

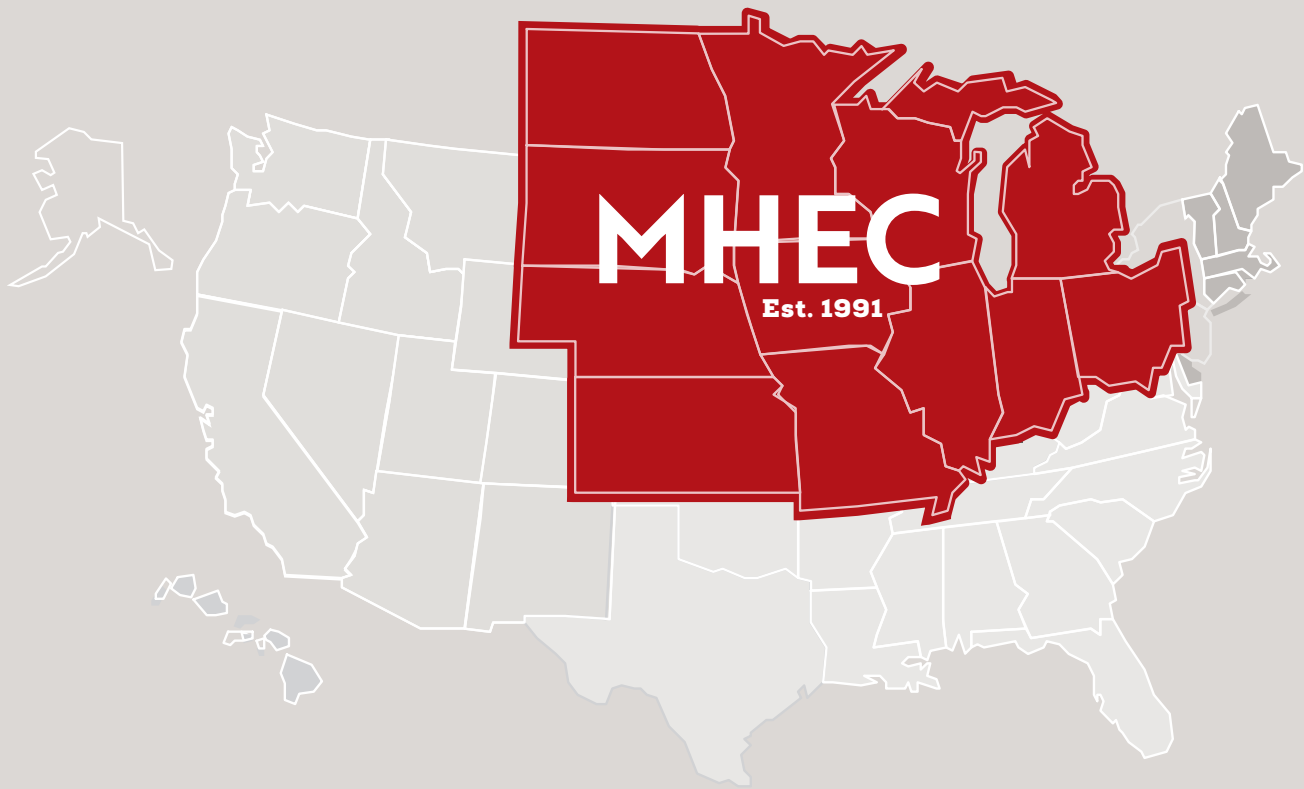


# Higher Education in Focus 2017

*Selected Performance Indicators*



# MICHIGAN



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# *Increasing Educational Attainment in Michigan: An Imperative for Future Prosperity*

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In the United States, approximately 65 percent of all jobs in 2020 will require some level of postsecondary education, and the demand will reach 70 percent in Michigan.<sup>1</sup> The projected demand for postsecondary education in Michigan spans all occupational categories, including managerial, STEM, social sciences, community service, education, healthcare, and “blue collar” industries (see Figure 1).<sup>2</sup> However, the projected demand in Michigan exceeds the current supply of college-educated adults. Figure 2 indicates that 64 percent of adults in Michigan have completed some college coursework or a postsecondary credential.

In order to meet future workforce demands, many states have set ambitious goals to improve the educational attainment of their residents, such as a goal to raise the proportion of adults with a postsecondary certificate or degree to 60 percent by 2025.<sup>3</sup> Figure 2 shows that progress has been made towards raising educational attainment in Michigan, as the percentage of adults with at least an associate degree increased from 27 percent in 1990 to 40 percent in 2016. (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 four percentage points.)<sup>4</sup>

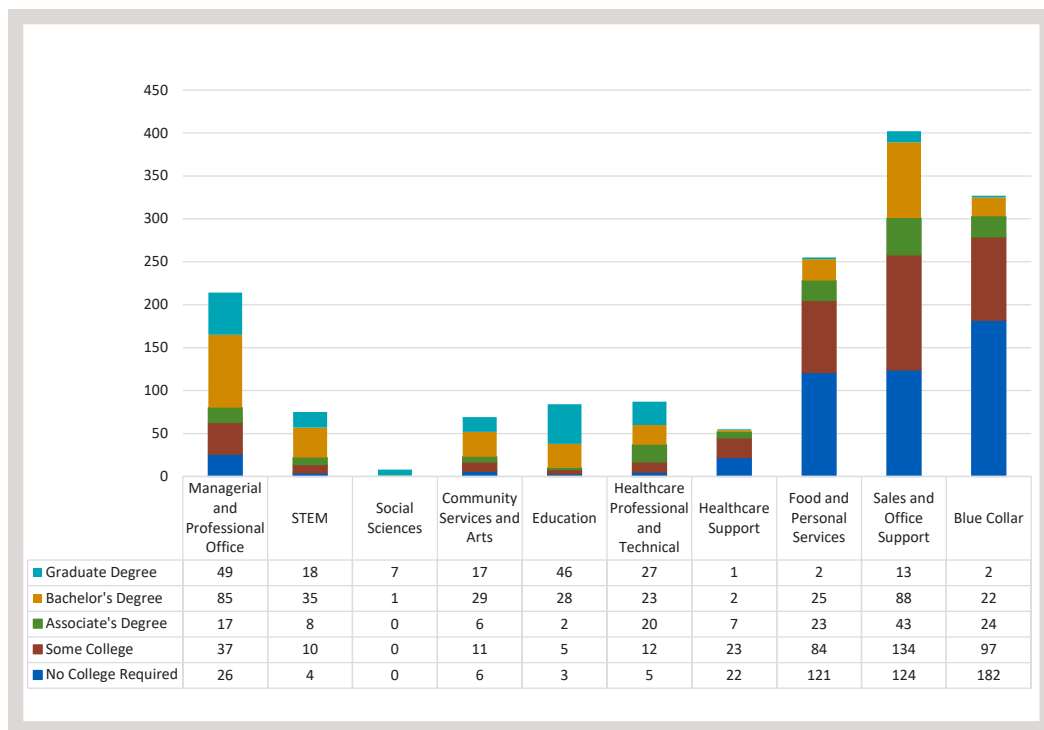
The ability of policymakers to reach a “60 percent” attainment goal carries significant implications for state

revenue. If the current rate of degree production remains constant, state revenue in 2025 is projected to be nearly \$262 million less than it is today. Conversely, projections suggest that if the attainment goal were fulfilled by 2025, over \$2 billion in additional revenue would be generated through income tax, sales tax, property tax, Medicaid savings, and corrections savings.<sup>5</sup> 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.<sup>6</sup> For example, health risk factors such as smoking are less prevalent among individuals who have a bachelor’s degree or higher.<sup>7</sup> Residents of Michigan also benefit from higher education in terms of higher earnings and lower unemployment, compared to those with only a high school diploma.<sup>8</sup>

This report seeks to inform public discourse on higher education by providing key performance indicators relevant to the goal of improving educational attainment in Michigan. Performance indicators are categorized within six dimensions: Preparation, Participation, Affordability, Completion, Equity, and Finance. Most indicators provide the MHEC regional average and U.S. average or population proportion as lower performance benchmarks as well as the median of the top five states in the nation as an aspirational benchmark.

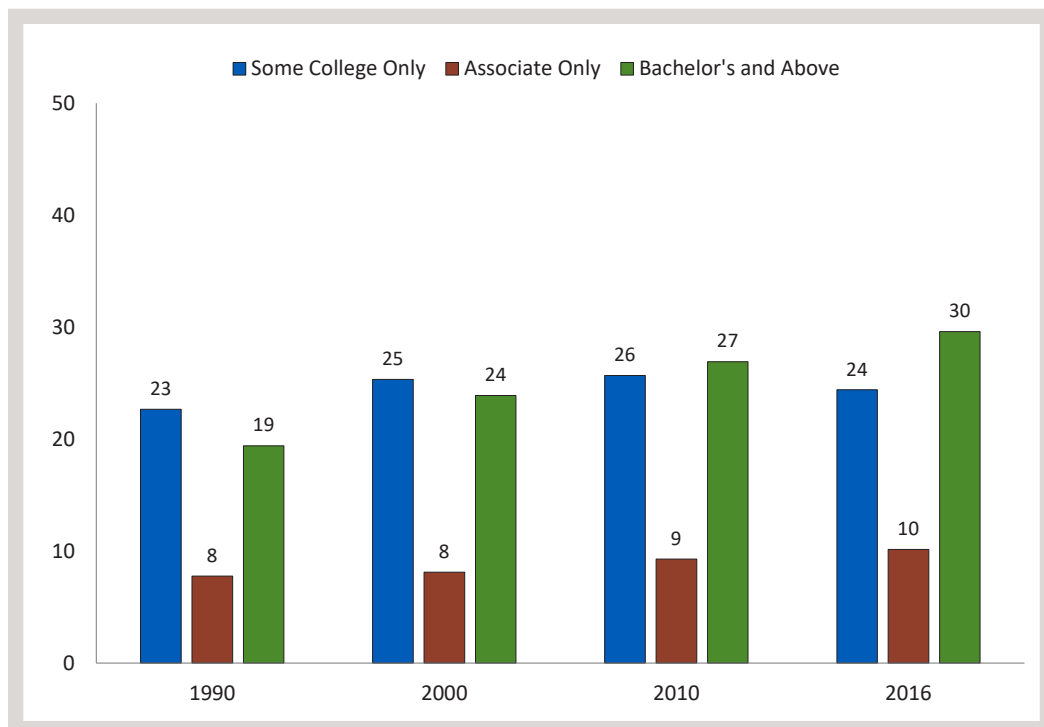
**Figure 1. Michigan Job Openings by Occupation and Education Level between 2010 and 2020 (in thousands)**

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



**Figure 2. Percentage of Adults Aged 25-64 in Michigan who have Attained a Postsecondary Credential**

Source: U.S. Census Bureau. 1990 Census, 2000 Census, 2010 ACS Three-Year Estimates, 2016 ACS One-Year Estimates.



# Preparation

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## 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.<sup>9</sup> 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.<sup>10</sup> 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 8<sup>th</sup> 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, 8<sup>th</sup> grade academic achievement has been found to be a highly significant predictor of college readiness among 12<sup>th</sup> grade students.<sup>11</sup>

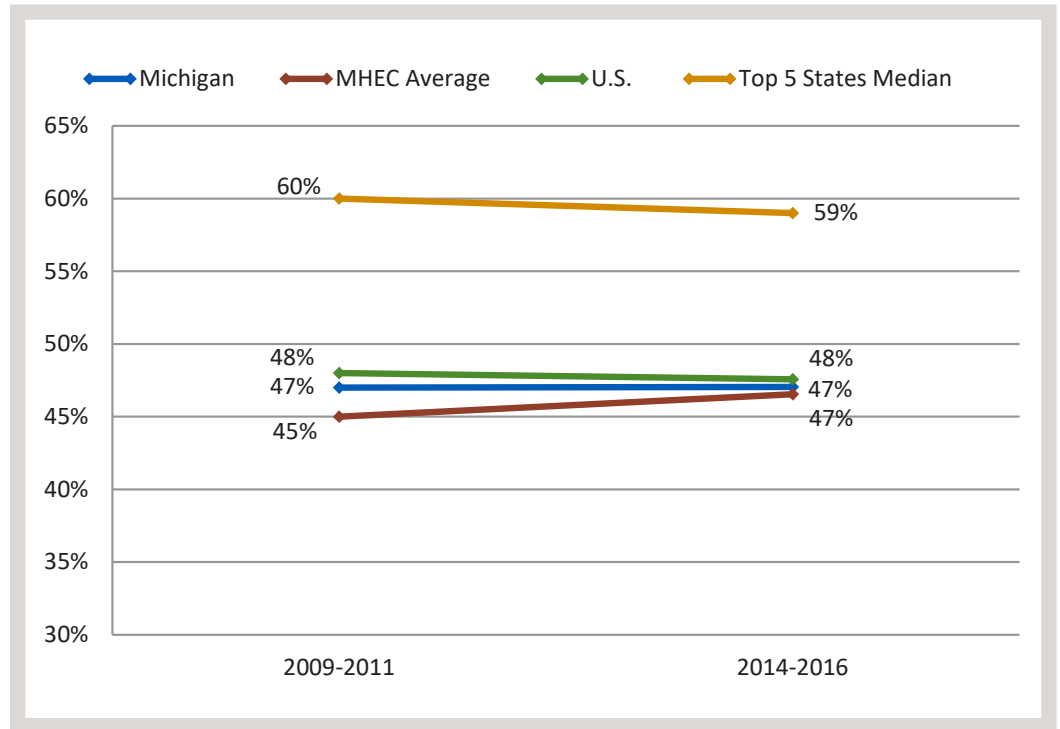
**High school completion.** Graduation rates are based on the number of students who graduate in four years with a regular high school diploma.<sup>12</sup> The completion of high school or its equivalent is typically required for college admission.

**College readiness.** The proportion of students taking the ACT who meet college readiness benchmarks provides one measure of the academic preparation of college-bound students. Benchmark scores in English, mathematics, reading, and science delineate a 75 percent likelihood of attaining at least a "C" in first-year college-level courses.<sup>13</sup>

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

**Preschool enrollment.** Figure 3 shows that the rate of enrollment in preschool among children ages 3 to 4 has remained stable over time and meets the regional level.

