Community Colleges and Workforce Development

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At the roughly 1,000 public community colleges in the US, millions of students enroll in courses and programs that prepare them for either academic pursuits (such as transferring to a four-year college or university to pursue a bachelor's degree) or direct entry into the workforce. Those in the latter category gain occupational skills and credentials that include associate degrees and certificates; certificates can be for academic credit or not and for varying lengths of time, and certificates and associate degrees can be for fields with diverging skill needs and varying amounts of regional demand for labor at any time. Employers in key regional industries generate this labor demand, and meeting their skill needs is an important workforce development role for community colleges.

While community colleges meet a wide range of student and industry needs, are they meeting their potential—in terms of serving as an accessible point of entry to good jobs in the labor market and generating opportunities for high-quality skill development and workforce preparation at scale? For whom do they work more or less effectively? And what might be done to improve opportunities and outcomes there? What is the role of short-term versus long-term and for-credit versus noncredit programs? And how can we make sure that they adapt when labor markets evolve and are shaped by technological and global factors?

In this report, we argue that community colleges provide millions of students, including people of color and those from low-income backgrounds, with the skills to prosper in the US labor market. At the same time, improvements are clearly needed on several dimensions. Community colleges are experimenting with a range of innovations to improve student performance and their programs' labor market value, and many such efforts are being rigorously evaluated. College administrators should implement the most promising practices broadly, while policymakers at the local, state, and federal levels should support their implementation.

Basic Facts

Community colleges serve a diverse set of students and offer a wide range of possible credentials. For instance:

- About 40 percent of community college students are age 25 and above, and over half attend part-time while they work.
- People of color account for over half of community college students, and lower-income students are heavily represented.
- Older and lower-income students are disproportionately enrolled in certificate programs for occupational preparation.[1]

Among those in degree or certificate programs, fields of study can include liberal arts fields (including math and the sciences), business, construction,

manufacturing, health care, eldercare, transportation logistics, IT, cosmetology, and culinary (or hospitality) services. Not surprisingly, the economic value of these programs—measured as the rise in earnings that workers receive by attending and completing them—can vary dramatically, with programs in STEM often having higher value while those in cosmetology, culinary, and eldercare are less valuable.[2]

Certificates can be for academic credit or not; the former tend to contain at least somewhat greater academic content, while the latter are often tailored to the needs of specific employers and industries in the local economy. In many colleges, for-credit certificates can be "stacked" into associate degrees; this is growing more frequently true for noncredit credentials as well.[3] Certificates can take as long as two years to complete or as little as a few months. On average, longer-term programs and those for academic credit have higher market value, though value varies widely within each category.[4]

Strengths and Weaknesses of Community College Workforce Programs

In the US, workers with associate degrees and certificates earn about 30 percent and 10 percent more per year than high school graduates, respectively.[5] The labor market value of degrees earned at public community colleges also tends to be higher than those obtained at for-profit colleges, while the latter are also more expensive to obtain.[6]

However, there are three main downsides to community college attendance:

1. Completion rates are low,
2. Many credentials do not have labor market value, and
3. Though average debt loads are small, default rates can be substantial.

Three years after students' enrollment, the average completion rate of a credential at community colleges is just 22 percent; after six years, it is about 40 percent. Completion rates tend to be higher in certificate programs than degree programs (averaging in the 60 percent range) but lower among low-income students and people of color than otherwise.[7] If we omit from this calculation students who never intend to obtain a degree or credential (e.g., those who intend to take only a course or two in computer programming), completion rates rise but remain limited.

Students who complete associate degrees in liberal arts or liberal studies and for whom these degrees are terminal (i.e., they do not ultimately complete bachelor's degrees) earn low returns over time.[8] While liberal arts degrees have strong value over the long run for those with bachelor's degrees, we have no evidence of this for associate degrees.[9] This also holds true for those completing certificates in workforce-related fields such as cosmetology and culinary services and a wide range of certificates in health care and eldercare, as noted above.

