

An Introduction to First-Generation College Students in Tennessee

It is well documented that first-generation students face numerous obstacles in accessing postsecondary education. Prior work has examined several factors that relate to first-generation students' college access and success once enrolled, including (1) demographic characteristics, (2) academic preparedness, and (3) college costs and access to financial resources.¹ In this brief, we describe differences in the demographic, academic, and financial characteristics of first-generation and non-first-generation students in Tennessee.

Data

This analysis uses Tennessee administrative data obtained through the Tennessee Postsecondary Evaluation and Analysis Research Lab (TN-PEARL), a research-practice partnership between Vanderbilt University's Peabody College of Education, University of Tennessee's Boyd Center for Business and Economic Research, and the Tennessee Higher Education Commission (THEC). The data are collected by THEC and the Tennessee Student Assistance Corporation (TSAC) and maintained by the state's P-20 data repository. The sample includes eight cohorts of first-time, first-year students enrolled in state community or four-year colleges in the 2010-11 through the 2017-18 school years. The sample contains 189,358 students in their first term of enrollment who have filed for federal financial aid, are Tennessee residents, are dependents between ages 17-24, and have complete information on the variables in the larger study (Joshi, 2020).² See Appendix for complete list of variables in study, including variables for students' demographic characteristics, academic preparedness, and financial resources.

Identifying First-Generation Students

Using data from the Free Application for Financial Aid (FAFSA), we compare two definitions of first-generation students: either as (1) students with exactly one degree-holding parent or (2) students without a degree-holding parent, to non-first-generation college students, i.e., those with two degree-holding parents. TDOE defines first-generation college students using the second definition (see Appendix for more information).



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Figure 1 presents the composition of students in the sample based on level of parental education. Blue represents first-generation students without a degree-holding parent, orange represents students with exactly one degree-holding parent, and grey represents non-first-generation students, i.e., those with two degree-holding parents. Of the 189,358 students in the sample, 35.1 percent were non-first-generation and 64.9 were first-generation. 36.3 percent of first-generation students came from households where neither parent completed college and 28.6 percent of first-generation students had exactly one parent who had completed college.

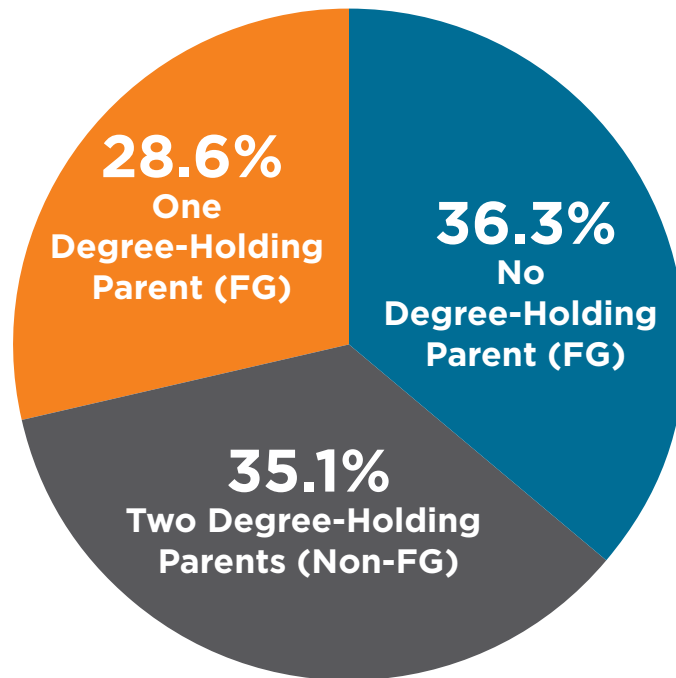
Demographic Characteristics

Prior studies show that first-generation students' demographic characteristics are associated with their post-secondary outcomes. First-generation students are more likely to be female, older in age, and students of color, and are more likely to have children. Several studies show that first-generation students' backgrounds differ from their non-first-generation peers.^{1,3}

Our findings using Tennessee data are comparable to existing work. As shown in Figure 2, a greater proportion of first-generation students in Tennessee were female. For instance, of first-generation students without a degree-holding parent, 59 percent were female.