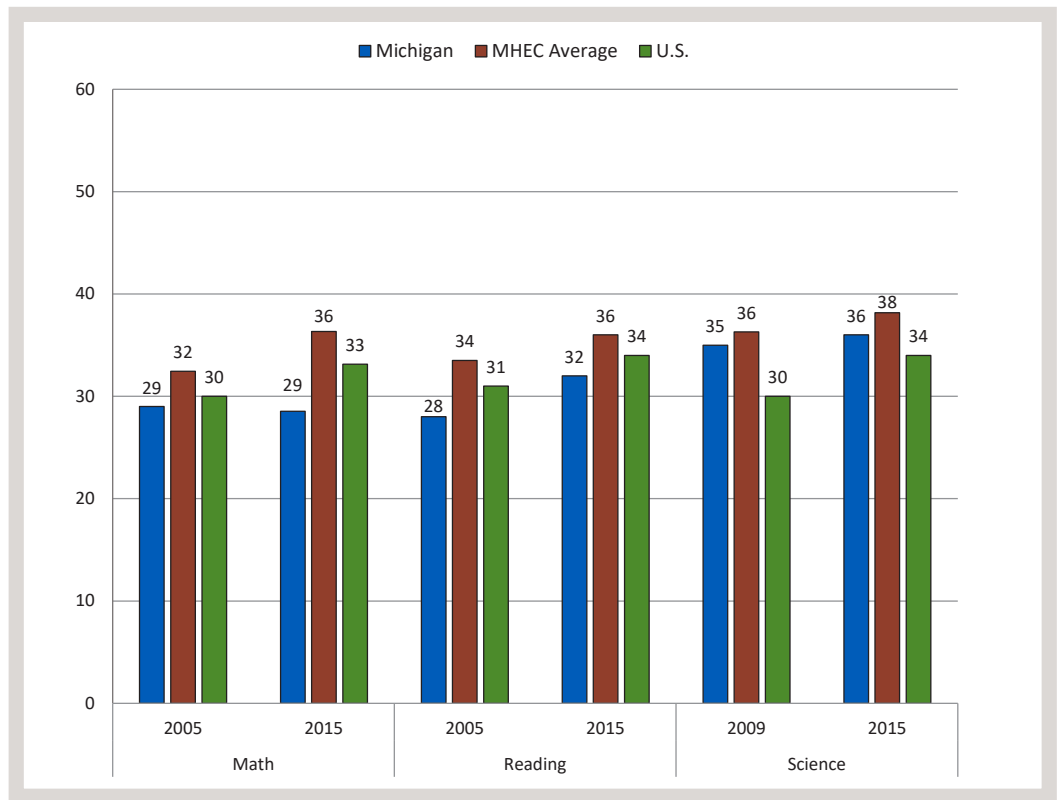
Source: U.S. Census Bureau. (2009-11, 2014-16). *American Community Survey One-Year. Top 5 States, 2016:* CT, IL, MA, NJ, NY.



### Figure 4. Percentage of Students in Grade 8 Scoring At or Above Proficiency on the National Assessment of Educational Progress in Math, Reading, and Science

**Academic proficiency of 8<sup>th</sup> grade students.** As indicated in Figure 4, less than half of 8<sup>th</sup> grade students scored at or above the proficiency level in math, reading, or science. Performance in math and reading is below the regional and national benchmarks, though performance in science exceeds the national benchmark.

Source: National Center for Education Statistics. (2005, 2009, 2015). *National assessment of educational progress.* State-level estimates for NAEP Science were not available for 2005-2008.

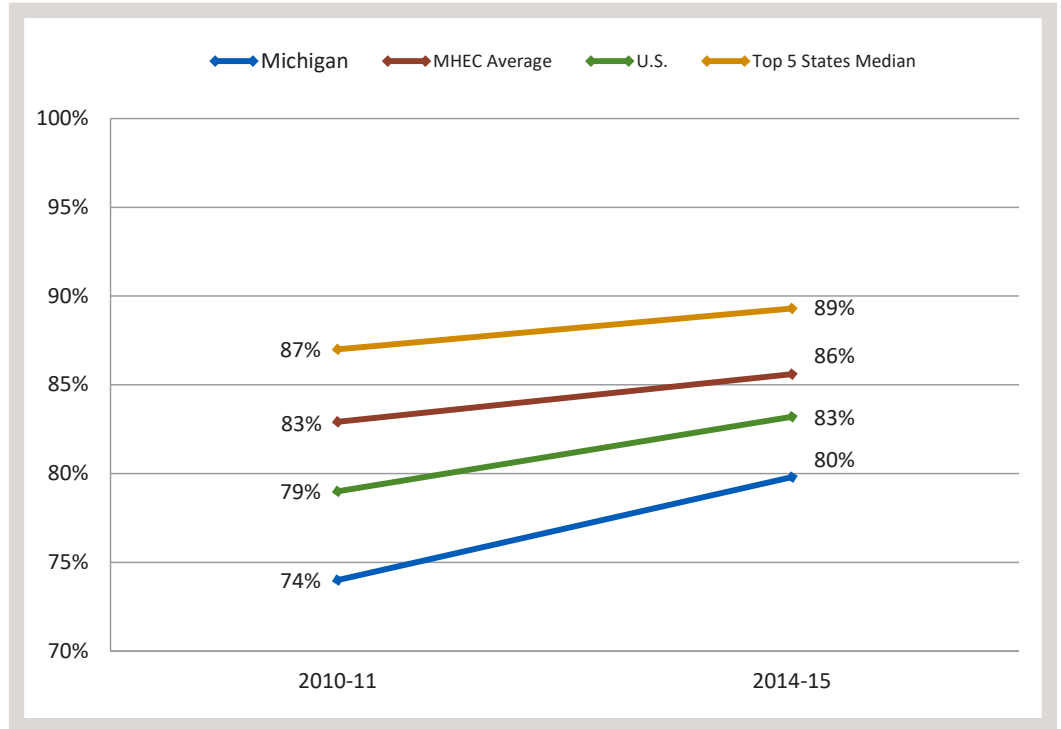




### Figure 5. Public High School Graduation Rate Over Time

**High school completion.** Figure 5 shows that the percentage of 9<sup>th</sup> grade students who graduate from high school four years later has increased since 2010-11, but the current rate is below the regional and national benchmarks.

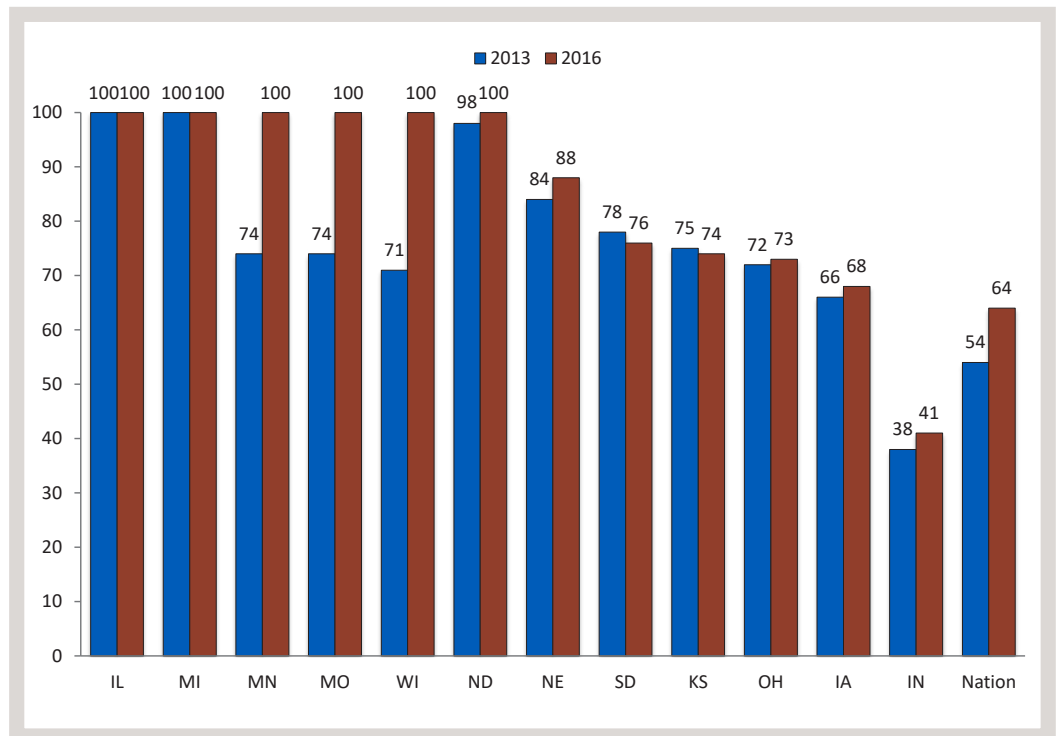
Source: U.S. Department of Education. (2011, 2015). *ED Data Express, ACGR*. Top 5 States 2014-15: AL, IA, NE, NJ, TX.



### Figure 6a. Percentage of High School Graduates Taking the ACT during 2013 and 2016

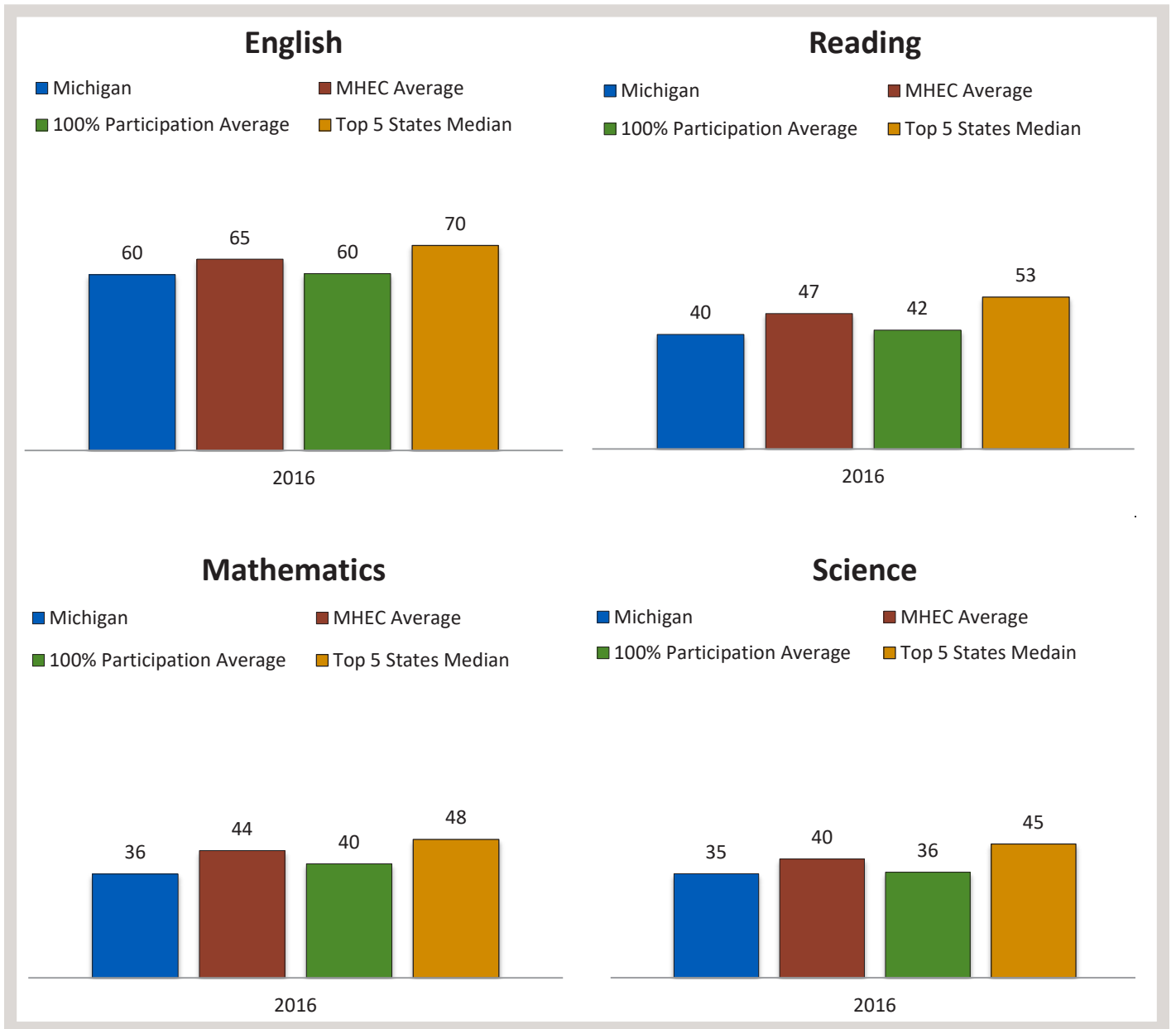
**College readiness.** Figure 6a indicates that 100 percent of high school graduates in Michigan took the ACT.<sup>4</sup>

Source: ACT. (2016). *The Condition of College & Career Readiness, 2016*.



## Figure 6b. Percentage of ACT-Tested High School Graduates Who Met or Exceeded College Readiness Benchmark Scores

**College readiness.** Figure 6b shows the percentage of ACT-tested high school graduates whose performance met or exceeded benchmark scores in English, mathematics, reading, and science. Michigan met average performance levels in English of states that require all high school students to take the ACT, though Michigan's performance was below this benchmark in other subject areas.



Source: ACT. (2016). *The Condition of College & Career Readiness, 2016*. The 100% participation average reflects performance in MHEC states that require all students to take the ACT. The median of the top 5 states includes only states that have a minimum of 65% of students taking the ACT. Top states (includes ties): 2016 English: IA, KS, NE, OH, SD; 2016 Reading: IA, KS, NE, OH, SD; 2016 Math: IA, KS, MN, OH, SD; 2016 Science: IA, KS, MN, NE, OH, SD.

# Participation

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## 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.

