144	0.952	10,940	0.956	12,301	0.955

Table C2.

Retention to Year 2 by HSGPA and Cohort

HSGPA	Cohort									
	2006		2007		2008		2009		2010	
	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
≤ C-	234	0.650	262	0.599	269	0.643	324	0.636	445	0.742
C	1,093	0.673	1,252	0.633	1,287	0.616	1,367	0.650	1,391	0.674
C+	2,582	0.696	2,767	0.681	2,947	0.658	3,146	0.679	3,799	0.688
B-	6,738	0.740	6,890	0.725	7,400	0.728	8,021	0.735	9,392	0.733
B	20,086	0.791	20,886	0.783	22,660	0.779	23,975	0.789	26,042	0.788
B+	26,937	0.832	29,477	0.842	32,509	0.829	35,845	0.841	39,697	0.834
A-	35,265	0.876	39,961	0.882	44,994	0.875	50,669	0.886	53,998	0.882
A	38,872	0.908	44,438	0.911	48,299	0.905	56,533	0.915	59,866	0.911
A+	16,192	0.934	18,429	0.936	17,195	0.930	19,486	0.934	21,074	0.934

Table C3.

Retention to Year 2 by SAT Score Band, HSGPA and Cohort

Cohort	HSGPA	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
2006	≤ C	28	0.643	495	0.667	1,937	0.683	1,221	0.693	219	0.731	9	n/r
	B	59	0.593	2,001	0.726	18,270	0.773	24,490	0.815	8,263	0.859	678	0.892
	A	18	0.778	676	0.768	12,186	0.839	37,608	0.884	31,794	0.931	8,047	0.960
2007	≤ C	55	0.545	787	0.634	2,027	0.644	1,174	0.700	232	0.741	6	n/r
	B	106	0.717	2,891	0.719	19,420	0.763	24,907	0.822	9,185	0.877	744	0.886
	A	28	0.607	938	0.777	13,918	0.828	42,162	0.892	37,502	0.936	8,280	0.960
2008	≤ C	58	0.569	830	0.629	2,107	0.631	1,259	0.662	235	0.749	14	n/r
	B	94	0.606	3,148	0.703	21,075	0.760	27,896	0.815	9,638	0.861	718	0.898
	A	31	0.645	1,129	0.780	15,240	0.827	47,297	0.886	39,379	0.929	7,412	0.958
2009	≤ C	45	0.644	941	0.627	2,299	0.663	1,305	0.689	228	0.763	19	0.842
	B	112	0.714	3,687	0.706	22,896	0.767	29,334	0.831	10,929	0.871	883	0.922
	A	30	0.733	1,394	0.773	17,131	0.838	52,120	0.896	45,975	0.936	10,038	0.959
2010	≤ C	49	0.612	1,003	0.660	2,692	0.675	1,508	0.708	349	0.788	34	0.941
	B	149	0.617	4,504	0.723	27,033	0.764	31,379	0.826	11,078	0.875	988	0.904
	A	55	0.545	1,527	0.778	19,217	0.830	55,063	0.893	47,797	0.935	11,279	0.960

n/r: Not reported due to small sample size (i.e., $n < 15$).**Table C4.**

Retention to Year 2 by SAT Score Band, Gender and Cohort

Cohort	Gender	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
2006	Male	47	0.574	1,261	0.709	13,088	0.782	28,851	0.847	20,204	0.908	4,557	0.954
	Female	58	0.690	1,911	0.737	19,305	0.799	34,468	0.859	20,072	0.923	4,177	0.955
2007	Male	90	0.678	1,794	0.721	14,508	0.774	30,798	0.855	23,694	0.920	4,866	0.950
	Female	99	0.626	2,822	0.713	20,857	0.787	37,445	0.870	23,225	0.928	4,164	0.958
2008	Male	92	0.609	1,974	0.701	15,489	0.766	34,463	0.846	24,828	0.908	4,408	0.949
	Female	91	0.593	3,133	0.712	22,933	0.788	41,989	0.865	24,424	0.921	3,736	0.956
2009	Male	81	0.716	2,339	0.701	17,034	0.775	37,169	0.857	28,913	0.915	6,089	0.952
	Female	106	0.689	3,683	0.715	25,292	0.800	45,590	0.880	28,219	0.931	4,851	0.961
2010	Male	105	0.667	2,627	0.708	19,542	0.767	39,133	0.853	29,432	0.916	6,605	0.952
	Female	148	0.554	4,407	0.737	29,400	0.796	48,817	0.877	29,792	0.930	5,696	0.959

Table C5.