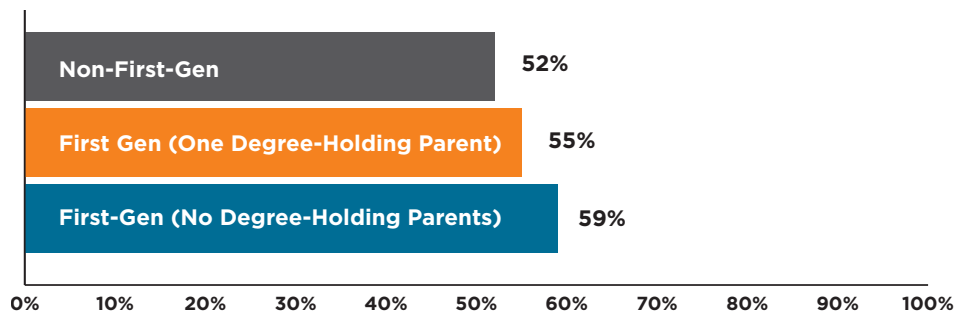
Furthermore, as shown in Figure 3, first-generation students were more likely to be students of color, while non-first-generation students were more likely to be White. For instance, 73 percent of non-first-generation students were White, compared to 69 percent of first-generation students with one degree-holding parent and 65 percent of first-generation students without a degree-holding parent. Greater proportions of first-generation students were Black or Hispanic.

Figure 1: First-Time, First-Year Students in Tennessee, by Parental Education



Note: Figure shows the percent students in the study sample by parental education (N=189,358). Sample includes eight cohorts of first-time, first-year students enrolled in state community or four-year colleges in the 2010-11 through the 2017-18 school years. The sample contains 189,358 students in their first term of enrollment.

Figure 2: Percent Female, by First-Generation Status



Note: The figure plots the percentage of first-generation and non-first-generation students who are recorded as female in the study sample.

