

An Evaluation of Georgia's HOPE Scholarship Program: Effects of HOPE on Grade Inflation, Academic Performance and College Enrollment



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Executive Summary

Background

Since 1993, the Georgia HOPE Scholarship has paid college expenses for high school graduates who earn a B or better high school grade point average (GPA) and maintain a B average in college. Over 358,000 students have earned HOPE Scholarships. Total outlays exceed \$658 million.

Key findings

- ◆ The number of high school graduates eligible for HOPE has grown rapidly, increasing from 46.8% in 1993 to 59.5% in 1998.
- ◆ Average SAT scores and high school GPA have risen for college-bound seniors in Georgia since the program began.
- ◆ There is no evidence that grade inflation has appeared or accelerated since HOPE began, as measured by the relationship between SAT scores and high school GPA.
- ◆ Since HOPE started, more students enrolling in institutions in the University System of Georgia (USG) have college prep diplomas and fewer need remedial work.
- ◆ Since HOPE began, minority students have not been crowded out of Georgia's most competitive public research universities, including the University of Georgia and Georgia Tech. The proportion of minority students has increased slightly.
- ◆ Fewer than 25% of HOPE scholars retain their scholarship through four years of college, but the percentage of students who lose HOPE has declined each year.
- ◆ After 2 years of college, African American students are the most likely to lose HOPE and are also the most likely to drop out of college if they lose their scholarships.

Is HOPE eligibility increasing (page 3)?

- ◆ The number of high school graduates eligible for HOPE has grown rapidly, increasing from 46.8% in 1993 to 59.5% in 1998.
- ◆ Between fall 1996 and fall 1998 the proportion of HOPE scholars in the entering classes of Georgia public colleges and universities increased from 74.1% to 81.4%.

Is increased eligibility due to grade inflation (page 4)?

- ◆ National data on SAT scores and grades from 1988 to 1998 show that grade inflation may be a national trend that began well before the HOPE Scholarship program.
- ◆ Average SAT scores for Georgia high school graduates enrolling in USG institutions have risen steadily, from 976 in 1988 to 1008 in 1998.
- ◆ Average SAT scores have risen for HOPE scholars at all GPA levels, including those closest to the HOPE eligibility cut-off (3.0–3.25 high school GPA).
- ◆ Statistical analysis shows that students close to the eligibility cut-off may be better prepared for college than in the past.

Is increased eligibility due to grade inflation (continued)?

- ◆ Overall, the results provide no evidence to support the hypothesis that grade inflation began, or accelerated, after the start of the HOPE program.

Is Increased eligibility due to better academic performance or to course avoidance (page 10)?

- ◆ Since 1993, a higher percentage of students have college prep diplomas, and a lower percentage of students require remedial courses in college.
- ◆ The number of AP exams taken has increased from 5,600 in 1986 to 25,365 in 1998. The rate of AP exams per 100 students has more than doubled from 18 to 39.4.

Does HOPE affect students' decisions about where they will attend college (page 11)?

- ◆ Since HOPE began, fewer students overall are leaving Georgia to attend out-of-state colleges.
- ◆ Since 1993, the number of Georgia residents enrolled in USG institutions increased by 1,495 students, slightly increasing the percentage of first-year in-state students.

Has HOPE altered the distribution of minority students (page 12)?

- ◆ Enrollments of 1st year African Americans increased by 32.8% since HOPE began. All minority groups have had greater enrollment increases than have white students.
- ◆ At Georgia's most competitive institutions, all minority groups had larger percentage enrollment gains than did white students.
- ◆ At University of Georgia and Georgia Tech, the percentage of African American students increased from 8.0% to 8.3%, although this proportion is substantially lower than their system-wide average proportion of 22.5%.
- ◆ The evidence does not suggest that access for minority students to Georgia's institutions of higher education has been reduced by the HOPE Scholarships.

Are students keeping HOPE and staying in school (or graduating) (page 15)?

- ◆ After 4 years of study, over three-fourths of all HOPE scholars lose the scholarship. Of those who lose HOPE, over 40% leave college, and only 4-5% regain HOPE.
- ◆ The percentage of students who keep HOPE a 2nd year and stay in college increased from 38.9% to 46.1%. The percentage who keep HOPE through 4 years increased from 21.7% (incoming class of 1993) to 22.7% (incoming class in 1995).
- ◆ Most students lose HOPE, but, even after losing HOPE, college persistence rates are above 70% after two years of college and above 60% after four years of college.
- ◆ Just over 6% of students who lose HOPE after 2 years gain it back in the third year.

Who loses HOPE and drops out of college (page 16)?

- ◆ On average, 58.9% of African American students lose HOPE during their first 2 years of college. Of those who lose HOPE, 36.8% leave college.
- ◆ Among Hispanic students, an average of 45.5% lose HOPE during their first 2 years of college. Of those who lose HOPE, 35.1% leave college.
- ◆ Among White students, an average of 44.6% lose HOPE during their first 2 years of college. Of those who lose HOPE 40.9% leave college.
- ◆ Only 42.5% (on average) of Asian students lose HOPE during their first 2 years of college, of those who lose HOPE 27.7% leave college.

Introduction

The idea behind Georgia's HOPE Scholarship is relatively simple: increase the incentives to get higher grades in high school and college -- and to stay in Georgia to attend college -- by paying for high-achieving Georgia students to attend in-state post-secondary institutions. The program pays the full cost of tuition, fees, and books for the HOPE scholars who attend public institutions of higher education within the state and a \$3,000 stipend for those attending the state's private colleges and universities. All Georgia high school graduates with a 3.0 or better grade point average (GPA) in high school and those who maintain that average in college are eligible for the aid. Along with Georgia, at least a half dozen other states now offer merit-based college scholarships for high achieving students without regard to family income or need (Education Commission of the States, 1999). Policy makers in many of these states routinely acknowledge their debt to Georgia's program (Argetsinger, 1999), and several programs and proposals have even adopted the HOPE "brand name." The federal HOPE Scholarship Tax Credit program also borrowed its name from Georgia's scholarship, although the federal program offers a tax credit to offset tuition payments rather than merit-based scholarships.

HOPE changes students' incentives for school work by providing financial rewards for better grades. These incentives could motivate parents and students to place more emphasis on education, which may lead to improved performance in school. But the 3.0 requirement can also be achieved in less desirable ways. High school teachers and college professors could boost students' grades to increase student access to college. Students may avoid tougher courses to maintain a higher GPA.

In addition to the potential for grade inflation, another potential negative side-effect of HOPE may be that minority students are "crowded out" of the state's colleges and universities by the decision of white students, who would have gone out-of-state, to attend college closer to home (Mortenson, 1997). An additional negative side-effect could be increased college-leaving for the HOPE students who lose their scholarships and no longer have the financial incentives to persist.

