MHEC
POLICY BRIEF

Evaluating State Funding Effort for Higher Education

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Higher education makes important contributions to the betterment of society and to the lives of individuals. On a societal level, higher education supplies an educated citizenry and workforce. For individuals, higher education provides an opportunity for personal development, fulfillment, and economic mobility. States play a large role in helping public colleges and universities fulfill these promised benefits: in 2017, states spent more than $86 billion on appropriations to higher education (Laderman & Carlson, 2018). However, the extent of financial support for higher education in each state varies greatly. Due to the importance of, and variation in, state funding for higher education, funding levels have received a significant amount of attention both in the scholarly literature and in the popular press.

The relative effort of states in funding higher education can be evaluated using a variety of metrics. In the annual State Higher Education Finance (SHEF) report, several ways of assessing state effort are presented, such as by analyzing higher education spending relative to personal income, population, or total tax revenue. Each measure highlights different aspects of the general concept of state higher education funding effort. Within the empirical literature, state effort has been examined using several of these measures. This research has revealed a number of factors that help determine an individual state's effort, finding that decisions about state funding for higher education are made in the context of multiple external factors, including current and projected economic conditions, competing priorities across the state, cultural and ideological shifts in the state population, political and higher education characteristics of the state, and state tax structures. In this report, changes in state funding for higher education, the concept of state effort and how to define and measure it, national trends in state effort, and state trends in state effort are explored. Then the empirical research on what impacts state effort is examined, and the paper concludes with policy considerations and recommendations.

KEY INSIGHTS

- The relative effort of states in funding higher education can be evaluated using a variety of metrics, such as by analyzing higher education spending relative to personal income, population, or total tax revenue. These metrics provide a sense of the extent to which a state supports higher education, by allowing analysts to compare funding for higher education relative to a state's ability to fund higher education.
- State appropriations matter. An institution's financial resources have a relatively large impact on degree completion rates well as tuition and fees. Past research has shown that for every $1,000 per student cut in state appropriations, the average student would pay $257 more in tuition and fees.
- All three measures show that state funding effort has declined over time. States provided, on average, $299 per capita in higher education funding in 2017, which remains below levels of support prior to the Great Recession. State higher education funding per $1,000 of personal income has maintained a fairly steady downward trajectory, indicating that higher education is capturing far fewer taxable resources within our states than it did in the past. The percent of tax and lottery revenue allocated to higher education has also declined, with the state spending 8.2% in 1990 and only 5.2% in 2017.
- Recent research has revealed several significant influences on state support for higher education, including various political factors; state higher education governance structures; individual actors like governors, legislators, and state higher education executive officers (SHEEOs); other state budgetary demands such as Medicaid; and the business cycle.
- State leaders should consider using measures of state effort in evaluating their fiscal support for higher education, tie their higher education finance strategies to their long- and short-term goals, and ensure that their tax strategies allow them to adequately fund higher education in a manner that will help them achieve their goals.

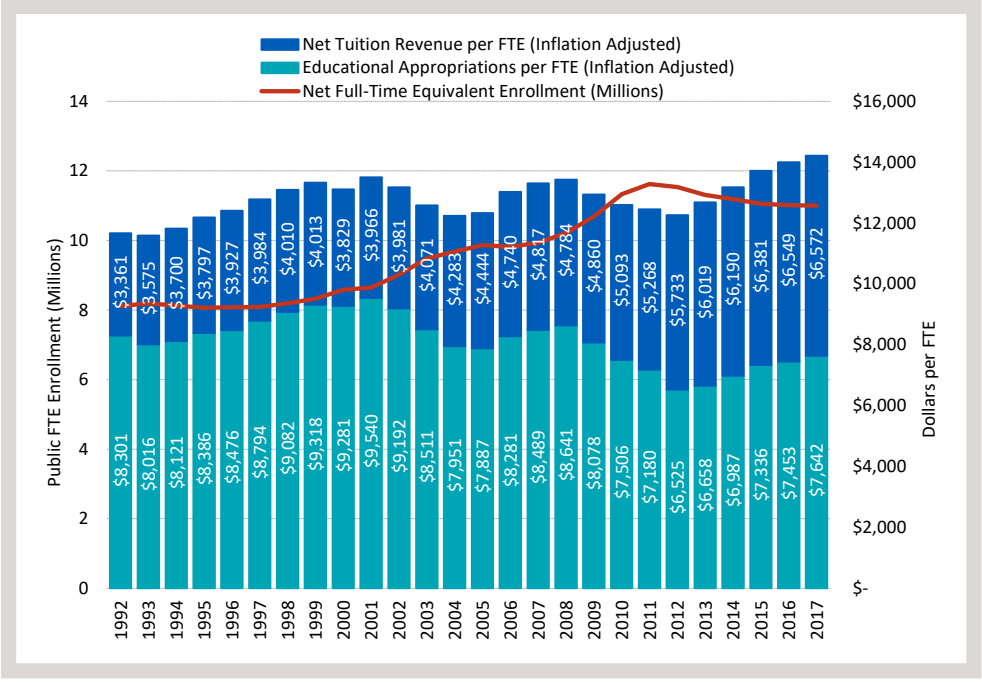
State Appropriations Matter

The ability of higher education to deliver on its promised benefits is, at least in part, determined by the fiscal resources of the institutions (Deming & Walters, 2017; Koshal & Koshal, 2000; Heller, 1999; Volkwein, 1989). For example, Deming and Walters (2017) found that when holding tuition and fees constant, an institution's financial resources had a relatively large impact on degree completion at two-year and four-year public institutions. In addition, state appropriations are related to the price institutions charge students. Using a very conservative approach, Webber (2017) estimated a pass-through rate from cuts in state appropriations to increases in tuition and fee revenue of between 25 and 30 percent. Put differently, for every $1,000 per student cut in state appropriations, the average student would pay $257 more in tuition and fees.

TRENDS IN STATE FUNDING

While total funding for higher education has increased, it has not kept pace with both inflation and enrollment. After adjusting for inflation, state and local funding in 1992 was $81 billion compared to $94 billion in 2017, meaning that in constant dollars, total funding increased by 17 percent over the last 25 years. However, after accounting for the 36 percent increase in full-time equivalent enrollment (FTE), appropriations per student have decreased by 8 percent in the last 25 years. This means that states are providing about $660 less per FTE than in 1992. Figure 1 shows that the decrease in per student support has been concentrated in the last 15 years; states kept up with enrollment growth during the 1990s, and appropriations reached an all-time high in 2001. The combined effect of two recessions (the tech bust in the early 2000s and the Great Recession in 2007-2009) led to steadily decreasing appropriations, and the economic recoveries following these recessions did not lead to reinvestment in higher education at prior levels. As a result, in 2017, states provided $1,900 less per FTE than when support was at its highest in 2001.

