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ABSTRACT

Scholastic Aptitude Test (SAT) scores, student-reported high school grades, and scores for four other Admissions Testing Program tests were correlated with freshman grade point average for 299,794 students at 198 colleges from the enrolling classes of 1978, 1981, and 1985. The purpose of the study was to determine whether observed changes in correlations between test scores and college grades were: (1) restricted to the SAT; (2) due to changes in student subgroups; and (3) comparable at different ability levels within the freshman class. Declines were found in the correlation of freshmen grades with three of the four achievement tests examined. The data were also analyzed for students classified according to sex, ethnic group, intended major, and SAT score level. Nearly all of these demographic subgroups had the pattern of a stronger relationship of SAT scores with freshman grades for the enrolling class of 1985. A minimal decline in SAT regression weights was found for students scoring in the upper third of SAT test takers within their college. The recent decline in the relationship between SAT scores and freshman grades may be largely focused on students with SAT scores in the lower two-thirds of their respective college classes. Appendix 1 provides the yearly estimate procedure, and Appendix 2 shows the number of colleges for each pair of years. (Contains 15 tables and 7 references.) (Author/SLD)

RR-90-14

RESEARCH REPORT

PREDICTIVE VALIDITY WITHIN CATEGORIZATIONS OF COLLEGE STUDENTS: 1978, 1981, AND 1985

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Educational Testing Service
Princeton, New Jersey
August 1990

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Abstract

SAT scores, student-reported high school grades, and scores for four other Admissions Testing Program tests were correlated with freshman grade point average for students at 198 colleges from the enrolling classes of 1978, 1981, and 1985. The purpose of the study was to determine whether observed changes in correlations between test scores and college grades were 1) restricted to the SAT, 2) due to changes in student subgroups, and 3) comparable at different ability levels within the freshman class. Declines were found in the correlation of freshman grades with three of the four achievement tests examined. The data were also analyzed for students classified according to sex, ethnic group, intended major, and SAT score level. Nearly all of these demographic subgroups had the pattern of a stronger relationship of SAT scores with freshman grades for the enrolling class of 1978 than for the enrolling class of 1985. A minimal decline in SAT regression weights was found for students scoring in the upper third of SAT test takers within their college. The recent decline in the relationship between SAT sores and freshman grades may be largely focused on students with SAT scores in the lower two-thirds of their respective college classes.

Predictive Validity Within Categorizations of College Students: 1978, 1981, and 1985[1]

A report by Morgan (1989a) concerning the predictive validity of the Scholastic Aptitude Test (SAT) concluded that the average correlation of SAT scores with freshman grade-point average (F-GPA) declined from 1976 to 1985. The report, however, left many questions unanswered concerning the predictive validity of the SAT and other Admissions Testing Program (ATP) tests. The nature of the database utilized by Morgan (summary information from individual college validity studies) allowed for the investigation of the relationships of several college characteristics (e. g. freshman class size) with predictive validity. The database did not allow for the study of predictive validity for categories of college students (e. g. ethnic group, intended major, SAT score level). Furthermore, Morgan did not have sufficient data to study whether the correlations of F-GPA with ATP Achievement Tests and the Test of Standard Written English (TSWE) were also declining. As a result, it was difficult to determine whether the reported changes in predictive validity were pervasive through all classifications of students and types of tests or resulted from validity changes within specific classifications of students or from increases in the proportion of students from classifications with somewhat lower predictive validity.

The limitations of Morgan (1989a) led to this study which utilizes individual student records to examine the predictive validity of the SAT, TSWE, and three ATP Achievement Tests. Analyses are conducted within subgroups based on gender,

[1]The author wishes to thank Nancy Burton, Charles Lewis, Robert Linn, Gary Marco, Howard Wainer, and Warren Willingham for their comments on various drafts of this paper. Laura McCamley deserves special mention for her tireless efforts to produce data analyses in a very short time period.

ethnic group, and intended college major. This study uses data from the enrolling classes of 1978, 1981, and 1985 to examine the pervasiveness of the changes in predictive validity of the SAT and other tests.

METHOD

Population of Data

Because the study focuses on within-college trends, only colleges conducting analyses in at least two of the three years under study (1978, 1981, 1985) were included. The enrolling years of 1978 and 1985 were chosen for analysis because they represent the first and last years in which SAT scores and high school grade information were matched with F-GPA for substantial numbers of college students. The year 1981 was chosen for analysis because it represents an intermediate year, both for time and for the level of predictive validity (Morgan, 1989a) between 1978 and 1985. The study sample included only colleges with at least 25 complete student records of SAT scores, F-GPA, and student-reported high school grade-point average (HS-GPA). The data comes from 198 colleges that conducted 443 different validity studies in the three years under study. Students with F-GPAs and HS-GPAs of zero were excluded from the analyses, because these data points may not accurately reflect student performance.

HS-GPA was calculated based on responses to questions on the Student Descriptive Questionnaire (SDQ) concerning grades in six academic areas. This self-reported measure of HS-GPA was used primarily for two reasons. First, actual high school grade information was available for less than half the colleges. Thus, the use of actual high school records would have significantly reduced the number of colleges examined in the study, precluding a number of subgroup analyses. Second, the focus of this study is on the relationship of F-GPA with the SAT and other tests rather than relationships involving HS-GPA. In order to evaluate the effect of the use of self-reported HS-GPA on correlations involving HS-GPA, an analysis was conducted using both self-reported HS-GPA and actual high school record (either HS-GPA or class rank) supplied by colleges.

Method of Analysis

The repeated measures estimation procedure outlined by Goldman and Widawski (1976) and utilized by Morgan (1989a) was used to produce estimates for each of the years, based on pairwise estimates of change. In this procedure estimates of the average difference in measures between a pair of years were produced for each of the three nonredundant pairwise sets of years. These pairwise difference estimates were based only on colleges with analyses for both years in the pair. For example, the 1978-1985 pairwise change estimate is the mean change for all colleges with analyses in both 1978 and 1985. In order to produce a deviation estimate for any year, all pairwise estimates involving the year, including the zero difference of the year with itself, were averaged. A deviation estimate for a year is analogous to a main effect deviation estimate in analysis of variance. These deviation estimates were then added to a mean over all years to provide yearly estimates. Appendix 1 provides formulas used to obtain the yearly estimates and their associated standard errors. Appendix 2 provides the number of colleges for all pairs of years for each set of analyses.

The pairwise difference estimation technique produced yearly estimates of the means and the within-college standard deviations for the predictor variables and F-GPA to permit an examination of the trends in these measures. Both raw correlations and correlations corrected for the multivariate restriction of range of SAT-V, SAT-M, and high school record[2] were estimated along with regression weights (for colleges with F-GPA on a four point scale). The partial correlation of the SAT with F-GPA, after removing the variance accounted for by high school record, was also estimated. Finally, the correlations of F-GPA with the TSWE, the English Composition Test (ECT), the Mathematics Level I Achievement Test, and the Chemistry Achievement Test were also found.

