

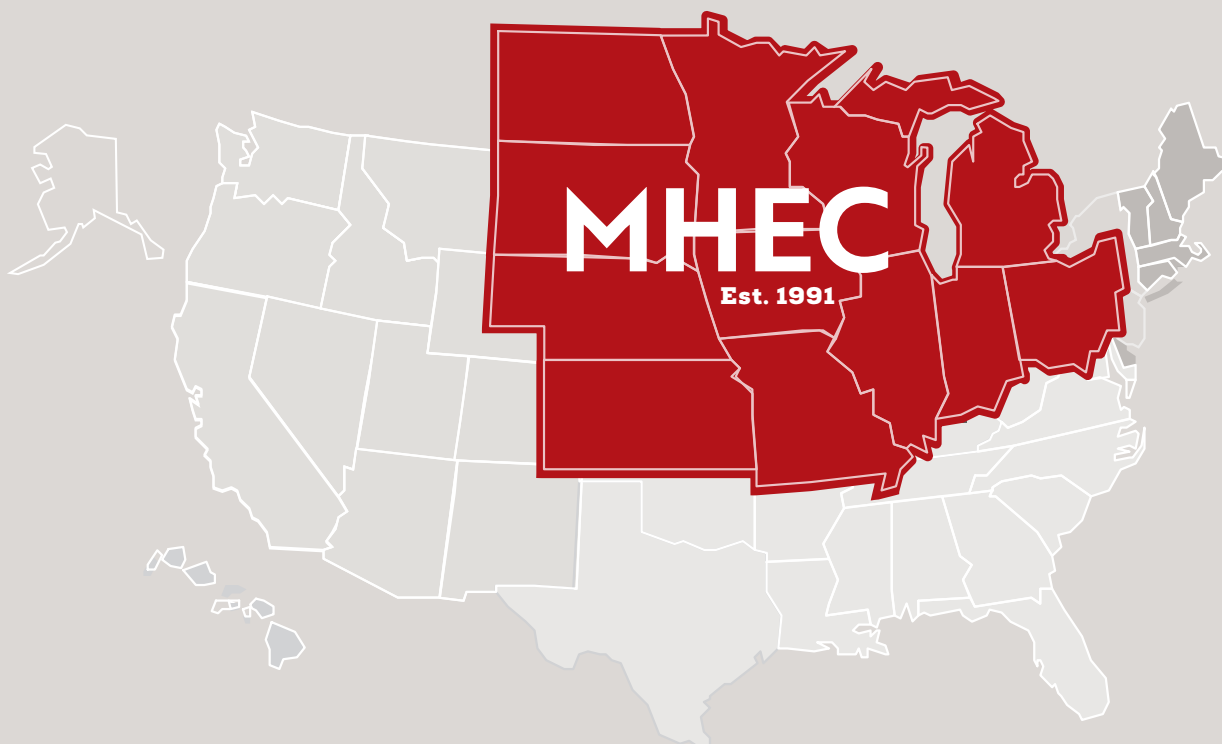


Higher Education in Focus 2019

*Essential Performance Indicators
for Midwestern States*



MISSOURI



**North Dakota and South Dakota are members of both MHEC and the Western Interstate Commission for Higher Education (WICHE).*

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Data analysis was conducted by Shaun Williams-Wyche, research manager. MHEC would like to acknowledge the helpful feedback of members of the Review Panel for State Policy and Performance Data.

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Additional indicators are available in the MHEC Interactive Dashboard: <https://www.mhec.org/dashboard>.

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Introduction

Future Workforce Demands

In the United States, approximately 65 percent of all jobs in 2020 will require some level of postsecondary education, and the demand will reach 66 percent in Missouri (see Figure 1).¹ The projected demand for postsecondary education in Missouri spans all occupational categories, including managerial, STEM, community service, education, healthcare, food and personal services, sales and office support, and “blue collar” industries (see Figure 2).² In most of these categories, a diverse mix of postsecondary credentials from certificates to doctorates will be necessary for a responsive and flexible workforce.

While the demand for postsecondary credentials has increased, the share of “good jobs” (jobs that pay at least \$35,000 a year for adults under age 45) that do not require at least some education beyond high school decreased nationally from 32% in 1991 to 20% in 2015. During that same time period, the percentage of good jobs that require less than an associate degree decreased nationally from 51% to 34%. Furthermore, most new good jobs that do not require a bachelor’s degree have been going to workers with at least some college or an associate degree, not to workers with only a high school diploma.³

Increasing Educational Attainment in Missouri

Many states have set ambitious goals to improve the educational attainment of their residents in order to meet future workforce demands. Missouri aims to raise its college attainment level—the proportion of adults with a postsecondary certificate or degree—to 60 percent by 2020. Significant progress is needed, as 41% of adults in Missouri held an associate degree or higher in 2018. (Data on postsecondary certificate attainment are currently limited, but some analyses indicate that accounting for educational certificates would increase the postsecondary attainment rate by two to three percentage points.)⁶

In order to increase the overall college attainment rate in Missouri, however, it is increasingly necessary to address attainment disparities. Critical gaps persist in educational attainment by race and ethnicity as well as family income. Relative to the White population in Missouri, a lower percentage of adults from underrepresented racial and ethnic backgrounds (American Indians, Blacks, and Hispanics) have completed a credential (see Figure 3). Such disparities are particularly problematic in the context of future demographic trends, wherein the number of high school graduates from underrepresented groups is projected to remain fairly stable, compared to a sharper decline in the number of White high school graduates (see Figure 4).

Differences in college attainment by family income are evident in national data. Figure 5 shows that lower percentages of high school students from low-income families ultimately obtain a college credential than do students from higher-income families. For example, only 38% of high school sophomores in 2002 from families earning under \$25,000 per year earned a postsecondary credential by age 27, compared to 73% of sophomores from families earning over \$100,000 per year.

If these disparities in educational attainment are not reduced, many states will be unable to reach their college attainment goals, and a growing share of the population will not be well prepared for changing workforce and economic demands.

An Imperative for Future Prosperity

The ability of policymakers and others to help states reach attainment goals carries significant implications for state revenue. Projections suggest that if the attainment goal were fulfilled in Missouri by 2025, over \$1 billion in additional revenue would be generated through income tax, sales tax, property tax, Medicaid savings, and corrections savings.⁷ Moreover, policies that effectively raise levels of educational attainment

will yield important civic and health benefits including higher rates of voting, volunteerism, and healthful prenatal care.⁸ For example, health risk factors such as smoking are less prevalent among individuals who have a bachelor's degree or higher.⁹ Residents of Missouri also benefit from higher education in terms of higher earnings and lower unemployment, compared to those with only a high school diploma.¹⁰

About this Report

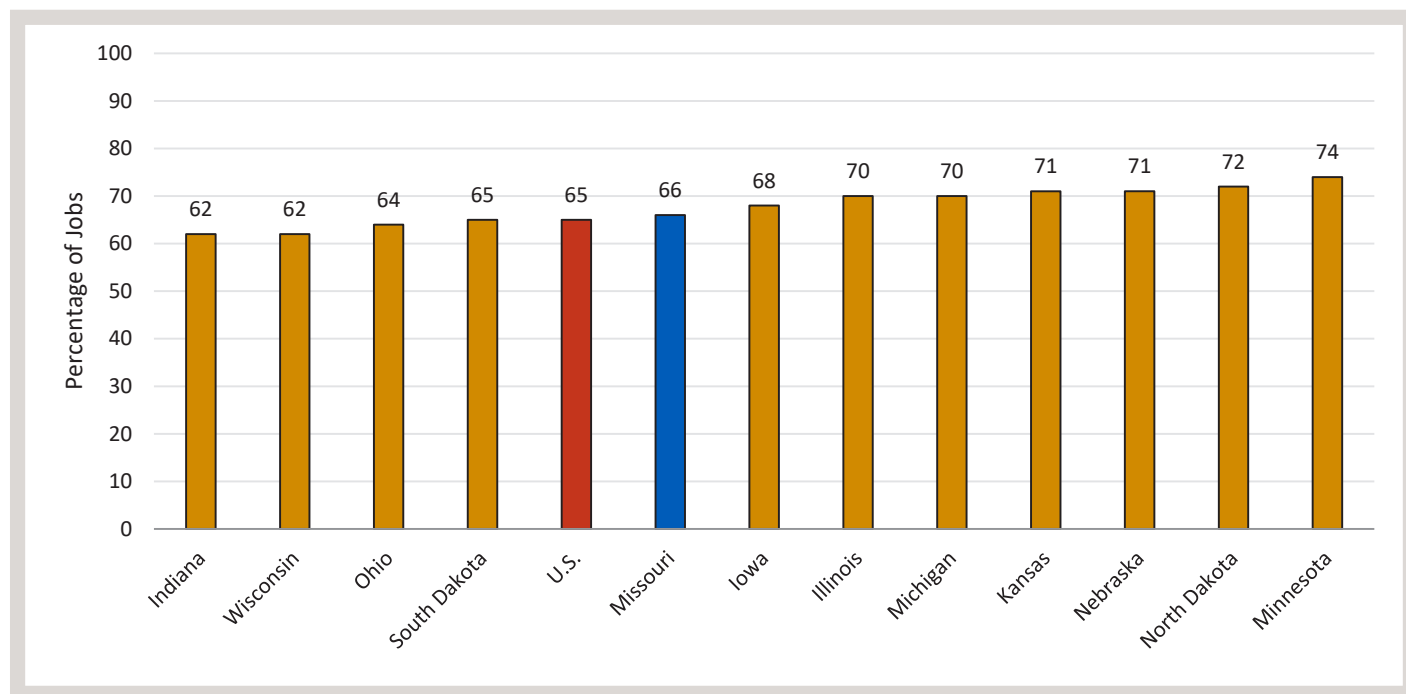
This report seeks to inform public discourse on higher education by providing key performance indicators

relevant to the goal of improving educational attainment for a healthy economy and society. Performance indicators are categorized within five areas: Preparation, Participation, Completion, Affordability, and Finance. Several indicators provide the national and MHEC regional values as well as the median of the top five states in the nation as possible benchmarks. Performance indicators are disaggregated by race/ethnicity and family income when data are available.

Figure 1. Percentage of Jobs in 2020 that Will Require a Postsecondary Education



About 66 percent of all jobs in Missouri will require some level of postsecondary education in 2020.

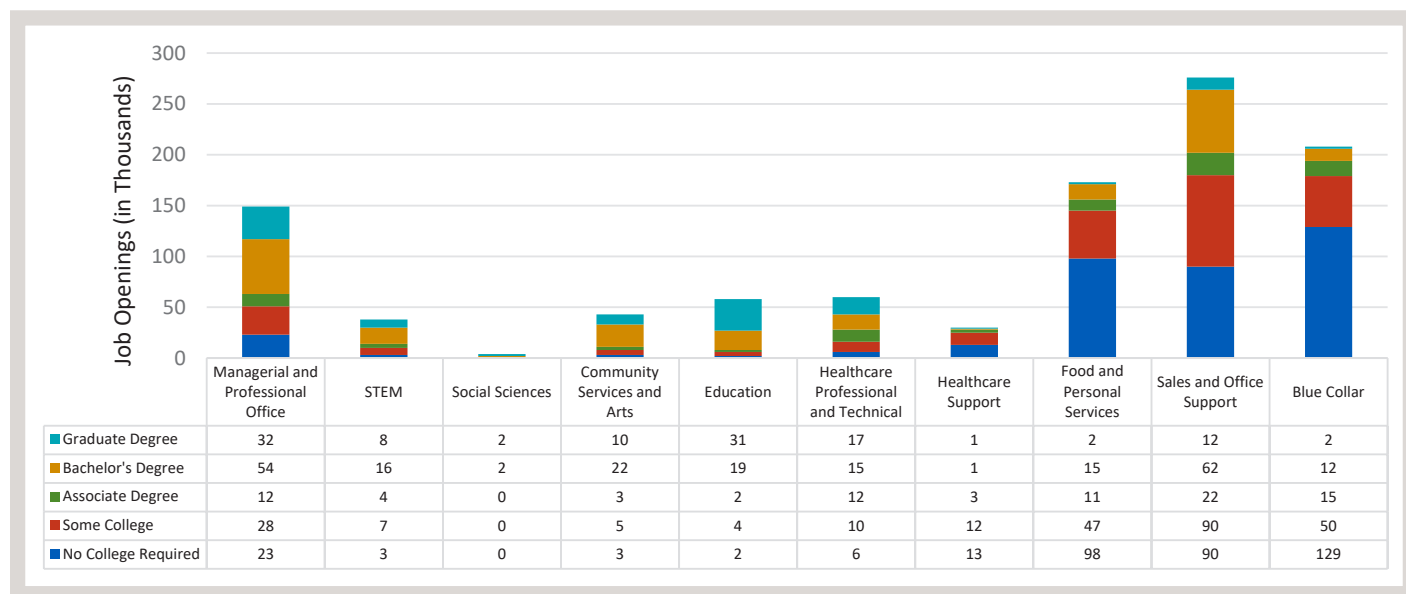


Source: The Georgetown University Center on Education and the Workforce. (2013). *Recovery: Job growth and education requirements through 2020*.

Figure 2. Missouri Job Openings by Occupation and Education Level between 2010 and 2020 (in Thousands)



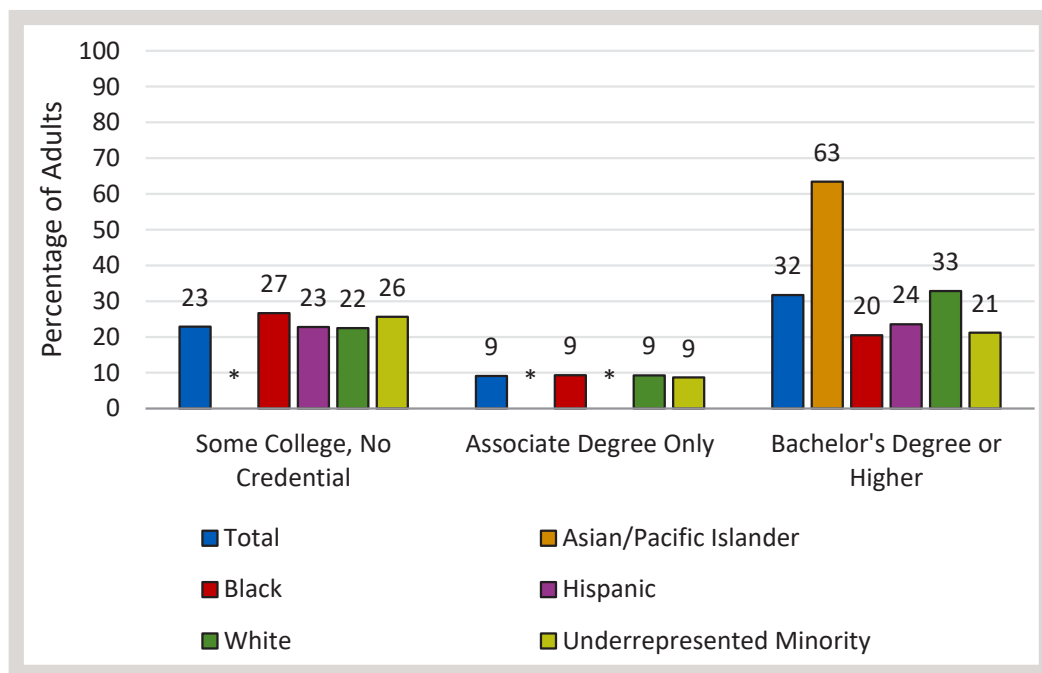
The projected demand for postsecondary education in Missouri spans all occupational categories.



Source: The Georgetown University Center on Education and the Workforce. (2013). *Recovery: Job growth and education requirements through 2020*.

Figure 3. Percentage of Adults Aged 25-64 in Missouri who have Attained a Postsecondary Credential by Race and Ethnicity

 *There are significant gaps in bachelor's degree attainment in Missouri between underrepresented minorities and Whites and Asian/Pacific Islanders.*




Source: U.S. Census Bureau. (2019). *ACS One-Year Estimates: 2018*.

Note: Certificate estimates are unavailable by race and ethnicity. The underrepresented minority category consists of American Indians, Blacks, and Hispanics.

* Estimates are unavailable due to small sample sizes. Estimates for American Indians were unavailable for all attainment levels due to small sample sizes.

Figure 4. Public High School Graduate Trends in Missouri Through 2032 by Race and Ethnicity

 **The number of underrepresented minority high school graduates is projected to remain fairly stable in Missouri, compared to a sharper decline in the number of White high school graduates.**

Source: Western Interstate Commission for Higher Education. (2016). *Knocking at the College Door, 9th Ed.*
Note: The underrepresented minority category consists of American Indians, Blacks, and Hispanics.