**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.<sup>15</sup> Postponed enrollment may lead to future obstacles to degree completion, such as the decay of 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 by 5 percent for every month that a student delays postsecondary enrollment after graduating from high school.<sup>16</sup>

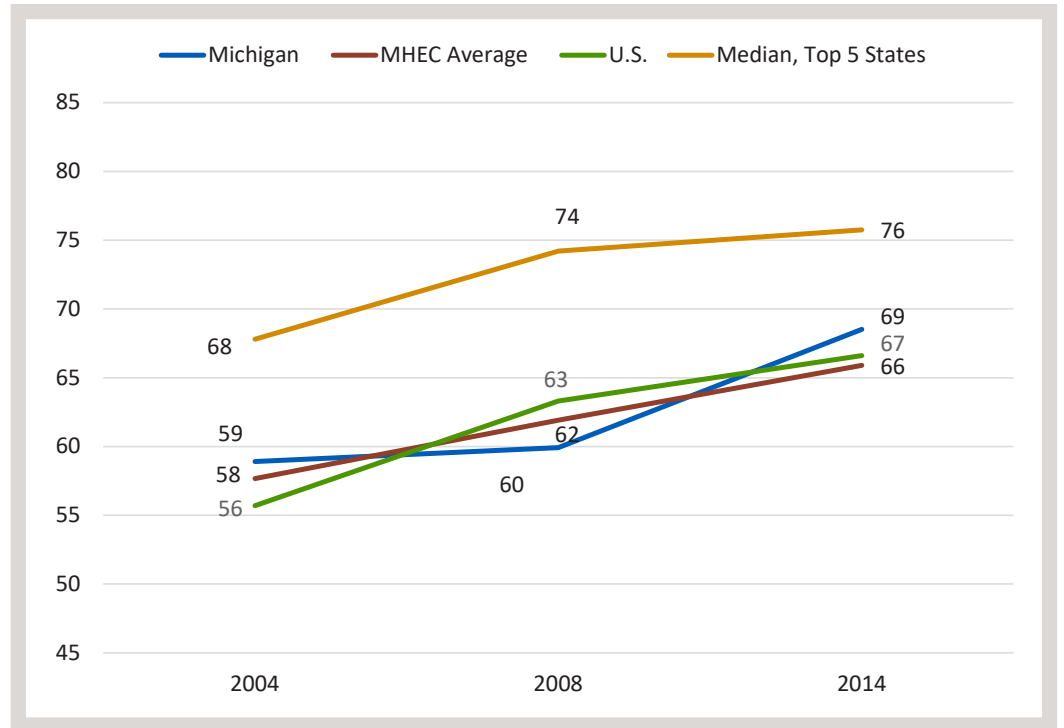
**Traditional age enrollment.** Participation among traditional-age students is defined as the percentage of all 18- to 24-year-old adults in the state who are currently enrolled in college or have completed some college.

**Older adult enrollment.** Participation among older adults is defined as the rate of enrollment among adults aged 25 to 49 who have not yet earned an associate degree.

## Figure 7. Percentage of High School Graduates Going Directly to College

**Direct enrollment.** As indicated in Figure 7, approximately 69 percent of high school graduates in Michigan directly enroll in college, a rate that has increased over time and is above the regional and national benchmarks.

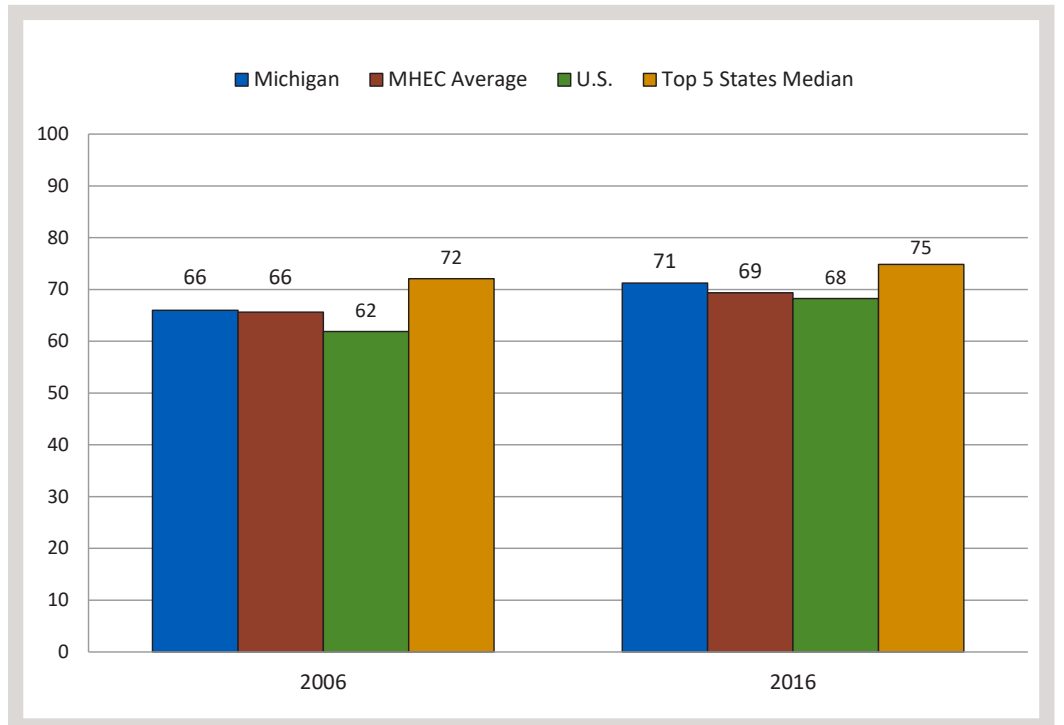
Source: Postsecondary Education Opportunity. (2012). *College Continuation Rates for Recent High School Graduates*. NCES IPEDS. (2015). *Fall Enrollment File*. U.S. Department of Education. (2015). *ED Data Express, ACGR*. NCES. (2013). *Private School Universe Survey*. WICHE. (2015). *Knocking at the College Door*. Top 5 States, 2014: CT, MA, MN, MS, NY.



## Figure 8. Percentage of Persons Aged 18-24 who are Currently Enrolled or Have Completed Some College

**Traditional age enrollment.** Figure 8 shows that 71 percent of adults aged 18 to 24 have enrolled in college, which is above the regional and national benchmarks.

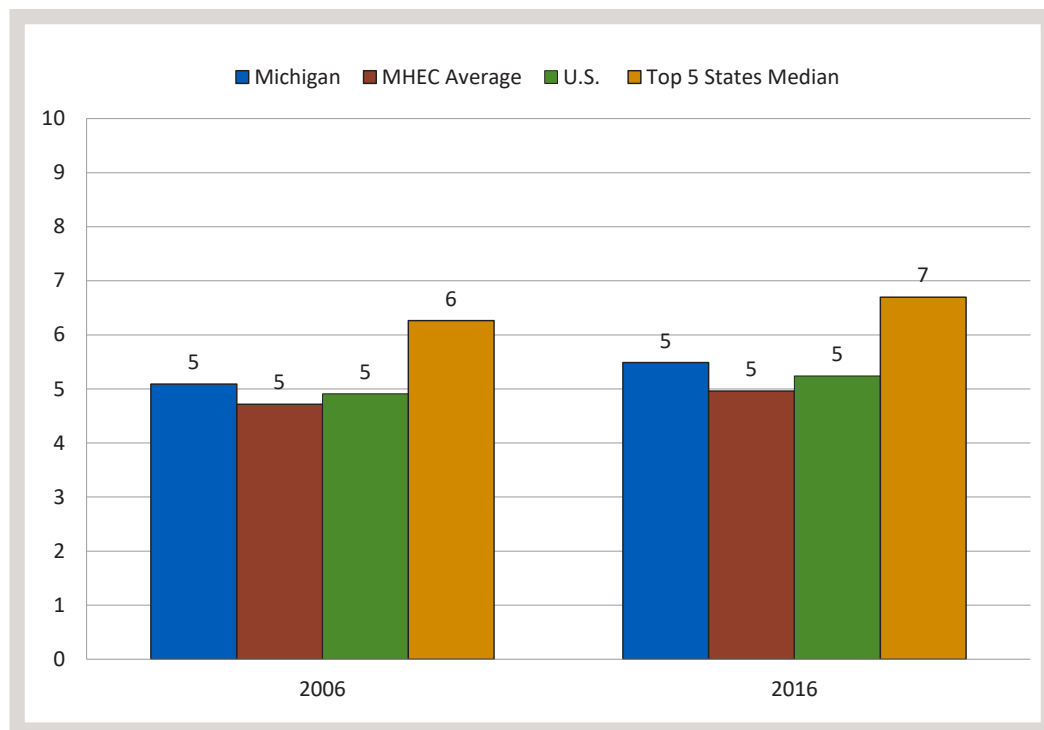
Source: U.S. Census Bureau. (2006, 2016). *American Community Survey One-Year Public Use Microdata Sample*. Top 5 States, 2016 (includes ties): CT, MA, MN, NH, NJ, NY, RI.



### Figure 9. Percentage of Persons Aged 25-49 without an Associate Degree or Higher who are Currently Enrolled in College

**Older adult enrollment.** Figure 9 shows that Michigan meets the regional and national benchmarks in the proportion of older residents enrolled in college.

Source: U.S. Census Bureau. (2006, 2016). *American Community Survey One-Year Public Use Microdata Sample*. Top 5 States, 2016 (includes ties): CA, HI, NM, RI, UT.



# Affordability

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## ABOUT THESE METRICS

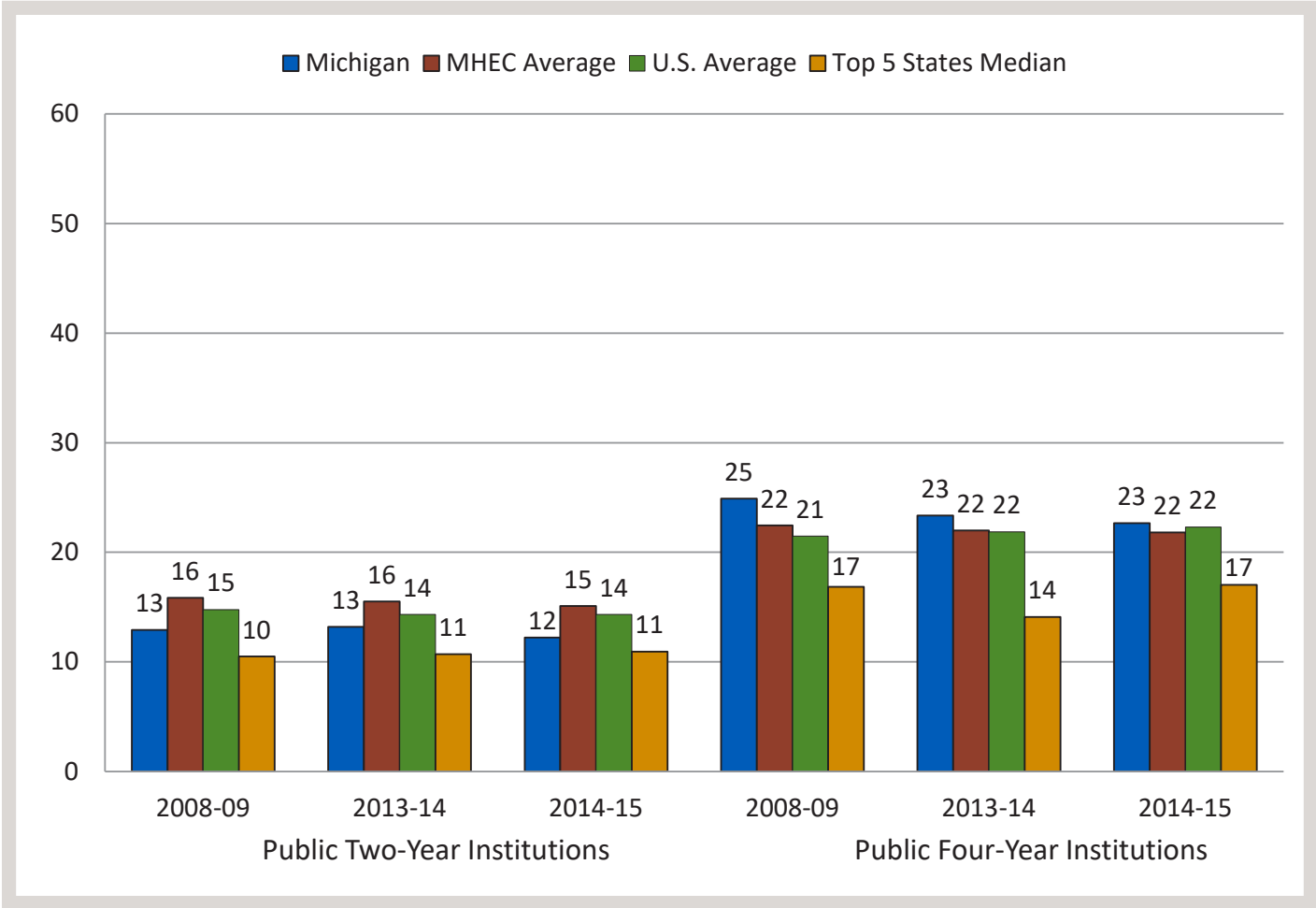
Over the past few decades, college tuition and fees have increased at more than four times the rate of consumer prices, partly in response to reductions in state and local funding. Such precipitous increases in tuition have occurred while the incomes of many low- and middle-class families have stagnated 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.<sup>17</sup>

**Ability to pay.** College affordability 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 and families in the lowest income quintile.

**Figure 10a. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Two- and Four-Year Institutions: Families with Median Incomes**

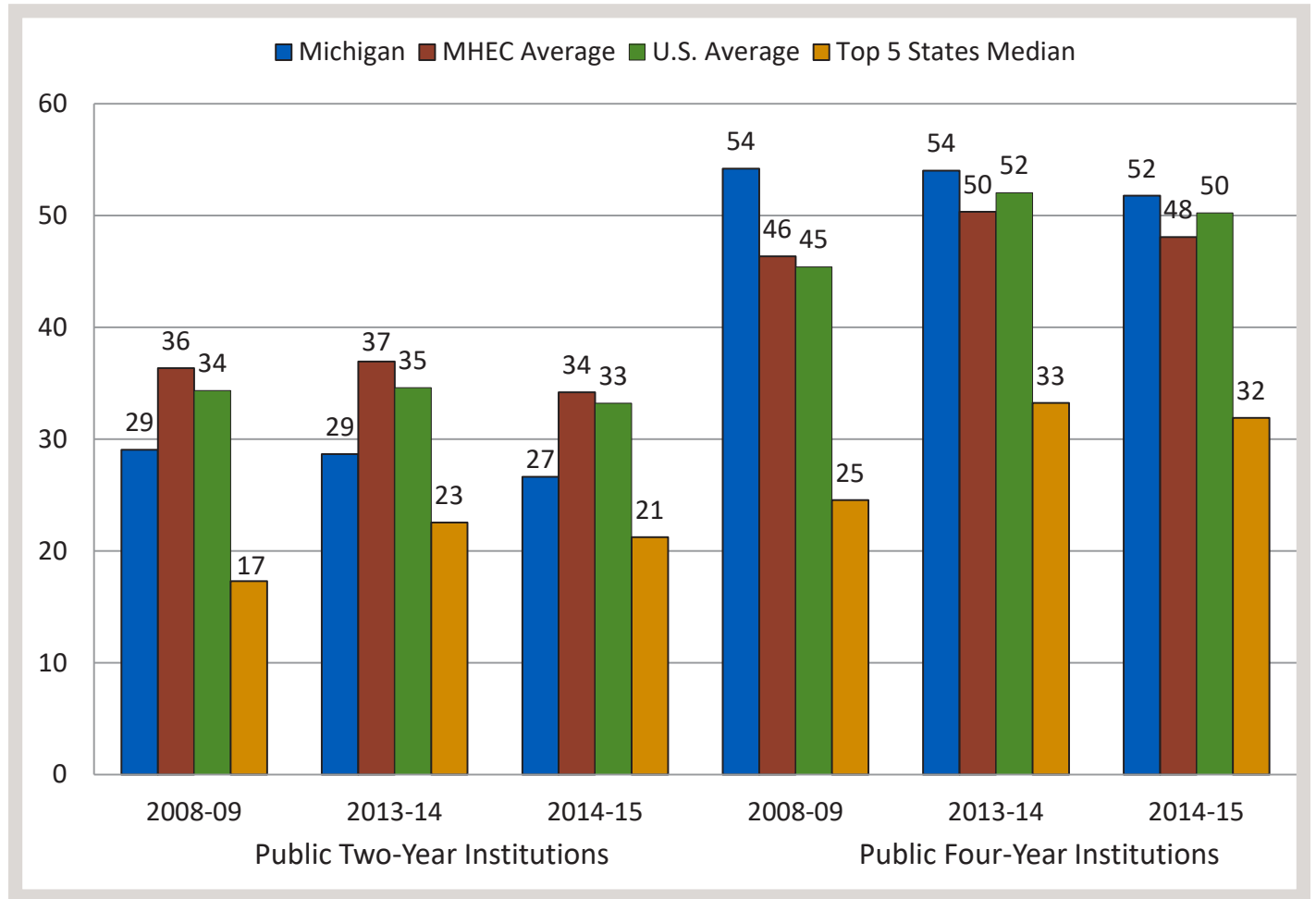
**Ability to pay: Median income.** Figure 10a shows that the net price of college as a percentage of median family income recently decreased slightly for public two-year enrollment and remained stable for four-year enrollment. Michigan is among the top states in affordability for two-year enrollment.