Grouping Variables

The second set of analyses examined the predictive validity within categories of students. This allowed for the examination of differential trends within the categories. Validity estimates using the repeated measures procedure were calculated for the following categories of student characteristics:

Sex:	Female
	Male
Ethnic Group:	Asian-American
	Black
	Hispanic
	White

[2] The multivariate restriction of range formula was supplied by Charles Lewis (personal communication, April 1989). The formula is equivalent to the formula for selection found in many sources, such as Theory of Mental Tests by H. Gulliksen (pp. 165-166). Reference correlations and standard deviations were based on data from Morgan (1989b), which provided the most recent data for college-bound seniors. The estimated population standard deviations were 109 for SAT-V, 120 for SAT-M, and .61 for HS-GPA. The estimated population correlations were .67 for SAT-V with SAT-M, .45 for SAT-V with HS-GPA, and .50 for SAT-M with HS-GPA.

Intended College Major[3]: Business

Liberal Arts

Pre-Professional

Technical

Finally, within each college students were placed into one of three groups based on their SAT-V+M scores. For each college separate cut-offs grouped students into upper, middle, and lower thirds according to their SAT-V+M scores. Cut-offs were based on the college's combined SAT-V+M distribution for each year in which data were available. Within each college regression analyses were conducted for the three groups to examine changes in the relationship of F-GPA with SAT-V and SAT-M, within student ability levels. Only colleges with complete data for at least 25 students within a given subgroup or Achievement Test were included in the analyses for the subgroup or test.

RESULTS

All Students Analyses

Table 1 provides the estimates for raw and corrected correlations of SAT scores and HS-GPA with F-GPA for each of the three years for all students. The table also provides estimates of the multiple regression weights for predicting

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[3]The categorization of intended major was based on the first choice of major by each examinee on the SDQ. Fields of study were classified as follows: Business majors were all fields classified on the SDQ as business; liberal Arts majors included English, ethnic studies, foreign languages, geography, music, philosophy, psychology, sociology, and theater arts; pre-professional majors included agriculture, architecture, art, communications, education, home economics, library science, military science, and nursing; technical majors included computer science, engineering, mathematics, physical science, and pre-med.

F-GPA using SAT-V and SAT-M, as well as the means and within-college standard deviations of SAT-V, SAT-M, HS-GPA, and F-GPA. The associated standard errors for all estimates are indicated in parentheses. The numbers of colleges and freshmen associated with each estimate are provided at the bottom of the table. The estimates for average SAT mean scores decreased between 1978 and 1981 and then rose in 1985. This parallels the national SAT score trends reported by the College Board in 1985. Mean F-GPA and self-reported HS-GPA both decreased over time. The decline in the SAT corrected correlations from 1978 to 1985 was less than for uncorrected correlations. This results from a decline in within-college variability of SAT scores. The regression weights are also larger for 1978 than for 1985. These patterns of decline were expected given previous research (Morgan, 1989a).

Table 2 provides a comparison of the uncorrected correlations using self-reported HS-GPA and actual high school record, for colleges providing such information. Corrected correlations are not provided since the population of students in the two halves of the table are equivalent. Additionally, equating of the several different scales of high school ranks and grades provided by colleges would have been necessary before implementation of a multivariate correlation correction.

Table 2 indicates that the HS-GPA correlation for actual high school record is .05 to .06 larger for actual high school record than for self-reported HS-GPA. The two patterns of the correlation decline are very similar. The self-reported HS-GPA had a decline in correlation with F-GPA of .04, while actual high school record declined by .03. This same pattern of decline is true for the multiple correlation of F-GPA with SAT-V, SAT-M, and HS-GPA. A .03 decline in the partial multiple correlation of SAT scores with F-GPA is present for both types of HS-GPA.

The trends of correlation decline for actual high school record and self-reported HS-GPA are very similar. Since it appears that self-reported data do not significantly impact the correlation trends and also because the focus of the paper is on the SAT and achievement tests, all analyses to follow utilize the more abundant self-reported HS-GPA.

Analyses of Other Tests

Data on four other tests were examined to determine whether the trerd of declining predictive validity was unique to th_ SAT or whether the trend was present for other ATP tests. The data in Table 3 are uncorrected correlations of HS-GPA, SAT scores, and Achievement Tests with F-GPA for the students who took each Achievement Test. Uncorrected correlations were used because different groups of students took each Achievement Test. Therefore, multivariate corrections would be correcting to different population groups for each test. Comparisons of correlation change could not be made across achievement test samples. As a result, regardless of whether uncorrected and corrected correlations are used, comparisons of correlation change for SAT scores and achievement tests with F-GPA are limited to the examinees taking the achievement test under study. Additionally, since the colleges with sufficient data available were different for each Achievement Test, comparisons of the achievement test correlations with F-GPA across tests should be avoided.

Within the sample of English Composition Test (ECT) examinees, the correlation with F-GPA declined by .04 for SAT-M and by .03 for SAT-V and ECT. The addition of ECT to the regression of SAT-V, SAT-M, and HS-GPA on F-GPA improved the multiple correlation by .01 to .02, within this population. The table also indicates that the correlation of ECT with F-GPA was larger than the SAT-V correlation with F-GPA for each year by at least .03. One reason for higher Achievement Test correlations is that student selection to college is based more on SAT scores and HS-GPA than Achievement Test scores. As a result, the correlations involving SAT and HS-GPA are more affected by restriction of range of test scores than are the correlations involving Achievement Tests.

Within the sample of those taking the Mathematics Level I Test, the decline of the correlation of SAT-M with F-GPA is .04, while the decline is .02 for the Achievement Test. The Level I correlation was .01 higher than the SAT-M correlation in 1978 and .03 higher in both 1981 and 1985. The addition of the Mathematics Level I exam to the regression of SAT-V, SAT-M, and HS-GPA on F-GPA improved the multiple correlation by .01 in 1978 and 1985 and by .02 in the 1981.

No change was found in the correlation of the Chemistry Achievement Test with F-GPA. However, from 1978 to 1985 the estimated univariate correlations of SAT-V and SAT-M with F-GPA dropped by .01 and .03, respectively. The difference of at least .10 between the HS-GPA correlation and the multiple correlation indicates that SAT scores make a significant contribution to the prediction of F-GPA even within this highly selective group of students. College Board (1985) reports that the average SAT-V+M score for Chemistry examinees in 1985 was 1177. Furthermore, the addition of the Chemistry score to the prediction of F-GPA increased the multiple correlation by at least .03.

Because all SAT examinees take the TSWE, the data in Table 3 for the TSWE provide SAT and HS-GPA information that is repeated from Table 1. Between 1978 and 1985 the univariate correlations of TSWE and HS-GPA with F-GPA declined from .36 to .32.

