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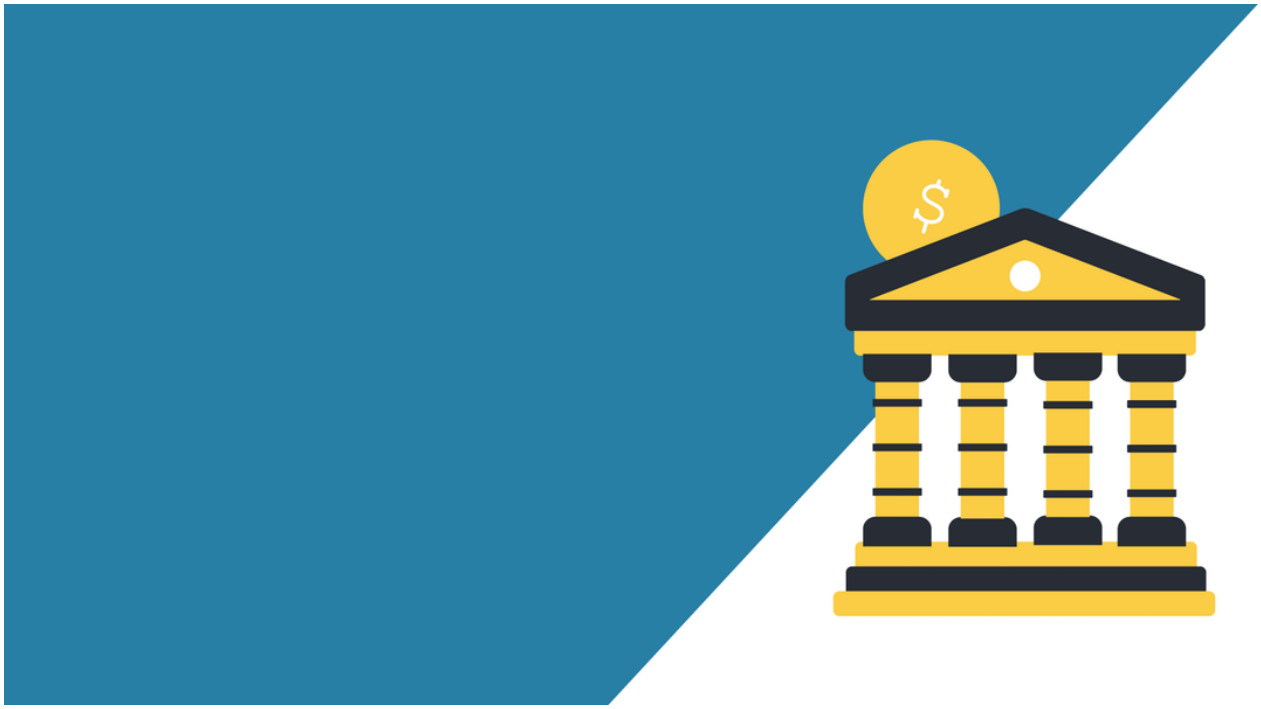

REPORT HIGHER EDUCATION

Financing Institutions in the Free College Debate

DECEMBER 12, 2018 — AMY LI AND JEN MISHORY

Many states are passing "free" college plans, and policymakers at both the state and federal level continue to debate the merits of national "free college" or "debt-free college" proposals, also known as Promise programs. Within that debate runs discussions about the merits of various features of Promise program design, including whether to include two- or four-year institutions (or both); what costs to cover (tuition, fees, books, housing, transportation, etc., up to the entire cost of attendance); whether to cover all of tuition, let students use other aid to cover non-tuition costs ("first-dollar" programs), or only cover leftover tuition costs after taking into account other aid ("last-dollar" programs); and whether to only cover "unmet financial need"—in other words, a debt-free program that only covers costs that students would otherwise rely on loans to cover. These design choices likely impact how many new people will enroll in college.

Both federal and state "free" college proposals are geared toward a policy objective of not just reducing costs for students already intent on pursuing higher education, but also changing behavior to increase access and entry into higher education. Specifically, an important goal of financial aid such as Promise programs is to increase overall student demand to attend college—particularly amongst low-income students who would otherwise be deterred due to the real or perceived high cost of attending college. A number of observers have questioned whether existing infrastructure could accommodate increased demand resulting from new affordability efforts; and if not, what could be done to provide for the new students. While this concern will not pertain to all systems that launch new Promise programs, it will likely affect some states and most federal proposals. In some states, college enrollments have been flat due to a robust economy and fewer high school graduates, and any enrollment increases from Promise programs could fill available college slots. In other cases, and depending on the scale and demographics of the state, a major affordability effort might increase the need for new slots. At the federal level, the scale of some of the most expansive national free and debt-free college proposals make it likely that those proposals would expand enrollment beyond current capacity. And if the program is well-designed, it will bring in students coming from under-resourced schools and who most need the kinds of supports that only adequately financed institutions can provide.

How ought states, or their federal policymaking counterparts, project impact on enrollment and cover these increased costs of enrolling more students and serving those students well? The tuition paid for by a Promise program only covers a percentage of what it costs to educate that student. With a program that reaches a large number of students and provides substantial benefits, institutions may need funding beyond tuition dollars to respond to any significant increase in demand. Without that support, policymakers and institutions will face the choice of (1) serving more students with even fewer dollars per student, a challenge particularly at community colleges; or (2) reducing the number of seats available by restricting admissions—which may in turn harm access for the most underrepresented students, and detract from initial policy goals of expanding college enrollment.[1]

Some skeptics may say that potential capacity constraints may be reason enough to shy away from bolder, more universal affordability efforts. Others have rightfully cautioned that without focusing more resources on the systems that launch Promise programs, those programs could have unintended consequences for low-income students, who may have the fewest resources to navigate access to limited seats, or are more likely to attend resource-constrained schools.

