SHEEO

STATE HIGHER EDUCATION EXECUTIVE OFFICERS ASSOCIATION

INVESTIGATING THE IMPACTS OF STATE HIGHER EDUCATION APPROPRIATIONS AND FINANCIAL AID

EXECUTIVE SUMMARY

KRISTEN CUMMINGS

SOPHIA LADERMAN

JASON LEE

DAVID TANDBERG

DUSTIN WEEDEN

TABLE OF CONTENTS

ABSTRACT

States invest in public higher education in two primary ways: through direct funds to institutions (general operating support) and direct funds to students in the form of state financial aid programs (student grant aid). General operating support is the larger of the two funding categories, totaling $80.8 billion in 2019, while state financial aid allocations totaled $12.3 billion. To gain a deeper understanding of the impacts this state investment in higher education has on student outcomes, we examine the historical data and empirical literature on state support for higher education. We find clear evidence that increased financial investments—specifically, increased state general operating and student financial aid—are directly tied to student success in higher education. These findings suggest that states will not meet their attainment goals or the workforce demands of the modern economy without sustained investment in the public higher education sector. We conclude with finance policy solutions that states and the federal government can adopt to support their efforts to reach state postsecondary attainment goals and close equity gaps in degree attainment and college completion.

ACKNOWLEDGMENTS

The authors would like to thank Celeste Carruthers, Patrick Crane, Jacob Fowles, and Robert Toutkoushian for reviewing an earlier draft of this paper and for their thoughtful suggestions for improvement. We would also like to thank Nick Hillman and Carlos Santiago for serving as discussants when we presented this paper as part of SHEEO's webinar series on state higher education finance. A special thank you goes out to Sameer Gadkaree who not only served as our program officer at the Joyce Foundation, but who also served as an important thought partner on this project and whose suggestions greatly improved the final product. This project was funded by the Joyce Foundation. Finally, we'd like to thank Gloria Auer, Caitlin Dennis, Kelsey Heckert, and Annahita Jimmerson at SHEEO, whose efforts made this work possible. The contents, including all opinions, conclusions, and any errors, are the responsibility of the authors alone.

EXECUTIVE SUMMARY

What happens to student outcomes if a state increases (or decreases) public funding for higher education? What portion of state higher education funding should be allocated to general operating support for institutions that may mitigate tuition rate increases for all students, and what portion should be allocated to financial aid programs that target low-income students? To what extent do each of these finance strategies impact enrollment, graduation rates, credential completion, and other important outcomes? State policymakers must consider these questions (among others) each budget cycle as they make difficult decisions about where to allocate scarce public dollars. With the COVID-19 pandemic creating unprecedented health and economic challenges, demand for public services will likely outpace available tax revenues in the coming years, making these decisions even more difficult. This paper seeks to provide some guidance to policymakers, as we find clear evidence in the empirical literature that increased financial investments—specifically, increased state general operating and student financial aid—are directly tied to student success in higher education.

While individuals accrue significant benefits from earning higher education credentials (e.g., higher wages), evidence suggests that the public benefits accrued by society are greater than the private benefits enjoyed by individuals (McMahon, 2009). These public benefits, such as increased democratic engagement, reduced crime and health-care costs, lower poverty rates, and higher state tax revenues (Ma et al., 2019b), are a primary reason states collectively allocated more than $100 billion for higher education in 2019 (Laderman, & Weeden, 2020) and have established goals to increase educational attainment rates.

States invest in public higher education in two primary ways: through direct funds to institutions (general operating support) and direct funds to students in the form of state financial aid programs (student grant aid). General operating support is the larger of the two funding categories, totaling $80.8 billion in 2019, while state financial allocations totaled $12.3 billion.[1] States have steadily increased funding for each category over the last few years; however, on a per-student basis, general operating appropriations are 11.8% lower than in fiscal year 2008 when the Great Recession began, while financial aid allocations per student are 30% greater.