On the other hand, students may earn high returns in fields such as licensed health professions, technology fields, or construction trades. For instance, Project QUEST is one model of community college training that supports the certification of health care employees and is associated with high returns.[10] But because these professions pay relatively high wages, community colleges typically have difficulty attracting instructors at the prevailing community college wage. This may reduce course offerings and increase the time to obtain a degree. It can also significantly impede scaling successful degree programs.

And even modest debt loads among community college students—say, in the range of $10,000–$15,000—can be burdensome to those from low-income families and without well-paying jobs post-completion. Default rates are high for community college students who fail to complete any credentials, but they are substantial even among those who complete credentials with low value.[11]

What accounts for the weak outcomes among community college students, even among many of those in workforce-related fields? It is helpful to think about student- and institution-based determinants of weak outcomes. On the student side:

- Since community colleges are open-access institutions, many students enter with limited academic skills—and often get stuck in developmental education or "gateway" classes that they have difficulty mastering.[12]

- Pell Grants are often too limited in value to cover the expenses of low-income, full-time students.

- Many students, therefore, have to work full-time to support their families and must attend college part-time, reducing their chances of program completion.

- Low-income students often face challenging family situations that can distract them from their work, including unstable eldercare or childcare and other financial emergencies.

- Students lack sufficient information to help them choose programs they can complete, and they spend too much time switching majors and programs, making it harder for them to complete credentials.[13]

On the institutional side, developmental programs in community colleges are changing. For instance, colleges are moving from prerequisite to corequisite preparatory classes—so that students can begin taking for-credit courses while they bolster their skills—and colleges are reforming the process of remediating academic shortfalls.[14] Since some certificate programs, especially those that are shorter-term or not for academic credit, tend to be less academically rigorous and require less time, completion rates are often higher for enrollees with weaker academic backgrounds or who need to work full-time. However, their labor market value can be lower as well. And students need more assistance navigating across programs and finding those best suited to their skills and interests.

This suggests at least one institutional shortcoming in many community colleges: the lack of academic and career guidance to help students find appropriate programs of study, reinforced by a lack of institutional guardrails to focus students on program completion.[15] On their own, students lack sufficient information about labor market trends to make the best enrollment choices.[16] Support services are often too weak to help students address family crises involving childcare and financial emergencies.

The lack of sufficient guidance and support is at least partly attributable to the severe financial constraints that community colleges face. These colleges are expected to provide a full range of academic and workforce programming—and to do so for large numbers of first-generation and low-income students. Yet their state subsidies per full-time-equivalent student are substantially lower than even low-tier four-year public institutions' subsidies are.[17]

Furthermore, their financial needs per student are often higher, requiring a greater level of support services. Community colleges must often choose between providing sufficient instructional options and needed student supports and keeping tuition low enough to make their programs financially accessible and meet political pressures. As we discuss further below, the constraints the per-student funding model impose may soon be exacerbated by a coming "enrollment cliff," in which the number of US high school graduates could decline precipitously.

The difficulties community colleges experience in meeting their students' workforce needs are compounded by capital constraints, such as the high cost of equipment in health care, IT, and other STEM-related fields. Additionally, allocating institutional resources and establishing institutional pathways and regulations create tension between the academic (liberal arts) and workforce programs. General education requirements in associate degree programs, based on the requirements of transfer to four-year institutions, can conflict with the need to quickly respond and adapt to changing labor market needs. For-credit certificate programs have fewer such academic requirements but usually contain some academic content to justify their credit status.

The not-for-credit certificate programs adapt most quickly and can be rapidly set up to meet

short-term employer needs. Yet students enrolled in the not-for-credit programs are not eligible for Pell Grants and other Title IV federal assistance. Community colleges that have traditionally viewed themselves primarily as academic institutions are often not adept at working closely with regional employers to better understand their evolving skill needs and develop classroom curricula and work experience accordingly.

