

# Access Missouri

## Geographic Distribution of Financial Need, College Enrollment, and Financial Aid

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For more information, visit <https://www.stlouisgraduates.org/ActiveAdvocacy>.

## 1. Overview

For Missouri's citizens to thrive in today's economy, more of them must pursue and complete college education. In 2016, 43.1% of adult residents held a high-quality credential or college degree.<sup>1</sup> The rate nationwide was slightly higher at 46.9%, with 60% of jobs projected to require degrees by 2025. Research shows there are significant economic benefits to all types of high-quality credentials, from job training and certification to two- and four-year degrees and beyond.<sup>2</sup> But the likelihood that an individual will complete a college credential varies not only based on their academic preparation, but also based on demographic and background characteristics. There are persistent gaps in attainment between children from higher-income and lower-income family backgrounds, suggesting that the price of college is a barrier for some students with fewer financial resources.<sup>3</sup>

Missouri's investment in helping students overcome economic barriers is called Access Missouri. Students who apply for federal aid, qualify based on low family income, and complete their application before the priority deadline, are eligible for up to \$2,850 per year in grant aid from the state. Unlike student loans, grant aid does not have to be repaid. The money can support paying for tuition and fees, books and supplies, or living expenses, and it could reduce student debt.

College students have mounting costs, and in many cases existing financial aid is not sufficient to meet their demonstrated financial need. A significant number of students struggle with basic needs like food and housing.<sup>4</sup> Research has shown that financial aid can help students stay enrolled and complete degrees, but studies also show that uncertainty can hinder the effectiveness of financial aid. We discuss this research in detail below.

Each year, about 47,000 students receive awards, with a program budget of roughly \$65 million. Access Missouri is not fully funded, and to stretch the program budget the maximum award has been reduced from the statutory maximum every year since 2009-10; this can reduce its effectiveness for students struggling to afford college.<sup>5</sup> As legislators make decisions about how to fund and support Access Missouri, it is helpful to know how their district benefits from the program.

This report highlights the number of students applying for financial aid from each district, and how many of them receive Access Missouri awards. The report also describes how Access Missouri flows to colleges and universities located around the state. This report draws on data from the Missouri Department of Higher Education (MDHE) and other sources to report on the flow of Access Missouri dollars. This report supports a set of individual fact sheets for each district in the

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<sup>1</sup> Lumina Foundation tracks college attainment toward the goal of 60% attainment by 2025. See more information at <http://strongernation.luminafoundation.org/report/2018/#state/MO>.

<sup>2</sup> For a deep dive into the economic benefits of college, see *From College to Jobs: Making Sense of Labor Market Returns to Higher Education*. Accessible at [https://cew.georgetown.edu/wp-content/uploads/LaborMarketReturns\\_0.pdf](https://cew.georgetown.edu/wp-content/uploads/LaborMarketReturns_0.pdf).

<sup>3</sup> A comparison of graduation rates by parental income, after taking into account other student characteristics, is available at <https://trends.collegeboard.org/education-pays/figures-tables/completion-rates-family-income-and-parental-education-level>.

<sup>4</sup> For a report on community college students, see <https://hope4college.com/wp-content/uploads/2018/09/Hungry-and-Homeless-in-College-Report.pdf>. For a report including four-year college students, see <https://hope4college.com/wp-content/uploads/2018/09/Wisconsin-HOPE-Lab-Still-Hungry-and-Homeless.pdf>.

<sup>5</sup> One article discussing these issues is <https://www.kcur.org/post/missouri-s-college-scholarship-programs-underfunded-time-rising-tuition/>.

Missouri General Assembly: 163 House of Representatives districts and 34 Senate districts. Zooming out, legislators can also benefit from statewide information about how the program works and who benefits, as well as how Missouri's efforts fit in with neighboring states and the nation.

This report takes up the following key questions. Here we provide a summary of some of the findings, and below we provide more detail on the background, data, charts, and tables to back up these conclusions.

*How many Access Missouri grants flow to students in each legislative district?*

The number of Access Missouri grants per year varies from a low of 823 to a high of 1,782 among Senate districts, and a low of 96 to a high of 474 among House districts. Considering the proportion of financial aid applicants who get awards, the state average is 20%. However there is wide variation, indicating that in some districts there is room for improvement in encouraging students to access the aid that they potentially qualify for, by applying early and enrolling.

*How are Access Missouri grants distributed by student characteristics statewide?*

Not surprisingly, the grants flow more heavily to students from lower-income family backgrounds, with the majority of funds going to students with a household income of less than \$40,000 per year. About six in ten Access Missouri awards go to urban dwellers, seven in ten go to dependent students under 24 years of age, and six in ten go to women.

*How are Access Missouri grants distributed across institutions statewide?*

The majority, just over half, of Access Missouri grants go to students attending the 13 public universities. About another quarter of the awards go to students attending private colleges and universities. Because grants are larger in these two sectors, the vast majority of dollars flow to students pursuing four-year degrees. The remainder of awards go primarily to community college students at 14 two-year public colleges, with a small number going to students at 29 professional and technical institutions.

*How does Missouri financial aid policy compare to other states?*

The size of the grant is relatively small compared to other states' investments in need-based financial aid, with a maximum award size smaller than 31 other state programs. Taking into account actual spending, which is affected by funding shortages and the distribution of grants smaller than the maximum to students with less financial need, Access Missouri ranks behind 26 other states' primary need-based aid program, spending \$1,676 per recipient. Missouri targets more students with middle incomes than other need-based aid programs.

*What can we conclude about how to improve college completion in Missouri?*

Recent research on the Pell Grant and other aid programs is encouraging, suggesting that investments in these students pay off for the state. Since Access Missouri shares many characteristics with need-based aid programs studied in other contexts, it is possible that increases in funding could lead to increased college attainment in the state. However there is no direct research on the effectiveness of Access Missouri.

This is an important public policy that deserves consideration and attention from policymakers, taxpayers, educators, students, and parents who are interested in the future of Missouri. The remainder of this report provides additional information with links to relevant resources.

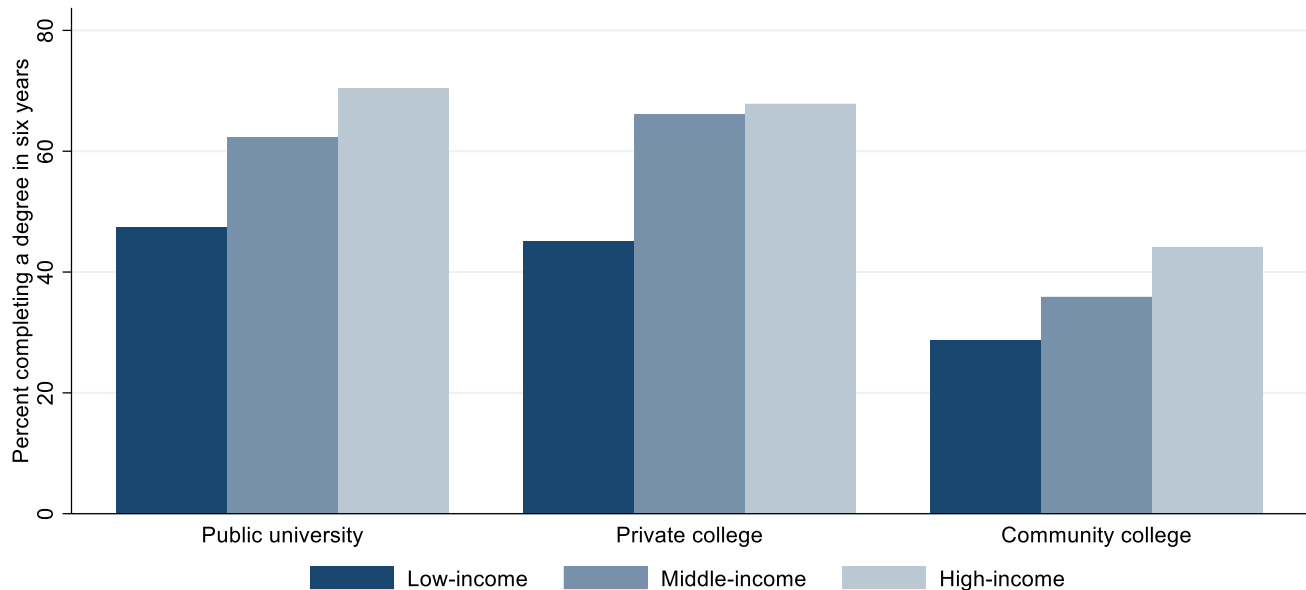
## 2. College affordability and financial aid

*The problem financial aid seeks to solve*

Students from lower-income families are attending college at higher rates than ever before,<sup>6</sup> but they are not completing college at as high a rate as their higher-income counterparts. This has been a persistent problem, and appears even within student groups who have the same levels of academic preparation and have embarked on the same types of degree programs.

