HIGHER EDUCATION IN FOCUS

SELECTED PERFORMANCE INDICATORS FOR

Ohio

2014-2015

MHEC
Advancing Education Through Cooperation

MIDWESTERN HIGHER EDUCATION COMPACT

About the Midwestern Higher Education Compact

The Midwestern Higher Education Compact is a nonprofit regional organization, established by compact statute, to assist Midwestern states in advancing higher education through interstate cooperation and resource sharing. Member states are: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The Compact seeks to fulfill its interstate mission through programs that:

- Expand postsecondary opportunity and success;
- Promote innovative approaches to improving institutional and system productivity;
- Improve affordability to students and states; and
- Enhance connectivity between higher education and the workplace.

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Increasing Educational Attainment in Ohio: An Imperative for Future Prosperity

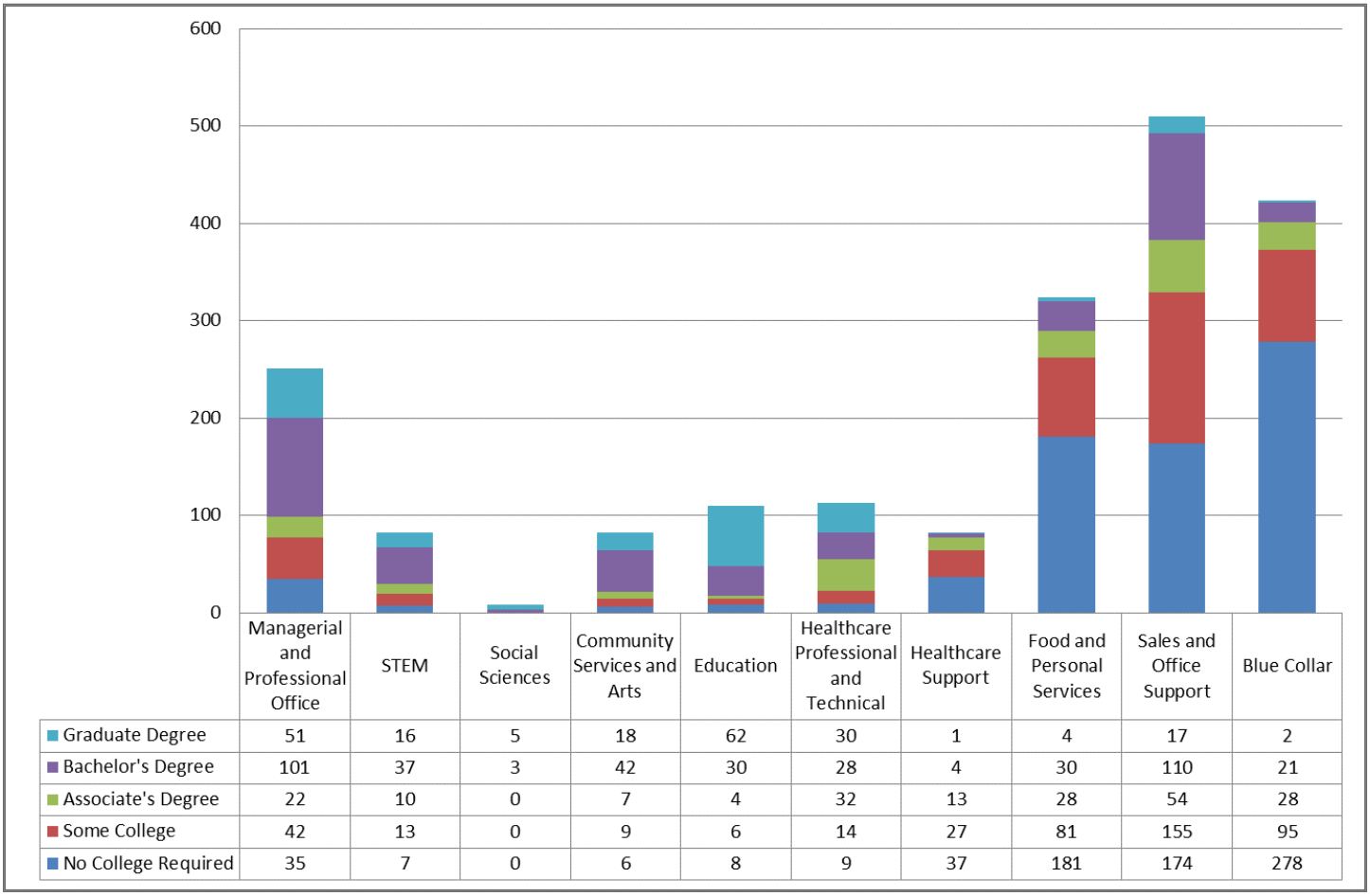
Technological advancement, global competition, and the emerging knowledge-innovation economy are driving an increasing demand for postsecondary education and training. In the United States, approximately 65 percent of all jobs in 2020 will require some level of postsecondary education, and the demand will reach 64 percent in Ohio.[1] The projected demand for postsecondary education in Ohio spans all occupational categories, including managerial, STEM, social sciences, community service, education, healthcare, and "blue collar" industries (see Figure 1).[2] However, the projected demand in Ohio exceeds the current supply of college-educated adults. Figure 2 indicates that 60 percent of adults in Ohio 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.[3] Figure 2 shows that progress has been made towards raising educational attainment in Ohio, as the percentage of adults with at least an associate degree increased from 25 percent in 1990 to 39 percent in 2014. (Data on postsecondary certificate attainment are currently unavailable.)

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 $6 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.[4] 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.[5] For example, health risk factors such as smoking are less prevalent among individuals who have a bachelor's degree or higher.[6] Residents of Ohio also benefit from higher education in terms of higher earnings and lower unemployment, compared to those with only a high school diploma.[7]

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

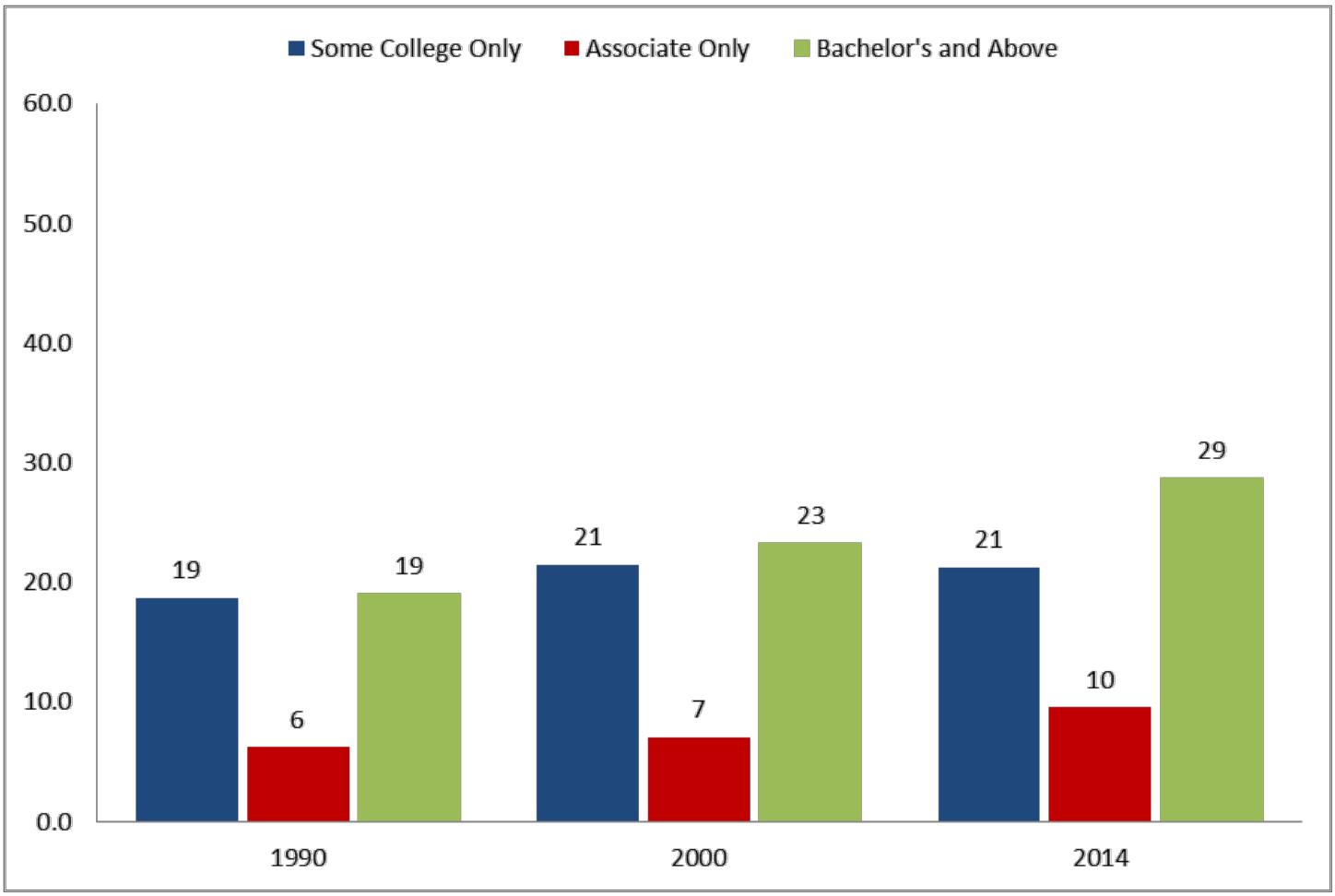
Figure 1. Ohio Job Openings by Occupation and Education Level between 2010 and 2020 (in thousands)



	Managerial and Professional Office	STEM	Social Sciences	Community Services and Arts	Education	Healthcare Professional and Technical	Healthcare Support	Food and Personal Services	Sales and Office Support	Blue Collar
Graduate Degree	51	16	5	18	62	30	1	4	17	2
Bachelor's Degree	101	37	3	42	30	28	4	30	110	21
Associate's Degree	22	10	0	7	4	32	13	28	54	28
Some College	42	13	0	9	6	14	27	81	155	95
No College Required	35	7	0	6	8	9	37	181	174	278

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 Ohio who have Attained a Postsecondary Credential



Source: U.S. Census Bureau. *1990 Census, 2000 Census, 2014 American Community Survey; Table B15001.*

Preparation

About these Metrics

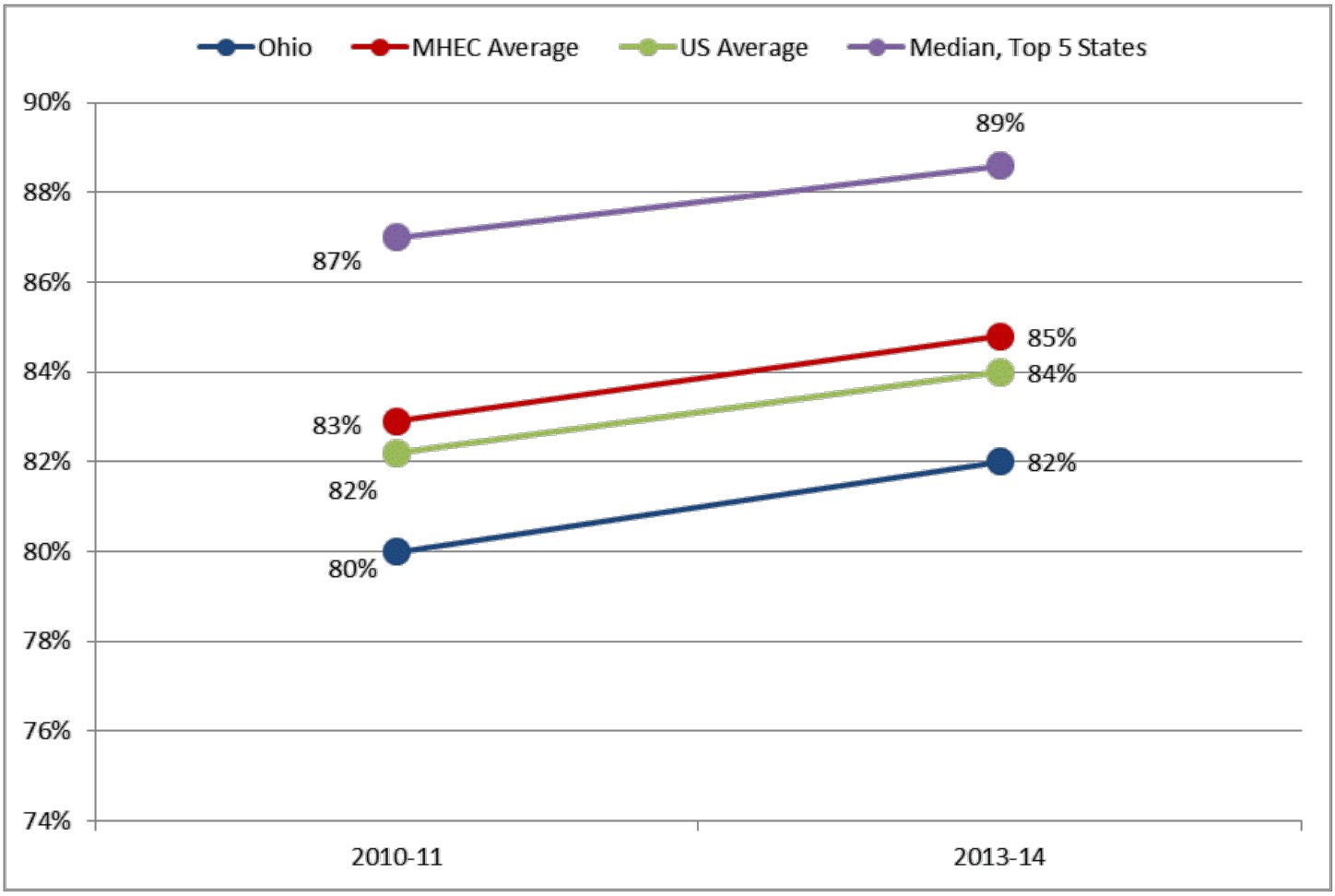
Academic preparedness is assessed by the high school graduation rate[8] and the proportion of students taking the ACT who meet college readiness benchmarks. Benchmark scores in English, mathematics, reading, and science delineate a 75 percent likelihood of attaining at least a "C" in first-year college-level courses.[9]

Performance in Ohio

Figure 3 shows that the percentage of 9th 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 averages.