The data from the four tests indicate that correlations of F-GPA with tests other than the SAT showed a decline from 1978 to 1985. However, the declines were not generally as large as were those associated with the SAT. This may be due to achievement tests not as commonly being used or receiving as much weight in student selection to the colleges studied.

Analyses by Sex

Morgan (1989a) focused analyses on estimating correlations and regression weights based on all first-year students. This study examines several subgroups, the first being male and female students. Table 4 provides estimated correlations for SAT scores and HS-GPA with F-GPA, associated regression weights, means and within-college standard deviations for the predictor and criterion variables for females. Table 5 provides the same information for males. To be used in the estimates, a college had to have data for at least 25 students for each sex.

All the correlation estimates are higher for females than males. The corrected multiple correlation of SAT scores with F-GPA declined from 1978 to 1985 by .06 for males and .03 for females. For female freshmen the corrected correlation of HS-GPA with F-GPA did not change, while a .04 decline occurred for males. The corrected SAT-V, SAT-M, and HS-GPA multiple correlation dropped from .65 to .59 for males, while only declining from .68 to .67 for females. For both sexes, SAT-M was the single best predictor of F-GPA, followed by SAT-V and then TSWE. The declines in the regression coefficients of SAT-V and SAT-M scores for males reflect the declines in the corrected correlations. The decline for the SAT-M regression coefficient for females was half the decline in the SAT-V coefficient.

The SAT means for both sexes were relatively stable for the three years for both groups. The proportion of females increased approximately two percentage points from 1978 to 1985, with an accompanying two percentage point decrease in the percentage of male students. The SAT correlation declines shown in Table 1 for all students are similar to those indicated here for each sex. Therefore, the decline in the correlations and regressions weights for all students is likely not a function of differential validity or change in representation or performance of males and females for the years under study. However, it appears that the decline in the correlation of HS-GPA with F-GPA found in Table 1 results from males students.

Analyses by Ethnic Group

Tables 6 through 9 provide estimated correlations for SAT scores and HS-GPA with F-GPA, associated regression weights, means and within-college standard deviations for the predictor variables for Asian-American, Black, Hispanic, and White freshmen. The estimated percentages in the tables for the ethnic groups will not sum to 100, because very few colleges had the required 25 freshmen in each ethnic group. Since the mix of colleges is different for each ethnic group, correlation and regression comparisons should not be made across ethnic groups. Due to the small number of colleges with a sufficient numbers of Hispanic students, the standard errors are large for that subgroup. As a result, fluctuations of the correlation estimates for Hispanic students should be interpreted cautiously.

Nonetheless, several points are worth consideration. All four ethnic groups had declines of .03 to .05 for the uncorrected multiple correlation of SAT scores with F-GPA. However, the corrected multiple SAT correlation did not drop significantly for Asian-American students and actually rose for Hispanic students. For Black students both the raw and corrected multiple SAT correlations with F-GPA are larger than the correlations of HS-GPA with F-GPA. This suggests that SAT scores were better predictors of freshman grades than high school grades for Black students.

The pattern of decline in the correlations generally held true for the regression weights, with the only increase in regression weight being the SAT-M weight for Hispanic students. Black, Hispanic, and White students had larger regression weights for SAT-V than for SAT-M. However, the SAT-M regression weight is more than double the SAT-V weight for Asian-American freshmen.

As expected given the regression weights, SAT-M had a much higher correlation with F-GPA than did either SAT-V or TSWE for Asian-American students. For Hispanic students, TSWE and SAT-V had higher correlations with F-GPA than did SAT-M. A similar tendency is apparent in the results for Black students. The correlations of TSWE, SAT-V, and SAT-M with F-GPA are nearly the same for White freshmen.

From 1978 to 1985, significant increases in the mean SAT scores occurred for Asian-American, Black, and Hispanic students. The percentage of Asian-American freshmen increased significantly, while there was little change in the percentage of Black students and only a marginal increase for Hispanic students. For all practical purposes, the mean SAT scores for White students remained the same from 1978 to 1985, while a small decrease in the percentage of White students is indicated. Except for Black students, there is a tendacy for the within-college SAT-V standard deviations to be lower in 1985 than in 1978. For SAT-M, a significant increase in standard deviation occurs for Black students, while a decrease is shown for White students.

In summary, it appears that declines in SAT correlations with F-GPA are not focused on any particular ethnic group and that the overall declines in the SAT correlations are not due to any significant degree to changes in the ethnic compostion of freshmen classes.

Analyses by Intended Major

Tables 10 through 13 provide estimates for students classified into four groups of intended major. Analyses within majors were conducted to determine whether the decline in overall predictive validity may have resulted from changes in the proportion or types of students electing the four groups of majors. For example, an increase in the number of less able students taking courses in majors for which students traditionally receive higher grades could reduce the overall correlations and regression weights, but not necessarily the correlations and regression weights within the majors. Furthermore, the SAT may be a better indicator of F-GPA for some majors than for others. If substantial increases occurred in the number of students majoring in areas for which SAT correlations with F-GPA are relatively low, then overall SAT correlations with F-GPA would be likely to decline.

The tables show little change from 1978 to 1985 in the SAT means for students indicating each of four general categories of intended major. The patterns of change in SAT means and HS-GPA for the four major classifications are similar, with average SAT scores dropping in 1981 then increasing in 1985 and HS-GPA declining from 1978 to 1985. The within-college standard deviations for SAT scores tended to decrease for all four intended majors. From 1978 to 1985, the percentage of intended business and technical majors increased by approximately four percentage points each, while there was a three percentage point drop in liberal arts majors, and an eight percentage point drop in pre-professional majors. It is also clear that while technical students had the highest SAT-V+M means and HS-GPA averages, the average F-GPA for technical majors was below liberal arts and pre-professional majors. This inconsistency across major groupings of the average SAT scores and average F-GPAs could reduce the overall correlation of SAT scores with F-GPA. In general, the SAT multiple correlations within the four intended majors are slightly higher than the correlations found in Table 1.

The patterns of decline for the multiple correlations of SAT scores are similar for the four groups of intended majors. The four raw multiple SAT correlations declined by either .06 or .07, while the corrected multiple correlations declined by .04 to .05. SAT-M weights are larger than SAT-V weights for technical majors, while the converse is true for liberal arts majors.

Some changes did occur in the proportion of students indicating the four types of majors. The declines in correlations and regression weights found in Table 1 were similar to those found for the four groups of intended majors.

Analyses by SAT Levels Within College

Changes in the construction of the SAT exam (Marco, Crone, Braswell, Curley, & Wright, 1990), in college curricula, college grading standards, or in the courses selected by college freshmen may have caused the SAT's predictive validity to decline differentially for students with different levels of ability. In order to investigate this possibility, students were placed in three groups on basis of their SAT-V+M scores. In each college separate cut-offs grouped students into upper, middle, and lower thirds according to their SAT-V+M scores. Within each college, SAT-V+M scores were pooled across years in order to establish one set of cut-off scores for each year's data. Multiple regression using SAT scores to predict F-GPA were conducted in each of the three groups for each college.