Retention to Year 2 by SAT Score Band, Racial/Ethnic Identity and Cohort

Cohort	Racial/Ethnic Identity	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
2006	American Indian	0	n/r	22	0.682	226	0.743	366	0.781	178	0.848	20	0.900
	Asian	12	n/r	233	0.798	2,411	0.835	5,106	0.878	4,216	0.927	1,317	0.969
	Black/Afric. Amer.	38	0.526	820	0.737	4,212	0.802	3,764	0.874	1,019	0.919	64	0.906
	Hispanic	17	0.647	537	0.680	3,593	0.763	4,331	0.844	1,817	0.913	214	0.935
	White	26	0.615	1,298	0.722	19,844	0.790	45,573	0.851	29,635	0.915	6,192	0.953
	Other	7	n/r	140	0.743	989	0.805	1,779	0.848	1,182	0.916	255	0.961
	No Response	5	n/r	122	0.746	1,118	0.798	2,400	0.855	2,229	0.904	672	0.955
2007	American Indian	2	n/r	38	0.579	236	0.703	375	0.832	189	0.889	20	0.900
	Asian	14	n/r	282	0.784	2,444	0.833	5,269	0.890	5,136	0.943	1,733	0.964
	Black/Afric. Amer.	74	0.716	1,269	0.720	4,754	0.805	3,507	0.883	956	0.915	78	0.936
	Hispanic	37	0.432	907	0.741	4,577	0.778	5,554	0.845	2,164	0.904	183	0.929
	White	43	0.791	1,780	0.693	21,130	0.772	48,960	0.862	34,547	0.923	6,121	0.953
	Other	4	n/r	128	0.711	1,017	0.788	1,878	0.869	1,365	0.929	242	0.950
	No Response	15	0.733	212	0.726	1,207	0.774	2,700	0.855	2,562	0.920	653	0.943
2008	American Indian	0	n/r	41	0.659	223	0.726	419	0.809	183	0.896	17	0.882
	Asian	11	n/r	365	0.786	3,162	0.844	7,221	0.888	6,112	0.938	1,601	0.964
	Black/Afric. Amer.	89	0.596	1,433	0.737	5,193	0.799	4,196	0.870	1,042	0.924	55	0.909
	Hispanic	33	0.667	955	0.731	5,459	0.782	6,416	0.858	2,346	0.898	189	0.926
	White	32	0.688	2,032	0.662	22,692	0.765	54,703	0.852	36,762	0.913	5,768	0.952
	Other	9	n/r	160	0.719	1,000	0.781	1,887	0.866	1,351	0.910	200	0.935
	No Response	9	n/r	121	0.711	693	0.785	1,610	0.833	1,456	0.891	314	0.930
2009	American Indian	0	n/r	36	0.556	261	0.713	444	0.813	215	0.893	30	0.967
	Asian	11	n/r	383	0.799	3,389	0.843	7,958	0.896	7,630	0.930	2,562	0.960
	Black/Afric. Amer.	97	0.660	2,113	0.714	7,216	0.793	5,348	0.880	1,299	0.933	86	0.942
	Hispanic	27	0.741	1,173	0.716	6,401	0.805	7,799	0.866	3,016	0.920	261	0.935
	White	39	0.821	2,017	0.690	23,337	0.779	57,647	0.865	41,930	0.922	7,292	0.955
	Other	7	n/r	175	0.669	1,088	0.781	2,054	0.883	1,548	0.923	347	0.971
	No Response	6	n/r	125	0.704	634	0.776	1,509	0.861	1,494	0.912	362	0.948
2010	American Indian	1	n/r	27	0.667	269	0.695	375	0.845	208	0.899	20	1.000
	Asian	12	n/r	394	0.812	3,113	0.834	7,311	0.893	7,862	0.932	2,950	0.954
	Black/Afric. Amer.	108	0.667	2,396	0.728	8,736	0.785	5,871	0.859	1,558	0.926	112	0.964
	Hispanic	68	0.574	1,745	0.739	7,571	0.794	8,384	0.863	3,397	0.923	351	0.940
	White	49	0.551	2,158	0.700	27,386	0.778	62,364	0.864	43,068	0.921	8,052	0.956
	Other	6	n/r	192	0.708	1,110	0.760	1,864	0.868	1,421	0.920	338	0.962
	No Response	9	n/r	122	0.721	757	0.783	1,781	0.860	1,710	0.923	478	0.948

n/r: Not reported due to small sample size (i.e., $n < 15$).

Table C6.

