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The Impact of Florida's Bright Futures Scholarship Program on High School Performance and College Enrollment

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Florida's Bright Futures program is one of the nation's largest merit-based scholarship initiatives. This study used high school transcript and college enrollment data to examine the program's impact on high school course-taking patterns, school grades, college entrance exam scores, and rates of college attendance over time. The study indicates that the program has contributed to educational improvements by encouraging high school students to take academically challenging courses and attend college in the state, with low-income and minority students showing the largest improvements.

The ongoing debate on the relative benefits of merit- and need-based programs (Cornwell, Mustard, & Sridhar, 2006; DesJardins, Ahlburg, & McCall, 2002; Dynarski, 1999) reflects differences in approaches to addressing barriers to postsecondary instruction. There are at least two critical barriers to college degree attainment: cost and preparation. Students who cannot afford college obviously will not attend. However, academic preparation is also critical; students with sufficient financial support may fail to graduate if they struggle academically (Adelman, 1999). Need-based programs directly address the financial barrier and target populations underrepresented in higher education. Merit-based programs address financial access while emphasizing the role of student preparation and, if broad based, can potentially have widespread impact on academic preparation.

A key issue in this debate is whether merit-based financial aid provides equitable benefits to low-income and minority students. Opponents of need-based scholarships argue that merit-based programs have regressive effects because they are often funded through lottery programs that are disproportionately supported by low-income groups, whereas recipients disproportionately come from middle- and upper-class families (Glenn, 2003; Rubenstein & Scafidi, 2002). Some assert that need-based aid is better public policy because it specifically targets those with financial need and represents a more efficient and equitable use of limited tax dollars (Dynarski, 2000; Singell & Stone, 2002).

In contrast, researchers supporting merit-based aid note that such programs result in higher college enrollment regardless of race (Cornwell et al., 2006), improved student performance in Grades K–12, and increased student motivation to improve academic preparation (Betts, 1997; Henry & Rubenstein, 2002).

The importance of academic preparation for college is well supported by research. For example, Betts and Morell (1998) found that high school preparation significantly affected college grade point average (GPA) even when controlling for family and personal background characteristics. This is a critical point, as academic success, not simply enrollment in postsecondary education, is the ultimate goal.

Unfortunately, research has found that low-income and minority students are less likely to take college preparatory courses and that lower-income students have lower college completion rates (Mortensen, 2003; Stinebrickner & Stinebrickner, 2003). This suggests that academic preparation is at least as important as finances in assisting low-income and minority students achieve postsecondary success.

Merit-based aid programs hold the promise of motivating students to improve their academic preparation, which in turn results in higher grades and test scores (Betts, 1997; Bishop, 1996; Kuh & Hu, 1999; Levin & Tsang, 1987). A direct extension of this argument holds that the incentive created by such aid will reflect the potential marginal benefit students expect to receive and will be the greatest for low-income and minority students who otherwise may not be able to attend college.

Our objective was to test these assertions by examining whether Florida's merit-based scholarship program produced the intended benefits of increasing the percentage of high school students (particularly minority and low-income students) taking challenging college-preparatory courses, earning high GPAs and college entrance test scores, and subsequently enrolling in college.

Florida's Bright Futures Scholarship Program

Georgia inaugurated the nation's first broad-based merit scholarship program, Helping Outstanding Pupils Educationally (HOPE), in 1993. Funded through lottery proceeds, the HOPE program offers essentially free college tuition to any Georgia student who attains a specified GPA while in high school. At least 14 other states have adopted similar initiatives (Ness & Noland, 2007).

Florida's Bright Futures Scholarship Program was created in 1997, and provided $346 million to over 149,000 students in fiscal year 2006–2007 (Office of Student Financial Assistance, Florida Department of Education, 2007). The Florida Legislature specifically intended the program to encourage better student preparation and performance. The program requires students to take a minimum of 15 credits from a list of approved college preparatory courses, including English, mathematics, natural science, social sciences, and foreign languages, and attain a minimum GPA. Students must also attain specified scores on the SAT or ACT, to provide an objective measure of student performance and to help address concerns regarding potential grade inflation (Betts, 1998; Henry & Rubenstein 2002; Kuh & Hu, 1999).