Table 14 presents the regression estimates for each of the three SAT levels, as well as the SAT and F-GPA means and within-college standard deviation estimates. From 1978 to 1985 the average regression estimates for both SAT-V and SAT-M declined considerably for students in both the middle and lowest thirds. However, the SAT regression weights for the top third of students within colleges showed no appreciable change from 1978 to 1985. The regression weights for the three groups also indicate evidence of increasing curvilinearity over time in the relationship of SAT scores with F-GPA. For 1985, the regression weights are lowest in the bottom third and highest in the top third of the students.

Table 15 provides the multivariate corrected correlations of HS-GPA, SAT-V, and SAT-M with F-GPA. As with the regression weights, the smallest decline occurs in the upper third of students. These findings indicate that the decline in predictive validity may have been more focused on freshmen having SAT scores in the bottom two-thirds of their college classes. Table 15 also shows that the SAT multiple correlation is consistently higher than the correlation of HS-GPA with F-GPA for the lowest third of students. As a result, while the multiple SAT correlation is highest for the upper third of students, SAT scores are better predictors of college performance than HS-GPA for the bottom third of students.

SUMMARY AND DISCUSSION

Declines occurred for the current population in the correlations of SAT scores with F-GPA from 1978 to 1985. The size of the correlation declines were similar to those found by Morgan (1989a). However, the present study was able to examine the changes in the correlations of other ATP tests with F-GPA and the correlations of SAT scores with F-GPA in subgroups of the population based on sex, ethnic group, intended major, and SAT score levels of students.

With the important exception of freshmen who constitute the top third of their class and possible exception of Hispanic and Asian-American freshmen, it appears that the decline in the predictive validity of the SAT from 1978 to 1985 was characteristic of freshmen in general. The overall correlation declines do not seem to result from changes in the population of college students from 1978 to 1985. It also appears that declines in correlation were not specific to the SAT, since similar decreases were found for other ATP tests.

An important result was apparent after placing the students within each college into one of three groups based on SAT scores. Tables 14 and 15 indicated both increasing curvilinearity in the regression plane predicting F-GPA using SAT scores and a pattern of lower regression weights and corrected correlations in 1985 than in 1978 for the middle and lower SAT scoring groups. Only marginally lower regression weights were found for the top third of students. These findings indicate that less change occurred in the predictive validity of SAT scores for these students than for the two-thirds of their college classes scoring lower on the SAT.

The evidence of declining regression slopes and corrected correlations in the lowest and middle thirds of SAT scores suggest that there may be a growing tendency for colleges to reduce the likelihood of student failure. Increased remedial education and improved matching of student ability to course difficulty are two of several measures instituted by colleges that could account for the pattern of differential decline in predictive validity, though such hypotheses were not tested. Because thirds were defined within each college, it is the case that the upper third in some colleges overlap the middle and even lowest thirds in other colleges. This fact suggests, that the correlation declines may have more to do with freshman grades than with changes in the SAT itself.

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Table 1

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for All Students

	1978	1981	1985
Raw Correlations			
HS-GPA	.46(.01)	.44(.01)	.43(.01)
SAT-V	.36(.01)	.33(.01)	.32(.01)
SAT-M	.37(.01)	.33(.01)	.32(.01)
Multiple SAT	.43(.01)	.39(.01)	.38(.01)
Partial SAT	.33(.01)	.29(.01)	.29(.01)
Multiple Correlation	.55(.01)	.52(.01)	.51(.01)
Corrected Correlations			
HS-GPA	.58(.01)	.58(.01)	.56(.01)
SAT-V	.51(.01)	.49(.01)	.48(.01)
SAT-M	.53(.01)	.50(.01)	.49(.01)
Multiple SAT	.57(.01)	.55(.01)	.53(.01)
Partial SAT	.40(.01)	.36(.01)	.36(.01)
Multiple Correlation	.67(.01)	.65(.01)	.63(.01)
Regression Weights			
SAT-V	.0019(.0001)	.0018(.0001)	.0016(.0001)
SAT-M	.0019(.0001)	.0016(.0001)	.0017(.0001)
Means			
SAT-V	464(4.3)	458(4.4)	463(4.6)
SAT-M	502(4.9)	499(4.9)	506(5.2)
HS-GPA	3.24(.02)	3.21(.02)	3.17(.02)
F-GPA	2.56(.04)	2.55(.03)	2.53(.03)
Standard Deviations			
SAT-V	86(0.7)	85(0.7)	84(0.7)
SAT-M	90(0.8)	87(0.8)	88(0.8)
HS-GPA	.48(.01)	.48(.01)	.48(.01)
F-GPA	.67(.01)	.66(.01)	.67(.01)
Number of Colleges	152	155	124
Number of Students	103956	104514	91324

Table 2

Estimated Correlations for Actual High School Record and Self-Reported HS-GPA with F-GPA for Colleges Supplying Actual High School Record

	1978	1981	1985
		Actual High School Record	
Raw Correlations			
HS School Record	.52(.01)	.50(.01)	.49(.01)
Partial SAT	.29(.01)	.27(.01)	.26(.01)
Multiple Correlation	.58(.01)	.56(.01)	.55(.01)
		Self-Reported HSGPA	
Raw Correlations			
HS-GPA	.47(.01)	.45(.01)	.43(.01)
Partial SAT	.33(.01)	.30(.01)	.30(.01)
Multiple Correlation	.55(.01)	.53(.01)	.51(.02)
Number of Colleges	61	71	63
Number of Students	36441	45812	42212

Table 3

Correlation of Self-Reported HS-GPA, SAT Scores, and Achievement Tests with F-GPA

	English Composition Test			Mathematics Level I Exam		
	1978	1981	1985	1978	1981	1985
HS-GPA	.43(.01)	.42(.01)	.42(.01)	.42(.01)	.41(.01)	.40(.01)
SAT-V	.33(.01)	.28(.01)	.30(.01)	.32(.01)	.28(.01)	.29(.01)
SAT-M	.33(.01)	.30(.01)	.29(.01)	.31(.01)	.29(.01)	.27(.01)
Multiple SAT	.41(.01)	.35(.01)	.36(.01)	.39(.01)	.35(.01)	.34(.01)
Achievement Test	.36(.01)	.33(.01)	.33(.01)	.32(.01)	.32(.01)	.30(.01)
Multiple Correlation [1]	.53(.01)	.50(.01)	.51(.01)	.52(.01)	.50(.01)	.49(.01)
Multiple Correlation2 [2]	.55(.01)	.51(.01)	.53(.01)	.53(.01)	.52(.01)	.50(.01)
Number of Colleges	113	104	83	105	99	81
Number of Students	37680	34673	34143	28642	27430	26232