State funding for public higher education may be more important now than ever as we have never entered a recession with such a low level of state operating support. This low level of funding comes as income inequality, equity gaps, low graduation rates, persistent access challenges, a rapidly changing economy, and increased global competition all demand a more robust public higher education system. States will not be able to meet these challenges without investing in their public institutions.

This paper documents the importance of state higher education funding by synthesizing the available data and empirical literature on student and other outcomes. We begin by discussing the current and historical context of state funding for general operating support and student financial aid. Next, we review the findings from our systematic review of the empirical literature on the impact of public investment on a wide range of institutional and student outcomes, including

1. States also allocate funding for research, agriculture extension programs, and medical education that is not included in the general operating support amount. Please see SHEEO's annual State Higher Education Finance report for additional details (Laderman & Weeden, 2020).

enrollment, completion, and post-collegiate outcomes. Using elasticities from the most rigorous research findings, we simulate the effects of increasing general operating support and financial aid on student outcomes. We close by providing recommendations for policymakers at the state and federal levels.

CURRENT AND HISTORICAL CONTEXT OF STATE SUPPORT FOR HIGHER EDUCATION

NATIONAL TRENDS IN APPROPRIATIONS FOR GENERAL OPERATIONS

General operating appropriations at public institutions (which excludes financial aid, research, and medical appropriations) follow changes in the economic cycle, rising during economic expansions and decreasing at greater rates than other budget categories during recessionary periods (Hovey, 1999; Delaney & Doyle, 2011). Data from the State Higher Education Finance (SHEF) report highlight the following trends.

- First, declines in state support per student have grown steeper, and recoveries have become slower and less complete with each recession since 1980.
- Second, even though general operating support increases during economic expansions, it has not kept pace with enrollment increases and inflation. Comparing general operating appropriations (in constant dollars) and full-time equivalent (FTE) student enrollment in 2019 with the fiscal years in which the two recessions of the 2000s began to show, we find:
  - In 2001, public institutions enrolled 8.7 million students and received \$82.6 billion in general operating support (\$9,547 per FTE student).
  - In 2008, public institutions enrolled 10.2 million students and received \$85.6 billion in general operating support (\$8,377 per FTE student).
  - In 2019, public institutions enrolled 10.9 million students and received \$80.8 billion in general operating support (\$7,388 per FTE student).

NATIONAL TRENDS IN STATE GRANT AID

Using data collected from the National Association of State Student Grant and Aid Programs (NASSGAP) annual survey, we find that state support for student grant aid is less correlated with the economic cycle. Since 2001, state grant aid has:

- Increased approximately 72% in inflation-adjusted dollars with over \$12.3 billion awarded in the most recent year.
- Increased in every year throughout this time period with the exception of a slight decrease during the 2012 fiscal year.

Grant aid programs are more targeted than general operating appropriations. Many state financial aid programs are primarily need-based or at least have a need-based component; however, in recent years, non-need-based programs have proliferated. Trends in need-based and non-need-based aid between 2001-2019 show:

- The proportion of need-based grant aid awarded oscillates between 70% and 77%, with the \$9.1 billion awarded on the basis of need in 2019, representing approximately 74% of the share of state grant aid.

- The amount of need-based grant aid increased 69%, while non-need-based grant aid increased at a rate of almost 83%, albeit from a much lower base ($1.8 vs. $5.4 billion).

COMPARISON OF TRENDS IN GENERAL APPROPRIATIONS AND FINANCIAL AID

Unlike general operating appropriations, which increase and decrease in tandem with the business cycle, state aid per FTE on a national basis has steadily increased independent of broader economic trends. As a result, state financial aid increased from 4.4% to 9.9% of all public education appropriations (a broad measure of state and local support) between 2001 and 2019.