Source: NCES IPEDS. (2009, 2014, 2015). Net price. U.S. Census Bureau. (2009, 2014, 2015). *American Community Survey One-Year Public Use Microdata Sample*. Top 5 States Public 2-Year, 2014-15 (includes ties): CT, DE, IL, MD, MI, MS, NE, NJ, UT, VA, WY; Top 5 States Public 4-Year, 2014-15 (includes ties): AK, HI, ND, UT, WA, WY.

**Figure 10b. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Two- and Four-Year Institutions: Families in the Lowest Income Quintile**

**Ability to pay: Low income.** A comparison of Figures 10a and 10b indicates that college affordability in Michigan is highly contingent on family income. Families with median incomes in Michigan would need to allocate 23 percent of their incomes to pay for enrollment at a four-year college. In contrast, four-year college attendance for low-income students requires 52 percent of family income



Source: NCES IPEDS. (2009, 2014, 2015). *Net price*. U.S. Census Bureau. (2009, 2014, 2015). *American Community Survey One-Year Public Use Microdata Sample*. Top 5 States Public 2-Year, 2014-15 (includes ties): CT, HI, MI, UT, WA, WY; Top 5 States Public 4-Year, 2014-15: AK, HI, IN, WA, WY.



# Completion

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## 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 26 percent more than those who have completed 16 years of schooling without graduating from college.<sup>18</sup> 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.<sup>19</sup>

**Traditional on-time graduation.** The traditional on-time graduation rate represents completion of a bachelor's degree within four years at four-year institutions. It accounts for first-time, full-time, baccalaureate-seeking students who enter during the fall and graduate from their first institution.

**Transfer-adjusted completion.** Transfer-adjusted completion rates are defined by the proportion of first-time, certificate/degree-seeking students in the fall 2010 cohort who completed a certificate or degree within six years, while accounting for students who enroll part- or full-time and graduate from their first institution or elsewhere.

**Institutional effectiveness.** A major shortcoming of raw completion rates is that they do not necessarily gauge

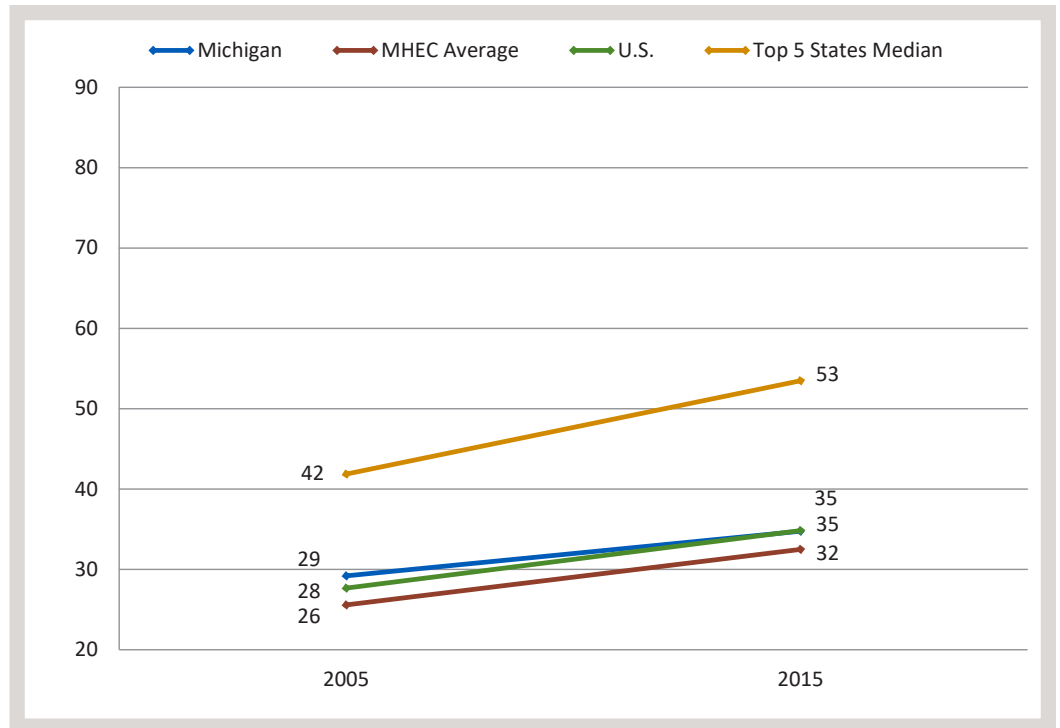
the performance of particular postsecondary institutions but rather constitute an outcome of the totality of performances across the PK-16 educational system as well as the broader system of public policies that shape postsecondary opportunities. In order to better assess the value that institutions add to completion outcomes, an effectiveness indicator is defined as the difference between the actual graduation rate and the rate that would be expected given the institution's structural, demographic, financial, and contextual characteristics. Scores that approximate or exceed zero indicate that, on average, institutional conditions are conducive to timely completion.<sup>20</sup>

**Figure 11a. Percentage of First-Time, Full-Time, Baccalaureate-Seeking Students who Graduated within Four Years at Public Four-Year Institutions**

**Traditional on-time graduation.**

Figure 11a shows that 35 percent of first-time, full-time, baccalaureate-seeking students graduated within four years at public institutions in Michigan in 2015, which meets the national benchmark and exceeds the regional benchmark.

Source: NCES IPEDS. (2005, 2015). *Graduation Rate. Top 5 States* (includes ties), 2015: DE, CT, MD, NH, VA, VT.

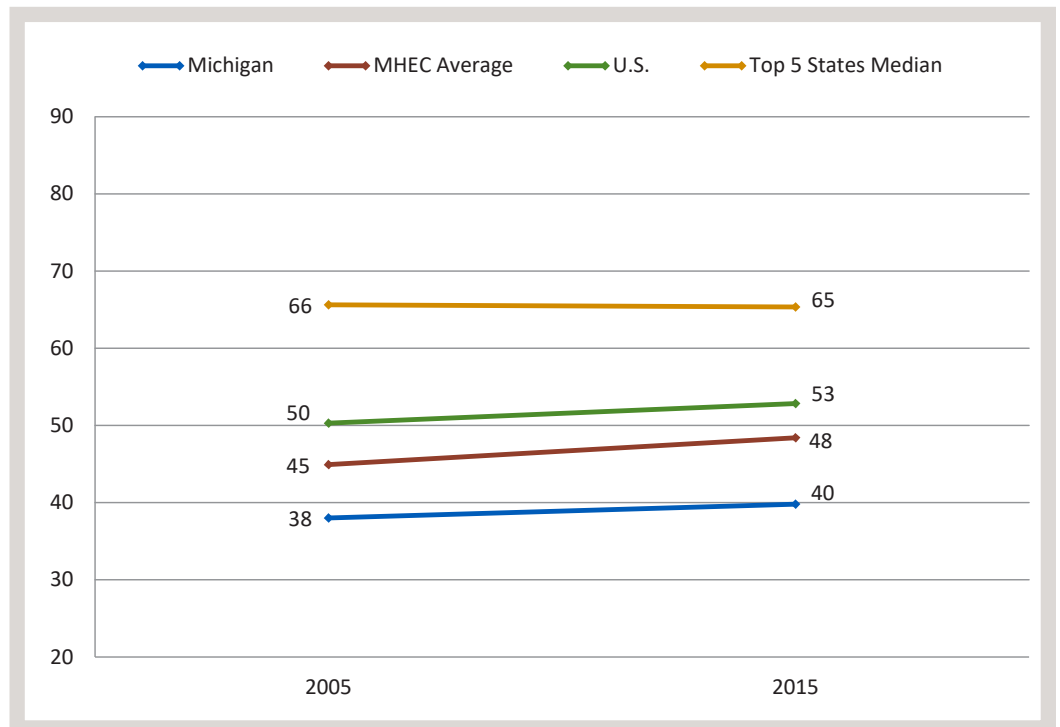


**Figure 11b. Percentage of First-Time, Full-Time, Baccalaureate-Seeking Students who Graduated within Four Years at Private Not-for-Profit Four-Year Institutions**

**Traditional on-time graduation.**

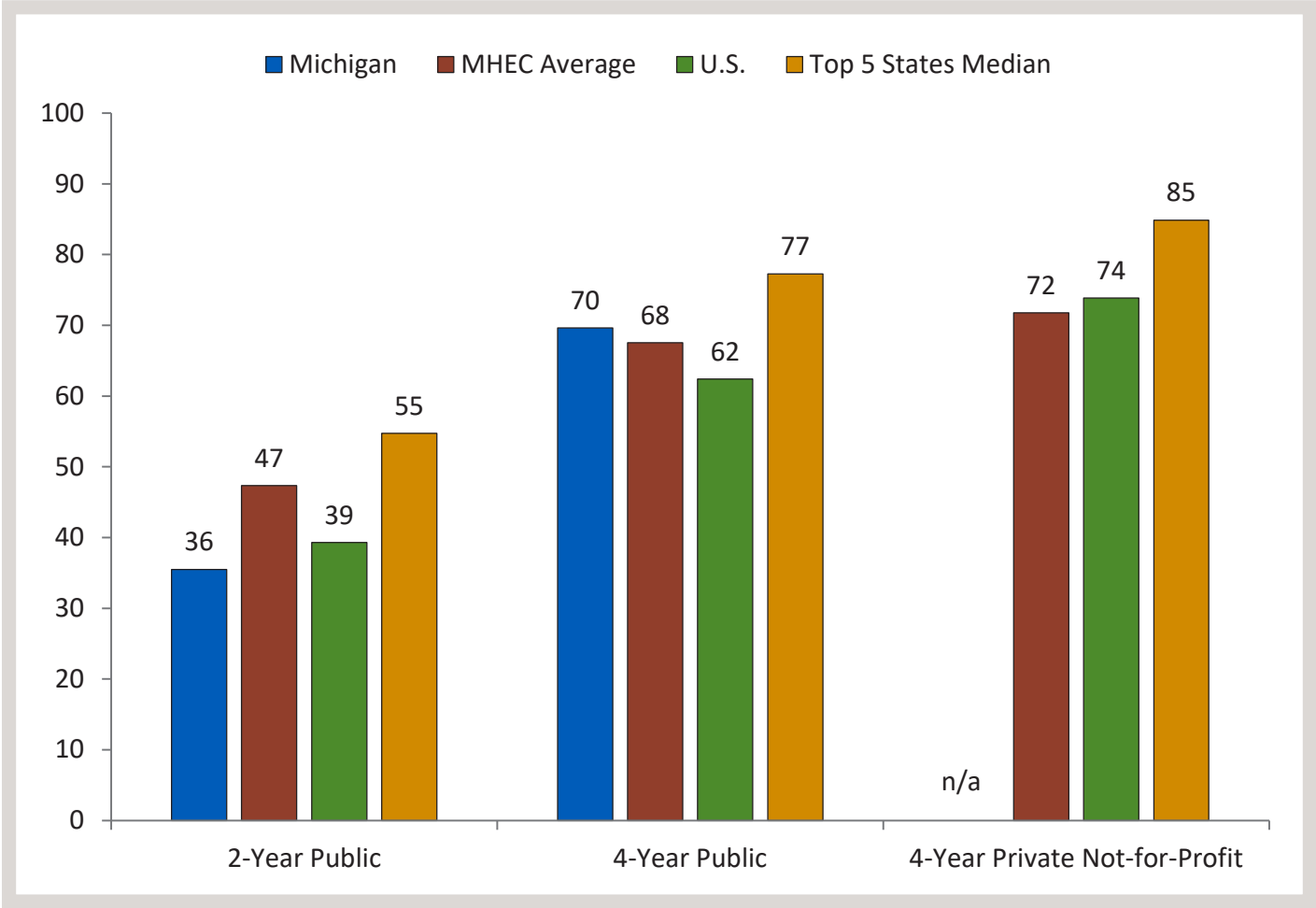
Figure 11b demonstrates that the four-year graduation rate of private not-for-profit colleges and universities in Michigan (40 percent) was below the regional and national levels.

