RESEARCH REPORT

Should the Federal Government Fund Short-Term Postsecondary Certificate Programs?

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Errata

This report was corrected on January 14, 2021. In a previous version, the ATES was incorrectly called the American Training and Education Survey below several figures and tables, on page 43, and in endnote 10. These have been corrected to say the Adult Training and Education Survey.

Executive Summary

Most students without college degrees enrolling in short-term programs for occupational preparation have very limited resources. Without financial assistance, they may not be able to enroll in or complete their programs. Yet Title IV of the Higher Education Act limits eligibility for Pell grants to programs requiring at least 600 hours, or 15 weeks, of instruction. To be eligible for federal loans, the minimum hours threshold is 300 hours. In addition, only students enrolled in for-credit programs at accredited institutions are eligible for federal student aid.

Several proposals from both sides of the aisle would modify these rules, making a wider range of certificate programs eligible for federal student aid. Concerns about this potential change include the fear that quality control—ensuring that programs measurably improve labor market outcomes for students—will become more challenging.

In this report, we review the evidence about the labor market returns on certificate programs of different lengths and credit status and in different fields. We focus on certificates earned at postsecondary institutions, not on industry certifications or other types of skill recognition. We also examine data on the demographics and earnings of adults holding certificates, as well as the characteristics and outcomes (e.g., debt levels and default rates) of students who enroll in certificate programs. We use regression analysis to estimate the labor market returns on different types of certificates, allowing us to focus on the earnings premiums (not just the earnings levels) associated with different types of credentials. We cannot, however, incorporate the costs of completing certificates.

Based on this evidence, we evaluate the justifications for the current restrictions on eligibility for federal student aid and consider alternative strategies for diminishing financial barriers to participation in short-term programs preparing students for specific occupations.

Evidence on Certificate Programs

1. **Who earns certificates and in what types of programs?** An undergraduate certificate is the highest level of education for about 10 percent of American adults. A majority of these certificates are from for-profit institutions, are not for credit, and require less than a year of study. Women, Black adults, and those ages 45 and older are somewhat more likely than others to hold certificates.

2. **At what types of institutions do certificate students enroll, and how many complete their programs?** Students enrolling in certificate programs are disproportionately people of color, older students, and students with weak previous academic achievement. In contrast to students pursuing associate degrees, most of whom attend public two-year colleges, most certificate students enroll in private for-profit institutions. Completion rates in certificate programs are 50 to 60 percent, considerably higher than in associate degree programs. Students attending for-profit colleges have somewhat higher completion rates than those at public institutions, but our analysis indicates that this difference disappears after controlling for student and program characteristics.
3. **How do certificate students pay for their education, and do they repay their loans?** About half of certificate students in for-credit programs receive Pell grants each year. About 70 percent (including 86 percent of students in the for-profit sector) accumulate debt, with a median total debt of about $10,000 for those who borrow. About 17 percent of certificate students default within 6 years of beginning college, and that share rises to 28 percent after 12 years. Noncompleters and students at for-profit institutions are most likely to default, though after 12 years, even certificate attainers from public two-year colleges default at high rates.
4. **How much value do certificates have in the labor market?** Despite differences in data sources and statistical methods that lead to variations in results, the literature on the earnings associated with certificates indicates that the average return on certificates is positive, though certificates do not lead to occupations that pay as well, on average, as the occupations of students who complete associate degrees. There is also wide variation in returns across fields of study. Studies comparing adults with certificates to high school graduates show about a 10 percent average earnings premium. Comparisons with GED holders yield a higher return, and comparisons with those who enrolled in community college but did not complete a credential yield smaller average returns.

Overall, the evidence does not reveal consistent differences in earnings between adults with short-term certificates and those whose programs required a year or more of study. Even those with certificates that took up to six months, or 480 hours, to complete do not consistently earn less than those whose certificates took longer. In contrast, although many noncredit certificates have labor market value, especially for men and for young workers, for-credit certificates yield higher average earnings premiums than do noncredit certificates.