Missouri is not immune to this problem. Figure 1 uses the most recent College Scorecard data, reporting the six-year graduation rates of students at the 81 institutions where Access Missouri grants can be used. The figure reports the averages within sectors: four-year public universities, four-year private colleges and universities, and two-year public community colleges.. Within each sector students are broken into three groups based on family income. Clearly the higher-income students achieve the highest completion rates, followed by middle-income students, and low-income students.

Figure 1. College completion gaps by family income



Source: College Scorecard data on academic year 2009-10 cohort, measured in 2015-16. Sector averages are based on Missouri institutions where Access Missouri grants can be used. Completion includes at the original institution or by transfer. Income brackets are under \$30,000, \$30,000-\$75,000, and over \$75,000.

Students who fail to complete college miss out on substantial benefits of a college degree. Degree holders tend to secure jobs at higher rates, leading to higher earnings over their lifetimes, less

<sup>6</sup> See Figure 3 in the Condition of Education report by the National Center for Education Statistics, available here [https://nces.ed.gov/programs/coe/indicator\\_cpa.asp](https://nces.ed.gov/programs/coe/indicator_cpa.asp).

likelihood of being in poverty, and they more likely to have health and retirement benefits. Furthermore, college degree holders have better health and commit fewer crimes.<sup>7</sup>

### *Why is financial aid important?*

The price of college is rising. Over the period from 2007-08 to 2017-18, tuition and fees increased by 37% at public two-year colleges, 23% at public universities, and 41% at private non-profit colleges and universities, after adjusting for inflation.<sup>8</sup> Missouri was not immune to these increases. In-state tuition at the flagship university in Columbia increased from \$8,099 to \$9,787, a 21% increase, during the same period. Starting from a much higher base, Washington University in St. Louis tuition increased by 45% to over \$50,000 during the same period.<sup>9</sup>

Tuition does not tell the whole story, because there are other significant costs. Students have to pay for books, supplies, transportation, housing, and food. To meet the demands of postsecondary schooling, most students forgo some or all of the labor income they would otherwise be earning. To meet these costs, many students do work, many draw on savings or family support, and a growing number take out student loans. Among graduates from four-year colleges and universities in Missouri, consistently about six in ten took out loans, but the amount they borrowed grew from \$19,572 in 2007 to \$27,108 in 2017, an increase of 39%.<sup>10</sup>

A growing body of evidence is reporting that students do not have the resources to meet basic needs. The largest national survey assessing this topic found that 36% of responding university students were food insecure in the 30 days preceding the survey, meaning that they were not certain they could find their next meal, or a nutritionally adequate or safe meal, and may have had physical symptoms of hunger.<sup>11</sup> In the same survey, 36% of responding university students were housing insecure in the 30 days preceding the survey, meaning they were unable to pay rent or needed to move to make ends meet.

Grant aid is one way to defray high tuition and to reduce the pressure on students' savings, time, and to reduce debt loads and potentially support stable consumption and housing. Scholarship aid is typically a tool used by colleges or by states to attract and retain the most talented students. Need-based grants are intended to level the playing field, and to support college completion for students with fewer financial resources by lowering the price.

While there are efforts at the federal level to provide subsidies for college enrollment through the Pell Grant, the Supplemental Educational Opportunity Grant, and other programs, states like

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<sup>7</sup> The Lumina Foundation provides a comprehensive report on the benefits of college at <https://www.luminafoundation.org/files/resources/its-not-just-the-money.pdf>.

<sup>8</sup> Source: Integrated Postsecondary Education Data System (IPEDS) using in-district average tuition for full-time undergraduates plus in-district required fees for full-time undergraduates, weighted by full-time equivalent fall enrollment and adjusted using the Consumer Price Index for All Urban Consumers (CPI-U).

<sup>9</sup> Tuition data are searchable at <https://www.chronicle.com/interactives/tuition-and-fees>, or can be accessed through the Integrated Postsecondary Education Data System (IPEDS).

<sup>10</sup> The Institute for College Access & Success provides higher education data for researchers and the public, searchable at [college-insight.org](http://college-insight.org). Their report on student debt in the 2017-18 school year is available at [https://ticas.org/sites/default/files/pub\\_files/classof2017.pdf](https://ticas.org/sites/default/files/pub_files/classof2017.pdf).

<sup>11</sup> See <https://hope4college.com/wp-content/uploads/2018/09/Wisconsin-HOPE-Lab-Still-Hungry-and-Homeless.pdf>.

Missouri target additional dollars to the poorest students in order to help them overcome barriers to access and completion. Private charities also provide grant aid to students with financial need who meet additional criteria, such as growing up in a particular city.

### *Effectiveness of need-based aid*

The general consensus of quantitative research on need-based financial aid programs is that they can help support college enrollment and completion, but their effectiveness is sometimes hindered by the way they are delivered. In one study in Wisconsin, students who were awarded aid that they never received due to administrative errors, actually experienced negative impacts on persistence in college.<sup>12</sup> Aid is also sometimes insufficient to meet growing college costs for most students. A free and open-access article reviewing financial aid studies is available from the *Journal of Student Financial Aid* and author Judith Scott-Clayton.<sup>13</sup>

The article emphasizes the importance of aid providing incentives for academic achievement, but overall it concludes, based on some recent and broad-based studies of merit aid programs where students qualify for aid based on high school academic achievement and on studies of tax credits and deductions, that need-based financial is likely to be a more impactful investment than these other forms of financial aid. This report focuses on need-based financial aid, which represents 70% of state spending on financial aid for undergraduates.<sup>14</sup>

Researchers have tried several creative approaches to studying the effects of financial aid on student outcomes. Sometimes programs are delivered using a random lottery among eligible students, setting up an experimental comparison of treatment and control groups who are constructed to be similar on average. With large public policies like the Pell Grant and state-level grants, this kind of assignment is typically not possible or not favorable. In these cases studies look for student populations that are split—based on some administrative rule or eligibility procedure that allots grant aid to some students but not to others who miss eligibility criteria. The goal is to find groups of students who are otherwise similar at baseline, to approximate the ideal setup of the randomized experiment.

Estimates from these research designs compare the difference in academic attainment between students who receive grant aid and students who, based on chance, receive less grant aid. A recent article from the Center for Education Policy Analysis at Stanford University summed up the estimates from 73 such comparisons, and concluded that an additional \$1,000 of grant aid improves year-to-year persistence in college by 1.2 percentage points.<sup>15</sup> Given the low rates of persistence to a

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<sup>12</sup> Anderson, Drew M., and Sara Goldrick-Rab. 2018. Aid after enrollment: Impacts of a statewide grant program at public two-year colleges. *Economics of Education Review* 67: 148-157. Available at <https://www.sciencedirect.com/science/article/pii/S0272775718301675>.

<sup>13</sup> The article can be accessed at <https://publications.nasfaa.org/cgi/viewcontent.cgi?article=1586&context=jsfa>.

<sup>14</sup> See Figure 1 in: National Association of State Student Grant & Aid Programs (NASSGAP). 2018. 48th Annual Survey Report on State-Sponsored Student Financial Aid. 2016-2017 Academic Year. Available at [https://www.nassgapsurvey.com/survey\\_reports/2016-2017-48th.pdf/](https://www.nassgapsurvey.com/survey_reports/2016-2017-48th.pdf/).