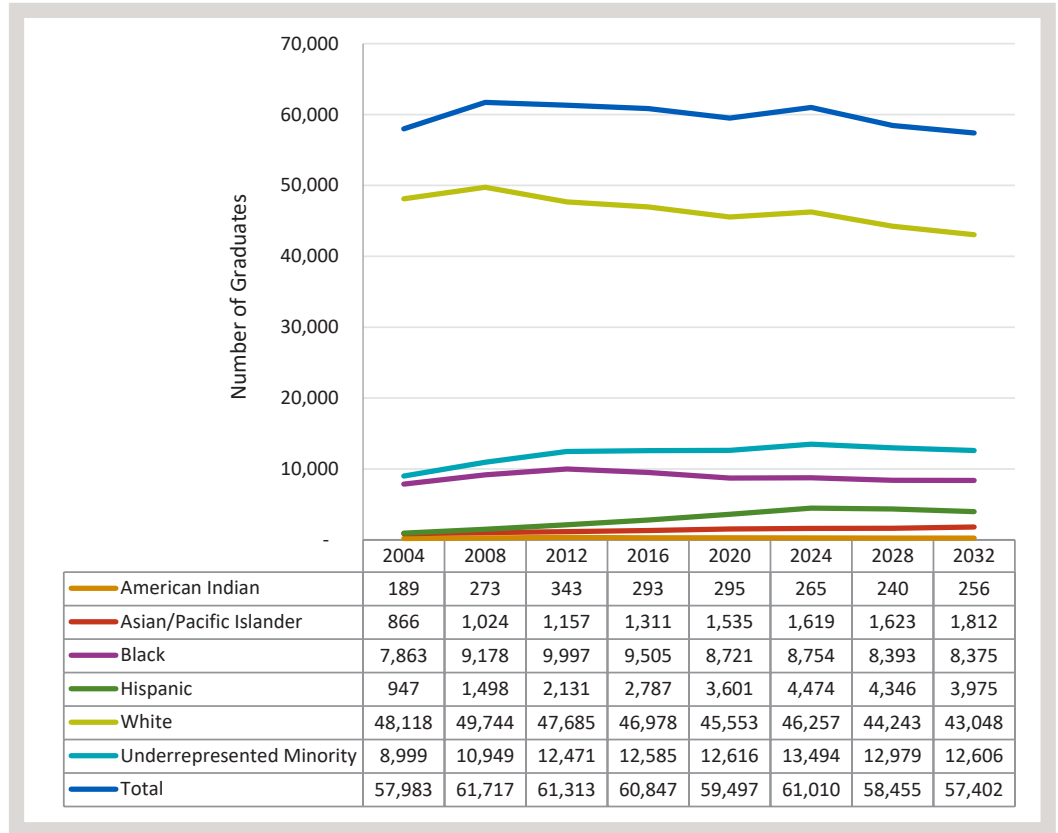

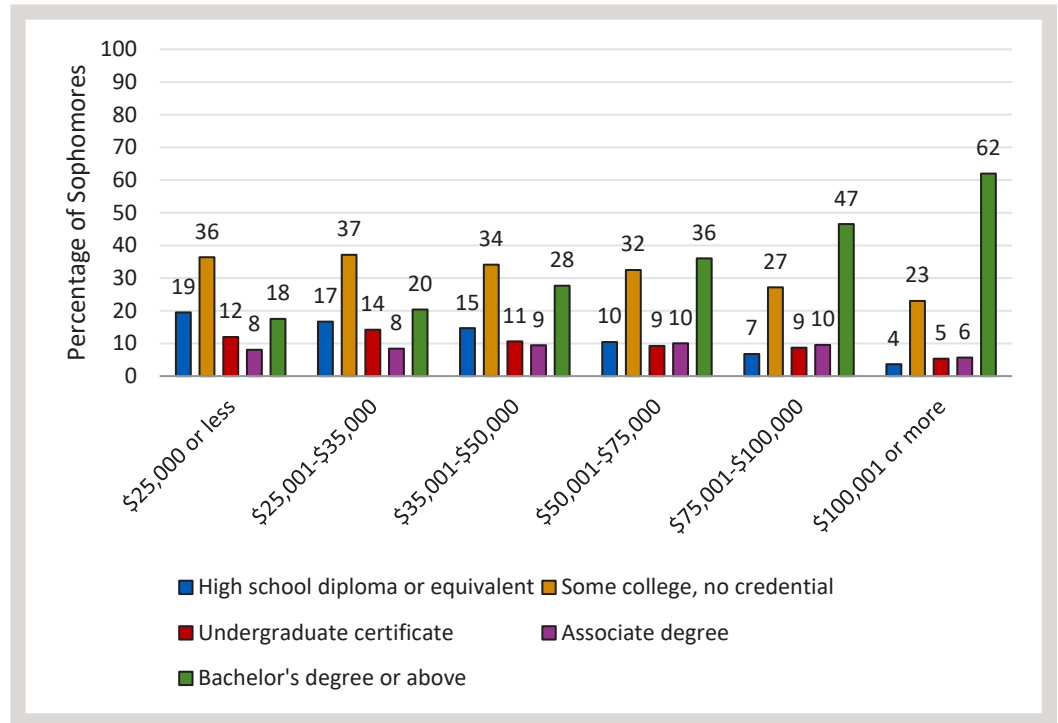


Figure 5. Percentage of High School Sophomores in the United States who Attained a Postsecondary Credential Before Age 27 by Income

 **Nationally, only 38% of high school sophomores in 2002 from families earning under \$25,000 per year earned a postsecondary credential by age 27, compared to 73% of sophomores from families earning over \$100,000 per year.**



Source: U.S. Department of Education, National Center for Education Statistics. (2002, 2012). *Education Longitudinal Study of 2002, High School Sophomores.*

Preparation

ABOUT THESE METRICS

Academic preparation constitutes a key leverage point for improving postsecondary outcomes. The extent to which students are academically prepared for college predicts bachelor's degree completion beyond the effects of race and ethnicity, socioeconomic status, institutional selectivity, attendance patterns, and academic performance during college.¹¹ The cumulative nature of both academic competencies and deficits necessitates an assessment of academic preparedness that spans pre-K education, middle school, and high school.

Preschool enrollment. An early indicator of academic preparation is defined by the percentage of children ages 3 to 4 enrolled in preschool. Early childhood education provides a critical foundation for successfully managing subsequent academic challenges. Relative to children in control groups, participants in high-quality, educationally-focused programs have exhibited greater long-term gains in IQ, lower rates of grade repetition and special education placements, and higher rates of high school graduation and college attendance.¹² Moreover, cost-benefit analyses of such programs have shown that benefits are 2.5 to 16.2 times greater than costs when accounting for such factors as adult earnings and cost savings in K-12 education, corrections, welfare, and healthcare.

Academic proficiency of 8th grade students. The percentage of students in grade 8 scoring at or above proficiency on the National Assessment of Educational Progress (NAEP) provides a measure of whether students enter high school with foundational skills and knowledge in such areas as math, reading, and science. In fact, 8th grade academic achievement has been found to be a highly significant predictor of college readiness among 12th grade students.¹³

Academic proficiency indicators are provided by race and ethnicity and income. Students who qualified for free- or reduced-price lunch were classified as low-income, while students who were not eligible to participate in the National School Lunch Program were classified as higher-income. Academic proficiency by race and ethnicity is measured among American Indian, Asian/Pacific Islander, Black, Hispanic, and White students.


High school completion. Graduation rates are based on the number of students who graduate in four years with a regular high school diploma.¹⁴ The completion of high school or its equivalent is typically required for college admissions.

High school completion indicators are provided by race/ethnicity and income. Completion by income is measured by graduation rates among low-income students who qualified for free- or reduced-price lunch and “higher”-income students who were not eligible to participate in the National School Lunch Program.

High school graduates completing a core curriculum. An important indicator of college readiness reflects the proportion of graduates taking the ACT who completed a core curriculum during high school. A core curriculum consists of four or more years of English and three or more years each of math, social studies, and natural science. Students completing a core curriculum are more likely to be ready for college or a career than students who do not complete a core course sequence.¹⁵ This indicator is shown by race and ethnicity.

Academic proficiency of high school graduates. The proportion of graduates taking the ACT who meet college readiness benchmarks provides another measure of the academic preparation of college-bound students. Benchmark scores in English (18), mathematics (22), reading (22), and science (23) delineate a 75 percent likelihood of attaining at least a “C” in first-year college-level courses.¹⁶ Benchmark scores are provided by race and ethnicity.

Figure 6. Percentage of Children Ages 3 to 4 Enrolled in Preschool

 *The rate of preschool enrollment in Missouri is above the regional level but below the national level.*

Source: U.S. Census Bureau. (2010-12, 2017-19). *American Community Survey One-Year: 2009-11, 2016-18*. Top 5 States, 2017: CT, NJ, VT, MA, NY.

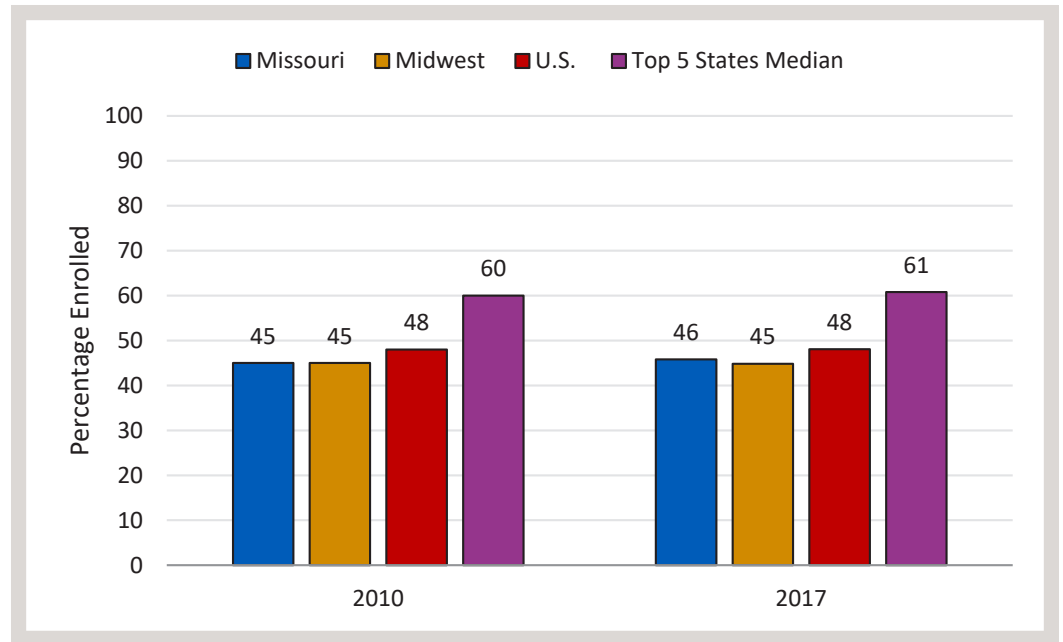

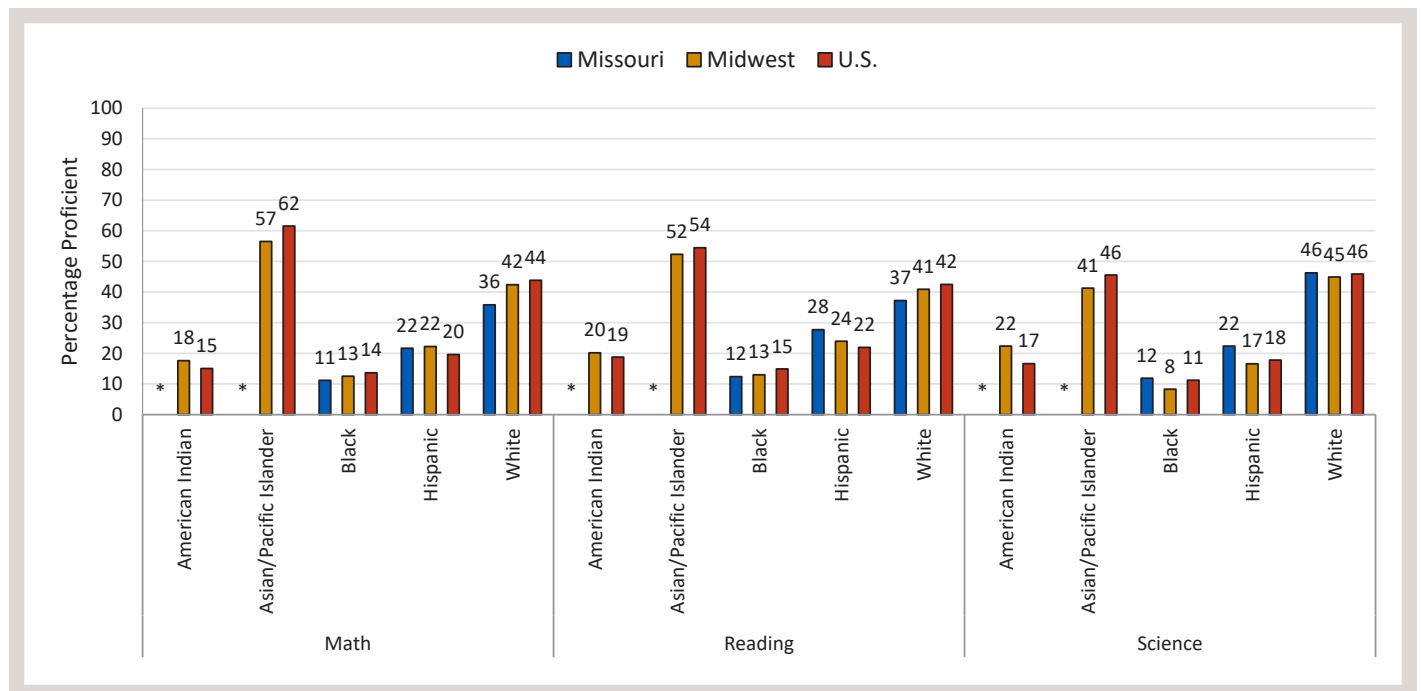


Figure 7a. Percentage of Students in Grade 8 Scoring at or Above Proficiency on the National Assessment of Educational Progress in Math, Reading, and Science by Race and Ethnicity


 *Less than half of 8th grade students in Missouri across most groups scored at or above the proficiency level in math, reading, or science. Proficiency in these subject areas was less common among Black and Hispanic students relative to White students.*

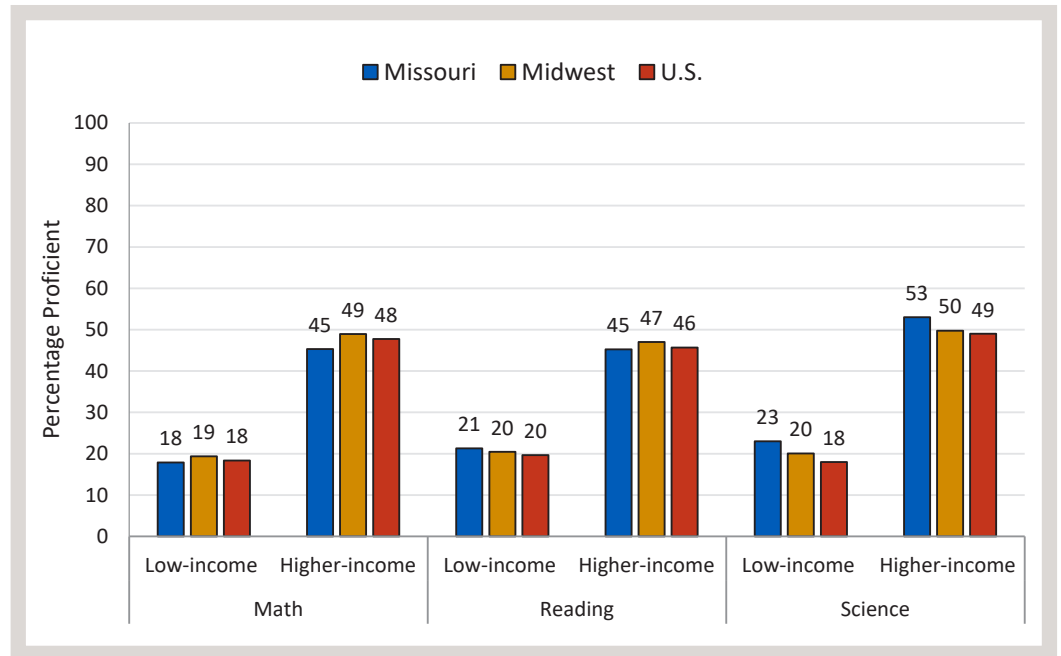


Source: National Center for Education Statistics. (2019). *National assessment of educational progress*. Estimates for NAEP Science are from 2015.

*Estimates are unavailable due to small sample sizes.