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Going forward, policymakers should embrace the prospects of increased access as a policy win, while thoughtfully preparing for the real financing needs institutions would face to serve new students well—particularly should they coincide with other scenarios that increase enrollment, such as economic downturns. In this report, we will lay out for states interested in starting a Promise program what they need to know about a program's potential for increasing demand, and how to go about designing and implementing their program in a way that anticipates capacity challenges. We also offer guidance to federal policymakers interested in a national free or debt-free proposal, discussing how federal–state partnerships can contribute to effectively meeting increased demand.

First, we summarize the literature on the impact of financial aid and price on college student enrollment, surveying research on "free" college programs, financial aid programs, and tuition rate changes. Our review of the literature on financial aid programs is not exhaustive. Our review shows potentially significant effects from programs, but illuminates how difficult projecting those effects can be. Some programs may increase enrollment at community colleges, but do so by diverting enrollment from four-year colleges. Others may show effects but have vastly different designs than most new free college programs. Second, we review the ways in which states and public colleges budget for new enrollees. Finally, we propose a policy framework for using existing research to adequately fund institution capacity needs that may result from new large-scale affordability programs.

How Existing Affordability Efforts Have Affected Enrollment

Research on Promise programs is still in its infancy phases, as numerous states and localities are in the midst of early implementation of these programs. However, we can combine what we know so far about the effects of Promise programs on enrollment with long-standing research on student enrollment changes in response to both financial aid and tuition hikes to better understand how future free, debt-free, or generous financial aid programs might affect the number of students enrolling in college.

Enrollment Impacts of Promise Programs

First, we will look at the effects of Promise programs directly. While causal analyses of the impact of new statewide Promise programs on enrollment is limited, we can look to older state programs, local Promise programs, and preliminary descriptive data from newer Promise programs to begin to understand how program designs may affect enrollment. Given what we know from other financial aid research, the type and degree of impact on enrollment likely has some relation to (1) how simple the program is for students to navigate, and (2) the financial generosity of the program. Below is a description of existing programs, based on the studies available, and in Table 1, we display estimates of the impact of Promise aid.[2] While the effects of free college vary, descriptive data of state-level programs show *raw enrollment number increases* in participating institutions of up to 25*percent*, and studies that control for selection bias show increases in the *likelihood of college enrollment* of as high as 24 percentage points.

Tennessee Promise. The Tennessee Promise program began in fall 2015 and covers tuition and fees for students attending any technical or community college in the state.[3] Because the scholarship is last-dollar—students must exhaust all other sources of state and federal aid before qualifying—the average award is just $1,000. The program also provides mentorship to participants and had significant involvement from a variety of stakeholders, from high school administrators to policymakers.[4] According to descriptive data, first-time freshman enrollment has increased by 25 percent at Tennessee community colleges and by 20 percent at Tennessee technical colleges since the program began in 2015.[5] While some of this may be attributed to some students attending two-year instead of four-year institutions, the overall college-going rate of recent high school graduates has increased by 5 percentage points since the program started.[6] The program initially restricted eligibility to recent high school graduates, but in 2018, the state rolled out an adult-focused Promise program that has gotten significant interest in its first semester.[7] While we still do not have clear causal evidence of the impact of Tennessee's Promise, it seems likely that the program has had at least some impact on the increase in college participation in the state in recent years.

Oregon Promise. Oregon has a last-dollar program (with a $1,000 award offered to students who already have their tuition covered, known as "middle dollar"), available to recent high school graduates attending community colleges. In fall 2014, the percentage of all recent eighteen-year-old high school graduates (or GED holders) enrolled in community

college was 20.3 percent, and in fall 2015, this percentage was 20.9 percent. In the first year that funds were available (fall 2016), 23.3 percent of eighteen-year-olds enrolled in community colleges. Increases in enrollment occurred at a time when overall community college enrollment fell nationally: from fall 2015 to fall 2016, enrollment of eighteen-year-olds at public universities declined from 19.4 percent to 17.9 percent.[8] While there is not yet causal analysis available to know whether the program indeed was responsible for the increased demand among its target population (recent high school graduates), it is accurate to state that the Oregon Promise may have had a modest impact on enrollment.

TABLE 1

	Enrollment Changes at Colleges after Promise Program Implementation						
	Statewide Programs					*Local/Sub-Sta*	
	Tennessee	Oregon	New York	Indiana	Oklahoma	32 Local-level programs	Knox A
Percent change in raw college enrollment numbers	+25 pp at community colleges +20 pp at technical colleges amongst eligible population	–	No data yet	–		+9 pp to +22 pp at eligible community colleges	
Percentage point (pp) change in percent of students enrolled in college after high school		+2.4 pp in overall CC enrollment amongst eligible population	No data yet	+29 pp difference between participants and non-participants	+28 to +43 pp difference between participant and non-participants		+3 to two-ye enro -5.2 p year
Percentage							

point (pp) change in the likelihood of college enrollment	–	–	No data yet	+13 to 21 pp after accounting for selection bias			+24.2 match studen partic scl

Note: "-" denotes that this outcome was not analyzed as part of the study cited. "CC" = community c

Source: Compiled by authors. Program characteristics, data points, and methodology employed vary across studies, so directly comparable.

Indiana 21st Century Scholars. The Indiana 21st Century Scholars (TFCS) program is an income-capped, first-dollar free college program that requires an early commitment from students during middle school. Students who are eligible for free or reduced-price lunch who have a 2.5 GPA in high school can receive funds to cover 100 percent of tuition and fees at in-state public colleges.[9] In one study, researchers found that 85 percent of TFCS completers went to college, as opposed to 56 percent of non-TFCS students.[10] Another study that sought to account for selection bias in the program found that students enrolled in the program were 13 to 21 percentage points *more likely* to enroll in college compared to their peers with similar characteristics.[11] In other words, this first-dollar, income-capped program had a significant impact on students' college-going behavior.