<sup>15</sup> Nguyen, Tuan D., Jenna W. Kramer, and Brent J. Evans. The effects of grant aid on student persistence and degree attainment: A systematic review and meta-analysis of the causal evidence. CEPA Working Paper No. 18-04, Stanford Center for Education and Policy Analysis. Available at <https://cepa.stanford.edu/sites/default/files/wp18-04-v201803.pdf>.



degree, 1.2 percent is significant. Nationwide, in the six years after they matriculated to college, 58% of students left with a degree. The number was 39% for students starting at two-year colleges.<sup>16</sup>

The best and most recent research on the Pell Grant compares students who have family income just below a cutoff value that qualifies them for the largest grant, with students who have family income just above that level and receive smaller grants.<sup>17</sup> The study finds positive effects of additional aid dollars in supporting bachelor's degree completion among students already enrolled at public universities in Texas. The investment in education pays off for individuals and society via increased earnings after leaving college, generating increased tax revenues for the state.

How does this apply to Missouri? The average Access Missouri recipient receives about \$1,700. On average this is enough to increase rates of college persistence by a modest amount. This could potentially lead to increased earning power and a boost to the state economy. Most of the studies in the Stanford article are like Access Missouri in that they are delivered based on the FAFSA, or the Free Application for Federal Student Aid. The following section describes the FAFSA process and how it is used to implement the Access Missouri program.

### **3. Access Missouri**

#### *How Access Missouri works*

To be eligible for an Access Missouri award, a student must meet a few criteria. The award is available to residents of Missouri with financial need, who are pursuing their first undergraduate degree, and enrolled full-time at a community college, public university, private college or university, or professional/technical center in the state.

Financial need is determined by the FAFSA, or Free Application for Federal Student Aid. The FAFSA is the form students file to apply for federal grants and loans. For these purposes, the FAFSA collects detailed information about family finances, and can be filed any time during the school year and up to a year in advance. For the purposes of Access Missouri, the FAFSA must be filed by certain deadlines, currently February 1 for priority, April 1 final, and July 31 a deadline to correct the FAFSA (all before the school year starting in the summer/fall).

To maintain eligibility to Access Missouri, students must continue to file the FAFSA, enroll, and meet the above qualifications, but in addition they must maintain a cumulative grade point average above 2.5. Students can receive the award for a maximum of five semesters at a two-year college or up to ten semesters at a four-year college. Details on all of these qualifications are available through MDHE,<sup>18</sup> but here we expand briefly on the idea of financial need.

Financial need for federal student aid, as well as many state programs is determined by a formula in the FAFSA that outputs the Expected Family Contribution (EFC).<sup>19</sup> Higher EFCs correspond to

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<sup>16</sup> These statistics come from the Signature Report 16, by the National Student Clearinghouse, available at <https://nscresearchcenter.org/signaturereport16/>.

<sup>17</sup> Denning, Jeffrey T., Benjamin M. Marx, and Lesley J. Turner. 2018. ProPelled: The effects of grant aid on graduation, earnings, and welfare. Working Paper 23860, National Bureau of Economic Research. Available at <https://www.nber.org/papers/w23860/>.

<sup>18</sup> The Access Missouri program is described here: <https://dhe.mo.gov/ppc/grants/accessmo.php/>.

<sup>19</sup> The EFC formula is described here: <https://ifap.ed.gov/efcformulaguide/attachments/071017EFCFormulaGuide1819.pdf/>.

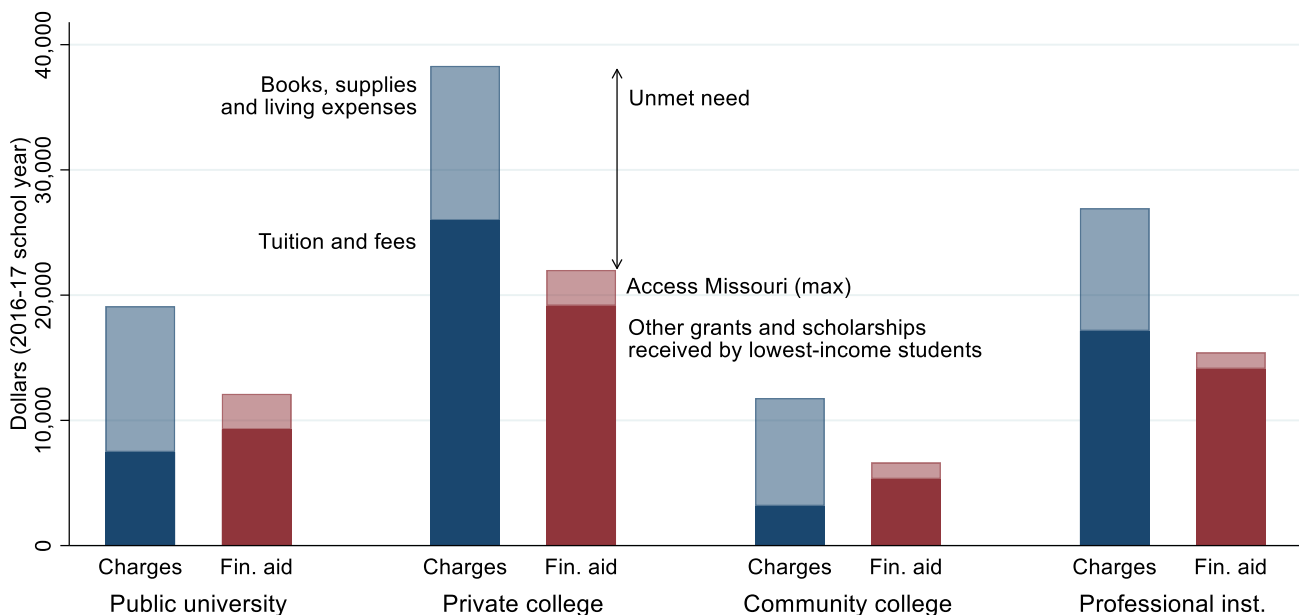
higher income and wealth per family member, with an emphasis on how many family members are in college. The maximum EFC for Access Missouri is \$12,000 for the 2018-19 school year. The maximum EFC for the federal Pell Grant is currently \$6,095 for the 2018-19 school year. Nationwide, roughly nine out of ten Pell recipients has a family income below \$50,000.<sup>20</sup> Therefore Access Missouri serves Pell Grant students, but also middle-income families earning above \$50,000 who do not receive Pell Grant aid. According to MDHE, 34% of Access Missouri recipients during school years 2014-15 through 2016-17 had family incomes over \$50,000.

*Access Missouri funding*

By statute, Access Missouri provides up to \$1,300 per year for two-year college students, or up to \$2,850 per year for four-year college students. As mentioned above, these maxima have not been reached in recent years because the program is not fully funded. Grants of this size can be meaningful and potentially influence the decision to enroll, stay enrolled, or choose an in-state institution. However compared to the unmet financial need faced by low-income students, they may be inadequate.

Unmet need is defined as the remaining cost after aid is applied. The cost is made up of tuition and fee charges, as well as estimates for books and supplies, and living expenses like transportation, housing, and food. The aid comes from federal and institutional sources, as well as state programs like Access Missouri. Figure 2 below plots the average student budget for the lowest-income college students attending full time at one of the 81 institutions where Access Missouri can be used. The figure uses averages among students receiving financial aid, combined with posted full-time in-state tuition.

Figure 2. Student budget at different types of institutions, 2016-17 school year



<sup>20</sup> Source: Pell Grant End-of-Year Report from school year 2016-17, the most recent available year. Accessible at: <https://www2.ed.gov/finaid/prof/resources/data/pell-data.html/>.



Source: College Scorecard data for 81 institutions in Missouri. Grant and scholarship estimates based on financial aid recipients with family incomes from \$0 to \$30,000 per year.

Several trends are evident in Figure 2. First, the tuition charges vary widely among four-year public universities, four-year private colleges and universities, two-year public community colleges, and professional and technical career institutions. Accordingly, so does the amount of aid available. However the average estimated living expenses are roughly the same across institution types, consisting mainly of food and housing which vary primarily by location in the state.

Second, in each sector there is significant unmet financial need among the lowest-income students. Third, Access Missouri decreases unmet need, but could potentially cover a larger portion of student charges. Shortages in funding are a common problem for state-level aid programs. The next subsection discusses how Missouri fits in with other states running similar programs.