Figure 7b. Percentage of Students in Grade 8 Scoring at or Above Proficiency on the National Assessment of Educational Progress in Math, Reading, and Science by Income

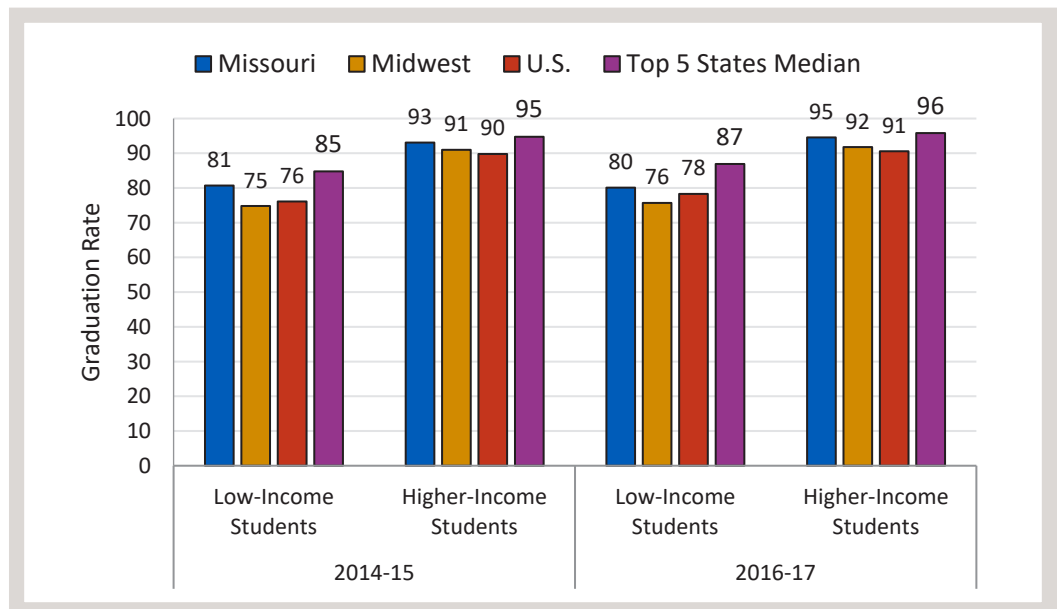
 *A much larger percentage of students in Missouri from higher-income families were proficient in math, reading, and science than were students from low-income families.*



Source: National Center for Education Statistics. (2019). *National assessment of educational progress*. Estimates for NAEP Science are from 2015.

Figure 8a. Public High School Graduation Rates by Income

 *The high school graduation gap between low-income and high-income students in Missouri was 15 percentage points in 2016-17, compared to the regional gap of 16 percentage points and the national gap of 13 percentage points.*



Source: U.S. Department of Education. (2015, 2017). *ED Data Express, ACGR*. Top 5 States, 2017 (includes ties): Low-Income Students: WV, KY, TX, SC, AR; Higher-income students: WV, IA, VT, MA, CT.

Figure 8b. Public High School Graduation Rates by Race and Ethnicity

 **American Indian, Black, and Hispanic high school students in Missouri graduate at lower rates than White and Asian/Pacific Islander students.**

Source: U.S. Department of Education. (2016-17). *ED Data Express, ACGR*. Top 5 States, 2017 (includes ties): All Students: IA, NJ, TN, KY, TX, WV.

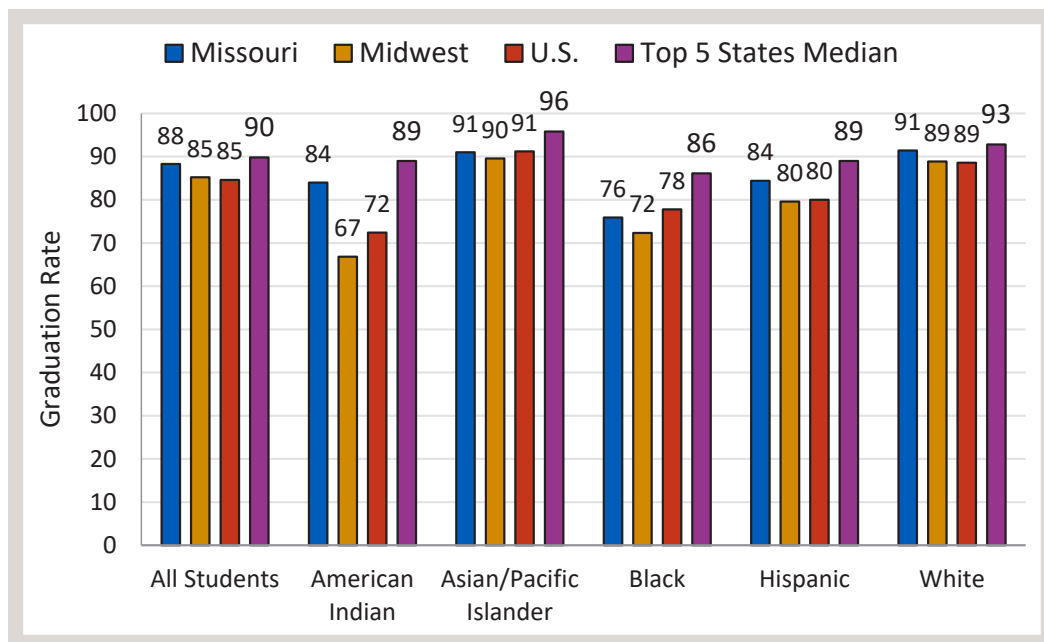
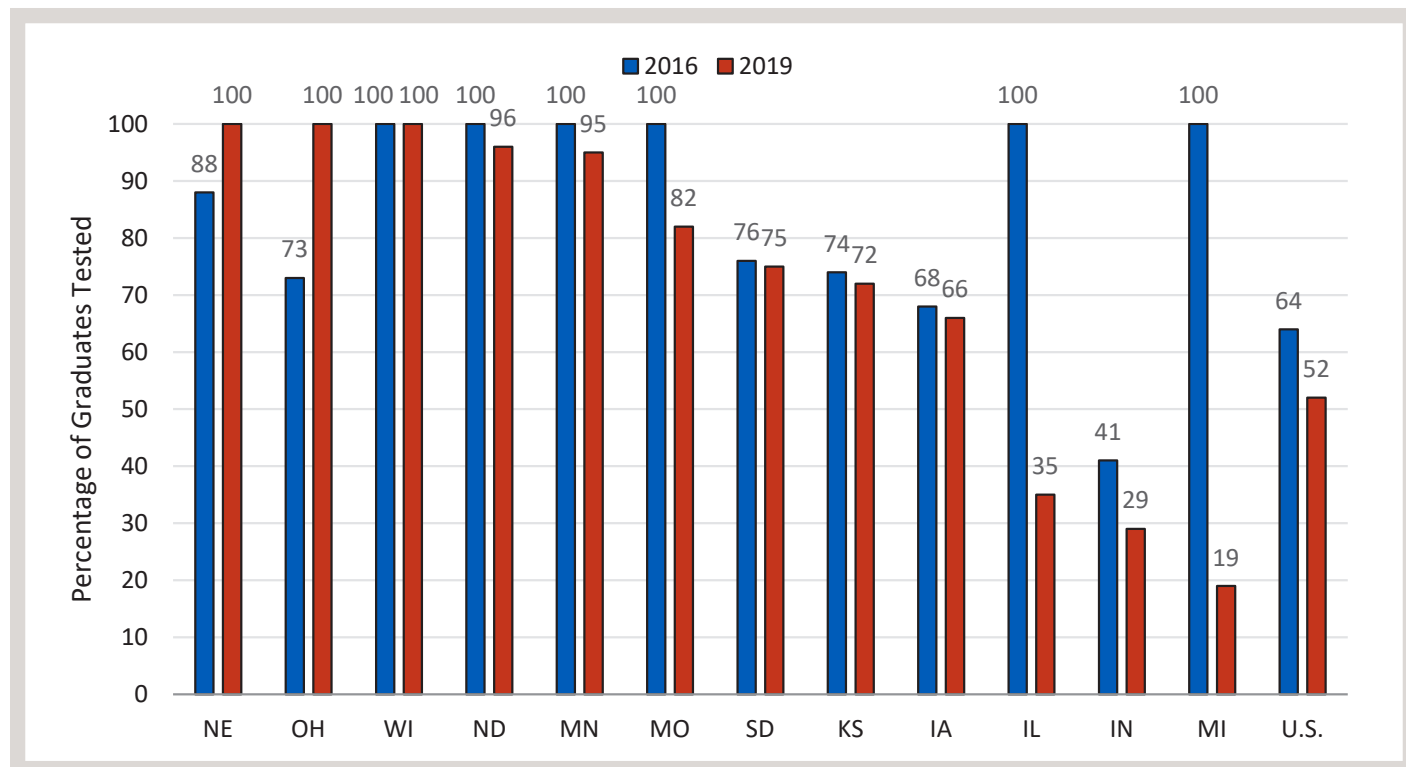


Figure 9a. Percentage of High School Graduates Taking the ACT


 **About 82 percent of high school graduates in Missouri took the ACT.¹⁷**



Source: ACT. (2019). *The Condition of College & Career Readiness*, 2019.

Note. Some Midwestern states require public school districts to offer the ACT or SAT on a school day (Minnesota), require high school students to take the ACT (Nebraska, North Dakota, and Wisconsin), or require students to take the ACT or SAT (Ohio).

Figure 9b. Percentage of ACT-Tested High School Graduates Who Completed a Core Curriculum by Race and Ethnicity

 *While 48 percent of all tested graduates in Missouri completed a high school core curriculum, the completion rate was much lower among American Indians.*

Source: ACT. (2018). *The Condition of College & Career Readiness*, 2018.

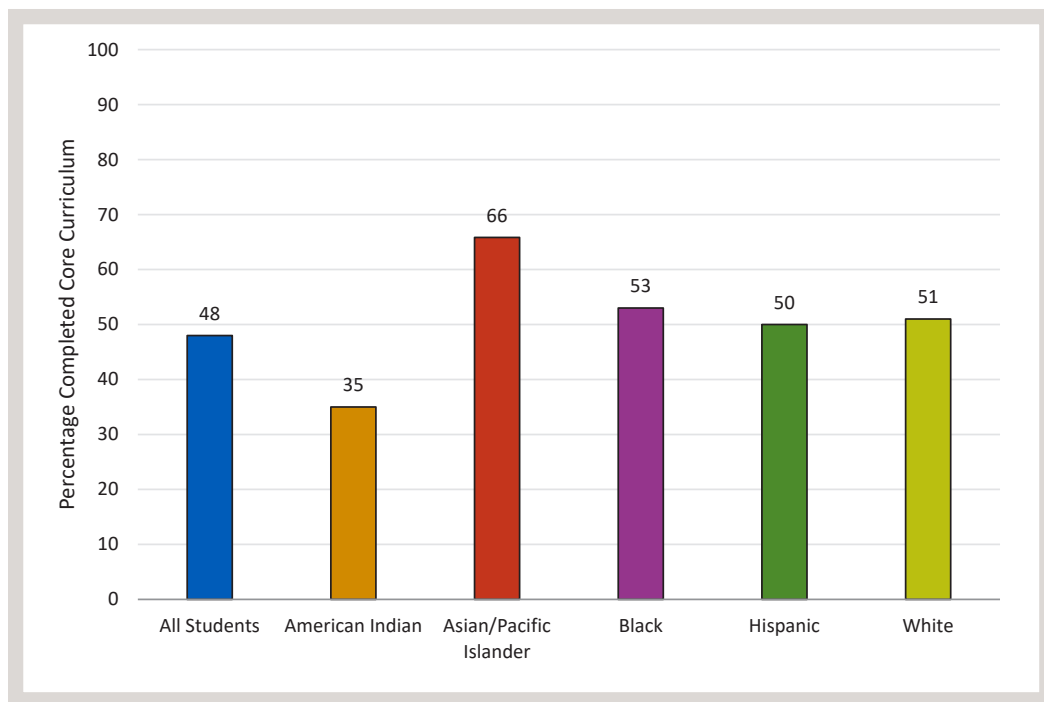

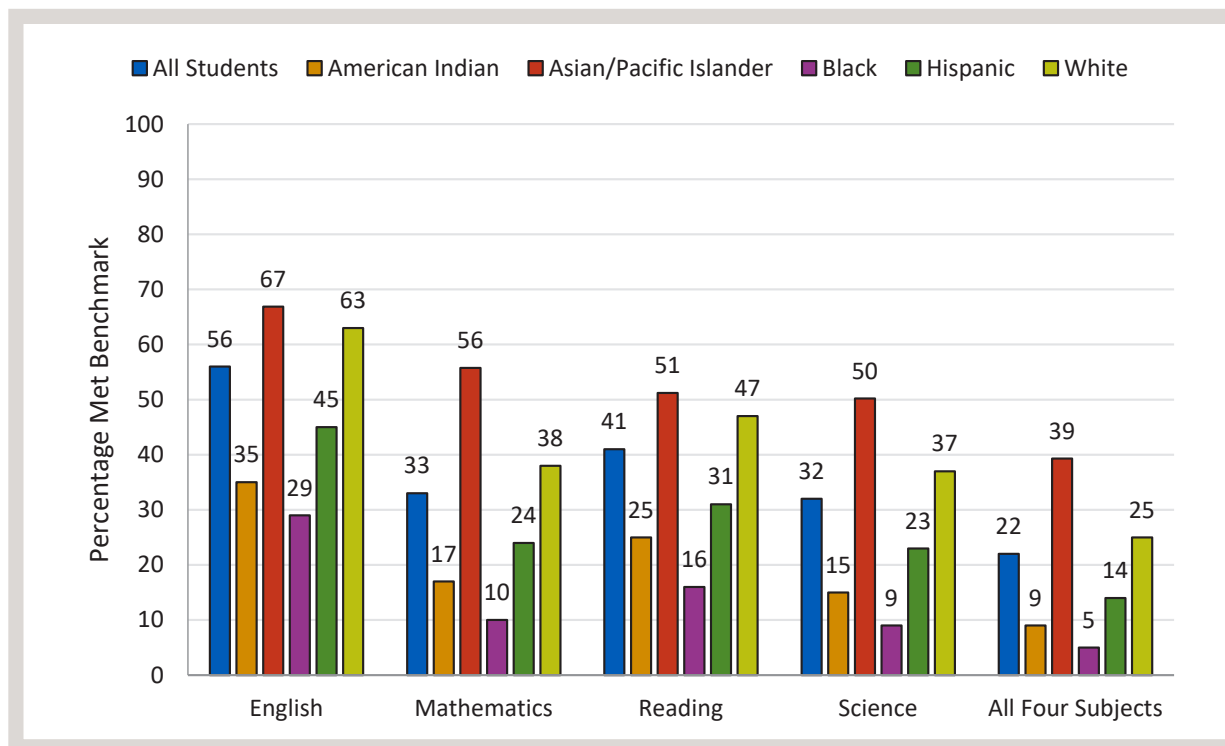


Figure 10. Percentage of ACT-Tested High School Graduates Who Met or Exceeded College Readiness Benchmark Scores by Race and Ethnicity

 *Less than 25 percent of tested graduates in Missouri met or exceeded college readiness benchmarks in all four tested subjects. Lower percentages of American Indians, Blacks, and Hispanics met performance benchmarks relative to Whites and Asian/Pacific Islanders.*



Source: ACT. (2018). *The Condition of College & Career Readiness*, 2018.

Participation

ABOUT THESE METRICS

A critical challenge for policymakers is to ensure that residents can access a college education compatible with their aspirations and abilities. Postsecondary participation rates provide a general indication of whether opportunities for higher education need to be improved for both younger and older adults. Geographical location, for example, has been identified as a potential barrier for prospective college students. A recent national analysis estimated that 11.2 million adults live more than a 60-minute drive from a public two- or four-year college.¹⁸


Direct enrollment. The direct enrollment rate is defined as the percentage of high school graduates who enroll in a postsecondary institution during the fall immediately following high school completion.¹⁹ Postponed enrollment may lead to future obstacles to degree completion, such as diminishing academic skills and knowledge as well as the adoption of competing roles and obligations (e.g., work, family). Research has indicated that the odds of obtaining a bachelor's degree decrease when a student delays postsecondary enrollment after graduating from high school.²⁰

Traditional-age enrollment. Participation among traditional-age students is defined as the percentage of all 18- to 24-year-old adults in the state who are currently enrolled in college or have completed any college credit or credential. Enrollment rates are provided for racial/ethnic and family income groups.

The enrollment gap by income is gauged by comparing college enrollment rates among dependent 18- to 24-year-old residents by the family income quartiles of all households in the state. Low income is delineated by the bottom quartile, middle income by the second and third quartiles, and high income by the top quartile.²¹

Older adult enrollment. Participation among older adults is defined as the rate of enrollment among adults aged 25 to 49 who have earned at least a high school diploma or GED but have not yet earned an associate degree or higher.

Figure 11. Percentage of High School Graduates Going Directly to College

 **Approximately 59 percent of high school graduates in Missouri directly enrolled in college, a rate that is below the regional and national levels.**

Source: Western Interstate Commission for Higher Education. (2016). *Knocking at the College Door, 9th Ed.* NCES IPEDS. (2014, 2016). *Fall Enrollment File.* Top 5 states (includes ties): NY, MA, MS, LA, CT.