Other criticisms have been directed at HOPE, as well. Critics of the program argue that the expenditures are inefficient since most HOPE recipients would have attended college even in the absence of the program. For those students, the program represents an income transfer, but provides no incentives for acquiring more education than they would have acquired without the program. Mortenson (1998) also argues that, because the program is funded through the Georgia Lottery, it represents an income transfer from the poor, who are more likely to play lottery games, to the well-off who are more likely to receive the scholarships. Neither of these issues will be analyzed in this report because both deserve extensive treatments in their own right. Instead, we will analyze the policy's effect on the educational performance of students and their access to the University System of Georgia (USG).

Is HOPE eligibility increasing?

Since HOPE began in 1993, over 358,000 students have earned HOPE Scholarships and total outlays have exceeded \$658 million (Georgia Student Finance Commission, 1998). The Public College Scholarship component of the program pays full tuition and fees, and provides an allowance for books, at any public institution of higher education in Georgia. The Private College HOPE Scholarship provides \$3,000 to offset tuition at any private college or university in Georgia. To earn either of these scholarships, a student must have a 3.0 cumulative GPA in his or her high school courses and must maintain the 3.0 annually in college to retain the scholarship. While the program originally had an income cap for eligibility, the restriction was lifted in fiscal

year 1996 and any Georgia resident can now receive the scholarship based solely on his or her grades.

The number of students who qualify for HOPE has grown rapidly since its inception (Table 1). In the first year of HOPE, when students had no time to alter their high school study habits to earn HOPE and eligibility was constrained by a \$66,000 family income cap, 46.8% of all high school graduates were eligible for the scholarship. The income cap was lifted in 1995 and the percentage of Georgia high school graduates with a cumulative four-year B or better grade point average in high school rose from 54.8% in 1995 to 59.5% in 1998, an increase of over 7,500 students. Increasing numbers of eligible students are also enrolling in Georgia's public colleges or universities. Between fall 1996 and fall 1998 the proportion of HOPE scholars in the entering classes of public colleges and universities in Georgia increased from 74.1 percent to 81.4 percent.

Table 1: Number and Percent of Students Eligible for HOPE ^a

High School Graduation Year	Georgia High School Graduates	Number of HS Graduates Eligible for HOPE	Percent of HS Graduates Eligible for HOPE	1 st Yr. HOPE Scholars in GA Public Colleges
1990	56,605	NA	NA	NA
1991	60,088	NA	NA	NA
1992	57,742	NA	NA	NA
1993 ^b	59,520	27,863	46.8%	6,113
1994 ^c	58,315	30,804	52.8%	13,366
1995	59,736	32,713	54.8%	16,236
1996	59,444	33,212	55.9%	16,707
1997	61,004	35,347	57.9%	18,306
1998	64,386	38,332	59.5%	19,499

^a Includes public high school students only.

^b Household income of \$66,000 per year constrained eligibility.

^c Household income of \$100,000 per year constrained eligibility.

Source: Georgia Department of Education, Georgia Student Finance Commission, Georgia Board of Regents

Is increased eligibility due to grade inflation?

A primary question investigated in this study is whether, and the extent to which, grade inflation occurred following implementation of the HOPE Scholarship program. For our purposes, grade inflation is defined as a systematic increase in student grades over time not related to increases in ability or performance. Over time, students would earn higher grades for work of the same quality as in the past. If grade inflation is occurring, it may happen in a number of ways. A common explanation is that students and possibly parents, concerned with earning the scholarships, will put pressure on high school teachers to raise grades. If this is occurring we would expect inflation to affect only certain students (those who pressure teachers). One could hypothesize, however, that if the pressure is pervasive enough, a "critical mass" would be reached and teachers would systematically raise all, or a large proportion, of grades. This pattern might also occur if teachers attempt to maintain relative differences between students while, in essence, adding a constant to each student's grade. If teachers began to raise grades on their own, without direct pressure from students or parents, we would again expect most grades to increase across the board.

Regardless of which grade inflation scenario occurs, it is clearly not possible for the inflation to affect all students equally since there is a ceiling on grades. That is, while

C level work in an earlier period could be inflated to a B (or an A), an A level work cannot be inflated further. Therefore, we might expect to see a compression of grades, with a higher proportion of students receiving As and Bs.

Because the effect of the scholarships on grade inflation cannot be directly measured, we must make a number of assumptions to guide our analysis. First, we assume that any effect of the scholarship would not occur at only a single point in time. Since the scholarships are based on four-year cumulative high school GPA, and since no statewide data are available showing GPAs by student for each year of high school, we would expect that any effect of the program on grades would be diffuse. That is, for students who were seniors when the program began, only one year of grades would be subject to HOPE-induced grade inflation. The students in the graduating class of 1997 would be the first to know about HOPE throughout their high school career and, therefore, potentially have four years of inflated grades.

Second, we assume that some students are more likely than others to be affected by any potential grade inflation. Specifically, students with overall averages close to a B might be most likely to be subject to inflated grades, since they are likely to have a great financial stake in a one or two more Bs. Students with lower grades (C or below) are less likely to be in contention for the HOPE Scholarship and, therefore, might be less likely to pressure teachers to raise their grades. Additionally, teachers would likely find it more difficult to rationalize inflating a student's grade if that student has little chance of meeting the program requirement. Higher achieving students might be likely to pressure teachers, but would be subject to the ceiling on grades mentioned earlier. Therefore, the analyses presented below focus on detecting inflation of grades for students with GPAs close to 3.0 since these students are most likely to experience grade inflation.

An increase in grades over time is not, on its own, sufficient to demonstrate the existence of grade inflation. Students may simply be more motivated to achieve or more capable than those in the past, or the myriad educational reforms implemented over the previous decades may have helped to improve student performance. The potential for grade inflation exists because high school grades are the domain of thousands of teachers across the country and can be quite subjective. Therefore, a more consistent standard is needed to judge student performance over time. Nationally and especially in Georgia, the Scholastic Assessment Test (SAT) is the most common standardized test taken by high school students. Therefore, it serves as a common metric for judging student ability and achievement. Stated simply, if student grades increase over time while SAT scores remain the same or decline, there is evidence that grade inflation is occurring.

Our analyses are presented in two parts. First, we describe patterns in the descriptive data related to grade inflation. Next, we present evidence from statistical analysis of student-level data for all students in USG institutions from 1989 to 1999.