### *Missouri in the national context*

The National Association of State Student Grant & Aid Programs tracks state spending on various types of financial aid over the years. Missouri is in the middle of the pack by various measures of spending on need-based financial aid. A common normalization is to divide dollars of undergraduate need-based aid by the number of undergraduate students. This measure includes all students, whether or not they receive the state's need-based grant program. By this measure, 25 states give more need-based grant dollars per student than Missouri.<sup>21</sup> Missouri gives \$298 per student, below the national average of \$624 per student. Considering the proportion of students supported by aid, 31 states give aid to a larger proportion of students.<sup>22</sup> Missouri supports 21% of students, below the national average of 29%. In terms of the maximum Access Missouri award, it ranks behind 31 other states' primary need-based aid program.<sup>23</sup>

A potentially more relevant comparison group is the set of states that share a border with Missouri. Among these states, Missouri ranks behind Illinois, Kentucky, Oklahoma, Tennessee, and Iowa, but above Nebraska, Kansas, and Arkansas (the states are ranked in this order). Arkansas, Kentucky, and Tennessee rise up the list significantly when merit aid is considered, as these states focus proportionally more resources on merit-based aid programs.

Missouri has a growing focus on using its public higher education funds to support students through financial aid. Relative to Missouri's spending on public higher education overall, public student aid has increased nearly fourfold from 2.2% in 2007 to 8.5% in 2017.<sup>24</sup> This increase is much larger than the US as a whole, where the proportion of public student aid spending as a proportion of state public higher education spending ticked up from 6.7% in 2007 to 8.9% in 2017. Missouri started from a lower baseline, but it has nearly caught up to the national average.<sup>25</sup>

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<sup>21</sup> See Table 12 in [https://www.nassgapsurvey.com/survey\\_reports/2016-2017-48th.pdf/](https://www.nassgapsurvey.com/survey_reports/2016-2017-48th.pdf/).

<sup>22</sup> See Table 13 in [https://www.nassgapsurvey.com/survey\\_reports/2016-2017-48th.pdf/](https://www.nassgapsurvey.com/survey_reports/2016-2017-48th.pdf/).

<sup>23</sup> See Table 10 in [https://www.nassgapsurvey.com/survey\\_reports/2016-2017-48th.pdf/](https://www.nassgapsurvey.com/survey_reports/2016-2017-48th.pdf/).

<sup>24</sup> Using data adjusted to constant dollars using the Consumer Price Index, from State Higher Education Executive Officers (SHEEO). 2018. State Higher Education Finance (SHEF) Fiscal Year 2017. Available at [http://www.sheeo.org/sites/default/files/project-files/SHEEO\\_SHEF\\_FY2017\\_FINAL.pdf](http://www.sheeo.org/sites/default/files/project-files/SHEEO_SHEF_FY2017_FINAL.pdf).

<sup>25</sup> Using a different measure provided by NASSGAP, Missouri (12.8%) is also on par with the national average (12.7%).

For this study we drill down into the Missouri data both by student and institutional factors. The following section describes the data we use.

#### **4. Data and methods for this study**

*Source: Missouri Department of Higher Education (MDHE)*

This study uses data on Access Missouri awards, coming from the Missouri Department of Higher Education (MDHE). These data are highly accurate, as they come from administrative records of payments to students.<sup>26</sup> However, no individual student can possibly be identified in these data, as they contain no direct identifiers and are aggregated into separate sheets by student or institutional characteristics. Each sheet focuses on a single characteristic, and reports the distribution of Access Missouri awards and the number of FAFSA filers who listed Access Missouri institutions, by dependency status and Pell Grant eligibility status. The data combine three years, the 2014-15, 2015-16, and 2016-17 school years.

In the primary data of interest, students are grouped by postal code. We use these data to match award recipients to legislative districts. Other student measures include race/ethnicity, gender, Pell Grant eligibility, first-generation college student status, rural/urban location, family income, and dependency status. Dependency status is defined by the federal government in order to count parental financial resources in a student's Expected Family Contribution by default. The student is considered independent if they have turned 24 years old, have married or had children, or have served in the military.

MDHE also provided a breakdown of awards by institution, covering the 81 institutions where Access Missouri grants can be used. Institutions can also be matched to legislative districts based on their location, and can be matched to publicly available data on student charges and student completion rates from the College Scorecard.

Other publicly available data were drawn from the U.S. Census Bureau's American Community Survey and linked to legislative districts. Below we detail the process of linking by postal code.

##### *Geo-coding and matching*

The MDHE data on the distribution of Access Missouri funds sort students by their zip code, the finest geography possible while protecting student confidentiality. However a zip code is not always a well-defined geographic region. Fortunately, the US Census Bureau provides Zip Code Tabulation Area (ZCTA) boundaries, which attempt to create a mapping of zip codes onto the land. Unfortunately this mapping does not exactly match legislative district boundaries, since zip codes were created to support the federal postal service, not the state legislature.

For the purposes of this report, if a ZCTA is broken up into several legislative districts, we want to know which districts absorb the Access Missouri grants flowing to residents of that ZCTA. Without students' individual addresses, we cannot be entirely sure.

We use a strategy based on the population makeup of the ZCTA. Consider a ZCTA with 75% of the population in District A and 25% of the population in District B, and where 100 Access Missouri grants flow. Our strategy assigns 75 of the grants to District A and 25 to District B. The same process is applied for ZCTAs with more than two districts. Taking the Senate districts as an

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<sup>26</sup> The data are not publicly posted, but are available by request from MDHE.

example, 800 of the roughly 1,300 zip codes lie within exactly one district. The remainder are divided up. The fraction of zip codes lying within multiple districts is even larger using House districts. Therefore the weighting by population is an important step.

To execute this link, we connected postal codes to legislative districts in a careful process, weighting the population overlap of codes and districts. For this we used data on ZCTA boundaries, legislative district boundaries, and population counts from the 2010 Decennial Census. The overlap data were drawn from Cicero, which is a comprehensive database of elected officials and legislative districts and a fee-based product of Azavea.

## **5. Flows of Access Missouri funds**

This section uses our data to describe how Access Missouri funds are distributed. We begin by simply tracking the number of awards to students living in each legislative district. We then normalize the number of awards per capita and per FAFSA filer, and then pursue other comparisons. After covering legislative districts, we discuss how Access Missouri awards are distributed across institutions of higher education. In the final subsection we show how Access Missouri awards break down among several subgroups of the statewide student population.

The source of all the data in this section is the linked MDHE database described in section 4.

### *Distribution by Senate district*

There are several ways to visualize the distribution of Access Missouri grants across legislative districts in the state. This section will progress through a few of them. First and most basic, we display a map of districts, color-coded by the number of Access Missouri grants during the study period. There are many reasons Access Missouri grants vary across districts, and one of the most basic is population. While the districts are meant to be of roughly equal size, they still vary somewhat. More directly related to financial aid, the districts will vary in terms of how many high school seniors live there. We display both of these measures—awards normalized by 1,000s of population and by high school seniors—in a bar graph ranking districts in terms of the ratio of awards to the population measure.

Today's college students as a group are much more diverse than only students transitioning just out of high school. An even better measure of the population who could be affected by Access Missouri aid is the number of students who are applying for financial aid at Access Missouri institutions, as measured in the FAFSA filing data described above. We show this final comparison two ways, as a ranked bar graph, and as a scatter plot fully displaying the relationship between Access Missouri awards and FAFSA filers.