Source: NCES IPEDS. (2005, 2015). *Graduation Rate. Top 5 States*, 2015: CT, MA, MD, MN, RI



**Figure 12a. Transfer-Adjusted Percentage of First-Time, Certificate/Degree-Seeking Students in the Fall 2010 Cohort who Completed a Certificate or Degree within Six Years by Starting Institution: Full- and Part-Time Students**

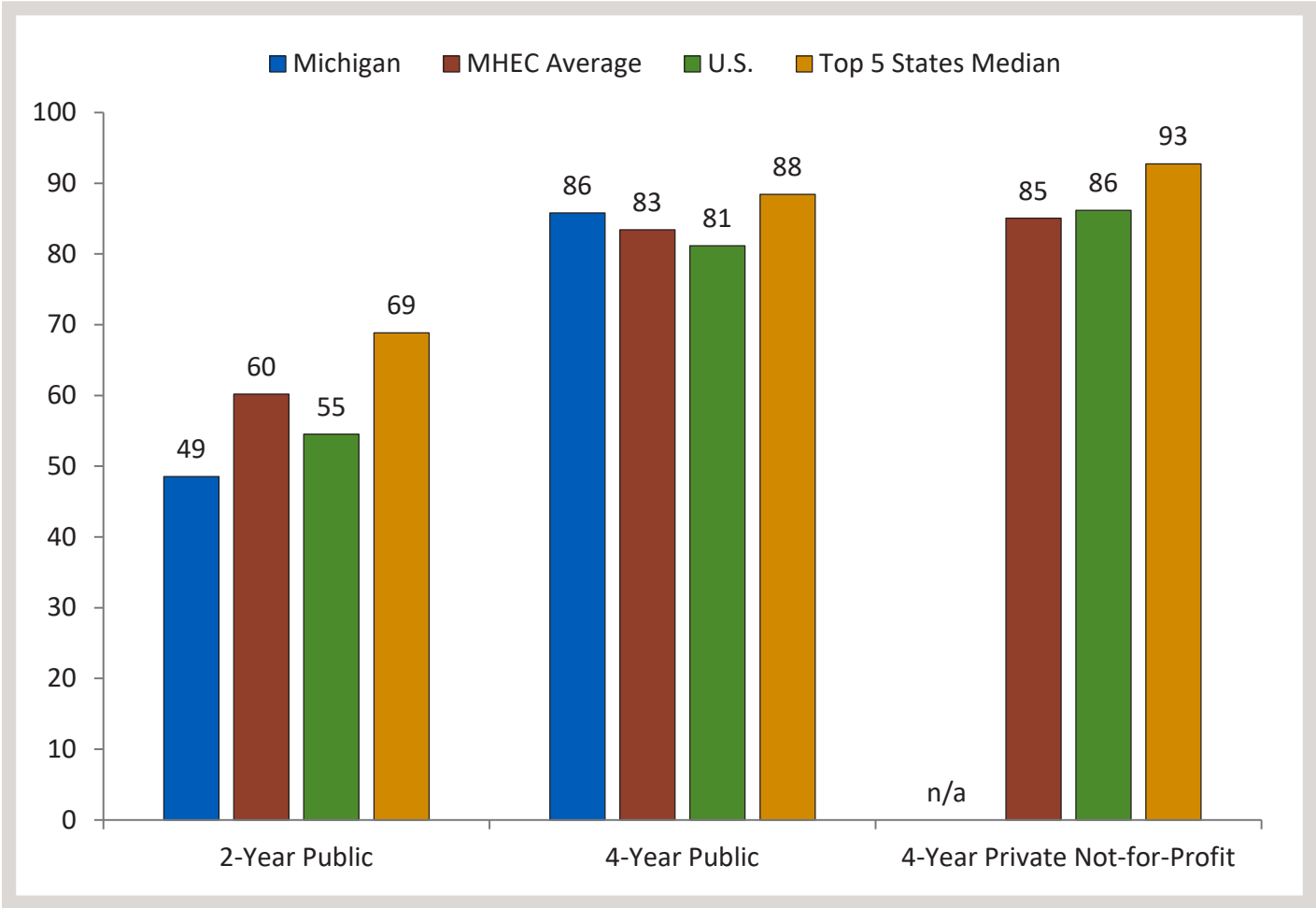
**Transfer-adjusted completion: All students.** According to Figure 12a, 36 percent of all students who started at a public two-year institution in Michigan completed a certificate or degree within six years, which is below the regional and national levels. The transfer-adjusted completion rate for students at public four-year institutions was 70 percent, which is above the regional and national benchmarks.



Source: Shapiro, D., Dunder, A., Wakhungu, P., Yuan, X., Nathan, A & Hwang, Y., A. (2017, March). *Completing College: A State-Level View of Student Attainment Rates* (Signature Report No. 12a). Herndon, VA: National Student Clearinghouse Research Center. Top 5 States, 2-Year Public: FL, IA, MN, ND, SD; Top 5 States 4-Year Public (includes ties): CT, IA, MN, NH, NJ, VA; Top 5 States, 4-Year Private Not-for-Profit (includes ties): CT, MA, MD, PA, RI, WA.

**Figure 12b. Transfer-Adjusted Percentage of First-Time, Certificate/Degree-Seeking Students in the Fall 2010 Cohort who Completed a Certificate or Degree within Six Years by Starting Institution: Full-Time Students**

**Transfer-adjusted completion: Full-time students.** A much larger percentage of students complete a certificate or degree within six years after accounting for enrollment intensity. A comparison of Figures 12a and 12b demonstrates that completion rates are highest among students who enroll full-time.

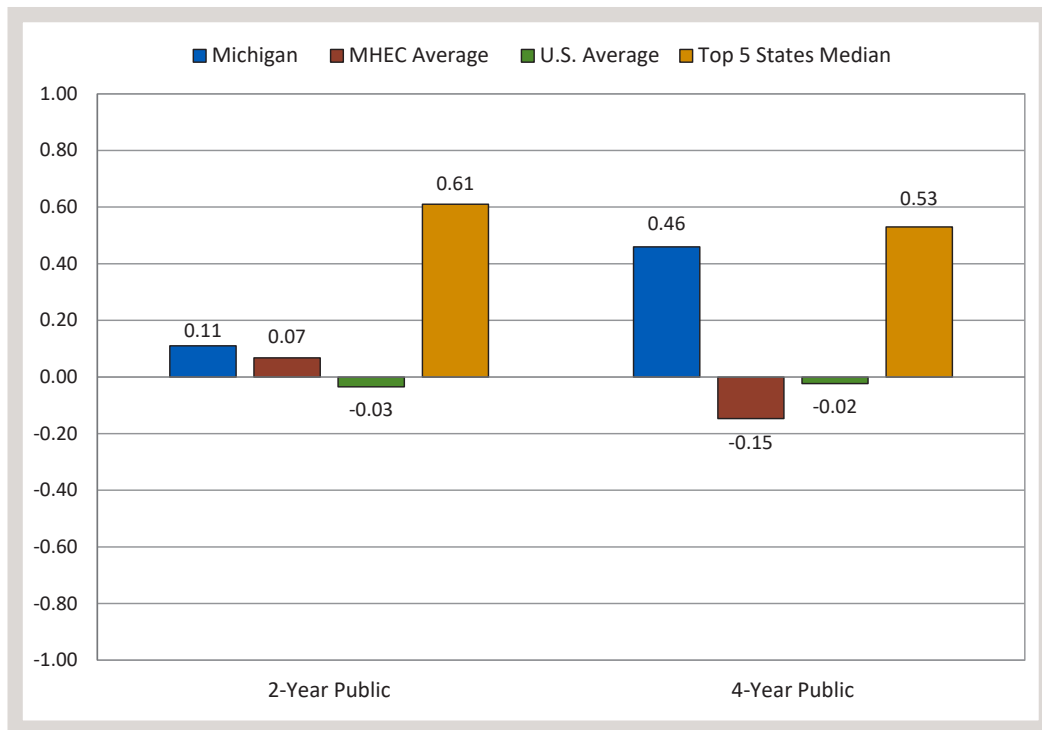


Source: Shapiro, D., Dunder, A., Wakhungu, P., Yuan, X., Nathan, A & Hwang, Y., A. (2017, March). *Completing College: A State-Level View of Student Attainment Rates* (Signature Report No. 12a). Herndon, VA: National Student Clearinghouse Research Center. Top 5 States, 2-Year Public (includes ties): FL, IL, MN, ND, SD, VA; Top 5 States, 4-Year Public (includes ties): CT, IA, MD, MN, NH, NJ, SC, VA; Top 5 States, 4-Year Private Not-for-Profit: CT, MD, OR, RI, WA.

### Figure 13. Institutional Effectiveness in Promoting Timely Degree Completion

**Institutional effectiveness.** Figure 13 indicates that the institutional effectiveness of public 2-year institutions in Michigan is higher than the regional and national levels. Public 4-year institutions have a strong impact on timely degree completion, as graduation rates are significantly higher than expected.

Source: MHEC. (2015). *The Effectiveness and Efficiency of Postsecondary Institutions in the United States: 2010-2012 Baseline Results*. Minneapolis, MN: Midwestern Higher Education Compact. Top 5 States, 2-year institutions: CA, FL, HI, ND, SD. Top 5 States, 4-Year Institutions: MI, NJ, VA, VT, WA.



# Equity

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## ABOUT THESE METRICS

Equity in postsecondary education is partly assessed by the extent to which academic preparedness, college enrollment, and completion are contingent on family income.<sup>21</sup> Nationally, lower-income students constitute 51 percent of public PK-12 enrollment,<sup>22</sup> but they have been historically underrepresented in higher education. Moreover, many states will need to improve the college preparation and participation of low-income students to significantly raise postsecondary attainment rates.

**8<sup>th</sup> grade achievement gap.** The academic preparedness gap is measured by 8th grade proficiency levels in math, reading, and science on the National Assessment of Educational Progress (NAEP) 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.<sup>23</sup>

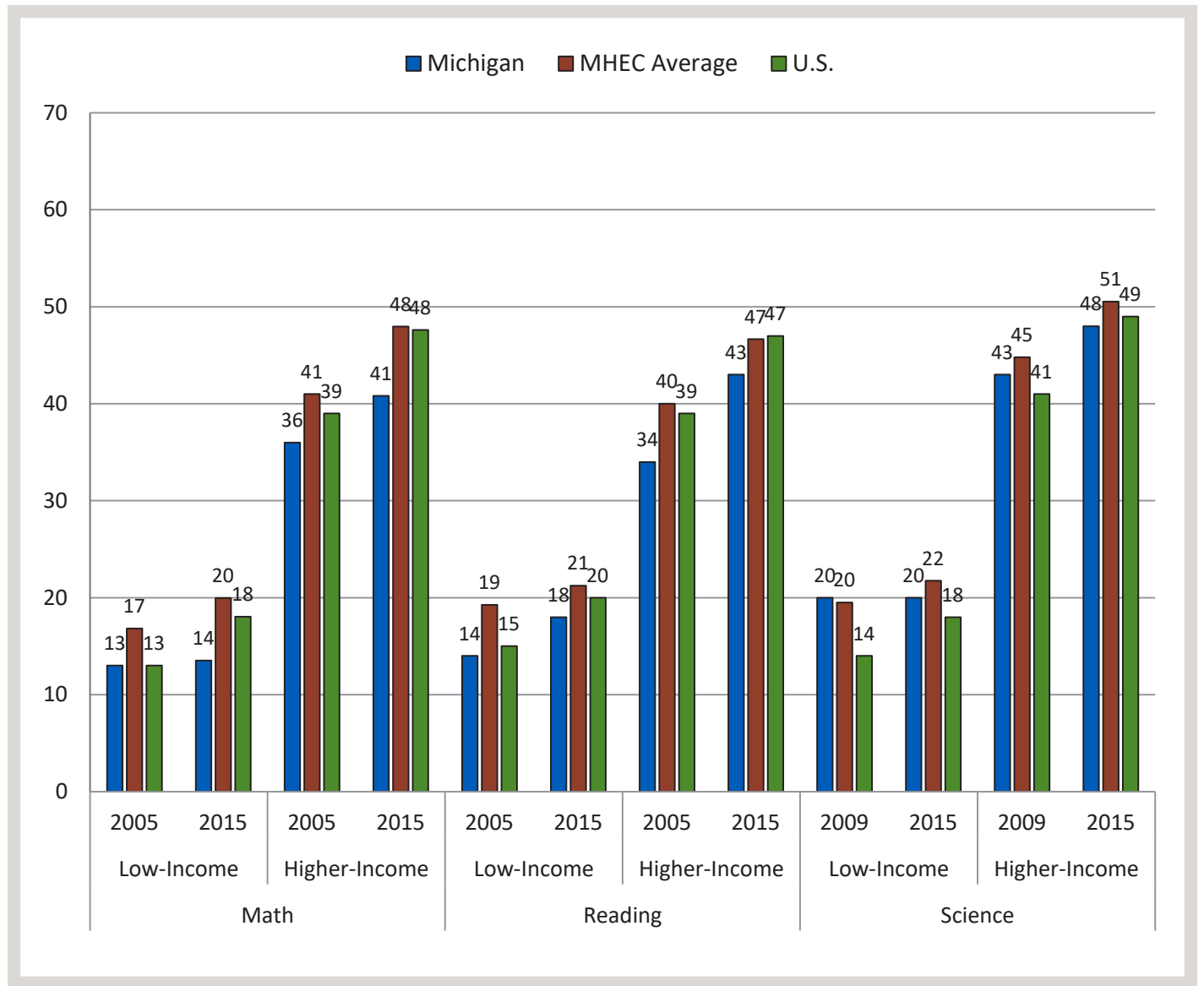
**High school completion gap.** Graduation rates are based on the number of students who graduate in four years with a regular high school diploma.<sup>24</sup> The completion gap is measured by graduation rates among low-income students who qualified for free- or reduced-price lunch and “higher”-income students who were not eligible to participate in the National School Lunch Program.

**College enrollment gap.** The postsecondary enrollment gap is gauged by comparing college enrollment rates among dependent 18- to 24-year-old residents by family income in Michigan.<sup>25</sup>

**College completion gap.** The completion gap is estimated by comparing six-year graduation rates among Pell grant recipients and non-Pell recipients at public four-year institutions.<sup>26</sup> The six-year graduation rate accounts for first-time, full-time, bachelor’s degree-seeking students who entered during the fall of 2007 and graduated from their first institution within six years.

## Figure 14. Percentage of Low- and Higher-Income Students in Grade 8 Scoring At or Above Proficiency on the National Assessment of Educational Progress in Math, Reading, and Science

**8<sup>th</sup> grade achievement gap.** Figure 14 shows that fewer than 30 percent of low-income students in Michigan scored at or above the proficiency level in math, reading, or science on the National Assessment of Educational Progress, which is well below the achievement levels of higher-income students.