Grade Inflation: Overall Patterns

Before presenting the results of statistical analyses, it can be instructive to examine aggregate trends over time. National data on SAT scores and student grades between 1988 and 1998 suggest that grade inflation may be a national trend that began well before the start of the HOPE Scholarship program. Nationally, the proportion of students taking the SAT who achieved a cumulative GPA of A minus or better rose from 28% to 38% over the period, while the proportion of students with a GPA in the C range fell from 19% to 13% (College Board, 1999). While more students are receiving As and Bs, average SAT scores for these students have declined over the period. For example, average verbal scores for students with a cumulative A average fell from 582 to 569, while math scores fell from 586 to 582. Average scores for B students showed a similar

decline, from a cumulative 985 in 1988 to 970 in 1998. If SAT scores are a consistent measure of student performance, then the data suggest that – in the aggregate – the group of U.S. students who earned As in 1998 was less academically prepared than the students who earned As in 1988.

Table 2 shows aggregate SAT scores (verbal and math cumulative) for the nation, for 15 states in the Southern Regional Education Board (SREB) territory, and for Georgia between 1988-93 and 1994-98. The year 1993 is used as a break point because it marked the beginning of the HOPE Scholarship program. Average SAT scores fell for each group between 1988-93 and rose between 1994-98, with steeper trends in Georgia than in the U.S. or SREB states. In 1994, scores in Georgia began a steady upward trend, with an increase of 20 points over the period. Between 1988 and 1998, Georgia and the rest of the nation experienced a small increase in average SAT scores.

Table 2: SAT Mean Composite Verbal and Math Scores*

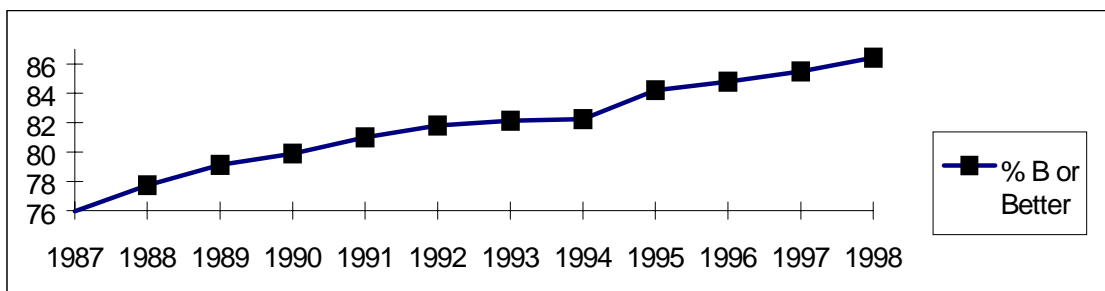
	1988	1989	1990	1991	1992	1993	%Change 88-93
U.S.	1006	1006	1001	999	1001	1003	-0.3%
SREB States	989	988	985	984	985	988	-0.1%
Georgia	953	954	951	950	948	949	-0.4%

	1994	1995	1996	1997	1998	%Change 93-98
U.S.	1003	1010	1013	1016	1017	1.4%
SREB States	988	995	997	999	1000	1.2%
Georgia	948	960	961	967	968	2.0%

*All scores are on recentered scale

Figure 1 shows that from 1987 to 1992 the percent of Georgia students who indicated that they have a B or better average increased from 76% to 81.8%. From 1993 (the first graduating class eligible for HOPE) to 1998 the percentage who indicated they had a B or better average increased from 82.1% to 86.4%. While a rising percentage of students are reporting B or better averages, the trend pre-dates HOPE and has not accelerated since the program began.

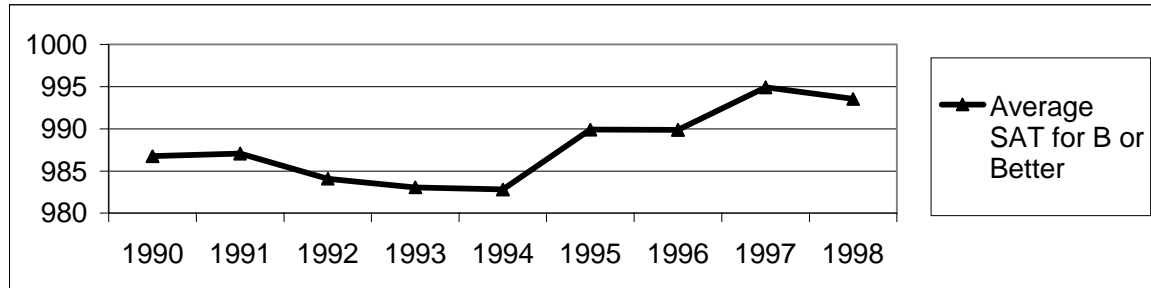
Figure 1. Percent of Georgia Students Taking SAT Reporting a B or Better Average



In the absence of other information about student performance, the steadily increasing percentage of students with a 3.0 or higher GPA could be taken as evidence of grade inflation. As noted, SAT scores provide a “control” measure since they are not likely to be affected by potential grade inflation. If high school teachers inflate grades, those students who would previously have had a GPA in the C range would achieve a B

instead. Assuming these students had lower average SAT scores, the average for B or better students would be reduced by their scores. The pattern in SAT scores shown in Figure 2 shows that the overall trend in SAT scores in the pre-HOPE period shows a decrease consistent with grade inflation, but since HOPE was initiated, SAT scores have increased. Average composite SAT scores for Georgia students who took the SAT and reported a B or better high school average fell slightly between 1990 and 1994, but then began to rise, reaching a high in 1997.

Figure 2. SAT Scores for Georgia Students Reporting B or Better Average



Source: Calculations from College Board data

Table 3 displays average SAT scores for Georgia high school students who enrolled in USG institutions. Average SAT scores of first-year students have risen, even as enrollments have risen. For all first-year USG students, SAT scores have increased from 976 in 1988 to 1008 in 1998. While there has been a sharp increase in the number of students qualifying for HOPE Scholarships, average SAT scores for HOPE students have risen since 1994. Among students enrolled without the HOPE Scholarship, SAT scores have rebounded in 1998, after three years of decline.