Figure 3. Number of Access Missouri awards by Senate district

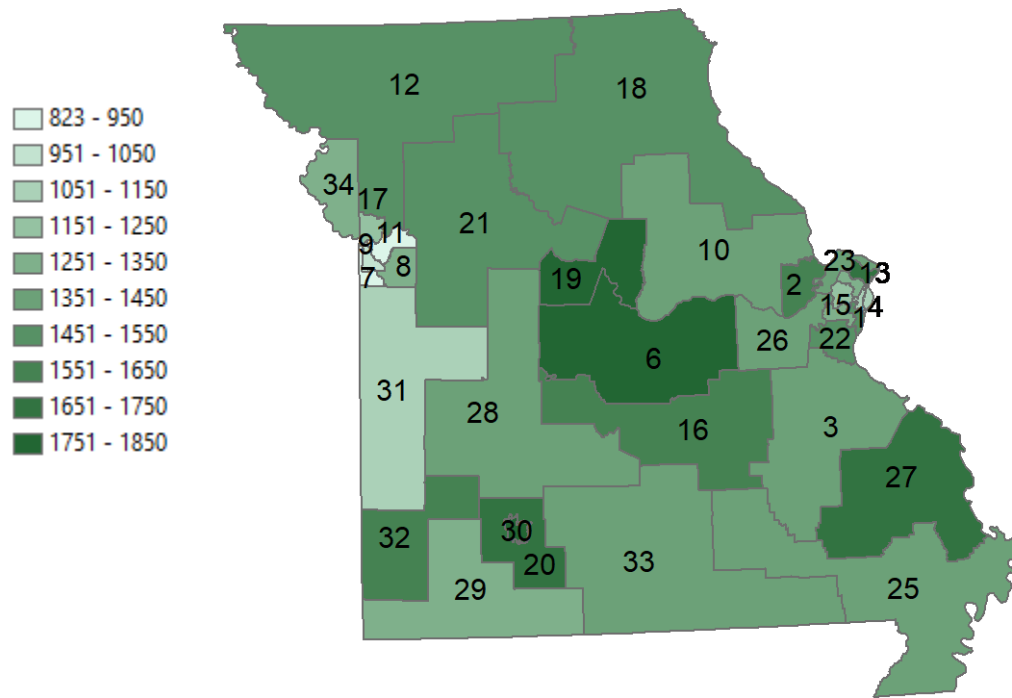


Figure 3 shows the geographic variation in Access Missouri awards. The 34 Senate districts are divided into 10 groups with equal sized ranges of Access Missouri awards per year. Darker green districts received more awards. As discussed above, this figure does not take into account any other differences across districts in terms of student population. Senate districts ranged from about 800 awards to nearly 1,800 awards.

Figure 4 ranks the districts, after dividing the number of grants per year by the number of thousands of residents. There is some variation remaining, meaning that population size is not the only contributing factor to variation in Access Missouri awards. The state average is just below eight awards per 1,000 residents.

Figure 5 focuses on one population who may apply to receive Access Missouri grants: high school seniors. Besides one district with a very high number (district 30) the variation is somewhat tighter, reflecting that high school seniors account for more of the differences across districts than do raw population counts. The state average is about 0.6 awards per high school senior. This does not mean 6 in 10 seniors receive awards, because the awards go to many other types of students, particularly continuing college students (not in their first year) and students who started college at older ages.

Figure 6 follows the same pattern, but divides the number of awards by the number of FAFSA filers, who are residents of these districts and who list on their FAFSA form an Access Missouri eligible institution. Below we discuss the list of institutions in more detail. The state average is about 0.2 awards per FAFSA filer, meaning that one in five filers receives an award. Students who file the FAFSA do so in order to access government grants and loans. Filers may not ultimately attend

college in the year they file. Therefore there four out of five FAFSA filers who could potentially receive Access Missouri aid, lowering debt and potentially increasing college enrollment.

Figure 4. Access Missouri grants per 1,000 population by Senate district

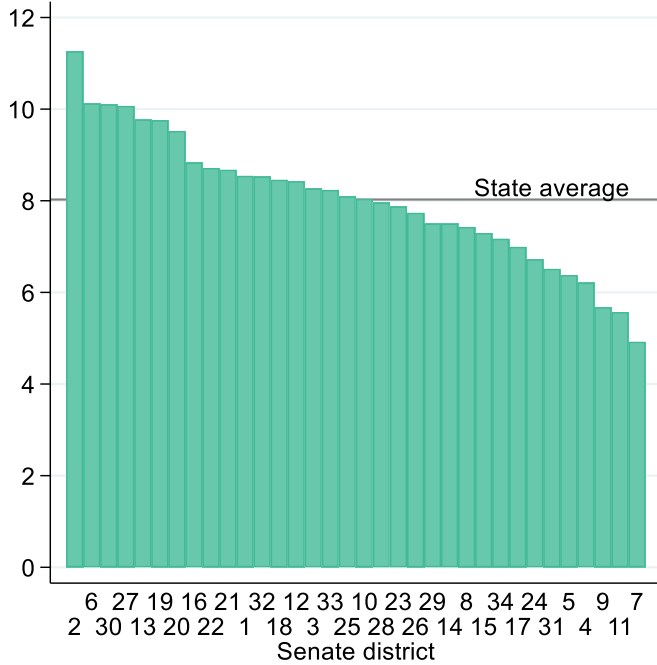


Figure 5. Access Missouri grants per high school senior by Senate district

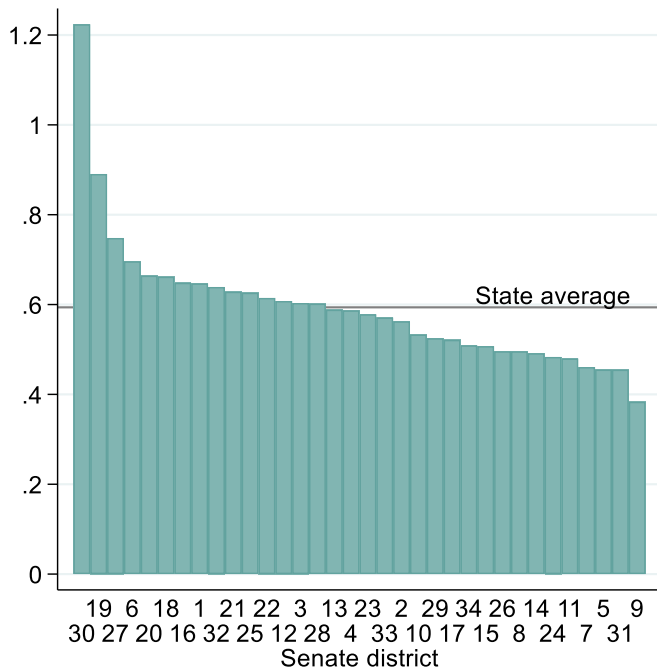


Figure 6. Access Missouri grants per FAFSA file by Senate district

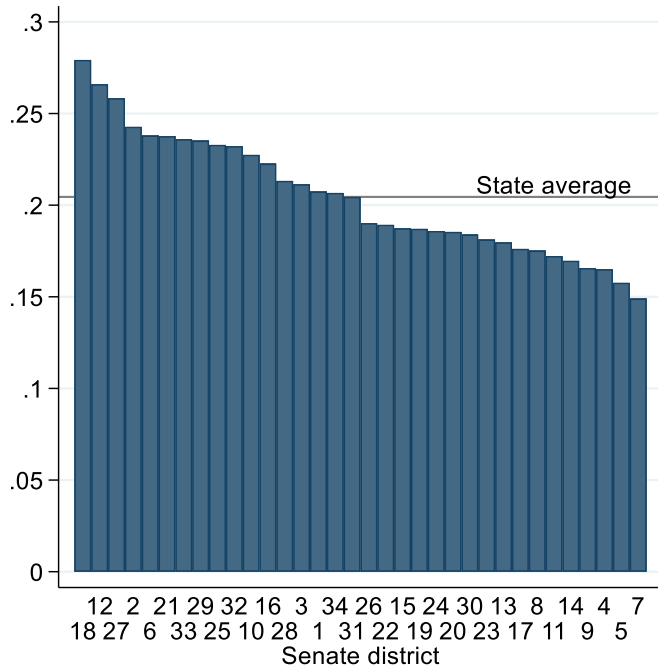


Figure 7. Access Missouri grants versus number of FAFSA files by Senate district

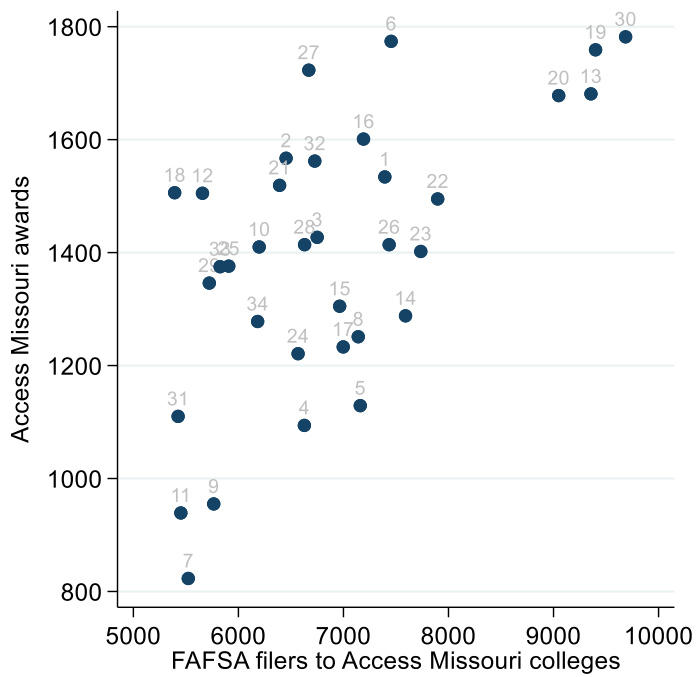


Figure 7 shows several key facts. Each dot on the graph represents a pair of values for one of the 34 districts. For example, District 7 (south of Kansas City) in the lower left-hand corner had about 5,500 FAFSA filers and just over 800 Access Missouri awards, the lowest values on both measures. District 30 (Springfield) was highest on both measures. There is a general upward trend in the cloud of dots, suggesting a positive relationship between more filers and more awards. However within a number of filers, there is still vertical space between dots, showing variation even among districts with very similar sized college student populations.