Oklahoma Promise. The Oklahoma Promise, started in 1992, provides recent high school graduates from families earning less than $55,000 with a full first-dollar tuition award at two- and four-year, public and private colleges in the state.[12] Descriptive data on the program shows that college-going rates for Oklahoma Promise students were 85 percent in 2016 compared to 44 percent for non-Promise students. From 2007 to 2016, Promise students enrolled in college at rates 28–43 percentage points higher than did non-Promise students. Promise students also attend college full-time at higher rates, at 94 percent in 2016–17 compared to 87 percent among non-Promise students (this gap ranges from 6 to 11 percentage points in years 2010–11 to 2016–17).[13] Unlike the evaluations of the Indiana program, none of that analysis accounts for the selection bias of the students likely to sign up for the program in high school, and thus it is hard to know how impactful this targeted program was on students who would not otherwise have enrolled in college.

Local-level Promise programs in aggregate. In a forthcoming study, researchers analyzed the impact of thirty-two local-level Promise programs from across the nation on the enrollment of first-time, full-time, degree/credential-seeking students at eligible community colleges. Analyses of data from 1998–99 to 2015–16 show an average enrollment increase of 9 percent to 22 percent after program implementation.[14] Programs that awarded full tuition for the completion of an associate's degree did not produce enrollment impacts that differed from programs offering less than full tuition.

Knox Achieves. The Knox Achieves program, a local program for Knox County high school graduates that began with the class of 2009, was the predecessor to the statewide Tennessee Promise. Knox Achieves provided a last-dollar scholarship with a significant mentorship component[15] that covered tuition and fees for attendance at any Tennessee community or technical college. Findings on Knox County participants from 2006–07 to 2010–11 indicate an increase of 3 to 5 percentage points in the percent of high school students directly enrolling in a two-year college, and that participants were 24.2 percentage points more likely to enroll directly in college than student non-participants from the same metro area. On the other hand, Knox Achieves students were 5.3 percentage points less likely to enroll directly in a four-year college.[16] Given the role of support services, it is hard to disentangle their effects from the effect of the aid itself.

Kalamazoo Promise. The Kalamazoo Promise covers four years of tuition and fees on a first-dollar basis at any two- or four-year college in Michigan. The scholarship is available to all students who attended all four years of high school and graduated from Kalamazoo Public Schools.[17] One study found that the Kalamazoo Promise increased the likelihood of students enrolling in any college within six months of high school graduation by 14 percent, and the chance of students enrolling in a four-year college by 23 percent.[18] Still another study found that high school graduates from the Kalamazoo Public Schools increased their college enrollment by 11.1 percentage points compared to high school graduates in the poor urban school districts.[19] Kalamazoo is an example of a first-dollar, clearly messaged program that has shown significant impact on enrollment.

Enrollment Impacts of Other Financial Aid Programs

Enrollment in college typically increases when students experience a decline in net cost, whether the financial aid is allocated via need-based grants,[20] institutional merit-based aid,[21] or state merit-based aid.[22] Broadly speaking, a $1,000 decrease in net costs produces a 2 to 4 percentage point increase in undergraduate enrollment.[23]

In one study using data from students in 1997–98 to 2001–02, researchers simulated the probability of high school-to-college enrollment based on different combinations of expected aid and actual aid.[24] The likelihood of enrollment was related to student expectations about the amount of aid they will receive. In one example, low-income white students had a baseline 33 percent likelihood of enrolling in college, and when these students did not receive aid, their predicted likelihood of enrollment dropped to 17 percent.

Previous research additionally suggests that enrollment changes in response to the federal Pell grant aid program ranges from no impact up to a 4 percentage point increase in enrollment for non-traditional students, with researchers speculating that the program's complexity limits its enrollment impact.[25] Studies have found that aid programs with simple eligibility criteria, such as some merit programs, while often not targeted in addressing financial need gaps or in

reaching underrepresented students, are associated with increases in total enrollments at target institutions.[26] And offering students help in navigating need-based aid has a clear effect: an intervention study showed that when assistance was offered to dependent students (considered dependent for tax-filing purposes) on filling out the Free Application for Federal Student Aid (FAFSA), these students were 8 percentage points more likely to enroll in college—though the enrollment effect on independent students was just 1.5 percentage points.[27]

Finally, studies of aid programs that offer generous, universal benefits that are similar to those offered by free college programs suggest that such programs have resulted in significant increases at times, but at other times have had limited or no impact. The D.C. Tuition Assistance Grant, which provides a $10,000 grant to all Washington, D.C. residents, increased college enrollment numbers by about 10 percent.[28] Additionally, the former Social Security student benefit for college attendance—equivalent to the receipt of grant aid of $1,000—increased the probability of college attendance among eighteen-to-twenty-year-olds (the beneficiaries of the Social Security school program) by approximately 3.6 percentage points.[29] Research also suggests that the Pittsburgh Promise, a last-dollar $5,000-a-year grant towards college costs for graduates of public high schools in Pittsburgh,[30] increased the likelihood of attendance at a four-year college (versus not attending college), but did not increase attendance at two-year colleges.[31] Lastly, a recent analysis of the small-scale Degree Project in Milwaukee, which covered up to $12,000 in college tuition at randomly selected high schools, did not show measurable impact on college-going behavior.[32] The authors attribute these null results to its performance requirements and lack of college-going supports, such as advising or mentoring, provided for students at those high schools.

Enrollment Impacts of Changes to Tuition Rates ("Sticker Price")

Researchers have additionally examined how college enrollment changes due to changes in published tuition prices, or sticker price, and changes in net price (typically defined as tuition or cost of attendance minus aid). Results suggest that enrollment at both two- and four-year colleges increases in response to reductions in sticker price, and in fact, increases are larger compared to an equivalent increase in grant aid.[33] To the extent that new financial aid or Promise programs are perceived as tuition reductions, these studies provide relevant evidence to project how enrollment may change in response to them.