Retention to Year 2 by SAT Score Band, Highest Parental Education and Cohort

Cohort	Highest Parental Education	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
2006	No H.S. Diploma	13	n/r	271	0.764	1,139	0.777	944	0.851	239	0.904	37	0.919
	H.S. Diploma	47	0.596	1,309	0.684	10,595	0.771	13,546	0.818	4,624	0.886	446	0.944
	Associate Degree	7	n/r	276	0.714	3,109	0.785	4,557	0.831	1,620	0.904	171	0.947
	Bachelor's Degree	13	n/r	731	0.744	9,684	0.803	22,612	0.861	13,647	0.918	2,304	0.951
	Graduate Degree	14	n/r	367	0.763	6,260	0.815	18,779	0.874	18,149	0.922	5,247	0.957
	No Response	11	n/r	218	0.817	1,606	0.806	2,881	0.871	1,997	0.912	529	0.958
2007	No H.S. Diploma	23	0.391	400	0.775	1,534	0.783	1,167	0.839	325	0.914	33	0.788
	H.S. Diploma	95	0.632	2,015	0.687	12,120	0.754	14,398	0.825	5,147	0.901	432	0.949
	Associate Degree	14	n/r	427	0.738	3,283	0.769	4,794	0.839	1,850	0.898	152	0.928
	Bachelor's Degree	25	0.800	932	0.729	10,421	0.801	24,430	0.876	16,259	0.926	2,375	0.947
	Graduate Degree	11	n/r	493	0.746	6,198	0.810	20,384	0.883	21,057	0.931	5,563	0.958
	No Response	21	0.667	349	0.716	1,809	0.782	3,070	0.856	2,281	0.920	475	0.960
2008	No H.S. Diploma	15	0.667	420	0.745	1,840	0.831	1,443	0.861	363	0.906	28	1.000
	H.S. Diploma	74	0.649	2,150	0.695	12,715	0.749	16,057	0.827	5,378	0.884	392	0.926
	Associate Degree	24	0.458	444	0.687	3,626	0.764	5,444	0.836	2,011	0.891	163	0.963
	Bachelor's Degree	28	0.500	1,005	0.712	11,213	0.795	27,114	0.865	16,979	0.917	2,230	0.948
	Graduate Degree	15	0.667	554	0.720	6,749	0.800	22,511	0.873	21,782	0.923	4,790	0.957
	No Response	27	0.630	534	0.725	2,279	0.789	3,883	0.853	2,739	0.911	541	0.945
2009	No H.S. Diploma	19	0.737	521	0.733	2,113	0.810	1,692	0.867	444	0.908	56	1.000
	H.S. Diploma	82	0.671	2,502	0.686	13,966	0.762	17,338	0.838	6,273	0.900	469	0.945
	Associate Degree	10	n/r	591	0.714	4,146	0.776	6,009	0.852	2,242	0.907	196	0.949
	Bachelor's Degree	33	0.667	1,168	0.738	12,108	0.803	29,266	0.880	19,696	0.925	2,859	0.950
	Graduate Degree	15	0.800	633	0.735	7,216	0.824	23,708	0.884	24,818	0.929	6,510	0.959
	No Response	28	0.679	607	0.699	2,777	0.798	4,746	0.874	3,659	0.918	850	0.955
2010	No H.S. Diploma	36	0.694	765	0.761	2,462	0.797	1,790	0.859	498	0.916	47	0.979
	H.S. Diploma	103	0.524	2,920	0.698	15,921	0.758	17,857	0.833	6,245	0.892	562	0.943
	Associate Degree	17	0.765	637	0.713	4,842	0.756	6,530	0.850	2,296	0.917	196	0.939
	Bachelor's Degree	32	0.656	1,383	0.743	14,585	0.807	31,842	0.875	20,536	0.927	3,192	0.951
	Graduate Degree	26	0.577	678	0.771	8,482	0.808	26,137	0.884	27,055	0.928	7,679	0.959
	No Response	39	0.615	651	0.742	2,650	0.788	3,794	0.860	2,594	0.920	625	0.942

n/r: Not reported due to small sample size (i.e., $n < 15$).

Table C7.

Retention to Year 2 by SAT Score Band, Institutional Control and Cohort

Cohort	Control	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
2006	Private	22	0.773	685	0.731	6,762	0.791	15,610	0.871	16,884	0.928	5,798	0.959
	Public	83	0.602	2,487	0.724	25,631	0.793	47,709	0.848	23,392	0.906	2,936	0.947
2007	Private	39	0.615	780	0.672	5,928	0.776	14,923	0.874	16,817	0.927	4,812	0.957
	Public	150	0.660	3,836	0.725	29,437	0.783	53,320	0.860	30,102	0.922	4,218	0.950
2008	Private	35	0.543	813	0.717	7,523	0.782	19,183	0.862	17,035	0.920	4,126	0.956
	Public	148	0.615	4,294	0.706	30,899	0.778	57,269	0.855	32,217	0.912	4,018	0.948
2009	Private	35	0.686	942	0.714	7,850	0.808	19,438	0.875	18,907	0.927	5,508	0.959
	Public	152	0.704	5,080	0.708	34,476	0.786	63,321	0.868	38,225	0.921	5,432	0.953
2010	Private	44	0.659	1,163	0.715	10,396	0.799	25,641	0.873	24,284	0.929	7,138	0.957
	Public	209	0.589	5,871	0.728	38,546	0.781	62,309	0.863	34,940	0.919	5,163	0.952

Table C8.