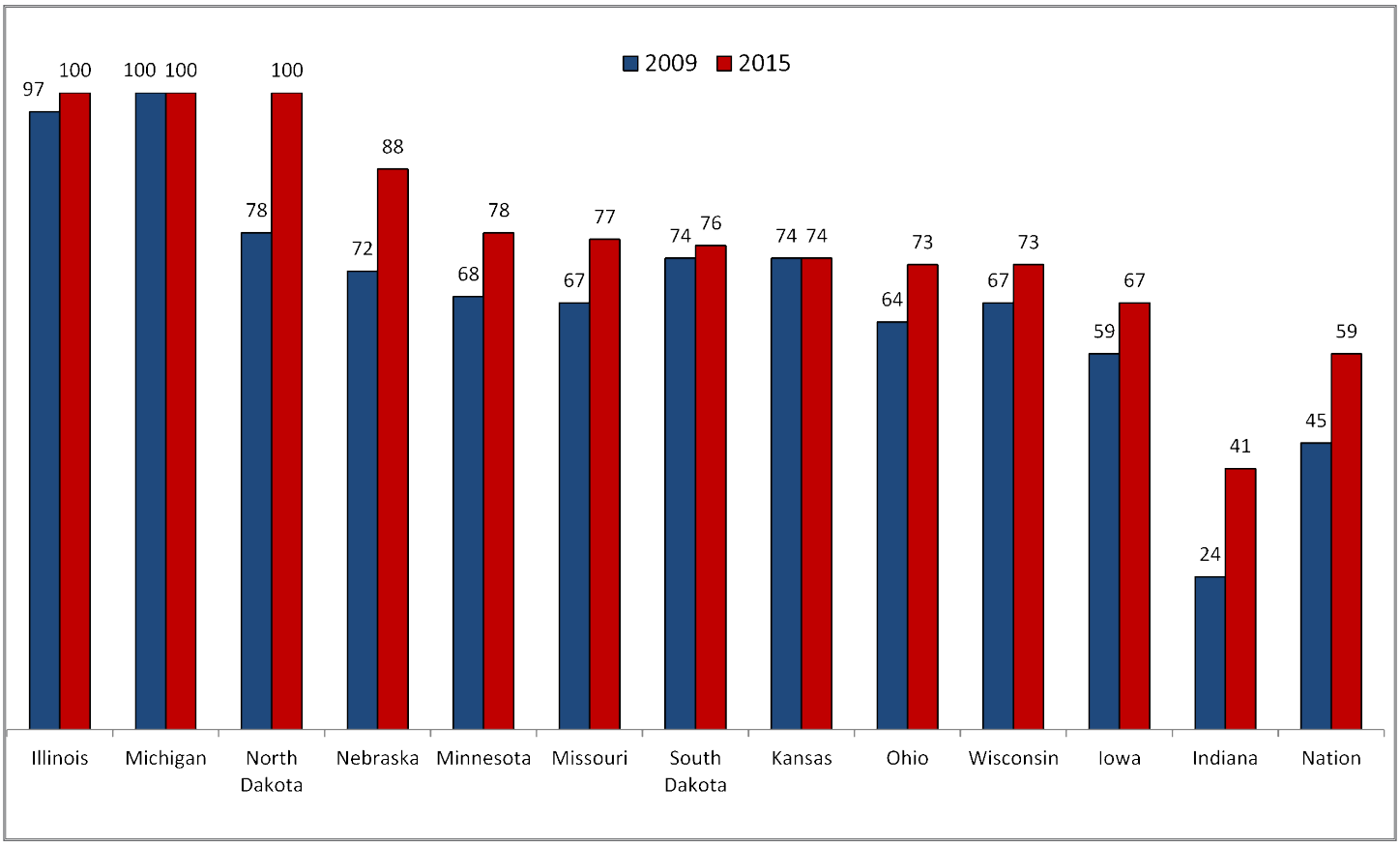
Figure 4a indicates that 73 percent of high school graduates in Ohio take the ACT. Figure 4b shows the percentage of ACT-tested high school graduates whose performance met or exceeded benchmark scores in English, mathematics, reading, and science. Performance was higher in Ohio than the regional average in each subject, though many students did not meet the performance benchmarks.[10]

Figure 3. Public High School Graduation Rate Over Time



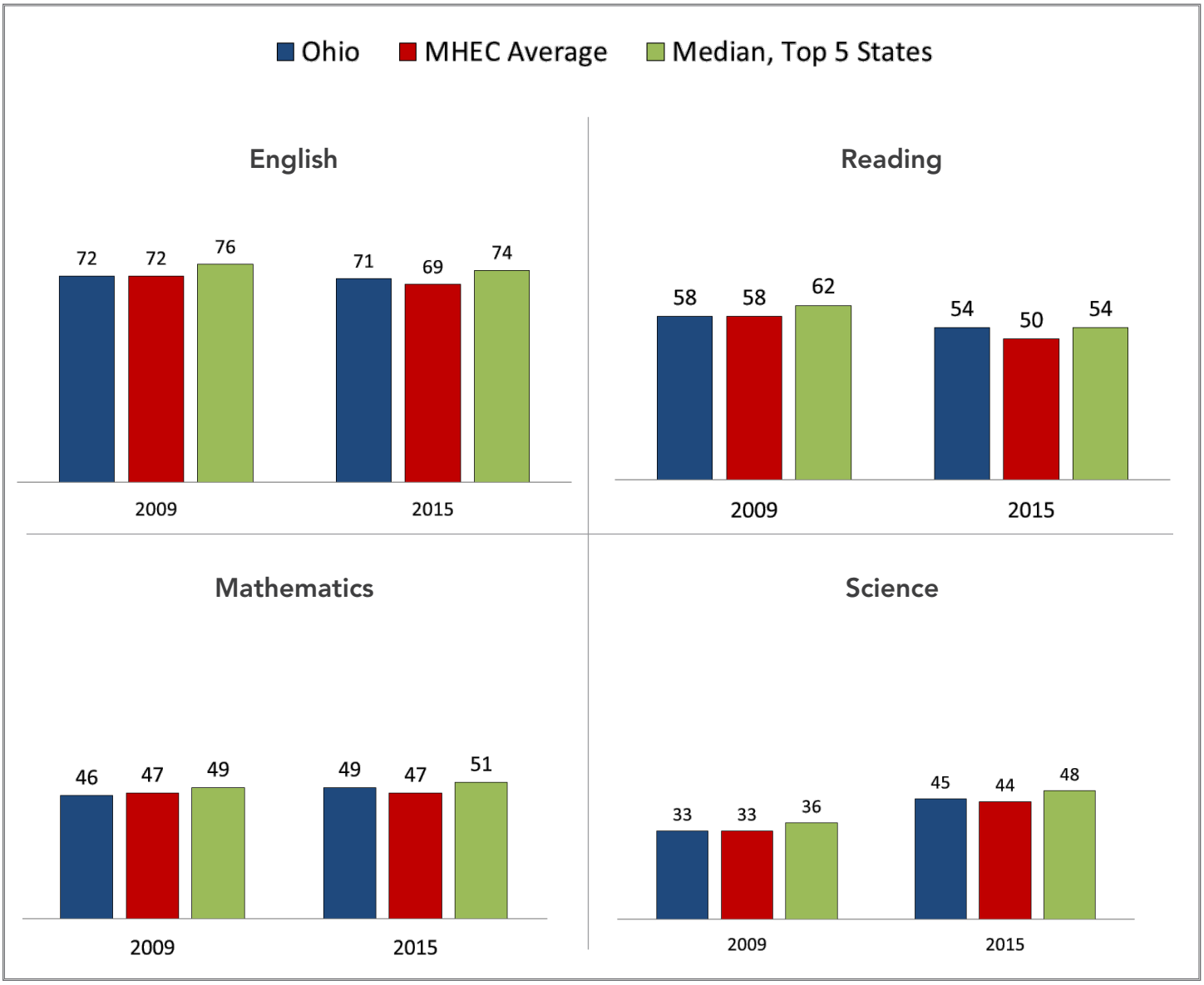
Source: U.S. Department of Education. (2015). *ED Data Express, ACGR.* Top 5 States 2013-14: IA, NE, NJ, TX, WI

Figure 4a. Percentage of High School Graduates Taking the ACT during 2009 and 2015



Source: ACT. (2015). *The Condition of College & Career Readiness, 2015.*

Figure 4b. Percentage of ACT-Tested High School Graduates Who Met or Exceeded College Readiness Benchmark Scores



Source: ACT. (2015). *The Condition of College & Career Readiness, 2015*. 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): 2015 English: IA, MN, WI, MO, KS; OH; 2015 Reading: MN, IA, OH, SD, WI, KS; 2015 Math: MN, WI, SD, OH, KS; 2015 Science: MN, WI, IA, SD, OH.