Table 1
Bright Futures Scholarship Awards

	GPA	Exam Scores	Award Level
Florida Academic Scholars	3.0	SAT composite 1270 ACT composite 28	100% of tuition, plus up to $300 per semester for fees and $300 per semester for college-related expenses
Florida Medallion Scholars	2.75	SAT composite 970 ACT composite 20	75% of tuition and up to $300 per semester for fees; 100% of tuition if attending a community college seeking an associate degree

Note. Both scholarships require students to take 15 credits of college preparatory academic courses, including 4 English courses, 3 mathematics courses including Algebra 1 and above, 3 natural science courses including 2 with substantial lab work, 3 social sciences courses, and 2 foreign language courses in the same language.

The program makes two types of awards available to students seeking college degrees (see Table 1). The Florida Academic Scholars Award pays 100% tuition and fees plus $300 per term for the highest performing high school students. The more common Medallion Scholars Award is awarded to students with slightly lower high school performance, and covers 75% tuition and fees.

Our assessment of Florida's broad-based merit scholarship program aimed to answer three questions:

(1) Does the Bright Futures program foster increases in the percentage of students taking college preparatory courses?

(2) Did more students enroll in postsecondary education after Bright Futures was established (which should occur due to these students' improved preparation and the availability of financial aid)?

(3) Did students with the largest marginal benefits—low-income and minority students—show a disproportionate response to the program?

Data and Methodology

Our study examined students who graduated from Florida public high schools with a standard diploma between the 1996–1997 and 2000–2001 academic years (N = 503,102). We used Florida's 1996–1997 high school graduates as a benchmark by which to assess the effects of the Bright Futures program on college preparation and attendance. Students graduating from high school in 1996–1997 were eligible for Bright Futures scholarships in fall 1997, but had not had the opportunity to respond to the program's incentives to better prepare for college. By contrast, students in subsequent graduation cohorts had at least part of their high school careers to respond to the programs' incentives, and the last 2 of our 5 graduation cohorts had their entire time in high school to respond. Our data included demographic characteristics, high school course selections, cumulative high school GPA, college entrance exam scores (SAT/ACT), Bright Futures

scholarship eligibility, and whether the student attended college in Florida (Florida Department of Education, 2003).

We first used multinomial regression to estimate the likelihood of high school graduates in each successive cohort being better prepared for college, with three categories of college preparation as our dependent variable. The group best prepared for college consisted of those who were eligible for Bright Futures meeting all program requirements for courses, grades, and SAT/ACT scores. The middle group consisted of graduates who took the necessary college preparatory courses but did not meet the program's minimum grade point requirements and/or SAT/ACT scores. The group with the least amount of preparation did not take the college preparatory courses required for Bright Futures scholarships. We regressed the degree of preparation for college, as defined by the three groups, on indicator variables for year of high school graduation, sex, race/ethnicity, limited English proficiency, and eligibility for free or reduced-price lunches. To test if minority and low-income high school graduates had a disproportionate increase in the likelihood of being better prepared for college in each successive year, we included terms interacting the graduation year with the independent variables defining these groups. The reference group for this analysis was English-proficient White females in the 1996–1997 graduation cohort who were not eligible for free or reduced priced lunch and did not take college preparatory courses that met Bright Futures eligibility requirements.

In our second analysis, we used logistic regression to estimate the likelihood of graduates in each successive cohort attending college in Florida. We regressed the dependent variable, attending college in Florida, on indicator variables for sex, race/ethnicity, limited English proficiency, eligibility for free or reduced priced lunches, high school GPA, and degree of college preparation. To aid in interpreting the results we "centered" the GPA, subtracting the population mean GPA from graduates' GPAs. We included two-way interaction terms for the degree of college preparation for with the independent variables used to define graduates as being from minority and low-income populations who traditionally are less likely to attend college. These interaction terms tested if the degree of preparing for college had more of an effect on the likelihood of these graduates attending college. The reference group for this analysis was English-proficient white females in the 1996–1997 graduation cohort who were not eligible for free or reduced priced lunch and who took college preparatory courses that met Bright Futures eligibility requirements but did not meet other eligibility requirements. Tables 2 and 3 describe the variables used in these analyses.