One study found that at public four-year colleges, a $100 increase in tuition and fees produced a 0.25 percent decline in enrollment (total headcount), based on data from 1991 to 2006.[34] The same study found that large tuition increases elicit disproportionate enrollment responses, which seem specifically in terms of the number of credits students take on, and that the impact of tuition increases are particularly felt at top-tier research universities.[35] In a study of Texas community college districts using data from 1994 to 2005, a $1,000 increase in annual tuition levels (sticker price)

decreased first-time enrollment in the fall after high school by 2.8 percentage points. This same increase decreased in-district enrollment by 3.8 percentage points.[36] Additionally, the researcher estimated that a decrease of $1,000 in tuition per semester is expected to increase the number of high school graduates entering community colleges directly by 5.1 percentage points. Finally, a very recent study found that a $1,000 decrease in tuition resulted in a 3.5 percentage point increase at the relevant community college, with about 30 percent of the increase coming from students who would not have enrolled in college at all.[37]

Institutional Capacity to Address Increases in Student Enrollment

In order for colleges to have the resources to serve students and provide at least the same "quality" of instruction and student support services they provide current students, they would, roughly, need to receive the same level of resources "per student" from all revenue sources combined. In order to better serve students who may be directed toward already under-resourced institutions, additional financing adjustments may also be necessary.

Reductions in state appropriations per full-time equivalent (FTE) student and increases in the costs of education delivery means that tuition and fees make up a large percentage of an institution's total revenue, although there is variation in the amount that institutions receive per student: In 2017, per-FTE student revenue was $15,540 at public master's colleges, $14,060 at public colleges, and only $11,190 at public associate colleges.[38] Net tuition revenue made up 47 percent of all revenue to public colleges in 2017, compared to 25 percent in 1990, in current dollars.[39] In short, students and families are paying a significant portion of the cost of providing college instruction out-of-pocket (though they have the help of federal aid, such as Pell grants, to help offset some of those costs).

If a "free college" program functions by effectively covering the 47 percent of costs currently funded through tuition, institutions still need enough dollars to cover the balance of costs it takes to educate each new student.

This means, however, that there is a still a balance that state and local appropriations must provide to colleges.[40] This distinction is important: If a "free college" program functions by effectively covering the 47 percent of costs currently funded through tuition, institutions still need enough dollars to cover the balance of costs it takes to educate each new student in order to maintain per FTE funding level per student. On average, state and local governments combined appropriate about $9,600 per student at community colleges and about $12,000 per student at four-year public colleges

to cover that balance.[41]

A Framework for Financing

Given the total cost of educating a student at a public college, fully financing a free or debt-free college program may require investments beyond students' direct costs, particularly at revenue-constrained community colleges, which tend to be the focus of free college efforts. In a field with relatively limited information about it available, policymakers, whether state or federal, can draw on the most relevant research to prepare for potential funding needs. Both federal and state policymakers will need to project out demand increases and fund the non-tuition costs needed to serve each new student.

First, both federal and state policymakers designing a free or debt-free college program must determine how to project enrollment increases due to increased affordability. Determining how comparable a program is to already-evaluated programs such as the ones described above—in terms of scale of the benefit (first dollar or last dollar), how complicated (wide-ranging eligibility and a simple benefit that reads like a tuition or cost reduction versus a more complex sign-up requirement), and the level of investment in outreach and enrollment application assistance to students—can help determine how similar the program might be to affordability efforts that have more limited, or more expansive, effects on enrollment. For example, a program providing a significant first-dollar benefit may draw comparisons to the Kalamazoo Promise and the Indiana 21st Century Scholars program. A program providing only a last-dollar scholarship to recent high school graduates may draw comparisons to the Oregon Promise.

Those enrollment effects will then need to be contextualized within broader demographic, social, and economic trends of either the state implementing the program or, for federal efforts, the national picture. States with a stagnating number of eighteen-to-twenty-four-year-old residents will have fewer high school graduates and, consequently, lower projected enrollment numbers to begin with. The racial, ethnic, and socioeconomic demographics of prospective college students also matters, as some states are experiencing increases in the percent of residents from diverse backgrounds, or in the number of first-generation college students. States with healthy economies, particularly in fields that do not require a postsecondary credential, will also likely expect smaller demand: during the Great Recession, enrollment at public, two-year colleges (i.e. community colleges) increased drastically due to more limited job prospects,[42] but as the economy has improved in recent years, enrollment in community colleges has steadily declined.[43] In other words, in some states, a new affordability program may fill available seats in the classroom, making up for declining numbers of college entrants that some schools anticipate in the coming year. And getting this slightly wrong may be easily correctable on the smaller scale, not unlike other demographic shifts that schools project and then correct for on a yearly basis.

In other cases, large-scale federal affordability programs may significantly increase demand. For example, the Georgetown Center on Education and the Workforce projected that the Hillary Clinton "free college" plan would increase enrollment at public colleges by 9–22 percent.[44] Failing to fully prepare for a larger impact on capacity needs created through a one-time, large federal legislative effort, for example, could leave schools further straining to adequately serve students for years to come. In some cases—for example, at flagship institutions—it could lead to an unintended policy consequence of institutions adopting more selective admissions criteria, which may limit access for students, particularly those from historically underrepresented backgrounds.

In order to maintain funding support for new enrollees at their current level—that is, to avoid cutting funding per student—a "free college" program would need to increase per FTE revenue to colleges by the projected increase in student enrollment. These additional revenues would need to be based on projections of enrollment increases at relevant institutions and on, at the least, the current commitment of per FTE dollars from the state.

For example, in the case of Colorado, funding allocations per full-time equivalent (FTE) student varies widely from system to system (see Table 2).[45] The University of Northern Colorado receives the most per-student state funding: $4,397. The Community Colleges of Colorado System receives $3,089 per student across its thirteen campuses, on average. Per-student funding is lowest at the University of Colorado system ($2,231), whose campuses depend more heavily on tuition revenue and non-resident tuition payers. (For context, this is actually the opposite of most states, who generally fund their community colleges at a lower per-FTE rate than their four-year institutions.)

If policymakers in Colorado design a program in which they project a 5 percent net increase at community colleges (which translates to an about 2,500 students), they will need to appropriate an additional $7.6 million to ensure that the colleges can continue existing levels of support, per student—and be prepared to adjust after new data comes in after the first year of the program.