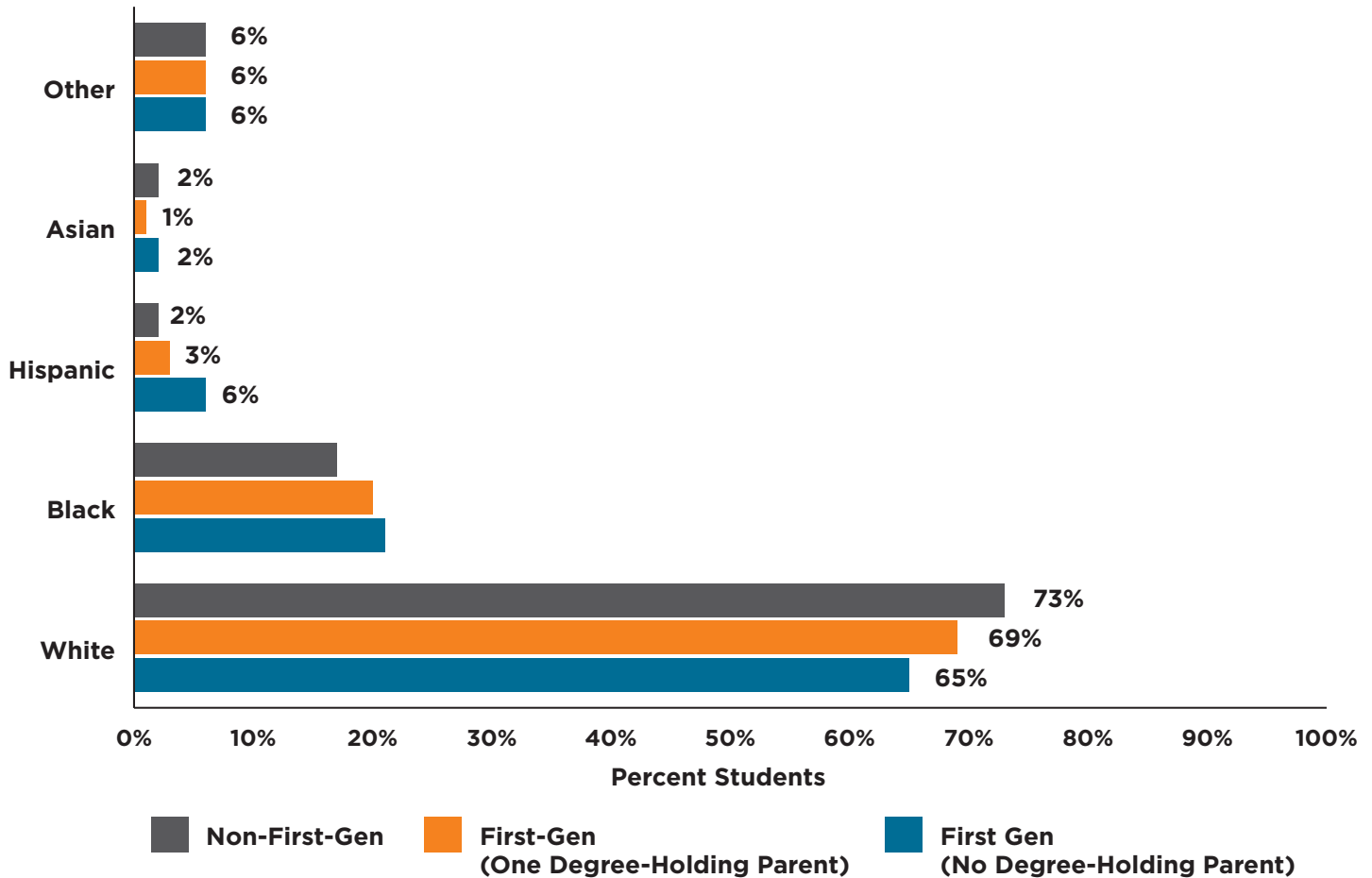
Academic Preparation

Another key barrier to college access is academic preparation. Students from first-generation backgrounds may face obstacles accessing or completing coursework and opportunities to be prepared for college. First-generation students on average have lower grade point averages (GPAs)³, complete fewer rigorous high school courses⁴, have lower scores on standardized tests⁵ and lower cognitive skills as measured by reading, math, and critical think-

ing pretests.¹ Lower levels of academic preparation may make it more challenging for first-generation students to enroll in the postsecondary institution of their choice or create lower academic aspirations.

To examine differences in first-generation students' academic preparedness, we compare the percentage of students who fall into different quartiles of achievement based on their high school ACT Composite score. Figure 4 shows the distribution of students

Figure 3: First-Generation Students, by Race/Ethnicity



Note: The figure plots the percentage of first-generation and non-first-generation students who are recorded as White, Black, Hispanic, Asian, or other race/ethnicity in the study sample.

within each group of first-generation and non-first-generation students by ACT Composite quartile. Students were grouped into quartiles based on their ACT Composite score such that there were about even numbers of students in each quartile.

We observed that both groups of first-generation students were more likely to be in the bottom two quartiles of achievement, while there was a relatively even distribution of non-first-generation students across the quartiles. As shown in Figure 4, 40 percent of first-generation students without a degree-holding parent fell into the bottommost quartile of the ACT Composite score distribution and just 11 percent fell into the topmost quartile. In contrast, 22 percent of stu-