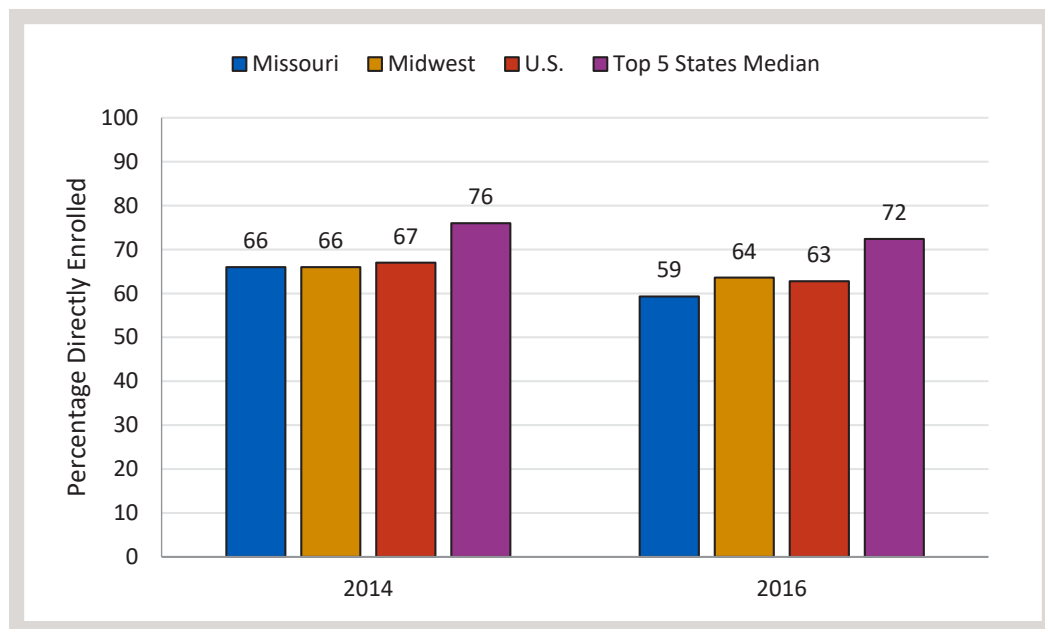



Figure 12a. Percentage of Persons Aged 18-24 who are Currently Enrolled or Have Completed Any College Credit by Race and Ethnicity

 **About 56 percent of underrepresented minorities in Missouri (ages 18-24) have gained access to college, compared to 68 percent of Whites.**

Source: U.S. Census Bureau. (2019). *American Community Survey One-Year Public Use Microdata Sample: 2018.* Top 5 States: 2018. (includes ties): MA, NY, NJ, CT, RI, ND, VT, MN, CA. Note. The underrepresented minority category comprises American Indians, Blacks, and Hispanics.

*Estimates are unavailable due to small sample sizes.

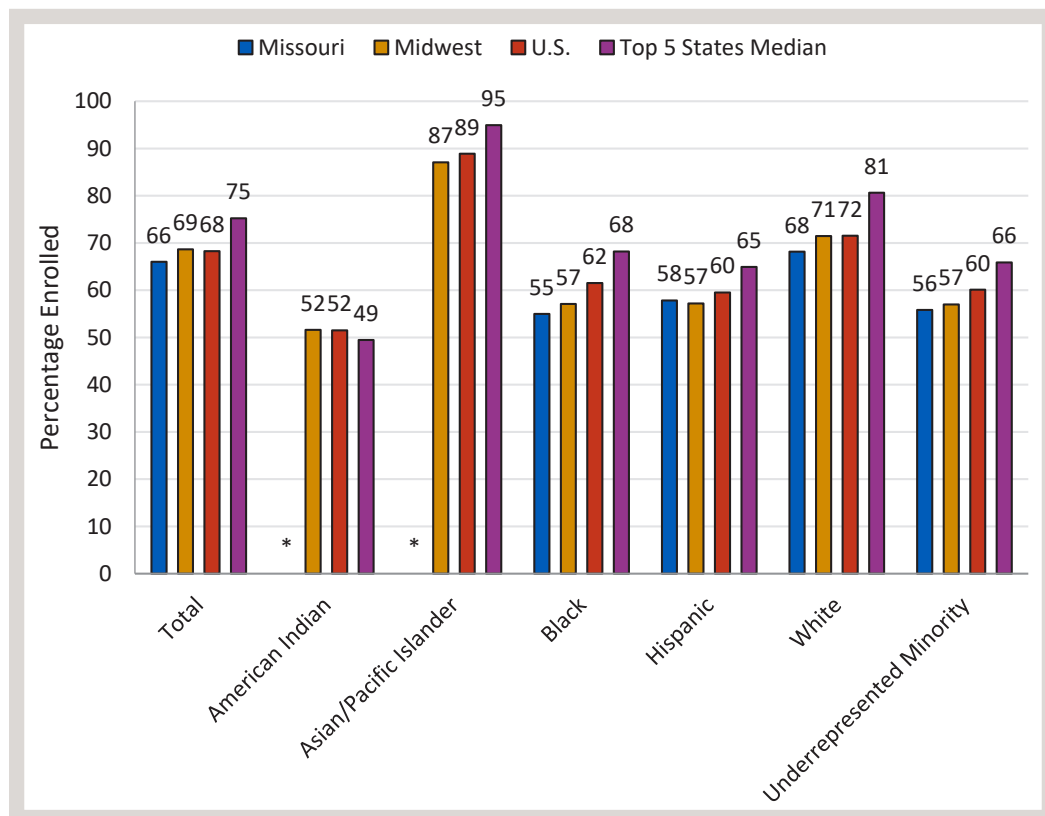

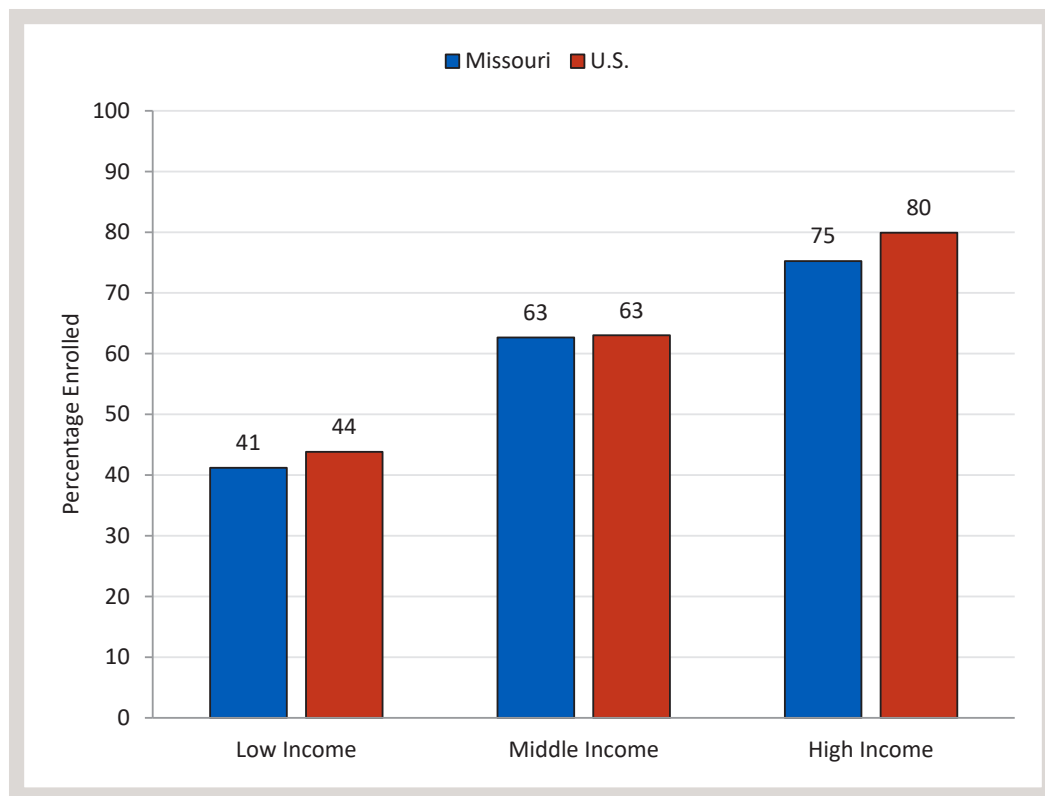


Figure 12b. Percentage of Dependent 18- to 24-Year-Old Residents who are Currently Enrolled or Have Completed Any College Credit by Income

 **The rate of college enrollment among low-income 18 to 24 year olds in Missouri (41%, MoE $\pm 16\%$) is considerably lower than the enrollment rate for 18 to 24 year olds from high-income families (75%, MoE $\pm 5\%$).**

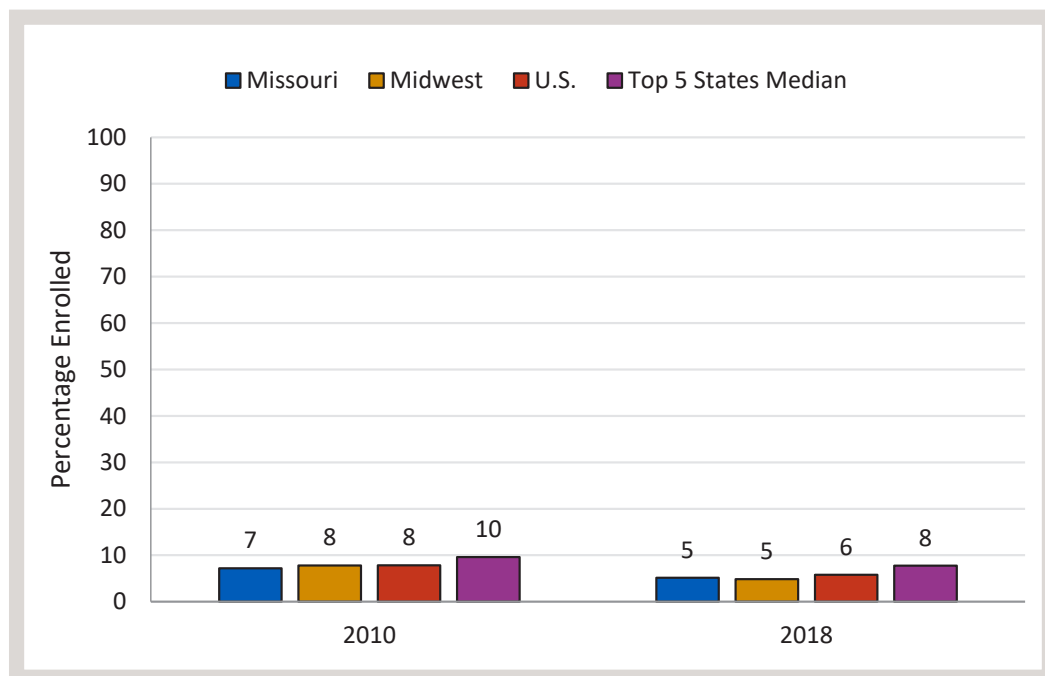


Source: U.S. Census Bureau. (2011, 2012, 2013, 2014, 2015). *Current Population Survey. Five-year estimates.*
Note. MoE refers to margin of error.

Figure 13. Percentage of Persons Aged 25-49 without an Associate Degree or Higher who are Currently Enrolled in College

 **Missouri meets the regional benchmark in the proportion of older residents enrolled in college.**

Source: U.S. Census Bureau. (2011, 2019). *American Community Survey One-Year Public Use Microdata Sample: 2010, 2018. Top 5 States, 2018 (includes ties): CA, AK, UT, MD, MA.*



Completion

ABOUT THESE METRICS


While many states have made significant gains in postsecondary enrollment, rates of degree completion across the nation remain below expected levels. The failure to complete a degree program has negative consequences for both students and states. Since employers are more likely to demand an educational credential than a specific number of postsecondary credits, a premature departure from college can severely curb one's prospects for future employment and earnings. For example, individuals who have attained a bachelor's degree earn 14 to 26 percent more than those who have completed 16 years of schooling without graduating from college.²² Similarly, individuals who have earned a certificate or associate degree tend to earn significantly more than those who enrolled but did not graduate, particularly in health-related and technical fields.²³ In addition, when students fail to graduate, the state fails to optimize its investment in higher education through lost institutional appropriations and student grant aid as well as lost revenue from state income tax.²⁴

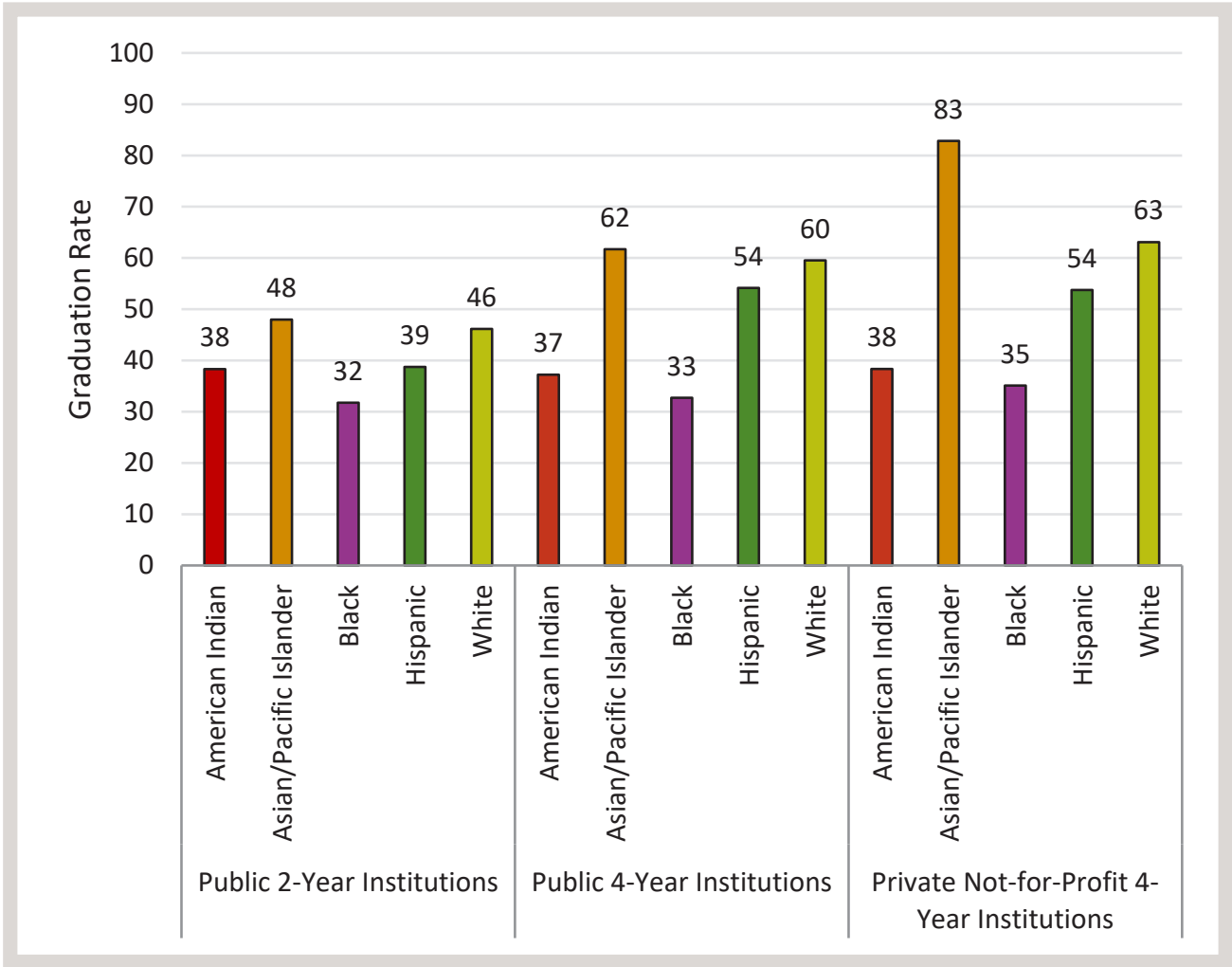
Institutional graduation rates. Institutional graduation rates are defined by the proportion of first-time, full-time students who graduate at their beginning institution. Specifically, graduation rates at two-year colleges are measured by the proportion of first-time, full-time certificate/degree-seeking students in the fall 2014 cohort who transferred or completed an associate degree or certificate at the first public two-year college within three years. Graduation rates at four-year institutions are defined by first-time, full-time, bachelor's degree-seeking students in the fall 2011 cohort who completed a bachelor's degree at the first four-year institution within six years (without accounting for transfer to another institution).

These indicators are provided for racial/ethnic groups and family income groups. Performance by income is estimated by comparing graduation rates among federal Pell grant recipients and non-Pell recipients. In 2018-19, a dependent student from a family with a household size of four (two parents and two children) and an adjusted gross income of \$60,000 or less would be eligible for a Pell Grant.²⁵

Credential completion rates. Credential completion rates are defined by the proportion of first-time, certificate/degree-seeking students in the fall 2012 cohort who completed a certificate or degree within six years at the first institution or elsewhere. The credential completion rate accounts for both part- and full-time students.