TABLE 2

State Funding to Higher Education Per Full-Time Equivalent Student in Colorado				
FY 2017–18	*Number of Campuses*	*Total FTE Student Enrollment*	*Total State Funding*	*Per FTE Funding*
University of Colorado System	4	58,313	130,068,157	**2,231**
Colorado State University System	3	29,884	83,260,917	**2,786**
University of Northern Colorado	1	8,989	39,522,408	**4,397**
Community Colleges of Colorado System	13	49,703	153,547,255	**3,089**
Source: Compiled by authors from Colorado Department of Higher Education data, using the total state higher education funding allocations in each system and dividing by the total full-time equivalent (FTE) enrollment.				

A federal affordability effort, particularly one structured as a federal–state partnership, would need to incorporate those additional costs in the money it sends to states, while also adequately funding the federal share of the costs, so that states are not incentivized to limit seats in order to limit their share of the costs.

Certainly, federal policymakers may be dissatisfied with the level of current state per-student funding provided to institutions, and can and should go take a third step to increase existing institutional funding levels and change funding structures. Federal affordability efforts in particular can craft incentives to address three existing inequities in enrollment trends and in current state appropriations to colleges:

- *State funding variation.* States vary in their level of funding towards higher education. In 2017, educational appropriations per FTE student ranged from $2,695 per FTE student in Vermont to $17,555 in Wyoming. A federal proposal would need to identify an adequate level of funding needed to support new students, and may set that level above the existing per FTE appropriations that some states currently provide—tying eligibility for new federal dollars to the condition that low-support states increase their per FTE student funding levels.

- *Community college underfunding.* The majority of statewide Promise programs are restricted to two-year colleges,[46] and most two-year colleges have less funding than their four-year counterparts, despite serving a population of students from more underrepresented and under-resourced backgrounds.[47] While programs targeting new financial

aid to community colleges may stem the enrollment decline projected by some colleges (assuming the economy does not enter into a recession), they may also raise the question of whether existing per student levels of support are enough.

- *Support for underrepresented students.* If affordability programs are designed well, they will increase the enrollment of students who are traditionally underrepresented in higher education institutions, particularly low-income students and students of color. Because those students often come from under-resourced high schools, increases in enrollments will also require that colleges invest further in evidence-based student support services, including financial aid counselors, academic advisors, mentorship programs, etc.[48] Programs designed to increase enrollment of Pell-eligible students, for example, should also fund wraparound supports that make it more likely those students will persist and graduate.

Depending on the scale and structure, free or debt-free college programs may increase enrollment of new students. Without similarly funding the capacity to educate and support those students, institutions may not have the resources to serve those students well. If policymakers structure new programs to anticipate and fund colleges to adequately serve increased numbers of students, these programs have greater potential to open the gates of higher education, move the needle toward a more educated populace, and provide not just individual benefits but larger social and economic benefits to the state pursuing the policy.[49]

Notes

1. Capacity constraints may also incentivize policymakers to avoid that increase in demand in the first place by putting limits on who can qualify for free college programs in order to temper demand and capacity challenges, and those limits, such as merit or age requirements, can further restrict opportunities for underrepresented students. Jen Mishory, "The Future of Statewide College Promise Programs," The Century Foundation, March, 2018, https://tcf.org/content/report/future-statewide-college-promise-programs/.
2. Note: The definition of a Promise program varies. For purposes of this paper, we do include programs that require a 2.5 minimum GPA, but consider other programs to be merit aid, and not Promise programs. We also only include programs that cover at least all tuition, if not more. Programs that give significant grants but do not cover tuition are included in a separate section.
3. Robyn Hiestand and Tennessee Higher Education Commission, "The Promise of the College Promise," College Promise Campaign, Spring 2018, http://collegepromise.org/policy-tools/the-promise-of-the-college-promise.
4. Robyn Hiestand and Tennessee Higher Education Commission, "The Promise of the College Promise," College Promise Campaign, Spring 2018, http://collegepromise.org/policy-tools/the-promise-of-the-college-promise.
5. Robyn Hiestand, "The Promise of the College Promise," College Promise Campaign, Tennessee Higher Education

Commission, Spring 2018, http://collegepromise.org/policy-tools/the-promise-of-the-college-promise.

6. "Tennessee Promise Annual Report 2018," Tennessee Higher Education Commision and Tennessee Student Assistance Corporation, Tennessee Promise, 2018, https://www.tn.gov/content/dam/tn/thec/bureau/research/promise/TN%20Promise%20Report%20-%202018%20-%20Final.pdf.

7. Note: More programs are being made available to adult students, and so the Tennessee experience with Reconnect will become relevant for states projecting new enrollments of adult students.

Ashley A. Smith, "Tens of Thousands of Adults Line Up for Free College in Tennessee," *Inside Higher Ed*, 2018, https://www.insidehighered.com/news/2018/08/24/tennessee-sees-thousands-apply-tuition-free-adult-plan. Andrew Carlson, Sophia Laderman, Denise Pearson, and Christina Whitfield, "Adult Promise program: A pilot design template for states", State Higher Education Executive Officers Association, 2016, http://www.sheeo.org/sites/default/files/Adult Promise Design Template.pdf.

8. Note: Oregon Promise report from year two. External evaluations of the Oregon Promise suggest that among participants who responded to a survey, 32 percent of first-generation respondents "agreed" or "strongly agreed" that they would not have gone to college without the grant. "Oregon Promise: Year 1 and the Start of Year 2," Office of Research and Data and Office of Student Access and Completion, Oregon Higher Education Coordinating Commission, 2018, https://www.oregon.gov/highered/about/Documents/Commission/COMMISSION/2018/01_Jan-11-18/9.2%20Oregon%20Promise%20report%20from%20year%202.pdf. Michelle Hodara, Julie Petrokubi, Ashley Pierson, Manuel Vazquez, and Sun Young Yoon, "Fulfilling The Promise? Early Findings on Oregon's New College Grant Program," Education Northwest, 2017, https://educationnorthwest.org/sites/default/files/resources/oregon-promise-508.pdf.