And the financial incentives institutions faces might not be well-aligned with such efforts; state subsidies are for "seat time" rather than program completion or post-program earnings capacities. Most states have adopted some version of "performance-based funding" to improve institutional incentives regarding these outcomes, though these incentives vary tremendously across states and often emphasize credit attainment or general credential completion. Yet rewarding institutional outcomes in this manner can create perverse incentives—for instance, to "cream skim" in admissions, lower completion standards, or prioritize fields with high completion rates but low wages.[18] "Gainful employment" regulations on occupational programs in for-profit institutions also cover such programs in public institutions, though these have been repeatedly struck down by federal courts or removed by the federal Department of Education (in the Trump administration years).

The lack of consistent longitudinal data on graduates' earnings has also made it more difficult to create performance formulas that accurately measure workforce outcomes. Noncredit programs are not tracked nationally. The College Scorecard earnings data only cover students who receive federal aid. For community colleges that operate as systems with branches, earnings data are reported only at the branch level, not for each distinct campus. While many states have made strides to link unemployment insurance and postsecondary education data systems, implementation has been mixed at best.

Student enrollments in workforce programs are limited for other reasons. Over 80 percent of students entering community colleges right after completing high school expect to earn bachelor's degrees, though only small percentages of them do so successfully.[19] Even among those pursuing associate degrees, few seem to know that liberal arts associate degrees have so little value or that some fields (such as health care or STEM) require difficult classes (such as anatomy or math). And even those students enrolled in certificate programs tend to avoid high-demand fields such as manufacturing—where perceptions on the nature of jobs are often outdated and inaccurate.

Community colleges have also struggled with enrollment overall in the past few years, as a growing set of job-focused boot camps, for-profits schools, and geographically agnostic online providers have emerged as formidable competitors. Though their results are largely unproven, many of these alternative providers invest much more heavily in marketing, including through digital channels. Moreover, the small share of students who do obtain liberal arts associate degrees and go on to a four-year college may face longer-term challenges. Di Xu et al. find that while these students are just as likely to complete a bachelor's degree as those who enter a bachelor's program from high school, they face a significant wage penalty several years out that may be related to course credit loss at the time of transfer into the four-year program.[20]

Finally, the quality of pathways from high school careers and technical education into certificate programs in community colleges vary greatly across states.[21] And while work-based learning opportunities for community college students—for example, enabling them to enroll in degree or certificate programs while they are also in registered apprenticeships—have grown somewhat in recent years, such opportunities remain limited.[22] Engaging more employers in active cooperation with community colleges would likely increase the available opportunities for students. Given that community college students are more likely to come from low-income backgrounds and experience capital constraints, opportunities to earn money from relevant work experience while enrolled in coursework could boost enrollment, completion, and career outcomes.

What Policies and Practices Might Improve Community College Workforce Outcomes?

A range of policies at the federal and state levels might help community colleges strengthen their workforce program offerings. At the same time, financial and programmatic choices and practices at the institutional level matter a great deal as well.

Federal and State Financial Policies. Federal financial aid is disbursed primarily through Title IV of the Higher Education Act, which funds Pell Grants and federal student loans (and Federal Work-Study).[23] The maximum value of Pell Grants, which can help low-income students finance tuition and fees and living expenses, is only about $6,400 per year. Students must also be enrolled in pro-grams that are at least part-time to qualify. Propos-als to expand Pell to shorter-term programs—such as the Jumpstart Our Business Startups Act that Sens. Tim Kaine (D-VA) and Rob Portman (R-OH) proposed—have not been enacted to date. And gainful employment regulations that require occu-pational programs to generate higher earnings and income-to-debt ratios could play a more positive role in holding such programs accountable at public and for-profit institutions.[24]

States mostly subsidize their public higher edu-cation institutions, such as community colleges, to keep tuition relatively low for state residents. As noted, performance-based funding mechanisms have proliferated at the state level, and progressive versions of these rules could require institutions to improve earnings outcomes, especially among their low-income student populations or those of color. But doing so should be done with various cautions in mind, such as the need to avoid cream skimming in admissions or not place undue burden on institu-tions that enroll many lower-income students.

