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Dynamics of Merit-Based Scholarships in Georgia

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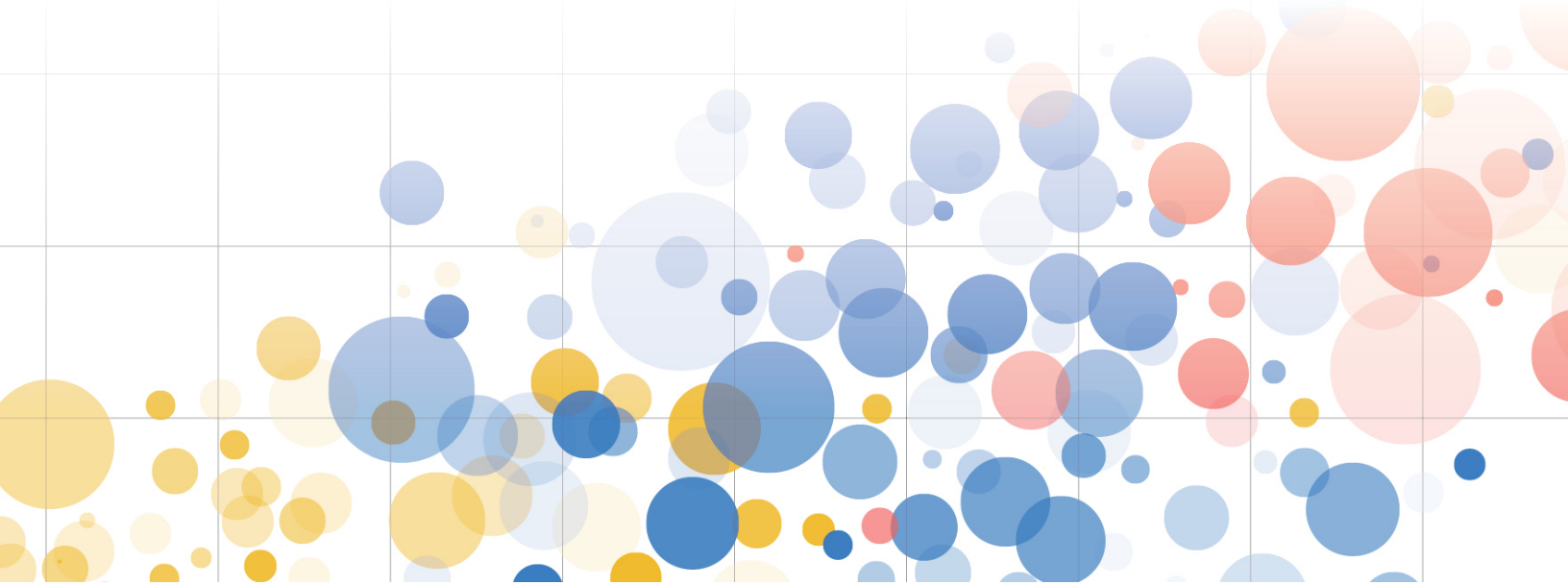

CONTEXT

Georgia's Helping Outstanding Pupils Educationally (HOPE) and Zell Miller Scholarships are merit-based scholarship programs for post-secondary students. These scholarships have criteria for entering post-secondary students and require students to maintain high grade-point averages (GPAs) and meet other criteria to keep their awards. In addition, students who enter a post-secondary institution without a scholarship can earn a HOPE Scholarship if their GPAs rise above a certain level. It is also possible for students who lose scholarships at one point in time to regain them later. Because of these features, students' scholarship status can change during their college careers.

THIS REPORT

This report uses administrative data from the University System of Georgia (USG) to examine scholarship receipt and changes among Georgia residents who entered USG institutions as freshmen in and after the 2013-14 academic year. It examines rates at which USG students earn, lose, and regain HOPE and Zell Miller Scholarships and differences in these dynamics across student populations.

KEY FINDINGS

- White and Asian students are more likely than Black and Hispanic students to enter a USG institution with HOPE or Zell Miller Scholarship. The differences are larger for the Zell Miller Scholarship, with White students being six times more likely than Black students to enter USG institutions with them. The disparities widen during students' careers as Black and Hispanic students are less likely than other students to retain or gain the scholarships.
- Men, students from families with low incomes, students who are not supported by their parents, Pell grant recipients, and student loan recipients are less likely to enter institutions with HOPE or Zell Miller Scholarships, less likely to gain scholarships during college, and less likely to retain scholarships. As with the differences by race and ethnicity, the disparities by students' characteristics widen as students progress through college.
- The patterns of losing and gaining scholarships differ across institutions. Students at the Georgia Institute of Technology are more likely to lose scholarships and less likely to gain them than students at other institutions. Students at the University of Georgia also have higher rates of scholarship loss compared to other institutions. In contrast, students at Georgia State University—one of the two USG institutions with formal programs to help students regain or retain HOPE and Zell Miller Scholarships—and Georgia College and State University are less likely to lose scholarships and more likely to gain them.
- Beginning with freshmen in the 2016-17 academic year, scholarship losses decline and scholarship gains increase. These changes coincide with changes in the eligibility criteria that required more rigorous high school courses and the college grade point formula for scholarship eligibility that awarded higher point totals to science, technology, engineering, and mathematics (STEM) classes.
- Students who enter USG institutions in the summer term are more likely to lose scholarships and less likely to gain them than students entering in the fall. Students who enter in the spring term are less likely to enter with scholarships but do not lose or gain them at different rates than students who enter in the fall.

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INTRODUCTION AND MOTIVATION

State-funded merit-based scholarships are intended to help students with the cost of post-secondary education and to raise students' educational attainment. Georgia innovated these programs through the Helping Outstanding Pupils Educationally (HOPE) Scholarship and, after altering that program, also through the Zell Miller Scholarship (as well as four other grant and scholarship programs). The scholarships, which are operated by the Georgia Student Finance Commission (GSFC), are Georgia's primary means of providing direct financial aid for college and help more than 100,000 students at public colleges and universities each year.[1] In 2017, only three states provided more state-funded financial aid per student than Georgia (National Science Board, 2019).

It is inherent, however, to merit-based financial aid programs that not all students receive awards, and the likelihood of receipt varies across student populations. In Georgia, White students, women, and students from middle- and upper-income families are more likely than students of color, men, and students from low-income families to hold scholarships (Jones, 2020). These disparities leave some populations with fewer resources to pay for college and may make it harder for Georgia's public colleges and universities to achieve their strategic goals of promoting access and success for all the state's students.

Because students must also maintain a certain GPA to keep their awards, some students who initially receive scholarships subsequently lose them. Of the first-time Georgia students who matriculate with HOPE or Zell Miller Scholarships, less than half keep them through graduation within six years (University System of Georgia, 2019). Losses of scholarship support can create financial and other stresses that undermine student performance and possibly contribute to changing schools or dropping out. This can pose further challenges for public colleges and universities in their missions of advancing student success.

This report examines rates at which University System of Georgia (USG) students enter with and subsequently earn, lose, and regain HOPE and Zell Miller Scholarships. Several studies, including Carruthers and Ozek (2016), Dee and Jackson (1999), and Henry et al. (2004), have investigated scholarship losses; however, the dynamics of scholarship receipt can be much more complex. In Georgia, students can lose the full-tuition Zell Miller Scholarship and transition to either the partial-tuition HOPE Scholarship or no scholarship. In-state students who enter Georgia colleges and universities without a scholarship can gain a HOPE Scholarship after their 30th, 60th, or 90th semester credit hour if their college grade-point average (GPA) is 3.0 or higher.[2] Scholarships that have been lost can be regained, and scholarships can be lost multiple times.

The USG Office of Research and Policy Analysis (2019) has documented that about an eighth of USG students from the Fall 2013 freshman cohort who entered college without a HOPE Scholarship subsequently earned one, and that nearly a fifth of the Fall 2013 freshman cohort who lost scholarships regained them at some point in their academic careers. However, the USG analyses do not examine students' personal characteristics, so they do not tell us whether some students are more susceptible to

[1] In fiscal year 2019, the state of Georgia awarded $398 million in HOPE Scholarships to 93,907 students at University System of Georgia and Technical College System of Georgia institutions and $218 million in Zell Miller Scholarships to 26,679 students at these institutions (GSFC, 2019).
[2] Completion of 30, 60, and 90 semester credit hours typically corresponds to entry to sophomore, junior, and senior standing, respectively.

different scholarship changes or whether the initial differences in scholarship holding across populations increase or diminish with these changes. Also, except for a study by Jones et al. (2020), no study has investigated transitions from the Zell Miller Scholarship to the HOPE Scholarship, and no multivariate study has examined scholarship gains among students who matriculate without a scholarship or experience multiple scholarship transitions.

This study addresses these gaps by using administrative data from the USG on its 26 constituent institutions to conduct a comprehensive event-history analysis of changes in merit-based scholarship receipt over students' careers. It examines Georgia residents who entered USG institutions as freshmen in and after the 2013-14 academic year (AY) and specifically examines students who

- lose an entering Zell Miller Scholarship,
- lose an entering HOPE Scholarship,
- gain a HOPE Scholarship after matriculating without one,
- regain a Zell Miller or HOPE Scholarship, and
- lose a non-entering HOPE Scholarship.

A focus of the study is how the dynamics differ for students of color and students who are economically vulnerable, especially students who receive Pell grants, are financially independent, or are from families with low incomes. It also compares dynamics over time, as several eligibility and retention rules changed over the years of our analysis. Beginning with the high school graduating class of 2015, students were required to complete more rigorous high school courses to earn HOPE or Zell Miller Scholarships. Additionally, in Fall 2017, the state of Georgia changed the college GPA formula for scholarship eligibility to award higher point totals to science, technology, engineering, and mathematics (STEM) classes.

The remainder of the report is organized into several sections. The next section provides background on the HOPE and Zell Miller Scholarship programs and briefly reviews what we know from previous studies. The subsequent section describes the data that we use for our analyses. The following section reports results from descriptive, cross-tabulation analyses of scholarship dynamics across the USG and multivariate, event-history models. The final section presents conclusions and implications for policy.

BACKGROUND

GEORGIA'S MERIT-BASED SCHOLARSHIP PROGRAMS

Georgia's HOPE Scholarship program began in 1993, offering students a powerful and simple message: get a B or better in high school, go to college for free. More specifically, residents of Georgia who achieved a high school GPA of 3.0 or higher became eligible for free tuition, fees, and a book allowance at any public university in Georgia or a flat grant for a smaller amount if they attended a private college or university in Georgia. The program initially had an income cap for eligibility and reduced scholarship awards for students with Pell grants, but these features were subsequently removed. Since those changes, the program has been entirely merit-based.

To retain their HOPE Scholarships, students are required to maintain a 3.0 cumulative "HOPE college GPA," with checkpoints at the end of most students' spring terms and after completing 30, 60, and 90 semester

credit hours (or 45, 90, or 135 quarter credit hours).[3] Students whose HOPE college GPAs fall below a 3.0 at the checkpoints lose their full scholarship. While students initially could earn the scholarship only out of high school, the program now allows students who enter college without a scholarship to earn one if their cumulative HOPE college GPA rises above 3.0 at a 30th, 60th, or 90th semester-hour checkpoint. It also allows students to regain scholarships at these checkpoints.

Changes were made in 2011 to ensure the long-term sustainability of the program. The state created a new Zell Miller Scholarship, which covered full tuition at public universities, and reduced the award amount of the HOPE Scholarship to only cover a portion of tuition (initially approximately 86 percent of tuition for a student taking a full-time course load at a research university). Coverage for fees and books were eliminated from both programs. The 3.0 GPA requirements for initial eligibility and scholarship retention were retained for the HOPE Scholarship, but the Zell Miller Scholarship introduced tougher requirements. For initial eligibility, Zell Miller Scholarship students must have a high school GPA of 3.7 or higher and a minimum ACT composite score of 26 or SAT total score of 1200. They cannot later earn the scholarship if they do not meet these initial criteria. To retain the Zell Miller Scholarship, students must have a minimum 3.3 college GPA at each checkpoint. If their college GPAs fall between 3.3 and 3.0, they transition to a HOPE Scholarship, and if their GPAs fall below 3.0, they fully lose their scholarships. Students can regain a Zell Miller Scholarship if their cumulative GPA reaches 3.3 at a later checkpoint.

The analyses in this report begin with Fall 2013. Since then, there have been two significant program changes. First, starting with the high school graduating class of 2015, students were required to complete more rigorous high school courses to earn the scholarships. Graduates in the class of 2015 were required to earn at least two credits from a menu of advanced courses, with the requirement increasing to three credits for 2016 graduates and four credits thereafter. Second, recognizing that the scholarships' retention criteria could create incentives for scholarship holders to alter class selections or change majors to maintain their GPAs, the state altered the scholarship GPA formula to boost the points awarded to designated STEM courses by 0.5 points, starting in Fall 2017.

PREVIOUS STUDIES

Merit scholarships provide students with a tangible incentive for high levels of achievement in both high school and college. The scholarships substantially reduce students' cost of college attendance and link financial aid to academic achievement. Merit aid may increase college enrollment by improving academic preparation, reducing costs, and reducing uncertainty about students' ability to pay for college. Because students must remain in-state to receive merit-based scholarships, the awards also seek to increase the number of college graduates within the state, stem "brain drain" to other states, and improve workforce quality (Sjoquist & Winters, 2014). The retention criteria—and the possibility of gaining or regaining scholarships—should motivate performance during college.

The majority of research on the effects of merit-based scholarships in Georgia and other states have considered merit aid's effects on initial college enrollment (e.g., Castleman et al., 2014; Cornwell et al., 2006; Dynarski, 2000; Farrell & Kienzl, 2009; Singell et al., 2006), while others have examined effects on

[3] The HOPE GPA is cumulative and based on all the student's attempted hours after completing high school graduation, including transferred hours, remedial course hours, and withdrawals.

persistence and college degree attainment (Dynarski, 2008; Henry et al., 2004; Scott-Clayton, 2011; Sjoquist & Winters, 2015). The research findings have been mixed regarding the programs' effects on students generally and on subgroups of students. For example, Dynarski (2000) found that Georgia's HOPE Scholarship increased college attendance, with the effects concentrated among White students and students from middle- and upper-income families. In contrast, Cornwell et al. (2006) found that Georgia's HOPE program led to larger enrollment increases for Black students than for White students. Similarly, Dynarski (2008) found that merit-based scholarships in Georgia and Arkansas increased the share of young residents with college degrees, primarily among Black and Hispanic women, while Sjoquist and Winters (2015) found no significant effects of merit aid on college completion. Castleman et al. (2014) reported partial-tuition merit scholarships in Florida had little effect on college persistence or graduation, while full-tuition scholarships had large positive effects. A meta-analysis of 43 studies on financial aid concluded that, overall, merit-based aid does not increase college persistence and graduation, though the authors could not analyze differential effects by sex or by race and ethnicity (Nguyen et al., 2019).

Most studies on merit-based scholarships focus on eligibility or receipt at a point in time. This strategy misses a critical issue in understanding merit aid's effects: students' retention of scholarships in college. An early study by Dee and Jackson (1999) found higher scholarship retention among women but no differences by race or ethnicity once the authors controlled for SAT scores and high school GPA.[4] They also found significantly lower retention rates for students in STEM majors. Beyond this, there has been relatively little research on the characteristics of students that are associated with retention.

The relationship between merit aid and college persistence and graduation is likely reduced if relatively few students retain a scholarship for the length of their college careers. For example, Henry et al. (2004) examined USG students who were just above and just below the entering HOPE Scholarship eligibility thresholds and found higher college GPAs, credit accumulation, and graduation rates for HOPE recipients. However, the advantage was isolated to the very small share of students in their study who kept their scholarships throughout college. Carruthers and Ozek (2016) used a similar strategy to study Tennessee's HOPE Scholarship program and found that students just below the threshold for keeping their scholarships accumulate fewer credits, are more likely to work, and are more likely to leave college. The effects are strongest for students with family incomes below $60,000. Jones et al. (2020) examined effects on students who lost some financial aid when HOPE Scholarships shifted from full to partial tuition in 2011 and found no effect on persistence or graduation from college. This may be because the scholarship loss is partial and, for these high-achieving students already partway through their college careers, invested time and likelihood of success outweigh the increased out-of-pocket costs. Given the limited evidence on scholarship loss and the absence of research on scholarship gains during college, it is important to more fully understand these transitions and whether some students are more likely to experience them.

