

Assessing Public Higher Education in Georgia at the Start of the 21st Century

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1. Introduction

This chapter examines public higher education in Georgia and compares it with its counterparts in other states. Section 2 provides a context for understanding Georgia's track record by comparing the state's recent changes in demographic, economic, employment, and education with those of the rest of the nation. These comparisons show that Georgia has experienced very rapid population and economic growth over the last fifteen years. Therefore it is not surprising to find that employment and enrollment in higher education grew substantially faster in Georgia than it did in the rest of the nation. Section 3 briefly describes the institutional landscape of Georgia's higher education sector. It explains the governing mechanisms, how the public institutions are categorized, and highlights distinctive institutions like the state's HBCUs. Sections 4 and 5 assess the inputs (e.g., appropriations, tuition and financial aid policy, and faculty) and outputs (e.g., enrollment, retention, and graduation) of the state's higher education system. These two sections generally show significant gains in Georgia compared to other states during the 1990s. However, since the recent recession, Georgia's measures have dropped precipitously relative to the performance in other states. Section 6 concludes.

2. Georgia in Context

Before we assess public higher education in Georgia, it is important to place the state's higher-education sector in an appropriate context. At a minimum, this requires taking account of the state's population and economy, both in terms of current levels and recent growth rates. Table 1 compares Georgia with the entire US in terms of population demographics that are related to higher education trends. Georgia is the ninth most

populous state with approximately 8.7 million people. Its population has grown 34.1 percent since 1990, which is more than twice that of the nation as a whole and 65 percent greater than that of the other southeastern states. Like the rest of the US, the racial composition of Georgia's population has changed in the last fifteen years, largely because of the influx of Hispanics. Since 1990, Georgia's Hispanic population share increased more than three-fold, from 1.7 to 6.2 percent. With the rise in Hispanics, its white and black population shares have declined slightly since 1990. Still, Georgia has the fourth largest black population and the fourth highest black population share at 29 percent. In contrast, the overall US population is only 12.8 percent black.

As the US population grows older, the college-going cohort is shrinking in relative terms, both in Georgia and the nation. Nevertheless, the number of public high-school graduates rose 18.6 percent in Georgia between 1990 and 2003, which is 3 percentage points greater than the national increase. Similarly, the percentage of Georgia's population with a high-school diploma jumped 20 percent during this period, compared with only a 12.5 percent increase in the rest of the US. By 2003, Georgia overtook the nation in terms of the size of its high-school graduate population share. The state also made considerable strides in the stock of bachelor's degrees, but its population share with a BA still lags behind that of the US, 25 to 27.2 percent.

Next we compare Georgia and the US in terms of some fundamental economic measures. Table 2 provides output, income, and employment data for Georgia and the US in 1990 and 2003. As with population growth over the last fifteen years, Georgia outpaced the US in all three economic measures. Georgia's gross state product (GSP) rose 66.1 percent, which is almost 50 percent greater than the increase in gross domestic

product (GDP) over the period. The state's median household income jumped 17.4 percent, which almost doubled the national increase. At \$42,508, median household income in Georgia is now only about \$350 less than the US median. Commensurate with its gains in output and income, the share of Georgia's population living in poverty fell 23.4 percent to put its current poverty rate on par with the rest of the US. Between 1990 and 2003, total employment in Georgia grew 37.5 percent—twice as rapidly as the US employment and three percentage points more than the state's population. A disproportionate share of employment growth occurred in higher education, which increased 53.7 percent, from 32,200 to 49,500. By comparison, the entire US increased only 18.4 percent, or only one-third that of Georgia.

In sum, Georgia was one of the fastest growing states over the last fifteen years, both in terms of population and income. Due to this growth its population shares of high-school and college graduates and its poverty rate converged to the national averages. Against this backdrop, Georgia's higher education sector expanded dramatically, albeit with disparate impacts across the distributions of institution and student quality.

3. Georgia's Higher Education Institutional Landscape

Georgia supports 68 public postsecondary institutions: 21 four-year colleges and universities, 13 degree-granting two-year colleges, and 34 technical schools that specialize in certificate and diploma programs. The 34 degree-granting two-year and four-year institutions comprise the University System of Georgia (USG) and are governed by an 18-member Board of Regents (BOR). The regents are appointed by the governor, one from each of the state's 13 congressional districts and 5 at-large

representatives. The BOR elects a chancellor who serves as the chief administrative officer of the USG. Georgia's technical schools are administered through the state's Department of Technical and Adult Education (DTAE) and are accountable to a state board that is constituted similarly to the BOR.

Georgia further classifies its 21 four-year institutions as research universities¹, regional universities², state universities³, or state colleges⁴. The two flagship campuses are the University of Georgia (UGA) and Georgia Institute of Technology (GA Tech). The Appendix provides a map of Georgia's degree-granting colleges and universities by classification. In 1996 the "state university" classification was extended to many former state colleges that had expanded their missions. The key distinctions moving from the first to last institution class are the emphases on research, the scope of degree offerings, the scale of operation, and the sphere of influence.

Table 3, which summarizes headcount enrollment levels and changes since 1995, gives some perspective on the "market shares" of each USG institution class. Total enrollment in USG schools rose 21.4 percent over the last 10 years, which is slightly greater than the percentage increase in high-school graduates. State and two-year colleges experienced the greatest percentage gains (46.2 and 38.4, respectively), increasing their shares of USG enrollment. The state and two-year college gains came primarily at the expense of the research and regional universities, whose enrollment shares (32 and 10.5 percent) dropped slightly since 1995. Overall, USG class enrollment shares remained

¹ Georgia Institute of Technology, Georgia State University, Medical College of Georgia, and the University of Georgia.

² Georgia Southern University and Valdosta State University.

³ Albany State University, Armstrong Atlantic State University, Augusta State University, Clayton State University, Fort Valley State University, Georgia College and State University, Georgia Southwestern State University, Kennesaw State University, North Georgia College and State University, Savannah State University, Southern Polytechnic University, and State University of West Georgia.

⁴ Dalton State College and Macon State College.

relatively stable. From a broader perspective that includes the DTAE schools, this stability is somewhat misleading. From 1995 to 2003 (the latest year data are available), the DTAE share of all postsecondary enrollment rose from 33.4 to 61.2 percent as the number of students enrolled in technical schools more than doubled from 69,057 to 153,444. While this is a period marked by the introduction and expansion of Georgia's HOPE program, the bulk of the enrollment increases for both USG and DTAE schools occurred after 2000, when the state and national economies entered a recession. One apparent outcome of the economic downturn was a substitution away from relatively more expensive private and out-of-state colleges to in-state public institutions.

Given Georgia's relatively large African-American population, an important subset of the "state university" class is its three public historically black colleges and universities (HBCUs): Albany State University, Fort Valley State University, and Savannah State University. Combined with the state's five private HBCUs (Clark Atlanta University, Morehouse College, Morris Brown College, Paine College and Spelman College) they account for a significant fraction of its four-year college enrollment and over 45 percent of all blacks attending college in Georgia.

Georgia has 31 private four-year schools, five of which are for-profit institutions such as the DeVry Institute of Technology. Only one, Emory University, is highly selective with a market that extends beyond the region. The vast majority are small liberal arts colleges with costs of attendance far less than Emory and more on par with the out-of-state charges at public four-year institutions.

4. Assessing the Inputs

In this section, we review the recent changes in Georgia’s state appropriations for higher education, tuition, financial aid, and faculty composition, pay and employment. However, no assessment of the state’s higher education system—inputs or outputs—can ignore the effects of its lottery-financed HOPE (Helping Outstanding Pupils Educationally) financial aid program, which was introduced in 1993. Cornwell, Leidner, and Mustard (2005) document that HOPE’s impact extends well beyond Georgia, as nearly 30 state-sponsored merit programs have started since 1993, about fifteen of which close follow the Georgia model. Therefore, we first provide an overview of the HOPE program.

4.a. Georgia’s HOPE Program

Through its HOPE program Georgia distributes two types of financial aid—a merit-based scholarship and a non-merit-based grant. To qualify for the scholarship, students must graduate from a Georgia high school with a “B” average. The scholarship pays all tuition and fees and \$300 of book expenses to students attending degree-granting public institutions. For the 2005-2006 academic year the value of the award is about \$4,600 at the state’s flagship institutions.⁵ HOPE Scholars attending private, degree-granting institutions receive a fixed payment of \$3000. Once in college, students must maintain a “B” average with a minimum number of credits to retain the award. Because it has no merit requirements, the HOPE Grant is an entitlement. However, it applies only to non-degree programs at two-year and technical schools. The grant covers tuition and

⁵ For example, UGA tuition and fee charges are \$2,314 per semester for the 2005-2006 academic year. While tuition and fee charges vary widely at the state’s public institutions, the book allowance is the same.

mandatory fees, and students receive it for coursework required for a certificate or diploma.