Table 3: SAT Scores of 1st Year Georgia Students in USG Institutions

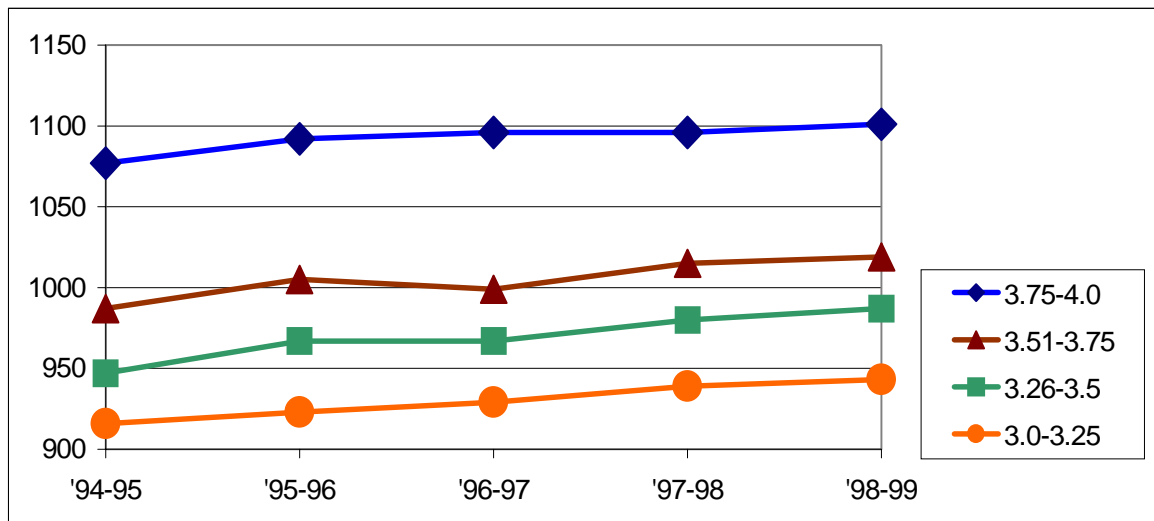
Year of High School Graduation	TOTAL		Not HOPE-eligible		HOPE-eligible	
	SAT	N	SAT	N	SAT	N
1988	975.5	20,899				
1989	974.0	20,982				
1990	967.1	19,208				
1991	967.6	20,674				
1992	966.5	20,686				
1993	975.1	21,333	950.9	15,164	1038.2	5,791
1994	978.0	21,470	914.9	8,389	1021.5	12,797
1995	985.9	21,738	890.1	5,900	1024.4	15,542
1996	978.6	21,398	870.2	4,949	1014.8	16,066
1997	995.5	22,612	883.5	4,381	1028.6	17,448
1998	1008.4	23,155	898.2	4,007	1033.9	18,829

As described above, if HOPE is causing inflated grades, we might expect to see different effects at different GPA levels, with the strongest effects seen for students close to the 3.0 eligibility level. Figure 3 shows mean four-year high school GPAs (for all courses) and mean SAT scores for HOPE recipients divided into quartiles by GPA, for the years since the state began HOPE. The data show that for each quartile of students, SAT scores have been rising. Those in the lowest two quartiles have had the largest increase in SAT scores. If students were receiving HOPE due to inflated grades, we

would not expect to see rising SAT scores, particularly in the lowest quartile where evidence of grade inflation would likely be strongest. If grade inflation is present on a large scale, students in the lowest quartile would have more C students who received inflated B scores, causing a decline in SAT scores. Instead, average SAT scores have risen for all groups.

Because the data are aggregated at the state-level, they do little to illuminate the causes of this pattern. For example, the characteristics of students taking the SAT may have changed and could include a smaller proportion of students (such as African-Americans) who historically score lower on standardized tests despite good performance on high school coursework.

Figure 3. SAT Scores of HOPE Scholars at Four Overall GPA Levels



Source: Georgia Board of Regents and Georgia Student Finance Commission

Regression analysis can help to isolate the relationship between SAT scores and high school GPA from other factors that could affect SATs. The analysis uses student-level data for all students in public post-secondary institutions for the period 1988-89 through 1998-1999 to more fully investigate these patterns. We hypothesize that if grade inflation is occurring, we would find a smaller and weaker relationship between high school GPA and SAT scores. If grade inflation is occurring, the coefficient on core course GPA would decline in the years after the HOPE program was implemented, indicating a weaker relationship between grades and SAT scores. Additionally, the predicted SAT score for students earning a 3.0 core course GPA, controlling for other associated factors, should also decline¹.

Table 4 displays regression results for first-year HOPE scholars at USG institutions for the academic years 1988-89 through 1998-99. The table shows that the relationship between core course GPA and SAT scores grew stonger during this time period while the adjusted R-Squares show that the overall fit of the model remains strong. In addition, mean SAT scores for all students rose from 976 in 1988 to 1010 in 1998.

¹ For a complete explanation see "Data and Methods Used in this Study" at the end of this report.

Table 4: Composite SAT Regression Results, 1988-98 (standard errors in parentheses)

HS Graduation Year	SAT mean	Intercept	Core Course HS GPA	African American	Female	College Prep Diploma ^a	Adjusted R-Square	N
1988	976.1	621.9 (5.4)	129.7 (1.4)	-139.1 (2.6)	-69.8 (1.9)	65.4 (4.1)	.403	20,466
1989	975.9	590.6 (5.9)	125.7 (1.4)	-133.3 (2.6)	-68.6 (1.9)	104.2 (4.9)	.400	20,382
1990	967.9	579.2 (6.5)	129.7 (1.5)	-134.2 (2.6)	-62.5 (2.0)	97.6 (5.3)	.402	18,818
1991	968.1	577.7 (6.0)	128.7 (1.5)	-128.0 (2.4)	-62.3 (2.0)	101.5 (4.8)	.407	20,294
1992	967.4	546.4 (6.2)	141.2 (1.5)	-126.3 (2.4)	-70.4 (1.9)	98.9 (4.9)	.434	20,247
1993	975.4	556.6 (6.5)	139.8 (1.5)	-115.6 (2.3)	-75.1 (1.9)	98.5 (5.2)	.416	20,864
1994	978.9	546.7 (6.5)	141.9 (1.6)	-117.4 (2.3)	-64.0 (2.0)	93.6 (5.2)	.414	21,150
1995	987.5	534.2 (6.9)	140.9 (1.6)	-97.7 (2.3)	-64.2 (1.9)	107.0 (5.6)	.391	21,387
1996	980.3	535.1 (6.1)	149.6 (1.5)	-100.9 (2.2)	-65.6 (1.8)	71.9 (4.5)	.438	21,055
1997	998.6	534.7 (7.8)	152.0 (1.5)	-99.5 (2.2)	-74.1 (1.8)	78.3 (6.6)	.431	21,862
1998	1,009.6	544.8 (6.4)	152.5 (1.5)	-98.4 (2.2)	-73.8 (1.8)	72.3 (5.2)	.429	22,772

^a Satisfied college prep coursework requirement for USG Institutions

Figure 4: Predicted SAT Scores for White Male Students with 3.0 High School GPA (1st Year USG Students), 1988-1998