Participation

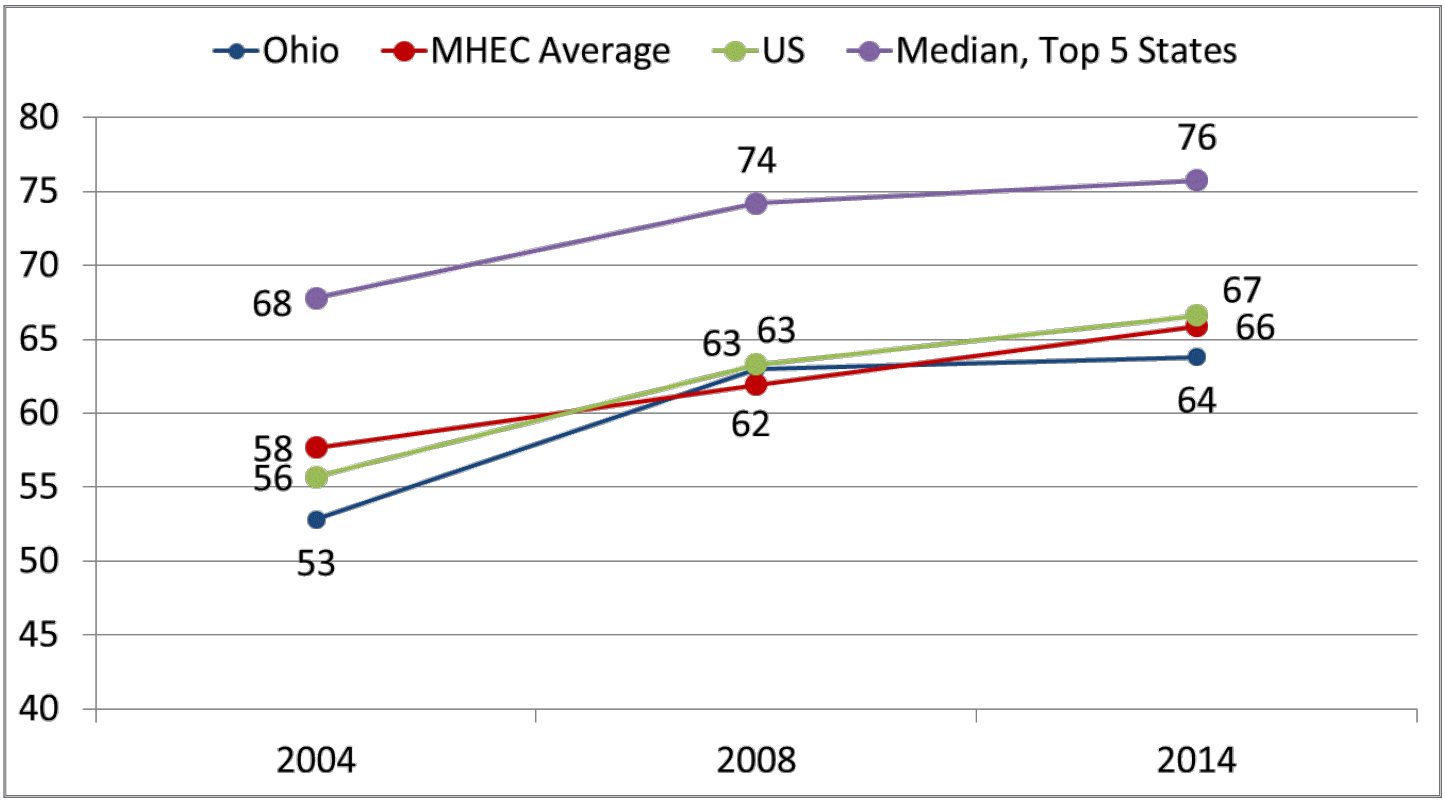
About these Metrics

Participation in postsecondary education is measured by (a) the direct enrollment rate, defined as the percentage of high school graduates who enroll in a postsecondary institution during the fall immediately following high school completion; and (b) the rate of enrollment among adults aged 25 to 49 who have not yet earned an associate degree.[11] The direct enrollment rate is of particular importance as 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.[12]

Performance in Ohio

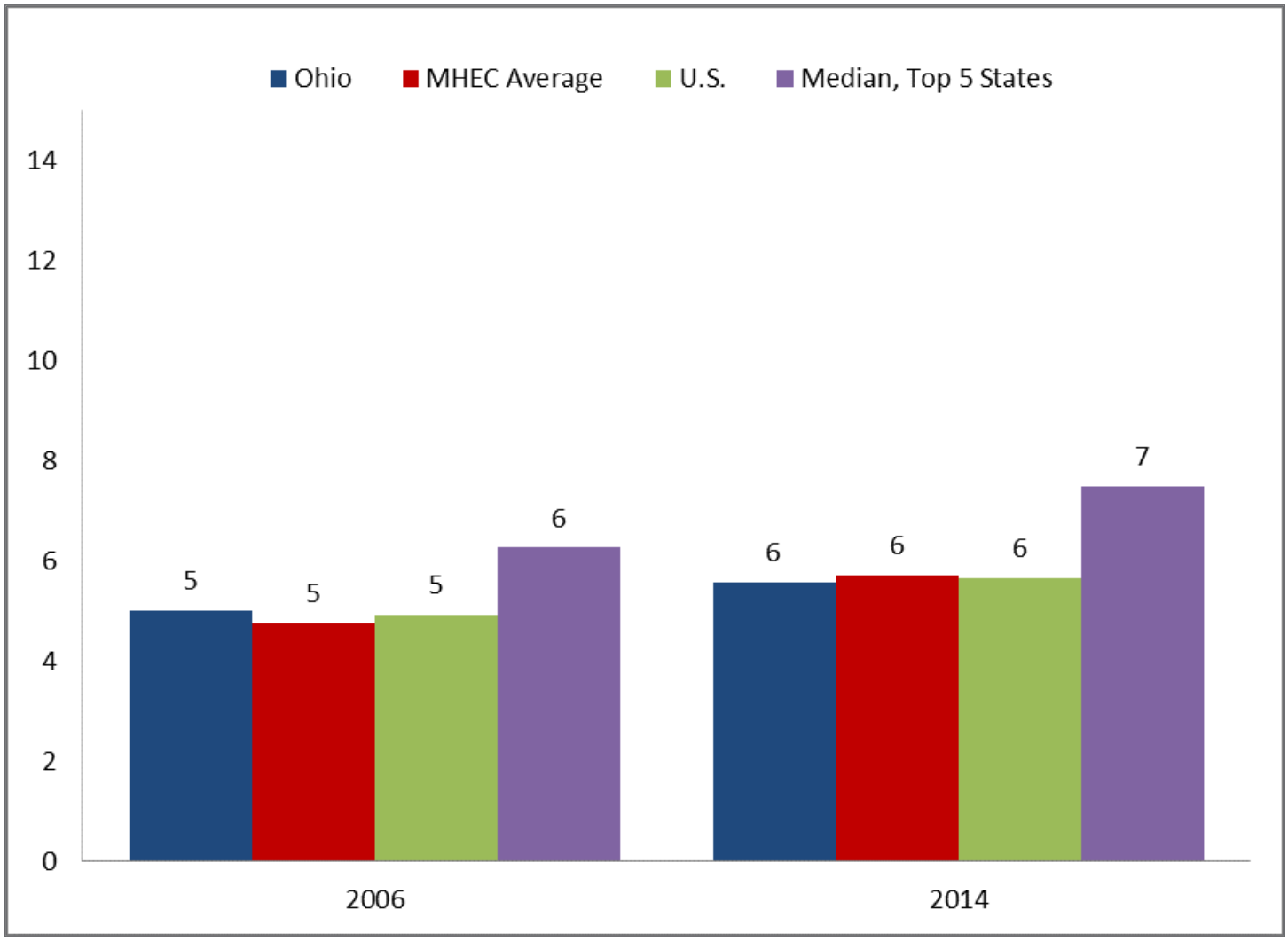
As indicated in Figure 5, approximately 64 percent of high school graduates in Ohio directly enroll in college, a rate that has increased over time but is below the regional and national averages. Figure 6 shows that Ohio's rate of college enrollment among older residents is equal to the regional and national averages.

Figure 5. Percentage of High School Graduates Going Directly to College



Source: Postsecondary Education Opportunity. (2012). *College Continuation Rates for Recent High School Graduates.* NCES IPEDS. (2015). *Fall Enrollment File; ef2014c.* 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, Total: CT, MA, MN, MS, NY

Figure 6. Percentage of Population Enrolled in College: Persons Aged 25-49 without an Associate Degree or Higher



Source: U.S. Census Bureau. (2006, 2014). *American Community Survey One-Year Public Use Microdata Sample.*

Affordability

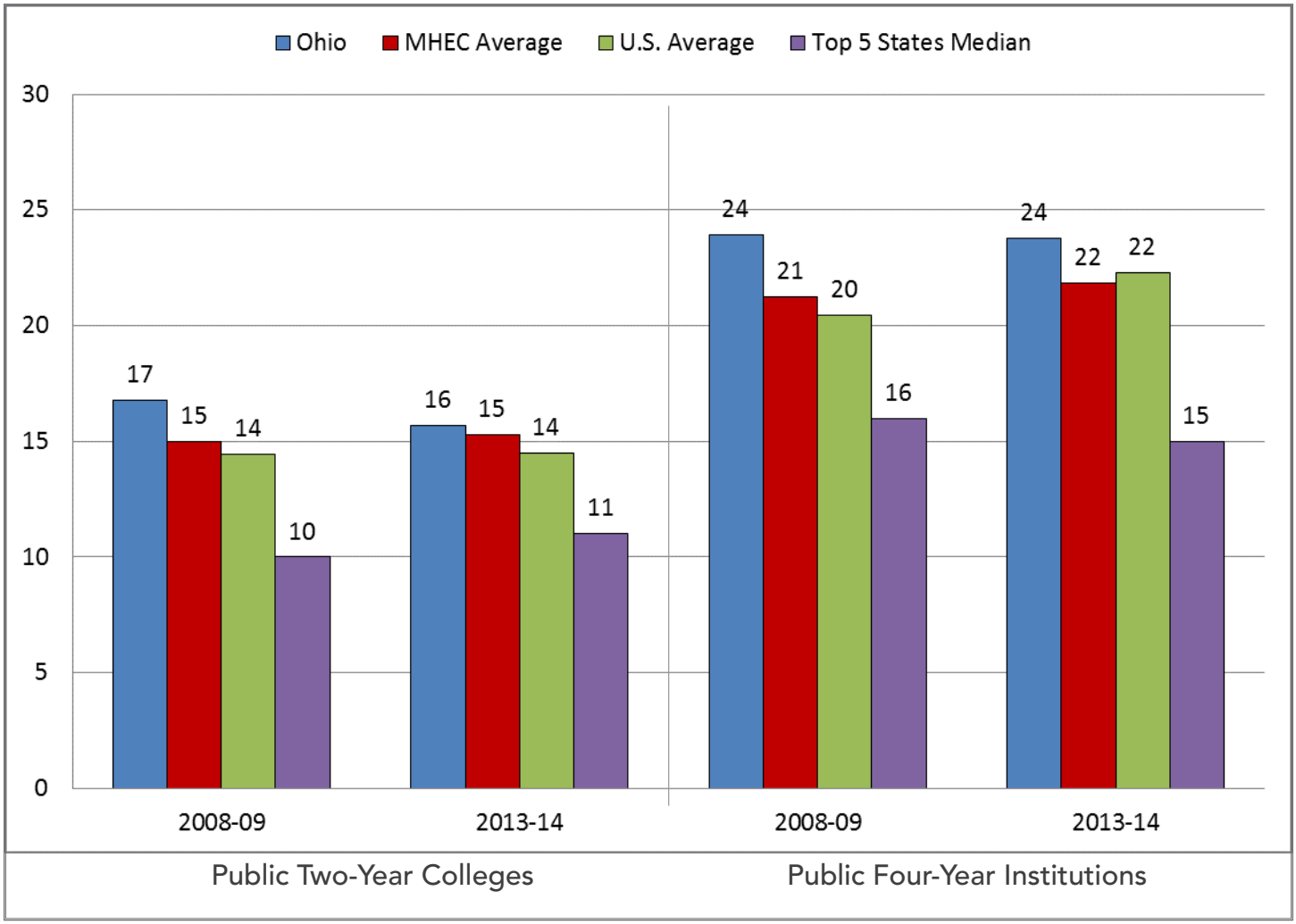
About these Metrics

College affordability is gauged by the net price as a percent of family income. A lower net price – the cost of tuition, room, and board after subtracting all forms of grant aid – has been associated with higher rates of college enrollment and completion, particularly among students from low-income families.[13]