These differences can reflect socioeconomic differences, as well as timing of filing relative to key deadlines, or differences in actual attendance after filing the FAFSA. Districts with particularly low numbers of awards per filer (also shown on the right hand side of Figure 4) may be able to mobilize students to file earlier and take up their awards by enrolling in college.

*Distribution by House district*

Figure 8 shows the geographic variation in Access Missouri awards. The 163 House districts are divided into 10 groups with equal sized ranges of Access Missouri awards per year. Darker green districts received more awards. As discussed above, this figure does not take into account any other differences across districts in terms of student population. Figure 9 ranks the districts, after dividing the number of grants per year by the number of thousands of residents. There is some variation remaining, meaning that population size is not the only contributing factor to variation in Access Missouri awards. The state average is just below eight awards per 1,000 residents.

Figure 8. Number of Access Missouri awards by House district

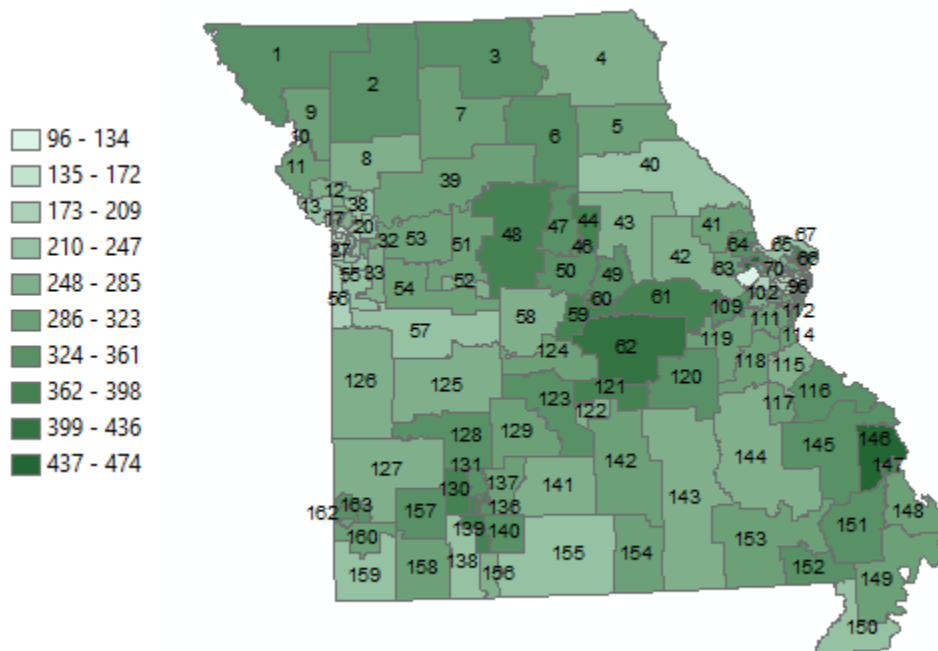




Figure 10 focuses on one population who may apply to receive Access Missouri grants: high school seniors. The state average is about 0.6 awards per high school senior. This does not mean 6 in 10 seniors receive awards, because the awards go to many other types of students, particularly continuing college students (not in their first year) and students who started college at older ages.

Figure 11 follows the same pattern, but divides the number of awards by the number of FAFSA filers, who are residents of these districts and who list on their FAFSA form an Access Missouri eligible institution. Below we discuss the list of institutions in more detail. The state average is about 0.2 awards per FAFSA filer, meaning that one in five filers receives an award. Students who file the FAFSA do so in order to access government grants and loans. Filers may not ultimately attend college in the year they file. Therefore there four out of five FAFSA filers who could potentially receive Access Missouri aid, lowering debt and potentially increasing college enrollment.

Figure 12 shows several key facts. Each dot on the graph represents a pair of values for one of the 163 districts. For example, District 102 (west of St. Louis) in the lower left-hand corner had about 500 FAFSA filers and 100 Access Missouri awards, the lowest values on both measures. District 67 (northern St. Louis) was highest on FAFSA filers and well above average for Access Missouri awards. There is a general upward trend in the cloud of dots, suggesting a positive relationship between more filers and more awards. However within a number of filers, there is still vertical space between dots, showing variation even among districts with very similar sized college student populations.

These differences can reflect socioeconomic differences, as well as timing of filing relative to key deadlines, or differences in actual attendance after filing the FAFSA. Districts with particularly low numbers of awards per filer (also shown in Figure 9) may be able to mobilize students to file earlier and take up their awards by enrolling in college.