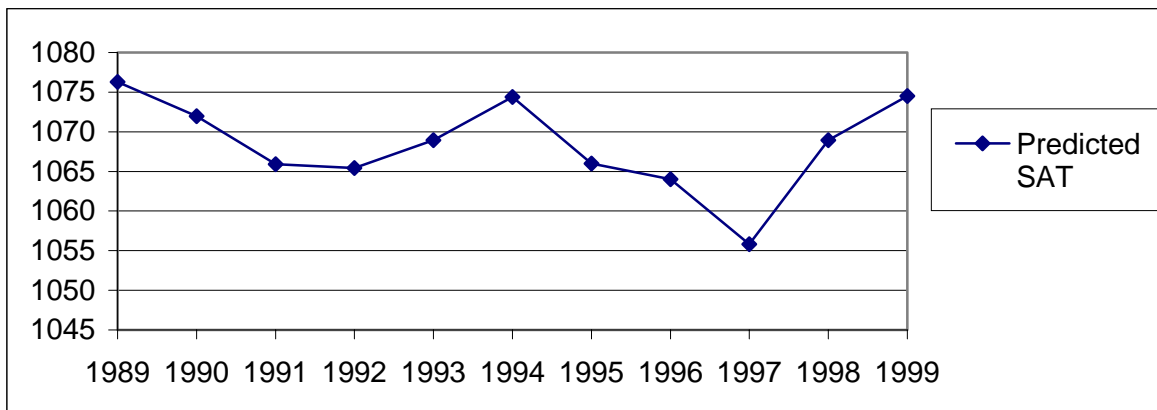


Figure 4 shows a graph of the predicted SAT scores for white male first-year students who took a college preparatory curriculum and achieved a 3.0 GPA in high school. Again, since students at the eligibility cutoff might be most likely to be subject to grade inflation, we are particularly interested in the performance of these students. While predicted scores fell in the first few years of the program, they rose steadily

between 1997 and 1999. In 1998, the predicted SAT score was at approximately the same level as in 1989 and was substantially higher than in the years immediately preceding HOPE. Predicted SAT scores for white male students who took a college prep curriculum are used as an illustrative example. For each sub-group combination of race, sex and college prep curriculum, predicted SAT scores were higher in 1999 than in 1993. Again the results provide no evidence to support the hypothesis that grade inflation began, or accelerated, after the start of the HOPE program.

Is increased eligibility for HOPE due to better academic performance or to course avoidance?

While the trends in SAT scores and grades show no evidence of HOPE-induced grade inflation, the program also raises the danger that students will attempt to raise their grades by taking less rigorous courses in high school, thereby leaving them less prepared for post-secondary academic work. Since HOPE eligibility has been determined by cumulative GPA in all courses, students might bypass harder courses to increase their chance to earn high GPAs. Recent research suggests, however, that a higher proportion of college-bound seniors in Georgia took four years of math, calculus and physics in 1997 than in 1992, before the HOPE program began (Sloop, et al., 1999).

Table 5: Academic Preparation in High School

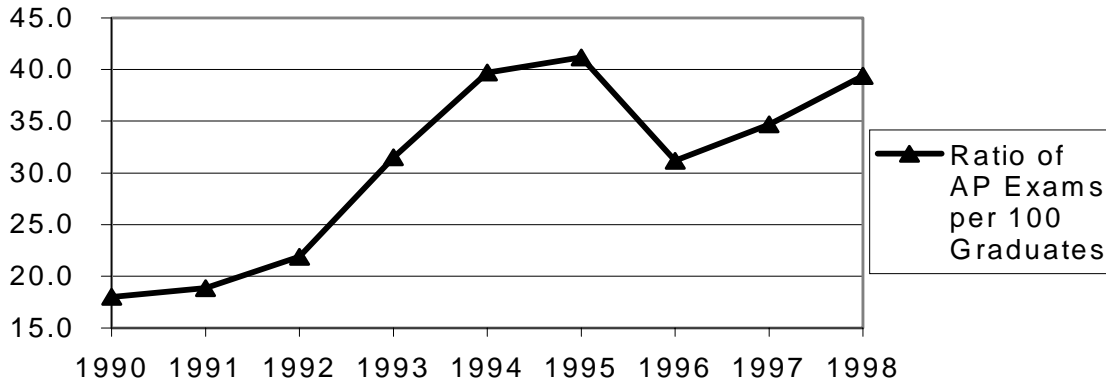
HS Graduation Year	Core Course GPA>3.0	Core course GPA			College Prep Preparation			Learning Support		
		HOPE	w/o HOPE	Total	HOPE	w/o HOPE	Total	HOPE	w/o HOPE	Total
1988	32.5%			2.68			92.7%			
1989	33.2%			2.67			94.3%			
1990	31.8%			2.69			93.8%			
1991	33.1%			2.69			93.4%			
1992	34.7%			2.71			93.2%			
1993	36.3%	3.14	2.67	2.75	97.8%	93.5%	94.0%	13.0%	27.3%	23.4%
1994	39.4%	3.09	2.47	2.81	97.9%	90.2%	93.9%	20.1%	48.5%	32.1%
1995	41.7%	3.09	2.36	2.83	98.4%	89.2%	94.4%	17.5%	55.1%	28.9%
1996	43.9%	3.10	2.32	2.84	97.2%	87.0%	93.2%	14.8%	52.7%	25.3%
1997	47.4%	3.12	2.30	2.84	98.6%	93.8%	96.4%	14.0%	48.4%	22.2%
1998	50.1%	3.13	2.31	2.94	97.7%	88.8%	95.5%	13.0%	44.8%	19.2%

The descriptive statistics shown in Table 5 suggest that, on average, students who enrolled in USG institutions after 1993 have better high school preparation and achievement than those who enrolled before HOPE began. From 1988 to 1993, the percentage of USG students with a 3.0 in their core courses rose only slightly from 32.5% to 36.3%. By 1998 the percentage of students scoring greater than 3.0 in core courses and enrolling in USG institutions jumped to over 50%. During the same time periods, the percentage of students with college prep diplomas increased, while the percentage of students requiring remedial coursework (learning support) declined slightly, despite increases in the early years of the program.

There has also been a marked increase in the number of Georgia students who took advanced placement (AP) exams in the past ten years (College Board, 1998). In 1986, only 5,600 exams were given in Georgia, but that number had increased to 25,365 by 1998, with relatively little change in the number of high school seniors. Figure 5 shows the ratio of AP examinations to public HS graduates in Georgia. While the

number of graduates has held steady during this time (Table 1) the ratio of AP examinations to graduates has increased from 18.0 exams per 100 graduates to 39.4 exams per 100 graduates. The fluctuation seen in the time series may be explained by the state support for AP testing fees (which was cut-off in 1996 and restored in 1997), but it is unlikely that the increase in examinations by more than 100% was driven solely by state support for exam fees. The available evidence, while limited, suggests that students do not appear to be "watering down" their course schedules in order to increase their grades.