Performance in Ohio

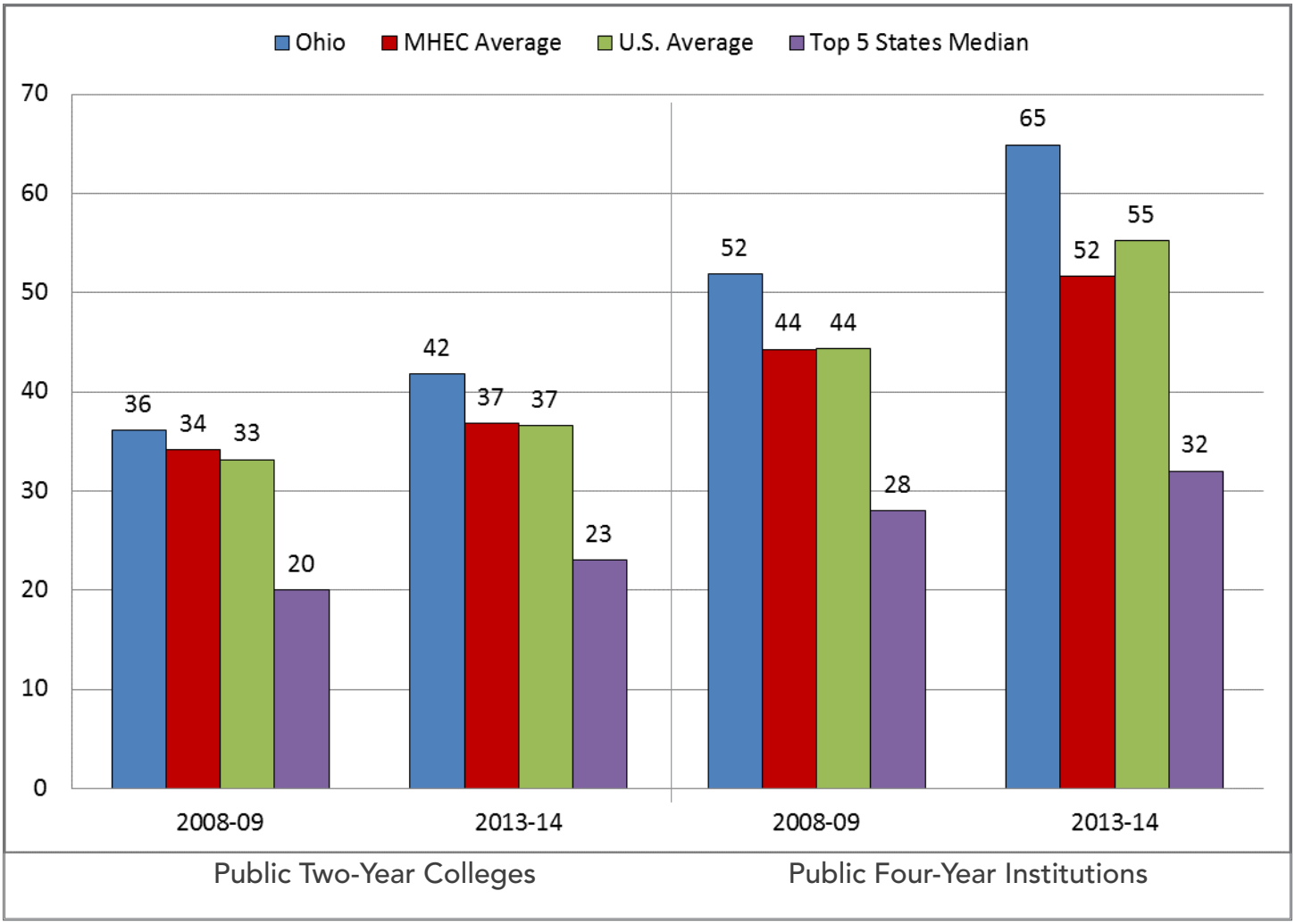
Figure 7a shows that the net price of college as a percentage of median family income has remained stable over time for public four-year enrollment but decreased for public two-year enrollment. Moreover, a comparison of Figures 7a and 7b indicates that college affordability in Ohio is highly contingent on family income. Families with median incomes in Ohio would need to allocate 24 percent of their incomes to pay for enrollment at a four-year college. In contrast, four-year college attendance for low-income students requires 65 percent of family income. Two- and four-year college enrollment for both income groups is less affordable in Ohio relative to the regional and national averages.

Figure 7a. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Two- and Four-Year Institutions: Families with Median Incomes



NCES IPEDS. (2005, 2015). Net price. U.S. Census Bureau. (2005, 2013). *American Community Survey (ACS) One-Year Public Use Microdata Sample (PUMS) File.* Top 5 States Public 2 Year, 2013-14: CT, HI, IL, UT, WY; Top 5 States Public 4 Year, 2013-14: AK, HI, ND, WA, WY.

Figure 7b. Percentage of Family Income Needed to Pay for Full-Time Enrollment at Public Two- and Four-Year Institutions: Families in the Lowest Income Quintile



NCES IPEDS. (2005 , 2015). *Net price. U.S. Census Bureau. (2005, 2013). American Community Survey (ACS) One-Year Public Use Microdata Sample (PUMS) File.* Top 5 States Public 2 Year, 2013-14: CT, HI, MD, UT, WY. Top 5 States Public 4 Year, 2013-14: AK, HI, ND, WA, WY.

Completion

About these Metrics

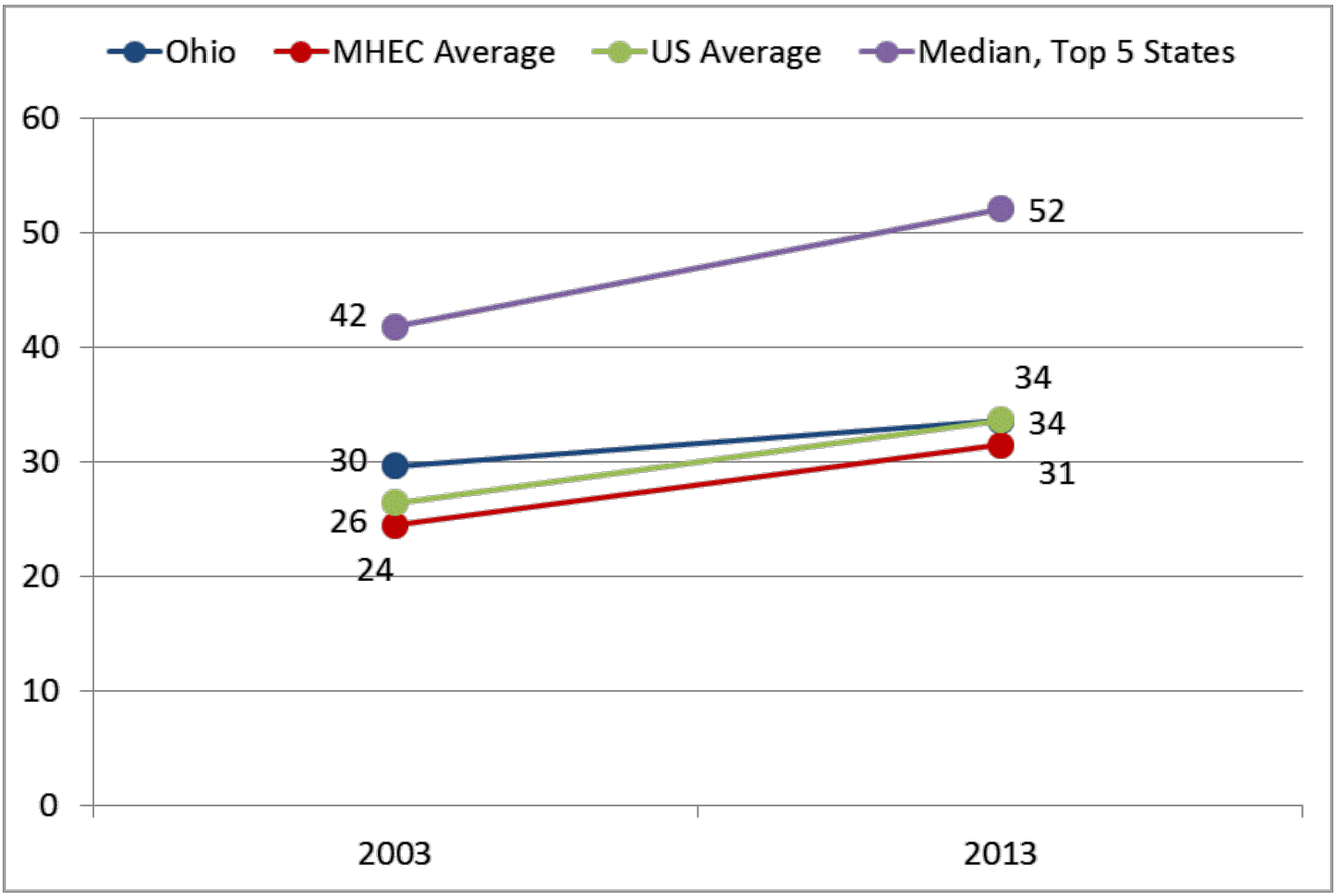
Performance in the completion dimension is measured by completion of a bachelor's degree within four years at four-year institutions and transfer-adjusted completion rates at both two- and four-year institutions. The traditional on-time graduation rate accounts for first-time, full-time, baccalaureate-seeking students who enter during the fall and graduate from their first institution. Transfer-adjusted completion rates are defined by the proportion of first-time, certificate/degree-seeking students in the fall 2008 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.

It is noteworthy that graduation rates do not 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.[14]

Performance in Ohio

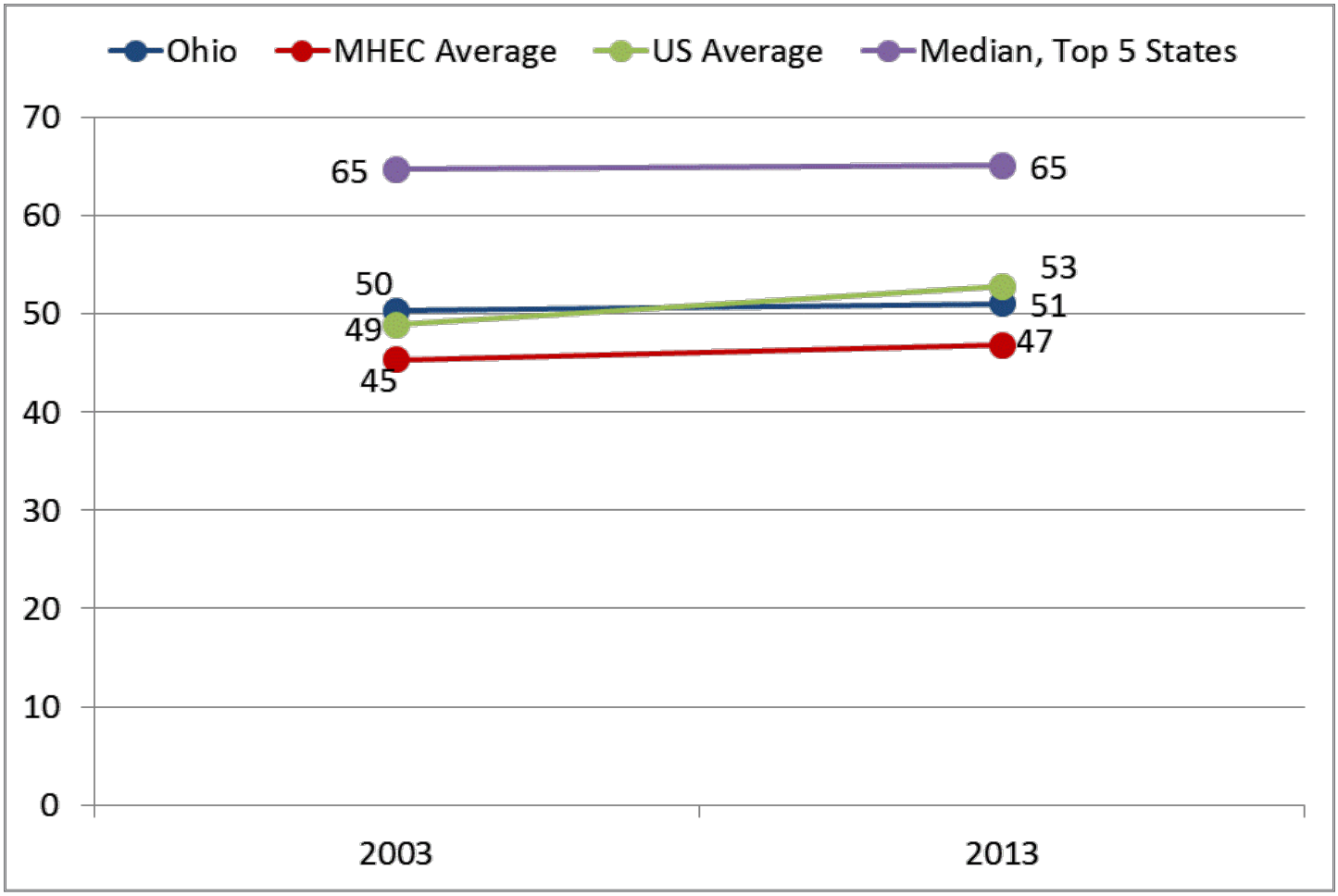
Figure 8a shows that 34 percent of first-time, full-time, baccalaureate-seeking students graduated within four years at public institutions in Ohio, which was higher than the regional average. Figure 8b demonstrates that the average four-year graduation rate among private not-for-profit colleges and universities was also above the regional average. A much larger percentage of students complete a certificate or degree within six years after accounting for enrollment intensity and transfer to another institution. According to Figure 9a, 35 percent of all students who started at a public two-year institution in Ohio completed a certificate or degree within six years, which is below the regional and national averages. The transfer-adjusted completion rate for students at public four-year institutions was 60 percent, which is below the regional and national averages. The transfer-adjusted completion rate for students at private not-for-profit institutions (70 percent) is also below the regional and national averages. A comparison of Figures 9a and 9b demonstrates that completion rates are highest among students who enroll full-time.