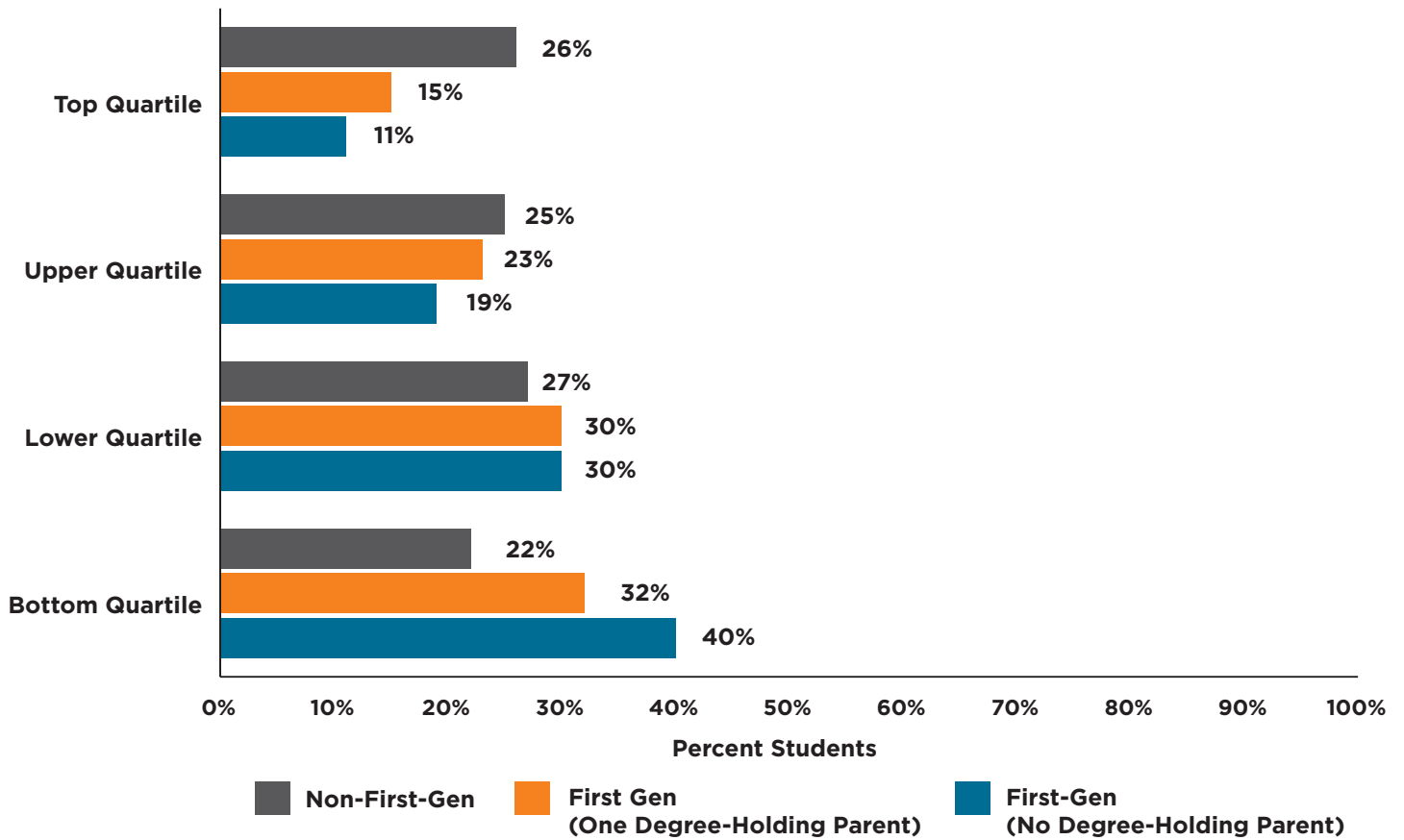
dents with two degree-holding parents fell into the bottommost quartile and 26 percent fell into the topmost quartile.

Financial Resources

A third barrier is college costs and a lack of access to financial resources. College tuition is a significant barrier to college access since tuition has increased over time, while family incomes have remained stagnant for over a decade. Furthermore, obtaining financial aid requires having insight and information about the process, such that many students who would qualify for aid are unable to access funding due to a lack of procedural knowledge. First-generation students in particular may come from households with fewer financial resources and greater financial constraints.^{1,5}