Figure 5: Ratio of AP Examinations per 100 Georgia HS Graduates 1990-1998



Does HOPE affect students' decisions about where they will attend college?

Assuming no grade inflation, two plausible explanations may explain these trends in grades and SAT scores. The first is that the overall achievement levels of Georgia high school students has risen since the HOPE program began. The second is that USG institutions are becoming more competitive and attracting higher achieving students who might previously have attended college out-of-state or in the private sector. Both of these patterns were intended policy outcomes of the HOPE program. But, as noted earlier, the increased competition for a limited number of seats may reduce access for students from traditionally underrepresented groups. The problem may be most acute for African-Americans since, as the analysis indicates, these students tend to have lower SAT scores than do white students with comparable grades.

The limited data available suggest that fewer students overall are leaving Georgia to attend out of state colleges. The National Center for Education Statistics reports a two percentage point increase (from 80% in 1992 to 82% in 1996) in the number of Georgia high school graduates who attended an in-state college (Digest of Education Statistics, 1995; 1997; 1998). Table 5 shows an overall increase in Georgia residents in the USG between 1988 and 1998 but little change in the overall proportion of Georgians in USG institutions. Since the 1993 high school graduating class, however, the number of Georgia residents enrolled in USG institutions increased by 1,495 students, accounting for a 1.4 percentage point increase in the percentage of in-state students. During that same period the number of HOPE scholars increased from 6,618 to 21,905.

Table 5: Percent of First Year, In-State Students Enrolled in US Georgia Institutions

Year of High School Graduation	Georgia Residents enrolled in USG	Total 1 st Year Enrollment	Percent In-state Students
1988	21,492	23,926	89.8%
1989	21,740	24,155	90.0%
1990	19,998	22,486	88.9%
1991	21,994	24,323	90.4%
1992	22,089	24,706	89.4%
1993	22,553	25,461	88.6%
1994	22,762	25,335	89.8%
1995	23,281	25,529	91.2%
1996	22,667	24,797	91.4%
1997	23,786	26,267	90.6%
1998	24,048	26,732	90.0%

Source: Georgia Board of Regents

Has HOPE altered the distribution of minority students?

For students who stay in-state, the expected increase in academic performance coupled with the increase in the number of students who remain in Georgia should produce a more competitive environment among Georgia's top schools, but this competitiveness could come at the expense of access for historically underrepresented groups. Table 6 shows the distribution by race of students who enrolled in a USG institution in the fall following their high school graduation. The ten-year trend shows large increases in minority enrollments. Among African Americans, Georgia's largest minority, there has been a 32.8% increase in enrollments from the pre-HOPE period to the post-HOPE period (Table 6). Other minority groups have experienced even larger percentage gains.² Since the inception of HOPE, the enrollment of white students has decreased. Since 1995, however, the number of African Americans enrolling in USG institutions has fallen by 327. Because of the larger numbers of Georgia students enrolling in USG institutions overall, the percentage of the incoming class who identify themselves as racial or ethnic minorities has not changed as substantially.

² The increasing trend to self-identify as "multi-ethnic" (included in the "Other" category) makes conclusions somewhat tentative, since the effects of changing identification patterns cannot be disentangled from other changes in the racial composition of schools.

Table 6: 1st year In-State Enrollment in USG schools by Race 1988-1998

Year of High School Graduation & College Enrollment	Asian	African American	Hispanic	Other	White	Total from Georgia
1988	290	3,309	127	32	17,734	21,492
1989	375	3,483	171	42	17,669	21,740
1990	415	3,651	144	32	15,756	19,998
1991	489	4,479	164	47	16,815	21,994
1992	508	4,703	241	51	16,586	22,089
1993	553	5,226	212	43	16,519	22,553
1994	698	5,257	275	89	16,443	22,762
1995	626	5,395	308	195	16,757	23,281
1996	530	5,198	272	293	16,374	22,667
1997	569	5,137	291	360	17,429	23,786
1998	582	5,068	362	366	17,670	24,048
Average Enrollment Pre-HOPE 1988-1992 (% of GA enrollment)	415 (1.9%)	3,925 (18.3%)	169 (0.8%)	41 (0.2%)	16,912 (78.8%)	21,463
Average Enrollment Post-HOPE 1993-1998 (% of GA enrollment)	593 (2.6%)	5,214 (22.5%)	287 (1.2%)	224 (1.0%)	16,865 (72.7%)	23,183
Percent Increase (Decrease) in Average Enrollment	42.8%	32.8%	69.2%	449.8%	-0.3%	8.0%

One of the expected outcomes of HOPE is that it will encourage Georgia's more competitive students to enroll at an in-state college. Since many of the most competitive high schools in Georgia have high percentages of white students, increases in the number of competitive students staying in-state may lead to the crowding-out of minority students, who may be more likely to attend lower quality high schools. The crowding out may be most severe at Georgia's research universities, where admissions are most competitive. Table 7 displays first-year enrollments at Georgia's public research universities and suggests that such crowding-out has not occurred. From 1992 (pre-HOPE) to 1998 (post-HOPE) all minorities had larger percentage enrollment gains than did white students. Average white student enrollment has increased by only 0.7% from pre-HOPE to the post-HOPE period, which is far lower than the percentage gains of other groups. At the same time the average percentage of white students in the research universities has decreased from 83.7% to 76.9%. The average percentage of African American students increased from 10.7% to 13.2%. The percentage of African American students in these most competitive institutions remains well below that in the university system as a whole.

Table 7: 1st year In-State Enrollment: USG Research Universities by Race 1988-98

Year of High School Graduation & College Enrollment	Asian	African American	Hispanic	Other	White	Total from Georgia
1988	160	524	56	6	5,010	5,756
1989	201	600	61	2	4,598	5,462
1990	207	501	65	8	4,394	5,175
1991	298	638	63	6	4,197	5,202
1992	259	582	81	9	4,059	4,990
1993	289	651	68	4	4,166	5,178
1994	390	738	101	45	4,367	5,641
1995	332	883	88	81	3,987	5,371
1996	336	763	84	122	3,947	5,252
1997	405	977	103	151	5,197	6,833
1998	402	800	126	144	5,225	6,697
Average Enrollment Pre-HOPE 1988-1992 (% of GA enrollment)	225 (4.2%)	569 (10.7%)	65 (1.2%)	6 (0.1%)	4,452 (83.7%)	5,317
Average Enrollment Post-HOPE 1993-1998 (% of GA enrollment)	359 (6.2%)	802 (13.8%)	95 (1.6%)	91 (1.6%)	4,482 (76.9%)	5,829
Percent Increase (Decrease) in Average Enrollment	59.6%	40.9%	45.7%	1370.4%	0.7%	9.6%

Historically, the state's most competitive universities have been the University of Georgia (UGA) and the Georgia Institute of Technology (Georgia Tech). When we examine first year enrollments for just these two schools, the evidence indicates that African-Americans are under-represented at these schools relative to their population in high school graduating classes, but the percentage of African American students in entering classes has increased slightly since the inception of HOPE (Table 8). Average white student enrollment increased by 1.9% from pre-HOPE to the post-HOPE period, far lower than the percentage gains of other groups. Post-HOPE, the percentage of students who are African American has increased to 8.3% (compared to 8.0% before HOPE), but again, this is far below the system-wide average of 22.5%. The evidence does not suggest that increased competition following the inception of HOPE has caused minority group students to be crowded out of the most competitive schools, but it does indicate minority enrollments remain relatively low. Access may be further limited as the university system reaches capacity.