Figure 14. Percentage of First-Time, Full-Time, Degree/Certificate-Seeking Students who Transferred or Graduated within Three Years at First Public Two-Year Institution and Graduated within Six Years at First Four-Year Institution by Race and Ethnicity

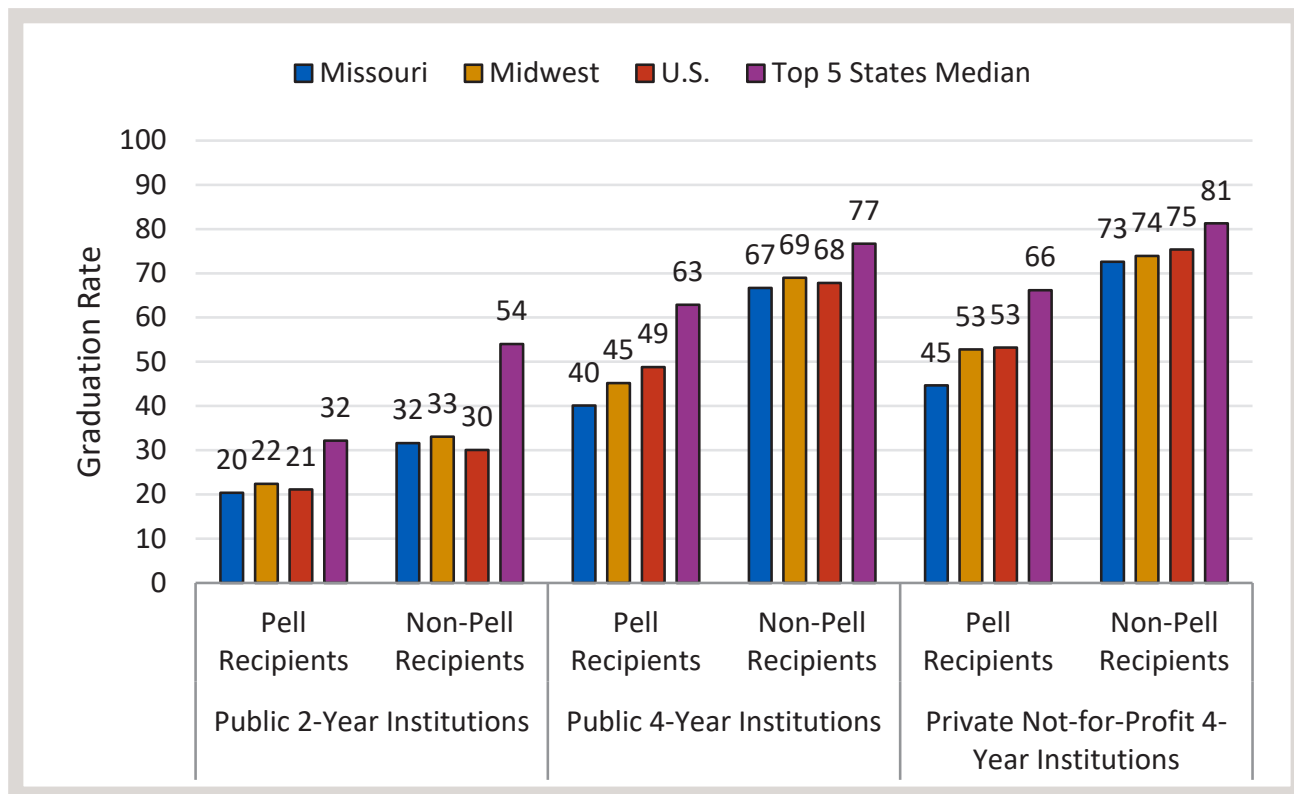
 The graduation rates of American Indians, Blacks, and Hispanics in Missouri were lower than the graduation rates of Whites and Asian/Pacific Islanders across all types of institutions.



Source: NCES IPEDS, (2017). *Graduation Rate*.

Figure 15. Percentage of First-Time, Full-Time, Degree/Certificate-Seeking Students who Graduated within Three Years at First Public Two-Year Institution and Graduated within Six Years at First Four-Year Institution by Pell Grant Recipient Status

 *The graduation rates of low-income students (i.e., Pell Grant recipients) in Missouri lag behind the graduation rates of higher-income students at both two- and four-year institutions.*

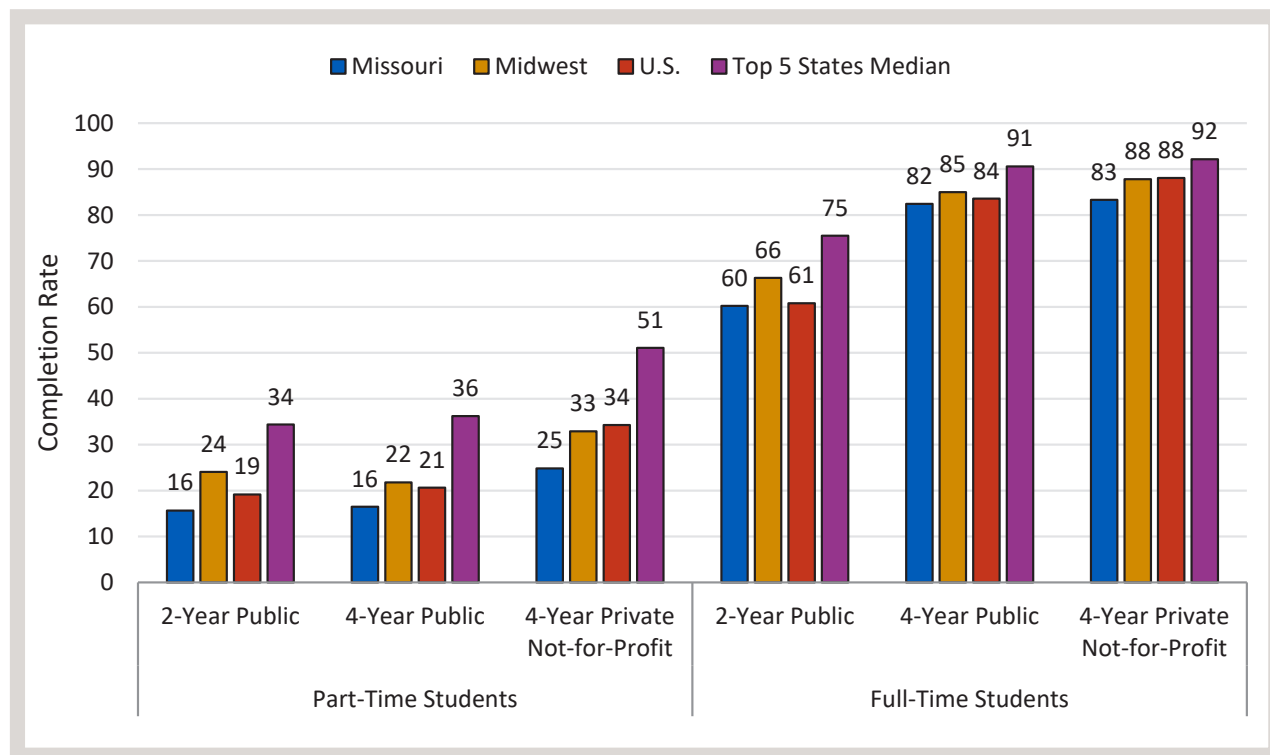


Source: NCES IPEDS. (2017). *Graduation Rate*. Top 5 States, 2017 Public two-year: (Pell recipients: AK, SD, WY, ND, KS) (Non-Pell recipients: AK, SD, ND, WI, MS) Public four-year: (Pell recipients: IA, CA, NH, WA, FL) (Non-Pell recipients: DE, VA, IA, CA, NJ) Private not-for-profit four-year: (Pell recipients: MA, RI, CA, OR, PA) (Non-Pell recipients: MA, ME, CA, RI, CT).

Figure 16. Percentage of First-Time, Certificate/Degree-Seeking Students who Completed a Credential within Six Years at Any Institution: Full- vs. Part-Time Students



The credential completion rate of full-time students is significantly higher than the completion rate of part-time students across all types of institutions in Missouri.



Source: Shapiro, D., Dundar, A., Wakhungu, P., Yuan, X., Nathan, A & Hwang, Y., A. (2019). *Completing college: A state-level view of student attainment rates* (Signature Report No. 16a). Herndon, VA: National Student Clearinghouse. Top 5 States: Part-time students: (Two-year public: GA, WI, MN, KY, NH) (Four-year public: NJ, MI, MT, VA, CA) (Four-year private not-for-profit: OR, MD, NJ, IL, ME), Full-time students: (Two-year public: MI, SD, ND, IL, FL) (Four-year public: IA, MD, NH, MN, VA) (Four-year private not-for-profit: RI, WA, OR, MD, PA).

*Estimates are not available for all institution types.

Affordability


ABOUT THESE METRICS

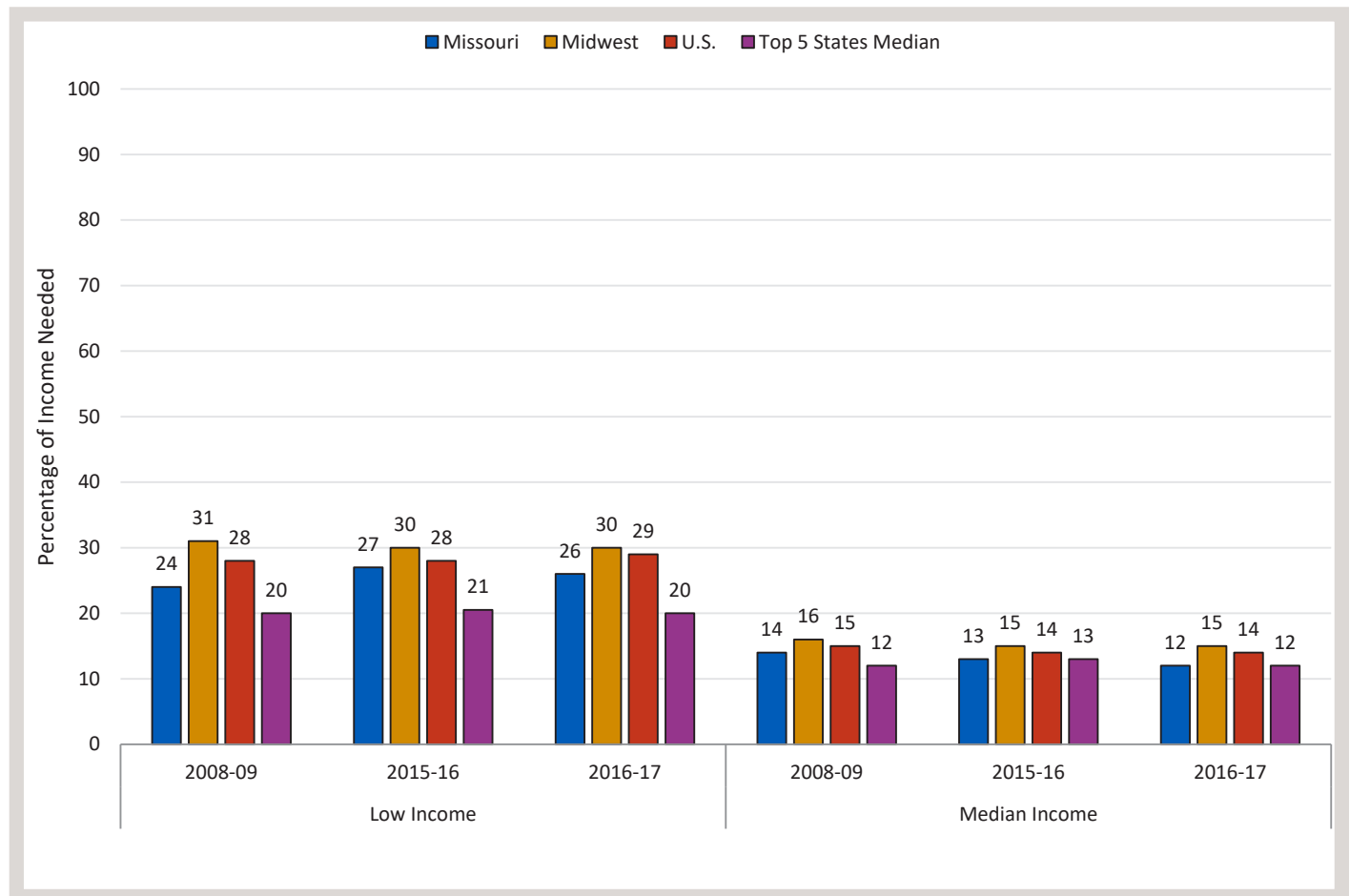
Over the past few decades, college tuition and fees have increased at more than four times the rate of consumer prices, partly in response to reductions in state and local funding. These increases in tuition have occurred while the incomes of many low- and middle-income families have stagnated or declined. This is potentially problematic since a higher net price of college has been associated with lower rates of college enrollment and completion, particularly among students from low-income families.²⁶

Ability to pay. The ability to pay for college is measured by the percentage of family income needed to pay the net price of full-time enrollment at public two- and four-year institutions. The average net price is calculated as the total cost of attendance (tuition and fees, books, supplies, and room and board) minus the average institutional, local, state, and federal grant aid. In order to assess the degree of affordability for students of different income levels, this indicator is presented for families with median income (\$65,983 in 2017) and low income, which is defined as an income equal to the federal poverty level for a family of four (\$24,600 in 2017). The indicator is also presented by the median income for families in each racial and ethnic group.

Student loan debt. Student loan debt is measured by the percentage of bachelor's degree recipients with student loan debt and the average student loan debt among bachelor's degree recipients with student loans at public four-year institutions (excluding credit card debt or borrowing from family members).²⁷


Figure 17a. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Two-Year Institutions

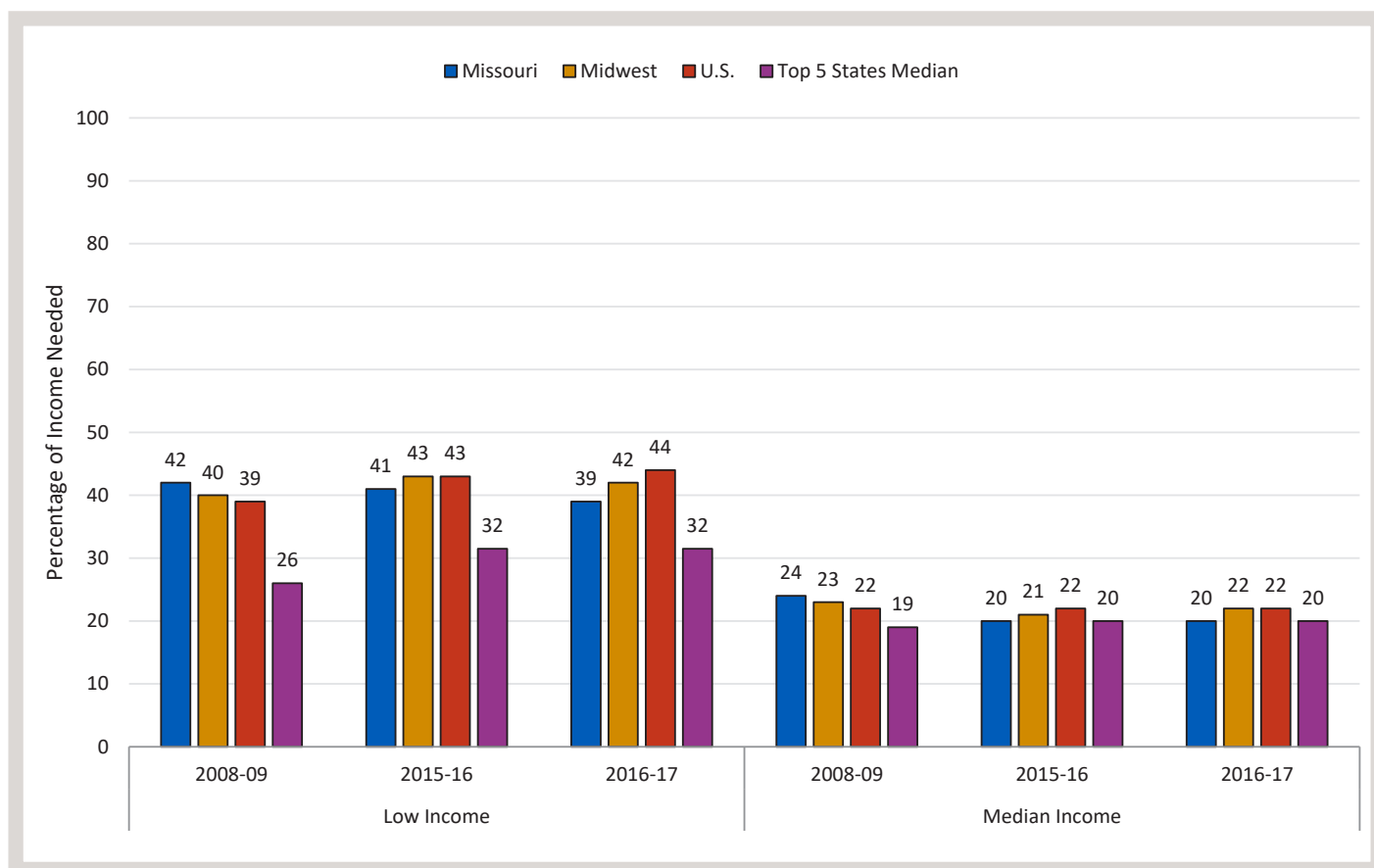
 *Two-year college attendance in Missouri for students from median-income families requires 12 percent of family income, compared to 26 percent of income for students from low-income families.*



Source: NCES IPEDS. (2009, 2016, 2017). *Net price*. U.S. Census Bureau. (2010, 2017, 2018). *American Community Survey One-Year Public Use Microdata Sample: 2009, 2016, 2017*. Top 5 States, 2016-17 (includes ties): Low-Income Students: MS, GA, KY, IL, MI, RI, WY, AL, WA, AL, WA; Median income students: CT, WY, GA., MD, MI, VA, IL, KY, MA, MO, NE, NJ, AL, CA, DE, MS, NC, OR, RI, TN, TX, UT.