9. Robert K. Toutkoushian, Don Hossler, Stephen L. DesJardins, Brian McCall and Manuel Gonzalez Canche, "The effect of participating in Indiana's twenty-first century scholars program on college enrollments" *Review of Higher Education*, Volume 39, No. 1, 2015, 59-95 http://doi.org/10.1353/rhe.2015.0042.

10. Edward St. John, Glenda Musoba, Simmons, Ada Simmons, Choong-Geun Chung, "Meeting the Access Challenge: Indiana's Twenty-First Century Scholars Program," Indiana Education Policy Center and Lumina Foundation for Education, August, 2002, https://www.luminafoundation.org/files/publications/21stcentury.pdf.

11. Robert K. Toutkoushian, Don Hossler, Stephen L. DesJardins, Brian McCall and Manuel Gonzalez Canche, "The effect of participating in Indiana's twenty-first century scholars program on college enrollments," *Review of Higher Education*, Volume 39, No. 1, 2015, 59-95 http://doi.org/10.1353/rhe.2015.0042.

12. "About Oklahoma's Promise," Oklahoma Promise, Oklahoma State Regents for Higher Education, 2018, https://www.okhighered.org/okpromise/about.shtml. Note: In 2016–17, the average aid amount was $1,841 to students attending two-year colleges, $4,395 for regional universities, and $4,469 for research universities. "Oklahoma's Promise: Oklahoma higher learning access program (2016-17 year end report)," Oklahoma Promise, Oklahoma State Regents for Higher Education, 2017, https://www.okhighered.org/okpromise/reports.shtml.

13. "Oklahoma's Promise: Oklahoma higher learning access program (2016-17 year end report)," Oklahoma Promise, Oklahoma State Regents for Higher Education, 2017, https://www.okhighered.org/okpromise/reports.shtml.

14. Amy Li and Denisa Gándara, “The Promise of ‘Free’ Tuition and Program Design Features: Impacts on First-Time College Enrollment Using a Multi-Program Difference-in-Differences Analysis,” in Laura Perna and Ed Smith, editors, *Improving Research-Based Knowledge of College Promise Programs* (Washington, D.C.: American Educational Research Association, forthcoming 2019).

15. The program also included volunteer mentors who coached students on crucial steps including taking the ACT entrance exam and filling out the Free Application for Federal Student Aid (FAFSA). “Knox Achieves to Assist 496 Knox County Students,” City of Knoxville, January 12, 2009, http://knoxvilletn.gov/archived_news_stories/2009/knox_achieves_to_assist_496_knox_county_students.

16. Celeste K. Carruthers and William F. Fox, “Aid for all: College coaching, financial aid, and post-secondary persistence in Tennessee,” *Economics of Education Review*, Volume 51, 2015, 97–112, http://doi.org/10.1016/j.econedurev.2015.06.001.

17. “The Kalamazoo Promise: 10 things you need to know,” The Kalamazoo Promise, 2018, https://www.kalamazoopromise.com/10things/10ThingsYouNeedtoKnow.

18. Timothy J. Bartik, Brad Hershbein, and Marta Lachowska, “The Effects of the Kalamazoo Promise Scholarship on College Enrollment, Persistence, and Completion,” W.E. Upjohn Institute for Employment Research, working paper 15-229, 2017, 15–229, https://doi.org/10.17848/wp15-229.

19. Note: Additionally, evidence suggests that the Kalamazoo Promise incentivized students from families earning less than $50,000 a year to send ACT test scores to colleges that are higher priced and more selective than these students otherwise would have considered.

Rodney J. Andrews, Stephen DesJardins, and Vimal Ranchhod, “The effects of the Kalamazoo Promise on college choice,” *Economics of Education Review*,Volume 29, Issue 5, 2010, 722–737,http://doi.org/10.1016/j.econedurev.2010.05.004.

20. Sara Goldrick-Rab, Douglas N. Harris, and Philip A. Trostel, “Why Financial Aid Matters (or Does Not) for College Success: Toward a New Interdisciplinary Perspective” in John C. Smart, *Higher Education: Handbook of Theory and Research*, volume 24, edited by John Smart (Netherlands: Springer, 2009), 1–45, https://link.springer.com/chapter/10.1007/978-1-4020-9628-0_1. Robert K. Toutkoushian, Don Hossler, Stephen L. DesJardins, Brian McCall, and Manuel Gonzalez Canche, “The effect of participating in Indiana’s twenty-first century scholars program on college enrollments,” *Review of Higher Education*, Volume 39, Issue 1, 2015, 59–95, https://muse.jhu.edu/article/592487; Thomas Cane, “A Quasi-Experimental Estimate of the Impact of Financial Aid on College-Going,” National Bureau of Economic Research, http://toolkit.pellinstitute.org/wp-content/uploads/2009/12/Cal-Grant-Program-Eval.pdf.

21. Daniel M. Leeds and Stephen L. DesJardins, “The effect of merit aid on enrollment: A regression discontinuity of Iowa’s national scholars award,” *Springer Netherlands*, Volume 56, 2014, 471–495http://doi.org/10.1007/s11162-014-9359-2.

22. Christopher Cornwell, David B. Mustard, and Deepa J. Sridhar, “The Enrollment Effects of Merit-Based Financial Aid: Evidence from Georgia’s HOPE Program,” *Journal of Labor Economics*, Volume 24, Number 4, 2006, 761-86 https://www.jstor.org/stable/10.1086/506485?seq=1#page_scan_tab_contents.

23. David Deming and Susan Dynarski, “Into college, out of poverty? Policies to increase the postsecondary attainment of the poor,” National Bureau of Economic Research, NBER Working Paper Series No. 15387, 2009, http://www.nber.org/papers/w15387. Jeffrey T. Denning, “College on the Cheap: Consequences of Community College Tuition Reductions,” *American Economic Journal: Economic Policy*, Volume 9, Issue 2, 2017, 155-88.

24. Stephen L. DesJardins, Dennis A. Ahlburg, and Brian Patrick McCall, “An Integrated Model of Application, Admission, Enrollment, and Financial Aid,” *Journal of Higher Education*, Volume 77, Issue 3, 2006, 381–429, http://muse.jhu.edu/article/196941.