In addition to these academic studies, the USG produces a longitudinal descriptive report each year tracking scholarship receipt and retention across the university system and by institution, following each student for six years after entry into the system. The most recent report, as of this writing, follows

[4] Carruthers and Ozek (2016) provided descriptive evidence from Tennessee that men, Black students, and students from low-income families were more likely to be just below the scholarship retention threshold than just above it; however, they did not conduct a multivariate analysis that could have controlled for other characteristics.

freshmen who entered in Fall 2013. Of the 24,496 students who entered a USG institution with a HOPE or Zell Miller Scholarship in 2013, just under half continuously kept scholarships and graduated within six years. Approximately 17 percent of scholarship recipients lost their scholarships by the 30th credit-hour checkpoint. Of those who retained their scholarships, 20 percent lost the scholarship by the 60th credit-hour checkpoint. Almost 17 percent of students who lost scholarships after 30 credits regained one at a later checkpoint. Among the students who entered USG institutions without a HOPE or Zell Miller Scholarship in Fall 2013, 12 percent later gained a scholarship.

The USG report offers valuable insights into the complicated pathways of scholarship loss, retention, and regaining. However, it does not differentiate HOPE and Zell Miller scholars or explore differential patterns among subgroups, student characteristics that could be related to student scholarship loss, or policies and programs that could affect scholarship loss or gain. With one exception (Jones et al., 2020), no other study has examined Georgia's programs in the Zell Miller Scholarship period, and that study did not explore dynamics in patterns of scholarship gain and loss. Additionally, no study has examined students who gain a scholarship after entering without one and students who make multiple transitions.

RESEARCH QUESTIONS

This report builds on previous research to fill gaps in our understanding of the dynamics of scholarship gains and losses. It is the first multivariate study to examine transitions *into* merit-based scholarships—specifically, gaining a HOPE Scholarship after matriculating without one and regaining a merit-based scholarship after losing one—and to examine the characteristics of students who gain scholarships. The analysis of gains has implications for equity because a higher proportion of Black and Hispanic students and students from economically disadvantaged backgrounds enter college without this assistance as compared to White and more affluent students.

More specifically, the report seeks to answer the following research questions:

1) Who loses and gains HOPE and Zell Miller Scholarships? What observable student characteristics are associated with keeping and getting scholarships?
2) How do losses and gains contribute to the distribution of scholarships across student groups?
3) How do the dynamics of non-entering scholarship spells differ from entering scholarship spells?
4) How do these processes differ across USG institutions?
5) Did the processes change over time with changes in the scholarships' program rules?

The next section describes in more detail the data and analytic methods used to answer these questions.

DATA

We analyze students' scholarship receipt using administrative records from USG institutions for AY 2013-14 through AY 2018-19. In addition to scholarship receipt, the records describe students' enrollments, credit hours, demographic characteristics, high school credentials, and financial aid information. The records were provided through the USG's research-practice partnership with the Georgia Policy Labs' Child & Family Policy Lab and have been anonymized to protect the students' confidentiality.

The administrative records for each student are organized sequentially on a term-by-term basis. For our primary analyses, we select sequences of records for in-state students who enrolled in bachelor's degree programs as first-time freshmen between the fall term of 2013 and the spring term of 2018. The sequences start at enrollment. By selecting the records this way, our analyses omit out-of-state students who would not have been eligible to receive a Zell Miller or HOPE Scholarship. They also omit students who enrolled in associate degree, diploma, or certificate programs or on a non-degree basis, as scholarship receipt is much lower for these students.[5] The analyses omit students who enrolled before Fall 2013 because we cannot observe their initial scholarship histories. Similarly, the analyses omit students who enrolled after Spring 2018 because almost no students who enrolled after this date were observed past their 30th credit-hour check-in, where we measure their first possible scholarship transitions.

With these selection criteria, we observe the beginnings of all scholarship sequences. However, we are not able to observe all students through their 90th credit-hour check-in. We describe sequences as being "incomplete" if we cannot observe them past the 90th credit hour. Sequences can be incomplete for several reasons. First, they will be incomplete if students are enrolled past the end of our available data in Spring 2019. Second, the administrative records only cover students who are attending USG institutions, and sequences will be incomplete if students stop attending a USG institution and do not re-enroll at that or another USG institution. Third, we stop following students whose enrollment breaks are longer than one year—a time period often used to distinguish students who drop out of college from those who "stop out" for a short period (Stratton et al., 2008)—or if their records are missing information on credit hours, and we cannot determine whether they have reached a check-in. Fourth, we stop following students if they enroll in multiple institutions simultaneously or if they transfer from one USG institution to another. We make this final restriction because the administrative information on credit hours is only consistent within institutions and not across institutions. In our multivariate analyses, we use event-history methods that account for incomplete spells.

ANALYSIS PERIOD AND SPELLS

We organize the term-by-term sequences for each student into four periods that align with the credit-hour thresholds when HOPE or Zell Miller Scholarship eligibility is checked or re-established. The first period is the student's first term of enrollment at a USG institution. The subsequent periods begin in the first terms after the student's attempted credit hours exceed either 30, 60, or 90 semester credit hours.[6] Within each period, we create mutually exclusive indicators for whether the student

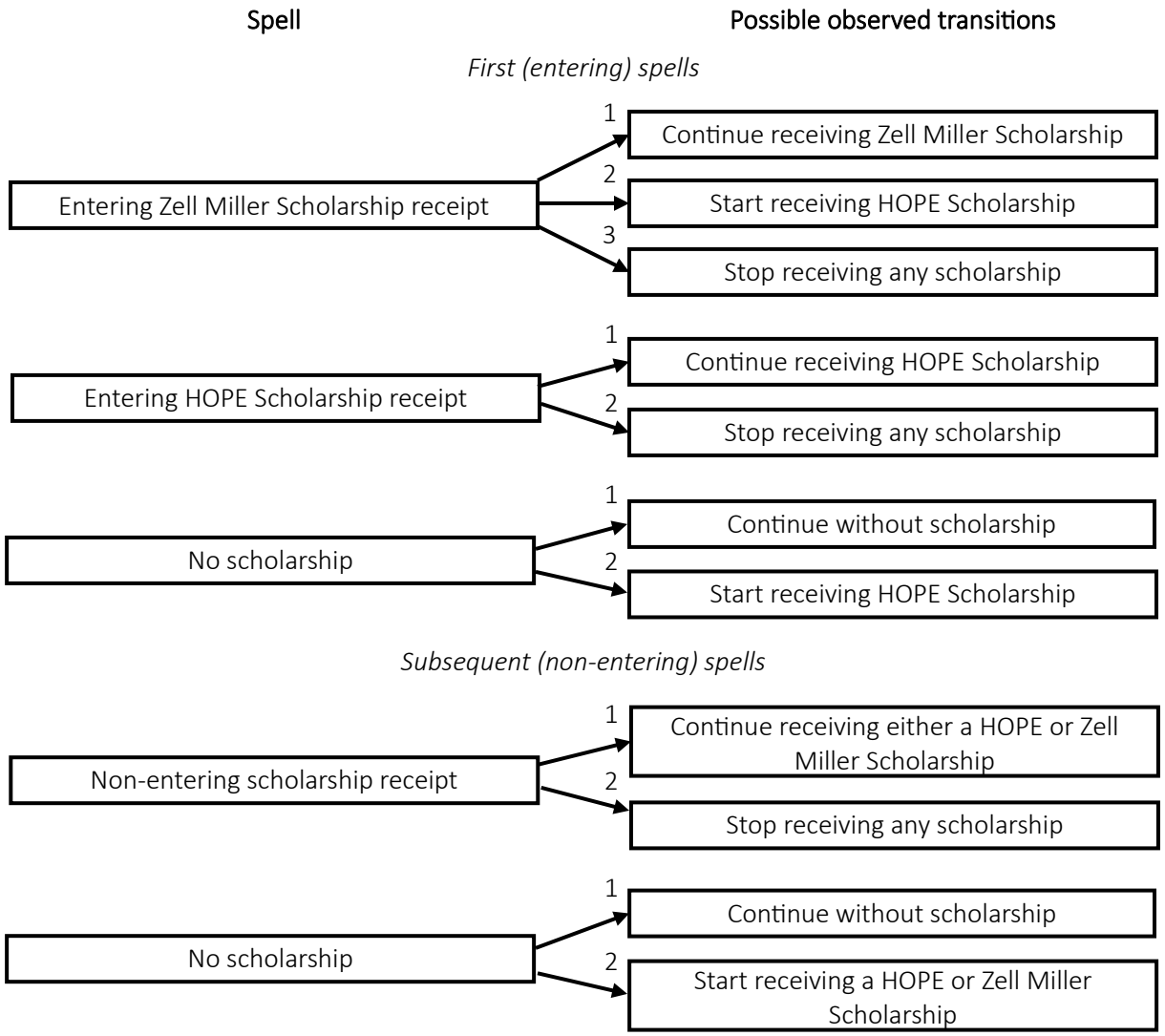
- received a Zell Miller Scholarship at any time during the period,
- received a HOPE Scholarship at any time during the period but did not receive a Zell Miller Scholarship, or
- did not receive either scholarship during the period.

[5] Later in the report, we examine an alternative data set that includes these students.

[6] Students can lose scholarship eligibility within these credit-hour periods. Eligibility for most full-time scholarship-holding students is checked at the end of the spring semester. Students can also lose eligibility if they fail to make adequate academic progress at their institutions or fail to meet other requirements. Our calculation of attempted credit hours excludes hours attempted during high school, such as dual-enrollment hours and Advanced Placement credits.

We further organize the data into "spells" of scholarship receipt or non-receipt. Spells are consecutive periods during which a student's scholarship status remains the same. Given how we have organized the data, each student can transition up to three times and have up to three spells.[7] The spells and their possible transitions are shown in Figure 1.

Figure 1. Possible Endings of HOPE and Zell Miller Scholarship Spells in Our Analysis



We examine three types of first, or entering, spells:

- spells of entering Zell Miller Scholarship receipt with possible transitions to HOPE Scholarship receipt or no scholarship receipt,
- spells of entering HOPE Scholarship receipt with possible transitions to no scholarship receipt, and

[7] Students' scholarship status can change within periods. If we were to consider terms of scholarship receipt instead of check-in periods, we would observe more transitions and spells. We also exclude spells that begin after the 90th credit hour check-in.

- spells of entering non-scholarship receipt with possible transitions to HOPE scholarship receipt.

We also consider two types of subsequent, or non-entering, spells (spells beginning after a student has already entered college):

- spells of non-entering scholarship receipt for which we consider transitions to no scholarship receipt, and
- spells of non-entering non-scholarship receipt for which we consider transitions to scholarship receipt.

For both types of subsequent spells, it is possible for students to receive or transition to receiving a Zell Miller Scholarship if they held this type of scholarship in their first spell. However, because very few students experience these transitions, we only consider the composite outcome of any scholarship receipt—that is, holding either a HOPE or Zell Miller Scholarship.

OTHER MEASURES

For each spell in our analysis data set, we measure the "duration" of how many periods the student is observed to continue in the same scholarship status, and for the spells with observed transitions, we observe the type of scholarship transition that a student made. We are interested in how these durations and transitions differ among students with alternative sets of characteristics. The characteristics that we can measure from the administrative data include the student's gender; race and ethnicity; high school GPA; ACT composite score or its equivalent based on the SAT; household adjusted gross income (AGI), normalized to 2019 dollars using the Consumer Price Index for Urban Consumers; receipt of Pell grants or student loans; whether a student reports being independent of their parents for financial aid purposes; whether they enter in the fall, spring, or summer term; year of entry; and institution.[8] For the time-varying variables, we take their values from the first term within a check-in period. Information is missing for some variables. If students are missing information for their high school GPA, ACT score, or AGI, we assign a value of zero to the relevant measure, and we include an indicator for whether the information for that variable is missing. Appendix A provides more information about the analysis data set and construction of measures.

FINDINGS

CHARACTERISTICS OF ENTERING FIRST-TIME FRESHMEN

We begin by describing the characteristics of the students in our data when they enter USG institutions. Table 1 lists the number of students in the data with a given characteristic (column 1) and the percentages of those students who entered with a Zell Miller Scholarship (column 2), a HOPE Scholarship (column 3), or neither scholarship (column 4). The table does not describe transitions during a student's college career, only their entering scholarship status.

[8] Students can take either the ACT or SAT for admission and to qualify for the Zell Miller Scholarship. To simplify the analysis, we convert SAT test scores into ACT equivalents and use a single ACT test score measure. Also, information for students' AGIs and financial independence status is only available if they completed the Free Application for Federal Student Aid (FAFSA).

Table 1. Numbers and Scholarship Status of Entering In-state Students with Different Characteristics

	Observations	Percent who entered with a Zell Miller Scholarship	Percent who entered with a HOPE Scholarship	Percent who entered without these scholarships
All students	175,519	16.2	52.4	31.3
White	91,087	22.3	56.3	21.4
Black	48,345	3.6	46.3	50.1
Hispanic	14,738	10.4	51.5	38.1
Asian	11,984	28.3	50.4	21.3
Other race or unknown	9,365	16.2	51.0	32.8
Man	77,577	15.4	47.5	37.2
Woman	97,942	16.9	56.4	26.7
HS GPA below 3.0	44,961	0.0	7.5	92.5
HS GPA 3.0 – 3.3	33,705	0.1	77.1	22.8
HS GPA 3.3 – 3.7	41,862	2.3	93.0	4.8
HS GPA above 3.7	51,772	53.0	45.4	1.7
HS GPA missing	3,219	2.6	7.6	89.8
ACT 20 or lower	49,878	0.4	46.9	52.7
ACT 21 – 25	67,305	2.3	71.3	26.4
ACT 26 or higher	50,939	52.5	39.3	8.2
No ACT score	7,397	0.4	8.4	91.2
AGI below $30K	40,111	6.4	47.9	45.7
AGI $30K – $100K	62,763	12.6	55.0	32.4
AGI above $100K	57,845	26.7	56.4	17.0
AGI missing	14,800	17.5	38.5	44.1
No Pell grant	99,954	22.4	53.3	24.3
Pell grant	75,565	8.1	51.3	40.6
No student loans	86,118	22.5	53.6	23.8
Student loans	89,401	10.1	51.3	38.6
Financially dependent	169,051	16.8	53.4	29.9
Financially independent	6,468	2.6	27.5	69.9
Entered AY 2013-14	31,408	13.3	53.6	33.1
Entered AY 2014-15	34,559	14.6	52.9	32.5
Entered AY 2015-16	35,996	15.7	52.8	31.5
Entered AY 2016-17	36,686	17.0	52.4	30.6
Entered AY 2017-18	36,870	20.1	50.6	29.3
Entered summer term	10,562	15.7	43.6	40.7
Entered fall term	153,595	17.3	54.5	28.2
Entered spring term	11,362	2.7	32.6	64.7
Research university	53,699	40.1	49.0	11.0
Comprehensive univ.	63,416	6.3	61.4	32.3
State university	37,759	7.0	54.1	38.9
State college	20,645	1.8	30.8	67.4

Notes. Authors' calculations using administrative data on in-state students who entered USG institutions as first-time freshmen in bachelor's programs in Fall 2013 through Spring 2018.

Our data include 175,519 first-time freshmen Georgia residents entering the university system from Fall 2013 through Spring 2018. Just over half (52 percent) enter with a HOPE Scholarship. About one-sixth (16 percent) enter with Zell Miller awards, and just under a third enter without one of the scholarships.

The next set of rows in Table 1 show substantial differences in initial scholarship receipt, particularly for Zell Miller Scholarships, by students' race and ethnicity. While 22 percent of White students and 28 percent of Asian students enter with the full-tuition scholarships, less than 4 percent of Black students and 10 percent of Hispanic students enter with them. Expressed another way, White students are over six times more likely than Black students to enter with a Zell Miller Scholarship, and Asian students are nearly eight times more likely. Differences in HOPE Scholarship receipt are less pronounced, with White students receiving HOPE at the highest rate (56 percent) and Black students at the lowest rate (46 percent). Only 21 percent of White and Asian students enter without merit-based aid, while half of Black students and 38 percent of Hispanic students enter without HOPE or Zell Miller Scholarships.

Comparing men and women, we see lower rates of both Zell Miller and HOPE receipt among men, resulting in over a 10-percentage-point difference in the proportion entering without merit-based aid (approximately 37 percent of men versus 27 percent of women).