	Chemistry Test			TSWE		
	1978	1981	1985	1978	1981	1985
HS-GPA	.41(.02)	.39(.01)	.39(.02)	.46(.01)	.44(.01)	.43(.01)
SAT-V	.27(.02)	.27(.02)	.26(.02)	.36(.01)	.33(.01)	.32(.01)
SAT-M	.33(.02)	.31(.02)	.30(.02)	.37(.01)	.33(.01)	.32(.01)
Multiple SAT	.38(.02)	.37(.02)	.35(.02)	.43(.01)	.39(.01)	.38(.01)
Achievement Test	.36(.02)	.36(.02)	.36(.02)	.36(.01)	.33(.01)	.32(.01)
Multiple Correlation [1]	.52(.02)	.50(.01)	.49(.02)	.55(.01)	.51(.01)	.51(.01)
Multiple Correlation2 [2]	.55(.02)	.54(.01)	.53(.02)	- -	- -	- -
Number of Colleges	43	44	40	152	155	124
Number of Students	5239	5552	5966	103956	104514	91324

[1]The multiple correlation of SAT-V, SAT-M, HS-GPA with F-GPA.
[2]The multiple correlation of SAT-V, SAT-M, HS-GPA and the Achievement Test with F-GPA.

Table 4

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Females

	1978	1981	1985
Raw Correlations			
HS-GPA	.45(.01)	.45(.01)	.44(.01)
SAT-V	.40(.01)	.36(.01)	.35(.01)
SAT-M	.42(.01)	.38(.01)	.37(.01)
TSWE	.38(.01)	.34(.01)	.33(.01)
Multiple SAT	.47(.01)	.43(.01)	.42(.01)
Partial SAT	.36(.01)	.32(.01)	.32(.01)
Multiple Correlation	.56(.01)	.54(.01)	.53(.01)
Corrected Correlations			
HS-GPA	.58(.01)	.59(.01)	.58(.01)
SAT-V	.53(.01)	.51(.01)	.51(.01)
SAT-M	.55(.01)	.53(.01)	.53(.01)
Multiple SAT	.60(.01)	.57(.01)	.57(.01)
Partial SAT	.44(.01)	.40(.01)	.40(.01)
Multiple Correlation	.68(.01)	.67(.01)	.67(.01)
Regression Weights			
SAT-V	.0022(.0002)	.0018(.0001)	.0016(.0001)
SAT-M	.0023(.0001)	.0021(.0001)	.0020(.0001)
Means			
SAT-V	467(5.0)	459(5.0)	463(5.1)
SAT-M	488(5.2)	486(5.1)	494(5.4)
HS-GPA	3.33(.02)	3.28(.02)	3.25(.02)
F-GPA	2.63(.04)	2.61(.04)	2.59(.03)
Standard Deviations			
SAT-V	86(0.8)	85(0.8)	83(0.8)
SAT-M	87(0.9)	84(0.9)	85(0.9)
HS-GPA	.46(.01)	.46(.01)	.47(.01)
F-GPA	.65(.01)	.65(.01)	.65(.01)
Percentage	52.3(0.9)	53.4(0.8)	54.4(0.8)
Number of Colleges	118	120	104
Number of Students	47285	49273	45278

Table 5

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Males

	1978	1981	1985
Raw Correlations			
HS-GPA	.43(.01)	.41(.01)	.40(.01)
SAT-V	.34(.01)	.29(.01)	.28(.01)
SAT-M	.38(.01)	.32(.01)	.31(.01)
TSWE	.32(.01)	.28(.01)	.27(.01)
Multiple SAT	.42(.01)	.36(.01)	.36(.01)
Partial SAT	.32(.01)	.28(.01)	.28(.01)
Multiple Correlation	.53(.01)	.49(.01)	.48(.01)
Corrected Correlations			
HS-GPA	.56(.01)	.54(.01)	.52(.01)
SAT-V	.48(.01)	.45(.01)	.44(.01)
SAT-M	.52(.01)	.47(.01)	.46(.01)
Multiple SAT	.56(.01)	.51(.01)	.50(.01)
Partial SAT	.39(.01)	.34(.01)	.33(.01)
Multiple Correlation	.65(.01)	.61(.01)	.59(.01)
Regression Weights			
SAT-V	.0019(.0002)	.0016(.0001)	.0013(.0001)
SAT-M	.0024(.0002)	.0018(.0001)	.0017(.0001)
Means			
SAT-V	464(4.7)	460(4.8)	466(5.2)
SAT-M	525(5.5)	523(5.4)	530(5.8)
HS-GPA	3.16(.02)	3.13(.02)	3.10(.03)
F-GPA	2.46(.04)	2.46(.04)	2.43(.04)
Standard Deviations			
SAT-V	85(0.8)	84(0.9)	84(0.8)
SAT-M	90(1.0)	88(0.9)	89(1.1)
HS-GPA	.48(.01)	.48(.01)	.49(.01)
F-GPA	.70(.01)	.68(.01)	.69(.01)
Percentage	47.7(0.9)	46.6(0.8)	45.6(0.8)
Number of Colleges	118	120	104
Number of Students	47254	46866	42118

Table 6

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Asian-American Students

	1978	1981	1985
Raw Correlations			
HS-GPA	.36(.04)	.36(.03)	.37(.03)
SAT-V	.28(.03)	.19(.03)	.22(.03)
SAT-M	.36(.03)	.33(.03)	.33(.02)
TSWE	.29(.03)	.15(.03)	.23(.03)
Multiple SAT	.42(.03)	.36(.03)	.37(.02)
Partial SAT	.35(.03)	.30(.02)	.31(.02)
Multiple Correlation	.51(.03)	.47(.02)	.48(.02)
Corrected Correlations			
HS-GPA	.52(.03)	.53(.02)	.56(.04)
SAT-V	.43(.03)	.39(.03)	.43(.02)
SAT-M	.52(.03)	.49(.03)	.50(.02)
Multiple SAT	.54(.03)	.50(.03)	.53(.02)
Partial SAT	.40(.03)	.36(.02)	.36(.03)
Multiple Correlation	.64(.02)	.61(.02)	.64(.03)
Regression Weights			
SAT-V	.0010(.0002)	.0004(.0002)	.0007(.0002)
SAT-M	.0023(.0002)	.0022(.0002)	.0021(.0002)
Means			
SAT-V	446(15.2)	442(15.8)	468(16.8)
SAT-M	561(12.1)	564(12.2)	574(13.6)
HS-GPA	3.43(.05)	3.42(.05)	3.45(.05)
F-GPA	2.77(.08)	2.76(.06)	2.76(.05)
Standard Deviations			
SAT-V	102(3.0)	102(2.9)	100(3.4)
SAT-M	89(2.9)	88(3.4)	89(3.2)
HS-GPA	.42(.02)	.42(.02)	.40(.02)
F-GPA	.66(.03)	.63(.02)	.65(.02)
Percentage	6.7(1.3)	8.8(1.6)	10.5(1.5)
Number of Colleges	23	28	27
Number of Students	2535	3585	4375