Retention to Year 2 by SAT Score Band, Institutional Size and Cohort

Cohort	Size	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
2006	Small	6	n/r	210	0.657	1,627	0.714	2,562	0.830	1,680	0.912	345	0.928
	Medium	21	0.905	707	0.738	6,986	0.786	11,172	0.847	8,313	0.918	2,911	0.960
	Large	44	0.523	1,243	0.717	10,663	0.793	17,535	0.842	10,119	0.914	2,247	0.962
	Very Large	34	0.676	1,012	0.742	13,117	0.805	32,050	0.864	20,164	0.915	3,231	0.948
2007	Small	23	0.522	495	0.646	1,916	0.739	2,644	0.853	1,860	0.912	591	0.951
	Medium	56	0.643	1,049	0.679	7,061	0.751	11,415	0.844	8,451	0.916	2,053	0.962
	Large	34	0.853	1,162	0.731	8,528	0.759	13,338	0.835	8,995	0.916	1,867	0.945
	Very Large	76	0.605	1,910	0.747	17,860	0.809	40,846	0.879	27,613	0.930	4,519	0.954
2008	Small	15	0.533	434	0.751	1,880	0.728	2,660	0.828	1,735	0.904	466	0.955
	Medium	45	0.556	1,361	0.663	8,430	0.745	13,587	0.827	8,972	0.903	1,874	0.954
	Large	44	0.659	1,031	0.692	8,088	0.761	13,952	0.834	8,980	0.908	1,653	0.943
	Very Large	79	0.608	2,281	0.734	20,024	0.806	46,253	0.874	29,565	0.921	4,151	0.955
2009	Small	10	n/r	349	0.679	1,889	0.762	2,528	0.846	1,604	0.911	482	0.948
	Medium	45	0.711	1,554	0.696	7,897	0.788	12,427	0.858	9,316	0.921	2,580	0.966
	Large	41	0.732	1,601	0.696	10,752	0.739	15,094	0.833	9,691	0.907	2,064	0.942
	Very Large	91	0.692	2,518	0.730	21,788	0.819	52,710	0.884	36,521	0.928	5,814	0.957
2010	Small	8	n/r	406	0.687	2,830	0.753	3,808	0.833	2,115	0.903	361	0.945
	Medium	57	0.596	1,548	0.680	10,416	0.773	17,085	0.858	11,013	0.923	3,170	0.955
	Large	73	0.685	2,413	0.753	13,902	0.760	19,013	0.848	13,518	0.920	3,180	0.954
	Very Large	115	0.557	2,667	0.735	21,794	0.810	48,044	0.879	32,578	0.925	5,590	0.956

Note: Undergraduate enrollment (i.e., size) 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. n/r: Not reported due to small sample size (i.e., $n < 15$).

Table C9.

Retention to Year 2 by SAT Score Band, Institutional Admittance Rate and Cohort

Cohort	Admit. Rate	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
2006	> 75%	54	0.556	1,387	0.691	11,877	0.776	18,559	0.839	7,748	0.884	742	0.926
	50–75%	45	0.711	1,619	0.739	18,448	0.795	38,950	0.852	22,602	0.910	3,120	0.948
	< 50%	6	n/r	166	0.892	2,068	0.858	5,810	0.909	9,926	0.952	4,872	0.964
2007	> 75%	83	0.566	1,621	0.669	10,668	0.749	14,502	0.829	5,344	0.886	512	0.938
	50–75%	91	0.736	2,569	0.745	23,275	0.794	49,536	0.869	32,431	0.923	4,791	0.946
	< 50%	15	0.600	426	0.721	1,422	0.826	4,205	0.916	9,144	0.950	3,727	0.967
2008	> 75%	68	0.588	1,804	0.675	9,203	0.736	11,116	0.812	3,737	0.870	304	0.921
	50–75%	105	0.619	2,922	0.713	26,356	0.785	53,849	0.854	30,380	0.905	3,434	0.940
	< 50%	10	n/r	381	0.822	2,863	0.866	11,487	0.913	15,135	0.945	4,406	0.964
2009	> 75%	50	0.760	1,701	0.701	10,397	0.785	14,686	0.847	6,139	0.896	668	0.934
	50–75%	129	0.674	3,865	0.708	29,427	0.788	58,105	0.869	34,443	0.916	4,228	0.949
	< 50%	8	n/r	456	0.752	2,502	0.844	9,968	0.907	16,550	0.946	6,044	0.963
2010	> 75%	53	0.547	1,177	0.700	7,718	0.776	11,271	0.841	3,841	0.878	299	0.900
	50–75%	175	0.589	5,270	0.718	37,009	0.780	64,960	0.863	37,667	0.916	5,168	0.949
	< 50%	25	0.800	587	0.848	4,215	0.844	11,719	0.909	17,716	0.947	6,834	0.962

n/r: Not reported due to small sample size (i.e., $n < 15$).

Appendix D

Table D1.

2006 Cohort Retention and Graduation Rates by SAT Score Band and Year

SAT Score	Retention						Year 4 Graduation	
	Year 2		Year 3		Year 4		N	Mean
	N	Mean	N	Mean	N	Mean		
600–890	105	0.638	60	0.400	55	0.418	50	0.200
900–1190	3,172	0.726	1,690	0.571	1,520	0.531	1,375	0.211
1200–1490	32,393	0.792	18,140	0.682	16,193	0.640	15,213	0.322
1500–1790	63,319	0.854	37,859	0.781	32,435	0.745	33,151	0.475
1800–2090	40,276	0.915	26,347	0.867	23,468	0.833	24,470	0.632
2100–2400	8,734	0.955	5,285	0.916	4,969	0.884	4,731	0.750

Note: Based upon revisions to the four-year graduation data that occurred after the publication of Mattern, Patterson, and Wyatt (2013) a few minor differences exist between these data and that report's Figure 1.