Results

Are Florida High School Graduates Better Prepared for College?

High school graduates in each successive cohort since the start of the Bright Futures program were better prepared for

college. As shown in Table 3, the percentage of graduates who met the program's eligibility requirements for college preparatory courses, grades, and college entrance exam scores steadily increased between 1997 and 2001, rising from 20.1% to 29.3%. The overall percentage taking the required college preparatory courses similarly grew from 54% to 67%. The multinomial regression results in Table 4 show similar results while controlling for changes in the demographic and economic characteristics of each year's graduates. The coefficients for the independent effect of graduation year on the likelihood of being eligible for Bright Futures increased for each successive year, rising from

Table 2
Variables Included in the Analyses

Category	Variable	Description
Degree of college preparation	Bright Futures	Coded 1 if eligible for Florida Academic Scholar or Florida Medallion Scholar. Coded 0 otherwise.
	College prep, no Bright Futures	Coded 1 if not eligible for Florida Academic Scholar or Florida Medallion Scholar but took the required college preparatory courses. Coded 0 otherwise.
	No college prep	Coded 1 if did not take the required college preparatory courses. Coded 0 otherwise.
Attended college in Florida	College	Coded 1 for attending a community college, state university, or private postsecondary institution in Florida. Coded 0 otherwise.
Race/ethnicity	Asian/Pacific	Coded 1 for Asian/Pacific Islander. Coded 0 otherwise.
	Black	Coded 1 for African Americans (non-Hispanic). Coded 0 otherwise.
	Hispanic	Coded 1 for Hispanics. Coded 0 otherwise.
	Native	Coded 1 for Native Americans. Coded 0 otherwise.
	Multiracial	Coded 1 for multiracial. Coded 0 otherwise.
	White	Coded 1 for White (non-Hispanic). Coded 0 otherwise.
Sex	Male	Coded 1 for males. Coded 0 for females.
Limited English proficiency	LEP	Coded 1 for limited English proficiency. Coded 0 otherwise.
Free or reduced-price lunch	FRL	Coded 1 if eligible for free or reduced-price lunch. Coded 0 otherwise.
High school grade point average	GPA	Subtracted mean population GPA from graduates' GPA.
Graduation year	Cohort	Four dichotomous variables coded 1 to represent year graduation from high school and 0 otherwise.

0.26 to 0.61. For students in each successive graduation cohort, holding other characteristics constant, the relative likelihood of meeting the Bright Futures college preparation requirements to not taking the required college preparatory courses increased gradually, from 1.21 to 1.72 ($Exp(B_{intercept} + B_{year})$). The independent effect of graduation year on the likelihood of taking college preparatory courses but not meeting Bright Futures eligibility requirements was not as strong. Only the coefficients for the 1999 and 2001 graduation years were statistically significant, indicating a small increase in relative likelihood of graduates who were not eligible for Bright Futures having taken a college preparatory curriculum compared to those who did not take college preparatory classes.

Are More High School Graduates Attending College?
Our analysis found that since the start of Bright Futures, the rate at which high school graduates attended college in Florida increased, from 44% for 1996–1997 graduates to 55% for 2000–2001 graduates (see Table 3). This increased percentage corresponds to the increased percentage of graduates meeting Bright Futures eligibility requirements, which we found in our