Scholarship receipt differs greatly with students' ACT scores (or SAT equivalents) and high school GPAs, which we would expect given that these qualifications affect scholarship eligibility. It is worth noting that 45 percent of students with a high school GPA at or above 3.7 receive a HOPE Scholarship rather than a Zell Miller Scholarship, while 39 percent of students with an ACT score of 26 or above receive HOPE rather than the Zell Miller Scholarship, suggesting that the test score threshold may be a larger barrier to Zell Miller Scholarship receipt than the high school GPA requirement. A small number of students reporting ACT scores and high school GPAs below the Zell Miller cutoffs are recorded as receiving Zell Miller Scholarships. These students could qualify automatically as high school valedictorians or salutatorians.

The next four rows show household income as reported on the Free Application for Federal Student Aid (FAFSA). Consistent with Jones (2020), scholarship receipt is very low among students from households with annual incomes below $30,000. Almost 46 percent enter without either scholarship, and only six percent receive a Zell Miller Scholarship. In contrast, only 17 percent of students from households with incomes above $100,000 enter without a merit scholarship, and 27 percent enter with a Zell Miller Scholarship. Differences in HOPE receipt are much smaller than for Zell Miller Scholarship receipt but still show higher receipt among students from higher-income households.

Three other indicators of students' financial circumstances are receipt of a Pell grant, taking out student loans, and declaring oneself independent of parents for financial aid purposes. Substantially fewer students in each of these groups enter USG institutions with Zell Miller Scholarships. Students in these groups are also less likely than other students to enter with HOPE Scholarships, though the differences are less pronounced.

Examining the scholarship figures by year of entry, we see that overall scholarship receipt has grown, driven by increases in Zell Miller Scholarship receipt. Scholarship receipt is highest among students who enter the USG system in the fall term (the vast majority of students) and much lower among those who enter in the spring.

Finally, we examine receipt by type of higher education institution. The USG designates four types of institutions: research universities, comprehensive universities, state universities, and state colleges. The research universities (University of Georgia, Georgia Institute of Technology, Georgia State University, and Augusta University) are generally the most selective, and consistent with this, merit aid receipt is highest at these schools. Eighty-nine percent of students at research universities enter with some form of merit aid, with 40 percent receiving Zell Miller Scholarships. By contrast, less than one-third of students at state colleges have either scholarship, and only 1.8 percent have a Zell Miller Scholarship.

TRANSITIONS AMONG STUDENTS WITH AND WITHOUT SCHOLARSHIPS

As we illustrated in Figure 1, students' scholarship status can change in many ways. When we consider all types of transitions, we observe 23 percent of the students in our data changing their status, including 20 percent of entering Zell Miller Scholarship students losing those scholarships, 30 percent of entering HOPE students losing scholarships, and 13 percent of entering non-scholarship students gaining scholarships.

We examine these transitions in more detail in Table 2. Table 2 displays the percentage of students in our data with different characteristics who experience scholarship transitions. It also shows the average number of check-in periods that students are observed. The leftmost panel (first four columns) shows statistics for students who entered with Zell Miller Scholarships. For all students in the analysis data set who entered with these scholarships, 14 percent are observed to transition to a HOPE Scholarship, and nine percent are observed to transition to holding neither scholarship (the sum of these percentages is larger than 20 percent because some students experience both transitions). Six percent of Zell Miller Scholarship recipients experience multiple transitions. On average, we observe Zell Miller Scholarship recipients for three check-in periods or until their 90th credit hour.

A much larger group of students (30 percent) lose their HOPE Scholarships while at their initial institution, as compared to Zell Miller recipients. The higher rate of scholarship loss may occur because HOPE recipients enter college with lower high school GPAs. About four percent of HOPE entrants lose and regain scholarships, and HOPE entrants tend to be followed for fewer check-in periods than Zell Miller Scholarship entrants. On average, students who enter without a Zell Miller or HOPE scholarship are followed for the fewest periods, suggesting that entering without a scholarship may be associated with a higher likelihood of transferring or leaving college entirely.

White Zell Miller Scholarship recipients are less likely to transition to either a HOPE Scholarship or no scholarship than most other groups. The differences between White and Black students are especially pronounced, with White students being 5.5 percentage points less likely than Black students to transition to HOPE Scholarships and 9.1 percentage points less likely to transition to neither scholarship. Patterns of HOPE Scholarship loss are similar, with White and Asian HOPE recipients being 3 to 4 percentage points less likely than average to lose a scholarship and Black HOPE recipients being approximately 9.5 percentage points more likely than average to lose scholarships.

Table 2. Scholarship Receipt Patterns for In-state Students with Different Characteristics

	Entered with a Zell Miller Scholarship				Entered with a HOPE Scholarship			Entered with Neither Scholarship		
	Percent who later have a HOPE Scholarship	Percent who later have no scholarship	Percent with multiple transitions	Average check-in periods observed	Percent who later have no scholarship	Percent with multiple transitions	Average check-in periods observed	Percent who later have a HOPE Scholarship	Percent with multiple transitions	Average check-in periods observed
All students	14.2	9.0	6.3	3.0	30.1	3.9	2.7	13.1	2.1	2.1
White	13.7	8.1	6.0	3.0	26.7	3.8	2.7	15.8	2.3	2.1
Black	19.2	17.2	8.4	3.0	39.6	4.5	2.7	9.5	1.9	2.0
Hispanic	15.0	9.5	6.8	2.9	28.8	3.2	2.6	13.4	1.8	2.0
Asian	15.1	9.6	7.5	3.1	26.3	4.0	2.8	25.3	3.1	2.3
Other race or unknown	12.3	10.7	6.0	2.9	30.3	4.0	2.6	14.0	2.3	2.0
Man	16.3	11.7	7.1	3.0	34.0	3.8	2.6	11.9	2.2	2.0
Woman	12.7	7.1	5.8	3.0	27.6	4.0	2.7	14.4	2.0	2.1
HS GPA below 3.0	-	-	-	-	46.9	4.1	2.6	11.3	2.0	2.0
HS GPA 3.0 – 3.3	9.1	27.3	4.5	2.2	40.6	4.4	2.5	20.4	3.1	2.2
HS GPA 3.3 – 3.7	18.3	14.2	7.2	2.8	28.9	4.2	2.7	24.7	2.9	2.2
HS GPA above 3.7	14.1	8.8	6.3	3.0	18.3	2.9	2.9	29.7	2.4	2.3
HS GPA missing	7.2	3.6	0.0	2.7	23.8	2.5	2.2	6.8	0.8	1.9
ACT 20 or lower	20.8	31.7	10.4	2.8	38.5	4.1	2.5	9.4	1.6	2.0
ACT 21 – 25	13.4	9.2	4.4	2.6	28.2	3.9	2.7	19.0	3.0	2.2
ACT 26 or higher	14.2	8.9	6.4	3.0	25.2	3.9	2.8	24.4	3.9	2.3
No ACT score	6.7	10.0	0.0	2.0	25.0	1.6	2.1	5.0	0.7	1.8
AGI below $30K	15.3	12.4	7.3	2.9	33.5	3.6	2.6	9.8	1.6	2.0
AGI $30K – $100K	14.0	10.2	6.2	3.0	31.0	3.8	2.7	13.3	2.3	2.1
AGI above $100K	14.2	7.9	6.2	3.1	27.8	4.2	2.8	19.4	3.2	2.3
AGI missing	13.6	8.7	6.4	3.0	27.5	4.4	2.8	12.1	1.7	2.1

	Entered with a Zell Miller Scholarship				Entered with a HOPE Scholarship			Entered with Neither Scholarship		
	Percent who later have a HOPE Scholarship	Percent who later have no scholarship	Percent with multiple transitions	Average check-in periods observed	Percent who later have no scholarship	Percent with multiple transitions	Average check-in periods observed	Percent who later have a HOPE Scholarship	Percent with multiple transitions	Average check-in periods observed
No Pell grant	14.0	8.3	6.2	3.0	28.2	4.1	2.7	15.3	2.4	2.1
Pell grant	14.8	11.6	7.0	2.9	32.8	3.7	2.6	11.4	1.9	2.0
No student loans	13.3	8.1	5.9	3.0	27.2	3.8	2.7	14.8	2.0	2.1
Student loans	16.1	10.9	7.2	3.0	33.1	4.0	2.7	12.1	2.2	2.1
Financially dependent	14.2	9.0	6.3	3.0	30.1	3.9	2.7	13.8	2.2	2.1
Financially independent	18.5	16.7	7.1	2.8	34.1	3.2	2.4	5.0	1.1	1.9
Entered AY 2013-14	18.6	11.8	10.0	3.5	33.2	5.4	3.0	14.0	3.2	2.3
Entered AY 2014-15	18.5	12.2	10.3	3.5	33.6	5.5	3.1	13.4	2.9	2.3
Entered AY 2015-16	17.8	10.5	9.1	3.6	32.9	5.5	3.0	13.4	2.8	2.3
Entered AY 2016-17	13.3	7.7	5.6	2.9	29.3	3.3	2.5	13.3	1.7	1.9
Entered AY 2017-18	6.8	5.2	0.1	2.0	22.1	0.0	1.9	11.3	0.1	1.5
Entered summer term	21.1	16.6	9.9	3.0	39.0	4.1	2.7	12.9	2.3	2.1
Entered fall term	13.8	8.6	6.1	3.0	29.8	4.0	2.7	14.0	2.3	2.1
Entered spring term	13.5	8.0	3.8	2.4	26.2	2.7	2.3	8.1	1.1	1.8
Research university	15.4	9.7	7.3	3.1	27.8	4.2	2.9	25.3	3.7	2.4
Comprehensive univ.	10.4	7.0	3.5	2.8	32.6	4.2	2.7	14.8	2.6	2.2
State university	11.1	6.8	3.6	2.8	29.5	3.6	2.6	9.8	1.9	2.0
State college	5.8	6.6	1.1	2.4	26.9	2.2	2.3	8.9	1.0	1.8

Notes. Authors' calculations using administrative data on in-state students who entered USG institutions as first-time freshmen in bachelor's programs in Fall 2013 through Spring 2018.

We also see considerable differences by race and ethnicity among students who enter without a scholarship. One-quarter of Asian students who enter without a HOPE scholarship gain one at some point during their enrollment at their initial institution; just under one-sixth of White students gain scholarships, while just under one-tenth of Black students gain scholarships. The results for scholarship losses and gains imply that the large disparities in initial scholarship holding widen over students' college careers.

Men are more likely than women to transition from a Zell Miller Scholarship to a HOPE Scholarship or neither scholarship and more likely to lose a HOPE scholarship after starting with one. Men are also less likely than women to gain a HOPE Scholarship if they started without one. These dynamics compound the initial disparities in scholarship holding, too.

The scholarship loss patterns by high school GPA and ACT score are mostly as expected. The small number of Zell Miller Scholarship recipients with high school GPAs and ACT scores below the eligibility thresholds are especially likely to transition. Losses of HOPE Scholarships similarly fall, and gains of HOPE Scholarships increase, as students' high school GPAs and ACT scores rise.

Students' scholarship transitions vary with their financial circumstances, though some of the relationships are modest. For Zell Miller Scholarship recipients, there is only a one-percentage-point difference between students in the lowest income category transitioning to HOPE as compared to the highest income category, though students in the lowest income category are 4.5 percentage points more likely to lose their scholarship entirely. Losses of HOPE Scholarships also fall with higher student AGIs, while gains of scholarships increase. We also see higher rates of scholarship losses and lower rates of gains for students who receive Pell grants, take out student loans, or declare themselves to be financially independent.

Rates of single and multiple transitions decline by year of college entry. However, we observe the students who entered after AY 2015-16 for fewer check-in periods on average, so some of the declining transition percentages may be an artifact of shorter observation windows for those students. Our event-history analyses later in the report will account for this.

The differences between students who enter in fall or spring are relatively small. Students who enter in the summer, though, transition at much higher rates. For example, Zell Miller Scholarship recipients who enter in summer are seven percentage points more likely to transition to a HOPE Scholarship and eight percentage points more likely to transition to no scholarship, as compared to fall entrants.

Finally, Table 2 displays differences across types of institutions. Zell Miller Scholarship recipients at research universities transition to HOPE or no scholarships at higher rates than students at other institutions, and a higher percentage transition multiple times. We observe a different pattern for HOPE recipients: students at research institutions are less likely than others to lose their scholarship, though the differences are relatively small. Students at research universities are also much more likely to gain a scholarship if they started without one, with over 25 percent gaining a HOPE Scholarship during their time at their initial institution.

TRANSITIONS AND SPELL DURATIONS

Figure 2 shows the outcomes for students who enter bachelor's degree programs at USG institutions with Zell Miller Scholarships at different durations within their scholarship spells. The first four bars show the outcomes as the students move past their 30th credit hour; the middle four bars show outcomes as they move past their 60th credit hour; and the last four bars show outcomes as they move past their 90th credit hour. A very high proportion of students retain their Zell Miller Scholarships. Of the 28,485 students in our data who enter with these scholarships, 21,903 (77 percent) are observed to continue receiving them past their 30th credit hour, 2,442 (nine percent) are observed to transition to receiving HOPE Scholarships, and 1,741 (six percent) are observed to transition to receiving neither scholarship. A further 2,399 students (8 percent) are not observed past their 30th credit hour. The patterns following the second and third check-in periods are similar; the principal difference is that more students are lost to follow-up. The absolute and relative numbers of students transitioning to HOPE Scholarships and to neither scholarship decrease the longer that students continue with a Zell Miller Scholarship. Also, the proportion of students who are lost to follow-up increases. The decreasing rates of scholarship losses may occur for several reasons, including positive retention outcomes motivating students to achieve academically, higher-achieving students being more likely to be retained in the data, and GPAs becoming less changeable as credit hours increase. The higher rates of no longer being observed occur in part because the end of our analysis window in 2019 is more likely to affect the later parts of spells.

Figure 2. Transitions for Students who Enter with Zell Miller Scholarships

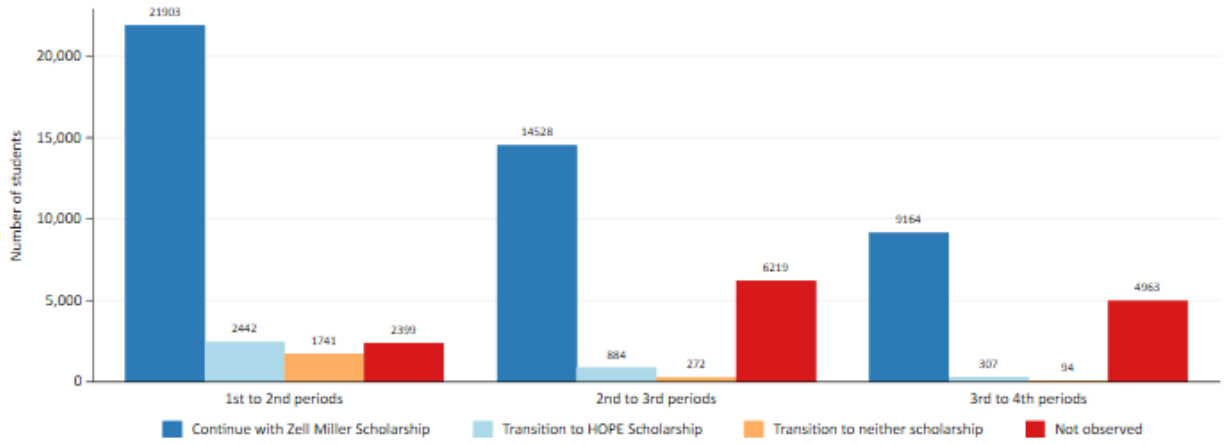


Figure 3 shows the scholarship continuation, transition, and observation outcomes for students who entered with HOPE Scholarships. Much like the students with Zell Miller Scholarships, high proportions of HOPE Scholarship students retain their scholarships, though the retention rates are lower than for Zell Miller Scholarship students. Of the 92,033 students who enter with HOPE Scholarships, 51,804 (56 percent) are observed to keep their scholarships past the 30th credit hour. Of those students, 31,098 (60 percent) are observed to keep scholarships past the 60th credit hour, and of those students, 19,734 (63 percent) are observed to keep scholarships past the 90th credit hour. Rates of transitioning to non-scholarship status fall across students' HOPE Scholarship spells from 24 percent at the 30th credit hour to four percent at the 90th credit hour. Rates of no longer being observed increase with spell duration.