Table 8: 1st year In-State Enrollment in UGA and Georgia Tech by Race 1988-1998

Year of High School Graduation & College Enrollment	Asian	African American	Hispanic	Other	White	Total from Georgia
1988	114	296	29	6	4,203	4,648
1989	134	345	42	2	3,761	4,284
1990	140	334	49	7	3,767	4,297
1991	200	398	38	5	3,495	4,136
1992	157	339	49	4	3,382	3,931
1993	193	343	40	4	3,554	4,134
1994	242	427	62	4	3,812	4,547
1995	192	490	40	37	3,397	4,156
1996	178	268	40	58	3,236	3,780
1997	231	325	56	96	4,292	5,000
1998	275	385	85	90	4,452	5,287
Average Enrollment Pre-HOPE 1988-1992 (% of GA enrollment)	149 (3.5%)	342 (8.0%)	41 (1.0%)	5 (0.1%)	3,722 (87.4%)	4,259
Average Enrollment Post-HOPE 1993-1998 (% of GA enrollment)	219 (4.9%)	373 (8.3%)	54 (1.2%)	48 (1.1%)	3,791 (84.5%)	4,484
Percent Increase (Decrease) in Average Enrollment	46.6%	8.9%	30.0%	903.5%	1.9%	5.3%

Are students keeping HOPE and staying in school (or graduating)?

One of the concerns about HOPE is that it may help students in the short term, but as students enter college and find it more difficult to maintain a B average, they will lose their scholarships and drop out of school. A large percentage of students do lose HOPE, but the percentage of students keeping HOPE and staying in school is increasing.

From 1993 to 1996, the percentage of students who retained HOPE in their second year and stayed in college for two years (or graduated) has increased from 38.9% to 46.1% (Table 9). The percentage of students who retained HOPE and stayed in college for four years has increased only marginally, however (from 21.7% for the incoming class of 1993 to 22.7% in 1995).

Less than 25% of HOPE recipients retain their scholarships for four years, but the majority of those who lose their scholarships persist in school. Only a very small percentage of students (1% in 1995) retain the scholarship for four years but leave school. While less than half of students in the early years of the program retained their scholarships after two years, the proportion has reached almost 60% even while the number of HOPE scholars has more than doubled.

Table 9: HOPE Retention and College Persistence

HOPE Retention and College Persistence After 2 years in College								
	Begin without HOPE				Begin with HOPE			
Year of Graduation	1993	1994	1995	1996	1993	1994	1995	1996
Number 1 st Year Students Enrolled	15,861	9,097	6,699	5,676	6,692	13,665	16,582	16,991
Retain HOPE & Persist in college	-	-	-	-	38.9%	40.6%	44.1%	46.1%
Lose HOPE & Persist in college	-	-	-	-	35.0%	30.5%	28.2%	24.7%
Retain HOPE but Leave college	-	-	-	-	8.7%	8.7%	9.3%	10.8%
Lose HOPE & Leave College	-	-	-	-	17.4%	20.1%	18.4%	18.4%
Gain HOPE & Persist in college	5.8%	4.5%	1.2%	1.8%	-	-	-	-
Persist in college	51.2%	43.6%	42.5%	39.0%	-	-	-	-
Leave College	43.0%	51.8%	56.4%	59.2%	-	-	-	-
HOPE Retention and College Persistence After 4 years in College								
	Begin without HOPE				Begin with HOPE			
Year of Graduation	1993	1994	1995 ^a	-	1993	1994	1995 ^a	-
Retain HOPE & Persist in college	-	-	-	-	21.7%	20.7%	22.7%	-
Lose HOPE, Regain it & Persist	-	-	-	-	3.9%	2.9%	2.9%	-
Lose HOPE & Persist in college	-	-	-	-	40.6%	39.9%	41.5%	-
Retain HOPE & Leave college	-	-	-	-	2.2%	1.9%	1.0%	-
Lose HOPE & Leave College	-	-	-	-	31.6%	34.5%	31.8%	-
Gain HOPE & Persist in college	11.0%	7.0%	2.9%	-	-	-	-	-
Persist in college	36.5%	31.7%	32.6%	-	-	-	-	-
Leave College	52.6%	61.3%	64.4%	-	-	-	-	-

^a Retention and Persistence after 3 years of college coursework

Who loses HOPE and drops out of college?

For those students who began college without HOPE, less than half remain in college for even two years. Among students who did not have HOPE, the drop-out rate after two years of college has increased from 43% to almost 60%. At the same time, very few students who were not HOPE-eligible after high school are able to gain the scholarship while in college.

While the percentage of HOPE scholars who lose their scholarships after two years of study has declined slightly from 52.4% for the 1993 class to 43.1% for the 1996 class, the proportion of those who lose HOPE and leave college has increased from 33.2% to 42.7% (Table 10). Just over 6% of students who lose HOPE after two years are able to gain it back in the third year.

After four years of study, over 75% of all HOPE scholars have lost the scholarship, and over 40% of those students leave college. Only about 4-5% of students who lose HOPE are able to regain it. Even with a nearly 40% rate of departure, the students who lose HOPE are still leaving college at a much lower rate than non-HOPE students. For the entering class of 1993, 52.6% of students who did not receive HOPE left college. The rate increased to 64.4% for the entering class of 1995 after only 3 years of college. Clearly, the HOPE and non-HOPE groups are not composed of comparable groups of students, but the data suggest that a student's HOPE-status after high school is a stronger predictor of college persistence than his or her ability to retain HOPE throughout college.