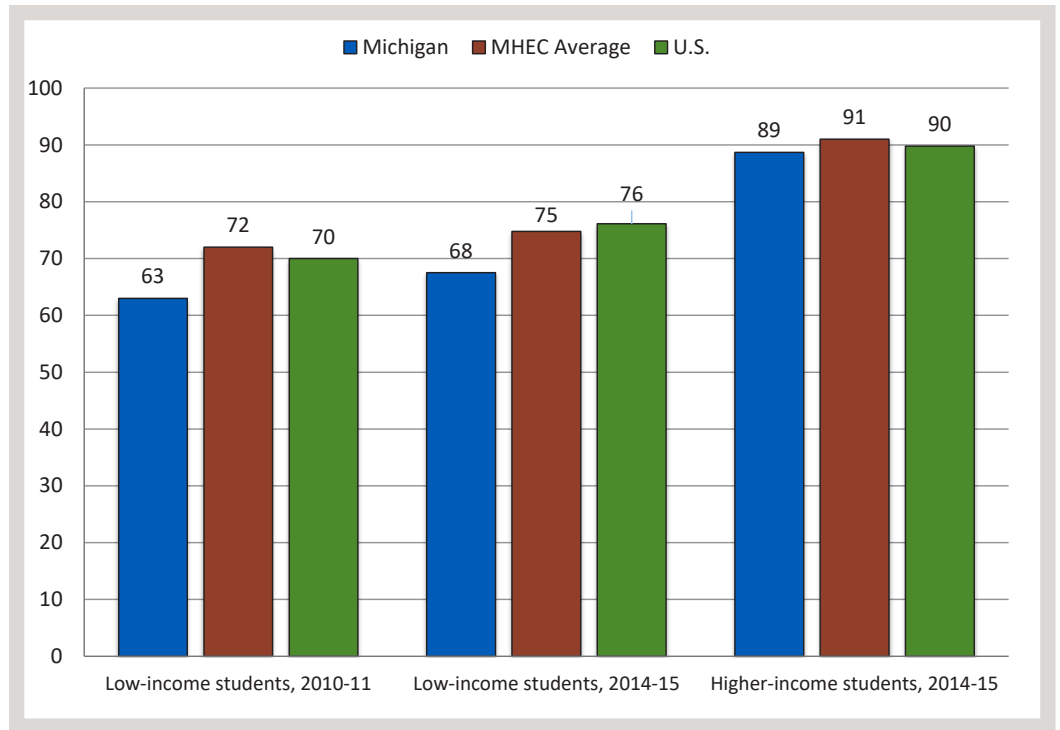
Source: National Center for Education Statistics. (2005, 2009, 2015). *National assessment of educational progress*. The NAEP in science was only administered in 2009, 2011, and 2015.

### Figure 15. Public High School Graduation Rates among Low- and Higher-Income Students

**High school completion gap.**

Figure 15 indicates that the high school graduation rate of low-income students has increased over time but was 21 percentage points below the graduation rate of higher-income students in 2014-15, compared to the regional gap of 16 percentage points and the national gap of 14 percentage points.

Source: U.S. Department of Education. (2011, 2015). *ED Data Express, ACGR*. Data for higher-income students were not available in 2010-11.

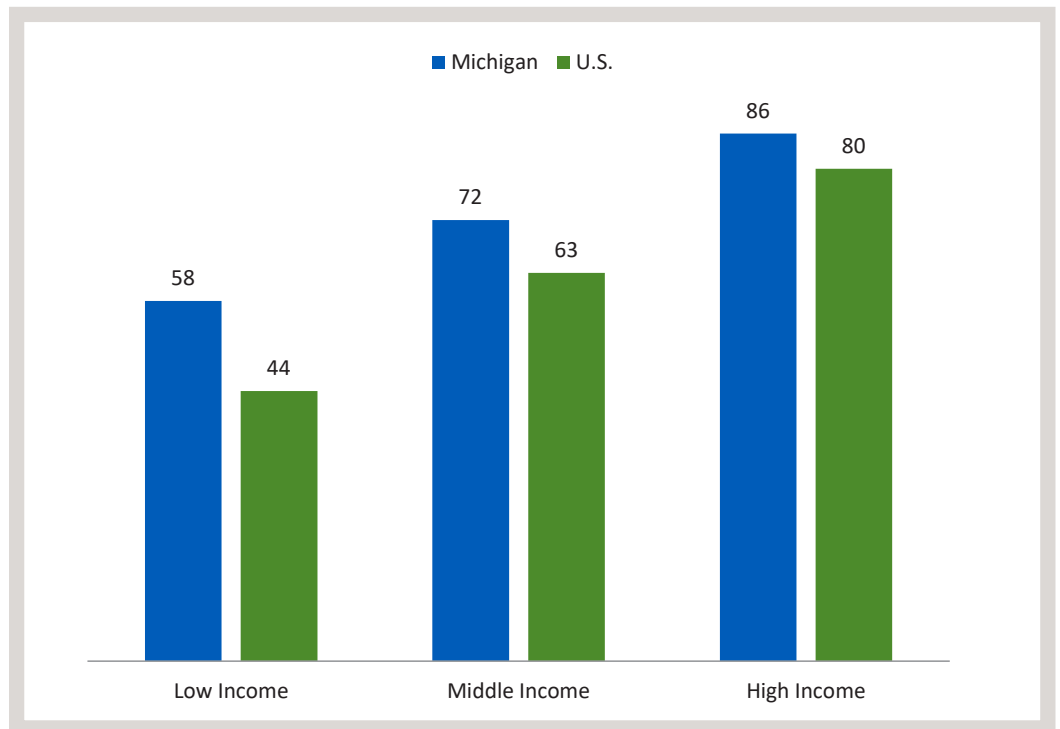


### Figure 16. Percentage of Dependent 18- to 24-Year-Old Residents Who Have Enrolled in or Have Completed Some College by Family Income

**College enrollment gap.**

According to Figure 16, the rates of college enrollment among low- and middle-income 18- to 24-year-old residents in Michigan are considerably lower than the enrollment rate for 18- to 24-year-old residents from high-income families.

Source: U.S. Census Bureau. (2011, 2012, 2013, 2014, 2015). *Current Population Survey. Five-year estimates*.



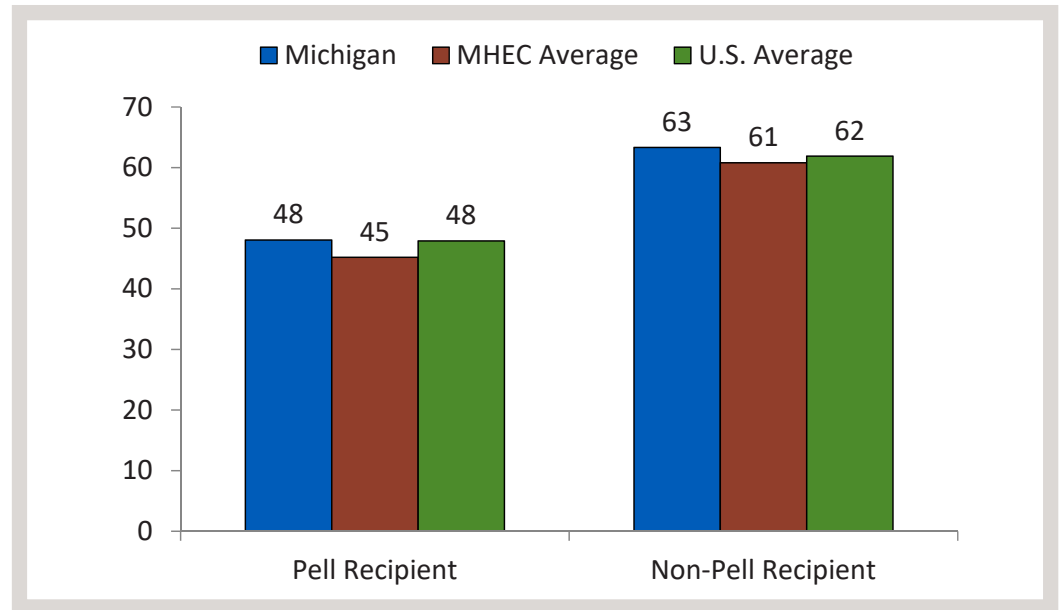


**Figure 17. Percentage of First-Time, Full-Time, Baccalaureate-Seeking Students in the Fall 2007 Cohort who Graduated within Six Years at Public Four-Year Institutions: Pell Grant Recipients vs. Non-Pell Recipients**

**College completion gap.**

Similarly, the graduation rate of low-income students (i.e., Pell grant recipients) lags behind the graduation rate of higher-income students at public four-year institutions. However, the graduation rate of low-income students in Michigan is higher than the regional benchmark (see Figure 17).

Source: The Education Trust. (2015). *The Pell Partnership: Ensuring a Shared Responsibility for Low-Income Student Success.*



**Percent of undergraduate students enrolled in 2007 who received a Pell grant during 2007-08**

IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI
37%	30%	22%	29%	33%	24%	32%	28%	22%	33%	28%	28%

## ABOUT THESE METRICS

Substantial financial investments are required to create and sustain a PK-16 educational system that meets state needs for economic and social development. States allocated 13 percent of their budgets to higher education in 2016,<sup>27</sup> including general operating expenses (78 percent); research, agricultural extension, and medical education (11 percent); and student financial aid (10 percent).<sup>28</sup> Various factors influence funding for education within any particular state, including the tax base and structure, enrollment, and state expenditures for other public services. Moreover, states differ in the strategies used to ensure that postsecondary education remains affordable. For instance, some concentrate funds into direct institutional appropriations, while others may focus more on need-based student aid.

**Funding commitment.** Two indicators portray the state's overall commitment to funding higher education: state and local educational appropriations for higher education per FTE student<sup>29</sup> and state fiscal support for higher education per \$1,000 of personal income.<sup>30</sup>

**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.

**Institutional funding.** State and local appropriations are examined for public two- and four-year institutions

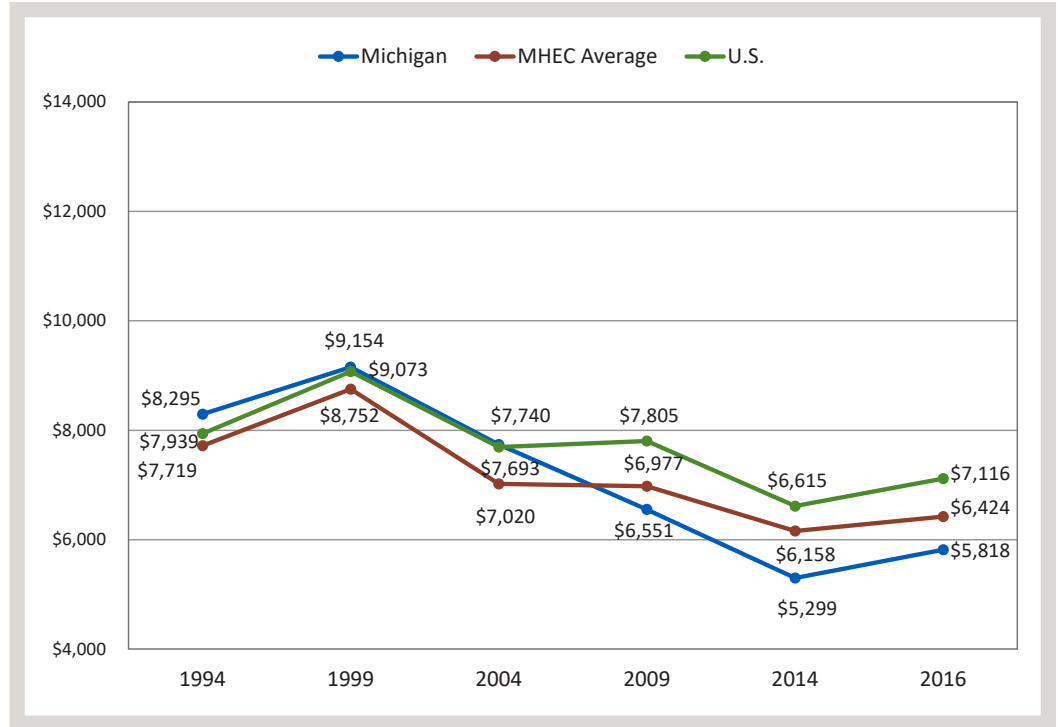
in relation to education and related expenditures, which reflect the total amount spent on instruction, student services, and academic support. State appropriations may influence the effectiveness and competitiveness of institutions as well as tuition rates.<sup>31</sup>

**Need-based aid.** State funding for grant aid based on financial need is measured by (a) the amount of need-based grant aid per FTE student and (b) need-based aid as a percent of total grant aid allocations. The receipt of grant aid has been linked with higher rates of college enrollment and degree completion.<sup>32</sup>

### Figure 18a. State and Local Educational Appropriations for Higher Education per FTE Student

**Funding commitment.** Figure 18a shows that public funding for higher education in Michigan was below the regional and national levels in 2016.

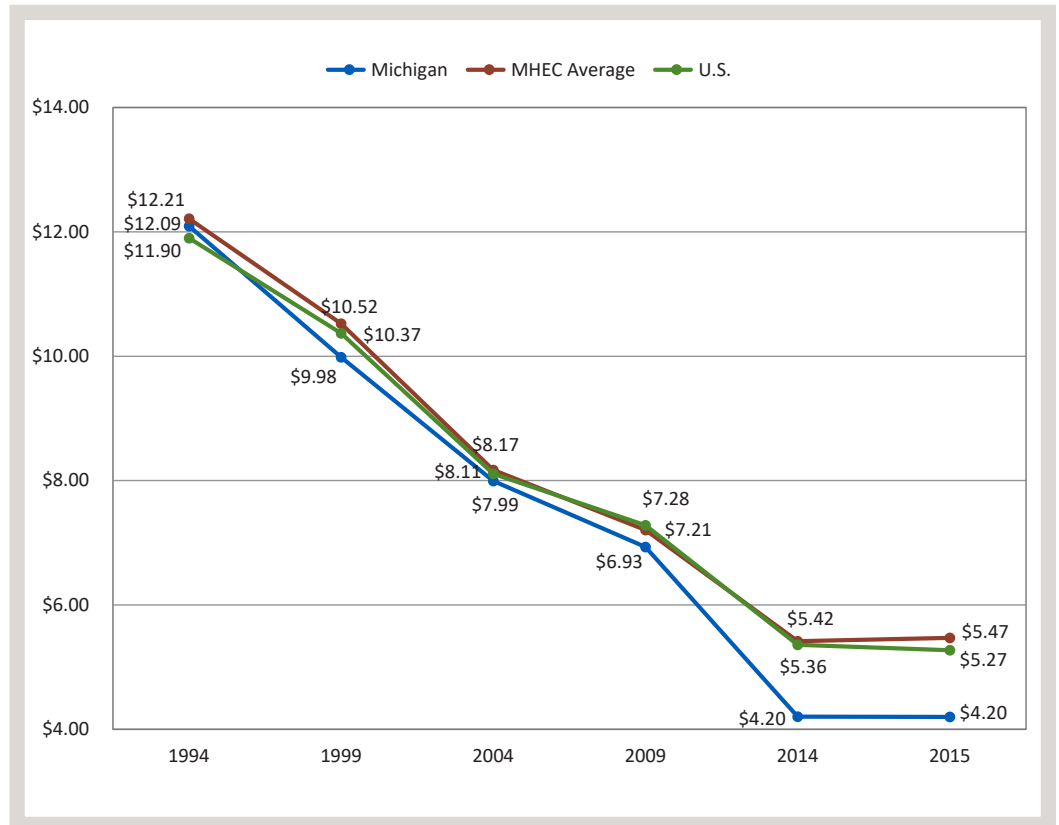
Source: SHEEO. (2017). *State higher education finance: FY 16*. Estimates have been adjusted for inflation.