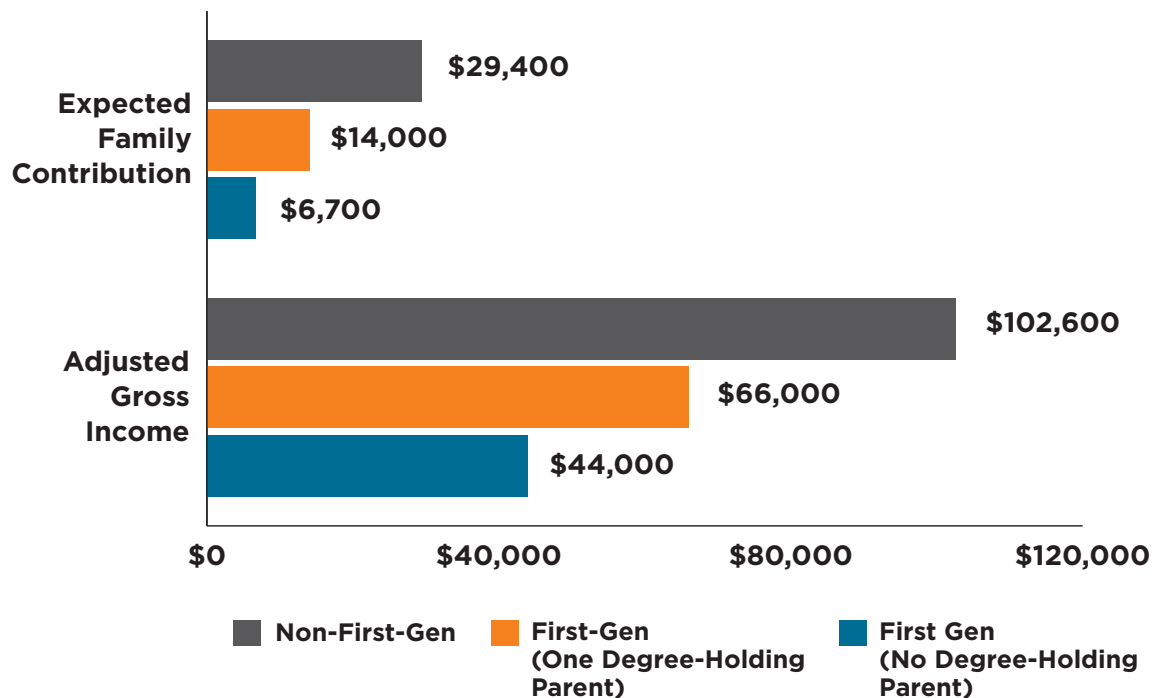
We examine students' access to parental financial resources, as measured by parental expected family contribution (EFC) and adjusted gross income (AGI), by first-generation status. As shown in Figure 5, both groups of first-generation students had parents with lower EFCs and AGIs than those of their non-first-generation peers. In particular, the difference in EFC and AGI was large when comparing non-first-generation students to first-generation students without a degree-holding parent. For instance, non-first-generation students had parents with an average AGI of \$102,600, while first-generation students without a degree-holding parent had parents with an average AGI of \$44,000—about \$58,600 fewer.

Figure 4: First-Generation Students, by ACT Composite Score



Note: The figure plots the percentage of first-generation and non-first-generation students in the study sample who fall into each quartile based on students' ACT composite score. ACT scores within each quartile range are as follows: top quartile (24-26), upper middle (22-24), lower middle (19-21), bottom quartile (1-18).

Figure 5: First-Generation Students' Access to Parental Financial Resources



Note: The figure shows the mean parental EFC and AGI by first-generation status in the study sample. Values have been rounded. Study sample excluded independent students without information on parental EFC and AGI.

Next, we explore students' eligibility for merit and need-based grants and scholarships. The Pell and Tennessee Student Assistant Award (TSAA) are awarded based on students' financial and other needs-based eligibility criteria. The Tennessee HOPE, Aspire, Access, and General Assembly Merit (GAM) are merit-based scholarships. The Aspire is specifically targeted towards higher achieving students who are low income.

As seen in Figure 6, greater proportions of first-generation students without a degree-holding parent were eligible for the Aspire scholarship, the Pell grant, and the TSAA than students with one or two degree-holding parents. A higher proportion of non-first-generation students were eligible for the Tennessee HOPE. See Appendix for details on the grants and scholarships.