Table 10: Outcomes for students who lose HOPE Scholarships

		After 2 Years of College			
Year of High School Graduation		1993	1994	1995	1996
Percent of HOPE scholars losing HOPE		52.4%	50.6%	46.6%	43.1%
Of those who lose HOPE, the percent who:					
Leave College		33.2%	39.7%	39.5%	42.7%
Persist in College		59.0%	54.5%	54.3%	51.1%
Persist & Regain HOPE		7.8%	5.8%	6.2%	6.2%
		After 4 Years of College			
Year of Graduation		1993	1994	1995 ^a	-
Percent of HOPE scholars losing HOPE		76.1%	77.3%	76.2%	
Of those who lose HOPE, the percent who:					
Leave College		41.5%	44.6%	41.7%	-
Persist in College		53.4%	51.6%	54.4%	-
Persist & Regain HOPE		5.1%	3.8%	3.9%	-

^a After three years of college

Since HOPE may be the principal means of support for some students to attend college, loss of the scholarship may cause students to drop out. Because of the high correlation between race and income (most of the economically poor schools in Georgia have high minority populations) minority students may be disproportionately likely to leave college if their GPA dips below the required 3.0. Since income increases substantially with a college degree, loss of HOPE may perpetuate this economic vulnerability. The data in Table 11 shows that African American students are the most likely to lose their scholarships (an average of 58.9%) during their first two years of college, compared to an overall average of 47.3% of all HOPE students. Hispanic and White students have similar average rates of losing HOPE during their first two years of college (45.5% and 44.6% respectively), while Asians are the least likely to lose HOPE with an average loss rate of 42.5%. Of those students who lose HOPE, an average of 40.9% of white students, 36.8% of African American students, 35.1% of Hispanic students, 27.7% of Asian students leave college.

The high rates of African American students who lose HOPE raises questions about the quality of the high schools and the educational opportunities available to these students. On a positive note, the proportion of students who lose HOPE scholarships has declined substantially for all ethnic groups from 1993 to 1998, as has the proportion who subsequently drop out of college.

Table 11: Losing HOPE After Two Years of College and Dropping Out

Percent of HOPE Students Who do Not Retain HOPE for a 2 nd Year					
	1993	1994	1995	1996	Average
Asian	42.1%	40.6%	48.6%	38.0%	42.5%
African American	62.7%	63.7%	57.9%	54.9%	58.9%
Hispanic	50.7%	49.3%	44.0%	42.3%	45.5%
Other	52.0%	49.4%	52.9%	40.7%	46.7%
White	50.8%	47.8%	43.7%	40.4%	44.6%
Overall	52.4%	50.6%	46.6%	43.1%	47.3%
Of those Who Do Not Retain HOPE for a 2 nd Year, The Percent Who Leave College Without Graduating					
	1993	1994	1995	1996	Average
Asian	25.3%	29.7%	25.1%	30.2%	27.7%
African American	30.3%	38.3%	35.8%	38.7%	36.8%
Hispanic	28.6%	31.5%	32.9%	43.4%	35.1%
Other	46.2%	42.9%	42.2%	50.0%	45.7%
White	34.0%	40.6%	41.4%	44.3%	40.9%
Overall	33.2%	39.7%	39.5%	42.7%	39.6%

Conclusions

Since Georgia's HOPE Scholarship program began, high school graduates in Georgia have achieved higher high school grades and higher SAT scores, and these improvements have been reflected in the scores of students enrolling in Georgia's colleges and universities. At the same time, the program's potential negative side effects do not appear to have materialized. The results of our analyses, using SAT scores as a proxy for student achievement unaffected by grade inflation, find no evidence that grade inflation has appeared or accelerated for students entering the USG system following the start of the HOPE program. The analyses also suggest that students' high school preparation has not weakened, as indicated by an increase in college preparatory diplomas, high school core course GPAs and a declining proportion of students requiring learning support. Moreover, at the most competitive state institutions, the proportion of African-American and female students in the entering classes have been increasing, though they remain low for African Americans.

The large percentage of students who lose HOPE and drop out of college raises several concerns. Additional research is needed to determine if a disproportionate share of these students come from low wealth school districts lacking in social and economic resources. Again, because minority and lower-income students may be in financially vulnerable situations, they may be disproportionately likely to leave college if their GPA dips below the required 3.0.

Data and Methods Used in this Study

Data used in this study are from the Georgia Student Finance Commission (GSFC), the Georgia Board of Regents (GBOR) and the College Board, spanning academic years 1988-89 through 1998-99. For each academic year, we merged student-level data from GSFC and GBOR to produce data sets containing overall and core course high school GPAs, SAT scores (all scores re-centered for this study), demographic information, and information on performance in college. We included only students who graduated from Georgia high schools in the spring or summer and who enrolled in Georgia public colleges or universities in the fall of the same year. No GSFC data were available for academic years prior to 1993-94. Since overall high GPAs come from the GFSC data, only core course high school GPAs are available for all USG students for all years. Beginning in academic year 1999-2000, HOPE eligibility will be determined based on core courses rather than overall GPA. No student-level data were available on students enrolled in private post-secondary institutions.

State-level SAT scores from 1988 to 1998 were also obtained from the College Board. These data include all students who took the SAT, including those who went to college out-of-state, at private colleges, at technical institutes, or who did not attend college. While the GBOR data contain student-level records for over 20,000 students per year, only state-level aggregates were available from the College Board.

The grade inflation analysis uses Ordinary Least Squares (OLS) regression to examine the relationship between high school GPA and SAT scores. A large body of research has documented the correlation between GPA in high school (and 1st year in college) and SAT scores. We hypothesize that if grade inflation is occurring, we would find a smaller and weaker relationship between these variables. A simple linear equation using available data to predict SAT scores is specified as:

$$SAT_{it} = b_0 + b_1GPA_{it} + b_2SEX_{it} + b_3RACE_{it} + b_4COLLPREP_{it} + e,$$

where SAT_{it} denotes the composite (math and verbal) SAT score of student i in year t , GPA_{it} denotes the same student's high school core course GPA (since overall GPAs are only available for HOPE students, the core course GPA derived by USG institutions is used), SEX_{it} is a categorical variable representing student i 's sex (1=female), $RACE_{it}$ is a categorical variable representing student i 's race (1=black), $COLLPREP_{it}$ is a categorical variable coded 1 if the student was enrolled in a college preparatory curriculum, and e is an error term.

The R-square of this equation measures its explanatory power (how well do high school GPA and other variables predict SAT scores?), while the b_1 coefficient indicates the magnitude of the relationship between SAT scores and high school GPA (by how much do SAT scores increase with every one point increase in high school GPA?). If grade inflation is occurring, we would expect a weaker relationship over time between SAT scores and GPA. Specifically, a smaller coefficient on the GPA variable would indicate that SAT scores increase by a smaller increment with each increase in GPA. We examine the relationships for all students for each year from 1988-1989 to 1998-1999, and for sub-populations of students. The inclusion of the race and sex variables adjusts for changing demographics of the student population over time.

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