State-level trends support the national picture (on a per-FTE basis after adjusting for inflation). Between 2001 and 2019:

- 29 states decreased general operating appropriations but increased financial aid allocations.
- 11 states decreased general operating and financial aid appropriations.
- 5 states increased both general operating and financial aid appropriations.
- 2 states increased general operating appropriations but decreased financial aid allocations.
- 2 states decreased general operating appropriations and held financial aid allocations flat.
- 1 state held general operating appropriations flat but decreased state financial aid allocations.

PRIOR LITERATURE ON THE EFFECTS OF STATE APPROPRIATIONS

To quantify the effects of state appropriations, we identified and systematically reviewed 81 studies that examined how changes in state appropriations affect student outcomes. From this literature review, we identified the following key findings.

GENERAL OPERATING APPROPRIATIONS AFFECT TUITION AND EXPENDITURE ALLOCATIONS

Public institutions respond to declines in state appropriations in two main ways:

CHANGES IN TUITION REVENUE

- Public, four-year institutions increase tuition to offset reductions in state apportions; however, these increases are not large enough to entirely offset the state funding reductions (Webber, 2017).
- Institutions raise tuition revenue by increasing out-of-state and international enrollments (Jaquette & Curs, 2015).
- This strategy of raising alternative revenues is most prevalent at doctoral institutions (especially state flagship universities), followed by master's and bachelor's institutions (Bound et al., 2019; Jaquette & Curs, 2015).
- The evidence is mixed on whether two-year colleges respond to state appropriation declines by increasing tuition (Goodman & Volz, 2020; Zhao, 2018a).

CHANGES IN INSTITUTIONAL EXPENDITURES

- Institutions that are unable to raise tuition and fees to the extent needed to offset state funding reductions respond by decreasing expenditures. The largest impact is on education and related expenditures essential for student success (i.e., instruction, academic support, and student services) (Deming & Walters, 2018).
- Reducing educational expenditures is most prevalent at two-year institutions and least common at doctoral institutions (Zhao, 2018a). Since research universities have a wider range of alternative revenue sources (e.g., increasing tuition, increasing enrollment of out-of-state students), community colleges experience the most detrimental cuts to institutional expenditures.

GENERAL OPERATING APPROPRIATIONS AFFECT STUDENT OUTCOMES

The research shows clear relationships between state higher education funding and student outcomes. As states seek to improve educational attainment rates and close equity gaps, these findings suggest state funding has an important role in these efforts.

ENROLLMENT OUTCOMES

- Decreases in state appropriations lead to decreased in-state undergraduate enrollment, with these effects lasting several years. Additionally, increases in state funding lead to increases in enrollment (Trostel, 2012).
- Enrollment is not impacted equally across all types of institutional control; following state funding reductions, students who would likely have enrolled at a public institution choose to enroll at a for-profit institution (Goodman & Volz, 2020).
- Some public, four-year institutions (predominantly research universities) respond to state appropriation reductions by increasing their enrollment of out-of-state undergraduate students and decreasing the share of low-income and underrepresented minority students (Jaquette et al., 2016), which suggests reductions in state funding may induce institutions to shift their focus away from serving underrepresented students of color and toward students with the ability to pay the most tuition.

GRADUATION RATES AND COMPLETIONS

- The research overwhelmingly finds evidence that cutting state appropriations leads to detrimental credential outcomes, both in graduation rates and the quantity of credentials awarded (Bound, et al., 2019; Zhao, 2018a).
- Community colleges experience the most detrimental impact to their degree productivity in part because these institutions are unable to increase tuition and must endure the bulk of the impact of state appropriation cuts in the form of decreased education expenditures.
- Increases in state appropriations help shorten time to degree among students attending four-year institutions and increase the likelihood of community college students transferring to four-year institutions (Chakrabarti et al., 2020).

POST-COLLEGIATE OUTCOMES

Changes in state appropriations have impacts that extend beyond college success. The results below represent outcomes for students in their 20s and 30s.