Table 4 disaggregates program disbursements by the number of awards and dollars of aid from 1993-2002.⁶ Degree-granting institutions accounted for 55 percent of all awards and 78 percent of total aid during this period, with four-year colleges and universities representing 44 and 60 percent of these totals, respectively. Thus, program resources were overwhelmingly devoted to the merit-based scholarship, and in particular, to high-school graduates matriculating at four-year public schools. The other 45 percent of awards flowed to technical schools as HOPE grants, but these institutions received a relatively small proportion of total aid due to their low tuition.

Georgia's lottery, which was instituted primarily to fund HOPE and a universal pre-K program, has been extraordinarily successful. Because lottery sales far outpaced all early projections, the legislature expanded scholarship eligibility and award generosity. Initially, the scholarship was restricted to students from households with incomes less than \$66,000, but the income cap was raised to \$100,000 in 1994 and removed entirely in 1995. Also in 1995, the value of the private-school award was raised from \$1,000 to \$1,500, and then to \$3,000 the following year. In 1996 and 1997, legislation made it easier for nontraditional students to qualify, and in 1998, home-school students were allowed to earn the scholarship retroactively to their freshmen years if they met the collegiate grade-point average criterion.

During this prosperous period the legislature also voted to use the lottery to fund other scholarships. Examples include the Public Safety Memorial Grant (1994), the

⁶ "Awards" do not equal "recipients" because a single recipient receives an award each year she qualifies and, in the case of the grant, she can receive multiple awards within the same year, depending on the nature of the vocational training program.

Georgia Military College Scholarship (1995),⁷ the PROMISE Teacher Scholarship,⁸ the HOPE Teacher Scholarship (1996),⁹ and the Scholarship for Engineering Education (SEE) (1998).¹⁰ Two features distinguish these “add-on” programs from HOPE. One is the increased use of service-cancelable loans instead of direct grants. The second is a requirement to work or serve in Georgia after graduation.

The last significant legislative expansion of the HOPE program occurred in 2001 when the Pell “offset” was removed. In the beginning, HOPE payments (both scholarship and grant) were reduced (offset) dollar-for-dollar for any Pell aid received by the student. Eliminating the offset ended one of the most common criticisms of HOPE. Now, low-income students who qualify for both Pell and HOPE can “stack” their awards, providing an even more powerful incentive to attend a Georgia college or university. As an indication of the impact of this program change, the state estimated that removing the Pell offset would require roughly \$23 million in additional funds to provide Pell recipients with HOPE scholarships, but eventually distributed \$87.8 million to 56,879 Pell-eligible students in 2002 alone (Seligman, Milford, O’Looney, & Ledbetter, 2004).

Recently, there has been increasing concern that program expenditures will outstrip lottery revenue. Figure 1 compares the growth in the lottery funding for education with the expenditures on the HOPE and pre-K programs, projected through 2009. In its first year the lottery generated \$1.12 billion in revenue and transferred \$363 million to education. Since then, lottery transfers to education have grown rapidly since

⁷ In return for the scholarship, recipients must serve for two years following graduation in the Georgia National Guard.

⁸ Students who received the PROMISE Teacher Scholarships agreed to teach after graduation in a Georgia public school up to a maximum of four years.

⁹ The HOPE Teacher Scholarship provided forgivable loans to recipients who teach in a Georgia public school in critical shortage fields.

¹⁰ The SEE provided service-cancelable loans for a maximum of \$17,500 for a student’s program of study and required students to work in an engineering-related field in Georgia after graduation.

its inception, rising to almost \$800 million in 2004. Despite the success of Georgia's lottery—its revenues grew over 200 percent in its first ten years—it has not kept pace with the rise in expenditures by the programs the lottery is designated to fund. As illustrated in Figure 1, the sum of HOPE and pre-K spending is expected to match lottery resources by 2006. HOPE expenditures alone are projected to absorb almost all of the lottery funding by 2009. Cornwell and Mustard (2004) review the range of options the state has considered to ensure the financial stability of HOPE. Thus far, legislative action has been limited to minor adjustments in the high-school grade-point average computation for HOPE eligibility and a contingency plan to reduce the book allowance in the event the difference between resources and expenditures dips below a set threshold.

4.b. State Appropriations

Given Georgia's population and economic growth in recent years, it is not surprising that state-appropriated higher education spending also rose. However, these expenditure data reflect HOPE disbursements, which exceeded \$2 billion through 2002. Figure 2 depicts the trends in real total and per undergraduate full-time equivalent (FTE) expenditures by the state from 1989 to 2002. After the recession that opened the decade, total spending increased from \$1.21 billion (2004 dollars) in 1991 to \$1.82 billion in 2001.

Although there was substantial growth in total allocations during this period, there was a pronounced drop in funding per FTE student. In 2004 dollars, this amount dropped 15.5 percent between 1990 and 1991 from \$10,379 to \$8,768. Between 1991 and 1999 there was some slight growth to \$10,134. However, the large increase in the number of

students and the decrease in funding with the last recession generated a sharp reduction from 1999 to 2002. In those three years expenditures per full-time equivalent student dropped 36.7 percent (or \$3,721) to \$6,413, which was the lowest during the entire period. Later we will examine some of the implications of this recent substantial decrease in aid in terms of faculty hiring and salaries.

This drop in state support can be illustrated alternatively by examining its share of the University of Georgia's total revenue. Figure 3 shows how the state's contribution (excluding HOPE) to higher education spending changed by charting the trends in revenue shares at UGA since 1987. The pattern is obvious: the state's share has steadily dropped, forcing the university to rely more heavily on tuition and private contributions. The share of UGA's total revenue accounted for by the state fell from 53.1 percent in 1987 to 34.7 percent in 2003, a pattern replicated across US public higher education. Many large state universities (e.g. the Universities of Michigan and Virginia) now receive less than 15 percent of their funding from the state. Georgia is distinctive only because the fall in the state's share has been slower than the nation's as a whole.

4.c. Tuition, Fees, and Need-Based Aid

Table 5 presents a more comprehensive account of Georgia's recent tuition policy. Average tuition and fees at Georgia's four-year and two-colleges are reported with those of the other Southern Regional Education Board (SREB) member states and the US and SREB medians for the academic years (AY) 1995 and 2002. These data provide a different perspective on the pattern of rising tuition at UGA depicted in Figure 3. While real tuition charges increased for Georgia residents, in percentage terms the

increases fell well below the regional and national medians. Real in-state tuition at Georgia's four-year schools rose only 16 percent AY1995 to AY2002, compared with 41 and 25.3 percent in the SREB and US medians. In addition, Georgia's percentage increase and AY2002 level were the third lowest in the SREB. As a result, in AY2002, the average in-state tuition at Georgia's four-year schools, \$2,576, amounted to only 79.2 percent of the SREB median and only 69.1 of the US median.

This pattern is repeated in the state's two-year tuition and fees. Between AY1995 and AY2002, the average tuition of Georgia's two-year schools rose only 6 percent, which was the third smallest increase in the SREB and far below the regional and national hikes. In AY2002, Georgia remained in the bottom third of the SREB in terms of the cost of attending a public two-year college.

Charges to out-of-state students attending Georgia's four-year colleges increased at the same rate as in-state charges over the period. However, a 16 percent hike in non-resident tuition and fees exceeded the increase in US median charges by 4.5 points. Georgia's increase still lagged behind the rise in median SREB out-of-state tuition. Georgia's out-of-state tuition and fees are more closely in line with the region's and nation's than its in-state charges. In AY2002, its non-resident tuition was, respectively, 89 and 86 percent of the SREB and US medians.

The relatively modest tuition increases that occurred in recent years can be explained in part by the introduction of the HOPE program in 1993. As we noted earlier, USG schools' tuition is set centrally by the state's BOR. Because HOPE's award level is tied to tuition, the program constrains the BOR, because tuition increases translate into larger claims on lottery revenues. Evidence presented by both Cornwell, Mustard, and

Sridhar (2004) and Long (2004) confirm that HOPE did not raise tuition in Georgia's public colleges and universities.