Table 7

Estimated Correlations and Regression Weights for Self-Reported HS·GPA and SAT Scores with F·GPA for Black Students

	1978	1981	1985
Raw Correlations			
HS·GPA	.31(.02)	.27(.02)	.27(.03)
SAT·V	.28(.02)	.22(.02)	.24(.02)
SAT·M	.28(.02)	.23(.02)	.22(.02)
TSWE	.29(.02)	.23(.02)	.24(.03)
Multiple SAT	.35(.02)	.29(.02)	.30(.02)
Partial SAT	.30(.02)	.26(.02)	.26(.02)
Multiple Correlation	.44(.02)	.39(.02)	.38(.02)
Corrected Correlations			
HS·GPA	.44(.02)	.39(.03)	.37(.03)
SAT·V	.43(.03)	.35(.03)	.35(.03)
SAT·M	.43(.03)	.33(.03)	.32(.03)
Multiple SAT	.49(.03)	.42(.03)	.41(.02)
Partial SAT	.36(.03)	.31(.03)	.30(.02)
Multiple Correlation	.55(.02)	.51(.02)	.48(.02)
Regression Weights			
SAT·V	.0016(.0002)	.0012(.0002)	.0014(.0002)
SAT·M	.0014(.0003)	.0009(.0003)	.0006(.0002)
Means			
SAT·V	390(10.4)	397(10.4)	408(9.6)
SAT·M	414(10.5)	425(10.3)	441(10.1)
HS·GPA	3.08(.04)	3.07(.04)	3.01(.05)
F·GPA	2.12(.07)	2.13(.07)	2.13(.07)
Standard Deviations			
SAT·V	81(2.2)	83(1.8)	82(1.8)
SAT·M	81(1.9)	81(2.5)	87(1.8)
HS·GPA	.49(.01)	.47(.01)	.48(.01)
F·GPA	.66(.03)	.62(.02)	.64(.02)
Percentage	16.2(4.5)	16.6(4.6)	16.7(4.5)
Number of Colleges	48	39	34
Number of Students	5162	4086	5095

Table 8

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Hispanic Students

	1978	1981	1985
Raw Correlations			
HS-GPA	.33(.04)	.39(.03)	.34(.03)
SAT-V	.25(.04)	.28(.04)	.22(.03)
SAT-M	.20(.03)	.24(.04)	.21(.04)
TSWE	.25(.05)	.27(.05)	.21(.04)
Multiple SAT	.30(.03)	.31(.04)	.27(.04)
Partial SAT	.24(.03)	.25(.04)	.24(.04)
Multiple Correlation	.42(.04)	.48(.03)	.41(.03)
Corrected Correlations			
HS-GPA	.41(.06)	.50(.04)	.47(.03)
SAT-V	.33(.05)	.35(.05)	.36(.05)
SAT-M	.27(.06)	.36(.04)	.35(.04)
Multiple SAT	.37(.05)	.42(.04)	.41(.04)
Partial SAT	.27(.04)	.28(.04)	.27(.04)
Multiple Correlation	.49(.05)	.57(.03)	.53(.04)
Regression Weights			
SAT-V	.0017(.0004)	.0010(.0003)	.0011(.0003)
SAT-M	.0004(.0004)	.0010(.0002)	.0010(.0004)
Means			
SAT-V	421(14.3)	417(12.7)	423(15.3)
SAT-M	457(15.0)	464(14.4)	474(16.2)
HS-GPA	3.27(.07)	3.28(.06)	3.22(.08)
F-GPA	2.43(.08)	2.42(.07)	2.45(.07)
Standard Deviations			
SAT-V	89(2.8)	89(3.4)	85(3.4)
SAT-M	88(2.9)	90(2.9)	90(2.9)
HS-GPA	.45(.03)	.45(.02)	.47(.02)
F-GPA	.66(.04)	.63(.04)	.67(.04)
Percentage	12.2(3.6)	12.5(3.8)	14.7(3.8)
Number of Colleges	16	23	18
Number of Students	1575	1354	2192

Table 9

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for White Students

	1978	1981	1985
Raw Correlations			
HS-GPA	.46(.01)	.45(.01)	.43(.01)
SAT-V	.35(.01)	.32(.01)	.31(.01)
SAT-M	.35(.01)	.31(.01)	.30(.01)
TSWE	.34(.01)	.32(.01)	.31(.01)
Multiple SAT	.41(.01)	.37(.01)	.36(.01)
Partial SAT	.31(.01)	.28(.01)	.28(.01)
Multiple Correlation	.54(.01)	.52(.01)	.50(.01)
Corrected Correlations			
HS-GPA	.59(.01)	.59(.01)	.57(.01)
SAT-V	.50(.01)	.49(.01)	.48(.01)
SAT-M	.52(.01)	.49(.01)	.49(.01)
Multiple SAT	.57(.01)	.54(.01)	.53(.01)
Partial SAT	.39(.01)	.35(.01)	.35(.01)
Multiple Correlation	.67(.01)	.65(.01)	.64(.01)
Regression Weights			
SAT-V	.0019(.0001)	.0018(.0001)	.0017(.0001)
SAT-M	.0018(.0001)	.0015(.0001)	.0016(.0001)
Means			
SAT-V	474(4.1)	467(4.4)	472(4.6)
SAT-M	513(4.7)	508(4.8)	515(5.1)
HS-GPA	3.27(.02)	3.23(.02)	3.19(.02)
F-GPA	2.60(.04)	2.58(.03)	2.57(.03)
Standard Deviations			
SAT-V	83(0.7)	82(0.6)	80(0.6)
SAT-M	88(0.8)	85(0.8)	85(0.9)
HS-GPA	.47(.01)	.47(.01)	.48(.01)
F-GPA	.66(.01)	.65(.01)	.66(.01)
Percentage	88.4(0.7)	87.6(0.8)	86.9(0.9)
Number of Colleges	147	152	121
Number of Students	89013	89524	74586

Table 10

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Intended Business Majors

	1978	1981	1985
Raw Correlations			
HS-GPA	.47(.01)	.45(.01)	.44(.01)
SAT-V	.36(.01)	.33(.01)	.30(.01)
SAT-M	.38(.01)	.33(.01)	.32(.01)
TSWE	.35(.01)	.32(.01)	.30(.01)
Multiple SAT	.44(.01)	.40(.01)	.38(.01)
Partial SAT	.35(.01)	.32(.01)	.30(.01)
Multiple Correlation	.57(.01)	.55(.01)	.52(.01)
Corrected Correlations			
HS-GPA	.59(.01)	.59(.01)	.57(.01)
SAT-V	.51(.01)	.51(.01)	.48(.01)
SAT-M	.54(.01)	.53(.01)	.50(.01)
Multiple SAT	.59(.01)	.57(.01)	.55(.01)
Partial SAT	.42(.01)	.40(.01)	.37(.01)
Multiple Correlation	.69(.01)	.68(.01)	.65(.01)
Regression Weights			
SAT-V	.0020(.0001)	.0018(.0001)	.0015(.0001)
SAT-M	.0020(.0001)	.0018(.0001)	.0017(.0001)
Means			
SAT-V	442(4.5)	441(4.6)	446(4.8)
SAT-M	500(5.4)	496(5.2)	501(5.6)
HS-GPA	3.18(.02)	3.17(.02)	3.13(.03)
F-GPA	2.50(.04)	2.51(.03)	2.48(.03)
Standard Deviations			
SAT-V	79(1.1)	78(0.9)	77(1.0)
SAT-M	89(1.1)	84(1.0)	85(1.0)
HS-GPA	.48(.01)	.47(.01)	.47(.01)
F-GPA	.67(.01)	.65(.01)	.64(.01)
Percentage	18.5(1.2)	20.6(1.1)	22.8(1.1)
Number of Colleges	104	120	99
Number of Students	15700	17830	17391