FIGURE 1. Public FTE Enrollment, Educational Appropriations, and Net Tuition Revenue, U.S., 1992-2017.



NOTES:

1. FULL-TIME equivalent enrollment equates student credit hours to full-time, academic year students.
2. EDUCATIONAL appropriations are state and local support available for public higher education operating expenses including ARRA funds, excluding appropriations for independent institutions, research, hospitals, and medical education.
3. NET tuition revenue is calculated by taking the gross amount of tuition and fees, less state and institutional financial aid, tuition waivers or discounts, and medical student tuition and fees.
4. INFLATION adjusted by SHEEO Higher Education Cost Adjustment (HECA).

Source: State Higher Education Executive Officers

MEASURING STATE FUNDING EFFORT

No single standard exists to evaluate public policy decisions with respect to state effort in funding higher education. However, relevant comparable information about states helps inform higher education financing decisions. Several types of comparative data and indicators can be used to assess and compare state funding effort for higher education. These include state spending on higher education relative to population, state personal income, and state tax capacity and tax effort. State funding effort is an important measure of funding for higher education because it addresses a key component missing from the two most common measures:

1. Total state funding for higher education is simply the total dollar amount appropriated or expended on higher education. Total funding is useful in assessing state spending on higher education within an individual state over time but lacks comparability across states and does not acknowledge the ability or need of any one state to fund higher education.

2. State spending on higher education per enrolled student divides the first measure by full-time equivalent (FTE) enrollment. This provides a useful measure of higher education funding relative to the need to fund higher education (need expressed as student enrollments). This measure is therefore useful for analyses across states, providing a useful comparative measure, and analyzing funding within a state over time. However, it too does not provide for comparisons of funding relative to potential ability to fund.

To address this gap, state support for higher education can be analyzed relative to state population, state personal income, and state tax revenue and effort. These metrics give analysts a sense of the extent to which a state supports higher education, by allowing analysts to compare funding for higher education relative to a state's ability to fund higher education. As with the enrollment-based measure, state effort allows for comparisons between states and over time.

State Support Per Capita

State higher education support per capita has been employed by various researchers (e.g., Goldin & Katz, 1989; Kane, Orszag, & Gunter, 2003). It is a measure of state effort because the denominator (population) can be viewed, at least indirectly, as a measure of a state's ability to pay for higher education. This measure assesses effort because states with larger populations should have a larger tax base (taxable citizens, products, commerce, and industries) and therefore may be able to direct greater resources toward higher education. This is also a good metric because funding per capita is an easily understood measure and people are used to seeing state financial data displayed in per capita terms. It also accomplishes the important goal of normalizing state funding for higher education for population size. However, there are some limitations. First, states with larger populations are not necessarily wealthier or more able to dedicate funds to higher education. Second, the per capita measure does not acknowledge differences in tax structure or a state's ability to tax residents.

State Higher Education Support per $1,000 of Personal Income

One of the more popular dependent variables in studies attempting to predict state support of higher education is state funding per $1,000 of personal income. State personal income may be classified as a measure of a state's ability to pay for higher education (Archibald & Feldman, 2006; Dar & Spence, 2011; McLendon, Hearn, & Mokher, 2009; Tandberg, 2010). In fact, Trostel and Ronca (2009) argue that "state personal income is presumably the best measure of ability to pay. This is consistent with taxation systems throughout the developed world, which are generally based on income and/or consumption, which depends on income" (p. 221). Extending the idea of "ability to pay" further, when linked to state higher education appropriations, this measures a state's effort in supporting higher education relative to its available wealth.

Percent of Tax and Lottery Revenue Allocated to Higher Education

A lesser known measure of state effort is state higher education funding relative to state revenue. This measure looks directly at available state funds relative to the amount of those funds appropriated or spent on higher education. However, this measure does not assess actual capacity to fund. States must make decisions regarding the extent to which they will maximize their ability to generate revenue from their available resources. More aggressive tax structures generate more revenue. Nevertheless, this measure allows analysts to assess the extent to which an individual state is willing to allocate available resources to higher education. It also allows for comparisons across states and over time.

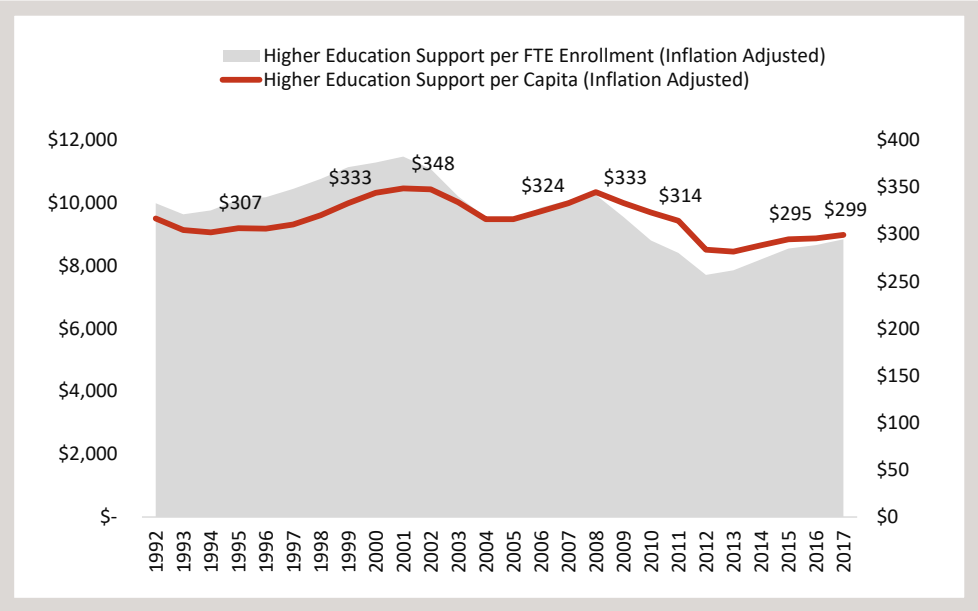
NATIONAL TRENDS IN STATE FUNDING EFFORT FOR HIGHER EDUCATION

Using these three measures, national trends from 1992 to 2017 are presented and discussed. Across the measures, there is a steady trend downwards. While Figures 1, 2, and 3 reveal a modest recovery in the last several years, they also reveal that state effort for higher education is at a new low relative to past years within this time series. The Great Recession and the subsequent recovery impacted personal income and state revenue as well as state spending on higher education. However, most states have experienced fairly stable trends in population growth, with some remaining relatively flat, some increasing, and some experiencing steady declines. In each figure, the common measure of "state support for higher education per FTE enrollment" is also included for comparison purposes.