Figure 8a. Percentage of First-Time, Full-Time, Baccalaureate-Seeking Students who Graduated within Four Years at Public Four-Year Institutions



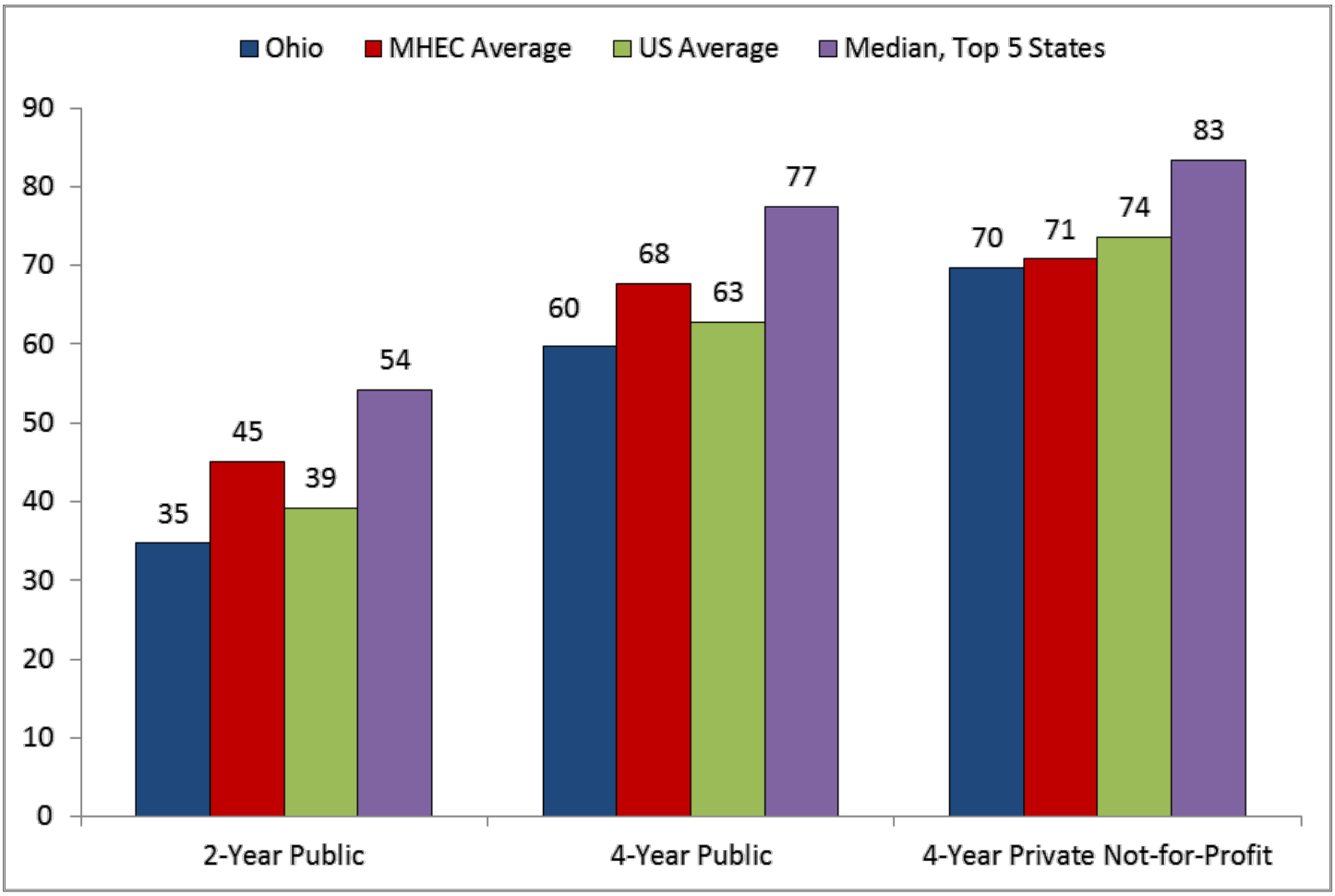
Source: NCES IPEDS. (2003, 2013). *Graduation Rate Files; gr2003 and gr2013.* Top 5 States, 2013: DE, NH, VT, VA, WA

Figure 8b. Percentage of First-Time, Full-Time, Baccalaureate-Seeking Students who Graduated within Four Years at Private Not-for-Profit Four-Year Institutions



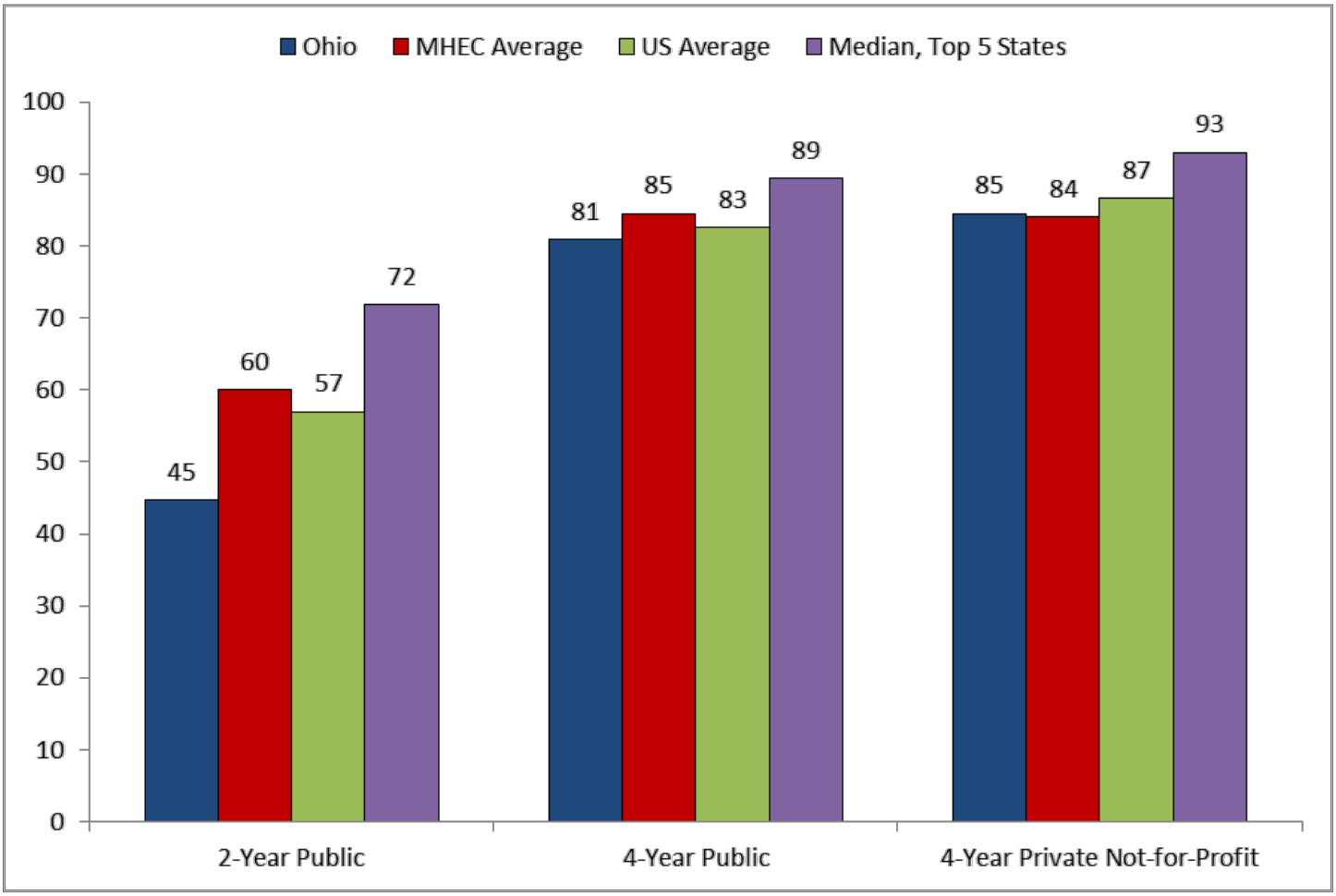
Source: NCES IPEDS. (2003, 2013). *Graduation Rate Files; gr2003 and gr2013.* Top 5 States, 2013: CT, MD, MA, MN, RI.

Figure 9a. Transfer-Adjusted Percentage of First-Time, Certificate/Degree-Seeking Students in the Fall 2008 Cohort who Completed a Certificate or Degree within Six Years by Starting Institution: Full- and Part-Time Students



Source: Shapiro, D., Dundar, A., Wakhungu, P., Yuan, X., & Harrell, A. (2015). *Completing College: A State-Level View of Student Attainment Rates* (Signature Report No. 8a). Herndon, VA: National Student Clearinghouse Research Center. Top 5 States, 2-Year Total: FL, MN, MT, ND, SD. Top 5 States, 4-Year Total: IA, NH, NJ, VT, VA. Top 5 States, 4-year Private Not-for-Profit: CT, MD, OR, RI, WA

Figure 9b. Transfer-Adjusted Percentage of First-Time, Certificate/Degree-Seeking Students in the Fall 2008 Cohort who Completed a Certificate or Degree within Six Years by Starting Institution: Full-Time Students



Source: Shapiro, D., Dundar, A., Wakhungu, P., Yuan, X., & Harrell, A. (2015). *Completing College: A State-Level View of Student Attainment Rates* (Signature Report No. 8a). Herndon, VA: National Student Clearinghouse Research Center. Top 5 States, 2-Year Total: FL, MN, MI, ND, SD. Top 5 States, 4-Year Total: IL, IA, MI, NH, VA. Top 5 States, 4-year Private Not-for-Profit: MD, MA, OR, RI, WA

Equity

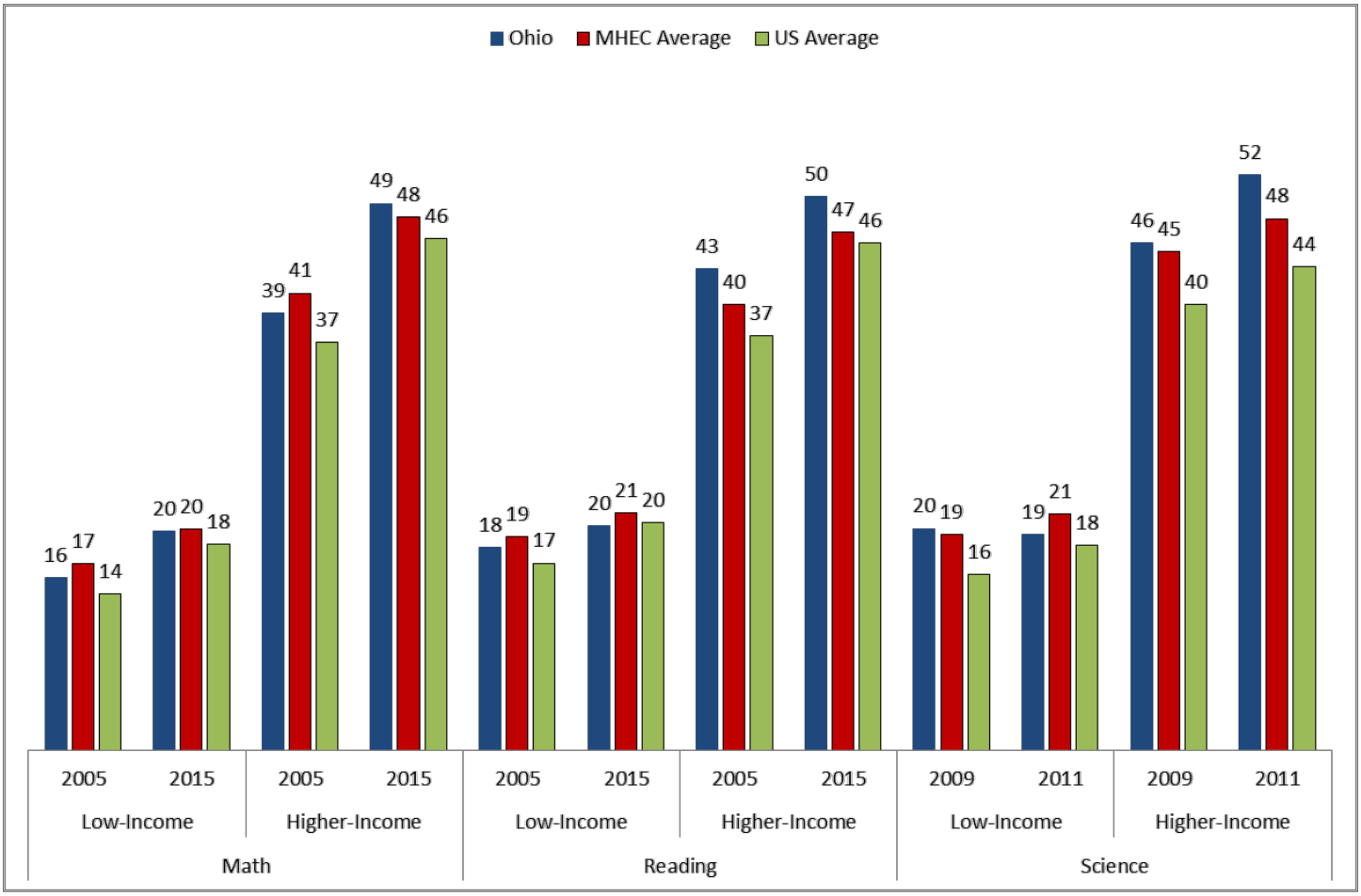
About these Metrics

Equity in postsecondary education is partly assessed by the extent to which academic preparedness, college enrollment, and completion are contingent on family income.[15] 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.[16] Eighth grade academic achievement has been found to be one of the most significant predictors of college readiness among 12th grade students.[17] The postsecondary enrollment gap is gauged by comparing college enrollment rates among dependent 18 to 24 year olds by family income in Ohio.[18] The completion gap is estimated by comparing six-year graduation rates among Pell grant recipients and non-Pell recipients at public four-year institutions.[19] 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.