Table D2.

2006 Cohort Retention and Graduation Rates by HSGPA and Year

HSGPA	Retention						Year 4 Graduation	
	Year 2		Year 3		Year 4		N	Mean
	N	Mean	N	Mean	N	Mean		
≤ C-	234	0.650	127	0.409	120	0.400	115	0.157
C	1,093	0.673	602	0.515	550	0.500	513	0.191
C+	2,582	0.696	1,375	0.572	1,302	0.522	1,192	0.216
B-	6,738	0.740	3,776	0.613	3,502	0.571	3,257	0.262
B	20,086	0.791	11,533	0.688	10,430	0.655	9,844	0.351
B+	26,937	0.832	15,989	0.753	14,175	0.715	13,887	0.447
A-	35,265	0.876	21,720	0.813	18,856	0.783	19,116	0.527
A	38,872	0.908	24,194	0.850	20,821	0.816	21,780	0.593
A+	16,192	0.934	10,065	0.888	8,884	0.852	9,286	0.654

Table D3.

2006 Cohort Retention and Graduation Rates by SAT Score Band, HSGPA and Year

Outcome	HSGPA	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
Retention to Year 2	≤ C	28	0.643	495	0.667	1,937	0.683	1,221	0.693	219	0.731	9	n/r
	B	59	0.593	2,001	0.726	18,270	0.773	24,490	0.815	8,263	0.859	678	0.892
	A	18	0.778	676	0.768	12,186	0.839	37,608	0.884	31,794	0.931	8,047	0.960
Retention to Year 3	≤ C	18	0.500	298	0.480	1,002	0.547	643	0.568	134	0.567	9	n/r
	B	36	0.333	1,015	0.566	10,023	0.654	14,339	0.728	5,423	0.797	462	0.835
	A	6	n/r	377	0.658	7,115	0.740	22,877	0.820	20,790	0.887	4,814	0.924
Retention to Year 4	≤ C	17	0.471	270	0.430	951	0.503	603	0.542	123	0.537	8	n/r
	B	33	0.364	911	0.524	9,160	0.617	12,679	0.691	4,891	0.763	433	0.799
	A	5	n/r	339	0.631	6,082	0.698	19,153	0.787	18,454	0.853	4,528	0.892
Year 4 Graduation	≤ C	17	0.235	251	0.183	850	0.199	574	0.202	120	0.292	8	n/r
	B	28	0.143	806	0.208	8,412	0.295	12,358	0.406	4,965	0.521	419	0.618
	A	5	n/r	318	0.239	5,951	0.377	20,219	0.525	19,385	0.663	4,304	0.763

Note: Based upon revisions to the four-year graduation data that occurred after the publication of Mattern, Patterson, and Wyatt (2013) a few minor differences exist between these data and that report's Figure 2. n/r: Not reported due to small sample size (i.e., $n < 15$).

Table D4.

2006 Cohort Retention and Graduation Rates by SAT Score Band, Gender and Year

Outcome	Gender	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
Retention to Year 2	Male	47	0.574	1,261	0.709	13,088	0.782	28,851	0.847	20,204	0.908	4,557	0.954
	Female	58	0.690	1,911	0.737	19,305	0.799	34,468	0.859	20,072	0.923	4,177	0.955
Retention to Year 3	Male	24	0.375	665	0.585	7,196	0.670	16,769	0.771	12,935	0.857	2,708	0.909
	Female	36	0.417	1,025	0.562	10,944	0.689	21,090	0.789	13,412	0.876	2,577	0.923
Retention to Year 4	Male	23	0.391	582	0.538	6,402	0.629	14,537	0.737	11,631	0.828	2,551	0.884
	Female	32	0.438	938	0.527	9,791	0.648	17,898	0.752	11,837	0.837	2,418	0.884
Year 4 Graduation	Male	22	0.136	534	0.187	6,014	0.257	14,727	0.392	12,004	0.562	2,434	0.696
	Female	28	0.250	841	0.226	9,199	0.364	18,424	0.541	12,466	0.700	2,297	0.808

Table D5.