The evidence confirms that some common certificate fields, such as cosmetology and culinary services, do not generally pay off, but certificates earned in engineering, mechanical or technical areas,

or law enforcement generate higher earnings relative to high school diplomas. The earnings benefit of certificates for women is lower than the benefit for men. And credentials of all types earned at for-profit institutions tend to lead to lower earnings than similar credentials from public institutions.

Overall, the evidence indicates that certificate programs in many fields have a reasonable rate of return, and there is no clear justification for the current line between programs that are Pell eligible and those that do not meet program-length requirements. That said, opening the door to funding a wide range of short-term programs risks funding programs that do not significantly improve students' prospects for stable and remunerative careers or even to any measurable increase in earnings. Effective quality control will become even more critical.

Moreover, the available evidence is far from definitive. Better data and more in-depth analysis of both existing and new data could reveal differences among workforce development programs that better determine how well they serve different students.

Policy Implications

The lack of evidence of higher labor market value for certificates exceeding 600 hours relative to shorter-term credentials makes it difficult to justify the current requirements for federal student aid. Some programs on both sides of the current line pay off well for graduates, while others do not. Limiting eligibility to students in for-credit programs at accredited postsecondary institutions, however, is consistent with the available evidence, as well as, in many cases, the potential for certificates to "stack" to higher degrees.

The large variation in certificate value across fields, as well as the lower labor market payoff and higher debt and loan default levels among those who attended for-profit institutions, creates a strong argument for providing more career guidance and information, including data on costs and labor market outcomes, about available and appropriate programs before students enroll. The uneven outcomes of certificate programs make it essential that the government strengthen accountability for occupational preparation programs, probably through a variant of "gainful employment" rules that focus on employment and earnings, not just debt levels.

We also consider alternatives (or supplements) to expanding Pell eligibility for short-term certificates. We note the likely value of increased funding for accredited public institutions to support short-term occupational training—whether for credit or not—and for programs for apprenticeships or other forms of work-based learning that yield postsecondary credentials.

The COVID-19 pandemic has significantly reduced community college enrollment while shifting some students into for-profit institutions. The financial strains on both students and institutions may be long-lasting, and postpandemic labor market opportunities may not mirror the opportunities shaping the results we discuss in this report. We should continue to monitor these developments and their possible impacts on the returns on certificates reported here.

Should the Federal Government Fund Certificate Programs?

A large share of occupational training in the United States takes place in postsecondary institutions. The community colleges that award associate degrees that prepare students to transfer to four-year institutions also offer terminal associate degrees (leading to specific occupations) and short-term certificates. Some certificates require a year or more of study, but others require less time.

Because of the scarcity of funding designated for workforce development, the federal student aid system has become the primary funding source for students pursuing this wide range of credentials. But the eligibility rules for federal grants and loans, offered under Title IV of the Higher Education Act, require a minimum program length. Only programs with at least two-thirds of the hours in a full academic year—600 credit hours (15 weeks)—qualify for Pell grants. Students enrolled in some programs requiring between 300 and 600 hours (10 to 15 weeks) can receive federal loans, but not grants, if the programs meet certain completion and placement standards. The certificates in question, awarded by postsecondary institutions, are distinct from industry certifications and other types of skill recognition.

Because of the importance of making postsecondary education accessible to as many people as possible, support for lowering the minimum hours required for certificate programs to be eligible for Title IV aid is increasing. Supporters point to the difficulty of earning a living wage without some postsecondary education. But opponents raise concerns about the uneven value of these credentials, weak accountability standards, and the potential strains on Pell program funding that could diminish aid for other recipients.

Another concern is that providing more funding for short-term certificates could induce people to shift away from associate degrees and long-term certificates that have strong labor market value.[1] Making certificates "stackable" toward associate degrees could reduce this problem, though few certificate students pursue degrees on available "career pathways."

In addition to meeting length requirements, programs must be offered by an accredited postsecondary institution and must be offered for credit to be eligible for Title IV aid. Some proposals for including short-term programs in the federal student aid system would eliminate these requirements for institutions and programs, but that need not be the case.