Table 11

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Intented Liberal Arts Majors

	1978	1981	1985
Raw Correlations			
HS-GPA	.45(.01)	.43(.01)	.42(.01)
SAT-V	.37(.01)	.33(.01)	.31(.01)
SAT-M	.36(.01)	.31(.01)	.29(.01)
TSWE	.35(.01)	.32(.01)	.31(.01)
Multiple SAT	.43(.01)	.38(.01)	.36(.01)
Partial SAT	.35(.01)	.31(.01)	.30(.01)
Multiple Correlation	.55(.01)	.52(.01)	.51(.01)
Corrected Correlations			
HS-GPA	.59(.01)	.57(.01)	.56(.01)
SAT-V	.52(.01)	.49(.01)	.47(.01)
SAT-M	.53(.01)	.49(.01)	.47(.01)
Multiple SAT	.58(.01)	.54(.01)	.53(.01)
Partial SAT	.42(.01)	.37(.01)	.36(.01)
Multiple Correlation	.68(.01)	.65(.01)	.64(.01)
Regression Weights			
SAT-V	.0020(.0001)	.0018(.0001)	.0017(.0001)
SAT-M	.0017(.0001)	.0014(.0001)	.0014(.0001)
Means			
SAT-V	485(5.1)	477(5.2)	485(5.2)
SAT-M	493(5.1)	488(5.2)	498(5.5)
HS-GPA	3.25(.02)	3.21(.02)	3.17(.02)
F-GPA	2.62(.04)	2.62(.03)	2.58(.04)
Standard Deviations			
SAT-V	84(0.9)	84(1.0)	83(1.0)
SAT-M	86(1.0)	84(0.9)	84(0.9)
HS-GPA	.46(.01)	.46(.01)	.47(.01)
F-GPA	.66(.01)	.64(.01)	.65(.01)
Percentage	23.4(0.8)	20.4(0.8)	20.5(0.8)
Number of Colleges	128	132	100
Number of Students	20234	17714	15645

Table 12

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Intened Pre-Professional Majors

	1978	1981	1985
Raw Correlations			
HS-GPA	.46(.01)	.45(.01)	.43(.01)
SAT-V	.38(.01)	.35(.01)	.32(.01)
SAT-M	.39(.01)	.36(.01)	.33(.01)
TSWE	.37(.01)	.34(.01)	.33(.01)
Multiple SAT	.46(.01)	.42(.01)	.40(.01)
Partial SAT	.35(.01)	.33(.01)	.31(.01)
Multiple Correlation	.56(.01)	.55(.01)	.53(.01)
Corrected Correlations			
HS-GPA	.57(.01)	.57(.01)	.55(.01)
SAT-V	.52(.01)	.49(.01)	.47(.01)
SAT-M	.54(.01)	.51(.01)	.49(.01)
Multiple SAT	.59(.01)	.56(.01)	.54(.01)
Partial SAT	.42(.01)	.40(.01)	.39(.01)
Multiple Correlation	.67(.01)	.66(.01)	.64(.01)
Regression Weights			
SAT-V	.0019(.0001)	.0017(.0001)	.0017(.0001)
SAT-M	.0020(.0001)	.0019(.0001)	.0017(.0001)
Means			
SAT-V	450(4.4)	443(4.4)	450(4.7)
SAT-M	483(4.9)	480(4.9)	487(5.3)
HS-GPA	3.23(.02)	3.19(.02)	3.16(.02)
F-GPA	2.59(.03)	2.59(.02)	2.59(.02)
Standard Deviations			
SAT-V	84(0.9)	82(0.9)	82(1.0)
SAT-M	87(1.0)	84(1.0)	85(1.1)
HS-GPA	.48(.01)	.48(.01)	.49(.01)
F-GPA	.66(.01)	.65(.01)	.65(.01)
Percentage	29.9(1.4)	24.8(1.2)	22.3(1.2)
Number of Colleges	137	134	110
Number of Students	25606	21135	15583

Table 13

Estimated Correlations and Regression Weights for Self-Reported HS-GPA and SAT Scores with F-GPA for Intended Technical Majors

	1978	1981	1985
Raw Correlations			
HS-GPA	.45(.01)	.43(.01)	.42(.01)
SAT-V	.35(.01)	.31(.01)	.31(.01)
SAT-M	.38(.01)	.34(.01)	.32(.01)
TSWE	.35(.01)	.30(.01)	.30(.01)
Multiple SAT	.44(.01)	.39(.01)	.38(.01)
Partial SAT	.34(.01)	.30(.01)	.31(.01)
Multiple Correlation	.56(.01)	.52(.01)	.52(.01)
Corrected Correlations			
HS-GPA	.59(.01)	.58(.01)	.56(.01)
SAT-V	.50(.01)	.48(.01)	.47(.01)
SAT-M	.54(.01)	.51(.01)	.50(.01)
Multiple SAT	.58(.01)	.55(.01)	.54(.01)
Partial SAT	.41(.01)	.37(.01)	.37(.01)
Multiple Correlation	.69(.01)	.66(.01)	.64(.01)
Regression Weights			
SAT-V	.0018(.0001)	.0016(.0001)	.0016(.0001)
SAT-M	.0021(.0001)	.0019(.0001)	.0018(.0001)
Means			
SAT-V	478(4.5)	472(4.7)	476(4.9)
SAT-M	537(5.2)	533(5.2)	537(5.6)
HS-GPA	3.33(.02)	3.30(.02)	3.27(.02)
F-GPA	2.55(.04)	2.54(.04)	.53(.03)
Standard Deviations			
SAT-V	86(1.0)	85(1.0)	85(0.9)
SAT-M	90(1.1)	87(1.0)	88(1.0)
HS-GPA	.46(.01)	.46(.01)	.47(.01)
F-GPA	.70(.01)	.68(.01)	.70(.01)
Percentage	30.3(1.2)	34.7(1.2)	34.8(1.2)
Number of Colleges	127	137	110
Number of Students	33100	37511	34019