2006 Cohort Retention and Graduation Rates by SAT Score Band, Racial/Ethnic Identity and Year

Outcome	Racial/ Ethnic Identity	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Retention to Year 2	American Indian	0	n/r	22	0.682	226	0.743	366	0.781	178	0.848	20	0.900
	Asian	12	n/r	233	0.798	2,411	0.835	5,106	0.878	4,216	0.927	1,317	0.969
	Black/ Afric. Amer.	38	0.526	820	0.737	4,212	0.802	3,764	0.874	1,019	0.919	64	0.906
	Hispanic	17	0.647	537	0.680	3,593	0.763	4,331	0.844	1,817	0.913	214	0.935
	White	26	0.615	1,298	0.722	19,844	0.790	45,573	0.851	29,635	0.915	6,192	0.953
	Other	7	n/r	140	0.743	989	0.805	1,779	0.848	1,182	0.916	255	0.961
	No Response	5	n/r	122	0.746	1,118	0.798	2,400	0.855	2,229	0.904	672	0.955
Retention to Year 3	American Indian	0	n/r	13	n/r	131	0.595	232	0.685	106	0.830	14	n/r
	Asian	4	n/r	121	0.686	1,404	0.751	3,052	0.817	2,897	0.880	860	0.926
	Black/ Afric. Amer.	25	0.320	445	0.542	2,205	0.682	2,114	0.803	591	0.873	25	0.800
	Hispanic	9	n/r	244	0.516	1,757	0.673	2,617	0.791	1,172	0.868	109	0.890
	White	14	n/r	731	0.565	11,484	0.675	27,329	0.775	19,322	0.867	3,727	0.917
	Other	5	n/r	63	0.603	530	0.709	1,099	0.774	794	0.864	143	0.881
	No Response	3	n/r	73	0.753	629	0.666	1,416	0.781	1,465	0.846	407	0.909
Retention to Year 4	American Indian	0	n/r	12	n/r	116	0.578	205	0.624	95	0.811	14	n/r
	Asian	4	n/r	118	0.619	1,325	0.719	2,763	0.789	2,722	0.852	844	0.903
	Black/ Afric. Amer.	22	0.364	390	0.518	1,975	0.634	1,821	0.765	532	0.833	23	0.739
	Hispanic	9	n/r	219	0.461	1,550	0.638	2,226	0.747	1,078	0.825	107	0.832
	White	12	n/r	662	0.530	10,191	0.631	23,210	0.739	16,966	0.832	3,459	0.885
	Other	5	n/r	60	0.533	475	0.672	971	0.746	718	0.818	137	0.839
	No Response	3	n/r	59	0.678	561	0.636	1,239	0.743	1,357	0.816	385	0.870
Year 4 Graduation	American Indian	0	n/r	12	n/r	111	0.198	205	0.346	89	0.528	12	n/r
	Asian	4	n/r	114	0.237	1,296	0.296	2,803	0.438	2,749	0.607	796	0.729
	Black/ Afric. Amer.	19	0.211	349	0.181	1,951	0.264	1,953	0.444	552	0.585	23	0.652
	Hispanic	9	n/r	212	0.151	1,490	0.281	2,230	0.445	1,068	0.600	98	0.776
	White	11	n/r	579	0.250	9,391	0.343	23,729	0.484	17,924	0.639	3,322	0.756
	Other	5	n/r	54	0.167	447	0.351	979	0.489	733	0.643	131	0.702
	No Response	2	n/r	55	0.200	527	0.323	1,252	0.491	1,355	0.642	349	0.771

n/r: Not reported due to small sample size (i.e., $n < 15$).

Table D6.

2006 Cohort Retention by SAT Score Band, Highest Parental Education and Year

Outcome	Highest Parental Education	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
Retention to Year 2	No H.S. Diploma	13	n/r	271	0.764	1,139	0.777	944	0.851	239	0.904	37	0.919
	H.S. Diploma	47	0.596	1,309	0.684	10,595	0.771	13,546	0.818	4,624	0.886	446	0.944
	Associate Degree	7	n/r	276	0.714	3,109	0.785	4,557	0.831	1,620	0.904	171	0.947
	Bachelor's Degree	13	n/r	731	0.744	9,684	0.803	22,612	0.861	13,647	0.918	2,304	0.951
	Graduate Degree	14	n/r	367	0.763	6,260	0.815	18,779	0.874	18,149	0.922	5,247	0.957
	No Response	11	n/r	218	0.817	1,606	0.806	2,881	0.871	1,997	0.912	529	0.958
Retention to Year 3	No H.S. Diploma	5	n/r	128	0.602	621	0.699	565	0.798	157	0.841	23	0.913
	H.S. Diploma	26	0.423	713	0.526	5,980	0.653	8,032	0.735	3,021	0.837	278	0.892
	Associate Degree	5	n/r	166	0.512	1,751	0.662	2,659	0.748	1,049	0.847	104	0.904
	Bachelor's Degree	7	n/r	366	0.596	5,426	0.703	13,586	0.789	8,857	0.869	1,447	0.912
	Graduate Degree	9	n/r	197	0.645	3,487	0.702	11,390	0.811	11,928	0.875	3,108	0.919
	No Response	8	n/r	120	0.692	875	0.694	1,627	0.781	1,335	0.864	325	0.932
Retention to Year 4	No H.S. Diploma	5	n/r	124	0.548	573	0.663	515	0.734	145	0.814	23	0.913
	H.S. Diploma	23	0.478	630	0.475	5,421	0.610	6,986	0.696	2,701	0.790	259	0.861
	Associate Degree	4	n/r	152	0.480	1,586	0.607	2,354	0.701	956	0.805	95	0.863
	Bachelor's Degree	7	n/r	334	0.590	4,772	0.663	11,530	0.758	7,759	0.835	1,329	0.879
	Graduate Degree	8	n/r	173	0.601	3,044	0.670	9,627	0.775	10,678	0.844	2,955	0.888
	No Response	8	n/r	107	0.617	797	0.655	1,423	0.748	1,229	0.830	308	0.893
Year 4 Graduation	No H.S. Diploma	5	n/r	117	0.179	545	0.314	518	0.442	151	0.530	20	0.850
	H.S. Diploma	20	0.250	555	0.186	4,980	0.273	6,947	0.410	2,801	0.556	254	0.685
	Associate Degree	4	n/r	135	0.185	1,473	0.296	2,334	0.419	991	0.554	97	0.670
	Bachelor's Degree	6	n/r	306	0.245	4,531	0.351	11,829	0.486	8,204	0.630	1,307	0.715
	Graduate Degree	8	n/r	166	0.277	2,931	0.370	10,077	0.521	11,074	0.661	2,762	0.771
	No Response	7	n/r	96	0.208	753	0.331	1,446	0.479	1,249	0.641	291	0.784