Conclusion

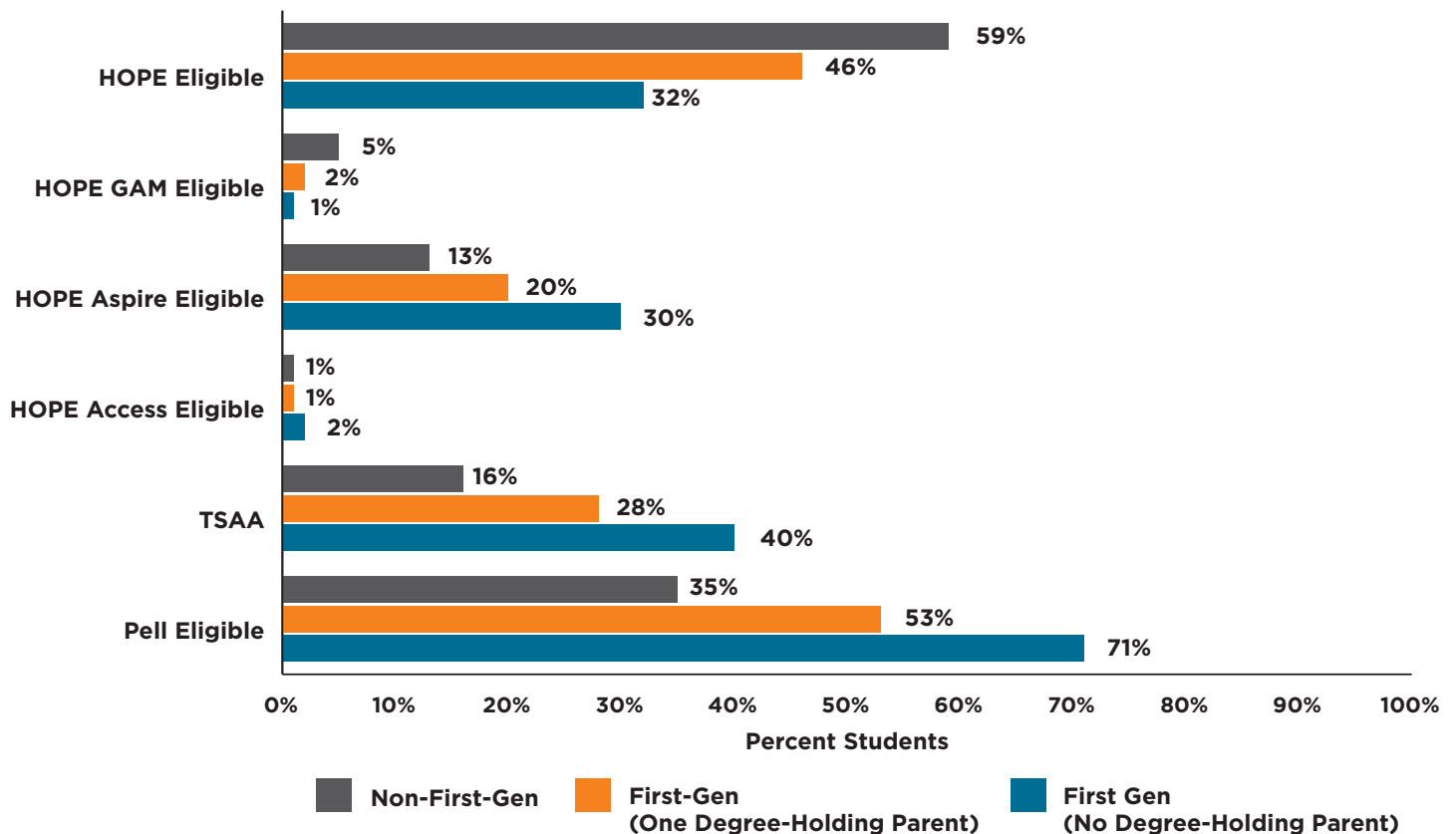
In this brief, we examine descriptive differences between first-generation students' demographic characteristics, academic preparation, and access to financial resources in Tennessee. Our findings show that gaps in academic preparedness and family resources between first-generation and non-first-generation students exist and are similar to differences documented in the literature.

Our findings are consistent with prior work on first-generation students. Gaps are largest between first-generation students without a degree-holding parent and students with two degree-holding parents (i.e., non-first-generation students). Students with one degree-holding parent

appear to have similar ACT scores as their peers with two degree-holding parents, but fewer family financial resources. Students with one degree-holding parent are similar to their non-first-generation peers with respect to eligibility for aid and ACT scores.

Gaps in resource access between first-generation and non-first-generation students motivate further research on how these gaps relate to differences in student outcomes. In a following brief, we explore differences in first-generation and non-first-generation students' first-term college outcomes. We examine variation in differences depending on the number of degree-holding parents a student has as well as how first-generation students are defined (Joshi & Heinrich, 2021)⁶

Figure 6: First-Generation Students' Eligibility for Merit and Need-Based Grants and Scholarships



Note: The figure shows the percentage of students within each group of first-generation/non-first-generation students who are eligible for a given scholarship or grant. Indicators denote eligibility, and not receipt, of each award.