Higher Education Support Per Capita

The U.S. population increased by 27 percent in 25 years, from 256 million in 1992 to 325 million in 2017. States provided, on average, $299 per capita in higher education funding in 2017. Predictably, this measure most closely follows state higher education funding per FTE enrollment *(Figure 2)*. However, support per FTE enrollment dropped further than support per capita during the Great Recession as college enrollment increased from 10.2 million in 2008 to 11.5 million in 2012 (Laderman & Carlson, 2018). Funding per capita shows a smaller decline during the recession, but both measures show steady recovery over the last several years, bringing state support per capita almost back to the pre-Great Recession low point of 1993. Nevertheless, state funding per capita is still below support prior to the Great Recession.

FIGURE 2. Higher Education Support Per Capita, U.S. Average, 1992-2017.



NOTES:

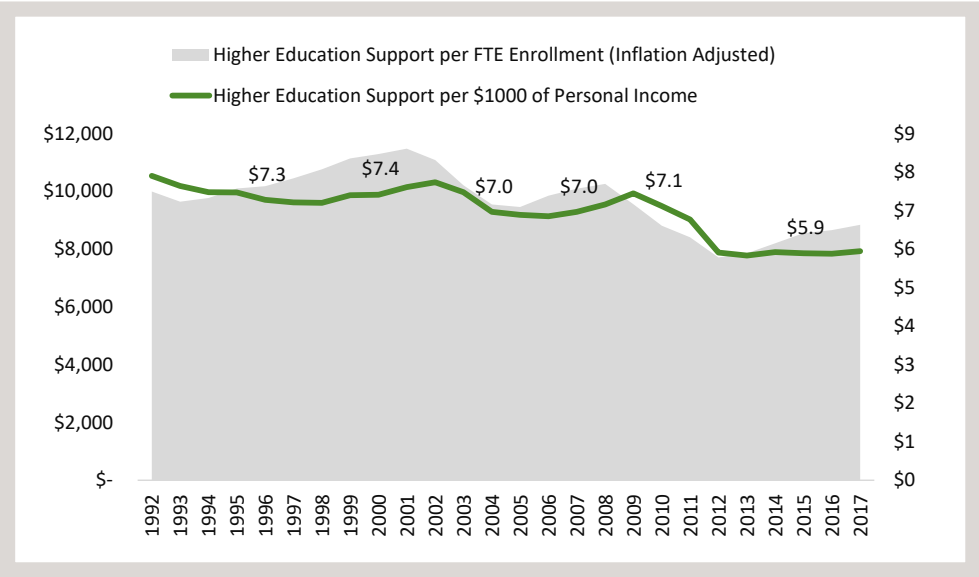
1. Higher education support is state and local tax and nontax support for public and independent higher education, including special purpose appropriations for research-agricultural-medical.
2. Full-time equivalent enrollment equates student credit hours to full-time, academic year students.
3. Inflation adjusted by SHEEO Higher Education Cost Adjustment (HECA).

Sources: State Higher Education Executive Officers; Population data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Income Division.

Higher Education Support per $1,000 of Personal Income

After adjusting for inflation, personal income increased by 64 percent, from $10.3 trillion in 1992 to $16.4 trillion in 2017. However, state funding for higher education did not keep up with this increase in personal income. Unlike the previous metric, state higher education funding per $1,000 of personal income reveals a steady downward trajectory, indicating that higher education is capturing far fewer taxable resources within our states than it did in the past *(Figure 3)*.

FIGURE 3. Higher Education Support per $1000 of Personal Income, U.S. Average, 1992-2017.



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3. Inflation adjusted by SHEEO Higher Education Cost Adjustment (HECA).

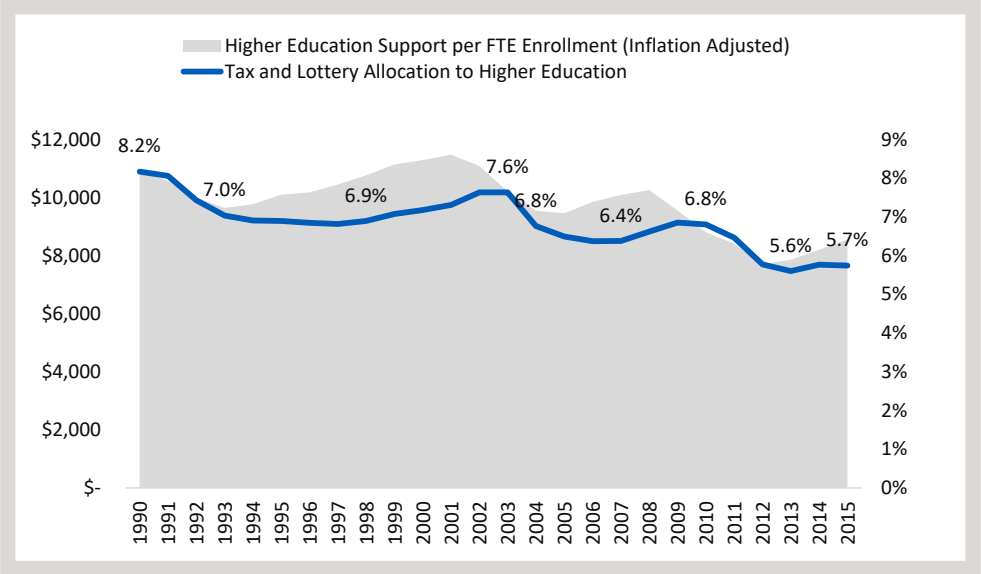
Sources: State Higher Education Executive Officers; Personal income data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Income Division.