Table 14

Estimates for Regression Weights, Means, and Standard Deviations Within SAT V+M Levels

	1978	1981	1985
		Upper Third	
Regression Weights			
SAT-V	.0019(.0001)	.0017(.0001)	.0018(.0001)
SAT-M	.0019(.0001)	.0018(.0001)	.0019(.0001)
Means			
SAT-V	545(4.3)	542(4.4)	541(4.5)
SAT-M	588(4.7)	586(4.5)	589(4.7)
F-GPA	2.88(.04)	2.84(.04)	2.80(.04)
Standard Deviations			
SAT-V	61(0.6)	61(0.5)	61(0.6)
SAT-M	60(0.6)	58(0.6)	58(0.8)
F-GPA	.63(.01)	.65(.01)	.65(.01)
		Middle Third	
Regression Weights			
SAT-V	.0020(.0002)	.0020(.0002)	.0014(.0002)
SAT-M	.0021(.0002)	.0016(.0002)	.0014(.0002)
Means			
SAT-V	461(4.7)	459(4.8)	458(4.6)
SAT-M	502(5.4)	503(5.4)	505(5.4)
F-GPA	2.54(.04)	2.55(.03)	2.51(.03)
Standard Deviations			
SAT-V	48(0.4)	47(0.4)	48(0.4)
SAT-M	49(0.4)	48(0.4)	49(0.5)
F-GPA	.61(.01)	.62(.01)	.62(.01)
		Lower Third	
Regression Weights			
SAT-V	.0017(.0001)	.0014(.0001)	.0012(.0001)
SAT-M	.0016(.0001)	.0014(.0001)	.0012(.0001)
Means			
SAT-V	385(4.7)	383(4.7)	386(4.6)
SAT-M	417(5.5)	420(5.4)	420(5.5)
F-GPA	2.25(.04)	2.29(.03)	2.27(.03)
Standard Deviations			
T-V	55(0.7)	54(0.8)	54(0.7)
SAT-M	56(0.8)	56(0.8)	56(0.8)
F-GPA	.60(.01)	.59(.01)	.59(.01)
Number of Colleges	145	151	120
Number of Students-Upper Third	35294	33884	33080
Middle Third	33895	34531	30232
Lower Third	34345	35844	27776

Table 15

Estimates for the Corrected Corelations Within SAT V+M Levels

	1978	1981	1985
		Upper Third	
HS-GPA	.63(.01)	.61(.01)	.60(.01)
SAT-V	.50(.01)	.46(.01)	.47(.01)
SAT-M	.52(.01)	.49(.01)	.50(.02)
Multiple SAT	.56(.01)	.54(.01)	.54(.01)
Multiple Correlation	.70(.01)	.69(.01)	.68(.01)
		Middle Third	
HS-GPA	.54(.01)	.54(.01)	.49(.01)
SAT-V	.45(.02)	.42(.02)	.37(.02)
SAT M	.47(.02)	.43(.02)	.38(.02)
Multiple SAT	.56(.02)	.50(.02)	.49(.02)
Multiple Correlation	.68(.01)	.64(.01)	.61(.02)
		Lower Third	
HS-GPA	.50(.01)	.49(.01)	.45(.02)
SAT-V	.46(.02)	.43(.02)	.39(.02)
SAT-M	.48(.02)	.44(.02)	.41(.02)
Multiple SAT	.53(.02)	.51(.02)	.48(.02)
Multiple Correlation	.62(.01)	.60(.01)	.57(.01)

Appendix 1

Yearly Estimates

Suppose there is some measure of interest (such as a correlation coefficient) that is available for some colleges in some years. Denote it by y_{ij} for college i and year j. For each pair of years, all colleges who have the measure available for both years are used to compute the difference between the two values. Thus for years j and k, if college i has the measure for both years, the difference was computed by:

$$d_{ijk} = y_{ij} - y_{ik} .$$

Next such differences for these two years are averaged. If there are n_{jk} colleges with the statistic for the two years, the average is given by

$$d_{jk} = \sum_{i=1}^{n_{jk}} d_{ijk}/n_{jk} .$$

Note that

$$d_{kj} = - d_{jk}$$

and let

$$d_{jj} = 0 .$$

Then for year j, the average deviation effect (a_j) is estimated as follows:

$$a_j = \sum_{k=1}^{k} d_{jk}/k .$$

With k being the number of years to be estimated.

For the actual tables and figures, these deviation effects were added to an overall mean, determined as follows. The mean value of the measure for year j was averaged over all colleges having a value of the statistic for that year. The result was y_j . The unweighted mean of these values was the overall level, namely

$$y = \sum_{j=1}^{k} \; _j/k .$$

Thus the values $t_j = y + a_j$ describe average yearly estimates for the measure y_{ij} .

Standard Errors of Yearly Estimates

Due to the complexity of the dependencies in the terms used to compute yearly estimates, there does not appear to be any straightforward way to obtain standard errors for the estimates. Consequently, it was decided to use jackknifing to provide approximate standard errors. For an overview of jackknifing, see Mosteller & Tukey (1977), pages 133-136.

The jackknifing proceeded by first computing the vector of estimates based on all colleges, say t_{all}. Next, one college was left out at a time. For each college, this meant leaving out at least two records, since each college included in this analysis must have data for at least two years. For each reduced set of colleges, the corresponding vector of estimates, say $t_{(i)}$ when college i is left out, was obtained. Finally, this set of estimate vectors produced a jackknifed estimate vector t_* and an estimated variance-covariance matrix S_* for this estimate. From S_*, standard errors for each element in t_* were computed.

More specifically, the jackknifed estimate for year j may be written as

$$t_{j*} = (n)t_{j,all} - (n-1)t_{j(.)}, \text{ where}$$

$$t_{j(.)} = \sum_{i=1}^{n} t_{j(i)}/n \quad \text{and there are a total of } n \text{ colleges.}$$

For the estimation method used here, it turns out that $t_{j*} = t_{j,all}$.

The elements of S_* are given by

$$s_{jk*} = [(n-1)/n] \sum_{i=1}^{n} [t_{j(i)} - t_{j(.)}] [t_{k(i)} - t_{k(.)}] .$$

The jackknife estimate of the standard error for t_{j*} is

$$s_{j*} = (s_{jj*})^{1/2}$$

APPENDIX 2

Number of Colleges for Each Pair of Years

Analysis	Year		
	1978-81	1978-85	1981-85
All Students	109	90	93
Colleges with Actual High School Record	49	39	51
Test			
Chemistry	28	27	30
English Composition	74	59	65
Mathematics Level I	71	58	62
Sex			
Female	92	76	79
Male	92	76	79
Ethnic Group			
Asian American	16	13	17
Black	26	25	19
Hispanic	11	9	11
White	106	87	92
Intended Major			
Business	75	63	75
Liberal Arts	88	69	74
Pre-Professional	96	79	81
Technical	93	73	82
Thirds	106	87	89