Figure 3. Transitions for Students who Enter with HOPE Scholarships

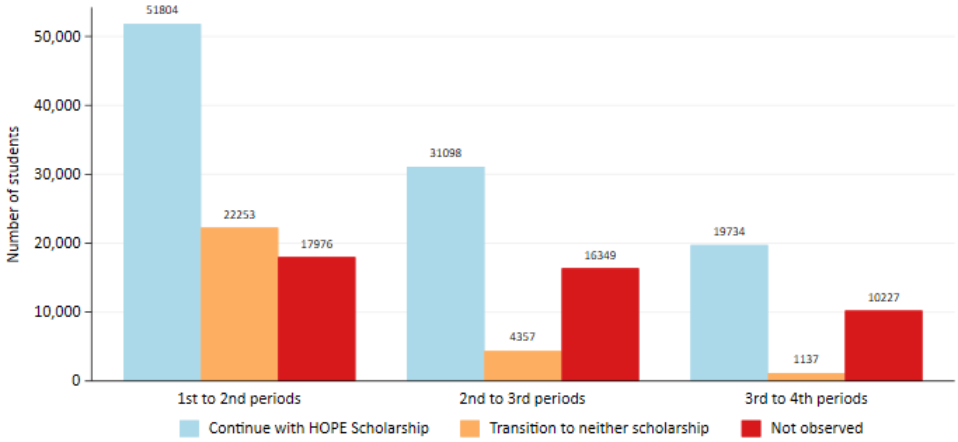
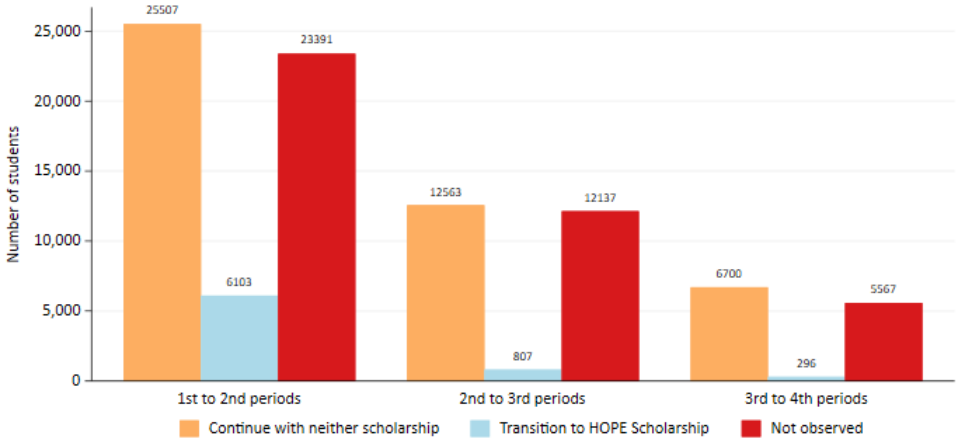


Figure 4 shows outcomes for in-state students who entered USG institutions with neither Zell Miller nor HOPE Scholarships. Many students who enter without the scholarships continue in this status and only a modest number transition to HOPE Scholarships. Of the students in our data who enter without Zell Miller or HOPE Scholarships, 46 percent are observed to continue in this status past the 30th credit hour; of these students, 49 percent are observed to continue without the scholarships past the 60th credit hour; and of these, 53 percent are observed to continue without the scholarships past the 90th credit hour. Rates of transition to HOPE Scholarships fall as the spells without scholarships progress. Rates of no longer being observed among the students without the scholarships are higher than among scholarship students and increase as their spells progress. The pattern of higher rates of attrition among students without scholarships contrasts with the findings by Nguyen et al. (2019).

Figure 4. Transitions for Students who Enter with Neither Scholarship



The next two figures show the transition patterns for follow-on (non-entering) spells. Students can only experience these spells if they transitioned out of an entering spell (i.e., lost an entering scholarship or gained a HOPE Scholarship). Because of this, their spells can be no longer than three periods. Figure 5 shows the continuation, transition, and observation outcomes for students who held a non-entering

scholarship. As with the entering scholarship spells, students are more likely to continue with their scholarships than to transition to not holding a scholarship. The probabilities of losing a scholarship fall as students' scholarship spells continue.

Figure 5. Transitions for Students with Non-entering Scholarships

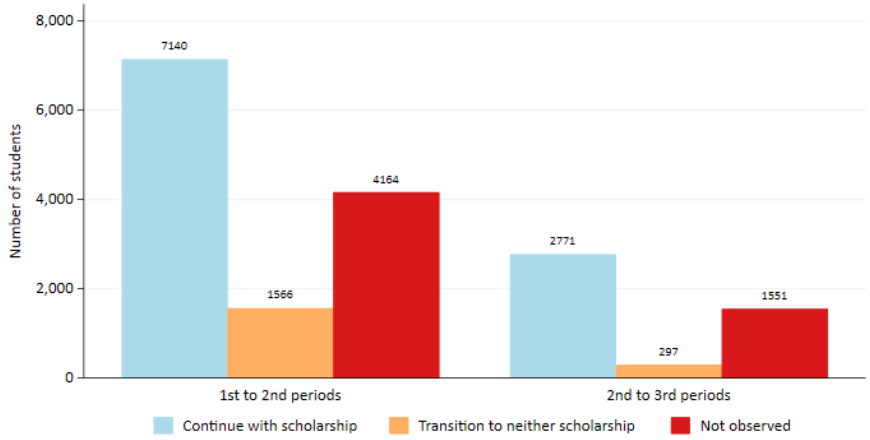
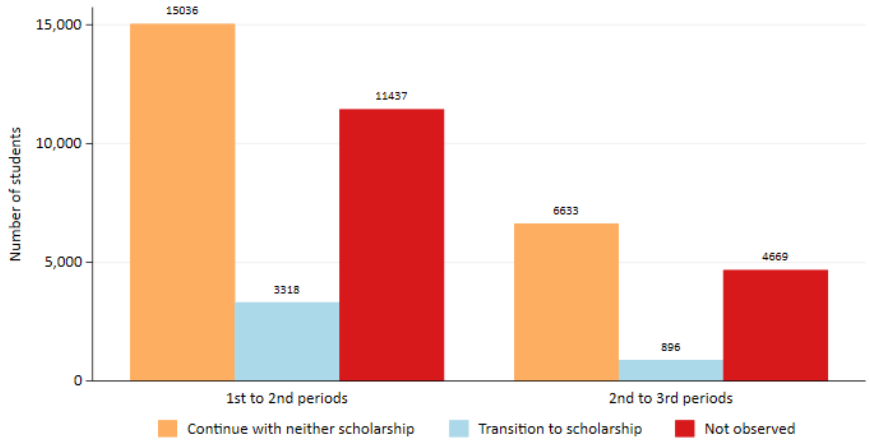


Figure 6 shows the patterns for students who have a non-entering spell without a scholarship. For these spells, too, students are more likely to continue in the spell the longer that the spell lasts.

Figure 6. Transitions for Students with Non-entering No-scholarship Spells



The cross-tabulation analyses in Table 2 and figures 2 through 6 show total associations between the listed student characteristics and their scholarship outcomes. These associations can be confounded by other observed and unobserved variables. In addition, the cross-tabulation analyses show that many of the spells are not observed to completion. To address these issues, we estimate multivariate event-history models of the hazard probabilities of making different types of scholarship transitions.

MULTIVARIATE MODEL SPECIFICATION

For each spell observed at duration *d*, we estimate discrete-time hazard models of transitions to outcome *j* with the following multivariate specification:

$$h_j(d) = \frac{\exp\left(\boldsymbol{\alpha}_j' \boldsymbol{D}_d + \boldsymbol{\beta}_j' \boldsymbol{X}_d + \lambda_j \mu\right)}{\sum_{k=1}^{K} \exp(\boldsymbol{\alpha}_k' \boldsymbol{D}_d + \boldsymbol{\beta}_k' \boldsymbol{X}_d + \lambda_k \mu)}, \quad (1)$$

where $h_j(d)$ is the hazard probability for a given type of spell, $\boldsymbol{D}_d$ is a set of duration indicators, $\boldsymbol{X}_d$ is a set of observed characteristics, μ is a normally distributed random variable, and $\boldsymbol{\alpha}_j$, $\boldsymbol{\beta}_j$, and λ_j are sets of coefficients to be estimated. We jointly estimate versions of equation (1) for each of the five types of spells a student may experience, using the generalized structural equations modeling (gsem) package in Stata. For all five spells, we include observed controls for the students' demographic characteristics, high school GPA, ACT composite score, personal or family adjusted gross income, Pell grant and student loan receipt, financial independence, entry term, entry school year, and institution or institution type.[9]

MULTIVARIATE FINDINGS

Table 3 displays the estimated values of $\boldsymbol{\alpha}_j$, $\boldsymbol{\beta}_j$, and λ_j and their standard errors (measures of the variability of the estimates) from the multivariate event-history models. For each variable, the table first presents the coefficient capturing the relationship between the characteristic in the left-hand column and the transition listed at the top of the column, controlling for other factors. The standard errors appear in parentheses below the coefficient estimates. Positive coefficients indicate that the listed variable is associated with a higher rate of transition, and negative values indicate that the variable is associated with a lower rate of transition. The magnitudes of coefficients do not have a straightforward explanation in event history models. Therefore, we focus on the sign of the coefficient (positive or negative), statistical significance, and magnitude relative to other coefficients.

The first two rows show how passing the second check-in point or third check-in point during a scholarship or non-scholarship spell is related to the likelihood of experiencing a transition; the associations are expressed relative to passing the first check-in point in the spell. Consistent with the descriptive results in figures 2 through 6, the multivariate estimates indicate that students are less likely to change their scholarship status the longer they continue in a spell.

Examining transitions to no scholarship or to a HOPE Scholarship for students who enter college with a Zell Miller Scholarship (first two columns of results), we see several significant relationships. Black students are more likely to transition from Zell Miller Scholarships to no scholarship or a HOPE Scholarship. Women, students with higher high school GPAs, and students with higher ACT scores are less likely to experience these transitions. Holding a student loan and reporting on the FAFSA to be financially independent are associated with higher likelihoods of transitioning to no scholarship or a HOPE Scholarship, with a particularly large effect for financial independence. Receiving a Pell grant is also associated with a higher chance of transitioning to no scholarship. Entering college in the summer is associated with a higher likelihood of losing a Zell Miller Scholarship or transitioning to HOPE, while enrolling in a later year is associated with a lower likelihood of transition.[10]

[9] Because of the modest enrollments and low rates of Zell Miller Scholarship receipt at the state colleges, we group these institutions together into a single category and make it the reference category.

[10] There are few differences, on average, between USG students who enter in the summer and fall. Students who enter in the summer are more likely to attend research universities and less likely to have Pell Grants or student loans in their entry terms.

Table 3. Event-history Model Results

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-1.221***	-0.403***	-0.634***	-1.118***	-0.591***	-0.451***
	(0.093)	(0.069)	(0.047)	(0.063)	(0.089)	(0.042)
3rd period of spell	-1.803***	-0.978***	-1.366***	-1.364***	-	-
	(0.149)	(0.103)	(0.065)	(0.098)		
Black	0.562***	0.228*	0.451***	-0.478***	0.581***	-0.250***
	(0.099)	(0.093)	(0.035)	(0.054)	(0.106)	(0.050)
Hispanic	-0.036	0.014	0.085*	-0.220***	0.090	-0.216**
	(0.114)	(0.095)	(0.043)	(0.061)	(0.136)	(0.073)
Asian	0.057	0.108	0.088	0.049	0.214	-0.142*
	(0.084)	(0.070)	(0.048)	(0.073)	(0.131)	(0.072)
Other race or unknown	0.104	-0.152	0.247***	-0.078	0.317*	-0.052
	(0.112)	(0.102)	(0.052)	(0.076)	(0.150)	(0.080)
Woman	-0.710***	-0.548***	-0.651***	0.334***	-0.586***	0.447***
	(0.066)	(0.056)	(0.031)	(0.038)	(0.078)	(0.038)
Age at entry	-0.055	-0.076	-0.070**	-0.113***	0.020	-0.038
	(0.079)	(0.059)	(0.027)	(0.016)	(0.036)	(0.037)
HS GPA	-3.703***	-3.059***	-2.804***	1.176***	-0.505***	0.666***
	(0.313)	(0.273)	(0.106)	(0.085)	(0.140)	(0.075)
HS GPA missing	-15.573***	-12.503***	-9.606***	3.630***	-2.134***	2.260***
	(1.405)	(1.208)	(0.433)	(0.269)	(0.522)	(0.540)
ACT composite score	-0.186***	-0.184***	-0.105***	0.091***	0.021	0.025***
	(0.016)	(0.014)	(0.006)	(0.009)	(0.014)	(0.007)
No ACT score	-4.510***	-5.065***	-2.539***	1.497***	-0.088	0.386
	(0.801)	(0.920)	(0.194)	(0.179)	(0.379)	(0.366)
ln (adjusted gross income)	-0.024	0.016	-0.027***	0.028**	-0.014	0.013
	(0.018)	(0.019)	(0.007)	(0.011)	(0.023)	(0.013)
AGI missing	-0.352	0.136	-0.429***	-0.262	-0.269	0.054
	(0.235)	(0.234)	(0.098)	(0.140)	(0.293)	(0.160)
Received Pell grant	0.177*	0.030	0.116***	0.052	0.024	-0.227***
	(0.073)	(0.064)	(0.027)	(0.041)	(0.092)	(0.047)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Received student loan	0.379***	0.305***	0.275***	-0.085*	0.108	-0.106*
	(0.059)	(0.050)	(0.025)	(0.039)	(0.079)	(0.042)
Financially independent	0.848**	0.929***	0.287**	-0.338**	0.723**	-0.027
	(0.296)	(0.273)	(0.092)	(0.113)	(0.222)	(0.136)
Entered summer term	0.440***	0.413***	0.209***	-0.011	0.593***	-0.172*
	(0.099)	(0.088)	(0.051)	(0.066)	(0.137)	(0.075)
Entered spring term	0.124	0.275	0.089	0.000	-0.015	-0.046
	(0.268)	(0.222)	(0.064)	(0.062)	(0.168)	(0.113)
Entered 2014-15	0.086	-0.022	0.004	-0.083	-0.058	0.024
	(0.084)	(0.069)	(0.035)	(0.052)	(0.093)	(0.047)
Entered 2015-16	-0.136	-0.165*	-0.030	-0.061	-0.252**	0.121*
	(0.083)	(0.068)	(0.035)	(0.052)	(0.094)	(0.047)
Entered 2016-17	-0.272**	-0.342***	-0.149***	0.057	-0.497***	0.198***
	(0.086)	(0.073)	(0.036)	(0.053)	(0.116)	(0.056)
Entered 2017-18	-0.468***	-0.687***	-0.348***	0.186**	-0.497	-0.597
	(0.092)	(0.085)	(0.040)	(0.058)	(0.433)	(0.351)
Georgia Inst. of Technology	2.327***	2.304***	2.205***	-2.123***	-0.038	-0.301*
	(0.280)	(0.268)	(0.138)	(0.463)	(0.239)	(0.132)
Georgia State University	-1.310***	-0.156	-0.359***	0.330***	-0.178	0.291**
	(0.298)	(0.258)	(0.058)	(0.073)	(0.176)	(0.098)
Augusta University	-0.496	0.356	0.732***	-0.294*	-0.041	0.245
	(0.353)	(0.294)	(0.086)	(0.122)	(0.277)	(0.130)
University of Georgia	0.339	0.868***	0.665***	-0.195	-0.321	0.156
	(0.233)	(0.229)	(0.067)	(0.186)	(0.203)	(0.103)
Albany State University	0.333	0.215	-0.168	-0.279*	-0.056	0.525**
	(0.592)	(0.695)	(0.120)	(0.122)	(0.315)	(0.164)
Clayton State University	-1.151	-0.808	-0.353**	-0.660***	-1.100**	0.158
	(0.785)	(0.707)	(0.111)	(0.129)	(0.369)	(0.196)
Columbus State University	-0.372	-0.099	0.012	0.035	0.304	-0.208
	(0.396)	(0.350)	(0.081)	(0.103)	(0.243)	(0.148)
Fort Valley State University	0.550	0.297	-0.139	-0.362**	-0.368	0.390*
	(0.654)	(0.756)	(0.138)	(0.122)	(0.369)	(0.192)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Ga. College & St. University	-0.744*	-0.178	-0.277***	0.377**	0.188	0.274*
	(0.292)	(0.264)	(0.068)	(0.125)	(0.239)	(0.113)
Georgia Southern University	-0.355	0.145	0.272***	-0.183**	-0.227	0.054
	(0.256)	(0.245)	(0.057)	(0.067)	(0.178)	(0.095)
Ga. Southwestern St. University	-0.319	0.639	0.753***	-0.692***	0.264	-0.185
	(0.472)	(0.369)	(0.110)	(0.183)	(0.467)	(0.188)
Kennesaw State University	-0.466	0.021	-0.002	0.191**	0.187	0.176
	(0.253)	(0.244)	(0.054)	(0.064)	(0.166)	(0.094)
Savannah State University	-1.640	0.012	-0.178	-0.101	0.268	0.033
	(0.933)	(0.696)	(0.105)	(0.089)	(0.239)	(0.173)
Valdosta State University	-0.511	0.084	0.310***	-0.521***	0.034	-0.226
	(0.331)	(0.298)	(0.071)	(0.098)	(0.233)	(0.125)
University of North Georgia	0.121	0.546*	0.312***	-0.594***	0.291	-0.049
	(0.262)	(0.249)	(0.067)	(0.140)	(0.252)	(0.114)
University of West Georgia	-0.162	-0.118	0.158*	-0.238**	-0.003	0.272**
	(0.307)	(0.306)	(0.063)	(0.076)	(0.198)	(0.103)
Middle Georgia St. University	-0.584	0.308	0.110	-0.156	-0.208	-0.039
	(0.573)	(0.435)	(0.100)	(0.122)	(0.367)	(0.192)
Random effect loading	0.704***	0.822***	1.000	0.723***	1.000	-0.078
	(0.153)	(0.127)		(0.142)		(0.047)
Random effect variance			2.809***			
			(0.337)			
Spells	26,086		74,057	31,610	8,706	18,354
Periods	51,335		130,383	51,976	11,774	25,883

Notes. Estimated robust standard errors in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 also displays results for individual USG research universities, comprehensive universities, and state universities. Earlier descriptive results showed that students attending research universities are more likely to lose their Zell Miller Scholarships. The more disaggregated results in Table 3 suggest that this pattern is driven largely by students at the Georgia Institute of Technology (Georgia Tech), which has a large and significant relationship with transitions into HOPE and no scholarship status, relative to attendance at a state college. Attending the University of Georgia is also associated with transitions from Zell Miller to HOPE Scholarships, but the association is much smaller than for Georgia Tech. Conversely,

attending Georgia State University is strongly associated with a lower likelihood of transitioning from a Zell Miller Scholarship to no scholarship. Students at Georgia College and State University also have lower likelihoods of transitioning from a Zell Miller Scholarship to no scholarship, while students at the University of North Georgia have a higher likelihood of transitioning from Zell Miller to HOPE. None of the other individual institution effects is significant.