n/r: Not reported due to small sample size (i.e., $n < 15$).

Table D7.													
2006 Cohort Retention by SAT Score Band, Household Income and Year													
		SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
Outcome	Household Income	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Retention to Year 2	< \$30,000	31	0.645	805	0.711	4,023	0.786	4,413	0.832	1,669	0.896	247	0.943
	\$30,000–50,000	20	0.700	468	0.692	4,278	0.781	6,313	0.834	2,817	0.904	410	0.961
	\$50,000–70,000	5	n/r	333	0.733	4,170	0.774	7,497	0.842	3,656	0.907	566	0.945
	\$70,000–100,000	4	n/r	396	0.725	5,657	0.800	11,594	0.855	6,521	0.914	1,235	0.941
	> \$100,000	8	n/r	275	0.775	5,067	0.803	14,159	0.864	11,585	0.918	2,902	0.957
	No Response	37	0.649	895	0.740	9,198	0.799	19,343	0.861	14,028	0.921	3,374	0.960
Retention to Year 3	< \$30,000	17	0.412	427	0.539	2,221	0.677	2,617	0.770	1,053	0.829	164	0.884
	\$30,000–50,000	9	n/r	259	0.571	2,324	0.668	3,765	0.751	1,816	0.838	279	0.896
	\$50,000–70,000	3	n/r	172	0.576	2,378	0.667	4,504	0.761	2,368	0.854	360	0.900
	\$70,000–100,000	1	n/r	233	0.592	3,256	0.688	6,851	0.775	4,201	0.876	766	0.905
	> \$100,000	6	n/r	139	0.640	2,847	0.694	8,508	0.802	7,599	0.874	1,664	0.917
	No Response	24	0.375	460	0.567	5,114	0.686	11,614	0.788	9,310	0.870	2,052	0.927
Retention to Year 4	< \$30,000	15	0.467	391	0.514	2,038	0.623	2,353	0.730	958	0.783	159	0.836
	\$30,000–50,000	8	n/r	227	0.520	2,103	0.625	3,325	0.709	1,636	0.806	261	0.870
	\$50,000–70,000	3	n/r	152	0.546	2,132	0.629	3,892	0.727	2,115	0.806	329	0.860
	\$70,000–100,000	1	n/r	214	0.551	2,898	0.640	5,921	0.738	3,714	0.834	718	0.883
	> \$100,000	6	n/r	130	0.546	2,470	0.661	7,042	0.766	6,665	0.844	1,553	0.885
	No Response	22	0.409	406	0.532	4,552	0.649	9,902	0.756	8,380	0.840	1,949	0.893
Year 4 Graduation	< \$30,000	13	n/r	354	0.155	1,940	0.276	2,372	0.405	991	0.519	150	0.720
	\$30,000–50,000	9	n/r	214	0.178	1,956	0.290	3,330	0.428	1,677	0.578	256	0.734
	\$50,000–70,000	3	n/r	133	0.278	1,987	0.294	3,914	0.441	2,199	0.595	321	0.667
	\$70,000–100,000	1	n/r	186	0.269	2,709	0.346	6,032	0.463	3,883	0.606	709	0.705
	> \$100,000	6	n/r	125	0.256	2,334	0.353	7,374	0.516	7,063	0.663	1,486	0.771
	No Response	18	0.222	363	0.215	4,287	0.337	10,129	0.498	8,657	0.652	1,809	0.770

n/r: Not reported due to small sample size (i.e., $n < 15$).

Table D8.

2006 Cohort Retention by SAT Score Band, Institutional Control and Year

Outcome	Control	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
Retention to Year 2	Private	22	0.773	685	0.731	6,762	0.791	15,610	0.871	16,884	0.928	5,798	0.959
	Public	83	0.602	2,487	0.724	25,631	0.793	47,709	0.848	23,392	0.906	2,936	0.947
Retention to Year 3	Private	15	0.533	394	0.678	3,988	0.717	11,220	0.816	12,263	0.874	3,311	0.915
	Public	45	0.356	1,296	0.539	14,152	0.672	26,639	0.766	14,084	0.861	1,974	0.917
Retention to Year 4	Private	12	n/r	317	0.650	3,548	0.694	10,249	0.790	11,819	0.849	3,276	0.884
	Public	43	0.349	1,203	0.500	12,645	0.625	22,186	0.724	11,649	0.816	1,693	0.884
Year 4 Graduation	Private	12	n/r	309	0.437	3,305	0.505	9,411	0.646	11,051	0.746	2,799	0.819
	Public	38	0.079	1,066	0.145	11,908	0.271	23,740	0.407	13,419	0.539	1,932	0.650

n/r: Not reported due to small sample size (i.e., $n < 15$).