Table 3
Descriptive Statistics, Florida High School Graduates

Variable	1997	1998	1999	2000	2001
Eligible for Bright Futures (FAS or FMS)	20.1%	24.8%	26.6%	29.0%	29.3%
Took required college prep, not eligible for Bright Futures (FAS or FMS)	33.4%	31.6%	33.8%	33.7%	37.9%
Total – Took required college prep	53.5%	56.4%	60.4%	62.7%	67.2%
Did not take college prep	46.5%	43.6%	39.6%	37.3%	32.8%
Attended college in Florida	43.7%	47.7%	47.1%	53.4%	55.1%
Asian (Pacific Islander)	2.7%	2.8%	2.8%	2.9%	2.8%
Black (non-Hispanic)	21.4%	21.0%	20.7%	20.4%	20.4%
Hispanic	14.9%	14.6%	15.1%	15.2%	16.4%
American Indian or Alaskan Native	0.2%	0.2%	0.2%	0.2%	0.3%
Multiracial	0.1%	0.2%	0.3%	0.4%	0.5%
White	60.7%	61.2%	60.9%	60.9%	59.6%
Male	48.7%	47.6%	47.5%	47.1%	47.3%
Limited English proficiency	8.4%	9.3%	10.4%	11.1%	12.6%
Eligible for free or reduced price lunch	13.4%	15.5%	17.5%	16.8%	17.9%
High school GPA	2.7	2.8	2.8	2.8	2.9
GPA standard deviation	0.6	0.6	0.6	0.5	0.5
Average SAT score	1005.0	1000.1	996.7	995.6	994.0
SAT standard deviation	201.3	196.4	194.5	194.0	193.2
Percentage taking SAT	43.7%	45.1%	46.9%	48.8%	48.9%
Average ACT score	20.8	20.8	20.6	20.6	20.4
ACT standard deviation	4.8	4.7	4.6	4.6	4.6
Percentage taking ACT	33.6%	35.3%	35.7%	37.0%	37.3%
N	85,670	94,136	97,681	101,623	106,402

Note. FAS = Florida Academic Scholars, FMS = Florida Medallion Scholars, GPA = grade point average.

Table 4
Multinomial Regression Results for Degree of Preparing for College

Category	Bright Futures B	Bright Futures Exp(B)	College Prep, No Bright Futures B	College Prep, No Bright Futures Exp(B)
Intercept	-0.07*	0.93	0.02	1.0
Year = 2001	0.61*	1.83	0.16*	1.17
Year = 2000	0.50*	1.65	0.03	1.03
Year = 1999	0.42*	1.52	0.10*	1.11
Year = 1998	0.26*	1.30	0.01	1.01
Asian/Pacific Islander	1.10*	3.00	0.66*	1.93
Black	-1.56*	0.21	-0.22*	0.81
Hispanic	-0.70*	0.50	0.06*	1.06
Native American Indian or Alaskan Native	-0.05	0.95	-0.05	0.95
Multiracial	-0.11	0.89	0.19	1.20
Male	-0.55*	0.58	-0.30*	0.74
LEP	-1.68*	0.19	-1.06*	0.35
FRL	-1.09*	0.34	-0.54*	0.58
2001 × Asian/Pacific Islander	0.01	1.01	-0.04	0.96
2000 × Asian/Pacific Islander	0.06	1.07	0.00	1.00
1999 × Asian/Pacific Islander	-0.04	0.96	-0.06	0.95
1998 × Asian/Pacific Islander	0.04	1.04	-0.06	0.94
2001 × Black	0.38*	1.46	0.52*	1.67
2000 × Black	0.33*	1.39	0.39*	1.47
1999 × Black	0.15*	1.16	0.14*	1.15
1998 × Black	0.05	1.05	0.04	1.04
2001 × Hispanic	0.52*	1.68	0.43*	1.53
2000 × Hispanic	0.43*	1.54	0.29*	1.33
1999 × Hispanic	0.35*	1.42	0.15*	1.16
1998 × Hispanic	0.14*	1.15	-0.04	0.96
2001 × Native American Indian or Alaskan Native	0.04	1.04	0.09	1.10
2000 × Native American Indian or Alaskan Native	0.06	1.06	0.31	1.36
1999 × Native American Indian or Alaskan Native	-0.16	0.86	0.19	1.21
1998 × Native American Indian or Alaskan Native	-0.23	0.79	0.17	1.19
2001 × Multiracial	0.11	1.12	0.17	1.18
2000 × Multiracial	0.26	1.29	0.03	1.03
1999 × Multiracial	-0.02	0.98	0.06	1.06
1998 × Multiracial	0.16	1.17	-0.05	0.95
2001 × Male	-0.06*	0.94	-0.07*	0.93
2000 × Male	-0.07*	0.93	-0.06*	0.94
1999 × Male	-0.05	0.95	-0.04	0.96
1998 × Male	-0.03	0.97	-0.02	0.98
2001 × LEP	0.86*	2.36	1.15*	3.16
2000 × LEP	0.65*	1.91	0.80*	2.23
1999 × LEP	0.45*	1.57	0.46*	1.58
1998 × LEP	0.19*	1.21	0.15*	1.16
2001 × FRL	0.22*	1.24	0.32*	1.38
2000 × FRL	0.27*	1.31	0.28*	1.33
1999 × FRL	0.22*	1.25	0.21*	1.23
1998 × FRL	0.25*	1.28	0.15*	1.16