This report reviews the evidence about the economic returns on certificate programs and adds to the descriptive evidence using several data sources. We also present new data on where certificate students enroll, their completion rates, how they finance their education, and default rates. Based on this evidence, we evaluate the justifications for the current parameters of Title IV eligibility and consider alternative strategies for diminishing financial barriers to participation in short-term programs preparing students for specific occupations.

Although we cannot account for the costs of obtaining degrees, which lowers the net return, we focus on the labor market *returns* on certificates (i.e., how much they raise earnings), not on the earnings *levels* associated with these programs. Short-term certificate attainers might still have low earnings, even if the net return is positive. We should not expect these certificates to be panaceas for low earnings.

Data limitations make it impossible to reach definitive conclusions about the characteristics of certificate programs that have a high probability of significantly increasing earnings. Only with better data and further research will it be possible to ensure that public policies guide students into the most promising educational paths and support their success.

But the general message of the available data is that, on average, certificate programs have a reasonably positive rate of return, even when they are short-term programs. In many fields, the rate of return is particularly strong, and there is no clear justification for the current line between programs that are Pell eligible and those that are not. That said, opening the door to funding of a wide range of short-term programs risks funding programs that do not significantly improve students' prospects for stable and remunerative careers or even to any increase in earnings. Regardless of whether Congress expands eligibility for Pell to include shorter-term programs, it should strengthen its regulatory framework to protect students from investing in unproductive courses of study.

There is considerable variation across short-term programs. The evidence we report confirms that some common certificate fields, such as cosmetology and culinary services, do not generally pay off. The earnings benefit of certificates for women is lower than the benefit for men. And credentials earned at for-profit institutions tend to lead to lower earnings than those earned at public institutions. Accountability measures directed at these characteristics are likely to be more effective than restrictions on program length.

Most students enrolling in short-term programs for occupational preparation have very limited resources. Without financial assistance, they may not be able to enroll in or complete their programs. But expanding Pell eligibility may not be the only solution. It might be better to expand programs

designed to support students desiring workforce preparation, rather than using the Pell grant program to fund students who are not pursuing a traditional academic college education. It might be more efficient and equitable to directly fund programs approved for this purpose, under defined standards, rather than giving students vouchers (such as a Pell grant) to use wherever they decide to enroll.

But political realities limit the feasible near-term options for increasing financial access to short-term programs that prepare students for specific occupations. This puts the focus back on Title IV student aid, including Pell grants.

Data Sources

In addition to our review of results from the literature, we provide our own estimates from three data sources:

- the 2016 National Postsecondary Student Aid Study (NPSAS),[2] administered by the US Department of Education
- the Beginning Postsecondary Students Longitudinal Study (BPS), 2003–04 and 2011–12 cohorts, administered by the US Department of Education[3]
- the 2016 Adult Training and Education Survey (ATES), administered by the US Census Bureau of the US Department of Commerce[4]

We present descriptive empirical results from these data sources, including summary data and regression results. These are not rigorous causal estimates but instead provide broad background on certificate students, their labor market earnings, and how those earnings compare with earnings of similar adults with less educational attainment. These data are useful complements to the literature, particularly as they shed light on the employment and financial outcomes of certificates of different lengths.[5]

The BPS includes data only on students who are enrolled in a postsecondary education institution, so we can only compare outcomes for certificate completers with those of noncompleters, not with those of students who have only a high school education. Comparisons with adults who have only a high school diploma generate larger (and likely upwardly biased) estimates of certificate earnings effects, while comparisons with the noncompleters in similar educational programs generate smaller (and likely downwardly biased) estimates.

In contrast, the ATES data cover the full range of educational attainment outcomes, from students who drop out of high school to those with advanced postsecondary degrees. The sample size is large and representative of the US noninstitutional population, and sample attrition is not an issue. By measuring earnings outcomes for adults of all ages, these data come closer to yielding estimates of long-term impacts than the BPS or other datasets that focus on youth.[6]

At the same time, the ATES data measure only educational attainment and tell us nothing about students who enrolled but did not complete higher education, nor about completion rates or other outcomes during the time they were enrolled or soon after.