Table D9.

2006 Cohort Retention by SAT Score Band, Institutional Size and Year

Outcome	Size	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
Retention to Year 2	Small	6	n/r	210	0.657	1,627	0.714	2,562	0.830	1,680	0.912	345	0.928
	Medium	21	0.905	707	0.738	6,986	0.786	11,172	0.847	8,313	0.918	2,911	0.960
	Large	44	0.523	1,243	0.717	10,663	0.793	17,535	0.842	10,119	0.914	2,247	0.962
	Very Large	34	0.676	1,012	0.742	13,117	0.805	32,050	0.864	20,164	0.915	3,231	0.948
Retention to Year 3	Small	4	n/r	151	0.576	1,187	0.613	1,771	0.750	912	0.842	179	0.905
	Medium	10	n/r	337	0.611	3,635	0.685	7,046	0.777	5,833	0.865	1,795	0.927
	Large	29	0.310	808	0.540	7,436	0.661	12,215	0.755	6,937	0.848	918	0.900
	Very Large	17	0.471	394	0.599	5,882	0.719	16,827	0.804	12,665	0.880	2,393	0.915
Retention to Year 4	Small	1	n/r	86	0.570	951	0.610	1,575	0.732	865	0.823	175	0.914
	Medium	10	n/r	275	0.585	3,025	0.638	5,694	0.743	5,348	0.836	1,761	0.889
	Large	29	0.310	808	0.499	7,436	0.626	12,215	0.727	6,937	0.824	918	0.883
	Very Large	15	0.467	351	0.553	4,781	0.670	12,951	0.764	10,318	0.837	2,115	0.878
Year 4 Graduation	Small	1	n/r	85	0.412	920	0.527	1,435	0.675	826	0.809	173	0.896
	Medium	8	n/r	236	0.339	2,644	0.416	4,885	0.600	4,596	0.742	1,287	0.833
	Large	25	0.040	690	0.138	6,531	0.264	11,709	0.415	6,869	0.577	915	0.736
	Very Large	16	0.188	364	0.220	5,118	0.309	15,122	0.462	12,179	0.610	2,356	0.700

Note: Undergraduate enrollment (i.e., size) 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. n/r: Not reported due to small sample size (i.e., $n < 15$).

Table D10.

2006 Cohort Retention by SAT Score Band, Institutional Admittance Rate and Year

Outcome	Admit. Rate	SAT Score Band											
		600–890		900–1190		1200–1490		1500–1790		1800–2090		2100–2400	
		<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean	<i>N</i>	Mean
Retention to Year 2	> 75%	54	0.556	1,387	0.691	11,877	0.776	18,559	0.839	7,748	0.884	742	0.926
	50–75%	45	0.711	1,619	0.739	18,448	0.795	38,950	0.852	22,602	0.910	3,120	0.948
	< 50%	6	n/r	166	0.892	2,068	0.858	5,810	0.909	9,926	0.952	4,872	0.964
Retention to Year 3	> 75%	36	0.306	767	0.518	5,129	0.649	6,931	0.734	2,480	0.806	204	0.833
	50–75%	21	0.524	852	0.594	12,366	0.687	27,847	0.781	17,697	0.858	2,602	0.908
	< 50%	3	n/r	71	0.873	645	0.845	3,081	0.886	6,170	0.917	2,479	0.931
Retention to Year 4	> 75%	33	0.303	708	0.469	5,014	0.614	6,904	0.701	2,479	0.764	204	0.789
	50–75%	19	0.579	741	0.560	10,534	0.643	22,450	0.743	14,819	0.817	2,286	0.865
	< 50%	3	n/r	71	0.845	645	0.805	3,081	0.857	6,170	0.898	2,479	0.909
Year 4 Graduation	> 75%	29	0.103	590	0.156	4,109	0.329	6,398	0.451	2,411	0.514	201	0.552
	50–75%	18	0.333	715	0.217	10,465	0.301	23,728	0.451	16,377	0.586	2,513	0.679
	< 50%	3	n/r	70	0.614	639	0.615	3,025	0.717	5,682	0.815	2,017	0.859

n/r: Not reported due to small sample size (i.e., $n < 15$).

The Research department actively supports the College Board's mission by:

- Providing data-based solutions to important educational problems and questions
- Applying scientific procedures and research to inform our work
- Designing and evaluating improvements to current assessments and developing new assessments as well as educational tools to ensure the highest technical standards
- Analyzing and resolving critical issues for all programs, including AP[®], SAT[®], PSAT/NMSQT[®]
- Publishing findings and presenting our work at key scientific and education conferences
- Generating new knowledge and forward-thinking ideas with a highly trained and credentialed staff

Our work focuses on the following areas

Admission	Measurement
Alignment	Research
Evaluation	Trends
Fairness	Validity