Percent of Tax and Lottery Revenue Allocated to Higher Education

It is easy to conclude from *Figures 2 and 3* that the decline in state support during the Great Recession was due to a decrease in total state resources. However, *Figure 4* reveals that this is not the case. If the decrease in higher education appropriations was due to an overall decrease in state resources, *Figure 4* would show a flat trend in tax and lottery funds allocated to higher education from 2008 through 2012. Instead, there is a decline in the percent of tax and lottery revenue allocated to higher education beginning in 2010. This decline would have begun earlier were it not for the federal American Recovery and Reinvestment funds, which tempered cuts to higher education during the Great Recession. The decline in tax and lottery allocation from 2010 through 2013 shows that higher education was disproportionately affected during the Great Recession. While tax and lottery revenues increased by 37 percent from $1.1 trillion in 1995 to $1.5 trillion in 2015, *Figure 4* shows a 2.5 percentage point reduction in the allocation to higher education during these years. The decline is most dramatic during the Great Recession and also in 2003, which may have been a delayed effect of the early 2000s recession, or may indicate that state budgets recovered from this recession without making subsequent increases to state support for higher education.

The recession-related fluctuations in the percent of revenue allocated to higher education are consistent with Hovey's "balance wheel" hypothesis regarding higher education and state budgets (Hovey, 1999). Hovey argued that states use higher education as a way of balancing their budgets because higher education can raise its own revenue via tuition and fees and other sources. Therefore, when state budgets become tight, higher education is more likely to receive larger reductions than other areas of the budget (Delaney & Doyle, 2011).

FIGURE 4. Percent of Tax and Lottery Revenue Allocated to Higher Education, U.S. Average, 1990-2015.



Sources: State Higher Education Executive Officers; State and local tax revenues data from the U.S. Census Bureau; lottery profits data from the North American Association of State and Provincial Lotteries.

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2. Full-time equivalent enrollment equates student credit hours to full-time, academic year students.
3. Data was not available for 2016 and 2017.
4. Inflation adjusted by SHEEO Higher Education Cost Adjustment (HECA).

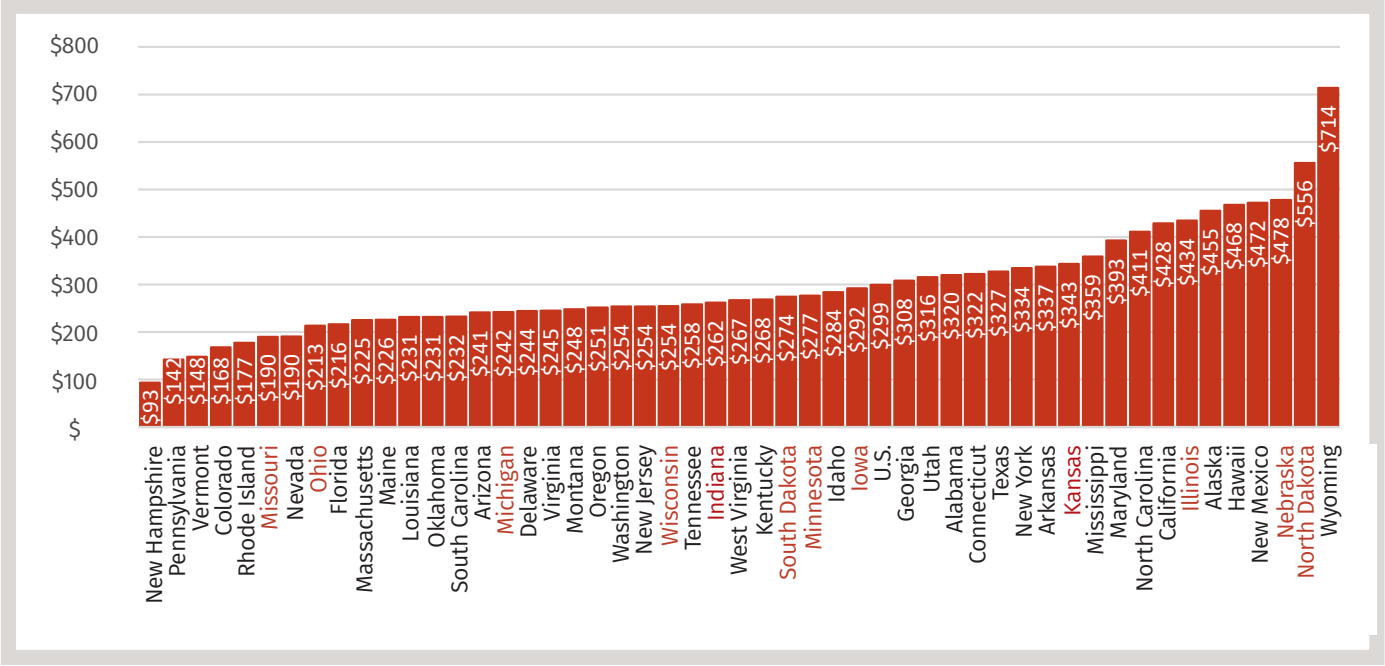
STATE TRENDS IN STATE EFFORT FOR HIGHER EDUCATION

While national trends are important, they mask the high degree of variance between states. In this section, current levels of effort for higher education for individual states are examined. States in the Midwest are highlighted in each case.[1]

Higher Education Support per Capita

As seen in *Figure 5*, significant variation between levels of state support is evident in the most recent higher education support per capita data. There is a 668 percent difference between the highest state, Wyoming, and the lowest state, New Hampshire. Four Midwestern states fall above the national average (Kansas, Illinois, Nebraska, and North Dakota).

FIGURE 5. Higher Education Support per Capita, by State, Fiscal 2017.