Not surprisingly, HOPE dramatically changed the state's grant aid. Figure 4 plots Georgia's grant aid per FTE undergraduate and its rank among the states on this measure over the period 1989-2002. In the late 1980s and early 1990s, Georgia's grant aid per FTE was relatively constant at slightly less than \$250, which placed the state between 25th and 39th in the US. In 1992, the year prior to HOPE's introduction, Georgia was 39th. This changed dramatically in 1993; in the program's first year the state rose to seventh in grant aid per FTE with about \$500 per FTE. When the income cap was raised to \$100,000 in 1994, Georgia moved up to fifth at nearly \$900 per FTE. The state jumped to second after the income cap on HOPE was removed in 1995 (\$1200 FTE). Since 1997 Georgia has distributed more grant aid per FTE than any other state in the nation. In each year since 1999, the state disbursed more than \$1500 in grant aid per FTE undergraduate.

Although not plotted separately, these trends are almost identical for grants per FTE student. In 1992-1993, the year prior to HOPE, Georgia distributed .198 grants per FTE student, which ranked 24th among the states. In only three years the state experienced an unprecedented change. By 1995-1996, the first year after the income cap was removed, Georgia's rate rocketed to an astonishing .984, far above the second-place Vermont, which had .648 grants per FTE. All other states distributed less than .50 per FTE. Georgia has held first place in this ranking every year since 1994 (NASSGAP Annual Reports). This broad impact of the HOPE program explains its substantial political support and the difficulty that legislators face when considering reducing its generosity.

The impact of HOPE is reinforced in Figure 5, which shows Georgia's grant aid as a percentage of higher education expenses. By 1995, state-sponsored grant aid covered more than 15 percent of college costs, on average, and Georgia leaped into the top five states in this category. By 2002, its grant-aid share of college expenses had risen to almost 25 percent.

Georgia's impressive rise to the top ranks of state-sponsored grant aid is due to HOPE, which has no means test. A common argument against merit aid is that it reduces a state's commitment to need-based assistance, thus compromising the ability of needy students to succeed in college. However, historically Georgia has provided very little need-based aid—only about \$25-30 per FTE before HOPE and \$10 per FTE since then. In the year prior to HOPE, the state provided \$4.9 million of strictly need-based grants, and \$26.0 million of total aid (NASSGAP 1993, Table 1, p. 40). By AY1997, Georgia provided more aid per full-time undergraduate and had a larger fraction of undergraduates who received aid than any other state in the nation (NASSGAP 1998, Tables 12-13). So, in a state like Georgia that never had a strong commitment to need-based aid and where substantially increasing need-based assistance is unlikely to be politically feasible, a large-scale merit-aid program may significantly increase the total funding available to low-income students. Singell, Waddell, and Curs (2004) show that even when the Pell offset existed, HOPE raised the enrollment of Pell-eligible students.

4.d. Faculty

In contrast to the enrollment growth depicted in Table 3, the faculty sizes of USG institutions exhibited a very different trend. Table 6 reports the number of faculty

employed in each USG institution class at each rank in 1993 and 2002, and the percentage change over the period. As shown in the first row, the total number of USG faculty decreased 1.4 percent between 1993 and 2002. Overall, there was small growth in the number of full and associate professors, while assistant professors and non-tenure track faculty declined markedly. However, a different trend occurred in research institutions, where a drop in the total number of faculty was accompanied by a sharp rise in non-tenure-track appointments. In 2002, research institutions employed one more professor than they did in 1993, but 8.6 percent fewer associates and 7.7 percent fewer assistants. Two-year college faculty sizes experienced the largest percentage decrease (23.2), due in part to the relative price effects of HOPE on the four-year–two-year enrollment margin.

The most recent data for all institutions in the system are available only through 2002 and conceal the significant change in the number and composition of faculty that occurred in the last few years. The number of tenured and tenure-track faculty at UGA peaked in 2001 at 1,767 (*University of Georgia Fact Book*). In the following three years the number of full professors dropped by 4.6 percent and the number of associate professors increased by 1 from 509 to 510. Tight hiring restrictions significantly limited the hiring of assistant professors and their number fell by 15.8 percent. In contrast, during the same three-year period the number of instructors and lecturers increased 38.2 percent and 82.4 percent, respectively. Even this substantial increase in non-tenure track faculty did not offset the drop among tenured and tenure-track faculty, and the total number of instructional faculty decreased from 1,835 in 2001 to 1,769 in 2004; a reduction of 3.6 percent.

Table 7 complements Table 6 with the salary data for 1993 and 2002 by institution class and professorial rank. Overall, real faculty salaries in USG institutions rose 16.1 percent between 1993 and 2002. Underlying these gains are two clear patterns. First, salary increases were concentrated in the higher ranks. The salaries of Assistant professors rose 10.8 percent, while associate and full professor pay jumped 14.6 percent and 28 percent, respectively. Second, salary growth rates were positively correlated with the scope of the institution. Faculty at the state's research and regional universities received average hikes of 32.1 and 17.5 percent, while those at state and two-year colleges received much smaller increases.

Table 8 puts the USG salary data in a regional context, comparing the growth in pay between 1994 and 2004 by rank in the SREB flagship institutions.¹¹ UGA generally ranks in the bottom third in real salary growth during the 1994-2004 period, with full, associate, assistant professor pay rising 12.2, 8.7, and 13.2 percent, respectively. With the exception of full professor pay, where UGA ranks sixth in the region in 2004, the state's flagship is in the bottom third in salary levels. When comparing salaries across institutions it is helpful to consider compositional effects. Part of the gap between UGA and some of the top institutions is that it has neither a medical nor an engineering school. The universities with the highest full professor salaries, Virginia, North Carolina, and Maryland, have one or the other or both.

Furthermore, examining only the first and last years obscures the substantial volatility in faculty salaries during the period. For example, UGA salaries experienced the third fastest growth rates until 1999 and the second slowest growth rates after 1999.

¹¹ There are 16 members of the SREB. Delaware was not a member for this entire period so we exclude the University of Delaware. The data for the University of West Virginia were not available for the entire period so it is also excluded.

Real salaries peaked at UGA and Georgia Tech in the 2002-2003 academic year. In the following two years real salaries at UGA dropped 2.7 percent for professors, 4.5 percent for associates, and 0.6 percent for assistants. At Tech during the same period real salaries dropped 1.5 percent for professors, 1.4 percent for associates, and 2.5 percent for assistants. Although the higher education systems in all states were affected negatively in the most recent economic slowdown, the impact was disproportionately large in Georgia. This decrease in faculty contemporaneous with an increase in enrollment increased the ratio of undergraduate students to tenured and tenure-track faculty by nearly 13 percent between 1998 and 2003.

5. Assessing the Outputs

Now, we assess some of the primary outputs of Georgia's higher education system, namely enrollments, retention, and graduation rates. Again, the influence of the HOPE program permeates this discussion.

5.a. Enrollments

First, recall the enrollment data presented in Table 3 that show strong growth in USG institutions since 1995. In percentage terms, the greatest gains occurred at state colleges and two-year schools, but the enrollment in every institution class rose by at least 11 percent. However, Table 3 does not indicate whether these enrollment increases stand out when compared to the region or nation.

Cornwell, Mustard, and Sridhar (2004) compare college enrollments in Georgia with those in the other member states of the SREB through the first five years of HOPE.

First, they show that the program increased total freshmen enrollment in Georgia colleges and universities by almost 6 percent, with the gains concentrated in four-year public and private schools. Second, they demonstrate that at least two-thirds of the increased enrollment of freshmen recently graduated from high school is due to the scholarship's incentive to remain in state for college. However, recent-graduate freshmen represent only about 40 percent of the total four-year-school enrollment increase. Third, in examining HOPE's effects on enrollment by race, they find that the scholarship increased white enrollment by about 3.6 percent and black enrollment by about 15 percent. Correspondingly, they report a significant 2.7 percentage-point rise in the black share of total (white + black) enrollment in Georgia. Much of the increased enrollment of blacks was accounted for by the state's HBCUs, whose enrollments rose 23 percent during the same period because of HOPE.