Figure 17b. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Four-Year Institutions

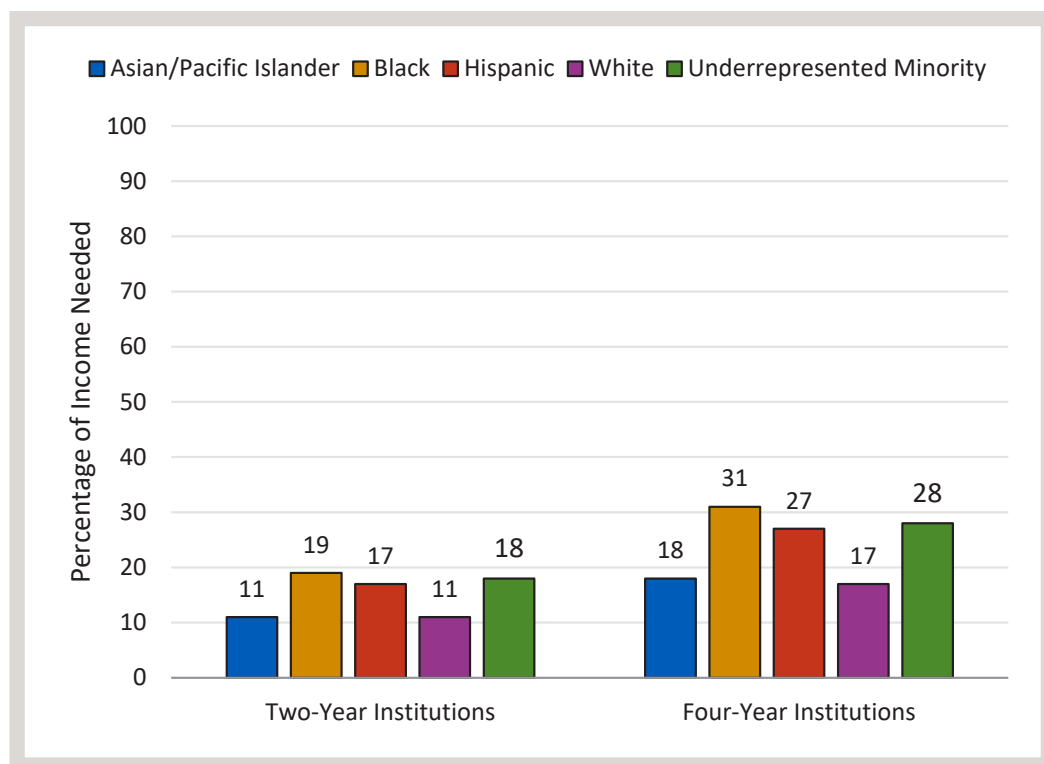
 **Four-year college attendance in Missouri for students from median-income families requires 20 percent of family income, compared to 39 percent of income for students from low-income families.**



Source: NCES IPEDS. (2009, 2016, 2017). *Net price*. U.S. Census Bureau. (2010, 2017, 2018). *American Community Survey One-Year Public Use Microdata Sample: 2009, 2016, 2017*. Top 5 States, 2016-17 (includes ties): Low-Income Students: IN, NY, WA, CA, AZ, NC; Median income students: ND, IN, UT, WY, HI, IA, ME, NY, AK, DE, MA, MN, MO, NE, AZ, CT, KS, MD, MI, MT, NC, TX.

Figure 17c. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Two- and Four-Year Institutions by Race and Ethnicity


 **College attendance in Missouri requires a greater share of family income for underrepresented students than for White students.**



Source: NCES IPEDS. (2017). *Net price*. U.S. Census Bureau. (2018). *American Community Survey One-Year Public Use Microdata Sample: 2017*.

Note: The underrepresented minority category consists of American Indians, Blacks, and Hispanics. Estimates for some groups are unavailable due to small sample sizes.

Figure 18a. Percentage of Public Four-Year College Graduates with Student Loan Debt

 **The percentage of public four-year college graduates with student loan debt in Missouri is above the regional and national levels.**

Source: Institute for College Access and Success. *College InSight* database. Top 5 States, 2017-18 (includes ties): AK, UT, HI, WA, WY, FL, LA.

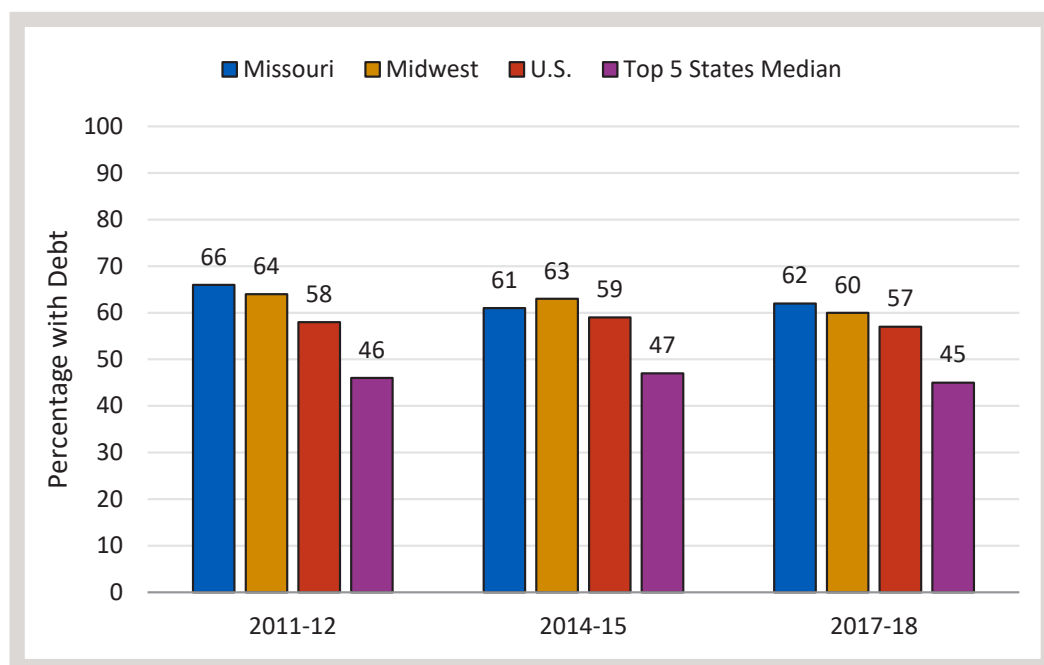

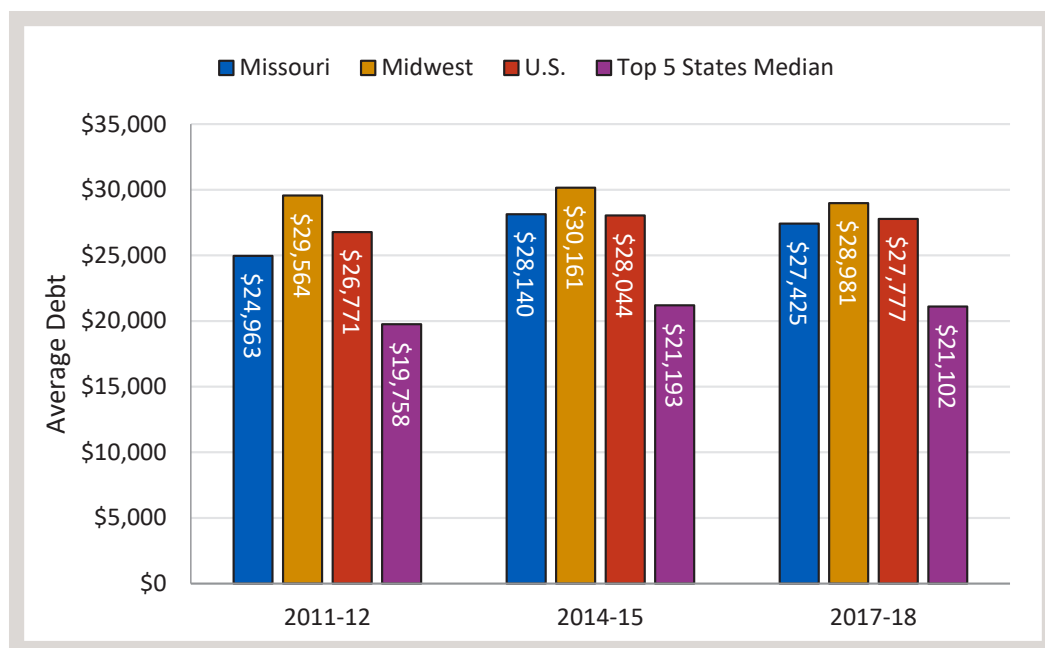


Figure 18b. Average Student Loan Debt Among Public Four-Year College Graduates with Loans

 **The average amount of loans held by public four-year college graduates with student loan debt in Missouri is below the national and regional levels.**

Source: Institute for College Access and Success. *College InSight* database. Top 5 States, 2017-18: CA, UT, WA, NM, FL.

Note: College graduates without debt are omitted from calculation. Estimates have been adjusted for inflation.



ABOUT THESE METRICS

Substantial financial investments are required to create and sustain a P-20 educational system that meets state needs for economic and social development. Altogether states allocated 10 percent of their budgets to higher education in 2018,²⁸ including general operating expenses (78 percent); research, agricultural extension, and medical education (10 percent); and student financial aid (11 percent).²⁹ Various factors influence funding for education within any particular state, including the tax base and structure, enrollment, expenditures for other public services, and economic conditions. Notably, state funding for higher education fell significantly following two major recessions (the tech bust in the early 2000s and the Great Recession in 2007-2009), but the ensuing economic recoveries did not result in reinvestment in higher education at pre-recession levels.³⁰ States also differ in the strategies used to ensure that postsecondary education remains affordable. Some concentrate funds into direct institutional appropriations, while others may focus more on need-based student aid.

Educational Appropriations. State and local educational appropriations for higher education include funds used for general public operations and public student financial aid. These appropriations exclude spending for research, agriculture-related programs, and medical education, as well as support for independent institutions or students attending them.³¹

State funding effort. The state's overall effort to fund higher education is portrayed as state fiscal support for higher education per \$1,000 of personal income.³² This is one measure for assessing the level of funding for higher education relative to available resources. State fiscal support consists of state tax appropriations, local tax support, additional non-tax funds such as lottery revenue that support higher education, and funds appropriated to other state entities for specific higher education expenditures or benefits. State and local appropriations in this indicator are used for general operations, agriculture-related programs, public student aid, medical education, and support for independent institutions or students attending them.

State and student cost share. The relative share of the cost of higher education is represented by comparing educational appropriations and net tuition revenue as a percent of total educational revenue for public postsecondary institutions, including four-year, two-year, and less-than two-year institutions.

Institutional funding relative to expenditures. State and local appropriations are examined for public two- and four-year institutions in relation to educational expenditures, which reflect the total amount spent on instruction, student services, and academic support. State appropriations may influence the effectiveness and competitiveness of institutions as well as tuition rates.³³

Need-based aid funding. State funding for grant aid based on financial need (relative to solely merit or other criteria) is measured by the amount of need-based grant aid per FTE student. The receipt of grant aid has been linked with higher rates of college enrollment and degree completion.³⁴

Need-based aid commitment. The state's commitment to providing need-based aid is measured by (a) need-based aid as a percent of total grant aid allocations and (b) total state need-based aid relative to Pell grant aid. A state's total Pell grant allocation reflects the magnitude of financial need among college students.

Figure 19. State and Local Educational Appropriations for Higher Education per FTE Student

 **State and local funding for higher education in Missouri was below the regional and national levels in 2018.**

Source: SHEEO. (2019). *State higher education finance: FY 18*. Estimates have been adjusted for inflation.

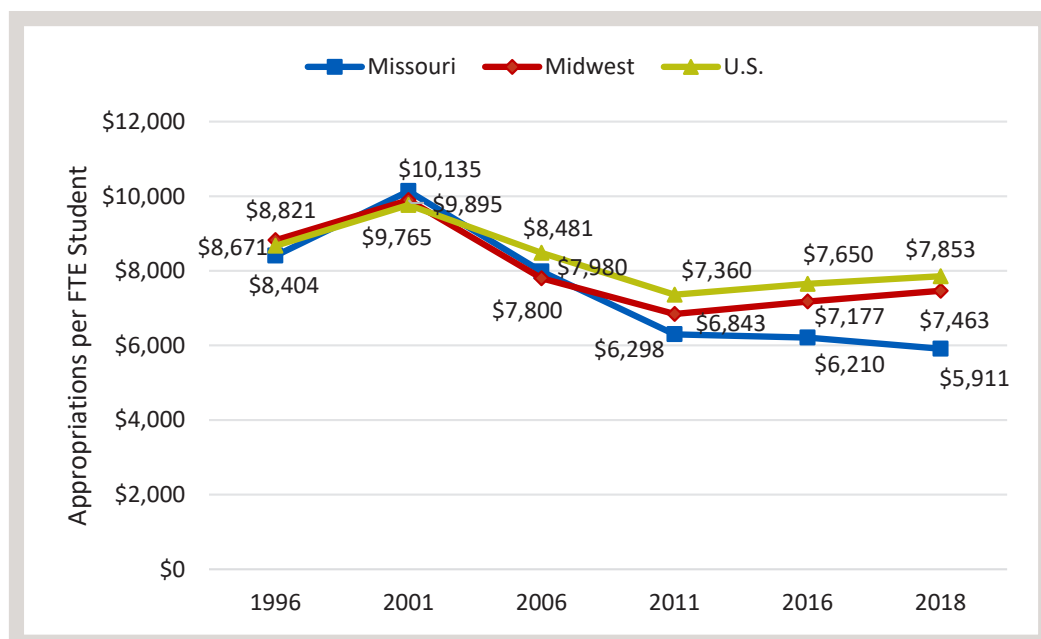


Figure 20. State Fiscal Support for Higher Education per \$1,000 of Personal Income

 **Funding per \$1,000 of personal income in Missouri was below the regional and national benchmarks in 2017.**

Source: SHEEO. (2019). *State higher education finance: FY 18*. Estimates have been adjusted for inflation. Top 5 States, 2017: WY, NM, ND, MS, NE.