25. Rina Seung Eun Park and Judith Scott-Clayton, “The Impact of Pell Grant Eligibility on Community College Students’ Financial Aid Packages, Labor Supply, and Academic Outcomes,” Center for Analysis of Postsecondary Education and Employment, 2017, https://capseecenter.org/wp-content/uploads/2017/03/impact-pell-grant-eligibility-community-college-students.pdf. Note: See W. Lee Hansen, “Impact of Student Financial Aid Success,” *Proceedings of the Acadeny of Political Science*, volume 35, number 2, 1983, https://www.jstor.org/stable/3700892?origin=crossref&seq=1#page_scan_tab_contents; Thomas J. Kane, “Rising Public College Tuition and College Entry: How Well Do Public Subsidies Promote Access to College?” National Bureau of Economic Research, July, 1995, https://econpapers.repec.org/paper/nbrnberwo/5164.htm; Neil S. Seftor and Sarah Turner, “Back to School: Federal Student Aid Policy and Adult College Enrollment,” *Journal of Human Resources*, volume 37, number 2, 2002, https://econpapers.repec.org/article/uwpjhriss/v_3a37_3ay_3a2002_3ai_3a2_3ap_3a336-352.htm. Especially for first-generation or lower-income students, the process for applying for federal aid may seem inaccessible. Another possibility is that students who work are “penalized” in the federal aid calculation and end up receiving less financial aid. Therefore, the same amount provided in grant aid induces a smaller enrollment response compared to the same reduction in tuition. See Susan Dynarski and Judith Clayton, “The Cost of Complexity in Federal Student Aid: Lessons from Optimal Tax Theory and Behavioral Economics,” Kennedy School of Government, Working Paper RWP06-013, April, 2006, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=832633; Sara Goldrick-Rab, Douglas Harris, and Philip Trostel, “Why Financial Aid Matters (or Does Not) for College Success: Toward a New Interdisciplinary Perspective,” in *Higher Education: Handbook of Theory and Research*, volume 24, edited by John Smart (Netherlands: Springer, 2009), 1–45, https://www.springer.com/us/book/9781402045097.

26. David Deming and Susan Dynarski, “Into college, out of poverty? Policies to increase the postsecondary attainment of the poor,” National Bureau of Economic Research, NBER Working Paper Series No. 15387, 2009, http://www.nber.org/papers/w15387; Susan Dynarski, “The New Merit Aid,” in*College Choices: The Economics of Where to Go, When to Go, and How to Pay for It*, edited by Caroline Hoxby (Chicago: University of Chicago Press, 2004), 63–100, https://press.uchicago.edu/ucp/books/book/chicago/C/bo3643231.html. Similarly, researchers find increases in enrollments resulting from statewide merit aid programs, although not from need-based grant aid programs. Robert Toutkoushian and Nicholas Hillman, “The Impact of State Appropriations and Grants on Access to Higher Education and Outmigration” *The Review of Higher Education*, volume 36, http://ihe.uga.edu/uploads/publications/faculty/Toutkoushian_Hillman_RevHE_2012.pdf.

27. Eric P. Bettinger, Bridget Terry Long, Philip Oreopoulos, and Lisa Sanbonmatsu, “The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment,” *Quarterly Journal of Economics*, Volume 127, Issue 3, August 2012, 1205–1242, https://doi.org/10.1093/qje/qjs01.

28. Katharine G. Abraham and Melissa A. Clark “Financial aid and students’ college decisions – Evidence from the District of Columbia Tuition Assistance Grant Program,” *Journal of Human Resources*, Volume 41(3), 2003, 578–610, http://doi.org/10.3386/w10112.

29. Susan M. Dynarski, “Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion”, *American Economic Review*, Volume 93, Issue 1, 2003, 279–288, http://www.aeaweb.org/articles?id=10.1257/000282803321455287.

30. Robert Bozick, Gabriella Gonzalez, and John Engberg, “Using a Merit-Based Scholarship Program to Increase Rates of College Enrollment in an Urban School District: The Case of the Pittsburgh Promise,” *Journal of Student Financial Aid*, Volume 45, Issue 2 Article 2, 2015, https://publications.nasfaa.org/cgi/viewcontent.cgi?article=1552&context=jsfa.

31. Gabriella C. Gonzalez, Robert Bozick, Shannah Tharp-Gilliam, and Andrea Phillips, “Fulfilling the Pittsburgh Promise: Early progress of Pittsburgh’s postsecondary scholarship program,” RAND Corporation, 2011, https://www.rand.org/pubs/monographs/MG1139.html.

32. Douglas N. Harris, Raquel Farmer-Hinton, Debbie Kim, John Diamond, Tangela Blakely Reavis, Kelly Krupa Rifelj, Hilary Lustick, and Bradley Carl, “The promise of free college (and its potential pitfalls),” Brown Center on Education Policy at Brookings Institution, 2018, https://www.brookings.edu/wp-content/uploads/2018/09/GS_9202018_Free-College.pdf.

33. Sara Goldrick-Rab, Douglas N. Harris, and Philip A. Trostel, “Why Financial Aid Matters (or Does Not) for College Success: Toward a New Interdisciplinary Perspective” in Higher Education: Handbook of Theory and Research, volume 24, edited by John Smart (Netherlands: Springer, 2009), 1–45, https://link.springer.com/chapter/10.1007/978-1-4020-9628-0_1.

34. Steven W. Hemelt, and Dave E. Marcotte, “The Impact of Tuition Increases on Enrollment at Public Colleges and Universities,” *Educational Evaluation and Policy Analysis*, Volume 33, Issue 4, 2011, 435–457, https://journals.sagepub.com/doi/abs/10.3102/0162373711415261. Note: The elasticity rates found in this study broadly mirror previous findings on the impact of sticker price on enrollment.

35. Steven W. Hemelt and Dave E. Marcotte, “The Impact of Tuition Increases on Enrollment at Public Colleges and Universities,” *Educational Evaluation and Policy Analysis*, Volume 33, 4, 2011, 435–457, https://journals.sagepub.com/doi/abs/10.3102/0162373711415261.