There are a couple of things to keep in mind when extrapolating from Georgia's experience with HOPE to other states adopting merit scholarship programs. First, it will be easier to retain academically accomplished high-school graduates if highly selective colleges are located within the state. Over the last five years, Georgia (with Georgia Tech and the University of Georgia) is one of only four states that have at least two universities in the top 20 of the *U.S. News and World Report* rankings of national public universities (U.S. News & World Report, 2002). Second, the retention of black students likely depends on the size of the black population and number of HBCUs in the state.

Also important is the treatment of Pell aid. As mentioned earlier, with the elimination of the offset, Georgia's aid to Pell eligibles rose sharply, an effect that differed significantly by institution class. Table 9 presents the data on the numbers of

Georgia-resident freshmen receiving either HOPE or Pell aid in Fall 2001 by institution class. As indicated at the bottom of the last column, 18.5 percent of freshmen received both HOPE and Pell in Fall 2001. However, Pell recipients represent a relatively small fraction (less than 16 percent) of total enrollment at the three research universities. Less than 1 percent of students enrolled at these institutions received Pell but not HOPE, while 15.4 percent received both. Low-income students comprise an even smaller share at flagship schools, UGA and Georgia Tech, where only about 10 percent qualified for Pell.

5.b. Student Quality and Sorting

The concentration of Pell recipients outside the state's research universities raises questions about how enrollment may be stratified by income and student quality, and whether HOPE contributed to that stratification. UGA and Georgia Tech, which enroll the smallest percentage of Pell recipients, are by far the most selective of the state's public universities.

Overall, HOPE's influence on enrollment is not captured entirely by the drop in the number of students leaving the state; the composition of leavers also changed. Figure 6 plots the SAT series for freshmen enrolled in Georgia institutions and those of high-school seniors in Georgia and the rest of the US. The increases in SAT scores of Georgia freshmen stand out, rising about 60 points after HOPE. The SAT scores of the comparison groups increased by 30 points for Georgia high-school seniors and by 20 points for high-school seniors throughout the US. Between 1993 and 2000, Georgia's rate of retaining students with SAT scores greater than 1500 climbed from 23 to 76 percent.

The overall increase in student quality depicted in Figure 6 does not address how

the increase was shared across institution classes. Using data obtained from Peterson's covering the period 1989-2001, Cornwell and Mustard (2005) estimated HOPE's influence on both the mean and variance of student quality by comparing Georgia colleges to their SREB counterparts in terms of several common measures of academic achievement, including SAT scores and class rank. They show that the greatest gains in quality occurred at the state's most selective universities, where SAT verbal and math scores jumped by 14.3 and 9.4 points because of HOPE. Further, the scholarship increased these schools' percentage of students from the top 10 percent of their high school class by 7.6 percentage points. In contrast, the least selective schools experienced no statistically significant effect from HOPE on any measure of student quality. Finally, Cornwell and Mustard report that HOPE reduced the variance of SAT math and verbal scores in the most selective institutions, but had no impact on the variances at any other institution type. Their results provide strong evidence that HOPE exacerbated the stratification of enrollments by student quality.

5.c. Retention and Graduation

Policies that encourage college attendance are important insofar as they increase the number of college graduates. This raises questions about the performance of Georgia's colleges and universities in terms of student retention and graduation. Figure 7 plots the institution-specific and system-wide (which account for transfers between schools) one-year retention rates for first-time, full-time freshmen who enrolled in USG schools between 1984 and 2001. Until 1993 both rates varied within fairly narrow bands—66-67.8 percent for specific institutions and 73.2-75.8 percent across the system.

They reached their nadir in 1993, the year HOPE started. After 1993, the retention rates rose steadily through the end of the period to 80.4 percent across the system as a whole. UGA stands out with the highest retention rate, a remarkable 90.7 percent in 2001. Dynarski (2005) shows that HOPE played an important role in increasing retention rates depicted in Figure 7.

Table 10 presents the retention rates for the Fall 2003 cohort of first-time freshmen by institution class. Throughout the USG slightly over 76 percent of students returned to their same institutions while over almost 83 percent returned to the system. The retention rates are highest for the most selective schools and decline systematically as the selectivity and scope of the institution falls.

Figure 9 plots the four and six-year graduation rates for students who matriculated at UGA between 1987 and 2000. Between 1987 and 1989, the four-year rate was about 30 percent. Through 1991 the six-year rate hovered between 62 and 64 percent. During the period both rates increased significantly, and peaked in the last year in our sample for the matriculating class of 2000. For that class the four-year rate was 45.6 percent and the six-year rate was 73.6 percent. This increase in retention rates is due in part to HOPE's role in increasing the quality and preparation of UGA's incoming students.

Retention rates and their implication for students persisting to graduation are important, but it is also essential to examine how HOPE affects students' academic choices along the way. After all, state-sponsored merit scholarships have proliferated, justified in part as inducements for academic achievement. While their GPA requirements for eligibility and retention encourage students to apply greater effort toward their studies, they also encourage other behavioral responses like adjusting course loads and

difficulty. Cornwell, Lee, and Mustard (forthcoming) examine student responses to the eligibility and retention rules associated with the HOPE Scholarship. Using data on the undergraduates who enrolled at the University of Georgia between 1989 and 1997, they estimated the effects of HOPE on enrollment, withdrawal and completion, and the shifting of course credits to the summer, treating out-of-state students as a control group.

They find that HOPE reduced the probability of full-course load enrollment and enrolled credit hours, and increased the probability of course withdrawal and withdrawn credits for Georgia-resident freshmen. Together these responses amount to a 9.3 percent reduction in the likelihood of completing a full load and almost a 1-credit drop in completed credits. The credit-hour decline means that resident freshmen completed over 3,100 fewer courses between 1993 and 1997 than they would have in the absence of HOPE. However, the evidence is mixed on whether these course-load adjustments constitute a delay in academic progress or intertemporal substitution.

The diversion of course-taking to the summer is an example of adjusting course difficulty, as the average GPA of UGA freshmen is 10-15 percent higher in the summer than in the fall, even though the typical summer-school enrollee has a lower SAT score and HSGPA. HOPE increased summer-school credits completed by Georgia residents by 63 percent and 44 percent in the first two summers following matriculation. The summer-school results suggest that, to the extent intertemporal substitution occurs between the first and second years, summer enrollment accounts for most it.

In sum, they conclude that HOPE's grade-based retention requirements lead to behavioral responses that partially undermine its objective to promote academic achievement and encourage greater effort. While responses like taking fewer courses per

term may enhance human capital investment, the option to slow one's progress toward degree completion existed prior to HOPE.

6. Conclusions

Since the 1980s and especially over the last fifteen years, Georgia has generally outpaced the nation in population and economic growth. Its growing population has increased the demand for college in the state and its expanding economy has helped mitigate some of the challenges in meeting that demand. Across the US state shares of higher education funding have steadily fallen, putting pressure on tuition and other financing sources. Qualitatively, the pattern in Georgia has been similar but far less dramatic, so it remains a relatively high-subsidy, low-tuition state.

This broad characterization of Georgia and its higher education sector would likely hold in the absence of the HOPE program, but few of the details and changes of the last fifteen years can be fully understood without an accounting of the program's effects. Since its introduction in 1993, HOPE has become the single most prominent feature of Georgia's higher education system, and currently presents state policy makers with one of their most important political issues. Its prominence has also been felt well beyond Georgia, as many states have followed with HOPE-like programs of their own, leading to a significant rise in state-sponsored merit aid.

As this chapter has described, the effects of HOPE are seen in both the inputs and outputs of the state's colleges and universities. On the input side, HOPE has transformed higher education finance in Georgia, affecting tuition policy and faculty hiring. First, through HOPE the state has sharply increased funding to students in exchange for funding to institutions. So, while the state has reduced its real allocations to institutions,

grant aid as a percentage of higher education expenses has grown substantially. In 1995, state-sponsored grant aid covered about 15 percent of college costs. By 2002, the grant-aid share of college expenses rose to almost 25 percent. In the late 1980s and early 1990s, Georgia's grant aid per FTE was ranked between 25th and 39th in the US. Every year since 1997 Georgia has distributed more grant aid per FTE than any other state.

Second, HOPE has played a significant role in limiting the tuition growth in Georgia, other budgetary problems notwithstanding. Because scholarship and grant award levels are tied to tuition, there has been substantial political pressure to keep tuition increases small in an effort to preserve the program's financial footing. Real in-state tuition at Georgia's four-year schools rose only 16 percent between 1995 and 2002; much lower than the increases of 41 and 25.3 percent in the SREB and US, respectively. In 2002, the average in-state tuition at Georgia's four-year schools was \$2,576, which amounted to only 79.2 percent of the SREB median and only 69.1 of the US median.