Institutional Practices. The community college practices that have the greatest chances of improv-ing workforce program outcomes require shifts in programmatic offerings and investment priorities. Promising models include:

- Increasing student exposure to a range of career options and programs when enrolling in community colleges;
- Expanding academic and career guidance and other student supports;
- Building flexible pathways and "stacking" opportunities in for-credit and not-for-credit certificate programs;
- Using labor market information and engage-ment with employers to improve program alignment with the regional labor market;
- Building more opportunities to combine work-based learning with classroom educa-tion and training;
- Improving community colleges' integration into regional economic development and workforce governance;
- Updating faculty recruitment and hiring practices to source and retain instructors with relevant industry experience and ability to teach modern, in-demand skills; and
- Investing in employer engagement staff and functions that build long-term hiring rela-tionships with firms.

Our current evidence base on these practices is limited but growing. For instance, Rachel Fulcher Dawson, Melissa S. Kearney, and James X. Sullivan summarize rigorous evaluation research that high-lights a set of cost-effective support programs that improve credential attainment, especially among lower-income students.[25] Indeed, such expenditures generally improve credential attainment substantially more than using the same dollars for broad-based tuition reduction does.[26]

While limited evidence indicates that appren-ticeships are valuable for American workers, our understanding of how to better integrate with

community college programs and encourage more employer participation lags behind.[27] And, while the Trade Adjustment Assistance Community College and Career Training grants of the Obama administration improved our understanding of how to integrate community colleges into regional workforce systems, much remains to be learned in this area.[28]

Still, many promising innovations have been tried in recent years, which could ultimately be evaluated more rigorously for their impacts on credential completion and earnings. There are several examples with respect to public investments and new funding models. Through the American Rescue Plan, the Department of Commerce launched a new industry-college regional partnership competition in 2022. The Good Jobs Challenge awarded $500 million in grants that will extend through 2027 to regional workforce training partnerships among industry, community colleges or other training partners, community-based organizations, and unions.

Virginia launched the FastForward program in 2018 to fund short-term (six- to 12-week) programs that target in-demand fields through a pay-for-performance model shared among the state, students, and course providers. In 2022, California allocated a one-time appropriation of $100 million and an annual allocation of $40 million to support basic needs centers across the state's 115 community college campuses.

New Jersey created a first-in-the-nation Pay It Forward Program in 2021 that provides zero-interest, no-fee loans from a revolving fund for residents to enroll in high-quality job training programs at community colleges. Participants pay no upfront costs and receive living stipends and wraparound supports including access to emergency aid funds and mental health counseling.

Texas unveiled a proposal in 2022 to increase state funding for community colleges by $650 million, including substantial funding for short-term programs for the first time, tying most of that money to workforce outcomes. San Antonio approved a dedicated increase in the sales tax for workforce development and transportation in 2020.

In addition, many community colleges are piloting and expanding their own internal programs with a concerted focus on improving labor market outcomes. Community college apprenticeship programs appear to be growing. The Department of Labor's apprenticeship outlays increased from $90 million in 2016 to $185 million in 2021, including a $20 million grant to the American Association of Community Colleges to create at least 16,000 apprenticeships.[29] And at least three city-based "promise" scholarship programs have expanded the focus beyond traditional degree programs and now include funding for apprenticeships.[30]

Several new initiatives emphasize wraparound supports, including pandemic-era experiments to provide living stipends or emergency aid to community college students through the federal Coronavirus Aid, Relief, and Economic Security Act.