### Figure 18b. State Fiscal Support for Higher Education per \$1,000 of Personal Income

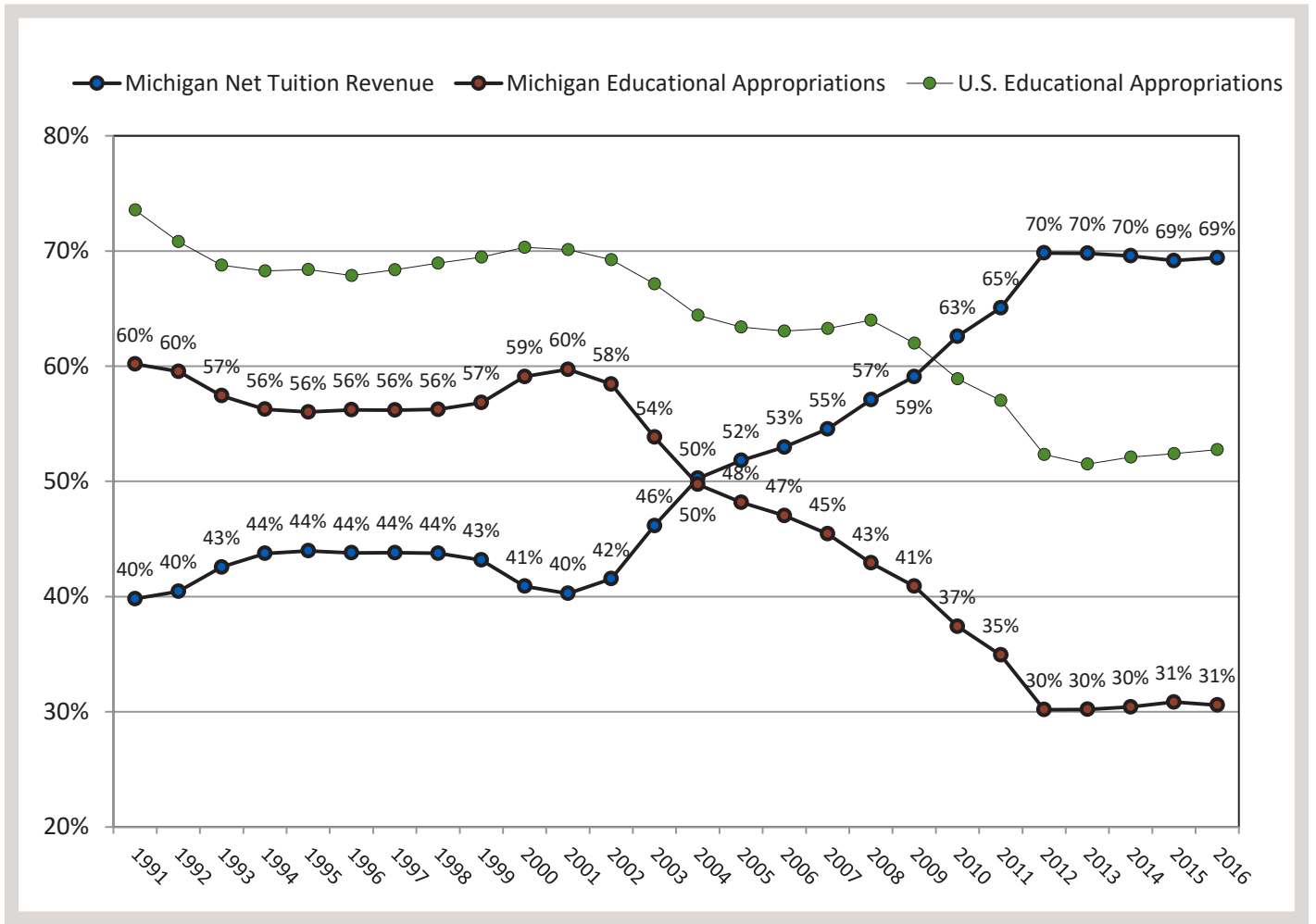
**Funding commitment.** According to Figure 18b, state commitment defined as funding per \$1,000 of personal income was below the regional and national benchmarks in 2015.

Source: SHEEO. (2017). *State higher education finance: FY 16*. Estimates have been adjusted for inflation.



**Figure 19. State and Local Educational Appropriations and Net Tuition Revenue as a Percentage of Total Educational Revenue for Public Postsecondary Institutions in Michigan (per FTE Student)**

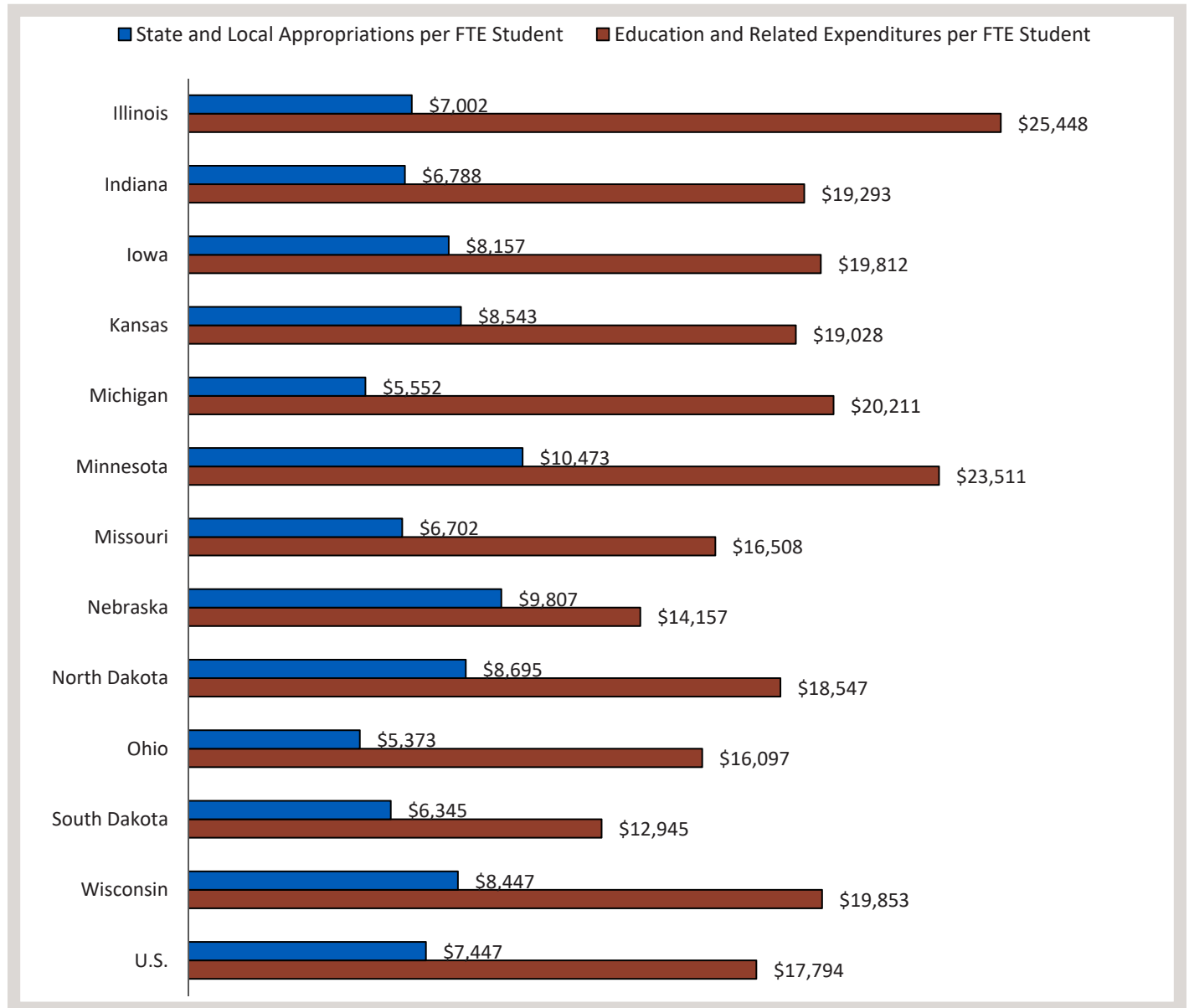
**State and student cost share.** The student's share of the cost of enrollment currently exceeds the state's share, as net tuition revenue constitutes a relatively larger proportion of revenue among public colleges and universities (see Figure 19).



Source: SHEEO. (2017). *State higher education finance: FY 16*. Estimates have been adjusted for inflation.

## Figure 20a. Public Doctoral Universities: State and Local Appropriations Relative to Educational Expenditures per FTE Student during 2014-15

**Institutional funding.** Figures 20a-c depict state and local appropriations relative to educational expenditures for each type of institution in the MHEC states during 2014-15. State and local appropriations in Michigan constitute 27 percent of education and related expenditures at public doctoral universities, which is below the national level of 42 percent.



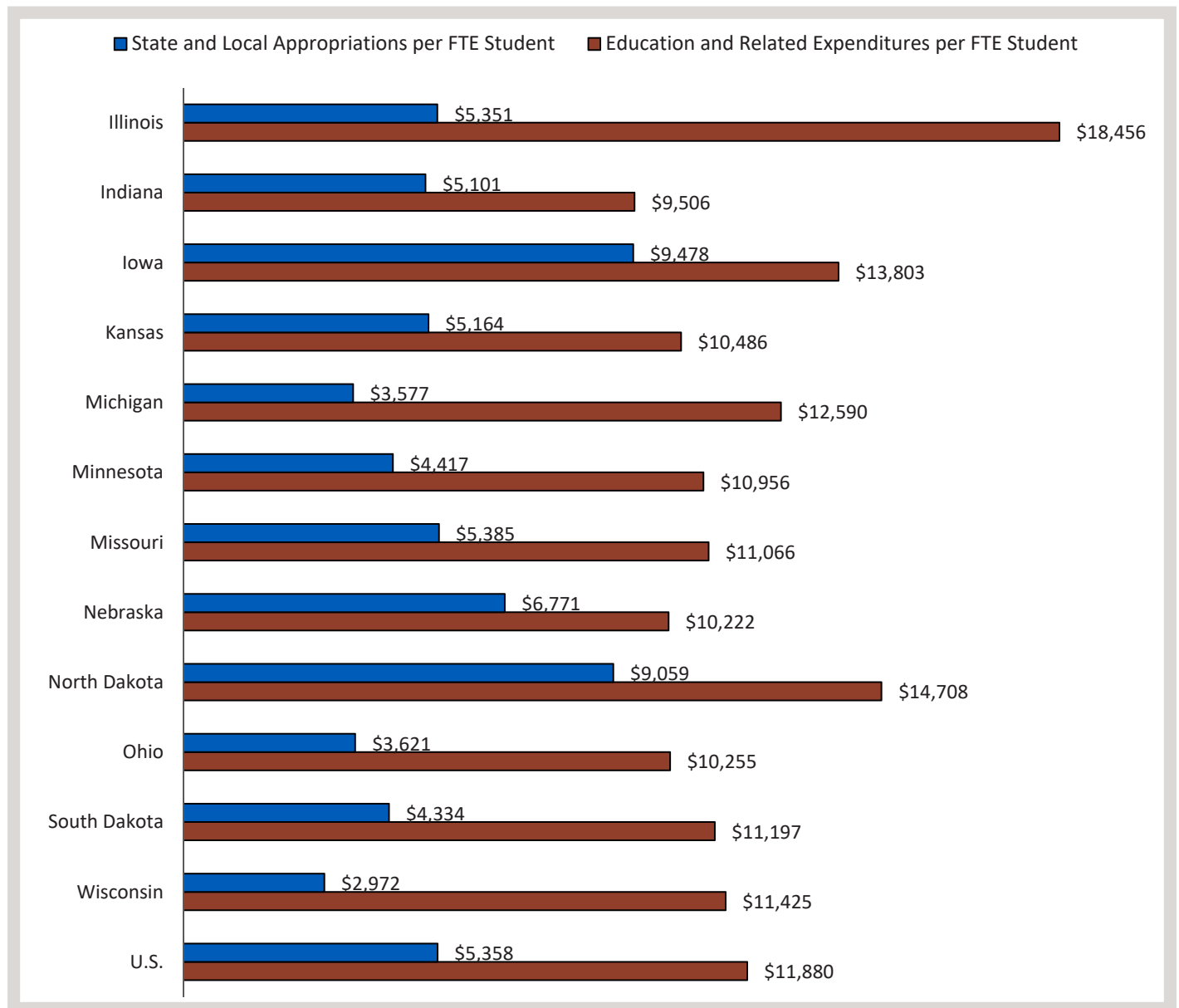
Source: NCES IPEDS. (2015). *Finance. Fall Enrollment*.

### Appropriations as Percentage of Expenditures

IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI	U.S.
28%	35%	41%	45%	27%	45%	41%	69%	47%	33%	49%	43%	42%

**Figure 20b. Public Master's Universities: State and Local Appropriations Relative to Educational Expenditures per FTE Student during 2014-15**

**Institutional funding.** At master's universities, state and local appropriations reflect 28 percent of educational expenditures, which is below the national level of 45 percent.



