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## AN ANALYSIS OF A NEED-BASED STUDENT AID PROGRAM FOR GEORGIA

There is a large gap in college enrollment by family income, and there is evidence that this gap is growing. Yet the benefits of a college education, both for the individual and society, are significant. Encouraging college education in general and closing that income gap in enrollment is a long standing policy objective for the United States and Georgia. One policy aimed at closing the income gap in college enrollment is to target student aid to students with less financial ability to attend college. While Georgia has the HOPE Scholarship, which is a merit-based student aid program, Georgia does not have a need-based student aid program for state residents attending state colleges and universities. This report explores issues associated with establishing a need-based student aid program in Georgia.

### **Social Benefits of College Education**

The private benefits of a college education are well known. According to the Bureau of the Census, in 2006, the average full-time year-round worker in the United States with a four-year college degree earned \$67,910 compared to \$38,926 for someone with just a high school degree, or 74.5 percent more.

However, there are also benefits to society. College-educated citizens are more likely to vote, healthier, less

likely to be arrested for a crime, less likely to be on welfare, and more productive. Furthermore, a college educated workforce is important for economic development. The College Board (2007) reports that a more educated workforce would lead to higher wages for all workers. Glaeser and Saiz (2003) found that a one percentage point increase in the share of the adult population that is college educated increases local metro growth over a 10-year period by one-half percentage point.

According to the National Association for College Admission Counseling (NACAC, 2008), if the United States is to remain competitive in the global economy, it will have to maintain a highly educated workforce. Currently, the country is experiencing a rapidly growing population of minority, low-income, and first-generation college-qualified high school graduates whose ultimate economic and social success will play an increasingly significant role in boosting the economic growth of the country as a whole (Institute for Higher Education Policy, 2004). Therefore, it appears imperative to invest in their education to reap the benefits they would provide to society as part of a highly educated workforce.

## Family Income and College Enrollment

While there are many factors that are likely to affect the decision to enroll in college, the ability to finance a college education is a likely determinant of whether to enroll in college. Many authors have pointed out that there is an inverse relationship between college enrollment and family income. For example, the College Board (2005) reports that in 2003, 80 percent of students from families with incomes in the upper quintile enrolled in college immediately after high school, compared to 61 percent for the lowest two quintiles.

A similar pattern is reported by Kane (2004), who finds that within 20 months after high school graduation, 66 percent of students in the highest parental income quartile were enrolled in a 4-year college, while only 28 percent of those in the lowest quartile were enrolled, a difference of 38 percentage points. While other factors are at play, for example, student ability and parent's education, even after controlling for these factors family income is found to play a significant role in determining college enrollment.

## The Effect of Aid on College Enrollment

There have been many studies of the effect of student aid and college cost on enrollment and these studies consistently find that the availability of student aid increases enrollment and that increases in the cost of attending college reduces enrollment. For example, St. John et al. (2004) find that enrollment increases by 11.5 percentage points for a \$1,000 increase in need-based aid. Heller (1999) finds that a \$1,000 increase in aid increases enrollment in four-year schools by 5.7 percentage points for whites and by 9.4 percentage points for all races.

The effect of college cost on attendance is obviously related to effect of student aid on college enrollment and college completion since a \$1,000 increase in aid is the same as a \$1,000 reduction in the cost of college to the student. Recent studies by Cameron and Heckman (1999), Ellwood and Kane (2000), and Kane (1994) find that a \$1,000 reduction in tuition increases college attendance by 4 to 6 percentage points. These estimates are somewhat lower than those found for need-based aid, as reported above, but are consistent with the findings of Dynarski (2001, 2002). There is some evidence that students from low-income families are much more responsive to changes in tuition than students from high-income families.

## Need-Based Aid Programs in Other States

We surveyed nine states that have a significant need-based aid program. All states begin with the family's (parents) adjusted growth income as a basis for the financial aid formula. Most states either use the federal calculation formula for Expected

Family Contribution (EFC) or base their own formulas on that formula with minor adjustments – such as tax credits or family demographic information. All states take into consideration if a student is financially independent from their families. Of the states overviewed, almost all take into account whether the family has another child in college and any other type of aid the student receives. States vary the amount of aid by the type of institution the student attends.

When directly comparing the individual state's total need-based allotment, some variation across states becomes evident. The average need-based award across states and institution types is approximately \$1,800. On average, these states serve approximately 24 percent of their population, ranging from 13 percent in Tennessee to 31 percent in Florida. Table A summarizes the programs (New Jersey is not included as public information about enrollments were not available in a comparable format).

## Simulations of Alternative Student Aid Programs

We developed estimates of the cost and distribution of various need-based student aid programs by simulating 25 alternative need-based aid programs. Eligibility for the aid programs was restricted to full time undergraduate students who are Georgia residents attending one of the state's public 2-year or 4-year colleges or universities. In the simulations, the level of aid provided to a student depends on the income of the student's family.

There are three basic parameters that define these alternatives:

- the maximum aid;
- the phase-out income, which is the income level at which aid begins to be phased out;
- the maximum income, which is the income level at which no aid is provided.

A fourth factor is the rate at which aid is phased out. For the simulations, the aid programs were all designed so that aid phased out at a constant dollar rate for each dollar increase in income.

Table B presents the parameters, the estimated cost, the estimated number of students who would receive aid, and the aid per student for students receiving aid for each of the 25 alternative program designs.

Some general observations can be made:

- The number of students who receive aid depends entirely on the maximum income.