By combining analyses from these datasets, we get a strong mix of early and later outcomes, reflecting time in school and soon after, as well as the long-term labor market view.

Certificates

In this section, we review what the literature tells us about the labor market value of certificates, especially short-term certificates. We also present new evidence on the following issues regarding certificates, focusing on short-term programs where possible:

- Who earns certificates and in what types of programs?
- At what types of institutions do certificate students enroll, and how many complete their programs?
- How do certificate students pay for their education, and do they repay their loans?
- How much value do certificates have in the labor market?

Who Earns Certificates and in What Types of Programs?

ATES data allow us to separate adults who completed certificates from those with some college but no credential. In 2016, 15 percent of American adults ages 25 to 64 had some college experience but no degree or certificate. For 10 percent, the highest level of education was a certificate or a certificate in combination with an associate degree. When estimating the returns to certificate holders, the results are very different when the comparison is with the large share of Americans with no college experience as opposed to the 15 percent of adults who enrolled in college but did not complete a credential.

Fifty-nine percent of all certificates and 64 percent of certificates held by adults without associate degrees were not for credit. This is important, as some (usually administrative) education data on certificate attainment omit certificates that are not for academic credit. Nearly two-thirds (and 69 percent among adults without associate degrees) required less than a full year of study; nearly half required less than a half year (480 hours) (table 1).

TABLE 1

Share of Adults with Certificates

Noncredit certificates are more common than for-credit certificates

	Share of total (1)	For credit (2)	Not for credit (3)	≥960 hours (4)	480–959 hours (5)	160–479 hours (6)	<160 hours (7)
All respondents	10%	41%	59%	34%	18%	13%	35%
Educational attainment							
Some college, no credential	15%						
Certificate as highest degree	8%	36%	64%	31%	19%	14%	36%
Certificate and AA	2%	58%	42%	45%	12%	10%	33%

Source: Authors' calculations based on data from the 2016 Adult Training and Education Survey.
Note: AA = associate degree.

Slightly larger shares of women than of men and of adults ages 45 and older than of younger adults hold certificates. Hispanic adults are less likely than others to hold certificates; a larger share of Black adults than of any other group holds certificates. The types of certificates adults hold differ by age, race, and ethnicity. A larger share of certificates earned by older adults than by younger adults were not for credit. Asian and Native Hawaiian/Pacific Islander certificate holders are most likely to hold for-credit certificates (table 2).

TABLE 2

Share of Adults with Certificates, by Demographic Group

The share of adults holding certificates varies by race and ethnicity

	Total (1)	For credit (2)	Not for credit (3)	≥960 hours (4)	480–959 hours (5)	160–479 hours (6)	<160 hours (7)
Gender							
Man	13%	36%	64%	30%	19%	14%	36%
Woman	15%	37%	63%	32%	19%	14%	35%
Age							
25–44	13%	44%	56%	30%	23%	12%	35%
45–64	15%	31%	69%	32%	17%	16%	35%
Race or ethnicity							
White	14%	35%	65%	30%	17%	15%	37%
Black	18%	40%	60%	35%	20%	14%	31%
Hispanic	9%	41%	59%	32%	25%	12%	30%
Asian	11%	47%	53%	28%	23%	16%	33%
AIAN	16%	36%	64%	34%	16%	19%	31%
NHPI	14%	64%	36%	38%	15%	38%	10%

Source: 2016 Adult Training and Education Survey.
Notes: AIAN = American Indian/Alaska Native; NHPI = Native Hawaiian/Pacific Islander. Column 1 contains the share of each group that earned a certificate. Columns 2 and 3 contain the share of certificate holders who completed for-credit and not-for-credit certificates. Rows across columns 2 and 3 sum to 100 percent. Columns 4 through 7 contain the share of certificate holders by the program length. Rows across columns 4 through 7 sum to 100 percent.