Performance in Ohio

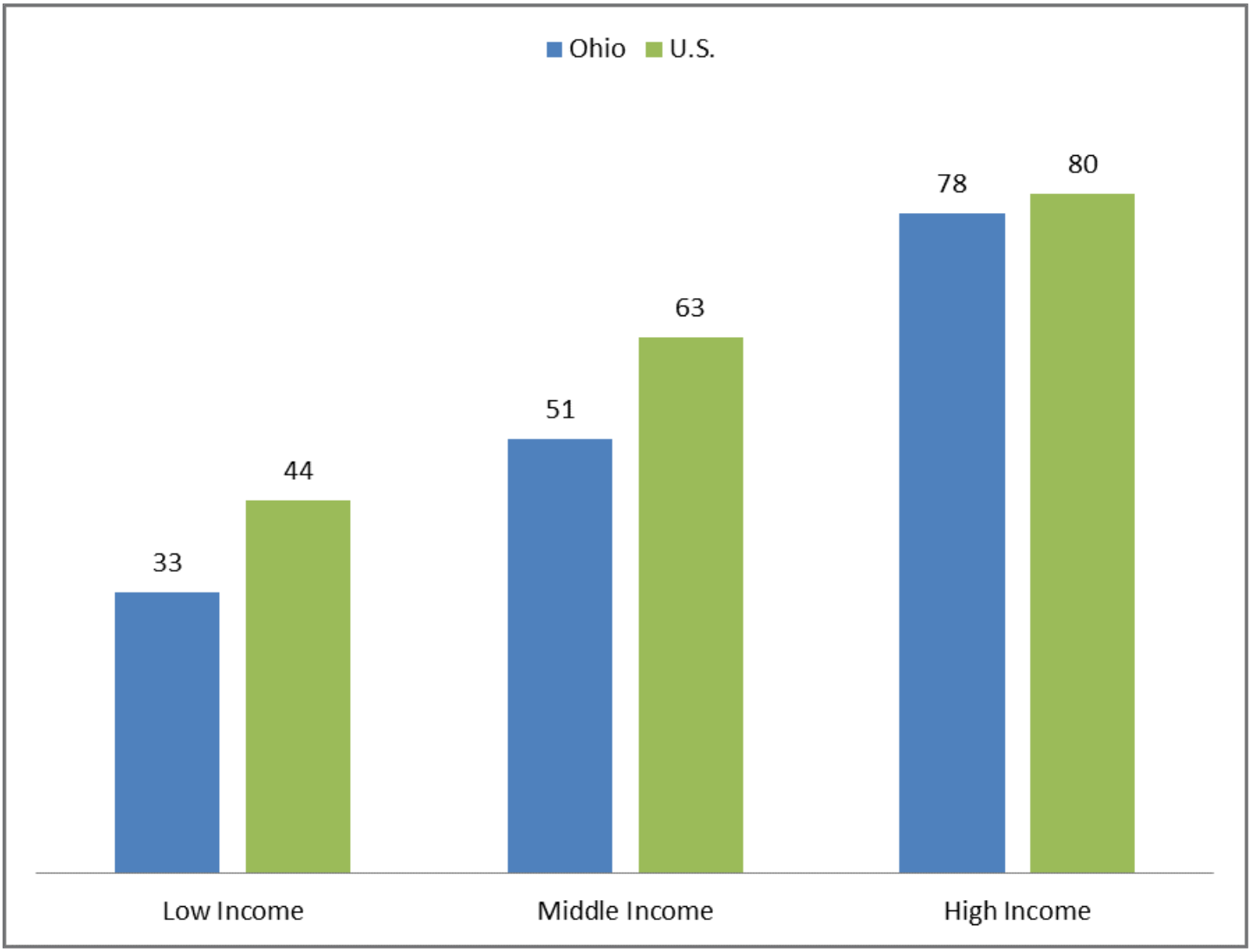
Figure 10 shows that fewer than 25 percent of low-income students in Ohio score at or above the proficiency level in math, reading, or science on the National Assessment of Educational Progress, which is well below the achievement levels of higher-income students. According to Figure 11, the rates of college enrollment among low- and middle-income 18 to 24 year olds in Ohio are considerably lower than the enrollment rate for 18 to 24 year olds from high-income families. 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 (see Figure 12).

Figure 10. 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



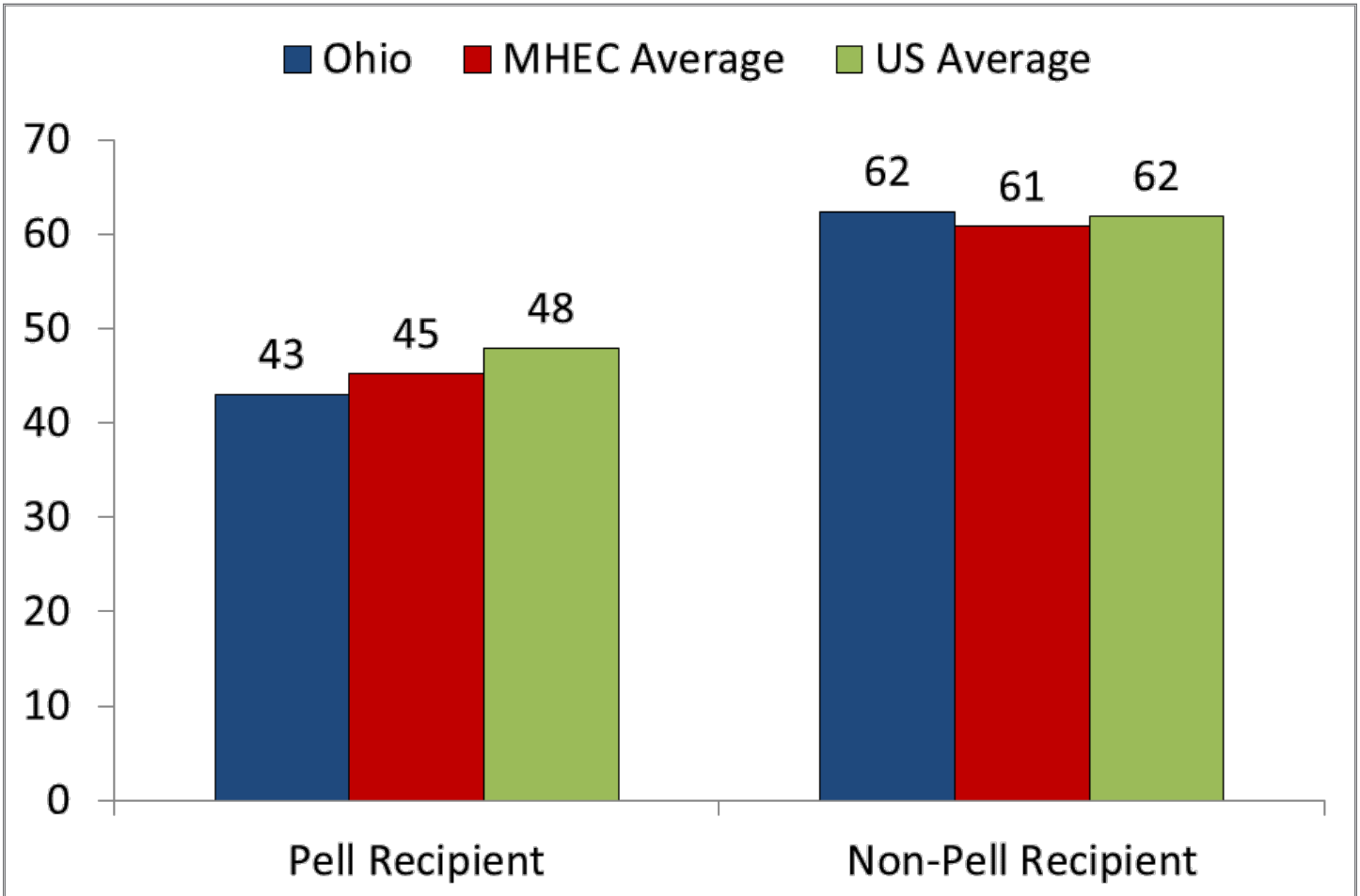
Source: National Center for Education Statistics. (2015). *National assessment of educational progress: 2015*. The NAEP in science was only administered in 2009 and 2011.

Figure 11. Percentage of Dependent 18-24 Year Olds who have Enrolled in College by Family Income, 2011-2015



Source: U.S. Census Bureau, 2011-2015 Current Population Survey

Figure 12. 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



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

Percent of undergraduate students who received Pell grant during fall 2007

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

Finance

About these Metrics

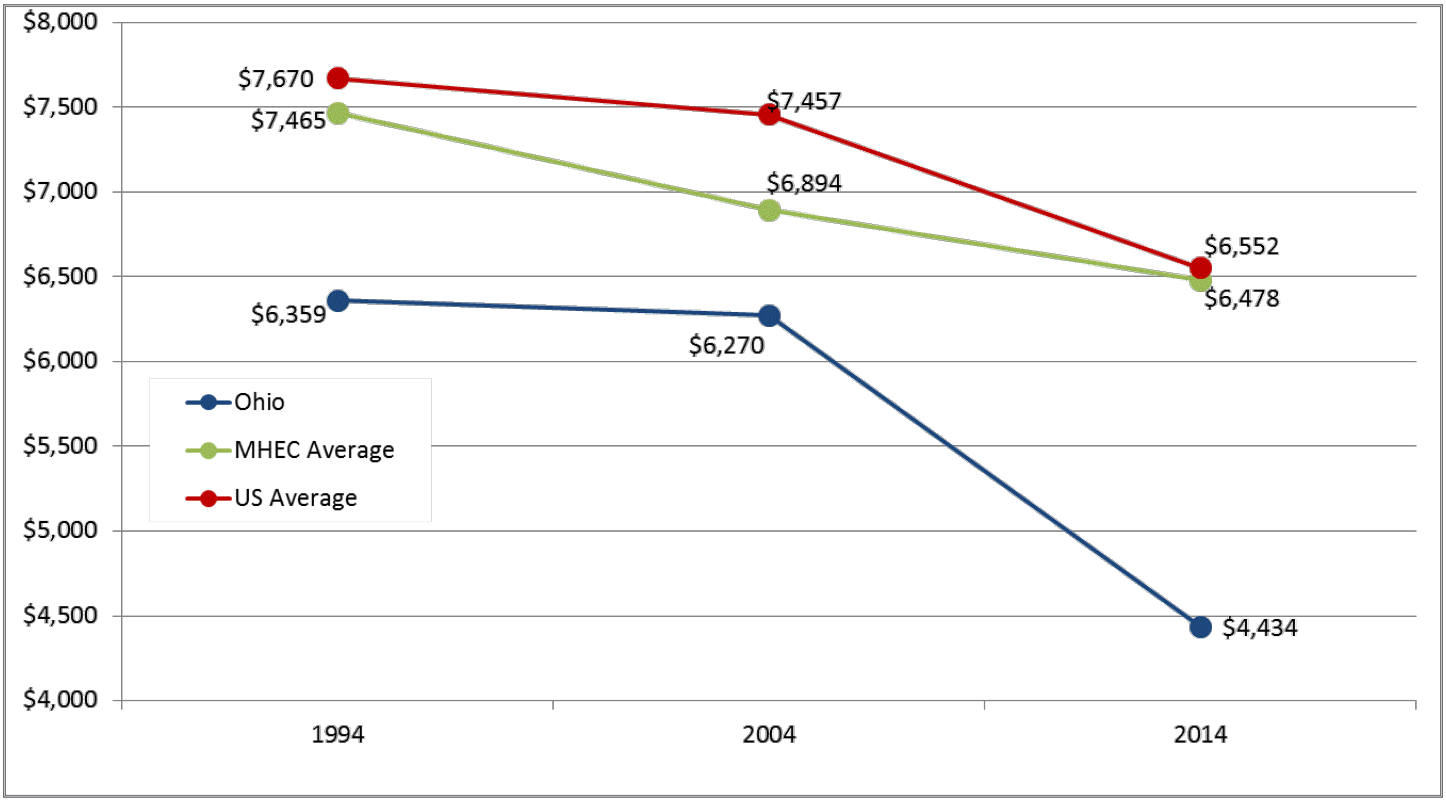
Several indicators portray the state's commitment to funding public higher education and supporting need-based aid programs. The state's financial commitment to higher education is examined in terms of (a) state and local educational appropriations for higher education per FTE student20 and (b) state and local educational appropriations as a percent of total educational revenue for public postsecondary institutions. Another set of indicators focuses on state and local appropriations 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.[21]