Community colleges are at the center of a number of prominent new regional economic development strategies, including Virginia's Infrastructure Academy, a joint effort between the Virginia Community College System and local employers to train approximately 35,000 qualified workers over the next five years; the California Resilient Careers in Forestry program, a $20 million-plus program to expand statewide training to respond to the growing workforce needs in fire safety; and a new $8 million partnership between Dallas College and local employers to develop their region's biotechnology workforce.

New models of career coaching and advising are beginning to gain steam, including the Guided Pathways approach to streamline student navigation across multiple campus entities[31] and the Bill & Melinda Gates Foundation–funded Completion by Design initiatives on nine campuses to implement integrated student success strategies across whole institutions.

New models of sector-based training are emerging in community colleges. For example, the City Colleges of Chicago (CCC)—which includes seven separate colleges located in various parts of Chicago—now has a Center of Excellence in each college dedicated to training workers for specific industries (such as health care, manufacturing, transportation and distri-

bution logistics, and IT). The CCC and its Centers of Excellence are working to improve the design of curricula based on the most recent labor market information and employer input, student exposure to work-based learning, and other innovations.

Again, further study and evaluation of these initiatives could help inform policy and scaling in other settings.

We would be remiss if we did not acknowledge employers' crucial roles in realizing community colleges' workforce development potential. In fact, relations between community colleges and employers vary substantially by region, company, and school.[32] The uneven levels of employer engagement and commitment may help explain diverging outcomes on labor market performance.[33] Colleges that appear successful at supporting upwardly mobile career pathways exhibit deep, sustained, collaborative relationships with local employer partners. Promising models for employer leadership include:

- *Sponsoring and Codesigning New Programs.* For instance, after Amazon announced that its second headquarters would be located in Northern Virginia, it partnered with Northern Virginia Community College to roll out one of the first cloud-computing degrees offered by a community college in the country.

- *Supporting Development of Industry-Recognized Credentials, Validated by Employers.* The employer-funded National Coalition of Certification Centers has built competency-based industry certifications codesigned by industry and education for over 160 fields, and it provides a potentially scalable approach.

- *Providing Faculty and Instructional Support Beyond Cursory Advisory Board Participation.* The Aspen Institute's Workforce Playbook cites examples such as faculty member shadowing opportunities on worksites and classroom visits by employers as ways to ensure that the college's teachings align with what will be expected on the job.[34]

- *Investing in Shared Infrastructure, Such as Equipment, Supplies, and Facilities.* For example, when Coconino Community College launched its automotive technology program in response to local workforce needs, a local Honda dealership let the program use its facilities in the evenings.[35]

- *Providing Priority Hiring or Interviews to Community College Candidates.* Miami Dade College collaborates with Tesla and Florida Power & Light so their students are first in line for job opportunities.[36]

Most of the current research does not study how community college investments affect employers (i.e., retention, reduced time to hire, or productivity). However, studies that follow individuals' trajectories within firms will be crucial if policymakers are to secure more collaboration and resources from the private sector. Research that demonstrates a strong return on investment could induce more employers to embrace community colleges as reliable talent development partners.

Finally, the shift toward more performance-oriented funding for community colleges may become especially important as colleges confront a coming "enrollment cliff," a term capturing the fact that the number of high school graduates will peak in 2026 and decline precipitously thereafter. Recently, pandemic-related declines in enrollments and funding have foreshadowed these coming challenges. Foremost, colleges will need to reorient program offerings toward high-value degrees and certificates while attracting more adult learners who are looking to switch careers. At the same time, federal and state funding may need to shift even more toward performance-based, rather than enrollment-based, funding mechanisms.

Conclusion

Community colleges provide a wide range of programs and credentials that prepare students for the labor market, especially those who will not obtain

bachelor's degrees. But numerous problems limit the value and effectiveness of these efforts—including low completion rates among students, low labor market value of many credentials they obtain, and high debt and default rates.