We see similar patterns when we examine transitions from HOPE Scholarship spells to no scholarship spells (third column). Black and Hispanic students are more likely to lose entering HOPE Scholarships, and women, older students, students with higher high school GPAs, and students with higher ACT scores are less likely to lose them. Lower adjusted gross income, Pell grant receipt, student loan borrowing, and financial independence are all associated with higher likelihoods of losing an entering HOPE Scholarship, as is entering in the summer. Entering in the last two years of our analysis period is associated with a lower likelihood of transitioning from HOPE to no scholarship. The individual institution effects again present some interesting patterns. Three of the four research universities (Georgia Tech, the University of Georgia, and Augusta University) have higher likelihoods of students transitioning to a no scholarship spell as compared to state colleges, with a particularly strong relationship for students at Georgia Tech. As in the Zell Miller Scholarship results, attending Georgia State University is associated with a significantly lower likelihood of transitioning from a HOPE Scholarship to no scholarship. Among other institutions, Clayton State University and Georgia College and State University are associated with lower probabilities of transitioning to no scholarship, while Georgia Southern University, Georgia Southwestern State University, Valdosta State University, the University of North Georgia, and the University of West Georgia are associated with a higher likelihood of moving to no scholarship status.

As in the descriptive analyses, we also examine factors related to gaining a scholarship among students who enter without one. Black and Hispanic students, men, and older students are less likely to gain a scholarship, while students with higher high school GPAs and higher ACT scores are more likely to gain a scholarship. Household income is positively associated with the likelihood of gaining a scholarship. Among the other financial measures, receiving loans and financially independent status have significant negative relationships with gaining a scholarship. Term of entry has no significant relationship with scholarship gain, and 2017-18 is the only year of entry with a significant (positive) relationship with scholarship gain.

The institution effects are similar to those presented above. Attending Georgia Tech or Augusta University is associated with a lower likelihood of gaining a HOPE Scholarship for students who start without one, while attending Georgia State University is associated with a higher likelihood. Among non-research institutions, Albany State University, Clayton State University, Fort Valley State University, Georgia Southern University, Georgia Southwestern State University, Valdosta State University, the University of North Georgia, and the University of West Georgia are associated with a lower likelihood of gaining a scholarship, while Georgia College and State University and Kennesaw State University are associated with a higher likelihood of scholarship gain.

Three USG institutions – Albany State, Fort Valley State, and Savannah State – are Historically Black Colleges and Universities. While attendance at Albany State or Fort Valley State is associated with a lower likelihood of gaining a scholarship after entering college, we find no strong or consistent patterns in scholarship loss for these institutions as compared to state colleges.

We also investigate transitions from spells that began after students first enrolled in college. These transitions, then, are not the first that students experience. In the fifth column of Table 3, we examine transitions from scholarship status to non-scholarship status when the scholarship status began after a student entered college. In the sixth column, we examine the opposite transitions—from no scholarship to a scholarship when the student's non-scholarship status began after starting college. In other words, we investigate regaining a scholarship among students who lost one while in college.

The patterns for losing non-entering scholarships are very similar to those for losing entering scholarships, though slightly weaker. Black students and men are more likely to lose a scholarship they gained while in college, as are students with lower high school GPAs. Unlike previous analyses, ACT scores are not significantly related to non-entering scholarship loss. Of the financial indicators, only students who are financially independent have a significantly higher likelihood of losing a scholarship they gained while in college. Students who enter in the summer term are also more likely to lose non-entering scholarships, while students who entered college in AY 2015-16 and AY 2016-17 are less likely.[11] A substantial difference from previous results is that individual institutions are largely unrelated to the likelihood of gaining and losing a scholarship, with only attendance at Clayton State University associated with a significantly lower probability of losing a HOPE Scholarship gained during college.

Examining students who regain scholarships after losing them, Black students, Hispanic students, Asian students, and men are less likely to experience these transitions. Higher high school GPA and ACT scores are associated with a higher likelihood of gaining a scholarship for students who lost their entering scholarship. Receiving Pell grants and student loans are associated with lower probabilities of transitioning to a scholarship after losing a scholarship. Students who enter in the summer term are significantly less likely to regain a scholarship, while students who entered in 2015-16 or 2016-17 are significantly more likely. The results for individual institutions are somewhat stronger than in the previous analysis, with attendance at Georgia Tech associated with a lower probability of regaining a scholarship and attendance at Georgia State University, Albany State University, Fort Valley State University, Georgia College and State University, and the University of West Georgia associated with higher probabilities.

Prior to conducting data analysis, we searched institution websites for campus-based programs specifically designed to help students keep their merit-based scholarships and followed up with emails to each institution's financial aid office. We found only two programs: "Keep HOPE Alive" at Georgia State University and "Thrive" at Kennesaw State University. It should be noted that institutions may also have broader student success efforts aimed at helping students keep financial aid and promote success in general. For example, the systemwide African-American Males Initiative seeks to increase the number of Black men enrolling in, and graduating from, USG institutions by providing academic skills enrichment, support services and leadership training. Because this program operates across campuses and began before the years of our analysis, we cannot evaluate its effects on scholarship gains and losses.

The Georgia State University program identifies freshman and sophomore students with GPAs just below 3.0 and invites them to participate. Students must enroll for at least 30 credits in the next academic year and agree to participate in activities such as academic coaching, student success workshops, and student

[11] Students entering in later years are less likely to have reached the two check-ins necessary to have gained and lost a scholarship while observed in the dataset.

advisement sessions. In return, they receive $1,000 upon successful completion of the program. Kennesaw State University's program enrolls incoming freshmen HOPE recipients who receive coaching, peer assistance, and optional participation in special programs and a freshman learning community designed to help students retain their scholarships. As noted, students at Georgia State University have lower rates of losing HOPE and Zell Miller Scholarships and higher rates of regaining scholarships. However, we do not find associations for these outcomes among students at Kennesaw State University. Students at Georgia State University and Kennesaw State University also have higher rates of gaining non-entering HOPE Scholarships, though, to the best of our knowledge, the programs at these universities do not provide support to students who start without scholarships. Similarly, attendance at Georgia College and State University is associated with lower probabilities of transitioning from either Zell Miller or HOPE to no scholarship and a higher probability of gaining HOPE while in college, though we are not aware of specific programs focused on scholarship retention or gain at this institution. This suggests other institutional factors, such as broad success initiatives for entering freshmen that exist at many schools, are related to scholarship gain.

In sum, the multivariate event history models uncover some consistent patterns regarding factors associated with both gaining and losing scholarships while students are enrolled at their initial colleges. Variables reflecting worse financial circumstances such as Pell grant receipt, student loan borrowing, and financial independence are significantly related to higher likelihoods of scholarship loss and lower likelihoods of gaining a scholarship while in college. We see similar patterns for men and Black students, with less consistent patterns for Hispanic students. Students with higher high school GPAs and ACT scores are generally less likely to lose and more likely to gain scholarships while in college. Entering in the summer term is significantly related to scholarship loss and negatively related to scholarship gain.

The institution variables also reveal some consistent results. Among the research universities, attending Georgia Tech is generally strongly related to a higher probability of scholarship loss and a lower probability of scholarship gain, while the reverse is true for Georgia State University and Georgia College and State University.

EXTENSIONS TO BASIC MODEL

To test how robust these results are to one of our specification assumptions, we re-estimate the event history model without controls for unobserved heterogeneity (Appendix Table B1). While the coefficients are generally somewhat smaller in this alternative model due to a scaling factor, the signs and significance of the coefficients are virtually identical to those in the model with the controls.

In Appendix Table B2, we expand our analysis data set to include all first-time freshmen, including those who initially enter USG institutions in non-bachelor's degree (e.g., associate degree) and as non-degree students. The results are very similar to those for students who enter bachelor's programs initially.

We next investigate the institution-specific results described above by estimating separate models for each of the largest research universities (Georgia Tech, Georgia State University, and the University of Georgia) and for the comprehensive universities, state universities, and state colleges. These results are presented in Appendix Tables B3 through B8. The purpose of these separate analyses is to examine whether we find different transition patterns among students with different characteristics at each

institution or type of institution.[12] For example, the earlier aggregate results indicated that students at Georgia Tech are more likely to lose scholarships and less likely to gain scholarships, while students at Georgia State University are less likely to lose scholarships and more likely to gain them. These analyses do not tell us whether certain groups of students are more or less likely to gain and lose scholarships at these institutions, which is the focus of the institution-specific and institution-type-specific analyses.

The results in Table B3 indicate that Black students are significantly more likely to transition out of Zell Miller Scholarships to no scholarships at Georgia Tech and less likely to regain a scholarship if they lost one while in college. Students receiving Pell grants are also more likely to transition from Zell Miller to no scholarship, and students who take out loans are more likely to transition to no scholarship or a HOPE Scholarship. For students entering with a HOPE Scholarship, though, none of the factors in our model is significantly related to scholarship loss.[13] Women and financially independent students are more likely to transition to a scholarship if they lost one while enrolled at Georgia Tech, while older students are less likely to do so.

As described above, students attending Georgia State University are significantly less likely to transition from spells with scholarships to spells without and more likely to transition from spells without scholarships to periods with HOPE. In the analysis for Georgia State University (Table B4), we see similar, though weaker, patterns as compared to the system-wide results. While there are few differences within Georgia State University by student race and ethnicity, we do see that Black students are more likely to transition from HOPE to no scholarship, less likely to gain a non-entering HOPE Scholarship, and more likely to lose a non-entering scholarship. Students receiving Pell grants, student loans, and reported as financially independent are more likely to lose HOPE Scholarships at Georgia State University, but the measures of financial circumstances are largely unrelated to other scholarship transitions. Students entering in the later years of our analysis period are also less likely to transition from a Zell Miller Scholarship to HOPE and more likely to gain a HOPE Scholarship.

The system-wide results show less consistent patterns for the University of Georgia than for Georgia State University or Georgia Tech. The results for the University of Georgia (Table B5) show strong associations with both Zell Miller and HOPE Scholarship loss for Black students and for men. Lower household AGI and student loan borrowing are also significantly related to the loss of an entering scholarship for University of Georgia students.

At the state's comprehensive universities (Table B6), we again see similar patterns, as Black students and men are more likely to lose scholarships and less likely to regain them. Hispanic students are less likely to gain a HOPE Scholarship if they entered without a scholarship. We also see similar patterns with financial circumstances, as receipt of Pell grants and student loan borrowing are related to scholarship loss. Within the set of comprehensive universities, students at Kennesaw State University are significantly less likely to lose a HOPE Scholarship and significantly more likely to gain one. However, students at Kennesaw State are also more likely to lose non-entering scholarships.

[12] We cannot conduct separate analyses for each institution outside the research universities because of insufficient numbers of observations at these individual colleges and universities.
[13] Relatively few students enter Georgia Tech with a HOPE Scholarship as compared to Zell Miller Scholarships.

In the analyses of the state universities, women, students with better high school GPAs, and students with higher test scores are less likely to lose Zell Miller and HOPE Scholarships and more likely to gain non-entering HOPE Scholarships (Table B7). Black students are more likely than White students to lose HOPE Scholarships, as are students with lower incomes, Pell grants, and student loans.

The state colleges (Table B8) show some different patterns from the systemwide results. Relatively few students enter state colleges with Zell Miller Scholarships. Because of the modest number of Zell Miller Scholarship spells (292), none of the coefficients in the model for Zell Miller Scholarship transitions is statistically significant. At the state colleges, Hispanic and Asian students, women, students with better high school GPAs, and students with higher test scores are significantly less likely to lose entering HOPE Scholarships, while students who take out loans are more likely to lose them. Black students and older students are less likely to gain non-entering HOPE Scholarships, and women, students with better high school GPAs, and students with higher test scores are more likely to gain them. Age is the only characteristic that is associated with losing a non-entering scholarship. At the state colleges, women and students with better high school GPAs have higher rates of regaining scholarships, and students who take out loans have lower rates.

CONCLUSION AND POLICY RECOMMENDATIONS

This report analyzes changes in the receipt of merit-based HOPE and Zell Miller Scholarships over Georgia-resident students' college careers. It uses administrative records for students who enrolled as first-time-freshmen in bachelor's degree programs at USG institutions between Fall 2013 and Spring 2018. It examines rates at which students lose Zell Miller and HOPE Scholarships that they held at enrollment, gain HOPE Scholarships after enrolling without one, regain scholarships, and lose non-entering scholarships.

STUDENTS' SCHOLARSHIP STATUS CHANGES FREQUENTLY

We observe 23 percent of students changing their scholarship status at least once, with higher rates of scholarship loss among HOPE Scholarship recipients than among Zell Miller Scholarship students. Scholarship losses can burden students financially. Students who begin with either a Zell Miller or HOPE Scholarship and fall below a 3.0 GPA at a checkpoint lose their entire merit-based scholarship. In AY 2019-20, a full-time student at a research university would lose over $10,000 per year in financial aid. The financial burden of scholarship loss can place additional stresses on students—such as needing to work more or borrow more money—possibly further harming their academic performance. Thus, there appears to be a need for proactive policies to help students maintain or gain scholarships and ameliorative policies to help them if they lose scholarships.

Proactively, scholarship students, especially those at high risk of losing scholarships, may benefit from broadening institutions' existing academic support and student success initiatives. These services frequently target students who are at risk of not meeting satisfactory academic progress requirements but not scholarship students or students with moderately high GPAs who might have a good chance of gaining a scholarship.

Scholarship students would also potentially benefit from advising that addresses the unique rules and conditions of their scholarships—such as the potential effects of withdrawing from courses—and from

other specialized supports; the Thrive program at Kennesaw State University provides one model for such a program. Similarly, non-scholarship students would potentially benefit from advising that addresses how they might obtain scholarships. Because of the risk of scholarship loss, scholarship students might also benefit from programs, such as USG's "Know More. Borrow Less." initiative, that increase awareness of and knowledge about financial aid.

Once students lose scholarships, there may be an immediate need for financial aid and other counseling. USG institutions should also consider supports, such as the "Keep HOPE Alive" program at Georgia State University, that cushion the financial loss and support and incentivize students to regain scholarships. Students at Georgia State University have relatively higher rates of regaining scholarships than students at most other USG institutions, which may be attributable to the "Keep HOPE Alive" program.