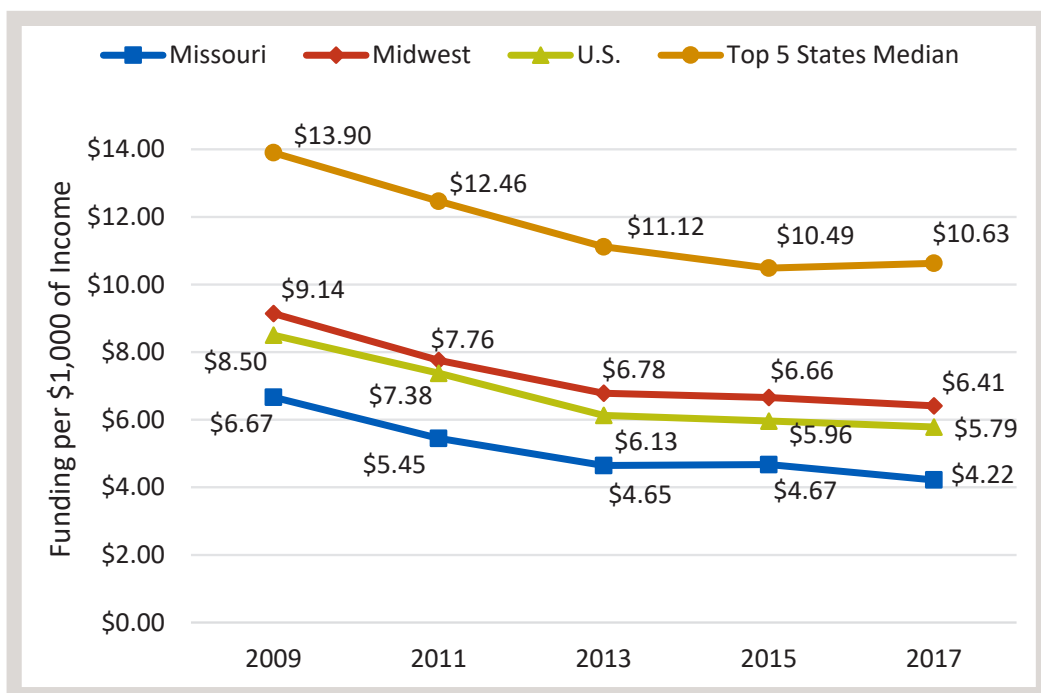

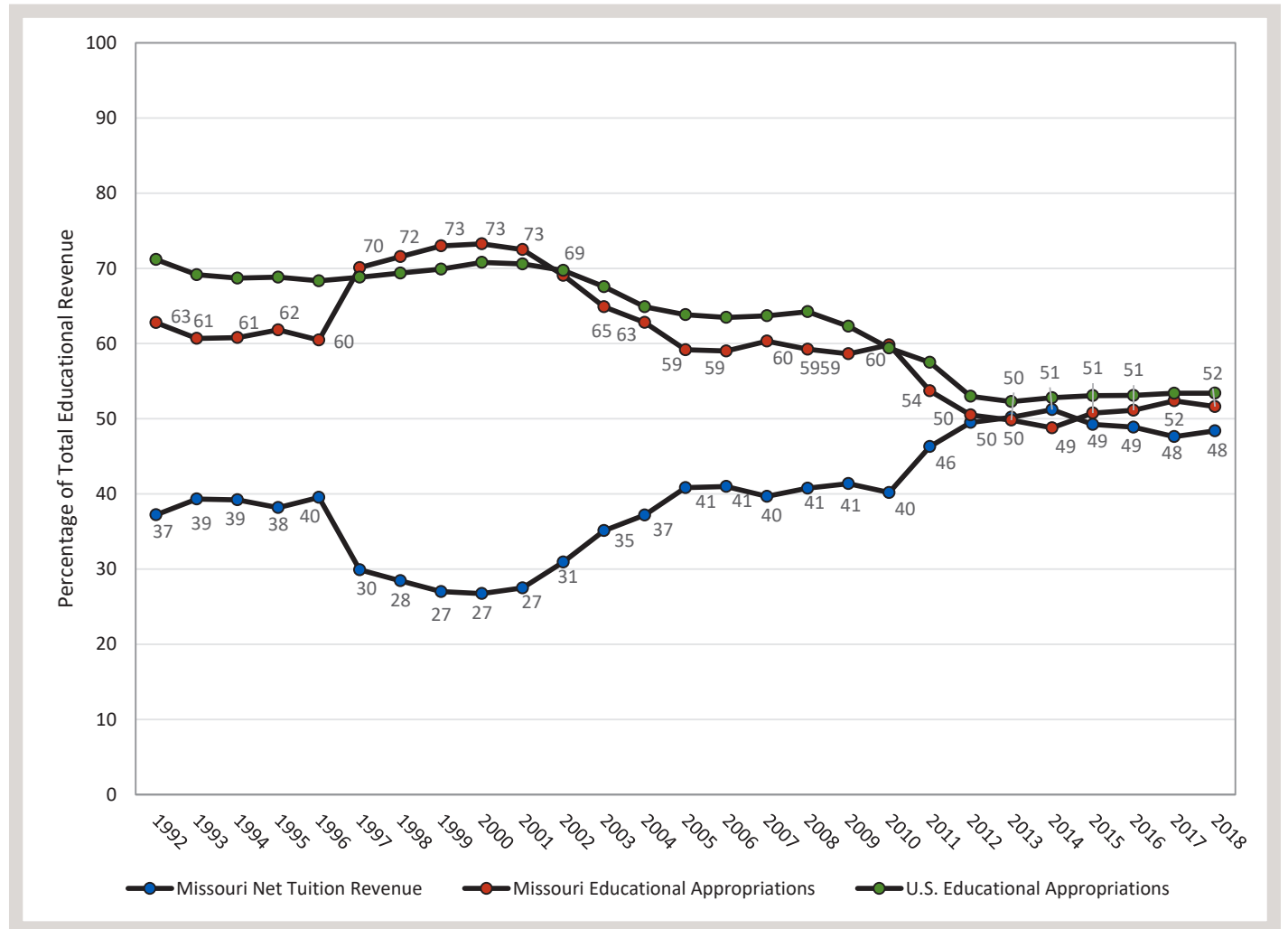


Figure 21. State and Local Educational Appropriations and Net Tuition Revenue as a Percentage of Total Educational Revenue for Public Postsecondary Institutions (per FTE Student)

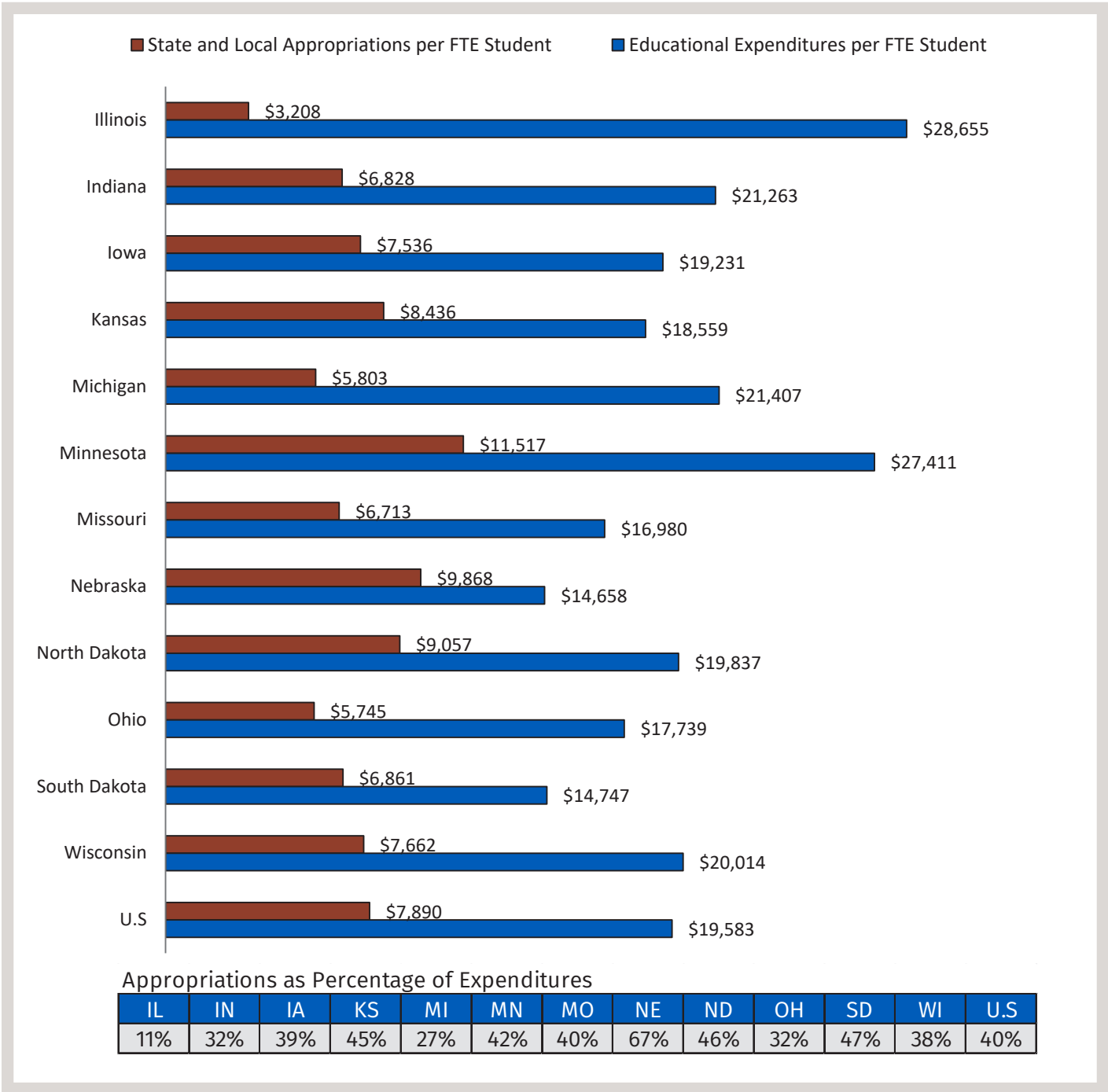
 *The state assumes a slightly larger share of the cost of enrollment compared to the student's share, as net tuition revenue constitutes a relatively smaller proportion of revenue among public colleges and universities in Missouri.*



Source: SHEEO. (2019). *State higher education finance: FY 18*. Estimates have been adjusted for inflation.

Figure 22a. State and Local Appropriations Relative to Total Educational Expenditures per FTE Student at Public Doctoral Universities

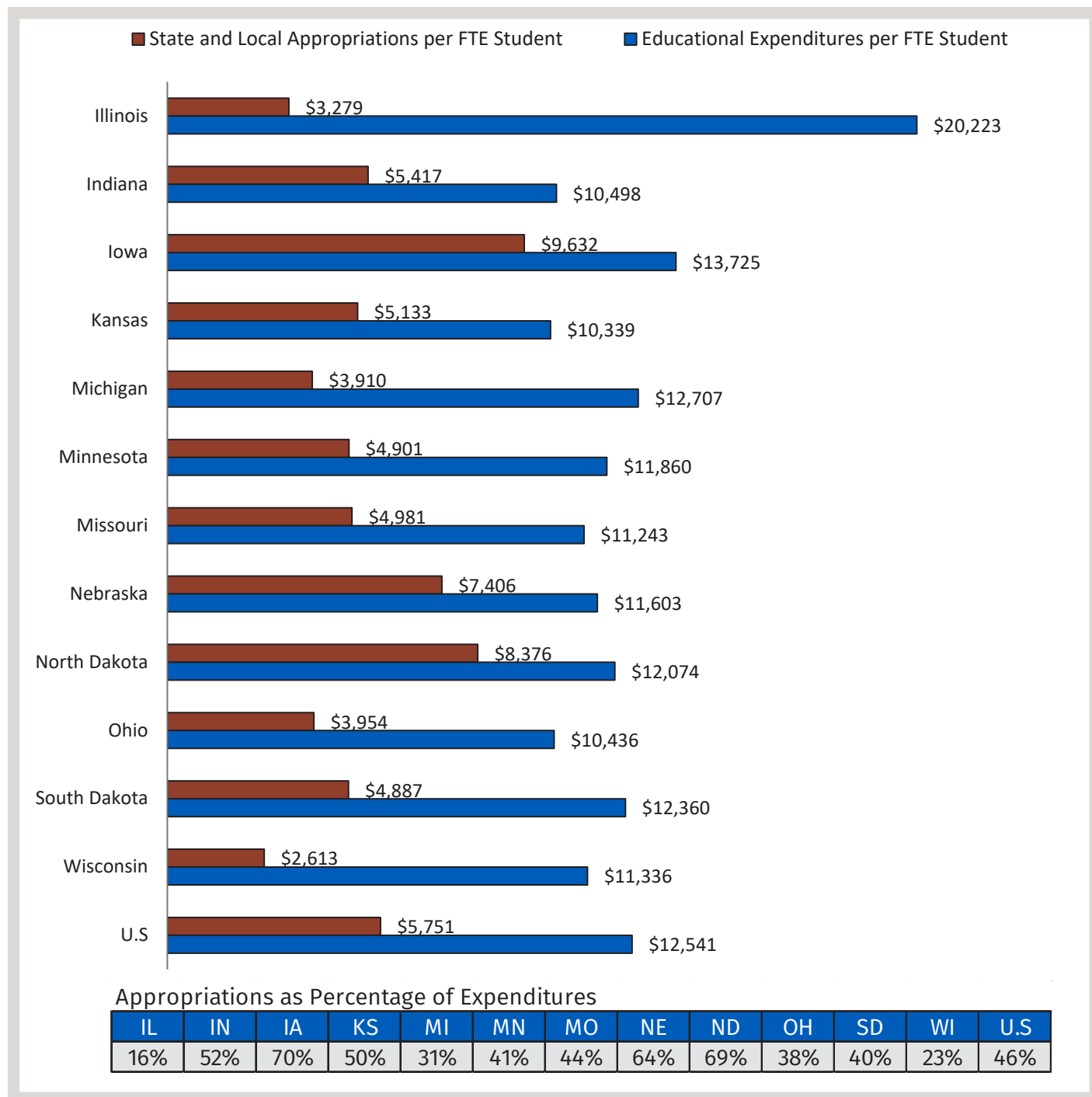
 *State and local appropriations in Missouri constitute 40 percent of educational expenditures at public doctoral universities, which meets the national level of 40 percent.*



NCES IPEDS. (2017). *Finance. 12-Month Enrollment.*

Figure 22b. State and Local Appropriations Relative to Total Educational Expenditures per FTE Student at Public Master's Universities

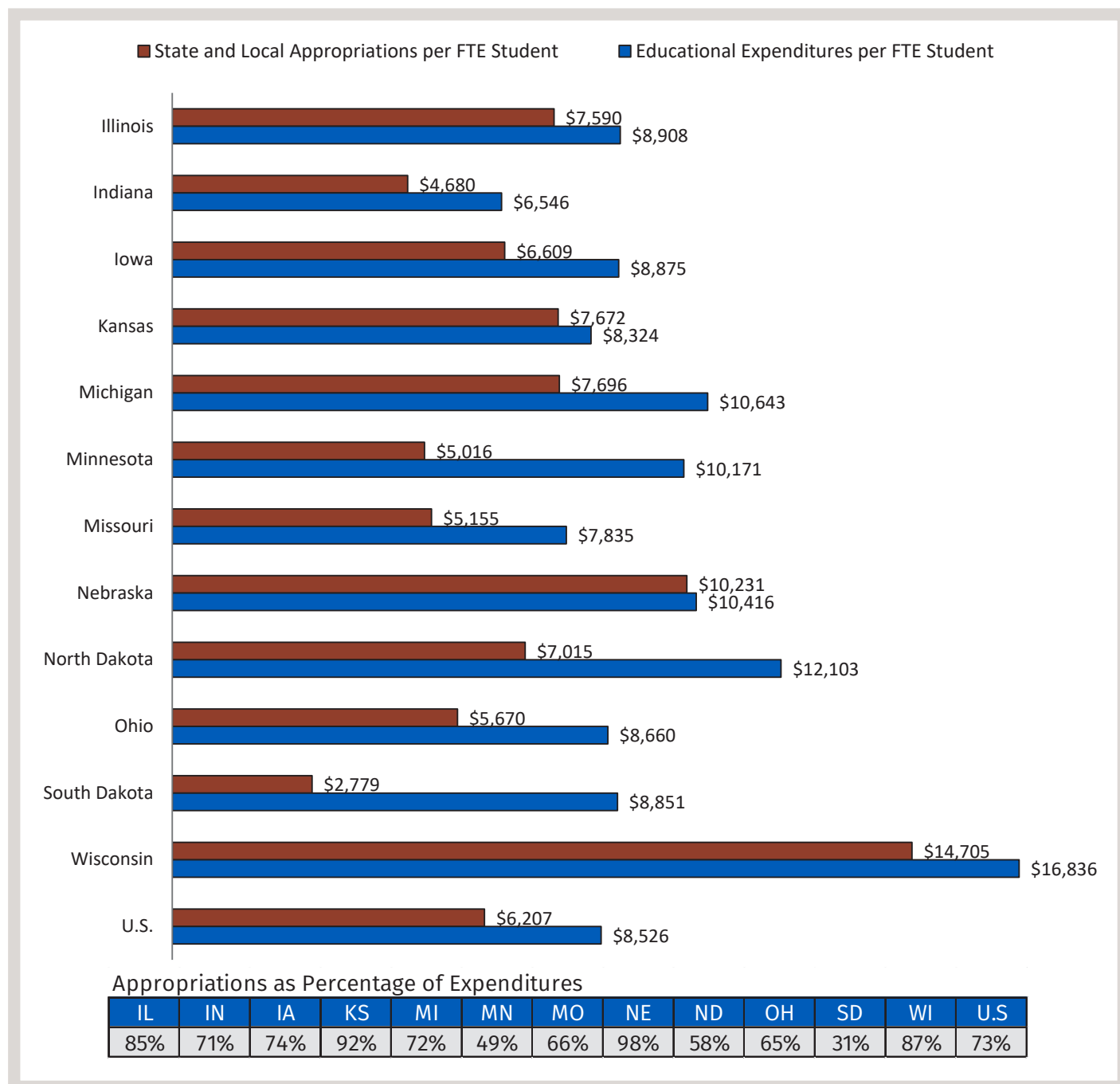
 *At Missouri master's universities, state and local appropriations reflect 44 percent of educational expenditures, which is below the national level of 46 percent.*



NCES IPEDS. (2017). *Finance. 12-Month Enrollment*.