Third, reduced state support and limits on tuition increases have led to significant changes in the composition of college faculties, particularly at its research universities. Most notably, there has been a pronounced shift in from tenured and tenure-track faculty to lecturers and instructors in delivering classroom instruction. For example, between 2001 and 2004 the number of UGA full professors dropped 4.6 percent and the number of assistant professors declined 15.8 percent, while the number of instructors and lecturers increased 38.2 and 82.4 percent, respectively. Occurring during a period of expanding enrollments, this compositional change substantially increased ratio of undergraduate students to tenured and tenure-track faculty.

On the output side, HOPE has influenced enrollment, student quality, retention

and graduation. First, the HOPE has contributed to enrollment growth in Georgia, in the range of 6 percent through the first five years of the program. Second, and perhaps more significantly, HOPE has increased enrollments by encouraging the state's higher achieving students to stay home for college. Because the best of these students are likely to attend one of the flagship institutions, these universities have experienced considerable increases in the freshmen SAT scores relative to their out-of-state peers. Although smaller by magnitudes, many other four-year schools have seen their freshmen SAT scores rise as well. Third, related to improvements in student quality, the data indicate HOPE is leading to gains in retention and graduation rates. A caveat to these gains is in order though, because evidence suggests the scholarship is affecting student academic choices in ways that may undermine HOPE's incentive for achievement (for example, by inducing more course withdrawals and diversion of course taking to the summer).

Finally, looking to the future, two very important issues confront the state. The first is ensuring the long-term financial stability of the HOPE program. Although the current resources from the lottery are sufficient to pay for the HOPE and pre-K programs, the projected growth rate in the demand for them far exceeds the projected growth rate in lottery sales. Some attempts have been made to address this issue, but the efforts have been modest, because the strong political support for HOPE leaves little room for compromise. The second is reconciling Georgia's historic policy of low tuition with its more recent practice of cutting the state's share of higher education funding. Together, these actions have constrained faculty hiring and compensation, making it increasingly difficult to compete for talent in a highly competitive academic labor market and maintain institutional reputations that enhance student selectivity.

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Table 1
Population Demographics
Georgia vs. US, 1990-2003

Characteristic	Georgia			US		
	1990	2003	%Δ	1990	2003	%Δ
Total (millions)	6.478	8.685	34.1	248.791	290.810	16.9
% White	71.0	67.5	-4.9	80.3	80.5	0.2
% Black	30.0	28.8	-4.0	12.1	12.8	5.8
% Hispanic	1.7	6.2	264.7	9.0	13.7	52.2
% 18-24	11.1	10.2	-8.1	10.5	9.9	-5.7
Public High-School Graduates (thousands)	56.6	67.1	18.6	2,320.3	2,684.9	15.7
% High-School Graduate	70.9	85.1	20.0	75.2	84.6	12.5
% with BA	19.3	25.0	29.5	20.3	27.2	34.0

Sources: Bureau of Economic Analysis and Statistical Abstract of the US.

Table 2
Income and Employment
Georgia vs. US, 1990-2003

Variable	Georgia			US		
	1990	2003	%Δ	1990	2003	%Δ
GSP, GDP (in 1996 dollars)	164.8	273.9	66.2	6,630.7	9,335.4	40.8
Median Household Income (in 2000 dollars)	36,218	42,508	17.4	39,119	42,873	9.6
Per Capita Personal Income (in 2000 dollars)	21,868	27,953	27.8	24,196	30,033	24.1
Percent Below Poverty Level	15.8	12.1	-23.4	13.5	11.7	-13.3
Total Employment (in millions)	3.2	4.4	37.5	123.3	146.5	18.8
Employment in Higher Education (in thousands)	32.2	49.5	53.7	1,539.7	1,825.0	18.5

Source: Statistical Abstract of the US.

Table 3
Headcount Enrollment
University System of Georgia, 1995-2004

Institution Class	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Percent Change
Research Universities	69,983	68,298	69,410	69,171	70,805	72,098	76,012	79,337	81,095	80,063	14.4
Regional Universities	23,742	24,111	23,744	23,290	23,205	22,976	23,601	24,975	26,251	26,500	11.6
State Universities	66,812	66,671	66,834	64,530	65,180	65,659	67,575	73,141	78,488	79,967	19.7
State Colleges	6,832	6,643	6,656	6,526	6,793	7,255	8,132	9,126	9,604	9,985	46.2
Two-Year Colleges	39,115	38,609	38,745	36,585	37,823	37,890	42,226	46,519	51,582	54,144	38.4
USG Total	206,484	204,332	205,389	200,102	203,806	205,878	217,546	233,098	247,020	250,659	21.4

Source: University System of Georgia

Table 4
Numbers of HOPE Awards
and Dollars of Aid, by Institution Type, 1993-2002

Institution Class	Number of Awards	% of Total	Aid in Millions of Dollars	% of Total
4-Year Schools	526,033		942.00	
Public	389,452	32.0	840.09	53.7
Private	136,581	11.2	101.91	6.5
2-Year Schools	144,061		279.43	279.43
Public	109,362	9.0	237.48	15.2
Private	34,699	2.8	41.95	2.7
Technical (DTAE) Schools	547,078	44.9	342.86	21.9
HOPE Program Total	1,217,172		1564.3	-8.6

Note: Of the 34 HOPE-eligible DTAE schools, 13 offer Associate's Degrees.
Source: Cornwell and Mustard (2003).

Table 5
Real Tuition and Fees,
Georgia vs. the SREB and US, AY1995-2002

State/Region	Four-Year, In-State Pct			Four-Year, Out-of-State Pct			Two-Year Pct		
	1995-96	2002-03	Change	1995-96	2002-03	Change	1995-96	2002-03	Change
United States Median	\$2,974	\$3,728	25.3	\$8,250	\$9,998	11.6	\$1,493	\$1,952	19.9
SREB States Median	2,308	3,253	41.0	7,262	9,670	23.2	1,179	1,488	20.1
Georgia	2,221	2,576	16.0	6,004	8,606	16.1	1,330	1,522	6.0
Alabama	2,386	3,532	48.1	4,539	6,752	31.6	1,485	2,040	34.2
Arkansas	2,322	3,458	48.9	4,509	6,989	37.2	1,057	1,600	50.0
Delaware	3,852	4,873	26.5	9,952	12,021	7.4	1,568	1,806	36.3
Florida	2,119	2,696	27.2	7,897	12,172	36.1	1,265	1,583	12.9
Kentucky	2,322	3,126	34.6	6,282	8,076	24.8	1,155	1,536	24.0
Louisiana	2,377	2,515	5.8	5,432	8,433	35.0	1,249	1,490	18.7
Maryland	3,842	4,974	29.5	7,850	11,118	23.5	2,223	2,553	9.5
Mississippi	2,811	3,536	25.8	5,814	8,041	43.4	1,143	1,402	28.3
North Carolina	1,907	2,795	46.6	9,938	11,597	16.3	657	1,128	73.3
Oklahoma	1,964	2,346	19.5	4,563	5,475	12.2	1,338	1,626	11.1
South Carolina	3,607	4,704	30.4	7,598	10,310	25.7	1,179	2,136	75.6
Tennessee	2,277	3,454	51.7	7,145	10,412	36.0	1,214	1,735	34.9
Texas	2,110	3,278	55.3	8,898	9,818	1.0	843	1,088	14.0
Virginia	4,740	4,277	-9.8	10,709	11,754	11.6	1,684	1,488	-7.5
West Virginia	2,416	2,816	16.5	5,634	6,815	12.8	1,533	1,560	3.5

Source: SREB; tuition and fees expressed in terms of constant 2002 dollars.