Note. LEP = limited English proficiency, FRL = free or reduced-price lunch. Reference category is 1997 no college prep, White, female, non-LEP, non-FRL.

previous analysis. As indicated by the logistic regression coefficient for Bright Futures eligibility in Table 5, graduates eligible for Bright Futures were more likely to attend college than those who took the Bright Futures college preparatory courses but did not meet other eligibility requirements (e.g., the GPA or SAT/ACT score requirements). The size of this "Bright Futures effect" varied across demographic and economic categories. As

Table 5
Logistic Regression Results for Attending College in Florida

Category	B	Exp(B)
Intercept	0.08*	1.08
Year = 2001	0.27*	1.31
Year = 2000	0.23*	1.26
Year = 1999	0.00	1.00
Year = 1998	0.09*	1.09
Asian/Pacific Islander	0.20*	1.22
Black	-0.02	0.98
Hispanic	0.06*	1.06
Native American or Alaskan Native	-0.27*	0.76
Multiracial	-0.18*	0.84
Male	-0.19*	0.83
LEP	-0.09*	0.91
FRL	-0.30*	0.74
Bright Futures	1.09*	2.99
No College Prep	-0.82*	0.44
GPA	0.28*	1.32
Asian/Pacific × Bright Futures	-0.29*	0.75
Asian/Pacific × no college prep	0.40*	1.49
Black × Bright Futures	0.17*	1.19
Black × no college prep	0.01	1.01
Hispanic × Bright Futures	0.01	1.01
Hispanic × no college prep	0.07*	1.08
Native × Bright Futures	0.15	1.16
Native × no college prep	0.24	1.27
Multi × Bright Futures	0.14	1.15
Multi × no college prep	-0.09	0.91
Male × Bright Futures	0.01	1.01
Male × no college prep	-0.13*	0.88
LEP × Bright Futures	0.25*	1.29
LEP × no college prep	0.00	1.00
FRL × Bright Futures	0.11*	1.12
FRL × no college prep	0.00	1.00

Note. LEP = limited English proficiency, FRL = free or reduced-price lunch, GPA = grade point average. Reference category is 1997 White, female, average GPA, non-LEP, non-FRL, took college prep but was not eligible for Bright Futures.
*$p < .05$.

indicated by the coefficients for the interaction effects in Table 5, high school graduates who were eligible for Bright Futures and African American, limited English proficiency, or eligible for free or reduced-price lunches had an increased likelihood of attending college than those who were not eligible for Bright Futures.

In addition, our results indicate that, all else being equal, graduates in the 1998, 2000, and 2001 graduation cohorts were more likely to attend college. If Bright Futures provided the incentive for more high school students to prepare for college, which our model suggests, it also indirectly increased the likelihood of college attendance through increasing the proportion of students taking college preparatory courses.

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A small part of the increase in college attendance was likely due to a higher percentage of college-bound graduates staying in Florida to receive the program's financial assistance. Data from the Board of Governors for the State University System of Florida (2007) showed that the overall percentage of Florida high school graduates who attended college out-of-state declined from 9.8% of 1997 graduates to 7.2% of 2001 graduates. This slight decline thus cannot account for the 11-percentage-point increase in attending college in Florida during this period.

Do Low-Income and Minority Students Benefit From Bright Futures?