Need-based aid funding 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.[22]

Performance in Ohio

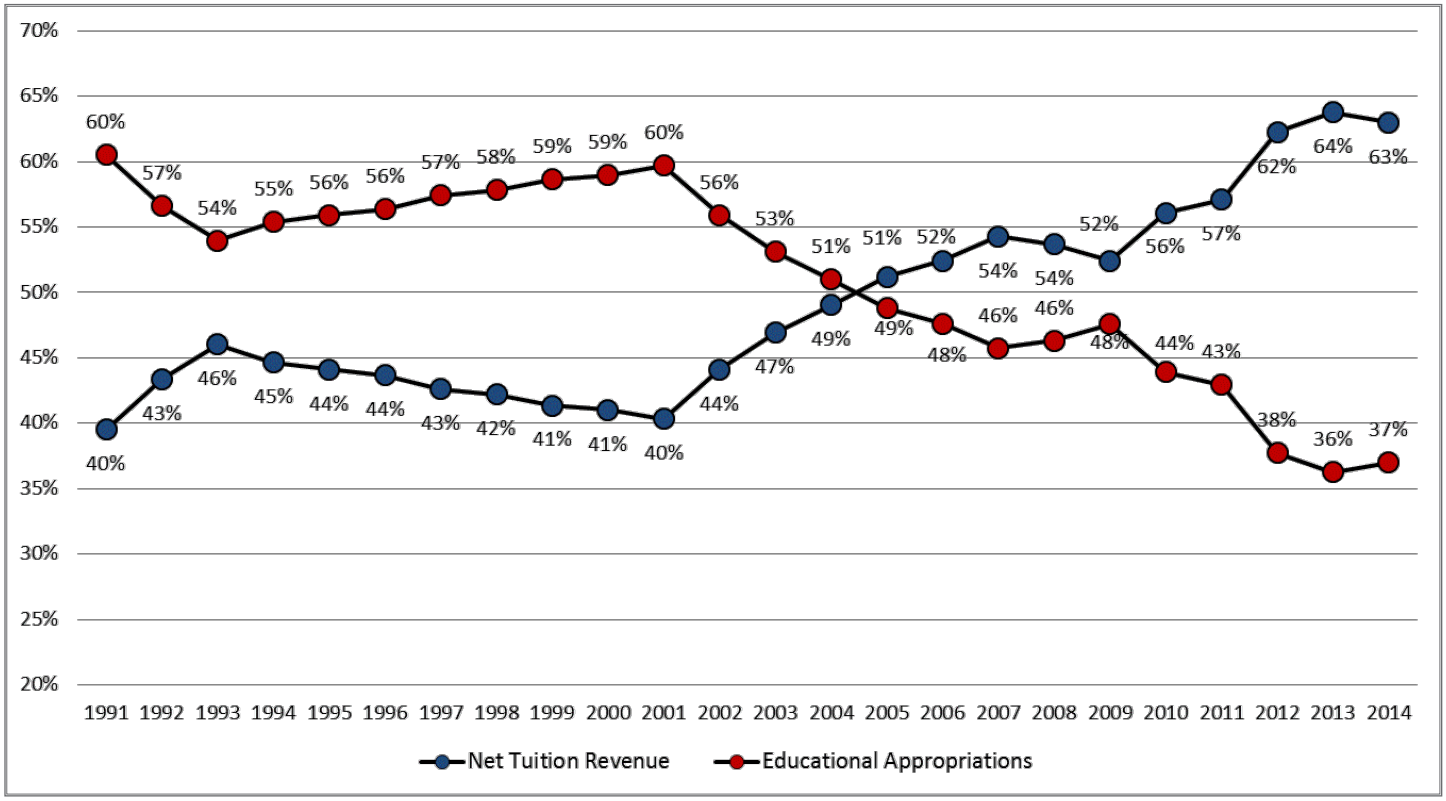
Figure 13 shows that public funding for higher education decreased in Ohio over the past 10 years, and funding is below the regional and national averages. Moreover, the student's share of the cost of enrollment currently exceeds the state's share, as net tuition revenue constitutes a relatively larger proportion of revenue among public colleges and universities (see Figure 14). Figures 15a-c depict state and local appropriations relative to educational expenditures for each type of institution in the MHEC states. State and local appropriations in Ohio constitute 33 percent of education and related expenditures at public research universities, which is below the national average of 43 percent. At master's universities, state and local appropriations reflect 34 percent of educational expenditures, which is below the national average of 46 percent. At two-year colleges, state and local appropriations are equivalent to 52 percent of educational expenditures, which is below than the national average of 61 percent. Finally, Figure 16 indicates that state need-based grant aid per FTE student in Ohio has decreased over the past decade and is below the regional and national averages. Ohio allocates 67 percent of its grant aid based on financial need, which is above the regional average.

Figure 13. State and Local Educational Appropriations for Higher Education per FTE Student



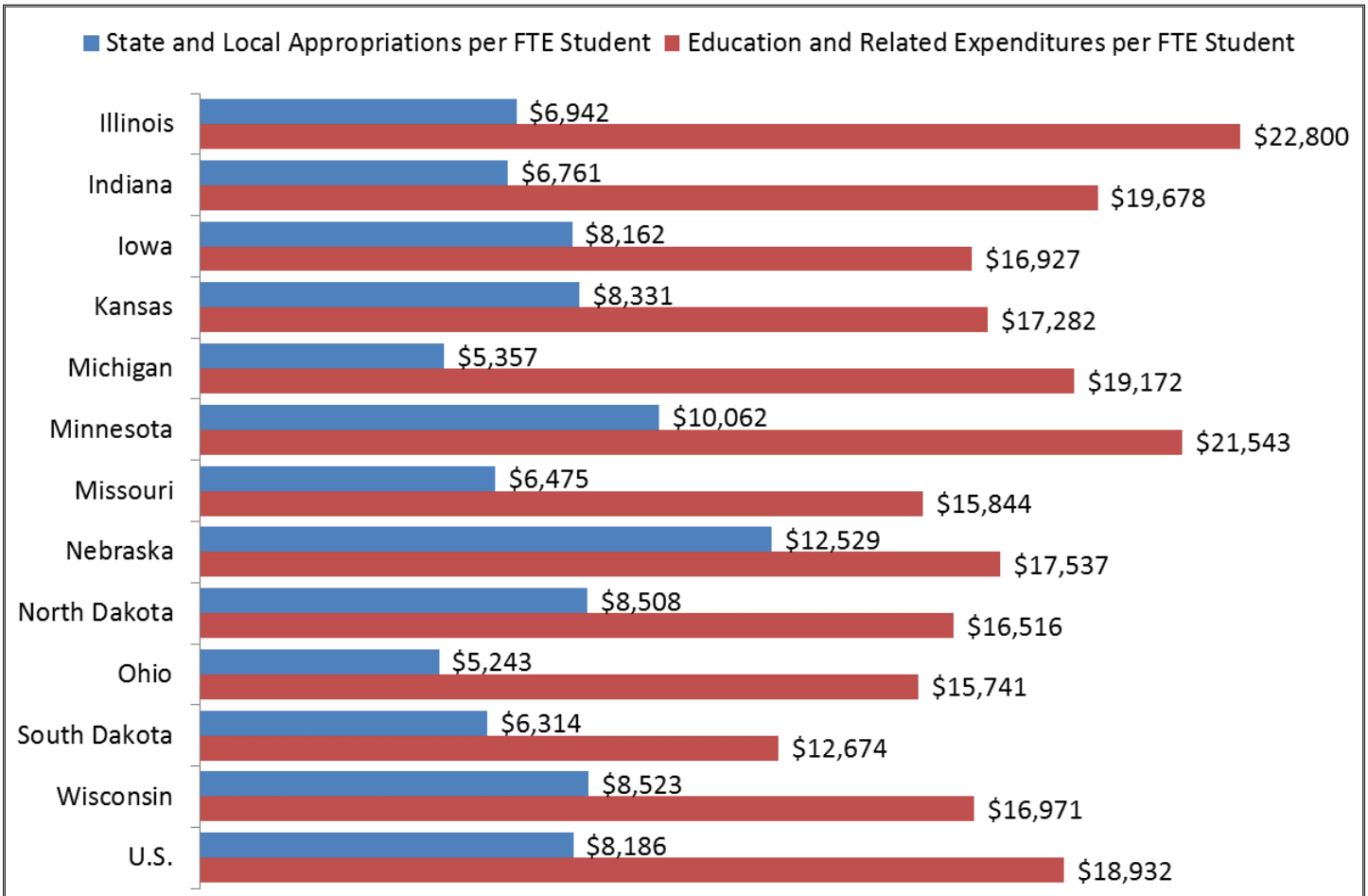
Source: SHEEO. (2015). *SHEF FY 14.* Estimates have been adjusted for inflation.

Figure 14. State and Local Educational Appropriations and Net Tuition Revenue as a Percentage of Total Educational Revenue for Public Postsecondary Institutions in Ohio (per FTE Student)



Source: SHEEO. (2015). *SHEF FY 14.*

Figure 15a. Public Research Universities: State and Local Appropriations Relative to Educational Expenditures Per FTE Student during 2013-14

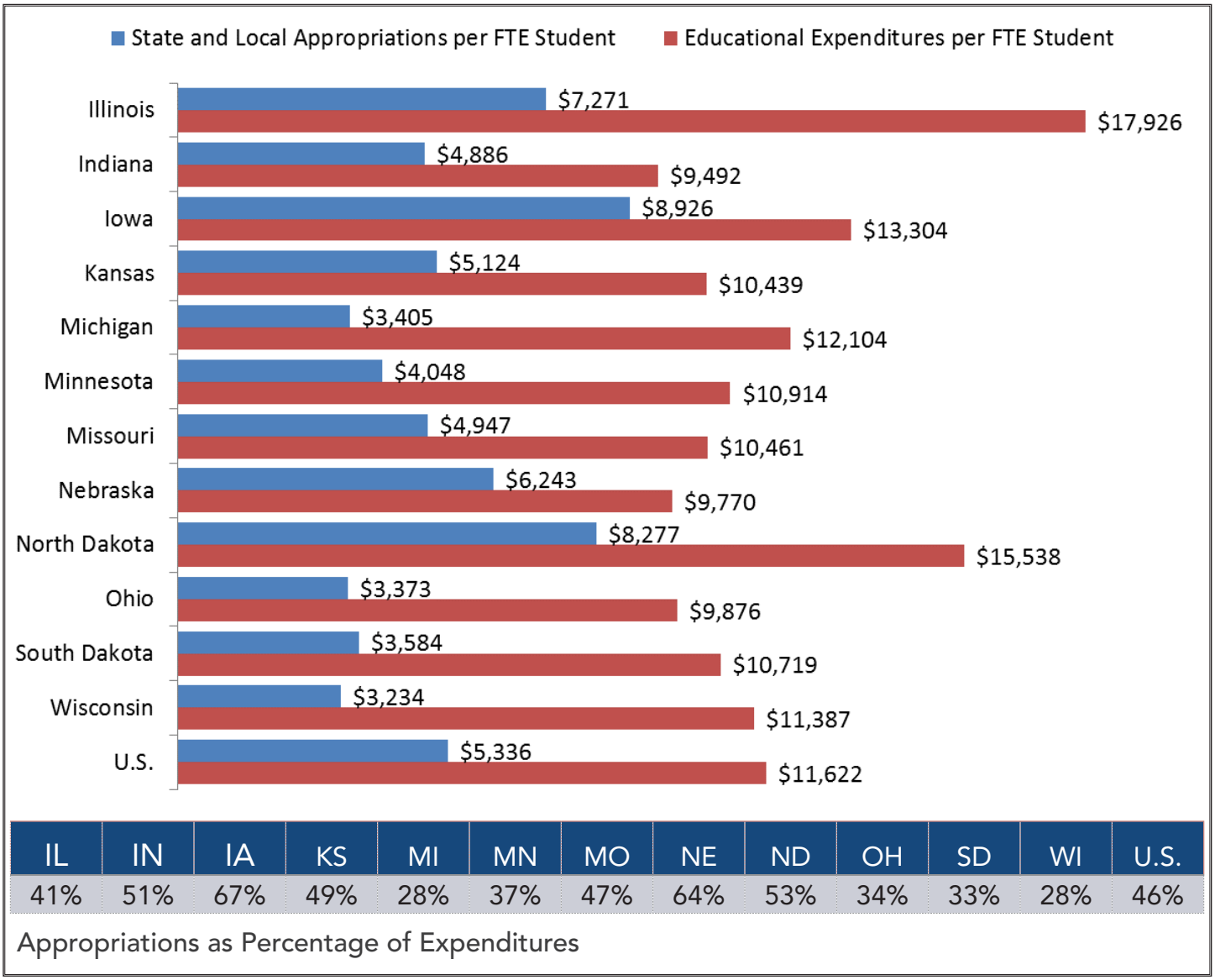


IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI	U.S.
30%	34%	48%	48%	28%	47%	41%	71%	52%	33%	50%	50%	43%