- For students beginning at both two- and four-year institutions, experiencing an increase in state appropriations while enrolled decreased the probability of ever originating a student loan. For students enrolled at two-year institutions, the increase in appropriations also decreased the likelihood of having a student loan in default or delinquent status (Chakrabarti et al., 2020).
- For students who started at a two-year institution, experiencing an increase in state appropriations while enrolled led to an increased likelihood of having an auto loan, a lower likelihood of having delinquent car debt, an increased credit score, and an increased adjusted gross income by zip code of residence (Chakrabarti et al., 2020).

GENERAL OPERATING APPROPRIATIONS ARE INEQUITABLY DISTRIBUTED

Key themes throughout the literature are the large variation between institution types in baseline amounts of state appropriations received, institutional responses to changes in state appropriations, and the effects of these changes. Public, two-year institutions and open-access four-year institutions, which serve the bulk of underrepresented students of color (defined as American Indian/Alaska Native, Black, Latinx, and Native Hawaiian or Other Pacific Islander), receive the lowest amount of funding and experience the most adverse effects of funding cuts (Ahlman, 2019; Hillman, 2020; Carnevale & Strohl, 2013). These institutions are also often the most reliant on state funding and, therefore, would be disproportionately impacted by across-the-board state funding cuts. Conversely, doctoral universities, which typically have the most resources, disproportionately educate the most advantaged (full-time, white, affluent) students (Mugglestone et al., 2019). These patterns suggest that the funding disparities between institution types may not only be unequal, but inequitable as well.

PRIOR LITERATURE ON THE EFFECTS OF STATE GRANT AID

The literature quantifying the effects of grant aid on student outcomes has grown considerably in recent decades and is more developed than research on state appropriations. After our systematic literature search, we identified 91 studies for review.

States have developed a wide variety of financial aid programs that target different students. Many of the initial state aid programs established in the 1960s and 1970s included a need-based component that targeted aid toward lower-income students. Broad-based merit-aid programs, which became popular in the 1990s and 2000s, were ostensibly developed to keep the best and brightest students in state and provide high school benchmarks for all students to attain, but much of this aid flows to students from wealthier families. More recently, states have developed promise programs intended to provide universal access to at least the two-year sector. Many of these newer promise programs also include a minimal merit component and/or income caps to help keep costs down and better target aid.

POLICY DESIGN MATTERS FOR STUDENT BEHAVIOR AND STATE GOALS

Because the choice of program will dictate which students receive state aid, it is important for states to ensure their aid programs reinforce state goals. While there is evidence that merit-aid programs are successful in keeping the target student population in the state while they are enrolled, the evidence also suggests merit programs do little to increase state-specific postsecondary attainment rates as many merit-aid recipients leave the state after graduation (Fitzpatrick & Jones, 2016; Sjoquist & Winters, 2013; Sjoquist & Winters, 2014). Consequently, a need-based program or promise program that includes student supports may be more effective at reaching students who would not otherwise attend a postsecondary institution and thus be more effective at raising state educational attainment levels. Likewise, programs that are easily understood, widely publicized, and paired with critical student supports have been shown to be effective in positively impacting student outcomes (Angrist et al., 2020; Carruthers & Fox, 2016; Gurantz, 2018; Miller et al., 2020; Page et al., 2019b). With limited resources to allocate to financial aid, states will need to think carefully about how their financial aid allocations support progress toward achieving state goals.

SIMULATED IMPACTS OF STATE APPROPRIATIONS AND FINANCIAL AID

State appropriations and financial aid likely work together to improve student outcomes, and, in reality, states must consider the relative impacts of each funding strategy and make decisions regarding both appropriations and grant aid in concert. We use the research findings to simulate the impacts of increased general operating appropriations (often conceptualized as increased institutional resources or spending) and the impacts of state-funded, student financial aid programs. These simulations are intended to provide context and real numbers for the findings discussed in our literature review.

SIMULATION 1: WHAT IS GAINED BY INVESTING IN HIGHER EDUCATION THROUGH OPERATING SUPPORT?