Figure 22c. State and Local Appropriations Relative to Total Educational Expenditures per FTE Student at Public Associate's Colleges

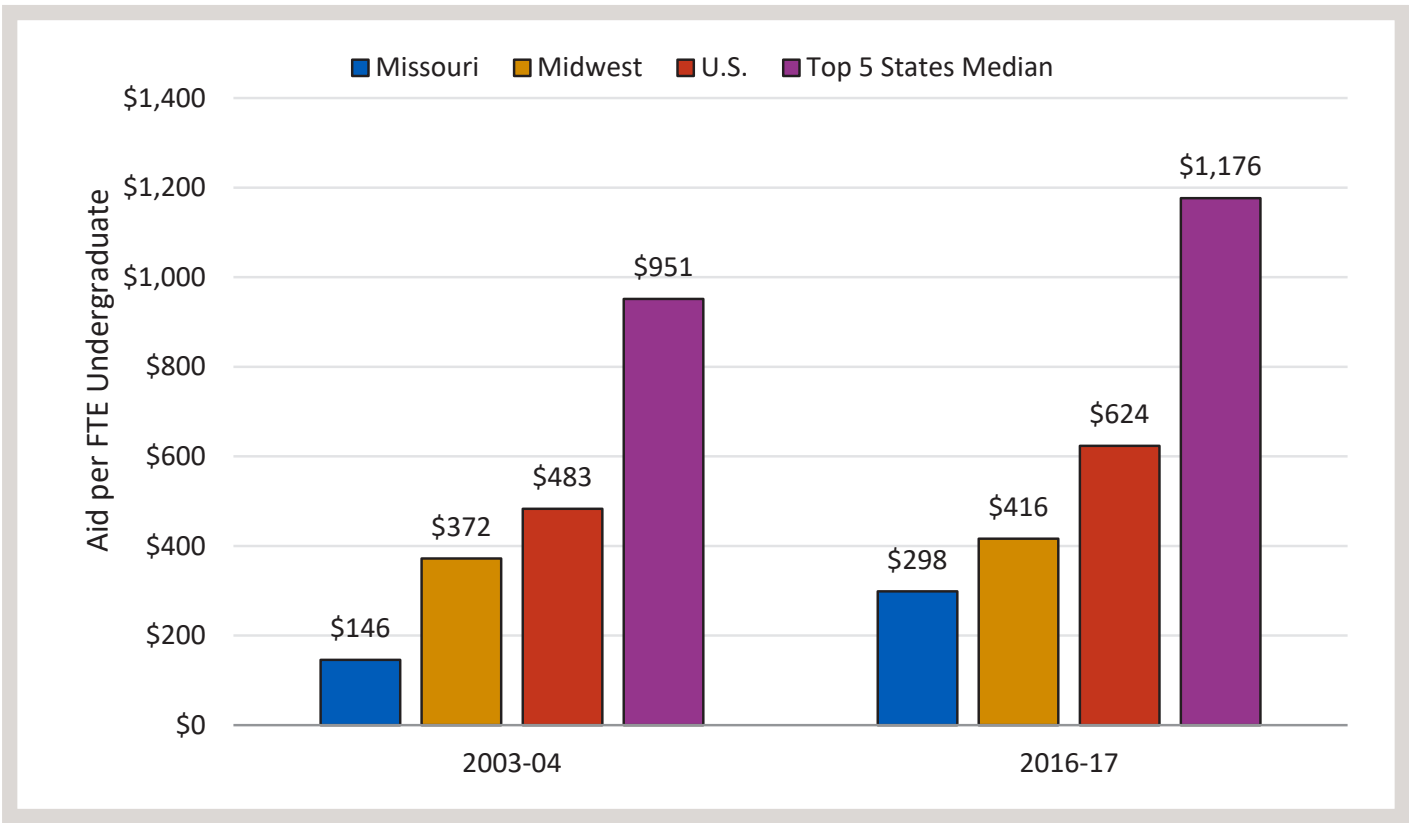
 *At Missouri two-year colleges, state and local appropriations are equivalent to 66 percent of educational expenditures, which is below the national level of 73 percent.*



NCES IPEDS. (2017). *Finance, 12-Month Enrollment*.


Figure 23. State Need-Based Grant Aid per FTE Undergraduate Student

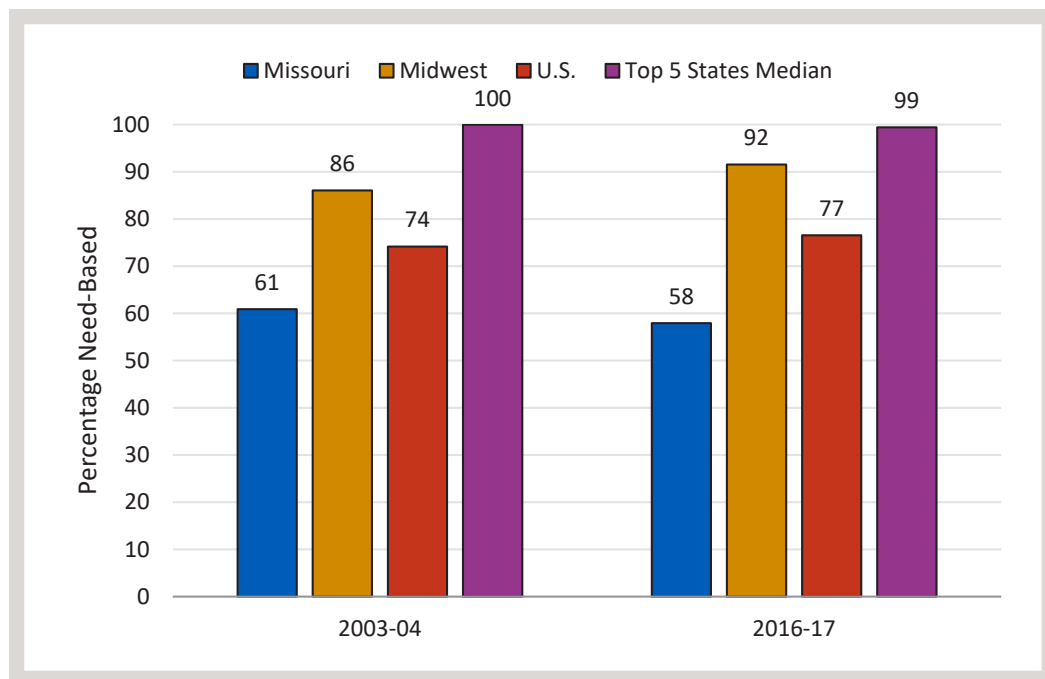
 *State need-based grant aid in Missouri increased over the past decade but was below the regional and national benchmarks in 2016-17.*



Source: National Association of State Student Grant and Aid Programs (2005). 35th annual survey report on state-sponsored student financial aid for 2003-04 academic year. National Association of State Student Grant and Aid Programs (2018). 48th annual survey report on state-sponsored student financial aid for 2016-17 academic year. The 2004 estimates have been adjusted for inflation. Top 5 States, 2016-17: NJ, WA, CA, IA, NY.


Figure 24a. Percentage of State Grant Aid Defined as Need-Based

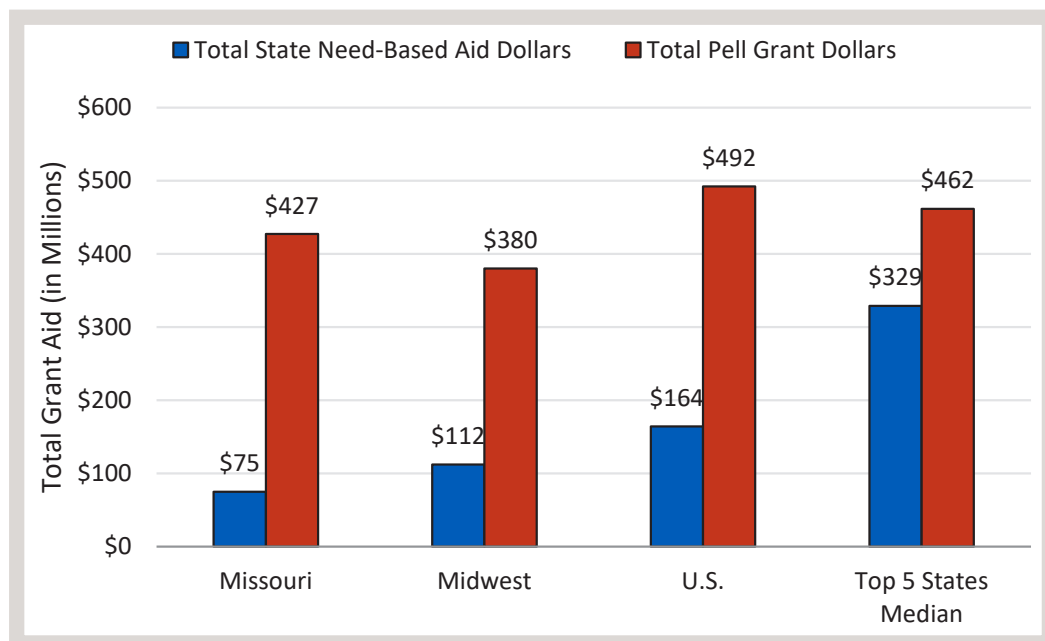
 *Missouri allocates 58 percent of its grant aid based on financial need (rather than solely merit or other criteria), which is below the regional and national benchmarks.*



Source: National Association of State Student Grant and Aid Programs (2005). *35th annual survey report on state-sponsored student financial aid for 2003-04 academic year*. National Association of State Student Grant and Aid Programs (2018). *48th annual survey report on state-sponsored student financial aid for 2016-17 academic year*. The 2004 estimates have been adjusted for inflation. Top 5 States, 2016-17 (includes ties): AZ, HI, KS, ME, OR, RI, TX, CA, IL, VT, PA, MN, CT, MD, MI, NJ, ID, IN, NC, WI, MA, WA, NY.

Figure 24b. Total State Need-Based Grant Aid Compared to Federal Pell Grant Aid (in Millions)

 *Regionally and nationally, state need-based aid dollars are about three times less than total Pell dollars. In contrast, the amount of state need-based aid dollars in Missouri is about 5.7 times less than the total amount of federal Pell Grant dollars.*



Source: National Association of State Student Grant and Aid Programs (2018). *48th annual survey report on state-sponsored student financial aid for 2016-17 academic year*. NCES IPEDS. (2017). *Student financial aid*. Top 5 States: WA, NJ, IN, CA, MN.

Endnotes

¹ The Georgetown University Center on Education and the Workforce. (2013). *Recovery: Job growth and education requirements through 2020*.

² Job categories were defined by the Georgetown University Center on Education and the Workforce: Managerial and Professional (e.g., management, business operations, finance, and legal); STEM (e.g., computer and mathematical science, architects and technicians, engineers and technicians, life and physical scientists); Social Sciences (psychologists, market research analysts, urban planners, survey researchers, economists, anthropologists, archeologists, sociologists, political scientists, historians, geographers); Community Service and Arts (e.g., social services, arts, design, sports, entertainment, media); Education; Healthcare (professionals and support); Food and Personal Services (e.g., protective services, food preparation and serving, personal care); Sales and Office Support; and Blue Collar (e.g., farming, fishing and forestry, construction and extraction, installation, maintenance and equipment repair, production, transportation and material moving). The Georgetown Center describes “Some College, No Degree” as an amorphous category in which some people with high school diplomas self-report their highest level of education in the “Some College” category. The U.S. Bureau of Labor Statistics defines “Some College, No Degree” as the “achievement of a high school diploma or equivalent plus the completion of one or more postsecondary courses that did not result in a degree or award.” It is generally accepted that this category includes completion of 1- and 2-year certificates.

³ Carnevale, A.P., Strohl, J., Cheah, B., and Ridley, N. (2017). *Good Jobs that Pay Without a BA*. Georgetown University Center on Education and the Workforce.

⁴ Lumina Foundation. (2019). *States with higher education attainment goals*. Retrieved from https://www.schev.edu/docs/default-source/about-section/council-files/2019-council-meetings/june-council-retreat/attainment_goal_state-rundown_021519.pdf

⁵ U.S. Census Bureau. (2019). *2018 American Community Survey One-Year Estimates*.

⁶ Lumina Foundation. (2019). *A stronger nation*. Retrieved from <http://strongernation.luminafoundation.org/report/2019/#nation>

⁷ National Center for Higher Education Management Systems. (2017). *Calculating the economic value of increasing college credentials by 2025*.

⁸ College Board. (2016). *Education pays 2016*. Retrieved from <https://research.collegeboard.org/trends/education-pays>

⁹ Rosenbaum, J. (2012). Degrees of health disparities: Health status disparities between young adults with high school diplomas, sub-baccalaureate degrees, and baccalaureate degrees. *Health Services and Outcomes Research Methodology*, 12(2-3), 156-168.

¹⁰ MHEC. (2019). *MHEC interactive dashboard: Benefits*. Retrieved from <https://www.mhec.org/research/mhec-interactive-dashboard>

¹¹ Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Retrieved from <http://www2.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf>

¹² Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, 10(2), 49-88.

¹³ American College Testing. (2008). *The forgotten middle*. Retrieved from <https://www.act.org/content/dam/act/unsecured/documents/ForgottenMiddle.pdf>

¹⁴ This report uses the four-year adjusted cohort graduation rate, which is defined as “the number of students who graduate in four years with a regular high school diploma divided by the number of students who form the adjusted cohort for the graduating class. From the beginning of 9th grade (or the earliest high school grade), students who are entering that grade for the first time form a cohort that is “adjusted” by adding any students who subsequently transfer into the cohort and subtracting any students who subsequently transfer out, emigrate to another country, or die” (U.S. Department of Education, 2012). Retrieved from <http://eddataexpress.ed.gov/dataelementoverlay.cfm/deid/127/states/XX/>

¹⁵ ACT. (2018). *The Condition of College & Career Readiness 2018*.

¹⁶ See note 15.

¹⁷ The percentage of high school graduates taking the ACT is calculated from the actual number of ACT takers and the projected number of high school graduates.

- ¹⁸ Myers, B. (2019). *Who lives in education deserts?* Retrieved from <https://www.chronicle.com/interactives/education-deserts>
- ¹⁹ The number of graduates from private high schools in 2014 was estimated as the average of 2011 graduates and the projected number of graduates estimated by WICHE. The Private School Universe Survey does not provide data beyond 2011.
- ²⁰ Bozick, R., & DeLuca, S. (2005). *Better late than never? Delayed enrollment in the high school to college transition.* *Social Forces*, 84(1), 527-550.
- ²¹ Dependent is defined as age less than 25, not married with spouse present, with the household role of sibling, child, step child, family other, foster child or grandchild. The sample excludes individuals currently enrolled in high school but includes individuals without a high school diploma or certificate who are not currently enrolled in high school. Family income quartiles are based on all households in the state: low income is delineated by the bottom quartile; middle income is delineated by the middle quartiles; and high income is delineated by the top quartile. College enrollment is defined as current postsecondary enrollment or any level of college attainment, including some college or a specific credential. Sample sizes are too small to produce single-year estimates.
- ²² Bitzan, J. D. (2009). Do sheepskin effects help explain racial earnings differences? *Economics of Education Review*, 28(6), 759-766. Jaeger, D. A., & Page, M. E. (1996). Degrees matter: New evidence on sheepskin effects in the returns to education. *The Review of Economics and Statistics*, 78(4), 733-740.
- ²³ Liu, V. Y., Belfid, C. R., & Trimble, M. J. (2015). The medium-term labor market returns to community college awards: Evidence from North Carolina. *Economics of Education Review*, 44, 42-55. Xu, D., & Trimble, M. (2016). What about certificates? Evidence on the labor market returns to nondegree community college awards in two states. *Educational Evaluation and Policy Analysis*, 38(2), 272-292. Bahr, P. R., Dynarski, S., Jacob, B., Kreisman, D., Sosa, A., & Wiederspan, M. (2015). *Labor Market Returns to Community College Awards: Evidence from Michigan*. A CAPSEE Working Paper. Center for Analysis of Postsecondary Education and Employment. Jepsen, C., Troske, K., & Coomes, P. (2014). The labor-market returns to community college degrees, diplomas, and certificates. *Journal of Labor Economics*, 32(1), 95-121.
- ²⁴ Schneider, M., & Yin, Lu. (2011). *The high cost of low graduation rates: How much does dropping out of college really cost?* Retrieved from www.air.org/sites/default/files/downloads/report/AIR_High_Cost_of_Low_Graduation_Aug2011_0.pdf
- ²⁵ Minnesota Office of Higher Education. (2018). *2018-2019 Estimated EFC, Federal Pell Grant and MN State Grant by Income, Household Size and College Type – Dependent Student*. The estimate assumes an expected family contribution of \$3,630 based on federal methodology for a dependent student using 2016 parental adjusted gross income.
- ²⁶ Hossler, D., Ziskin, M., Gross, J. P., Kim, S., & Cekic, O. (2009). Student aid and its role in encouraging persistence. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (pp. 389-425). Netherlands: Springer Netherlands. Bowen, W. G., Chingos, M. M., & McPherson, M. S. (2009). *Crossing the finish line: Completing college at America's public universities*. Princeton, NY: Princeton University Press. Heller, D. E. (Ed.). (2001). *The effects of tuition prices and financial aid on enrollment in higher education: California and the nation*. Rancho Cordova, CA: EdFund. MHEC (2014). *Campus-based practices for promoting student success: Financial aid*. Retrieved from <http://www.mhec.org/research>.
- ²⁷ The Institute for College Access and Success. (2019). *Student debt and the class of 2018*. Retrieved from <https://ticas.org/wp-content/uploads/2019/09/classof2018.pdf>. The debt estimates reflect the average per-undergraduate borrower cumulative principal from institutional, state, federal, and private loans. The debt estimates do not take into account credit card debt and family loans, thereby underestimating the overall debt burden incurred through postsecondary education.
- ²⁸ NASBO. (2018). *2018 state expenditure report: Fiscal years: 2016-2018*. Retrieved from <https://www.nasbo.org/main/site/reports-data/state-expenditure-report>
- ²⁹ State Higher Education Executive Officers. (2019). *State higher education finance*. Retrieved from <https://sheeo.org/project/state-higher-education-finance/>. Expenditure figures do not include capital or debt service
- ³⁰ MHEC. (2018). *Evaluating state funding effort for higher education*. Retrieved from https://www.mhec.org/sites/default/files/resources/mhec_affordability_series6.pdf
- ³¹ State Higher Education Executive Officers. (2019). *State higher education finance*. Retrieved from <https://sheeo.org/project/state-higher-education-finance/>
- ³² See note 31.
- ³³ Mumper, M., & Freeman, M. L. (2005). The causes and consequences of public college tuition inflation. In J.C. Smart (Ed.), *Higher Education: Handbook of Theory and Research*, Vol. XX, 307-361. Norwell, MA: Springer.
- ³⁴ See note 26.



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