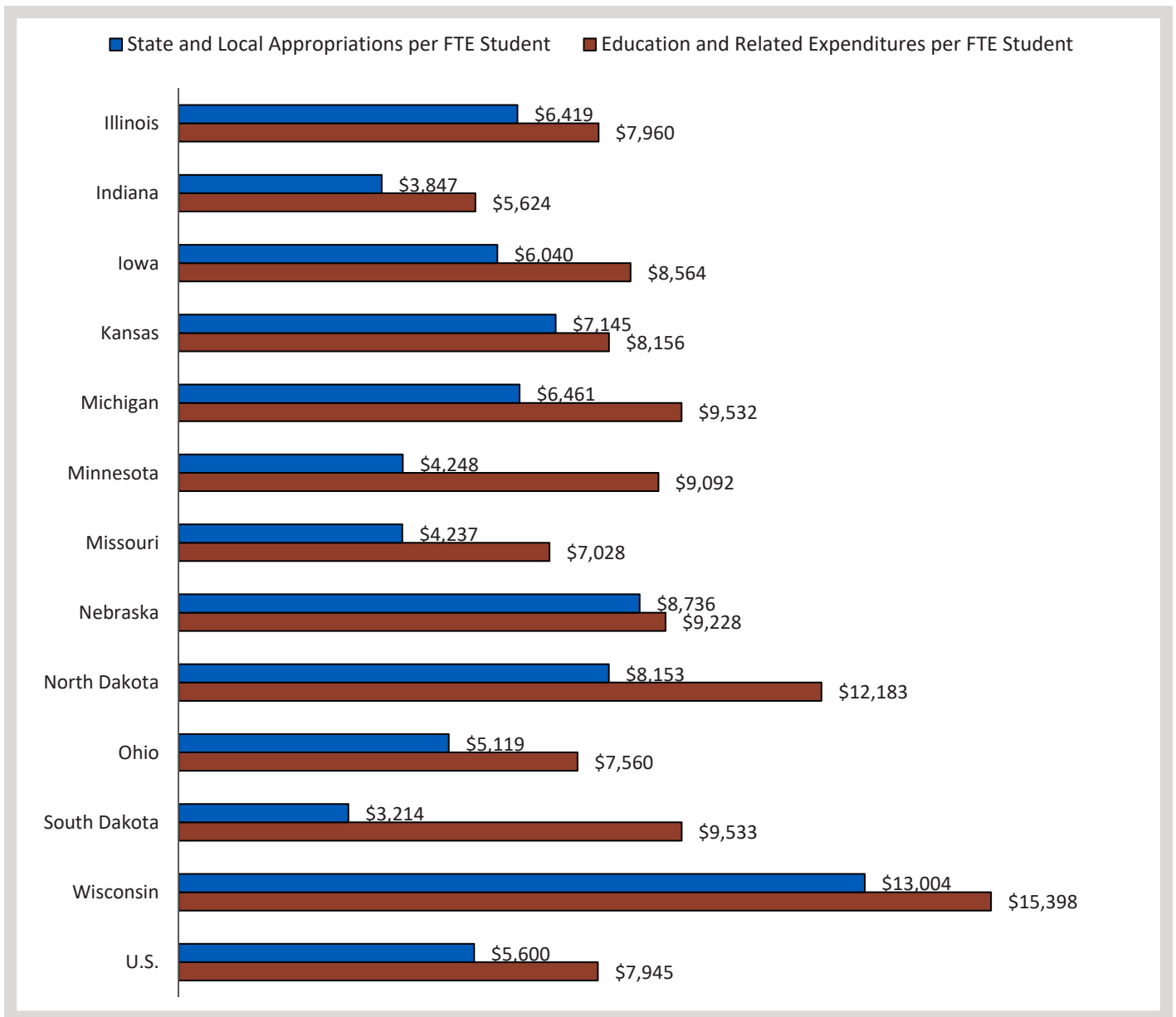
Source: NCES IPEDS. (2015). *Finance. Fall Enrollment*.

**Appropriations as Percentage of Expenditures**

IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI	U.S.
29%	54%	69%	49%	28%	40%	49%	66%	62%	35%	39%	26%	45%

**Figure 20c. Public Associate's Colleges: State and Local Appropriations Relative to Educational Expenditures per FTE Student during 2014-15**

**Institutional funding.** At two-year colleges, state and local appropriations are equivalent to 68 percent of educational expenditures, which is below the national level of 70 percent.



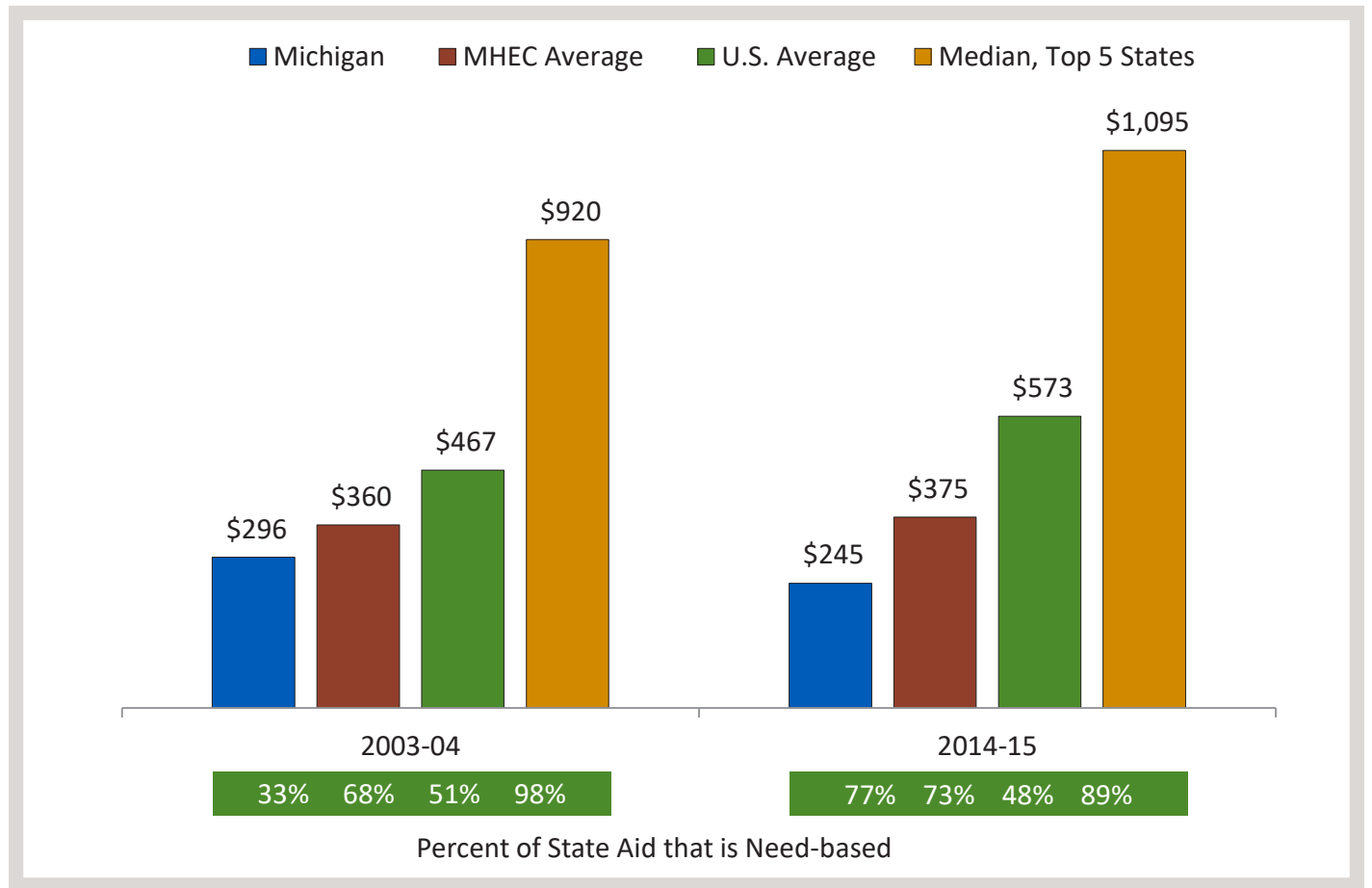
Source: NCES IPEDS. (2015). *Finance. Fall Enrollment*.

**Appropriations as Percentage of Expenditures**

IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI	U.S.
81%	68%	71%	88%	68%	47%	60%	95%	67%	68%	34%	84%	70%

## Figure 21. State Need-Based Grant Aid per FTE Undergraduate Student and Percent of Aid Defined as Need-Based

**Need-based aid.** Figure 21 indicates that state need-based grant aid per FTE student in Michigan decreased over the past decade and was below the regional and national benchmarks in 2014-15. Michigan allocates 77 percent of its grant aid based on financial need, which is above the regional and national averages.



Source: National Association of State Student Grant and Aid Programs (2004). *35<sup>th</sup> annual survey report on state-sponsored student financial aid for 2003-04 academic year*. National Association of State Student Grant and Aid Programs (2015). *46<sup>th</sup> annual survey report on state-sponsored student financial aid for 2003-04 academic year*. The 2004 estimates have been adjusted for inflation.



# Endnotes

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- <sup>1</sup>The Georgetown University Center on Education and the Workforce. (2013). *Recovery: Job growth and education requirements through 2020*.
- <sup>2</sup> 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.
- <sup>3</sup> Lumina Foundation. (2014). *States with higher education attainment goals*. Retrieved from <http://strategylabs.luminafoundation.org/wp-content/uploads/2013/10/State-Attainment-Goals.pdf>
- <sup>4</sup> Lumina Foundation. (2017). *A stronger nation*. Retrieved from <http://strongernation.luminafoundation.org/report/2017/#nation> Ewert, S., & Kominski, R. (2014). *Measuring alternative educational credentials: 2012*. Retrieved from <https://www.census.gov/prod/2014pubs/p70-138.pdf>
- <sup>5</sup> National Center for Higher Education Management Systems. (2017). *Calculating the economic value of increasing college credentials by 2025*.
- <sup>6</sup> College Board. (2010). *Education pays 2010*. Retrieved from [http://trends.collegeboard.org/downloads/Education\\_Pays\\_2010.pdf](http://trends.collegeboard.org/downloads/Education_Pays_2010.pdf)
- <sup>7</sup> U.S. Department of Health and Human Services. (2011). *Health, United States, 2010*. Retrieved from [http://www.cdc.gov/nchs/data/10.pdf#010](http://www.cdc.gov/nchs/data/hus/10.pdf#010)
- <sup>8</sup> MHEC. (2013). *Advancing Postsecondary Opportunity, Completion, and Productivity*. Retrieved from <http://www.mhec.org/research>
- <sup>9</sup> 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>
- <sup>10</sup> 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.
- <sup>11</sup> American College Testing. (2008). *The forgotten middle*. Retrieved October 19, 2011, from <http://www.act.org/research/policymakers/pdf/ForgottenMiddle.pdf>
- <sup>12</sup> 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/>
- <sup>13</sup> American College Testing. (2010). *What are ACT’s college readiness benchmarks?* Retrieved from <http://www.act.org/research/policymakers/pdf/benchmarks.pdf>
- <sup>14</sup> 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.
- <sup>15</sup> 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.
- <sup>16</sup> Bozick, R., & DeLuca, S. (2005). Better late than never? Delayed enrollment in the high school to college transition. *Social Forces*, 84(1), 527-550.
- <sup>17</sup> 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>

<sup>18</sup> 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. See also Liu, V. Y., Belfield, 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.

<sup>19</sup> Schneider, M., & Yin, Lu. (2011). *The high cost of low graduation rates: How much does dropping out of college really cost?* Retrieved from [http://www.air.org/sites/default/files/downloads/report/AIR\\_High\\_Cost\\_of\\_Low\\_Graduation\\_Aug2011\\_0.pdf](http://www.air.org/sites/default/files/downloads/report/AIR_High_Cost_of_Low_Graduation_Aug2011_0.pdf)

<sup>20</sup> In the case of four-year institutions, overall institutional effectiveness scores were computed as the average of scores based on the four- and six-year graduation rate models. The graduation rate is based on the percentage of full-time, first-time bachelor's degree-seeking students who graduate within four or six years (2004, 2005, and 2006 cohorts). Overall effectiveness for two-year colleges was computed as the average of scores based on models for graduation within 150% of program time and graduation or transfer within 150% of program time. In addition, the average performance scores of public institutions weighted by FTE undergraduate enrollment were calculated for each state. A state's institutional effectiveness score reflects the average standardized difference between actual and predicted completion rates at public institutions (rates predicted from institutional and state attributes). See Horn, A. S., & Lee, G. (2016). The reliability and validity of using regression residuals to measure institutional effectiveness in promoting degree completion. *Research in Higher Education*, 57(4), 469-496. See also Horn, A. S., Horner, O. G., & Lee, G. (2017). Measuring the effectiveness of two-year colleges: a comparison of raw and value-added performance indicators. *Studies in Higher Education*, 1-19.

<sup>21</sup> Family income and race and ethnicity are highly correlated, but they also form unique sources of advantage and disadvantage in educational opportunity and attainment. Additional equity indicators by race and ethnicity will be available at <http://www.mhec.org/research>

<sup>22</sup> Southern Education Foundation. (2015). *A new majority*. Retrieved from <http://www.southerneducation.org/getattachment/4ac62e27-5260-47a5-9d02-14896ec3a531/A-New-Majority-2015-Update-Low-Income-Students-Now.aspx>

<sup>23</sup> Higher income is defined as any level of income that did not qualify the student for free or reduced price lunch. Income thresholds for eligibility differ by household size. For example, the annual income limit to qualify for reduced-price meals for a household of four is \$44,863. See USDA. (2016). *Income eligibility guidelines*. Retrieved from <https://www.fns.usda.gov/school-meals/income-eligibility-guidelines>.

<sup>24</sup> See endnote 12.

<sup>25</sup> 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.

<sup>26</sup> Not all institutions in all states are accounted for as many did not report Pell data, which affects the U.S. and MHEC averages. Coverage for MHEC states is as follows: IL (100%), IN (91%), IA (100%), KS (92%), MI (100%), MN (74%), MO (84%), NE (100%), ND (100%), OH (95%), SD (95%), and WI (100%). Graduation rates for private institutions were not calculated due to excessive missing data.

<sup>27</sup> NASBO. (2017). *2014-16 state expenditure report*. Retrieved from <https://www.nasbo.org/mainsite/reports-data/state-expenditure-report>

<sup>28</sup> State Higher Education Executive Officers. (2017). *State higher education finance*. Retrieved October 19, 2017, from [http://www.sheeo.org/sites/default/files/project-files/SHEEO\\_SHEF\\_2016\\_Report.pdf](http://www.sheeo.org/sites/default/files/project-files/SHEEO_SHEF_2016_Report.pdf). Expenditure figures do not include capital or debt service.

<sup>29</sup> State and local educational appropriations refer to "state and local support available for public higher education operating expenses, defined to exclude spending for research, agricultural extension, and medical education, as well as support for independent institutions or students attending them" (SHEEO, 2015, p. 11). State and local support refer to "state tax appropriations and local tax support plus additional nontax funds (e.g., lottery revenue) that support or benefit higher education, and funds appropriated to other state entities for specific higher education expenditures or benefits (e.g., employee fringe benefits disbursed by the state treasurer)" (SHEEO, 2015, p. 11).

<sup>30</sup> State fiscal support is defined as "state and local tax and non-tax support for public and independent higher education, including special purpose appropriations for research-agricultural-medical" (SHEEO, 2017, p. 55).

<sup>31</sup> 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.

<sup>32</sup> See endnote 17.





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