Appropriations as Percentage of Expenditures

Source: NCES IPEDS. (2014). *Finance Files; f1314_f1a, f1314_f2.*

Figure 15b. Public Master's Universities: State and Local Appropriations Relative to Educational Expenditures Per FTE Student during 2013-14

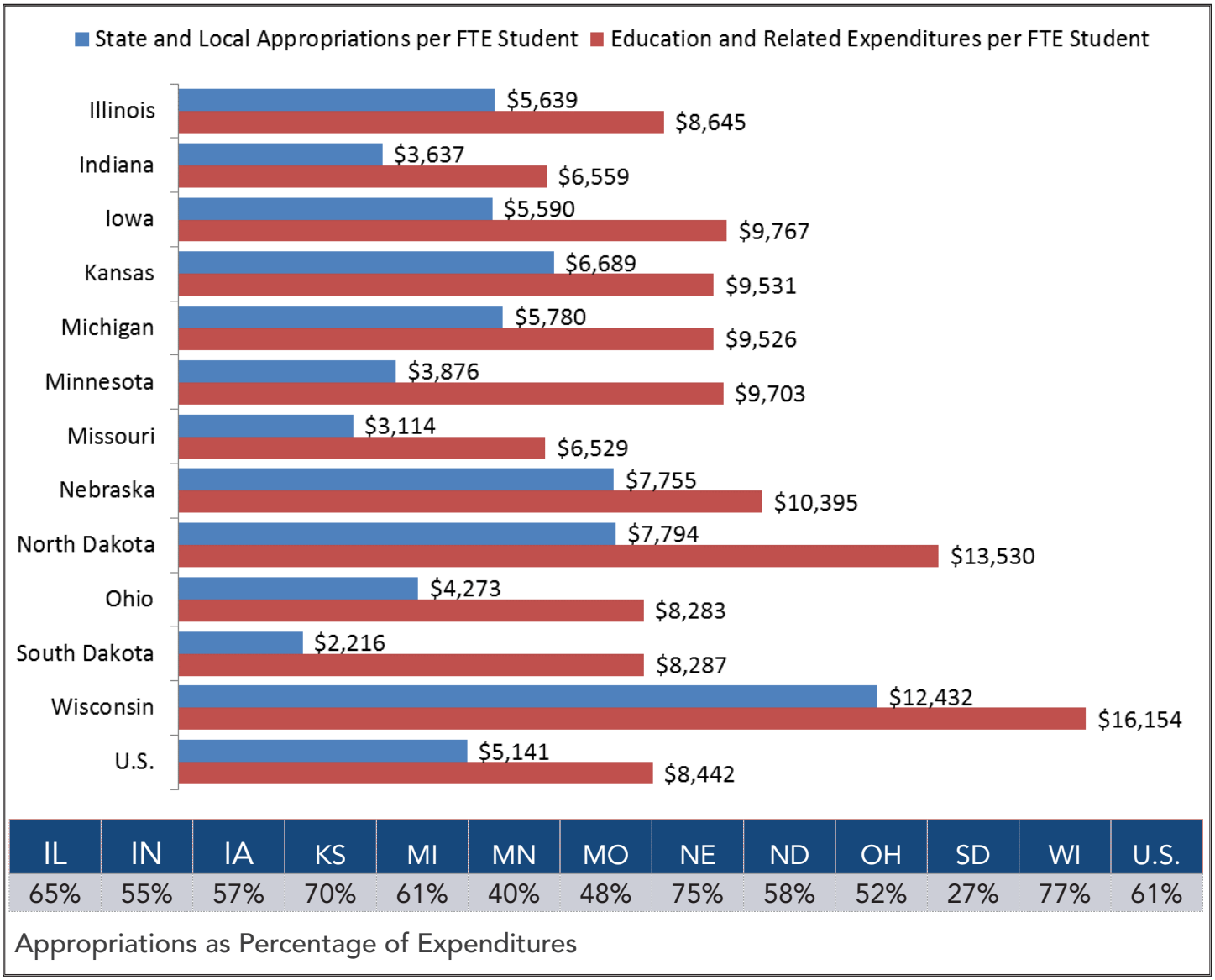


IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI	U.S.
41%	51%	67%	49%	28%	37%	47%	64%	53%	34%	33%	28%	46%

Appropriations as Percentage of Expenditures

Source: NCES IPEDS. (2014). *Finance Files; f1314_f1a, f1314_f2.*

Figure 15c. Public Associates Colleges: State and Local Appropriations Relative to Educational Expenditures Per FTE Student during 2013-14

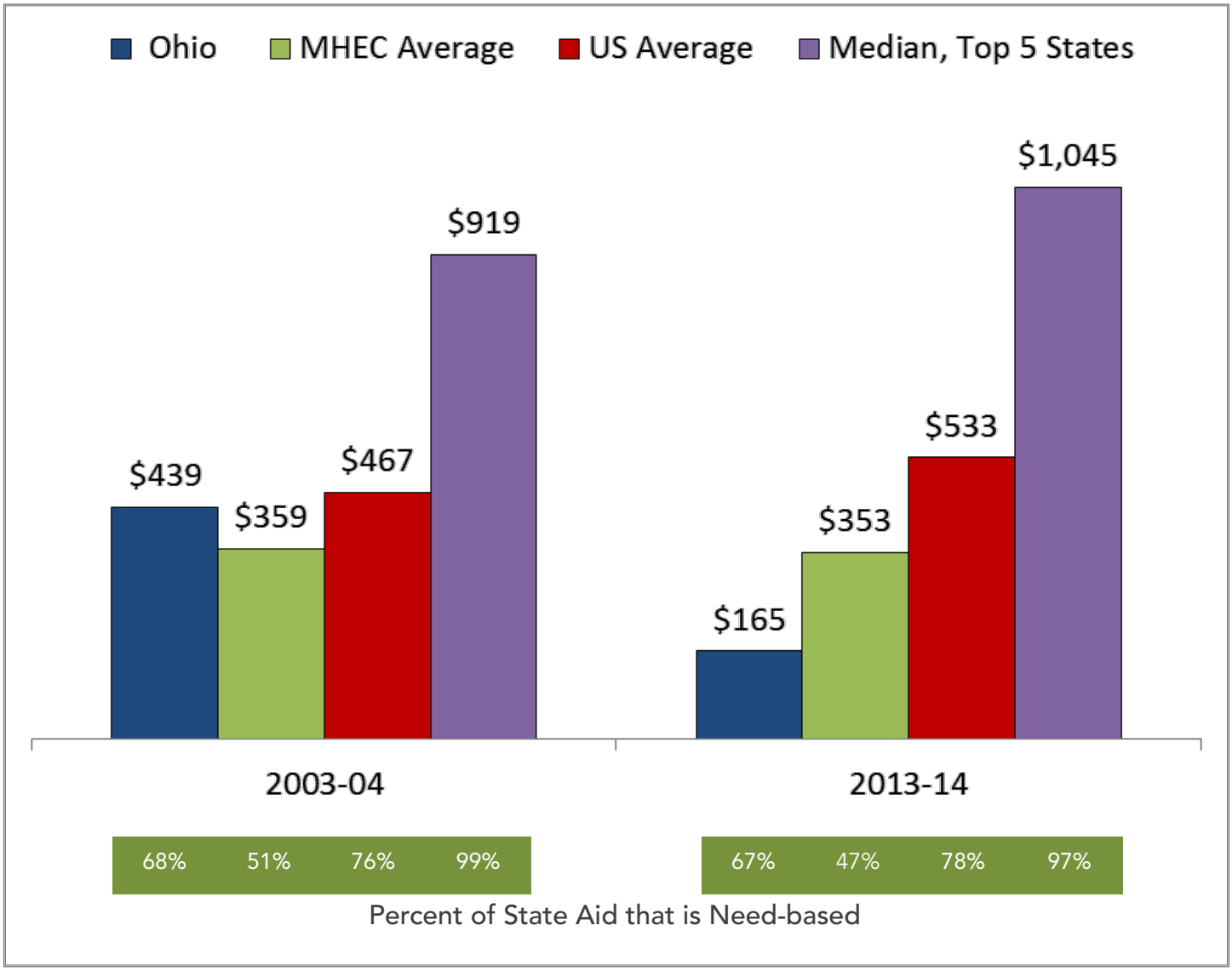


IL	IN	IA	KS	MI	MN	MO	NE	ND	OH	SD	WI	U.S.
65%	55%	57%	70%	61%	40%	48%	75%	58%	52%	27%	77%	61%

Appropriations as Percentage of Expenditures

Source: NCES IPEDS. (2014). *Finance Files; f1314_f1a, f1314_f2.*

Figure 16. State Need-based Grant Aid per FTE Undergraduate Student and Percent of Aid Defined as Need-Based



Source: NASSGAP. (2014).45th Annual Survey. NASSGAP. (2004). 35th Annual Survey. The 2004 estimates have been adjusted for inflation.

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] Lumina Foundation. (2014). *States with higher education attainment goals. Retrieved from http://strategylabs.luminafoundation.org/wp-content/uploads/2013/10/State-Attainment-Goals.pdf*

[4] National Center for Higher Education Management Systems and CLASP. (2016). *Calculating the economic value of increasing college credentials by 2025.*

[5] College Board. (2010). *Education pays 2010.* Retrieved from http://trends.collegeboard.org/downloads/Education_Pays_2010.pdf

[6] U.S. Department of Health and Human Services. (2011). *Health, United States, 2010.* Retrieved from http://www.cdc.gov/nchs/data/hus/hus10.pdf#010

[7] MHEC. (2013). *Advancing Postsecondary Opportunity, Completion, and Productivity.* Retrieved from http://www.mhec.org/research

[8] 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/

[9] American College Testing. (2010). *What are ACT's college readiness benchmarks?* Retrieved from http://www.act.org/research/policymakers/pdf/benchmarks.pdf

[10] Caution should be exercised when interpreting changes over time in the percentage of high school graduates who meet ACT college readiness benchmarks. In 2013, the performance benchmark in science was lowered from 24 to 23, and the benchmark in reading was raised from 21 to 22. See ACT. (2013). Updating the ACT college readiness benchmarks. Retrieved from https://www.act.org/research/researchers/reports/pdf/ACT_RR2013-6.pdf
In 2013, ACT also began including scores from both standard and extended time tests. See ACT (2014). ACT profile reports. Retrieved from https://www.act.org/newsroom/data/2014/

[11] 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.

[12] Bozick, R., & DeLuca, S. (2005). Better late than never? Delayed enrollment in the high school to college transition. *Social Forces, 84*(1), 527-550.

[13] 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

[14] For a perspective on measures of institutional effectiveness and efficiency, see Horn, A. S. (2015). *The effectiveness and efficiency of postsecondary institutions in the United States: 2010-2012 baseline results.* Retrieved from http://www.mhec.org/sites/mhec.org/files/201507EENational.pdf

[15] Additional equity indicators based on racial and ethnic backgrounds will be available online at http://www.mhec.org/research.

[16] 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 www.fns.usda.gov/school-meals/income-eligibility-guidelines

[17] American College Testing. (2008). *The forgotten middle*. Retrieved from http://www.act.org/research/policymakers/pdf/ForgottenMiddle.pdf

[18] 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.

[19] 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.

[20] 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).

[21] 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.

[22] See endnote 13.

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