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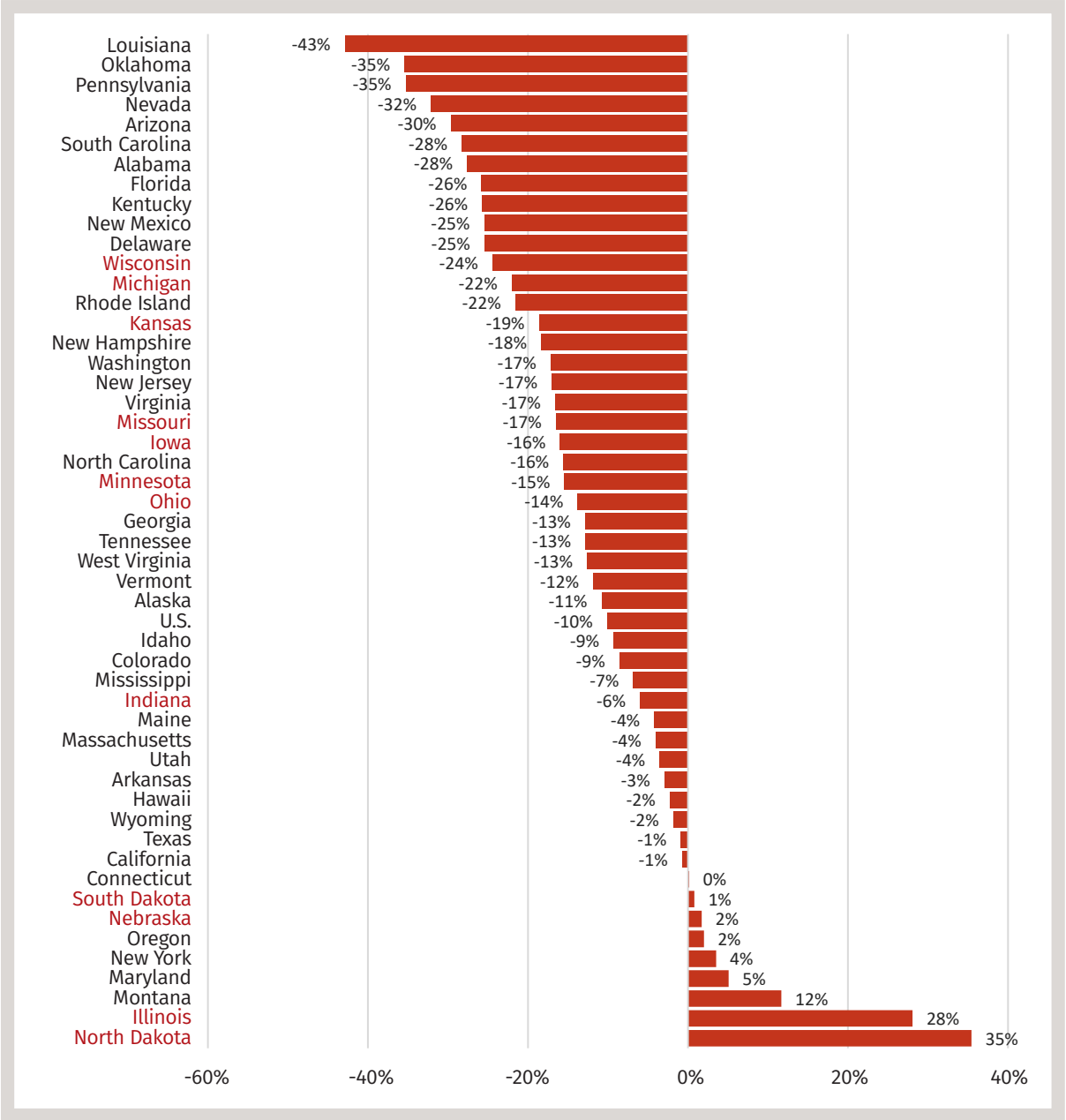
2. Full-time equivalent enrollment equates student credit hours to full-time, academic year students.

Sources: State Higher Education Executive Officers; Population data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Income Division.

[1] Throughout this report, it is important to note that the data for Illinois include massive payments to their historically underfunded pension program. These payments account for 30 percent of Illinois' total higher education appropriations in 2017.

According to *Figure 6*, only eight states experienced increases in higher education support per capita. Despite flat population growth, Louisiana experienced the largest decrease in state support per capita from 2007 to 2017 (43 percent). North Dakota experienced the largest growth at 35 percent followed by 28 percent in another Midwestern state, Illinois.

FIGURE 6. Change in Higher Education Support per Capita, by State, 2007-2017.



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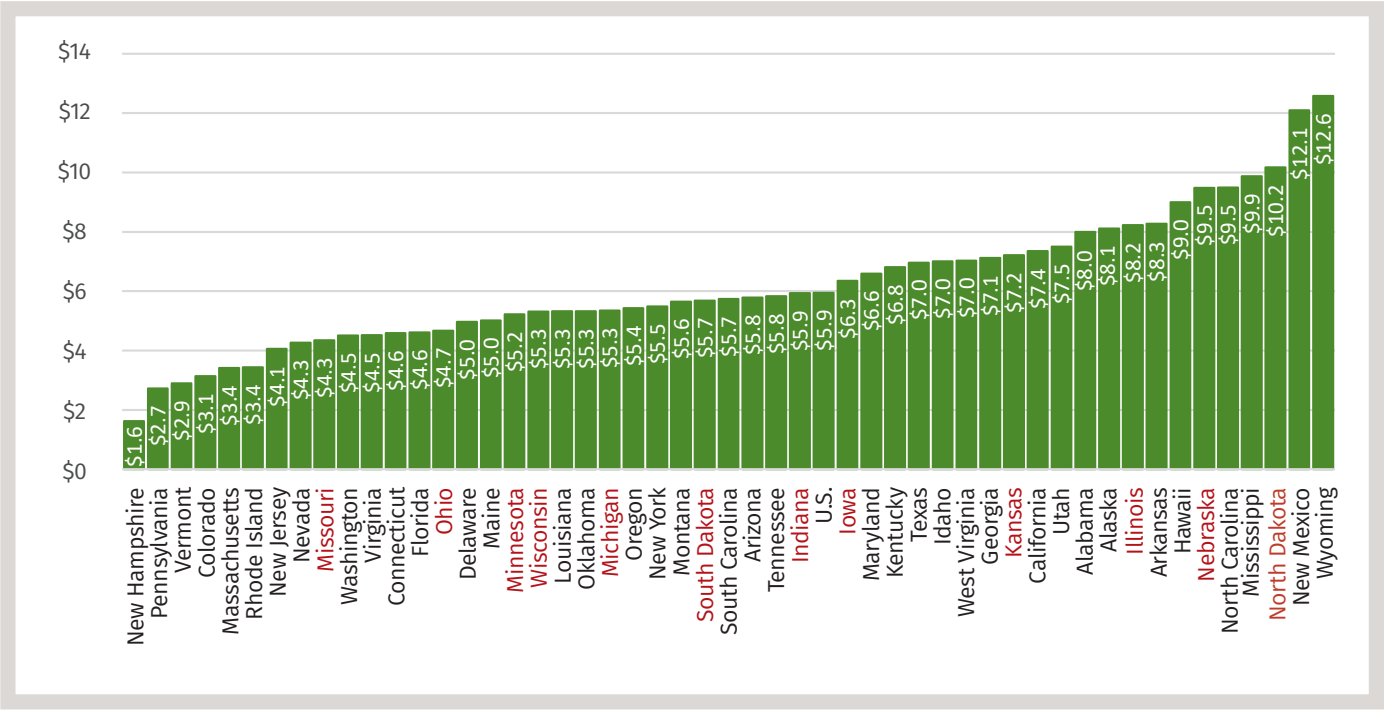
Sources: State Higher Education Executive Officers; Population data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Income Division.