About half of all certificates are in either health care or mechanical fields.[7] The third-most-common field is business or administration. Relatively few certificates are awarded in purely academic fields. The share of certificates that are for credit ranges from about one-quarter in culinary arts and cosmetology and in law enforcement to more than half in liberal arts, fine arts, and education. Less than 10 percent of law enforcement certificates required 960 hours or more, compared with almost half of those in culinary arts and cosmetology. And the distribution of certificates by field is very different for men and women, with the share held by men ranging from 13 percent in health care to 91 percent in mechanical fields (table 3).

TABLE 3

Certificate Fields of Study

The most common fields for certificates are health care and mechanical studies

	Share of total (1)	For credit (2)	Not for credit (3)	≥960 hours (4)	480–959 hours (5)	160–479 hours (6)	<160 hours (7)	Men (8)	Women (9)
Field of study									
Health care	22%	45%	55%	34%	25%	14%	27%	13%	87%
Mechanical	26%	29%	71%	32%	16%	14%	37%	91%	9%
Technical	9%	39%	61%	29%	21%	13%	37%	55%	45%
Business or administrative	16%	41%	59%	32%	17%	13%	38%	22%	78%
Culinary, cosmetology, funeral services	7%	24%	76%	48%	25%	8%	20%	21%	79%
Law enforcement	6%	26%	74%	8%	24%	27%	41%	66%	34%
Liberal arts, fine arts, or education	3%	51%	49%	38%	11%	5%	46%	22%	78%
Other	10%	35%	64%	23%	10%	19%	47%	41%	59%

Source: 2016 Adult Training and Education Survey.

Notes: Technical certificates include engineering and computer science certificates. Column 1 reports the share of certificate holders by field of study. Column 1 sums to 100 percent. Columns 2 and 3 report the share of certificate holders who completed for-credit and not-for credit certificates. Rows across columns 2 and 3 sum to 100 percent. Columns 4 through 7 report the share of certificate holders by program length. Rows across columns 4 through 7 sum to 100 percent. Columns 8 and 9 report the share of certificates holders by gender. Rows across columns 8 and 9 sum to 100 percent.

At What Types of Institutions Do Certificate Students Enroll, and How Many Complete Their Programs?

In 2017–18, 19 percent of postsecondary credentials were certificates below the associate degree level. This share has remained stable over the past two decades. The share of these certificates earned

at public colleges rose from 53 percent in 2007–08 to 70 percent in 2017–18, and the share earned at for-profit institutions fell from 42 percent to 27 percent.[8]

Before reviewing studies of the labor market returns on postsecondary certificates, we examine the characteristics of students who enroll in certificate programs and which students complete these credentials. The data below indicate that certificate students are demographically similar to associate degree students but are generally older and somewhat more likely to be Black. Completion rates are higher in certificate programs than in associate degree programs. The gaps are especially large for older students, Hispanic students, and Pell grant recipients.

For-profit institutions educate a larger share of certificate students than of those pursuing other credentials, with women, Black and Hispanic students, and low-income students most likely to be enrolled in this sector. For-profit institutions also account for very different shares of certificate students in different fields of study. Students earning certificates at for-profit postsecondary institutions accrue more debt than those attending public colleges.

Enrolled Student Characteristics

In 2015–16, 18 percent of degree-seeking subbaccalaureate students were in for-credit certificate programs, and 82 percent were in associate degree programs. A notable difference between the two groups is that 41 percent of certificate students attended for-profit institutions; only 7 percent of those pursuing associate degrees were enrolled in this sector (table 4). Although the gender and racial and ethnic breakdowns in the two types of programs were similar, 20 percent of certificate students were Black, compared with 16 percent of associate degree students. The parents of 40 percent of students in certificate programs and 35 percent of those in associate degree programs had either a high school diploma or less or vocational technical training but no college (compared with 22 percent of those enrolled in bachelor's degree programs; not shown). Certificate students were older than associate degree students and more likely to have dependents of their own.