More broadly, the state of Georgia might consider tiered scholarship reductions and other incremental or phased incentives rather than an all-or-nothing approach to motivate academic achievement.

DIFFERENCES BY RACE, ETHNICITY, GENDER, AND ECONOMIC STATUS

Rates of initial merit-based scholarship receipt differ markedly by student race and ethnicity. White and Asian students are more likely than Black and Hispanic students to enter a USG institution with a HOPE Scholarship and, particularly, with a Zell Miller Scholarship. Patterns of scholarship loss and gain over students' careers widen these disparities as Black and Hispanic students are more likely than other students to lose scholarships and less likely to gain or regain them. Disparities in scholarship outcomes leave some groups of students with fewer resources to pay for college and thereby may make it harder for Georgia's public colleges and universities to achieve their strategic goals of promoting access and success for all the state's students. As student success contributes to better lifetime economic opportunities, wealth, family functioning, and other outcomes, the disparities may also slow progress toward closing other gaps.

The analyses also reveal that men, students from families with lower incomes, independent students, Pell grant recipients, and student loan recipients are less likely to enter institutions with Zell Miller or HOPE Scholarships, less likely to retain scholarships if they do hold them, and less likely to gain scholarships. These results indicate that the initial disparities in scholarship holding by gender, financial circumstances, and financial aid status widen as students progress through college.

These findings suggest that USG and individual institutions should target scholarship-related support and advising to underrepresented minority students, men, and students from economically-disadvantaged backgrounds. As students with these characteristics are also the focus of other success initiatives, such as the "African-American Male Initiative," the USG might be able to improve scholarship holding and other outcomes by further investing in these initiatives. To the extent that these initiatives may currently be restricted to students with lower levels of academic credentials, the USG should consider broadening the programs to include scholarship students and non-scholarship students with moderately high GPAs.

The analyses in this report uncover associations between students' characteristics and scholarship outcomes but do not reveal the reasons for the associations. For example, it is possible that financially-vulnerable students have additional demands on their time, such as work or caring for family members, that reduce the time available for their academic responsibilities. More research is needed to identify and

explore the mechanisms underlying these risk factors and to develop policies to reduce disparities in scholarship receipt.

WHEN AND WHERE STUDENTS ENTER USG INSTITUTIONS

The rates of scholarship losses are higher and the rates of scholarship gains are lower for students who enter USG institutions in the summer. While we cannot rule out that students who enter in summer are different in important unobserved ways that are related to these patterns, these higher risks suggest that additional efforts focus on these students and their programs.

Summer courses, which are offered on a compressed schedule, are structured differently from other courses and have different demands—scholarship students might benefit from specialized advising that either helps them choose courses that they can be successful in or that supports them through their initial courses. Students who enter during the summer may also benefit from specialized orientation services and from peer mentoring. Additional research may help identify whether certain types of summer courses place entering students at higher risk of scholarship loss or require extra support services.

We also find lower rates of scholarship loss and higher rates of scholarship gain after Georgia required more rigorous high school courses and modified the scholarships' college GPA formula to increase the points earned in STEM classes. Although the evidence is indirect, the results are consistent with the changes improving scholarship retention and scholarship gain outcomes. More careful research is needed to confirm that the improvements are attributable to the policy changes.

The dynamics differ across institutions. Students at the Georgia Institute of Technology are more likely to lose scholarships and less likely to gain them than are students at other institutions. Students at the University of Georgia also have high rates of scholarship loss. In contrast, students at Georgia State University—one of the two institutions we were able to identify with formal programs to help students regain or retain scholarships—and Georgia College and State University are less likely to lose scholarships and more likely to gain them. Differences in scholarship loss and gain that we observe for the USG in aggregate appear within institutions and types of institutions. Within institutions, Black students, men, and financially-vulnerable students are generally more likely to lose scholarships and less likely to gain them, as compared to other students at the same institutions.

THE TIMING OF CHANGES WITHIN A SPELL

The report's descriptive and multivariate analyses indicate that losses and gains of scholarships are more likely to occur early in a spell rather than later. These associations partly stem from GPAs—the key criteria for keeping or gaining a scholarship—becoming less changeable as students' credit hours increase. They may also occur if early success motivates students to continue that success. The results have intuitive implications for the timing of supports. Proactive supports should be targeted to occur upon entry into college and during the first year of college, and ameliorative supports should be targeted to occur when or immediately after a change in scholarship status occurs.

Although the report increases our understanding of when scholarship gains and losses occur, more information is needed on the specific events that lead to triggering outcomes, such as performance in particular courses or at particular points in programs. Research on student course-taking patterns is

needed to identify whether certain courses are disproportionately related to scholarship loss or lower rates of scholarship gains. Research could also adapt the detailed predictive analytic approach that Georgia State University has taken to pinpointing barriers to student success and apply it to pinpointing critical mechanisms that underlie scholarship losses and gains.

Georgia spends substantial sums of money each year on its merit-based scholarship programs. To maximize the potential benefits to the state, these programs must not only increase college enrollment but also increase persistence and graduation. Previous research has found that scholarship loss reduces the likelihood of graduation (Henry et al., 2004), so steps to improve scholarship retention could generate long-term economic benefits. The analyses in this report provide a starting point for efforts to improve scholarship retention, increase scholarship gains, and reduce disparities in these dynamics over students' college careers.

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APPENDIX A. CONSTRUCTION OF THE ANALYSIS MEASURES

Files. All the measures in our analyses are constructed from administrative records in the University System of Georgia (USG) student program enrollment, demographic, test score, financial aid summary, financial aid fund, and HOPE scholarship files from Fall 2013 through Spring 2019. The financial aid summary file records information for students on an annual basis; all the other files record information on a term-by-term basis.

Longitudinal identifiers. Records for students are linked over time using a person identifier that is constructed by the Georgia Policy Labs (GPL). The GPL identifier is formed by matching personal identifying information for the students, including their names, dates of birth, social security numbers, USG identifying number, and campus identifier, using the USG records and other records that are available to GPL. Because this identifier is different from the USG and campus identifiers, longitudinal linkages will be slightly different in our analyses than in analyses prepared by the USG. Researchers only ever access and utilize deidentified data.

Check-in periods. We organize the term-by-term information for students into approximate "check-in" periods that correspond to the periods after students enroll or attempt 30, 60, or 90 credit hours. We measure credit hours using the cumulative attempted credit hours within the student's institution. We adjust this measure by subtracting Advanced Placement, International Baccalaureate, and other hours that the student may have earned before entering the institution and by adding any transfer hours that the student earned.

Scholarship receipt and transitions. We use a three-way, mutually exclusive categorization of scholarship receipt within each period that indicates whether the student

- could be matched to a Zell Miller Scholarship record at any time during the period,
- could be matched to a HOPE Scholarship at any time during the period but not a Zell Miller Scholarship record, or
- could not be matched to either scholarship during the period.

Note that scholarship receipt is indicated by the presence of a match. We measure transitions as changes in scholarship status from one check-in period to the next.

Race and ethnicity. We form mutually exclusive indicators of whether the student identified in their first enrollment term as non-Hispanic White, non-Hispanic Black, Hispanic, or Asian. We also form a composite indicator that includes other racial or ethnic identities, having multiple racial or ethnic backgrounds, or not providing racial or ethnic information.

Gender. We form indicators of whether the student identified in their first enrollment term that they were a man or woman.

Age at entry. We construct a variable of the student's age in years at the start of their first enrollment term.

High school GPA. We construct a measure of the high school GPA reported to the institution at the first enrollment term. We also form a yes/no (1/0) indicator of whether the GPA was not reported. If the GPA

was not reported, we set the GPA measure to zero. Thus, a student who is missing a high school GPA would have a GPA value of zero and a missing GPA indicator value of one.

ACT composite score or equivalent. We construct measures of each student's ACT composite scores and combined SAT math and reading/writing scores. Using concordance tables provided by the ACT, we convert the combined SAT scores to ACT equivalents. We form a measure of the highest ACT composite score or equivalent reported to the institution at the first enrollment term. We also form a yes/no (1/0) indicator of whether scores were not reported for students. If scores were not reported, we set the underlying score measure to zero.

Financial circumstances. Using the financial aid summary file, we form measures of the student's or family's adjusted gross income and of whether the student reported being financially independent of their parent for financial aid purposes. Note that these measures are usually only reported if the student completed a Free Application for Federal Student Aid (FAFSA) form and submitted it to a USG institution. For both measures, we use the values that were recorded in the first term of a check-in period. We adjust the adjusted gross income (AGI) for inflation using the Consumer Price Index for Urban Consumers and express amounts in 2019 dollars. In our multivariate models, we use a natural log transformation of the variable. We form an indicator for whether the AGI is missing and set the log transformed measure for missing values to zero.

Financial aid. We create indicators for whether the student could be matched to a positive Pell grant or student loan amount in the first term of each check-in period. Note that aid receipt is indicated by the presence of a positive-value match.

Entry term and year. We construct indicators for whether the student first enrolled in the fall, spring, or summer academic terms and for the academic-year of entry: AY 2013-14 through AY 2017-18.

Institution and institution type. We construct indicators for the institution where the student enrolled. For institutions that consolidated during our period of analysis, we use the consolidated institution identifier. For example, Georgia Perimeter College consolidated with Georgia State University in 2016, and for students at both institutions, we consistently use the Georgia State University identifier. We use the USG's categorization of institutions as research universities, comprehensive universities, state universities, or state colleges.

APPENDIX B. ALTERNATIVE SPECIFICATIONS OF THE MULTI-EQUATION EVENT-HISTORY MODEL

Table B1. Event-history Model Results Omitting Control for Unobserved Heterogeneity (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-1.401*** (0.068)	-0.610*** (0.042)	-1.040*** (0.019)	-1.258*** (0.040)	-0.769*** (0.069)	-0.455*** (0.042)
3rd period of spell	-2.078*** (0.109)	-1.286*** (0.064)	-1.933*** (0.033)	-1.589*** (0.063)	-	-
Black	0.494*** (0.086)	0.148* (0.074)	0.290*** (0.021)	-0.388*** (0.038)	0.477*** (0.075)	-0.236*** (0.049)
Hispanic	-0.033 (0.103)	0.021 (0.078)	0.050 (0.029)	-0.181*** (0.049)	0.075 (0.103)	-0.214** (0.072)
Asian	0.035 (0.075)	0.087 (0.057)	0.054 (0.032)	0.016 (0.056)	0.151 (0.099)	-0.141* (0.071)
Other race or unknown	0.117 (0.099)	-0.134 (0.085)	0.160*** (0.034)	-0.070 (0.061)	0.249* (0.113)	-0.047 (0.080)
Woman	-0.591*** (0.048)	-0.409*** (0.036)	-0.430*** (0.016)	0.279*** (0.028)	-0.427*** (0.054)	0.430*** (0.037)
Age at entry	-0.053 (0.065)	-0.075 (0.051)	-0.044** (0.017)	-0.096*** (0.012)	0.040 (0.029)	-0.041 (0.040)
HS GPA	-2.998*** (0.183)	-2.245*** (0.148)	-1.819*** (0.028)	0.956*** (0.044)	-0.405*** (0.076)	0.620*** (0.065)
HS GPA missing	-12.699*** (0.962)	-9.208*** (0.728)	-6.217*** (0.184)	2.979*** (0.157)	-1.725*** (0.334)	2.085*** (0.505)
ACT composite score	-0.152*** (0.010)	-0.143*** (0.008)	-0.069*** (0.003)	0.071*** (0.005)	0.022* (0.010)	0.022*** (0.006)
No ACT score	-3.568*** (0.690)	-3.974*** (0.775)	-1.655*** (0.117)	1.163*** (0.121)	0.249 (0.284)	0.325 (0.369)
ln (adjusted gross income)	-0.022 (0.017)	0.016 (0.016)	-0.018*** (0.005)	0.025** (0.009)	-0.009 (0.017)	0.012 (0.013)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
AGI missing	-0.328	0.143	-0.287***	-0.199	-0.135	0.046
	(0.222)	(0.196)	(0.069)	(0.114)	(0.221)	(0.160)
Received Pell grant	0.176**	0.028	0.090***	0.045	0.008	-0.225***
	(0.067)	(0.054)	(0.019)	(0.034)	(0.068)	(0.047)
Received student loan	0.321***	0.240***	0.190***	-0.076*	0.078	-0.102*
	(0.051)	(0.040)	(0.016)	(0.033)	(0.060)	(0.042)
Financially independent	0.644*	0.696**	0.177**	-0.286**	0.542***	-0.024
	(0.254)	(0.214)	(0.060)	(0.092)	(0.162)	(0.138)
Entered summer term	0.360***	0.315***	0.150***	-0.010	0.398***	-0.163*
	(0.085)	(0.070)	(0.034)	(0.054)	(0.098)	(0.075)
Entered spring term	0.101	0.246	0.058	0.001	-0.050	-0.045
	(0.242)	(0.178)	(0.042)	(0.051)	(0.122)	(0.111)
Entered 2014-15	0.075	-0.029	0.006	-0.069	-0.035	0.025
	(0.075)	(0.056)	(0.023)	(0.042)	(0.069)	(0.047)
Entered 2015-16	-0.106	-0.123*	-0.021	-0.038	-0.163*	0.120*
	(0.075)	(0.055)	(0.023)	(0.042)	(0.070)	(0.047)
Entered 2016-17	-0.218**	-0.269***	-0.096***	0.050	-0.304***	0.193***
	(0.077)	(0.057)	(0.023)	(0.043)	(0.087)	(0.055)
Entered 2017-18	-0.368***	-0.551***	-0.225***	0.154***	-0.341	-0.607
	(0.080)	(0.064)	(0.026)	(0.046)	(0.322)	(0.340)
Georgia Inst. of Technology	1.911***	1.809***	1.441***	-1.780***	-0.139	-0.248
	(0.221)	(0.196)	(0.075)	(0.365)	(0.172)	(0.127)
Georgia State University	-1.200***	-0.029	-0.230***	0.262***	-0.288*	0.284**
	(0.279)	(0.214)	(0.038)	(0.056)	(0.127)	(0.098)
Augusta University	-0.453	0.414	0.496***	-0.222*	-0.057	0.261*
	(0.332)	(0.247)	(0.055)	(0.098)	(0.212)	(0.129)
University of Georgia	0.256	0.771***	0.441***	-0.178	-0.182	0.167
	(0.213)	(0.190)	(0.043)	(0.144)	(0.148)	(0.103)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Albany State University	0.278 (0.547)	0.141 (0.575)	-0.106 (0.078)	-0.233* (0.102)	-0.014 (0.229)	0.523** (0.163)
Clayton State University	-0.934 (0.757)	-0.587 (0.623)	-0.224** (0.074)	-0.550*** (0.104)	-0.696* (0.272)	0.153 (0.198)
Columbus State University	-0.331 (0.348)	0.012 (0.296)	0.024 (0.053)	0.029 (0.084)	0.202 (0.177)	-0.206 (0.147)
Fort Valley State University	0.397 (0.524)	0.159 (0.593)	-0.118 (0.086)	-0.292** (0.104)	-0.165 (0.271)	0.389* (0.192)
Ga. College & St. University	-0.629* (0.271)	-0.035 (0.221)	-0.170*** (0.045)	0.309** (0.096)	0.052 (0.175)	0.267* (0.113)
Georgia Southern University	-0.298 (0.236)	0.214 (0.205)	0.187*** (0.037)	-0.134* (0.054)	-0.205 (0.130)	0.061 (0.095)
Ga. Southwestern St. University	-0.319 (0.448)	0.658* (0.305)	0.510*** (0.072)	-0.555*** (0.155)	0.210 (0.339)	-0.164 (0.189)
Kennesaw State University	-0.395 (0.234)	0.108 (0.204)	0.008 (0.036)	0.170*** (0.051)	0.048 (0.120)	0.178 (0.094)
Savannah State University	-1.540 (0.809)	0.108 (0.525)	-0.102 (0.068)	-0.084 (0.075)	0.302 (0.170)	0.025 (0.171)
Valdosta State University	-0.439 (0.314)	0.178 (0.252)	0.219*** (0.046)	-0.424*** (0.077)	0.052 (0.169)	-0.217 (0.124)
University of North Georgia	0.097 (0.242)	0.526* (0.209)	0.215*** (0.045)	-0.447*** (0.105)	0.188 (0.183)	-0.044 (0.114)
University of West Georgia	-0.082 (0.285)	-0.027 (0.259)	0.095* (0.041)	-0.190** (0.062)	-0.004 (0.144)	0.276** (0.103)
Middle Georgia St. University	-0.675 (0.513)	0.272 (0.340)	0.086 (0.067)	-0.126 (0.101)	-0.168 (0.270)	-0.034 (0.192)
Spells	26,086		74,057	31,610	8,706	18,354
Periods	51,335		130,383	51,976	11,774	25,883