Research and evaluation efforts have already identified ways that such performance can be improved, and many community colleges are experimenting with innovative practices that might enable them to improve such outcomes. Some provide more financial assistance to students in short-term or noncredit programs (which are generally not eligible for federal Title IV funding). Others provide greater guidance or other supports to students with a range of needs, and still others creatively engage major local and regional employers that also provide students opportunities for work-based learning and careers.

Policymakers should pay close attention to these innovative efforts and provide more financing for those that seem most cost-effective and scalable. They should also make sure that colleges are accountable for public funding received, in terms of generating strong student outcomes, and that community colleges coordinate with other bodies (such as workforce boards and industry groups) in creating regional workforce systems that provide opportunities to local students and needed skills for employers.

About the Authors

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Notes

1. Sandy Baum, Harry Holzer, and Grace Luetmer, *Should the Federal Government Fund Short-Term Postsecondary Certificate Programs?*, Urban Institute, December 15, 2020, https://www.urban.org/sites/default/files/publication/103370/should-the-federal-government-fund-short-term-postsecondary-certificate-programs_0_0.pdf.

2. Wages and salaries in health care certificate programs vary dramatically across occupations. Those in nursing assistance are generally quite low, while various technical occupations are somewhat better compensated.

3. In reality, limited stacking actually occurs, and the labor market rewards for stacking are questionable. Thomas Bailey and Clive Belfield, "Stackable Credentials: Do They Have Labor Market Value?" (working paper, Community College Research Center, New York, 2017), https://ccrc.tc.columbia.edu/publications/stackable-credentials-do-they-have-labor-market-value.html.

4. Baum, Holzer, and Luetmer, *Should the Federal Government Fund Short-Term Postsecondary Certificate Programs?*

5. These estimates are obtained from regression analysis of earnings differentials by levels of education, controlling for age and other demographics. More rigorous efforts to compute these estimates often compare community college completers to non-completers. These estimated effects of credential attainment are smaller—partly because they treat credit accumulation for non-completers as having no value, which is incorrect. They also compare certificate attainers to non-completers in degree programs, which might be an inappropriate comparison. Clive Belfield and Thomas Bailey, "The Labor Market Returns to Sub-Baccalaureate College: A Review" (working paper, Center for Analysis of Postsecondary Education and Employment, New York, March 2017), https://ccrc.tc.columbia.edu/media/k2/attachments/labor-market-returns-sub-baccalaureate-college-review.pdf.

6. David Deming, Claudia Goldin, and Lawrence Katz, "For-Profit Colleges," *Future of Children* 23, no. 1 (2013): 137–63; and Stephanie Cellini and Nicholas Turner, "Gainfully Employed? Assessing the Employment and Earnings of For-Profit College Students Using Administrative Data" (working paper, National Bureau of Economic Research, Cambridge, MA, 2016), https://www.nber.org/system/files/working_papers/w22287/w22287.pdf.

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14. Judith Scott-Clayton, "Evidence-Based Reforms in College Remediation Are Gaining Steam—and So Far Living Up to the Hype," Brookings Institution, March 29, 2018, https://www.brookings.edu/research/evidence-based-reforms-in-college-remediation-are-gaining-steam-and-so-far-living-up-to-the-hype.

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16. Rachel Baker et al. indicate that relatively few community college students in California accurately rank occupations according to earnings potential afterward. But Riley K. Acton indicates that students move away from fields experiencing major employment downturns, either cyclical or secular in nature. Rachel Baker et al., "The Effect of Labor Market Information on Community College Students' Major Choice," *Economics of Education Review* 65 (2018): 18–30, https://www.sciencedirect.com/science/article/abs/pii/S0272775718300566; and Riley K. Acton, "Community College Program Choices in the Wake of Local Job Losses," *Journal of Labor Economics* 39, no. 4 (2021): 1129–54, https://www.journals.uchicago.edu/doi/epdf/10.1086/712555.