Figure 9. Access Missouri grants per 1,000 population by House district

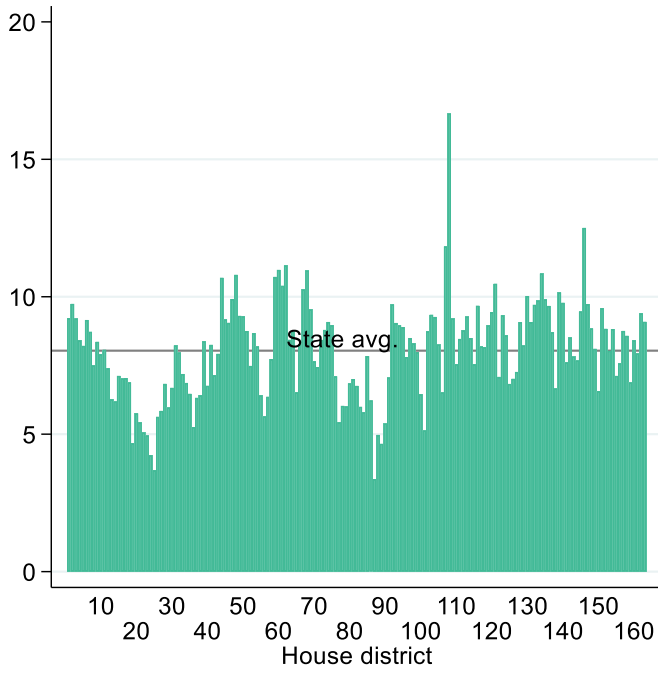


Figure 10. Access Missouri grants per high school senior by House district

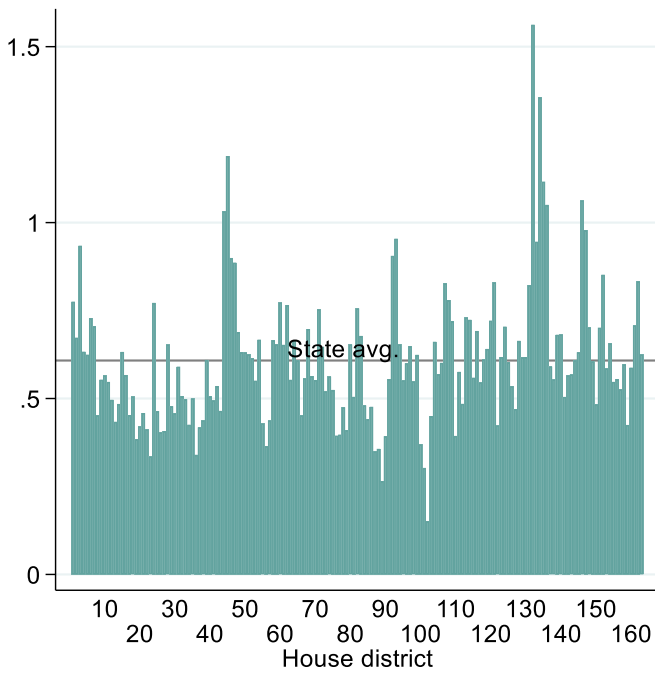


Figure 11. Access Missouri grants per FAFSA filer by House district

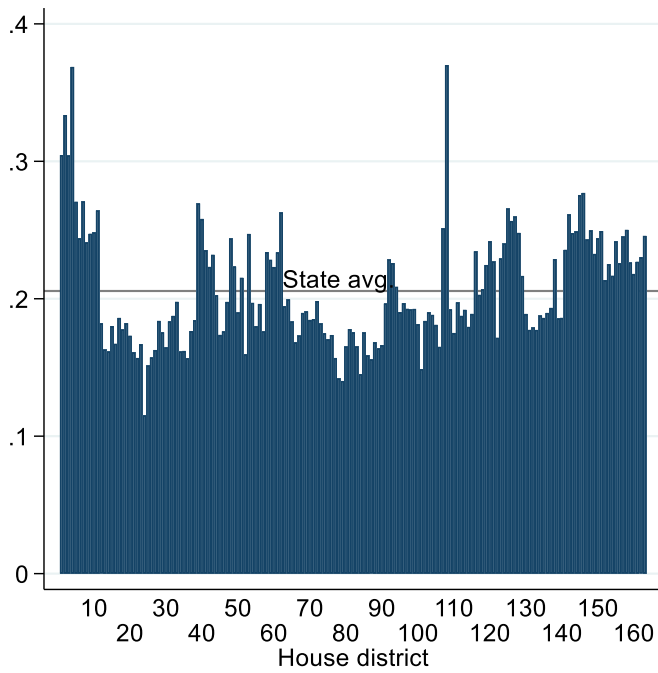
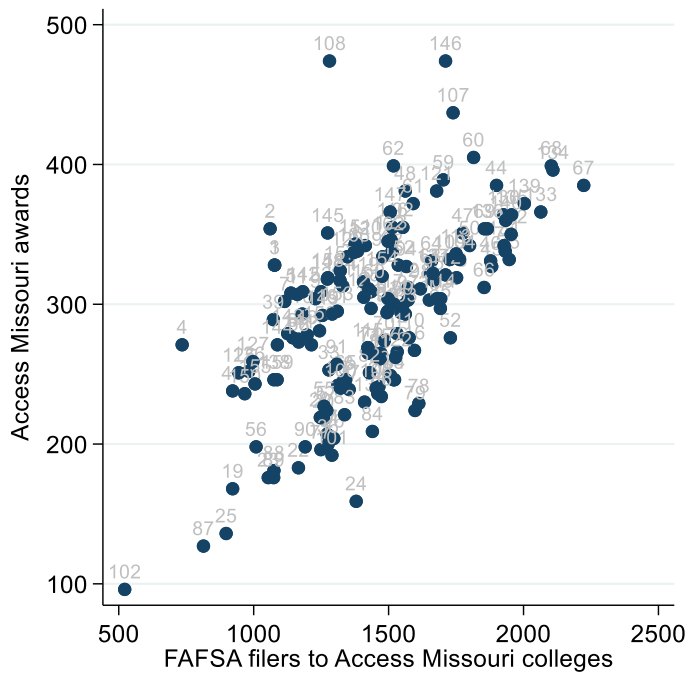


Figure 12. Access Missouri grants versus number of FAFSA filers by House district



### *Statewide distribution by institution type*

Missouri is home to a diverse set of postsecondary institutions. There are 81 institutions where Access Missouri funds can be used, falling into four distinct sectors: public universities, community colleges, independent institutions, and professional/technical institutions. In the Appendix, a table breaks down the number and percent of awards going to each one of the institutions where Access Missouri dollars were spent during the period of this study. The Appendix also shows in which district each institution is located. This subsection provides summaries by institutional sector.

<b>Public universities</b>	<b>Community colleges</b>
13 institutions Grant Bachelor's degrees and above	14 institutions Grant Associate's and shorter certificates
Receive <b>53.5%</b> of Access Missouri grants	Receive <b>19.7%</b> of Access Missouri grants
Range from \$1,500 to \$2,850	Range from \$300 to \$1,300
<b>Independent colleges</b>	<b>Professional/technical institutions</b>
24 total (25 during this study) Grant two- and four-year degrees	29 that receive Access Missouri grants Offer industry certifications, transfer/dual credit
Receive <b>24.3%</b> of Access Missouri grants	Receive <b>2.5%</b> of Access Missouri grants
Range from \$1,500 to \$2,850	Range from \$1,500 to \$2,850

As shown above in Figure 1 and Figure 2, students face very different academic and financial challenges in each of these settings. The differences in award sizes partly reflect the differences in student charges. Outside the scope of this paper is whether the allocation of dollars and awards across sectors is the most effective way to distribute funds. Regardless of the eligibility rules, the distribution of funds will largely be determined by the amount and types of students who file qualifying FAFSAs on time. The next section describes this group of students.

Considering the distribution of Access Missouri awards to institutions within legislative districts, there are many House districts with no institutions at all. Institutions lie in 54 of the 163 districts. All Senate districts contain at least one institution. For both levels of the legislature, the district receiving the most Access Missouri awards is surrounding Springfield (Senate district 30, House district 132).

### *Statewide distribution of funds by student characteristics*

This study is based on three years of award data, as described above. The number of awards significantly declined from 2014-15 to 2016-17. For most of our analysis we average over the three years. Table 1 below shows the percent of Access Missouri awards over three years that have gone to each subgroup by gender, race/ethnicity, rural/urban status, and parental education, as well as by some variables related to financial aid status through family income and household structure.

Table 1. Access Missouri recipients by student characteristics

	Number of awards	Percent
<i>Summary by year</i>		
2014-15	51,693	-
2015-16	48,579	-
2016-17	44,735	-
Total	145,007	-
(Remainder of table sums up all three years)		
<i>Race/ethnicity</i>		
Black/African American	13,357	9.2%
White	78,637	54.2%
Hispanic/Latino	3,501	2.4%
Asian/Pacific Islander	2,998	2.1%
Unknown/not available	46,514	32.1%
<i>Gender</i>		
Men	54,481	37.6%
Women	89,056	61.4%
<i>Pell eligibility</i>		
Eligible	109,943	75.8%
Non-eligible	35,064	24.2%
<i>Dependency status</i>		
Dependent	101,502	70.0%
Independent (over 24, married, has children, and/or military)	43,505	30.0%
<i>Parental education</i>		
First-generation college student	51,578	35.6%
Parents attended college	78,321	54.0%
Unknown/not available	15,108	10.4%
<i>Home location</i>		
Rural	61,970	42.7%
Urban	82,669	57.0%
Unknown/not Available	368	0.3%
<i>Family income</i>		
<\$0	689	0.5%
\$0–19,999	44,108	30.4%
\$20,000–39,999	36,151	24.9%
\$40,000–49,999	14,899	10.3%
\$50,000–59,999	12,057	8.3%
\$60,000–79,999	20,291	14.0%
\$80,000–99,999	10,477	7.2%
\$100,000+	6,163	4.3%
Unknown/not available	172	0.1%

Source: Missouri Department of Higher Education.

Even though Access Missouri eligibility is not directly based on student characteristics such as gender, race/ethnicity, or rural/urban dwelling, the number of awards to these different groups is not uniformly distributed. Reflective of Missouri's general demographics among lower-income families, a majority of the awards go to white students. Nine percent go to black students, with two percent each going to Hispanic and to Asian American students. It should be noted that this measure of race/ethnicity is unavailable for nearly one in three students. Far more women than men receive Access Missouri awards, again reflecting the demographics of college goers in the state. Slightly more awards go to students growing up in urban areas.

The table also breaks down Access Missouri award numbers by student characteristics that do directly determine financial aid awards. These characteristics are: dependency status on the FAFSA, family income, and Pell Grant eligibility. As expected based on the award eligibility rules, larger numbers of awards go to the lower-income categories. A majority of the awards go to students with family incomes below \$40,000 a year. Three out of ten Access Missouri recipients were independent students.