Notes. Estimated robust standard errors in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B2. Event-history Model Results for All First-Time Freshman Students (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-1.217*** (0.092)	-0.411*** (0.067)	-0.609*** (0.046)	-0.964*** (0.077)	-0.543*** (0.087)	-0.419*** (0.040)
3rd period of spell	-1.813*** (0.148)	-0.974*** (0.102)	-1.343*** (0.065)	-1.096*** (0.121)	-	-
Black	0.547*** (0.097)	0.224* (0.091)	0.447*** (0.033)	-0.578*** (0.059)	0.456*** (0.100)	-0.233*** (0.048)
Hispanic	-0.060 (0.112)	0.002 (0.093)	0.093* (0.038)	-0.178*** (0.053)	0.124 (0.120)	-0.134* (0.066)
Asian	0.047 (0.082)	0.105 (0.069)	0.039 (0.045)	0.203** (0.069)	0.131 (0.124)	-0.134 (0.069)
Other race or unknown	0.126 (0.110)	-0.125 (0.100)	0.237*** (0.049)	-0.093 (0.068)	0.217 (0.140)	-0.044 (0.077)
Woman	-0.683*** (0.064)	-0.532*** (0.054)	-0.638*** (0.029)	0.344*** (0.038)	-0.488*** (0.072)	0.425*** (0.036)
Age at entry	-0.032 (0.082)	-0.060 (0.057)	-0.087*** (0.023)	-0.113*** (0.013)	-0.019 (0.028)	-0.044 (0.035)
HS GPA	-3.620*** (0.306)	-3.021*** (0.267)	-2.811*** (0.102)	1.306*** (0.106)	-0.394** (0.127)	0.639*** (0.069)
HS GPA missing	-15.240*** (1.356)	-11.997*** (1.142)	-9.447*** (0.377)	4.132*** (0.327)	-1.705*** (0.443)	2.003*** (0.422)
ACT composite score	-0.181*** (0.015)	-0.180*** (0.013)	-0.114*** (0.005)	0.118*** (0.011)	0.031* (0.013)	0.027*** (0.006)
No ACT score	-4.361*** (0.675)	-5.506*** (0.869)	-2.162*** (0.128)	1.827*** (0.191)	-0.115 (0.305)	0.158 (0.213)
ln (adjusted gross income)	-0.024 (0.018)	0.014 (0.018)	-0.028*** (0.007)	0.037*** (0.009)	-0.022 (0.021)	0.017 (0.013)
AGI missing	-0.356 (0.232)	0.101 (0.230)	-0.443*** (0.089)	-0.267* (0.117)	-0.346 (0.264)	0.087 (0.153)
Received Pell grant	0.200** (0.071)	0.032 (0.063)	0.121*** (0.024)	0.051 (0.037)	-0.031 (0.082)	-0.213*** (0.044)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Received student loan	0.372***	0.303***	0.307***	-0.131***	0.165*	-0.110**
	(0.058)	(0.049)	(0.023)	(0.034)	(0.072)	(0.039)
Financially independent	0.778**	0.834**	0.367***	-0.311***	0.784***	-0.091
	(0.288)	(0.267)	(0.079)	(0.091)	(0.182)	(0.127)
Entered summer term	0.446***	0.397***	0.135**	0.144*	0.596***	-0.156*
	(0.097)	(0.087)	(0.047)	(0.060)	(0.124)	(0.072)
Entered spring term	0.256	0.109	0.070	0.060	-0.111	0.014
	(0.250)	(0.230)	(0.058)	(0.049)	(0.137)	(0.108)
Entered 2014-15	0.077	-0.022	0.015	-0.042	-0.111	0.037
	(0.082)	(0.068)	(0.032)	(0.046)	(0.086)	(0.045)
Entered 2015-16	-0.136	-0.165*	-0.027	0.042	-0.236**	0.117**
	(0.081)	(0.067)	(0.032)	(0.046)	(0.087)	(0.045)
Entered 2016-17	-0.267**	-0.331***	-0.152***	0.132**	-0.399***	0.187***
	(0.084)	(0.071)	(0.033)	(0.048)	(0.105)	(0.053)
Entered 2017-18	-0.461***	-0.680***	-0.342***	0.214***	-0.434	-0.539
	(0.091)	(0.083)	(0.037)	(0.054)	(0.395)	(0.333)
Georgia Inst. of Technology	2.439***	2.269***	2.152***	-2.347***	-0.183	-0.154
	(0.236)	(0.216)	(0.131)	(0.516)	(0.203)	(0.119)
Georgia State University	-0.976***	-0.182	-0.473***	0.326***	-0.268*	0.418***
	(0.241)	(0.197)	(0.044)	(0.052)	(0.131)	(0.080)
Augusta University	-0.344	0.331	0.565***	-0.153	-0.110	0.421***
	(0.319)	(0.245)	(0.078)	(0.127)	(0.261)	(0.118)
University of Georgia	0.485**	0.853***	0.550***	-0.141	-0.444**	0.294***
	(0.178)	(0.163)	(0.055)	(0.201)	(0.171)	(0.089)
Albany State University	-0.184	-0.319	-0.500***	-0.232*	-0.103	0.595***
	(0.487)	(0.511)	(0.088)	(0.094)	(0.262)	(0.139)
Clayton State University	-1.149	-0.945	-0.456***	-0.422***	-1.073**	0.236
	(0.777)	(0.687)	(0.102)	(0.127)	(0.339)	(0.187)
Columbus State University	-0.278	-0.148	-0.154*	0.253*	0.319	-0.029
	(0.358)	(0.303)	(0.072)	(0.107)	(0.221)	(0.135)
Fort Valley State University	0.698	0.280	-0.346*	-0.081	-0.366	0.570**
	(0.627)	(0.735)	(0.135)	(0.125)	(0.356)	(0.184)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Ga. College & St. University	-0.576*	-0.175	-0.414***	0.534***	0.125	0.418***
	(0.248)	(0.206)	(0.058)	(0.137)	(0.219)	(0.100)
Georgia Southern University	-0.188	0.178	0.118**	-0.051	-0.250	0.223**
	(0.204)	(0.181)	(0.043)	(0.061)	(0.148)	(0.078)
Ga. Southwestern St. University	-0.161	0.632	0.575***	-0.497*	0.185	0.003
	(0.443)	(0.331)	(0.104)	(0.195)	(0.456)	(0.179)
Kennesaw State University	-0.330	0.023	-0.158***	0.356***	0.149	0.326***
	(0.203)	(0.181)	(0.041)	(0.064)	(0.138)	(0.078)
Savannah State University	-1.449	0.061	-0.372***	0.227**	0.258	0.261
	(0.908)	(0.678)	(0.097)	(0.088)	(0.218)	(0.160)
Valdosta State University	-0.347	0.087	0.127*	-0.335***	-0.041	-0.059
	(0.291)	(0.249)	(0.061)	(0.098)	(0.211)	(0.112)
University of North Georgia	0.183	0.458*	0.080	-0.120	0.188	0.175*
	(0.208)	(0.186)	(0.046)	(0.066)	(0.166)	(0.087)
University of West Georgia	0.007	-0.109	-0.035	-0.013	-0.021	0.441***
	(0.265)	(0.258)	(0.052)	(0.074)	(0.175)	(0.087)
Middle Georgia St. University	-0.315	0.169	-0.020	-0.011	-0.364	0.030
	(0.424)	(0.350)	(0.074)	(0.092)	(0.273)	(0.151)
Random effect loading	0.661***	0.798***	1.000	0.889***	1.000	-0.014
	(0.155)	(0.126)		(0.181)		(0.043)
Random effect variance			2.864***			
			(0.331)			
Spells	26,804		88,902	52,722	10,247	20,890
Periods	52,365		150,597	81,570	13,625	29,013

Notes. Estimated robust standard errors in parentheses. The analysis data set includes students who enroll in bachelor's, associate, and non-degree programs.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B3. Event-history Model Results for Georgia Institute of Technology (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship[a]	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-1.553***	-0.484	-0.548		-0.643	-0.372*
	(0.199)	(0.340)	(0.792)		(0.878)	(0.159)
3rd period of spell	-3.092***	-1.281**	-1.184		-	-
	(0.373)	(0.487)	(1.007)			
Black	0.356*	0.276	1.490		1.069	-1.154***
	(0.166)	(0.200)	(0.870)		(0.670)	(0.268)
Hispanic	-0.123	0.060	1.091		0.435	0.016
	(0.171)	(0.173)	(0.902)		(0.516)	(0.263)
Asian	-0.045	0.133	0.532		0.311	-0.286
	(0.113)	(0.111)	(0.750)		(0.382)	(0.190)
Other race or unknown	0.166	-0.061	1.026		0.395	-0.355
	(0.156)	(0.170)	(0.911)		(0.553)	(0.256)
Woman	-0.290***	-0.103	-0.419		-0.918	0.431**
	(0.087)	(0.092)	(0.329)		(0.595)	(0.142)
Age at entry	-0.270*	-0.057	-0.217		-0.989	-0.355*
	(0.112)	(0.114)	(0.265)		(0.753)	(0.171)
HS GPA	-2.581***	-2.165*	-2.253		-1.015	0.567
	(0.592)	(0.864)	(1.622)		(1.049)	(0.354)
ACT composite score	-0.229***	-0.223**	-0.088		-0.064	-0.043
	(0.047)	(0.074)	(0.047)		(0.071)	(0.030)
ln (adjusted gross income)	-0.016	-0.008	-0.151		0.041	0.123
	(0.030)	(0.038)	(0.147)		(0.102)	(0.084)
AGI missing	-0.168	-0.115	-2.809		0.817	1.418
	(0.386)	(0.481)	(2.264)		(1.297)	(1.014)
Received Pell grant	0.254*	-0.223	0.037		0.987	-0.048
	(0.125)	(0.143)	(0.359)		(0.606)	(0.236)
Received student loan	0.332**	0.253*	-0.091		0.298	-0.007
	(0.106)	(0.123)	(0.381)		(0.337)	(0.149)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship[a]	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Financially independent	0.488 (0.603)	0.054 (0.883)	-0.757 (1.942)		1.622 (1.825)	3.162* (1.402)
Entered 2014-15	-0.140 (0.134)	-0.228 (0.154)	-0.773 (0.755)		-0.068 (0.404)	0.109 (0.185)
Entered 2015-16	-0.335* (0.150)	-0.300 (0.190)	-0.596 (0.567)		-0.494 (0.374)	0.314 (0.191)
Entered 2016-18	-0.572** (0.183)	-0.820** (0.284)	-1.545 (0.809)		-1.580 (0.878)	0.531* (0.216)
Random effect loading	0.314 (0.486)	0.578 (0.808)	1.000		1.000	0.049 (0.090)
Random effect variance			6.448 (10.018)			
Spells	6,166		908		939	1,049
Periods	11,646		1,643		1,339	1,566

Notes. Estimated robust standard errors in parentheses. The models omit controls for term of entry.

[a] There are insufficient spells to estimate this component of the model. The model excludes students who entered the Georgia Institute of Technology without a Zell Miller or HOPE scholarship.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B4. Event-history Model Results for Georgia State University (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-0.607 (0.475)	-0.777** (0.256)	-0.776*** (0.060)	-1.528*** (0.141)	-0.903*** (0.214)	-0.185 (0.188)
3rd period of spell	-1.394 (0.791)	-1.004** (0.352)	-1.554*** (0.098)	-1.824*** (0.224)	-	-
Black	0.240 (0.538)	0.449 (0.302)	0.325*** (0.067)	-0.463*** (0.138)	0.490* (0.236)	-0.030 (0.202)
Hispanic	-1.475 (1.157)	0.037 (0.415)	0.115 (0.082)	-0.156 (0.163)	0.025 (0.315)	-0.311 (0.264)
Asian	-1.076 (0.889)	0.240 (0.319)	0.106 (0.077)	-0.212 (0.131)	0.148 (0.253)	0.254 (0.218)
Other race or unknown	0.236 (0.700)	-0.143 (0.514)	0.258** (0.094)	-0.287 (0.178)	0.188 (0.332)	0.068 (0.282)
Woman	-0.098 (0.445)	-0.986*** (0.227)	-0.151** (0.046)	0.122 (0.085)	-0.372* (0.163)	0.432** (0.145)
Age at entry	0.044 (0.468)	0.017 (0.227)	0.022 (0.050)	-0.030 (0.063)	-0.195 (0.175)	0.122 (0.144)
HS GPA	-3.122** (1.065)	-2.325** (0.803)	-2.076*** (0.128)	1.019*** (0.195)	-0.872** (0.299)	1.114*** (0.308)
ACT composite score	-0.197** (0.072)	-0.126* (0.051)	-0.086*** (0.009)	0.068*** (0.017)	-0.008 (0.028)	0.033 (0.022)
ln (adjusted gross income)	-	-	-0.014 (0.014)	0.050 (0.028)	-0.039 (0.050)	0.101 (0.057)
AGI missing	-	-	-0.159 (0.209)	-0.050 (0.355)	-0.346 (0.645)	1.088 (0.669)
Received Pell grant	0.622 (0.473)	-0.225 (0.246)	0.104* (0.050)	0.169 (0.102)	0.158 (0.187)	-0.057 (0.166)
Received student loan	0.195 (0.430)	0.020 (0.259)	0.181*** (0.046)	-0.103 (0.092)	-0.008 (0.184)	-0.043 (0.162)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Financially independent	0.996 (0.958)	-0.560 (1.199)	0.332* (0.169)	-0.422 (0.354)	0.071 (0.622)	-0.385 (0.471)
Entered 2014-15	-0.127 (0.619)	-0.396 (0.342)	0.103 (0.066)	-0.084 (0.133)	-0.293 (0.215)	-0.148 (0.171)
Entered 2015-16	0.372 (0.598)	-0.135 (0.315)	-0.002 (0.066)	0.211 (0.133)	-0.213 (0.211)	0.031 (0.174)
Entered 2016-18	-0.594 (0.608)	-1.209*** (0.354)	-0.051 (0.060)	0.320* (0.125)	-0.179 (0.241)	0.303 (0.207)
Random effect loading	1.521 (0.917)	0.911 (2.248)	1.000	-1.369 (0.967)	1.000	-2.258* (0.884)
Random effect variance			0.365 (0.223)			
Spells	1,013		10,797	3,094	1,081	2,134
Periods	2,228		19,814	4,900	1,486	2,945

Notes. Estimated robust standard errors in parentheses. The models for entering Zell Miller Scholarship spells do not control for AGI. None of the models controls for term of entry.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B5. Event-history Model Results for the University of Georgia (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-0.399*	-0.209	-0.961***	-1.555***	-0.735***	-0.406***
	(0.199)	(0.132)	(0.062)	(0.406)	(0.194)	(0.111)
3rd period of spell	0.070	-0.615**	-1.704***	-1.112*	-	-
	(0.279)	(0.198)	(0.095)	(0.470)		
Black	0.894***	0.374*	0.452***	0.576	0.564*	-0.414**
	(0.261)	(0.181)	(0.075)	(0.411)	(0.245)	(0.159)
Hispanic	-0.145	-0.160	0.059	-0.264	0.154	-0.470*
	(0.314)	(0.202)	(0.093)	(0.571)	(0.338)	(0.206)
Asian	0.382	0.050	0.359***	0.593	0.050	-0.327*
	(0.206)	(0.139)	(0.074)	(0.399)	(0.244)	(0.148)
Other race or unknown	-0.238	-0.359	0.156	-0.040	0.467	0.219
	(0.296)	(0.206)	(0.108)	(0.712)	(0.313)	(0.219)
Woman	-1.535***	-1.050***	-0.647***	-0.130	-0.544***	0.393***
	(0.176)	(0.132)	(0.054)	(0.290)	(0.157)	(0.099)
Age at entry	-0.319	-0.281*	-0.058	0.587*	0.029	-0.066
	(0.207)	(0.127)	(0.059)	(0.249)	(0.206)	(0.126)
HS GPA	-7.630***	-5.577***	-1.463***	1.346***	-0.555	0.309
	(0.836)	(0.680)	(0.126)	(0.344)	(0.376)	(0.263)
ACT composite score	-0.339***	-0.299***	-0.080***	0.000	-0.040	0.003
	(0.043)	(0.029)	(0.009)	(0.042)	(0.032)	(0.017)
ln (adjusted gross income)	-0.100**	-0.021	-0.008	0.028	-0.137*	0.063
	(0.039)	(0.030)	(0.016)	(0.058)	(0.054)	(0.048)
AGI missing	-1.576**	-0.499	-0.297	-0.858	-2.141**	0.721
	(0.515)	(0.380)	(0.209)	(0.739)	(0.674)	(0.575)
Received Pell grant	-0.097	0.067	0.033	-1.009*	-0.208	-0.183
	(0.178)	(0.118)	(0.068)	(0.419)	(0.225)	(0.147)
Received student loan	0.513***	0.364***	0.140**	0.463	0.086	-0.095
	(0.134)	(0.089)	(0.053)	(0.376)	(0.169)	(0.117)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Entered 2014-15	0.605**	0.443**	0.243***	-0.673	-0.078	-0.073
	(0.214)	(0.145)	(0.069)	(0.420)	(0.202)	(0.125)
Entered 2015-16	0.042	0.094	0.005	-0.575	-0.226	0.119
	(0.204)	(0.133)	(0.072)	(0.451)	(0.196)	(0.127)
Entered 2016-18	-0.196	-0.203	-0.013	-0.610	-0.311	0.071
	(0.182)	(0.124)	(0.067)	(0.430)	(0.254)	(0.155)
Random effect loading	7.137**	4.790**	1.000	-0.326	1.000	0.506
	(2.493)	(1.516)		(0.374)		(0.320)
Random effect variance			0.267			
			(0.172)			
Spells	12,478		8,955	227	1,411	2,043
Periods	24,560		17,481	391	1,950	2,879