Higher Education Support Per $1,000 of Personal Income

Figure 7 shows that five Midwestern states fall above the national average: Iowa, Kansas, Illinois, Nebraska, and North Dakota. Wyoming and New Hampshire have the highest and lowest higher education support per $1000 of personal income, respectively.

FIGURE 7. Higher Education Support per $1,000 of Personal Income, by State, Fiscal 2017.



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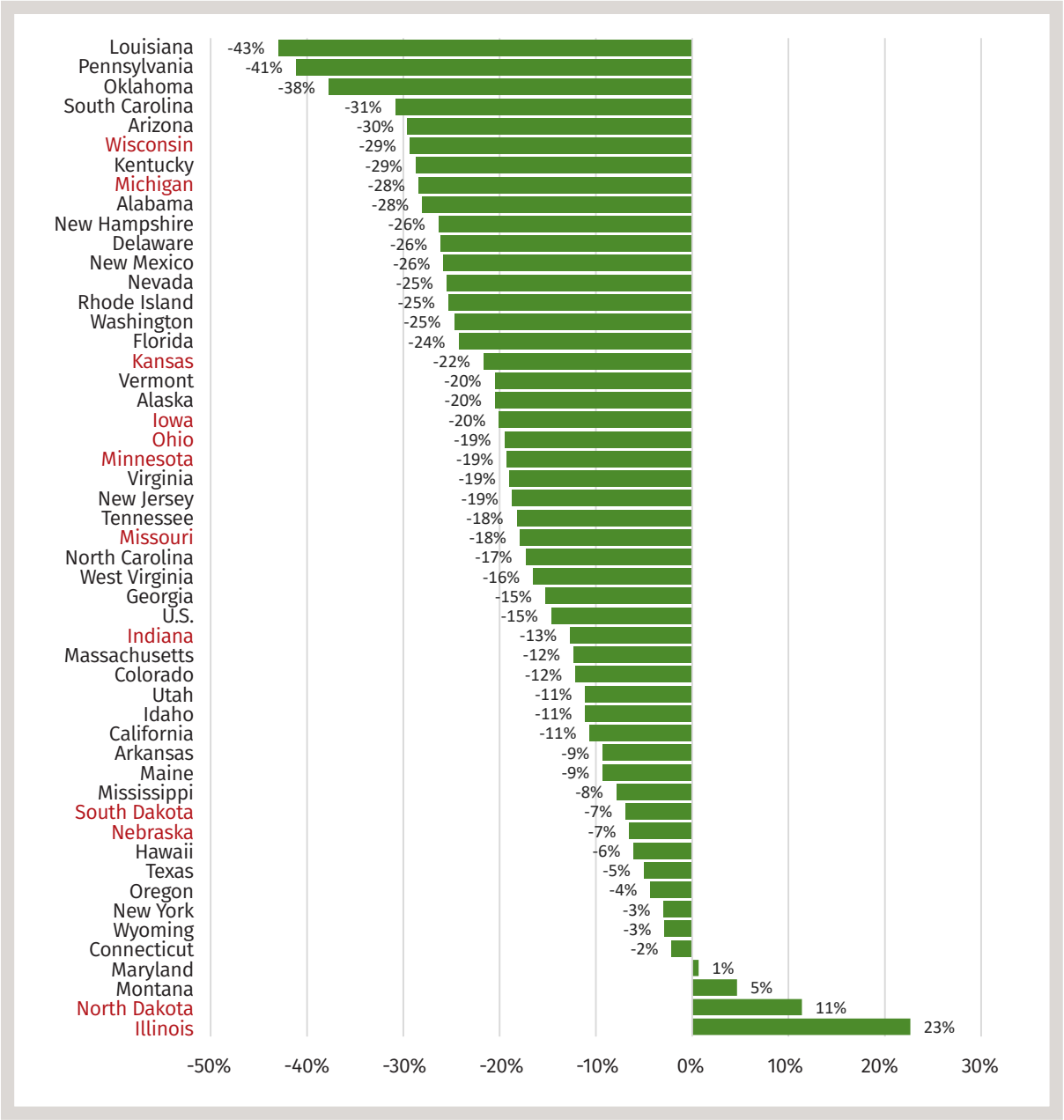
Sources: State Higher Education Executive Officers; Personal income data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Income Division.

According to *Figure 8*, in the past 10 years, most states, including the majority of those in the Midwest, have experienced significant declines in higher education support per $1,000 of personal income. Only four states increased in support per $1,000 of personal income: Maryland, Montana, North Dakota, and Illinois.

FIGURE 8. Change in Higher Education Support per $1000 of personal Income, by State, 2007-2017.