Table 6
 Number of Faculty in the “Corps of Instruction”
 by Institution Type and Rank, 1993 and 2002

Institution Class	1993	2002	% Change
<u>USG Total</u>	8,995	8,870	-1.4
Professor	2,677	2,745	2.5
Associate	2,491	2,609	4.7
Assistant	2,976	2,780	-6.6
Other	851	736	-13.5
<u>Research Universities</u>	4,123	3,993	-3.2
Professor	1,512	1,513	0.0
Associate	1,302	1,190	-8.6
Assistant	1,130	1,043	-7.7
Other	179	247	38.0
<u>Regional Universities</u>	1,004	1,069	6.5
Professor	222	291	31.1
Associate	245	266	8.6
Assistant	389	408	4.9
Other	148	104	-29.7
<u>State Universities</u>		2,527	
Professor		734	
Associate		751	
Assistant		869	
Other		173	
<u>State Colleges</u>	2,501	231	
Professor	753	39	
Associate	621	68	
Assistant	929	101	
Other			
<u>Two-Year Colleges</u>	1,367	1,050	-23.2
Professor	190	168	-11.6
Associate	323	334	3.4
Assistant	528	359	-32.0
Other	326	189	-42.0

Source: University System of Georgia.

Table 7
Real Faculty Salaries by Institution Type and Rank,
1993 and 2002 (in 2002 dollars)

Institution Class	1993	2002	% Change
<u>USG Total</u>	54,860	63,689	16.1
Professor	68,115	87,174	28.0
Associate	54,920	62,944	14.6
Assistant	47,013	52,094	10.8
<u>Research Universities</u>	64,009	77,580	21.2
Professor	76,921	101,609	32.1
Associate	60,888	72,902	19.7
Assistant	56,144	62,583	11.5
<u>Regional Universities</u>	47,875	53,488	11.7
Professor	59,985	70,511	17.5
Associate	49,830	55,526	11.4
Assistant	42,184	47,449	12.5
<u>State Universities</u>		53,885	
Professor		68,175	
Associate		55,553	
Assistant		46,182	
<u>State Colleges</u>	47,784	50,975	6.7
Professor	56,868	67,903	11.8
Associate	48,573	55,168	13.6
Assistant	42,525	45,638	7.3
<u>Two-Year Colleges</u>	42,399	45,585	7.5
Professor	51,816	57,909	11.8
Associate	45,309	49,444	9.1
Assistant	38,591	42,160	9.2

Source: University System of Georgia.

Table 8
Faculty Salaries by Institution and Rank
1994 and 2004, (in 2004 dollars)
Ranked by Percentage Change of Professor Salaries

Institution	1994-2005			2004-2005			Percent Change		
	Professor	Associate	Assistant	Professor	Associate	Assistant	Professor	Associate	Assistant
Louisiana State University	75.6	55.7	48.3	92.8	67.1	59.9	22.8	20.5	24.0
U of Maryland	93.0	63.6	54.9	111.0	76.3	75.2	19.3	20.0	36.9
U of North Carolina	95.2	68.7	56.7	112.7	77.2	65.8	18.4	12.4	16.0
U of Florida	81.7	57.9	52.4	96.0	69.1	59.5	17.5	19.4	13.6
U of Virginia	101.3	67.4	55.7	118.1	78.1	64.1	16.5	15.8	15.1
U of Oklahoma	77.8	56.7	46.3	89.7	62.0	51.7	15.4	9.3	11.7
U of Arkansas	73.4	56.7	49.6	84.5	63.0	54.6	15.1	11.1	10.1
U of Texas	75.6	56.1	46.7	86.0	65.4	59.9	13.8	16.6	28.4
U of South Carolina	81.2	60.4	52.3	92.1	65.7	59.2	13.4	8.7	13.3
U of Georgia	82.7	59.5	51.0	92.8	64.7	57.7	12.2	8.7	13.2
U of Tennessee	83.1	62.7	55.1	91.1	68.9	58.3	9.6	9.9	5.9
U of Mississippi	76.2	58.8	51.1	83.2	65.1	54.5	9.2	10.8	6.6
U of Alabama	81.3	60.7	51.4	88.0	64.0	52.3	8.2	5.5	1.8
U of Kentucky	83.7	62.1	53.8	90.0	64.1	57.7	7.5	3.3	7.3

Source: Chronicle of Higher Education.

Note: Salary data are only for the main campus of the flagship institutions in the SREB.

Table 9
Financial Aid for First-Time Freshmen
HOPE and Pell, Fall 2001

Class of Institution	First-Time Freshmen from Georgia	No HOPE/Pell		HOPE and Pell		HOPE/No Pell	
		No.	%	No.	%	No.	%
Research Universities	6,836	27	0.4	5,617	82.2	1,045	15.3
Regional Universities	3,880	116	3.0	2,547	65.6	820	21.1
State Universities	8,067	454	5.6	4,915	60.9	1,728	21.4
State Colleges	1,069	140	13.1	501	46.9	196	18.3
Two-Year Colleges	7,358	1,023	13.9	2,855	38.8	1,240	16.8
System Total	27,210	1,760	6.5	16,435	60.4	5,029	18.5

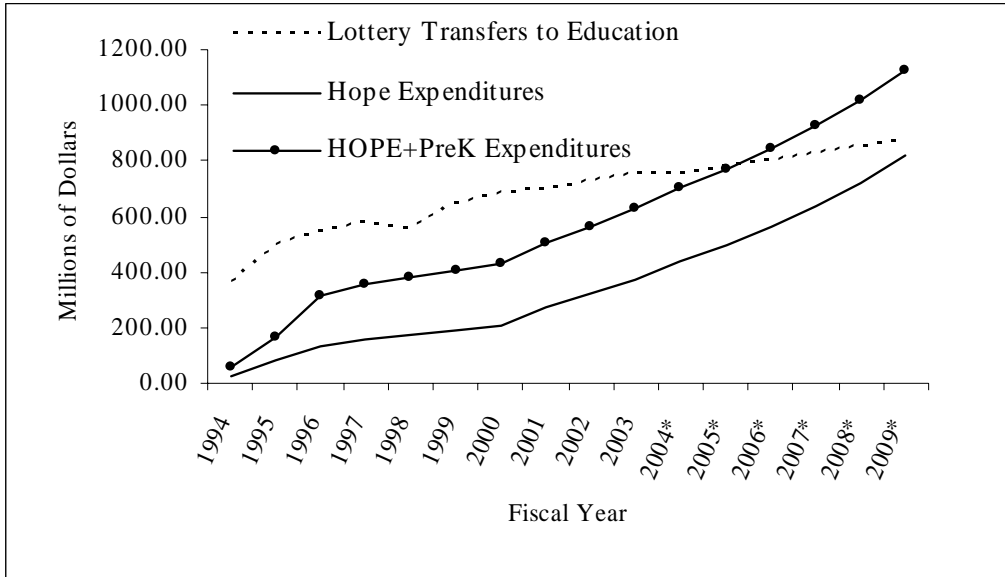
Note: First-Time Freshmen from Georgia is defined as the subset of first-time freshmen who graduated from Georgia High School since 1993 plus freshmen receiving HOPE according to Georgia Student Finance Commission records. *Source:* Data are from the Georgia Department of Education, 2002.

Table 10
USG One-Year Retention Rates
First-Time Freshmen, Fall 2003 Cohort

Institution Class	Institution-Specific Rate	System-Wide Rate
USG System	76.8	82.7
Research Universities	90.7	93.4
Regional Universities	78.4	86.6
State Universities	73.5	80.9
State Colleges	66.5	70.8
Two-Year Colleges	65.2	72.1

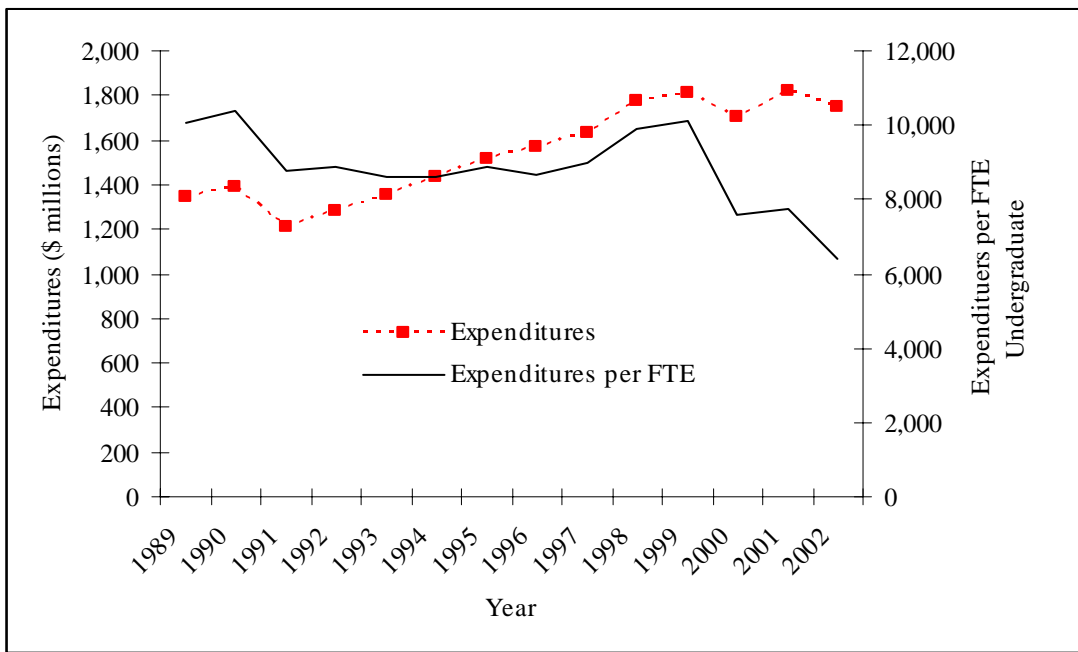
Source: University System of Georgia, Student Information Reporting System, Retention Rate Report.