17. Century Foundation, *Restoring the American Dream: Providing Community Colleges with the Resources They Need* (New York: Century Foundation, 2019), https://tcf.org/content/book/restoring-american-dream-providing-community-colleges-resources-need.

18. Kevin J. Dougherty et al. review current limited evidence on the effects of performance-based funding on student outcomes. What evidence exists primarily covers early examples of such funding. Also, some evidence suggests that funding overall credential attainment, for instance, induces students to switch from associate degrees to certificates—which is not a desirable outcome for those who might otherwise obtain associate degrees in well-compensated occupational fields. Kevin J. Dougherty et al., "Performance Funding for Higher Education: Forms, Origins, Impacts, and Futures," *Annals of the American Academy of Political and Social Science* 665 (September 2014): 163–84, https://www.jstor.org/stable/24541755. See also David J. Deming and David Figlio, "Accountability in US Education: Applying Lessons from the K–12 Experience to Higher Education," *Journal of Economic Perspectives* 30, no. 3 (Summer 2016): 33–56, https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.30.3.33.

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20. Di Xu et al., "Are Community College Transfer Students 'a Good Bet' for 4-Year Admissions? Comparing Academic and Labor-Market Outcomes Between Transfer and Native 4-Year College Students," *Journal of Higher Education* 89, no. 4 (2018): 478–502, https://transferstudents.ucsd.edu/for-faculty-staff/Xu-et-al.pdf.

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22. Robert I. Lerman, *Training Tomorrow's Workforce: Community College and Apprenticeship as Collaborative Routes to Rewarding Careers*, Center for American Progress, December 2009, http://cdn.americanprogress.org/wp-content/uploads/issues/2009/12/pdf/comm_colleges_apprenticeships.pdf.

23. Evidence on Pell Grants' cost-effectiveness is mixed. On the one hand, the average returns to Pell are limited, at least partly because many institutions reduce their aid when students obtain these grants. On the other hand, increases in maximum Pell value can have positive impacts, especially when substitution of Pell for state or institutional funding can be limited. Amanda Eng and Jordan Matsudaira, "Pell Grants and Student Success: Evidence from the Universe of Federal Aid Recipients," *Journal of Labor Economics* 39, no. S2 (April 2021), https://www.journals.uchicago.edu/doi/abs/10.1086/712556; and Jeffrey Danning, Benjamin M. Marx, and Lesley J. Turner, "ProPelled: The Effects of Grants on Graduation, Earnings, and Welfare," *American Economic Journal: Applied Economics* 11, no. 3 (2019): 193–224, https://www.aeaweb.org/articles?id=10.1257/app.20180100.

24. Federal funds from the Workforce Innovation and Opportunity Act can also fund workforce programs at community colleges. But the levels of such funding have grown low, and individual training accounts are usually limited in magnitude to a few thousand dollars per student per year.

25. Rachel Fulcher Dawson, Melissa S. Kearney, and James X. Sullivan, "Comprehensive Approaches to Increasing Student Completion in Higher Education: A Survey of the Landscape" (working paper, National Bureau of Economic Research, Cambridge, MA, 2020), https://www.nber.org/system/files/working_papers/w28046/w28046.pdf.

26. David Deming and Christopher Walters, "The Impact of Price Caps and Spending Cuts on US Postsecondary Attainment" (working paper, National Bureau of Economic Research, Cambridge, MA, 2017), https://www.nber.org/system/files/working_papers/w23736/w23736.pdf; and Christopher Avery et al., "Policies and Payoffs to Addressing America's College Graduation Deficit," Brookings Institution, September 5, 2019, https://www.brookings.edu/bpea-articles/policies-and-payoffs-to-addressing-americas-college-graduation-deficit. In recent years, several states have implemented "promise" programs to generate free community college. But such policies can reduce completion rates by draining funds from instruction and support services; they might also induce many people pursuing bachelor's degrees to start at community colleges for their first two years, with the hope of transferring later—but

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