For this simulation, we use the results from Deming and Walters (2018) and assume a consistent effect in all states to estimate an across-the-board $1,000 per FTE change in state appropriations on overall outcomes at the U.S. level. At public two-year institutions, a $1,000 increase in state funding per FTE would result in 216,029 more associate degrees being awarded in the following year and 216,623 more associate degrees awarded two years later. At public four-year institutions, the same $1,000 increase in state appropriations per FTE would result in an estimated 75,046 more bachelor's degrees awarded two years later and 73,738 more bachelor's degrees awarded three years later.

SIMULATION 2: WHAT IS GAINED BY INVESTING IN HIGHER EDUCATION THROUGH FINANCIAL AID?

We rely upon Nguyen et al.'s (2019) evaluation of the impact of merit- and need-based aid on persistence and degree completion to project what a change in financial aid spending may mean for degree production in the United States. Due to data limitations, we use national Pell Grant cohort data to conduct the simulation. An increase of $1,000 per student in grant aid would result in around 11,000 additional credentials among Pell Grant recipients in four-year public institutions each year and between 8,000 and 9,500 additional credentials among Pell Grant recipients in public two-year institutions.

POLICY RECOMMENDATIONS

We conclude with several finance policy solutions that states and the federal government can adopt to support their efforts to reach state postsecondary attainment goals and close equity gaps in degree attainment and college completion.

STATE POLICY

At the state level, policy decisions frequently come down to the amount of funding available. States rarely have adequate budget resources to fully fund every priority, and the decisions states make about how to allocate scarce resources can propel progress toward achieving postsecondary goals or create unintended roadblocks that derail progress toward these goals.

1. **Increase State Support.** While we recognize that significant increases in state support for institutions are not likely in the next year or two, states should invest more in their public institutions when possible. States are not likely to see significant gains in their postsecondary completion numbers and attainment rates without increased investment in their institutions. As the literature reviewed attests and as shown in our simulations, such investments are likely to pay significant dividends through increased enrollment, persistence, and completions. The overall increase in educational attainment that comes with state investment in their institutions will help states meet dynamic workforce needs of the post-pandemic economy, provide many additional societal benefits (McMahon, 2009), and increase state income tax revenue (Chakrabarti, 2020).

   Likewise, most studies we reviewed consistently point toward additional financial aid dollars influencing student behavior. Moreover, the dollars invested in these programs have a large return on investment for state and federal governments through increased student persistence and credential attainment, as well as increased income tax revenue (Anderson, 2020; Denning et al., 2019).

   Because the form that general operating and financial aid appropriations come in and the overall purposes of both strategies vary, it is difficult, if not impossible, to determine the appropriate ratio of total higher education funding each should receive. However, because state operating appropriations serve to support the entire mission of institutions, contribute to the overall quality of the education experience, and directly impact student access and success, support for state financial aid programs should not come at the expense of general operating support.

2. **State Funding Equity Audit.** In a recent report, Hillman (2020) proposes that policymakers should consider conducting funding equity audits in order to understand current trends in state funding, gaps in funding between institution types, and how these patterns overlap with race- and income-based patterns of student enrollment. While there are significant challenges to isolating the instructional spending at institutions, as Hillman recommends, the exercise could still provide new and useful information for policymakers to consider. Hillman stresses that states should be transparent about the results of these audits and make the audits widely accessible to the public. Readers interested in learning more about what a state funding equity audit might look like and how policymakers could use such an audit to address current funding inequities in their states should read Hillman's recent Third Way report.[2]

2. Hillman, N. (2020). *Why rich colleges get richer & poor colleges get poorer: The case for equity-based funding in higher education.* Third Way. https://www.thirdway.org/report/why-rich-colleges-get-richer-poor-colleges-get-poorer-the-case-for-equity-based-funding-in-higher-education