Figure 1
 Lottery Allocations to Education
 vs. Educational Expenditures, FY 1994-2009



Notes: 1994 fiscal year runs from July 1, 1993 - June 30, 1994. The values for 2004 and following are projections. The lottery projections include a 3.2 percent annual growth rate, which was the most favorable growth rate the Commission considered. The educational projections were based on the number of students who are expected to utilize the resources. Source: Seligman (2003).

Figure 2
 Higher Education Expenditures in Georgia, 1989-2002
 (in 2004 dollars)



Source: NASSGAP

Figure 3
 Total Revenue by Share
 University of Georgia, 1987-2003

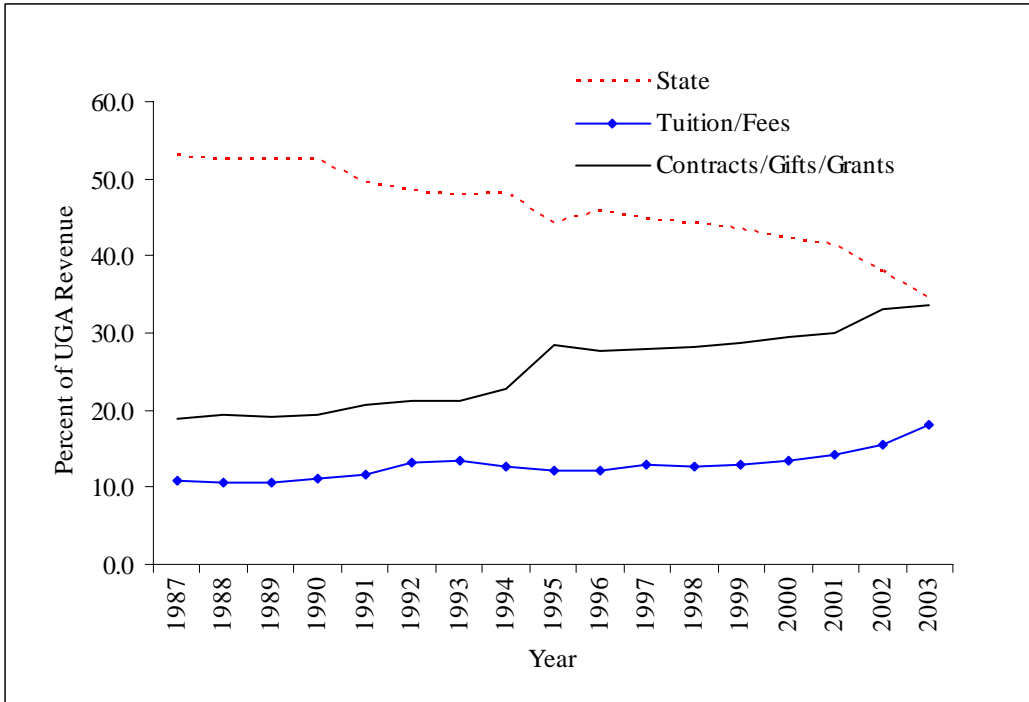
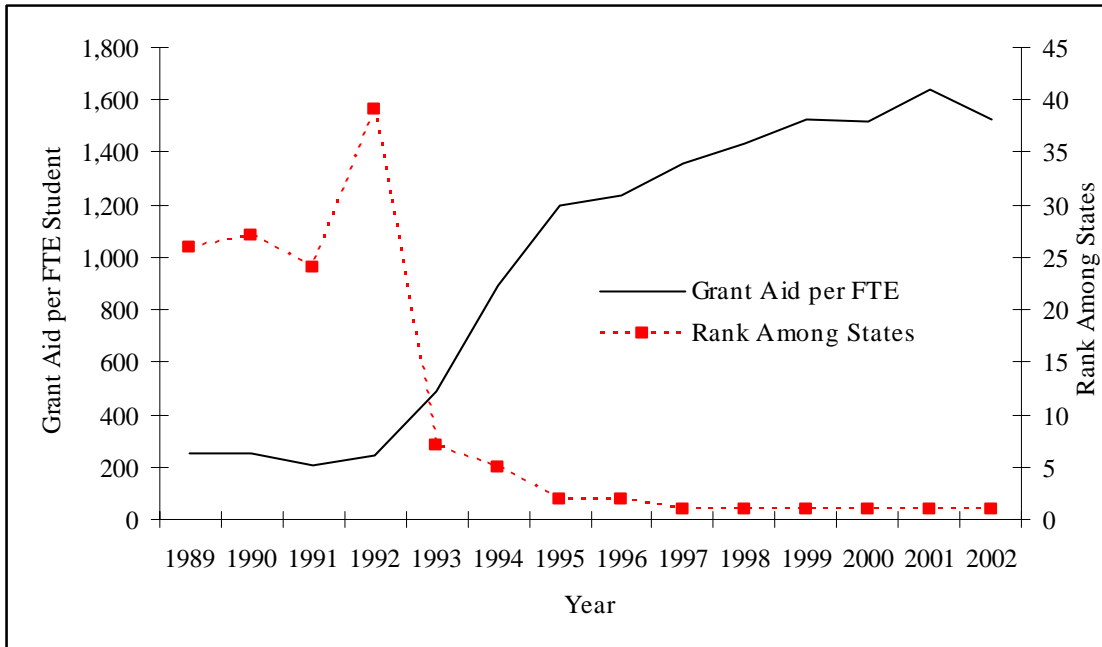
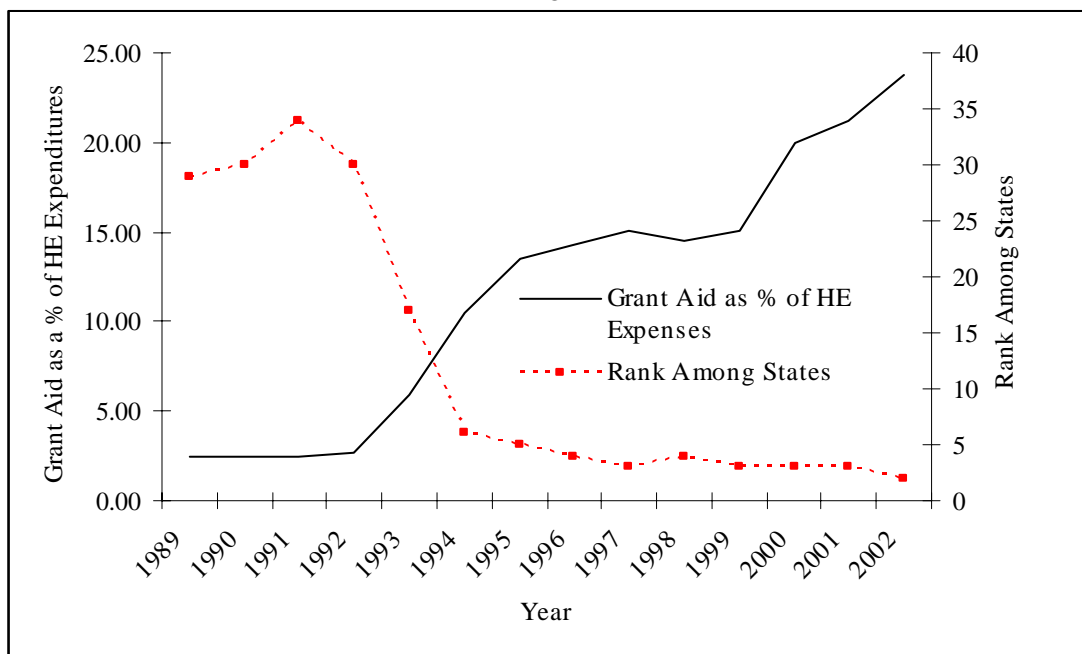