Notes. Estimated robust standard errors in parentheses. The models omit controls for financial independence and term of entry.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B6. Event-history Model Results for Georgia Comprehensive Universities (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-0.713 (0.454)	0.400 (0.348)	-0.570*** (0.075)	-1.176*** (0.145)	-0.754*** (0.160)	-0.416*** (0.066)
3rd period of spell	-2.142** (0.755)	0.376 (0.462)	-1.363*** (0.104)	-1.282*** (0.224)	-	-
Black	0.897** (0.309)	0.310 (0.309)	0.386*** (0.051)	-0.518*** (0.107)	0.600*** (0.165)	-0.177* (0.071)
Hispanic	0.382 (0.408)	0.087 (0.398)	0.132 (0.071)	-0.382** (0.130)	0.005 (0.265)	-0.162 (0.115)
Asian	-1.017 (0.646)	-0.196 (0.499)	-0.191 (0.104)	0.168 (0.182)	0.037 (0.359)	-0.135 (0.175)
Other race or unknown	0.487 (0.375)	0.212 (0.393)	0.257** (0.081)	-0.072 (0.133)	0.346 (0.255)	-0.186 (0.134)
Woman	-1.490*** (0.449)	-1.307*** (0.374)	-0.810*** (0.054)	0.574*** (0.102)	-0.446** (0.140)	0.467*** (0.060)
Age at entry	0.203 (0.305)	-0.222 (0.269)	-0.103* (0.052)	0.033 (0.036)	0.182 (0.116)	-0.022 (0.055)
HS GPA	-6.839*** (2.016)	-6.113*** (1.726)	-2.973*** (0.172)	1.212*** (0.209)	-0.908*** (0.243)	0.721*** (0.109)
ACT composite score	-0.162** (0.055)	-0.123* (0.049)	-0.093*** (0.009)	0.107*** (0.022)	0.065** (0.024)	0.011 (0.011)
ln (adjusted gross income)	-0.031 (0.060)	-0.041 (0.057)	-0.023 (0.013)	0.043 (0.023)	-0.015 (0.048)	-0.008 (0.021)
AGI missing	-0.122 (0.805)	-0.387 (0.728)	-0.326 (0.167)	-0.025 (0.290)	-0.289 (0.600)	-0.340 (0.253)
Received Pell grant	0.447* (0.212)	0.262 (0.226)	0.155*** (0.043)	0.105 (0.078)	-0.053 (0.158)	-0.285*** (0.071)
Received student loan	0.881** (0.275)	0.704** (0.235)	0.331*** (0.041)	-0.044 (0.071)	0.034 (0.132)	-0.225*** (0.064)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Financially independent	1.275 (0.746)	0.863 (0.702)	0.281 (0.156)	-0.490 (0.251)	-0.127 (0.479)	0.144 (0.221)
Entered summer term	-0.569 (0.896)	-0.678 (0.693)	0.314*** (0.086)	-0.077 (0.115)	0.438 (0.274)	-0.383** (0.137)
Entered spring term	-0.487 (0.818)	-0.818 (0.767)	0.043 (0.123)	-0.200 (0.150)	-0.610 (0.374)	0.091 (0.198)
Entered 2014-15	0.469 (0.292)	-0.179 (0.271)	-0.058 (0.056)	-0.116 (0.091)	0.257 (0.163)	0.047 (0.074)
Entered 2015-16	-0.119 (0.331)	-0.751* (0.294)	-0.046 (0.056)	-0.129 (0.094)	-0.081 (0.164)	0.141 (0.074)
Entered 2016-18	-0.526 (0.319)	-0.907** (0.277)	-0.209*** (0.052)	-0.066 (0.083)	-0.193 (0.202)	0.186* (0.087)
Kennesaw State University	-0.200 (0.204)	-0.229 (0.197)	-0.280*** (0.045)	0.433*** (0.103)	0.435** (0.148)	0.110 (0.065)
Valdosta State University	-0.152 (0.334)	-0.020 (0.298)	0.099 (0.065)	-0.385*** (0.116)	0.291 (0.233)	-0.327** (0.106)
University of West Georgia	0.285 (0.301)	-0.143 (0.310)	-0.036 (0.058)	-0.087 (0.090)	0.349 (0.203)	0.156 (0.082)
Random effect loading	1.172 (0.666)	1.469** (0.496)	1.000	0.882** (0.301)	1.000	-0.057 (0.064)
Random effect variance			3.322*** (0.556)			
Spells	3,421		30,827	11,852	2,825	7,820
Periods	6,705		52,987	20,108	3,779	11,132

Notes. Estimated robust standard errors in parentheses. Institution effects are estimated relative to Georgia Southern University.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B7. Event-history Model Results for Georgia's State Universities (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-0.632*	0.016	-0.662***	-1.023***	-0.500*	-0.581***
	(0.274)	(0.162)	(0.095)	(0.096)	(0.210)	(0.098)
3rd period of spell	-2.083***	-0.520*	-1.398***	-1.323***	-	-
	(0.551)	(0.242)	(0.136)	(0.151)		
Black	0.518	0.132	0.496***	-0.195	0.630*	-0.281
	(0.438)	(0.360)	(0.091)	(0.111)	(0.303)	(0.144)
Hispanic	-0.080	0.395	0.063	-0.191	-0.046	0.055
	(0.527)	(0.344)	(0.103)	(0.154)	(0.388)	(0.181)
Asian	-0.553	0.589	-0.106	0.435	0.780	0.101
	(0.806)	(0.386)	(0.160)	(0.241)	(0.499)	(0.290)
Other race or unknown	-0.266	-0.825	0.088	0.174	0.088	0.003
	(0.591)	(0.493)	(0.132)	(0.175)	(0.447)	(0.220)
Woman	-1.031***	-0.540***	-0.653***	0.294***	-0.677***	0.495***
	(0.232)	(0.151)	(0.068)	(0.070)	(0.185)	(0.090)
Age at entry	0.235	-0.071	-0.047	-0.044	0.063	-0.020
	(0.278)	(0.184)	(0.057)	(0.035)	(0.124)	(0.107)
HS GPA	-3.494***	-2.442***	-3.030***	1.229***	-0.194	0.415*
	(0.877)	(0.562)	(0.229)	(0.129)	(0.305)	(0.175)
ACT composite score	-0.133*	-0.148***	-0.109***	0.086***	0.040	0.058***
	(0.055)	(0.032)	(0.012)	(0.015)	(0.031)	(0.015)
ln (adjusted gross income)	-0.009	0.052	-0.039**	0.018	0.052	-0.021
	(0.080)	(0.067)	(0.015)	(0.019)	(0.041)	(0.023)
AGI missing	0.164	0.906	-0.578**	-0.361	0.618	-0.367
	(0.995)	(0.805)	(0.193)	(0.251)	(0.562)	(0.291)
Received Pell grant	0.484	0.139	0.155**	-0.222**	-0.053	-0.221*
	(0.279)	(0.190)	(0.059)	(0.084)	(0.211)	(0.108)
Received student loan	0.291	0.199	0.183***	-0.144	0.151	0.147
	(0.207)	(0.151)	(0.051)	(0.086)	(0.196)	(0.098)
Financially independent	-0.157	1.040	0.168	-0.163	1.076*	-0.236
	(1.190)	(0.680)	(0.176)	(0.208)	(0.518)	(0.267)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Entered summer term	0.530 (0.436)	0.074 (0.398)	0.137 (0.094)	0.141 (0.143)	0.796* (0.343)	-0.225 (0.164)
Entered spring term	0.847 (0.573)	0.536 (0.456)	-0.065 (0.122)	-0.127 (0.113)	0.577 (0.323)	0.053 (0.230)
Entered 2014-15	-0.047 (0.354)	-0.142 (0.223)	-0.056 (0.074)	-0.129 (0.102)	-0.156 (0.224)	0.136 (0.108)
Entered 2015-16	0.215 (0.332)	-0.220 (0.220)	-0.056 (0.073)	-0.101 (0.099)	-0.235 (0.225)	0.089 (0.110)
Entered 2016-18	-0.206 (0.318)	-0.464* (0.216)	-0.432*** (0.075)	0.070 (0.090)	-0.585* (0.264)	0.056 (0.129)
Clayton State University	-1.397 (1.025)	-0.864 (0.876)	-0.098 (0.149)	-0.353* (0.157)	-1.017* (0.463)	-0.390 (0.227)
Columbus State University	-0.720 (0.630)	-0.055 (0.641)	0.273* (0.134)	0.291* (0.140)	0.172 (0.385)	-0.759*** (0.196)
Fort Valley State University	0.565 (0.870)	0.472 (0.861)	0.076 (0.169)	-0.034 (0.144)	-0.226 (0.440)	-0.128 (0.222)
Ga. College & St. University	-1.101 (0.614)	-0.107 (0.627)	0.052 (0.140)	0.531** (0.177)	-0.249 (0.441)	-0.298 (0.201)
Ga. Southwestern St. University	-0.714 (0.700)	0.645 (0.661)	1.047*** (0.172)	-0.315 (0.198)	0.089 (0.566)	-0.688** (0.236)
Savannah State University	-1.638 (1.041)	0.223 (0.803)	0.022 (0.140)	0.202 (0.124)	0.413 (0.340)	-0.491* (0.204)
University of North Georgia	-0.296 (0.620)	0.537 (0.630)	0.668*** (0.149)	-0.376 (0.198)	-0.252 (0.457)	-0.598** (0.202)
Middle Georgia St. University	-1.110 (0.770)	0.109 (0.695)	0.338* (0.150)	0.143 (0.154)	-0.311 (0.491)	-0.541* (0.236)
Random effect loading	0.822 (0.452)	0.487 (0.260)	1.000	0.480* (0.235)	1.000	0.010 (0.129)
Random effect variance			2.501*** (0.640)			
Spells	2,258		16,036	7,701	1,427	3,757
Periods	4,586		27,936	12,887	1,885	5,262

Notes. Estimated robust standard errors in parentheses. Institution effects are estimated relative to Albany State University.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B8. Event-history Model Results for Georgia's State Colleges (Back to Section)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
2nd period of spell	-0.717 (0.571)	-0.039 (0.451)	-0.868*** (0.161)	-0.848*** (0.147)	-0.666 (0.352)	-0.348 (0.211)
3rd period of spell	-0.026 (0.678)	-1.116 (0.774)	-1.748*** (0.252)	-1.735*** (0.268)	-	-
Black	-0.318 (0.870)	0.024 (1.197)	0.121 (0.126)	-0.469*** (0.134)	0.171 (0.366)	0.068 (0.248)
Hispanic	0.165 (0.688)	0.076 (0.696)	-0.325* (0.137)	-0.086 (0.113)	-0.540 (0.380)	-0.364 (0.311)
Asian	-0.674 (1.085)	0.482 (0.534)	-0.452* (0.182)	0.190 (0.141)	0.102 (0.426)	-0.044 (0.317)
Other race or unknown	1.083 (0.684)	-0.167 (1.048)	0.161 (0.243)	-0.160 (0.189)	0.518 (0.498)	0.157 (0.421)
Woman	-0.788 (0.408)	-0.517 (0.445)	-0.483*** (0.118)	0.264** (0.090)	-0.246 (0.270)	0.407* (0.178)
Age at entry	0.578 (0.409)	0.400 (0.401)	-0.135 (0.084)	-0.103** (0.036)	0.279* (0.138)	0.034 (0.132)
HS GPA	-2.257 (1.402)	-2.564 (1.586)	-2.377*** (0.363)	0.980*** (0.188)	-0.097 (0.415)	0.785** (0.289)
ACT composite score	-0.105 (0.072)	0.051 (0.076)	-0.135*** (0.025)	0.090*** (0.019)	0.046 (0.047)	0.010 (0.025)
ln (adjusted gross income)	-0.135 (0.131)	0.389 (0.560)	-0.025 (0.024)	0.018 (0.023)	-0.008 (0.087)	0.146 (0.093)
AGI missing	-0.858 (1.749)	5.207 (6.547)	-0.249 (0.350)	-0.325 (0.299)	0.969 (1.087)	1.514 (1.073)
Received Pell grant	0.395 (0.564)	0.875 (0.769)	-0.044 (0.096)	0.095 (0.094)	0.205 (0.334)	-0.193 (0.215)
Received student loan	0.078 (0.500)	0.089 (0.652)	0.524*** (0.117)	-0.117 (0.091)	0.017 (0.294)	-0.572** (0.207)

Spell:	Entered with Zell Miller Scholarship		Entered with HOPE Scholarship	Entered with neither scholarship	Non-entering scholarship	Non-entering no scholarship
Transition to:	Neither Scholarship	HOPE Scholarship	Neither scholarship	HOPE Scholarship	Neither scholarship	Scholarship
Entered summer term	0.124 (1.119)	-0.334 (1.083)	0.313 (0.311)	0.257 (0.236)	-0.392 (0.839)	-0.119 (0.472)
Entered spring term	-	-	0.040 (0.185)	0.087 (0.128)	-0.633 (0.426)	-0.299 (0.460)
Entered 2014-15	0.837 (1.219)	0.195 (0.682)	-0.082 (0.141)	0.038 (0.127)	-0.122 (0.332)	-0.232 (0.239)
Entered 2015-16	0.948 (1.104)	0.203 (0.672)	0.220 (0.140)	-0.137 (0.129)	-0.388 (0.344)	-0.025 (0.232)
Entered 2016-18	1.567 (0.997)	0.089 (0.613)	-0.207 (0.127)	0.279* (0.117)	-0.535 (0.391)	0.182 (0.270)
Random effect loading	-0.119 (0.171)	0.087 (0.876)	1.000	0.519 (0.508)	1.000	0.052 (0.322)
Random effect variance			2.000 (1.167)			
Spells	292		4,248	4,683	573	947
Periods	696		6,928	7,106	728	1,250

Notes. Estimated robust standard errors in parentheses. The models omit controls for financial independence. The Georgia State colleges are Abraham Baldwin Agricultural College, Atlanta Metropolitan State College, College of Coastal Georgia, Dalton State College, East Georgia State College, Georgia Gwinnett College, Georgia Highlands College, Gordon State College, and South Georgia State College.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

ABOUT THE AUTHORS

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ABOUT THE GEORGIA POLICY LABS

The Georgia Policy Labs (GPL) is a collaboration between Georgia State University and a variety of government agencies to promote evidence-based policy development and implementation. Housed in the Andrew Young School of Policy Studies, GPL works to create an environment where policymakers have the information and tools available to improve the effectiveness of existing government policies and programs, try out new ideas for addressing pressing issues, and decide what new initiatives to scale. The goal is to help government entities more effectively use scarce resources and make a positive difference in people's lives. GPL has three components: The Metro Atlanta Policy Lab for Education works to improve K-12 educational outcomes; the Career & Technical Education Policy Exchange focuses on high-school-based career and technical education in multiple U.S. states; and the Child & Family Policy Lab examines how Georgia's state agencies support the whole child and the whole family. In addition to conducting evidence-based policy research, GPL serves as a teaching and learning resource for state officials and policymakers, students, and other constituents. See more at gpl.gsu.edu.