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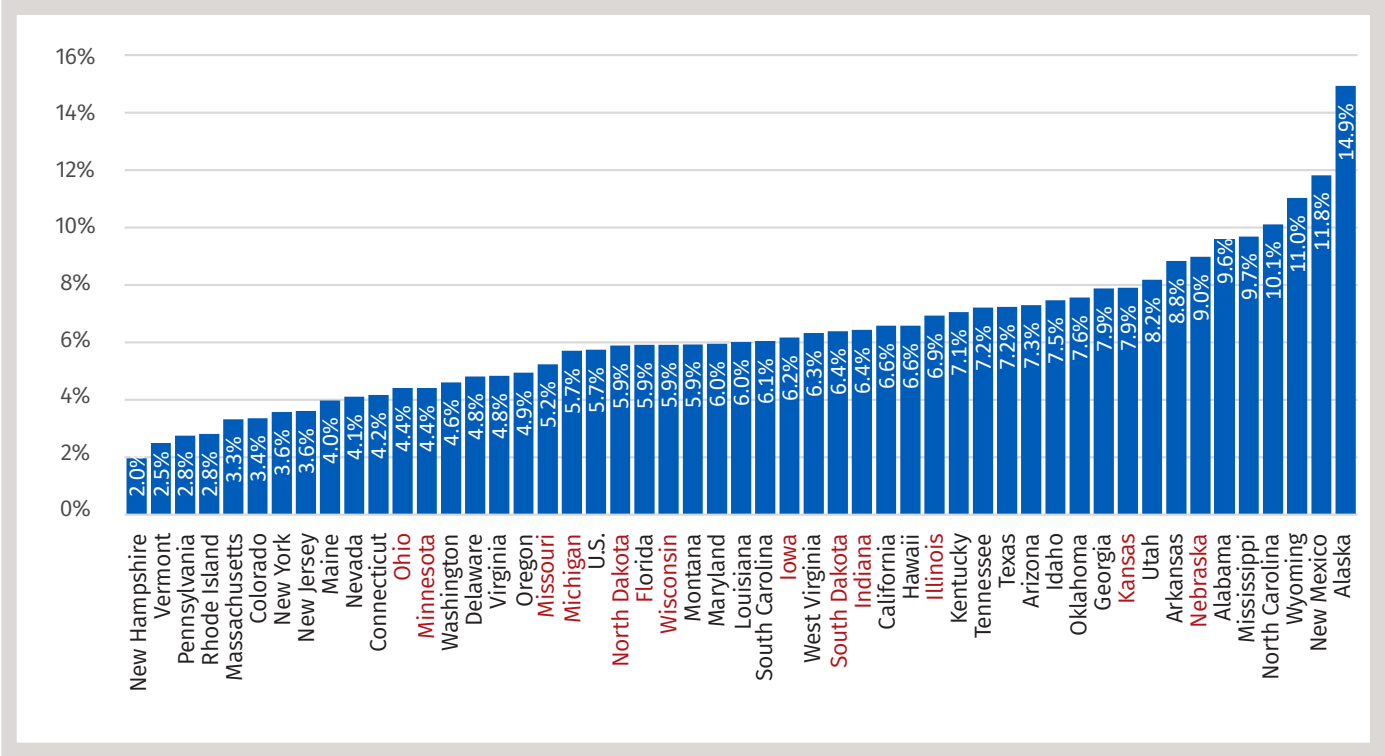
3. Inflation adjusted by SHEEO Higher Education Cost Adjustment (HECA).

Sources: State and local tax revenues data from the U.S. Census Bureau; Personal income data from the U.S. Department of Commerce, Bureau of Economic Analysis, Regional Income Division.

Percent of Tax and Lottery Revenues Allocated to Higher Education

As *Figure 9* reveals, there is tremendous variance in the share of tax and lottery revenue that states devote to higher education. Seven states in the Midwest exceed the national average: Wisconsin, North Dakota, Iowa, Indiana, Illinois, Kansas, and Nebraska. Of those states, Nebraska devotes the largest share to higher education. On the other hand, three Midwest states fall below the national average: Michigan, Minnesota, and Ohio.

FIGURE 9. Percent of Tax and Lottery Revenue Allocated to Higher Education, by State, 2015



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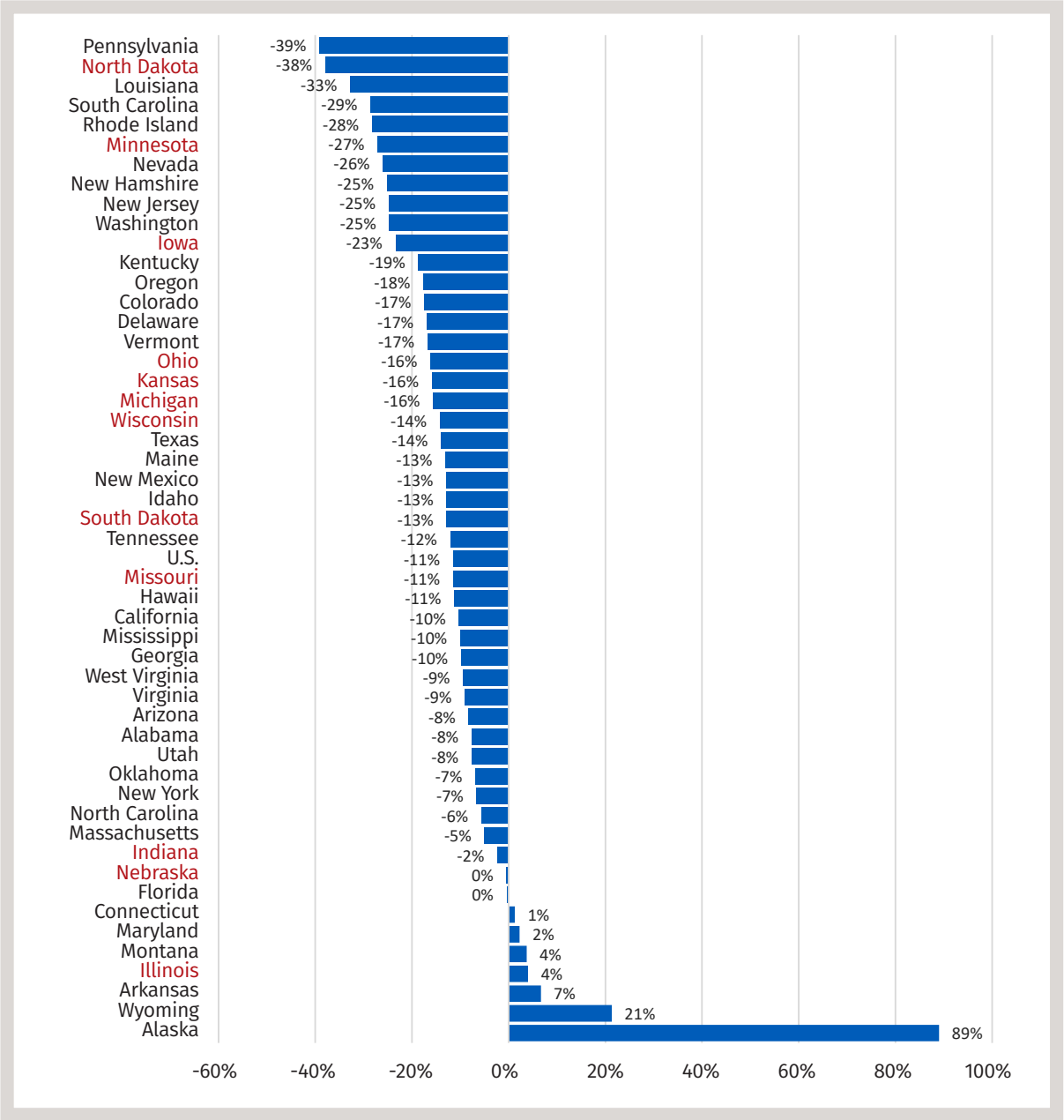
2. Full-time equivalent enrollment equates student credit hours to full-time, academic year students.
3. Data was not available for 2016 and 2017.