3. **Adjust Funding to Promote Equity, Completions, and Attainment.** Ensure institutions that serve the bulk of underrepresented students of color and low-income students are funded appropriately and attempt to correct historical underfunding. Funding allocation models should promote access and success for underrepresented students. States should adjust their funding allocation strategies to be consistent with articulated state goals of reducing equity gaps and increasing educational attainment. Prioritizing increases to the base allocation for institutions serving the state's priority populations (e.g., students of color, low-income students, and adult learners) will help achieve these goals.
4. **Alternative Revenues Matter.** Decreases in state appropriations lead to cuts in institutional spending on services essential for student success (e.g., instruction, academic support, student services). Since public four-year institutions, particularly research universities, have a wider range of alternative revenue sources (e.g., increasing tuition, increasing enrollment of out-of-state students), community colleges experience the most detrimental cuts to institutional expenditures as a result of declining state appropriations. States should consider all institutional revenues and make strategic decisions regarding state appropriations in concert with decisions about tuition rates and out-of-state tuition caps.
5. **Financial Aid Messaging Matters.** There is currently a tradeoff between targeting financial aid funds to those who would be most influenced by receiving additional aid dollars (e.g., low-income students) and the messaging of simple eligibility requirements (e.g., state and local promise programs). It may behoove states who are able to fully or mostly fund their need-based financial aid to invest resources in marketing the program to students who have traditionally been unaware of state and even federal aid. In fact, research by Gurantz (2018) suggests these types of initiatives for targeted aid can be successful.
6. **Student Supports Matter.** The financial aid programs that are most successful invest in aid dollars as well as in supports for students. For instance, in Tennessee, the free college program conveys a simple message to state residents, and provides support for students considering college through governmental agencies as well as with significant support from philanthropic organizations. Other programs with successful track records, such as the Dell Scholars program, invest significant time and money into their students (Page et al., 2019b), as do the Susan Thompson Buffett Foundation in Nebraska (Angrist et al., 2020) and the ASAP program in a number of states (Miller et al., 2020).

FEDERAL POLICY

While this paper focuses on state funding and policy, the federal government has had an increasing role in higher education finance and is uniquely positioned to provide stabilizing support and incentives for states to increase funding for higher education. We propose two potential federal solutions to the problems discussed in this paper.

1. **A Federal-State Partnership for College Affordability.** The economic impact of the coronavirus pandemic has already resulted in increasingly strained state budgets and, unlike at the federal level, states do not have the ability to run a deficit with their budgets. The two levels of government can share financial responsibility for increasing government investment in higher education and making college more affordable for low-income students. Tandberg, et al. (2017) have proposed a measure of affordability and a federal-state partnership with this goal in mind. Under this proposal, any

additional state funding given to support low-income students would be matched with federal funds, with a goal of students devoting no more than 10% of their discretionary income toward student loan repayment. Readers interested in learning more about what this federal-state partnership might look like should read their proposal.[3]

2. **Title I-Type Program for Higher Education.** The federal Title I program provides K-12 schools serving a large proportion of low-income students with additional funding for extra educational services. A parallel grant program could be designed for higher education, with eligibility determined based on serving a large share/number of low-income students or a combination of income- and race/ethnicity-based eligibility thresholds. Current K-12 Title I programs require that federal dollars supplement rather than replace state and local funding, and a similar requirement could be written into a higher education Title I program. Readers interested in learning more about what a potential design of such a program might look like should read Third Way's (Hiler & Whistle, 2018) proposed program design.[4]

3. Tandberg, D., Laderman, S., & Carlson, A. (2017). *A federal-state partnership for true college affordability.* State Higher Education Executive Officers Association. https://sheeo.org/wp-content/uploads/2019/03/Federal-State_Partnership_for_True_College_Affordability.pdf

4. Hiler, T. & Whistle, W. (2018). *Creating a "Title I" for higher ed.* Third Way. https://www.thirdway.org/memo/creating-a-title-i-for-higher-ed

STATE HIGHER EDUCATION EXECUTIVE OFFICERS

3035 CENTER GREEN DRIVE, SUITE 100, BOULDER, COLORADO, 80301
303.541.1600 • SHEEO.org