Figure 4
 Georgia's Grant Aid per FTE Undergraduate
 and Rank Among All States, 1989-2002
 (in 2004 dollars)



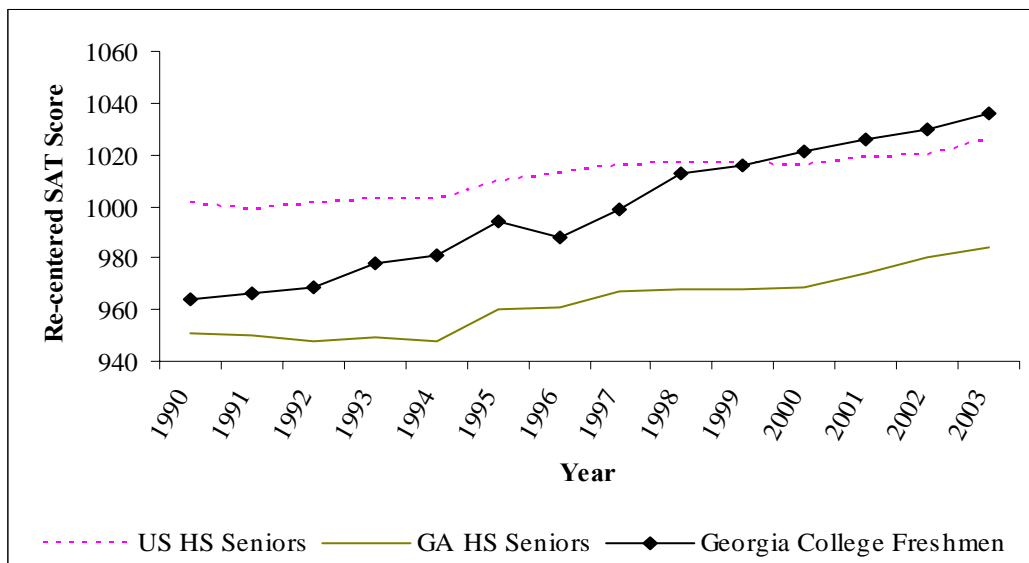
Source: NASSGAP

Figure 5
 Georgia's Grant Aid as a Percentage
 of Higher Education Expenditures
 and Its Rank Among All States, 1989-2002



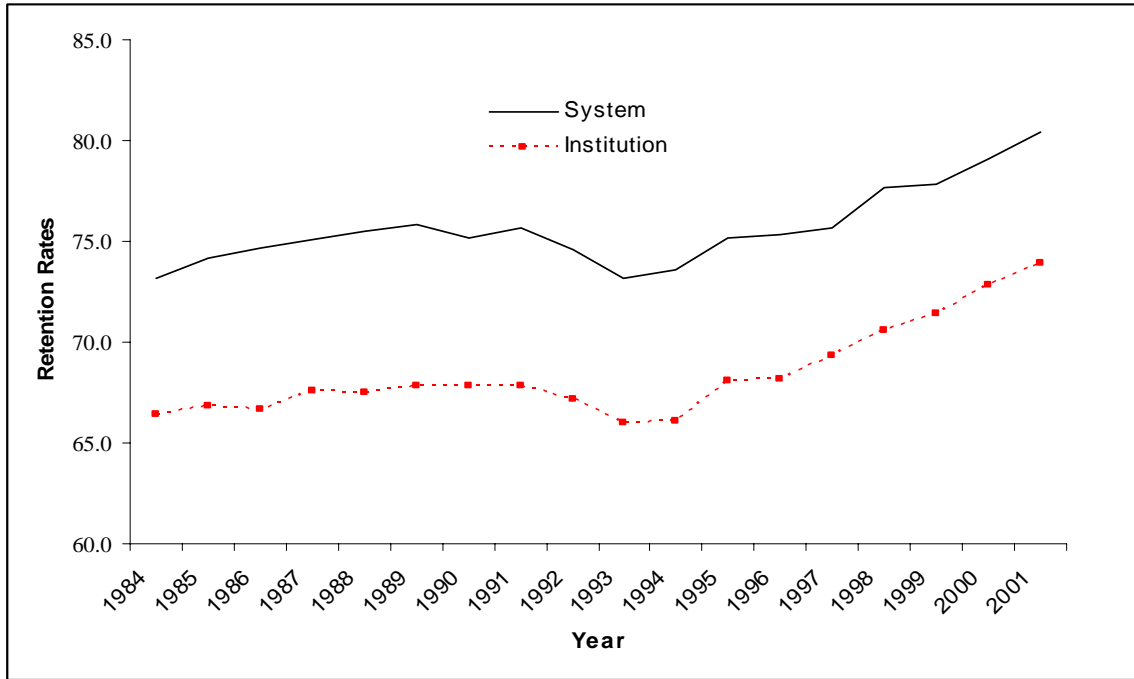
Source: NASSGAP

Figure 6
 SAT Scores of Georgia College Freshmen
 vs. US High-School Seniors and Georgia High-School Seniors, 1990-2003



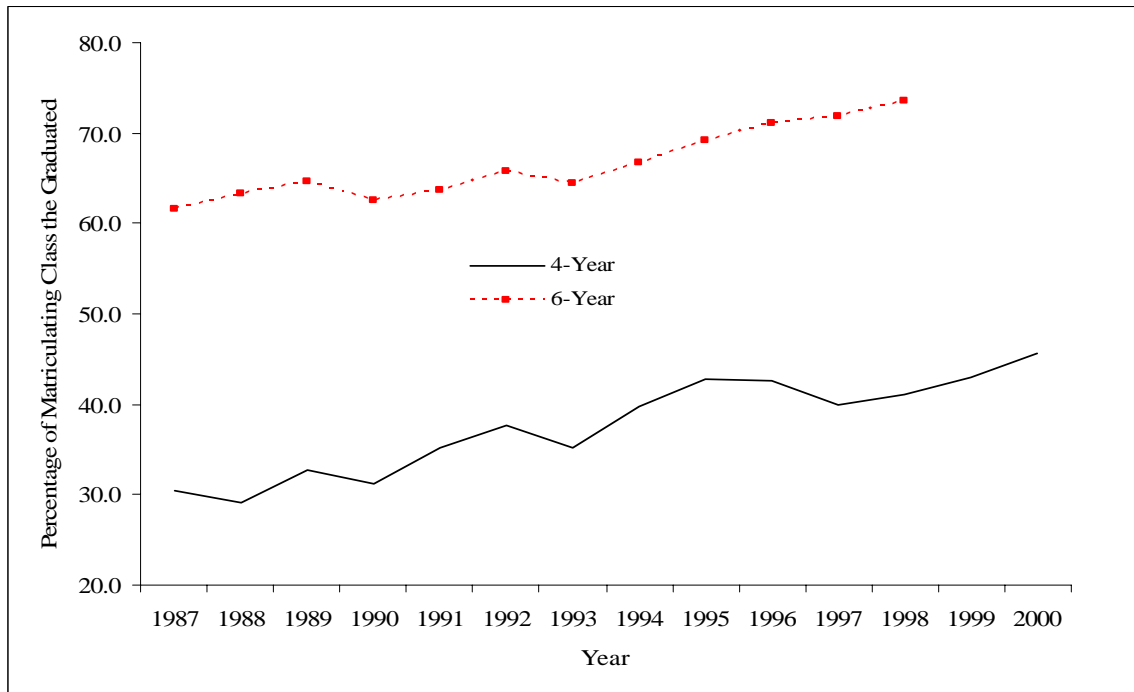
Source: National data are from the College Board and the Georgia data are from the University System of Georgia.

Figure 7
 USG First-Year Retention Rates
 First-Time, Full-Time Freshmen Fall 1984-2001



Source: University System of Georgia, Student Information Reporting System; SRA, Jan. 2003.

Figure 8
 UGA Graduation Rates by Matriculating Year
 1987-2000



Source: UGA Fact Book.

Map of Georgia's Colleges and Universities (Source: University System of Georgia)