Our results indicate that low-income and minority high school graduates benefited disproportionately from Bright Futures in terms of preparing for and attending college. We tested for this disproportional benefit with interaction terms in our college preparation and college attendance models (see Tables 4 and 5).

Our multinomial regression model for college preparation included interaction terms for cohort year with race/ethnicity, gender, limited English proficiency, and eligibility for free or reduced-price lunches. Most of the interaction term coefficients for Blacks, Hispanics, limited-English-proficiency graduates, and low-income graduates (eligible for free or reduced-price lunch) were statistically significant and increased for later graduation cohorts. Although graduates with these characteristics were less likely to be eligible for Bright Futures or take college preparatory courses, the likelihood of cohorts with these characteristics being eligible for Bright Futures or take college preparatory courses, for the most part, increased in each successive graduation cohort.

Bright Futures also had disproportionate positive effects for minority and low-income graduates in terms of attending college in Florida. Our logistic regression model for attending college created interaction terms for degree of preparing for college with race/ethnicity, gender limited English proficiency, and eligibility for free or reduced-price lunches. The interaction terms involving Bright Futures eligibility (e.g., Black non-Hispanic × Bright Futures) for Asians/Pacific Islanders, Blacks, limited-

English-proficiency graduates, and low-income graduates were statistically significant and (with the exception of Asian/Pacific Islanders) increased the likelihood of attending college. Bright Futures-eligible graduates in these demographic groups had a greater likelihood of attending college compared to graduates who were not eligible for Bright Futures but took the required college preparatory courses. There was an increased likelihood for graduates in the Asian/Pacific Islander category to attend college out of state.

Despite these disproportionate increases, minority and low-income high school graduates continued to be underrepresented among graduates most prepared for college (see Table 6).

Table 6
Percentage of 2000–2001 High School Graduates by Degree of College Preparation

Variable	Bright Futures	College Prep, No Bright Futures	No College Prep
Asian/Pacific Islander	49.3%	32.6%	18.1%
Black	11.3%	49.6%	39.1%
Hispanic	18.3%	49.8%	31.9%
Native American or Alaskan Native	34.9%	32.7%	32.4%
Multiracial	31.8%	39.5%	28.7%
White	37.5%	30.8%	31.7%
LEP	12.2%	52.7%	35.1%
Non-LEP	31.8%	35.7%	32.5%
FRL	12.4%	46.5%	41.2%
Non-FRL	33.0%	36.0%	31.0%

Note. LEP = limited English proficiency, FRL = free or reduced-price lunch.

Discussion

There are limitations to our analyses that should be recognized. Because we did not have data on several graduation cohorts prior to Bright Futures, we cannot establish that the increasing trends we found were not a continuation of trends related to other policies besides Bright Futures. Also, the statistical models did not fit the data exceptionally well. The college preparation model only predicted 45% of the cases correctly, and the college attendance model 68%. Demographic and income characteristics were statistically significant but were not strong predictors; this was especially the case for the college preparation model. We did not have information on parental education, college aspirations, academic support in the home, household income, or other environmental factors that influence college preparation

and attendance. Finally, some of the increase in Bright Futures eligibility may have been due to well-prepared high school students being better informed about the program over time.

Our research shows that the Bright Futures scholarship program has contributed to improvements in Florida's educational system by encouraging more students to improve college preparation and attend college in the state. Low-income and at-risk students have shown the largest improvement in academic preparation, although they were still less likely to be prepared for college and attend college (with the exception of Hispanic students).

Our findings answer many of the questions regarding the effects of merit-based scholarship programs and provide strong support for these programs as a means of addressing barriers to college. By providing a powerful financial incentive to students to take tough courses in order to qualify for scholarships, Bright Futures has helped improve academic performance for a broad range of Florida students as well as addressing financial barriers to college attendance. The program also appears to have spurred school districts to make challenging Bright Futures coursework available to all of their students, including those with low GPAs who often are otherwise guided away from college-track courses. Even if these students fail in the end to qualify for Bright Futures scholarship, more of them have continued on to college. As the greatest improvements are attained by low-income and minority students, the program produces important equity outcomes that answer in part the claimed advantages of need-based programs.

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