Sources: State Higher Education Executive Officers; State and local tax revenues data from the U.S. Census Bureau; lottery profits data from the North American Association of State and Provincial Lotteries.

As seen in *Figure 10*, all but seven states have seen notable declines in the percentage of revenue allocated to higher education. Most states experienced declines exceeding 10 percent. Several Midwestern states had declines larger than the national average, and North Dakota experienced the second largest decline at 38 percent. Louisiana Illinois was the only Midwestern state to record an increase.

FIGURE 10. Change in Percent of Tax and Lottery Revenue Allocated to Higher Education, by State, 2005-2015.



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WHAT IMPACTS STATE EFFORT

Given the variation in effort for higher education across the states, it is reasonable to inquire about what drives these differences. In this section, three types of factors are discussed: (a) those with a rational basis but without evidence in the empirical literature (those potentially impacting state effort); (b) those that have been repeatedly shown to impact state effort for higher education; and (c) those for which there is some evidence, albeit inconsistent, of a significant effect on state effort for higher education. Recent research has revealed several significant influences, including various political factors; individual actors like governors, legislators, and state higher education executive officers (SHEEOs); other state budgetary demands like Medicaid; the business cycle; and state higher education governance structures (See Tandberg & Griffith, 2013).

Factors with a Potential Impact

There are a number of likely factors that have not been rigorously examined— for which descriptive, anecdotal, and qualitative evidence indicates a likely impact on state effort—that ought to be considered. States that rely on natural resources for a large share of their state budget (some of which directly fund higher education from these resources) often appear to be better able to support higher education. Among these states are Alaska, Wyoming, North Dakota, and Texas. However, downturns in the oil and gas markets can have dramatic impacts on these states. Other factors which impact state effort include the trend toward a service economy, dramatic increases in online shopping (or the general reduction in the taxing capacity/revenue of states), outdated tax structures, a lack of political will to raise taxes, and other social, cultural, and structural state characteristics.

Factors with a Demonstrated Impact

Several state factors or characteristics have been shown across more than one empirical study to be related to state effort for higher education. First, the number of state higher education interest groups and the ratio of state higher education interest groups relative to non-higher education interest groups appear to be positively related to state effort (McLendon, Hearn, & Mokher, 2009; Tandberg, 2010). The argument is that the more registered higher education interest groups a state has, the more effectively they can make the case for greater state effort for higher education.

Second, legislative professionalism, which represents the degree of institutional resources in the legislature (full-time staff, session length, and member pay), has consistently been linked to state effort for higher education (Squire, 2000). Increased legislative professionalism has been shown to be positively associated with state effort for higher education (McLendon, Hearn, & Mokher, 2009; Tandberg, 2010, 2013; Tandberg, Fowles, & McLendon, 2017).

Third, the research has also shown that state higher education governance structures may impact state effort for higher education. In particular, the presence of a consolidated state governing board for higher education has been found to be associated with lower state effort for higher education (Tandberg, 2010, 2013; Tandberg, Fowles, & McLendon, 2017). The premise is that the consolidated boards buffer the potential lobbying influence of the institutions. In fact, the influence of state higher education interest groups on state funding effort was reduced to statistically insignificant levels when controlling for the presence of a consolidated governing board (Tandberg, 2013).

Factors with Some Evidence of an Impact

Additional factors found to be negatively related to state effort for higher education include the number of private institutions in a state, Medicare/health-care spending, and unemployment. Likewise, several additional factors have been shown to be positively associated with state effort, such as enrollments in public higher education, household income, gross state product, and state educational attainment rates. Finally, factors with less evidence for their relationship to state effort, or where empirical evidence is mixed, include whether the governor can appoint and/or dismiss the SHEEO (+/-); the presence of state tax and expenditure limits (-); corrections spending (-); total state revenue (+); percentage of the state population that is elderly (-); the presence of term limits (+); income inequality (+); tuition rates (–); and political party of the governor and the legislature (+/-) (see Tandberg & Griffith, 2013)..

CONCLUSION AND POLICY IMPLICATIONS

Measures of state effort provide state leaders and analysts with several ways to evaluate how well states are funding and supporting higher education. At a national level, state support has been on a downward trajectory for some time, but some

states do a much better job of supporting higher education than others. A number of political, structural, economic, and demographic factors impact a state's ability and willingness to support higher education.

Considering state effort for higher education and the importance of state appropriations and institutional resources in determining how well public higher education is able to accomplish its missions lead to the following recommendations:

- State leaders should consider using a measure or measures of state effort in evaluating their fiscal support for higher education. These measures should be evaluated over time within their states and compared to similar states.
- States ought to tie their financial support for higher education to their long-term state goals. Cuts and inadequate support for higher education may limit higher education's ability to support states in accomplishing their goals. For example, as indicated earlier, the financial resources of an institution directly impact the quality of education and student completions, both of which contribute to a state's economy and workforce.
- States should consider their governing structures, political institutions, political contexts, economies, and demographics and the relationships among such factors and state funding for higher education and long-term state goals. Are such factors likely to depress state funding effort for higher education? If so, does that potential relationship run counter to the state's goals?
- States ought to evaluate their tax and revenue structures to ensure they are adequately capturing the appropriate level of state resources. The changing economy has made capturing sales tax and other resources difficult. States should evaluate their tax and revenue structures to ensure that they are receiving adequate resources to appropriately fund their state obligations, including higher education. .
- When making appropriations decisions, states should consider what adequate state funding and institutional resources mean to them and their institutions relative to the outcomes they want from their institutions. The question of adequate institutional funding or resources is a difficult one to answer. However, state leaders should consider the mission of institutions, the types of students they serve, and other institutional characteristics when making funding decisions to ensure that institutions have the resources they need to accomplish their missions.
- Considering the implications for costs to students, student success, and institutional capacity/budgets, states ought to consider a strategic approach to higher education finance which aligns state appropriations with tuition and fee policy and with state financial aid policy. Ensuring that states are providing stable and predictable state support for higher education, plus predicable and reasonable tuition and fee rates, combined with state financial aid which ensures that all students can afford to go to college, would all go a long way in helping states provide accessible and excellent public higher education.

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This brief examines a critical state policy issue identified through the College Affordability Research Initiative, a collaboration between the Midwestern Higher Education Compact and the National Forum on Higher Education for the Public Good at the University of Michigan.

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