**TABLE A. CROSS STATE COMPARISONS**

State	Undergraduate Enrollment	# of State Grant Awards	% Receiving Award	Total Amount	Average Award
North Carolina (2005-2006)	287,452	93,035	32%	\$151,531,497	\$1,612
Tennessee (2001-2002)	244,191	29,465	13%	\$42,559,494	\$1,444
Florida (2004-2005)	291,375	90,211	31%	\$92,735,006	\$1,040
Illinois (2005-2006)	805,674	148,651	18%	\$345,797,600	\$2,326
Minnesota (2005-2006)	286,731	60,626	21%	\$124,436,000	\$2,052
Pennsylvania (2005-2006)	434,149	127,644	29%	\$307,012,352	\$2,478
Ohio (2004-2005)	346,445	86,883	25%	\$159,000,000	\$1,279
New York (2001-2002)	1,070,206	305,374	29%	\$619,671,578	\$2,034

**TABLE B. ALTERNATIVE NEED-BASED AID PROGRAMS SIMULATION RESULTS**

Simulation	Maximum Aid	Phase-out Income	Maximum Income	Total Cost (in millions)	Number Receiving Aid	Aid per Student
1	\$2,500	\$15,000	\$25,000	\$24.4	16,223	\$1,505
2	\$2,500	\$15,000	\$30,000	\$33.6	25,878	\$1,299
3	\$2,500	\$15,000	\$40,000	\$59.4	54,579	\$1,087
4	\$2,500	\$20,000	\$25,000	\$31.5	16,223	\$1,941
5	\$2,500	\$20,000	\$30,000	\$41.7	25,878	\$1,613
6	\$2,500	\$20,000	\$40,000	\$69.9	54,579	\$1,280
7	\$3,000	\$15,000	\$25,000	\$29.3	16,223	\$1,807
8	\$3,000	\$15,000	\$30,000	\$40.3	25,878	\$1,559
9	\$3,000	\$15,000	\$40,000	\$71.3	54,579	\$1,305
10	\$3,000	\$20,000	\$25,000	\$37.8	16,223	\$2,329
11	\$3,000	\$20,000	\$30,000	\$50.1	25,878	\$1,935
12	\$3,000	\$20,000	\$40,000	\$83.9	54,579	\$1,536
13	\$3,500	\$15,000	\$25,000	\$34.2	16,223	\$2,108
14	\$3,500	\$15,000	\$30,000	\$47.1	25,878	\$1,818
15	\$3,500	\$15,000	\$40,000	\$83.1	54,579	\$1,523
16	\$3,500	\$20,000	\$25,000	\$44.1	16,223	\$2,717
17	\$3,500	\$20,000	\$30,000	\$58.4	25,878	\$2,258
18	\$3,500	\$20,000	\$40,000	\$97.8	54,579	\$1,792
19	\$4,000	\$15,000	\$25,000	\$39.1	16,223	\$2,409
20	\$4,000	\$15,000	\$30,000	\$53.8	25,878	\$2,078
21	\$4,000	\$15,000	\$40,000	\$95.0	54,579	\$1,740
22	\$4,000	\$20,000	\$25,000	\$50.4	16,223	\$3,105
23	\$4,000	\$20,000	\$30,000	\$66.8	25,878	\$2,581
24	\$4,000	\$20,000	\$40,000	\$111.8	54,579	\$2,048
25	\$3,000	\$25,000	\$50,000	\$145.7	88,308	\$1,649

- For any given set of phase-out and maximum income, the cost of the program increases by the same percentage as the increase in maximum aid.
- Increasing the maximum income increases the cost significantly.
- Given maximum aid and maximum incomes, increasing phase-out income increases the estimated cost.

These estimates of program cost assume no change in either the number of students who attend college or in the student retention rate. The data that we have do not permit us to estimate the magnitude of the effects on enrollment. However, existing studies provide an estimate of the likely magnitude of the effect on enrollment from the aid program. Based on the existing research, we believe that a reasonable estimate of the increase in the enrollment rate for an aid program that provides an average aid of \$1,000 is between 6 and 12 percentage points. We also do not know the enrollment rate for those students who would be eligible for the aid program. Based on Kane (2004), we assume an enrollment rate of 40 percent. The per-recipient aid for most of the alternative programs that we simulated was between \$1,000 and \$2,000.

If the increase in enrollment is 6 percentage points and the enrollment rate is 40 percent, then an increase in aid of \$1,000 will increase the enrollment of students eligible for aid and the program cost by 15 percent. If the increase in enrollment is 12 percentage points and the enrollment rate is 40 percent, then an increase in aid of \$1,000 will increase the enrollment of students eligible for aid and the program cost by 30 percent. An increase in average aid of \$2,000 would, of course, double the percentage increase in enrollment and cost. These calculations should be considered the very rough approximations of what might actually result from an aid program.

### Summary and Conclusions

There is a large gap in college enrollment by family income, and this gap appears to be growing. One way to address this income gap in college enrollment is to reduce the cost of college, and the most cost-effective way of doing that is through a need-based student aid program. Existing evidence suggests that \$1,000 in student aid is associated with a 6 to 12 percentage point increase in enrollment, and that this effect is higher for students from lower income families.

We simulated 25 possible aid programs for Georgia in order to determine the cost of alternative aid programs. The cost of the 25 programs we simulated ranged from \$24 million to \$145 million. However, it would seem feasible to provide a significant need-based aid program that would address the needs of students from relatively low-income households for \$30 to \$40 million. Such a program would assist about 16 to 26 thousand

students and provide average aid of \$1,600 to \$1,800, with a maximum aid of \$3,000. Such a program would be consistent with aid programs in some of the states we surveyed, but would be at the lower end of all of the programs we surveyed.

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