References

- ¹ Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education*, 37(1), 1–22.
- ² Joshi, E. (2020). *The Promise of Free: Changes in First-Generation Students' Postsecondary Outcomes After the Initiation of a Statewide Scholarship and Mentoring Program*. [Unpublished doctoral dissertation]. Vanderbilt University.
- ³ Atherton, M. C. (2014). Academic Preparedness of First-Generation College Students: Different Perspectives. *Journal of College Student Development*; Baltimore, 55(8), 824–829.
- ⁴ Choy, S. (2001). Students whose parents did not go to college: Postsecondary access, persistence, and attainment. In National Center for Education Statistics, *The condition of education*. (pp. xviii–xliii).
- ⁵ Bui, K. V. T. (2002). First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences. *College Student Journal*, 36(1), 3–11.
- ⁶ Joshi, E., & Heinrich, C. (2021). *First-term Postsecondary Outcomes of First-Generation College Students in Tennessee*. Tennessee Postsecondary Evaluation and Analysis Research Lab (TN-PEARL). <https://tnpearl.utk.edu>.

Appendix - Definitions

Defining First-Generation College Students: The Free Application for Federal Student Aid (FAFSA) form asks families to provide the highest level of schooling completed by parents. Families select from the following: (1) Middle school/Jr. High, (2) High School, (3) College or beyond, or (4) Other/unknown (treated as non-college-going). A degree-holding parent was defined as one whose highest level of schooling was “college or beyond”. Since a goal of this study was to compare varying definitions of first-generation college students, the study examines several definitions. TDOE defines first-generation students as students without a degree-holding parent. Of the 189,358 students in the study, 68,717 were students without a degree-holding parent, 54,239 with exactly one degree-holding parent, and 66,402 with two degree-holding parents.

Demographic Characteristics: Student race is a categorical variable describing whether a student recorded as Black, White, Hispanic, Asian, or other race/ethnicity. Student sex is a binary indicator equaling 1 when a student is female and 0 if male.

Academic Preparedness: Students' academic preparedness describes the academic skills students may have

when navigating college and completing collegiate work. ACT composite score is a continuous variable ranging from 1 to 36.

Financial Resources: Students' access to financial resources is measured using data from the Free Application for Federal Student Aid (FAFSA) form, which provides information about students' access to family resources and their eligibility for various federal and state awards and scholarships. Expected family contributions (EFC) towards postsecondary education is calculated using a formula revised annually by the U.S. federal government. This formula considers household size, parental income, work status, savings, and investments (see here for the most recent EFC formula guide). Households may have an EFC of zero if household income falls below a certain threshold. Parental adjusted gross income (AGI) is reported using information from federal tax forms and includes wages, alimony, Social Security, and business income. In a few of cases, parents had negative incomes or incomes of 0. A negative AGI indicates that individuals experienced financial losses greater than their total yearly income. AGI and EFC values of 0 or less were replaced by values of 1 for use in the larger study (Joshi, 2020).²

Additionally, binary indicators for students' eligibility for frequently accessed federal- and state-level scholarships and grants were also included from data provided by THEC. These include measures for whether a student was eligible for the Pell grant, a state needs-based grant (TSAA), the Tennessee HOPE scholarship, the HOPE Access grant, the Tennessee HOPE Aspire award, and the General Assembly Merit (GAM) scholarship. These indicators denote eligibility, and not receipt, of the award. The Pell grant is a federal grant that is awarded to students who meet the government's basic eligibility criteria, amongst other financial, school, and family factors. For more information on the Pell grant, visit here. The Tennessee HOPE scholarship is a merit-based scholarship for eligible Tennessee high school students. The Tennessee HOPE Aspire award is awarded to students who are eligible for the Tennessee HOPE scholarship and who have an income less than \$36,000. The Tennessee HOPE Access grant is a merit-based scholarship for low-income students who just miss the HOPE scholarship criteria. The GAM is an additional merit-based scholarship that supplements the HOPE scholarship for high-achieving entering first-year students. For additional information, visit the following: [TSAA](#), [HOPE](#), [Aspire](#), [Access](#), [GAM](#).