## **6. Discussion and conclusion**

### *Importance of Access Missouri across the state*

This report provides a baseline for legislators and students to discuss the value of Access Missouri to their communities. One key finding is that even though populations are meant to be equal across legislative districts, the impact of Access Missouri varies with the population who are interested in college and the number of colleges and universities in a district. The scan shows that all districts benefit in some way from Access Missouri. Either its residents receive awards, or awards are spent at colleges and universities in the district, or both. However some districts end up receiving more awards per financial aid applicant than others. Regarding colleges and universities, many House districts have none, while one House district has institutions where over 7,000 awards flow each year.

Therefore there are widely varying reasons for legislators to be interested in the program. Districts with lower numbers of awards per filer may benefit from efforts to encourage early filing and students choosing to enroll. Overall, four out of five FAFSA filers in the state do not receive Access Missouri awards. In other places where many Access Missouri awards flow, there are clearly many college students with financial need. Both types of districts could potentially raise completion rates if Access Missouri awards were increased or distributed more broadly, though we cannot be sure without direct research following the completion rates of recipients versus other students.

### *Potential for further research*

The results provided here could be extended to directly evaluate the effects of the program on student outcomes. A rigorous evaluation would require a few key inputs. First, the underlying data would need to be linked at an individual level so that student characteristics and background could be connected to receipt of financial aid, which could then be connected to educational attainment and potentially post-college earnings and other outcomes. This sort of linkage is possible and allowable if it informs the administration of aid programs while protecting the privacy and confidentiality of student and parent information.

Second, as discussed above for studies of the Pell Grant and other state programs, a rigorous evaluation would require an empirical strategy identifying comparison groups of students who are

otherwise similar but who receive different amounts of financial aid. Using the EFC formula from the FAFSA, there are several sharp eligibility cutoffs that divide students into comparison groups, and have been successfully used in prior research.

Third, an evaluation would require the investment of resources. State agencies who administer public policies do not always have a mandate to produce reporting and evaluation of those policies. Evaluations take time, cooperation, and expertise. A strong model is to combine the practical expertise of state policymakers and practitioners with the quantitative research expertise of education policy scholars. The project can then be financially supported through the researchers' institution or through external grants from the federal government or charitable foundations. Forming and supporting these partnerships is a key step in generating evidence for policymaking.<sup>27</sup>

### *Fighting inequality*

Even though students go through 12 years of schooling before embarking on a college education, their place in the distribution of education, and therefore their place on the socioeconomic ladder, is not set in stone. College is a setting that can decrease inequality by socioeconomic status, or can perpetuate it. The Equality of Opportunity Project, a collection of groundbreaking studies in education, shows that while small class sizes in kindergarten can have lasting positive effects on the order of a few hundred dollars of wages, colleges that are efficient “engines of mobility” can move students who grew up in the lowest part of the income distribution to the highest part of the income distribution.<sup>28</sup>

The uncertainty surrounding Access Missouri can have an uneven effect on families, further disadvantaging those with the greatest financial needs. Research shows that students who could benefit most from financial aid tend to know the least about it.<sup>29</sup> It is imperative that the program receive the attention of policymakers, so that its importance can then be communicated to the many families who could benefit from Access Missouri.

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<sup>27</sup> The Pew Charitable Trusts describes some conditions for effective evidence-based policymaking <https://www.pewtrusts.org/~media/assets/2015/03/legislationresultsfirstbriefmarch2015.pdf>.

<sup>28</sup> EOP cite See the summary page at <http://www.equality-of-opportunity.org/education/>.

<sup>29</sup> See the report by the Institute for College Access & Success at [https://ticas.org/sites/default/files/pub\\_files/Paving\\_the\\_Way.pdf](https://ticas.org/sites/default/files/pub_files/Paving_the_Way.pdf).



## Appendix. Additional tables

Table A1. Access Missouri recipients by institution, and legislative districts of institutions

	Number of awards	Percent of awards	Senate district	House district
<i>Public universities</i>				
Harris-Stowe State University	352	0.7%	5	79
Lincoln University	506	1.0%	6	60
Missouri Southern State University	1,446	3.0%	32	162
Missouri State University	4,680	9.7%	30	132
Missouri University of Science and Technology	1,635	3.4%	16	121
Missouri Western State University	1,337	2.8%	34	9
Northwest Missouri State University	1,314	2.7%	12	1
Southeast Missouri State University	2,690	5.6%	27	147
Truman State University	1,438	3.0%	18	3
University of Central Missouri	2,353	4.9%	21	54
University of Missouri - Columbia	4,644	9.6%	19	45
University of Missouri - Kansas City	1,498	3.1%	7	26
University of Missouri - Saint Louis	1,961	4.1%	14	85
<i>Public two-year colleges</i>				
Crowder College	589	1.2%	32	160
East Central College	431	0.9%	26	109
Jefferson College	554	1.1%	22	111
Metropolitan Community College	1,288	2.7%	7	24
Mineral Area College	524	1.1%	3	117
Moberly Area Community College	586	1.2%	18	6
North Central Missouri College	263	0.5%	12	7
Ozarks Technical Community College	1,700	3.5%	30	132
St. Charles Community College	511	1.1%	2	103
St. Louis Community College - Florissant Valley	1,340	2.8%	5	78
State Fair Community College	490	1.0%	28	52
Missouri State University - West Plains	306	0.6%	33	154
State Technical College of Missouri	240	0.5%	6	61
Three Rivers Community College	693	1.4%	25	152
<i>Independent colleges and universities</i>				
Avila University	278	0.6%	7	36
Central Methodist University	943	2.0%	21	48
College of the Ozarks	743	1.5%	29	156
Columbia College	1,555	3.2%	19	45
Cottey College	31	0.1%	31	126
Culver-Stockton College	274	0.6%	18	4
Drury University	870	1.8%	30	132
Fontbonne University	265	0.5%	4	87

Hannibal-LaGrange University	225	0.5%	18	5
Kansas City Art Institute	118	0.2%	7	24
Lindenwood University	1,530	3.2%	23	65
Maryville University of Saint Louis	428	0.9%	24	89
Missouri Baptist University	369	0.8%	24	88
Missouri Valley College	301	0.6%	21	51
Park University	380	0.8%	34	13
Rockhurst University	309	0.6%	9	26
Saint Louis University	773	1.6%	5	77
Southwest Baptist University	663	1.4%	28	128
Stephens College	188	0.4%	19	45
Washington University in St. Louis	130	0.3%	14	87
Webster University	672	1.4%	1	91
Wentworth Military Academy and College	71	0.1%	21	53
Westminster College	238	0.5%	10	49
William Jewell College	218	0.5%	17	38
William Woods University	166	0.3%	10	49
<i>Professional and technical institutions</i>				
Cape Girardeau Career & Tech Center	34	0.1%	27	147
Cass Career Center	12	0.0%	31	33
Clinton Technical School	12	0.0%	31	57
Columbia Area Career Center	13	0.0%	19	46
Cox College	145	0.3%	30	132
Four Rivers Career Center	10	0.0%	26	61
Franklin Technology Center	26	0.1%	32	162
Goldfarb School of Nursing at Barnes Jewish College	128	0.3%	5	77
Grand River Technical School	21	0.0%	21	7
Hillyard Technical Center	28	0.1%	34	10
Kirksville Area Technical Center	12	0.0%	18	3
Lex La-Ray Technical Center	15	0.0%	21	53
Logan University	2	0.0%	26	100
Nevada Regional Technical Center	2	0.0%	31	126
Northland Career Center	8	0.0%	34	12
Pike-Lincoln Technical Center	4	0.0%	18	40
Poplar Bluff Technical Career Center	24	0.0%	25	152
Ranken Technical College	271	0.6%	4	77
Research College of Nursing	16	0.0%	9	26
Rolla Technical Institute/Center	47	0.1%	16	121
Saint Luke's College of Health Sciences	78	0.2%	7	24
Saline County Career Center	15	0.0%	21	51
Sikeston Career & Technology Center	5	0.0%	27	149
South Central Career Center	28	0.1%	33	154

Southeast Missouri Hospital College of Nursing & Health Sciences	58	0.1%	27	147
St. Louis College of Pharmacy	113	0.2%	5	77
Texas County Technical College	63	0.1%	33	142
Warrensburg Area Career Center	17	0.0%	21	51
Waynesville Career Center	8	0.0%	16	122

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Note: 15 additional awards go to the Forest Park and Meramec campuses of St. Louis Community College.