36. Jeffrey T. Denning, “College on the cheap: Consequences of community college tuition reductions,” *American Economic Journal*, Volume 9, Issue 2, 2017, 155–188, http://doi.org/10.1257/pol.20150374.

37. Riley Acton, “The Impact of Public Tuition Subsidies on Public College Tuition,” working draft, https://aefpweb.org/sites/default/files/webform/Acton_AEFP2018.pdf.

38. “Trends in college pricing,” *Trends in Higher Education*, College Board, 2018, Figure 17, https://trends.collegeboard.org/college-pricing.

39. Sophia Laderman and Andy Carlson, “State Higher Education Finance: FY 2017,” State Higher Education Executive Officers Association, 2018, http://sheeo.org/projects/shef-—-state-higher-education-finance. Note: Net tuition revenue

consists of tuition and fees paid to the institution, net of all institutional grant aid. See “Trends in college pricing,” *Trends in Higher Education*, College Board, 2018, Figure 17, https://trends.collegeboard.org/college-pricing; “Net Tuition Revenues, Subsidies, and Education Expenditures Per Student over Time,” *Trends in Higher Education*, College Board, https://trends.collegeboard.org/college-pricing/figures-tables/net-tuition-revenues-subsidies-and-education-expenditures-per-student-over-time. Those state higher education appropriations per full-time equivalent student remain below historical levels. During the Great Recession, at the state level, educational appropriations (taxpayer revenue allocated towards education and related expenses) declined 24 percent between 2008 and 2012. These funding declines can be attributed to enrollment increases that were *not* accompanied by additional increases in state support. Public colleges experienced five years of consecutive increases in per-student state support from 2013 to 2017. Nevertheless, states still funded colleges about $2,000 less per-student in 2017 than in 2011, and $1,000 less compared to before the recession.

40. Note: Other contracts, private gifts, investment returns, and auxiliary enterprises (dorms, athletics) make up some of the balance left over, but for purposes of these calculations and of changes in public policy, we consider federal and state appropriation changes needed.“A guidebook on state budgeting for higher education,” National Association of State Budget Officers, 2015, http://www.nasbo.org/sites/default/files/HigherEducationStateBudgetingGuidebook.pdf.

41. “Interactive Data 2017,” State Higher Education Executive Officers Association, 2018, https://public.tableau.com/profile/sheeo1303#!/vizhome/SHEFInteractiveData2017/About?publish=yes.

42. Note that research suggests that for every one-percentage-point increase in unemployment, enrollment in community colleges increases by 1.1 to 3.3 percent. Christopher Mullin and Kent Phillippe, “Community college enrollment surge: An analysis of estimated fall 2009 headcount enrollments at community colleges,” American Association of Community Colleges, 2009, https://eric.ed.gov/?id=ED511056; Nicholas W. Hillman and Erica Lee Orians, “Community colleges and labor market conditions: How does enrollment demand change relative to local unemployment rates?” *Research in Higher Education* volume 54, 2013, 765–80,http://doi.org/10.1007/s11162-013-9294-7.

43. Jolanta Juszkiewicz, “Trends in community college enrollment and completion data,” American Association of Community Colleges, 2017, https://www.aacc.nche.edu/2017/12/28/trends-in-community-college-enrollment-and-completion-data-2017/. Note that enrollment nationally declined by 42 percent (equivalent to about one million fewer students) between fall 2010 and fall 2016. “Trends in College Pricing,” College Board, 2018, https://trends.collegeboard.org/college-pricing.

44. Note: The Georgetown Center based their projections off of the experience of the Tennessee Promise. “Our Best Estimate on the Enrollment Effects of Clinton’s Free College Proposal,” McCourt School of Public Policy, Georgetown University Center on Education and the Workforce, Georgetown University, 2016, https://www.insidehighered.com/sites/default/server_files/files/memo%20Clinton%20plan.pdf.

45. Compiled by authors from Colorado Department of Higher Education data, using the total state higher education funding allocations in each system and dividing them by the total full-time equivalent (FTE) enrollment. “Report on implementation status of the higher education funding allocation formula,” Colorado Department of Higher Education, 2018, https://highered.colorado.gov/data/reports.aspx; FY 2017–18 higher education funding allocation formula allocations, total from model. Data from last page of Colorado Commission on Higher Education, “Report on the

implementation status of the higher education funding allocation formula," 2017, https://highered.colorado.gov/data/reports.aspx; FY 2017–18 total student FTE data from "Final FTE Student Enrollment Report," Colorado Department of Higher Education, 2018, https://highered.colorado.gov/data/reports.aspx.

46. Laura Perna and Elaine Leigh, "Understanding the Promise: A Typology of State and Local College Promise Programs, *Educational Researcher*, Volume 47, Issue 3, November 22, 2017, 155–180. See also Perna, L. W., & Leigh, E. (n.d.). Database of college promise programs.

47. Community colleges spend just one-third of the money educating a student as four-year research institutions. See Richard D. Kahlenberg, Robert Shireman, Kimberly Quick, and Tariq Habash, "Policy Strategies for Pursuing Adequate Funding of Community Colleges," The Century Foundation, October 25, 2018, https://tcf.org/content/report/policy-strategies-pursuing-adequate-funding-community-colleges/. Moreover, community colleges have fewer options to generate alternative revenue sources (e.g. through donations or auxiliary services) compared to research universities and elite private institutions.

48. See, for example, the services and supports provided through the CUNY ASAP model, a program that is going through a rigorous evaluation and has shown positive results. "Evaluation of ASAP for Developmental Education Students," MDRC, https://www.mdrc.org/project/evaluation-accelerated-study-associate-programs-asap-developmental-education-students#overview.

49. Michael Hout, "Social and Economic Returns to College Education in the United States," Advance, April 23, 2012, available at https://www.collegetransitions.com/wp-content/uploads/2014/05/hout-returns-to-college-education.pdf.

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