TABLE 4

Characteristics of Certificate and Associate Degree Students, 2015–16

Most associate degrees are from public institutions; more than 40 percent of certificates are from for-profit institutions

	Certificate	Associate degree
Institution sector		
Public	53%	90%
Private nonprofit	6%	3%
Private for-profit	41%	7%
Gender		
Man	41%	43%
Woman	59%	57%
Race or ethnicity		
White	48%	48%
Black	20%	16%
Hispanic	24%	24%
Asian	5%	6%
Other	4%	5%
Parents' highest education level		
High school or less	32%	29%
Vocational or technical training	8%	6%
Associate degree	10%	11%
Some college but no degree	17%	19%
Bachelor's degree	18%	20%
Advanced degree	15%	14%
Do not know	1%	1%
Age		
23 or younger	39%	53%
24 to 30	27%	23%
31 or older	33%	24%
Dependency status		
Dependent	28%	43%
Independent without dependents	32%	29%
Independent with dependents	41%	29%

Source: Authors' calculations based on data from the 2016 National Postsecondary Student Aid Study, PowerStats.

What Institutions Do Certificate Students Attend?

Few studies can distinguish between for-credit and noncredit certificates, between certificates requiring different amounts of time or numbers of credit hours, or between those earned at public institutions or for-profit institutions. But some recent research finds that certificates from for-profit institutions do not pay off as well as those from public institutions. This outcome makes it important to know which students are most likely to enroll in the for-profit sector.

In 2015–16, 49 percent of women in certificate programs attended for-profit institutions, compared with 29 percent of men (table 5). This difference is related to gender differences in fields of

study. For example, most certificate students in the female-dominated fields of health care and consumer services were at for-profit institutions; 5 percent of those in protective services and 17 percent of those in engineering, architecture, and science technologies were in this sector. More than half of Black and Hispanic certificate students were in the for-profit sector, compared with about 30 percent of white and Asian students. Those from low-income families also disproportionately enroll in the for-profit sector.

TABLE 5

Share of Students Enrolled in For-Profit Institutions, 2015–16

Women, Black and Hispanic students, and those from low-income families are more likely than others to earn certificates at for-profit institutions

	Share of students
All	9%
Subbaccalaureate	12%
Subbaccalaureate occupational	16%
Certificate	37%
Occupational certificate	40%
Gender	
Man	29%
Woman	49%
Age	
Younger than 24	44%
24 to 29	44%
30 or older	35%
Race or ethnicity	
White	30%
Black	52%
Hispanic	55%
Asian	31%
Other	38%
Dependent students' family income	
Less than $27,900	55%
$27,900 to $62,999	46%
$63,000 to $113,499	28%
$113,500 or higher	23%
Occupational certificates, by field	
Business and marketing	10%
Communication and communications technologies	51%
Computer and information sciences	19%
Consumer services	66%
Education	8%
Engineering, architecture, and science technologies	17%
Health care	51%
Manufacturing, construction, repair, and transportation	29%
Protective services	5%
Public, legal, and social services	16%

Sources: Authors' calculations based on data from the 2016 National Postsecondary Student Aid Study; and "Tables: Postsecondary/College," US Department of Education, Institute of Education Sciences, National Center for Education Statistics, accessed November 12, 2020, https://nces.ed.gov/surveys/ctes/tables/index.asp?LEVEL=COLLEGE.

As of fall 2020, the COVID-19 pandemic has led to dramatic declines in community college enrollment and to increases in the number of students attending for-profit institutions.[9] If this turns into a long-term trend, the share of certificates from the for-profit sector may increase, possibly with significant implications for the returns on those credentials.

Completion Rates

A larger share of students enrolling in certificate programs than of students enrolling in associate degree programs complete their programs within six years: 57 percent of first-time students who began certificate programs and 39 percent of those who began associate degrees in 2011–12 had completed a credential by 2017 (table 6). Groups with certificate completion rates above 60 percent included Hispanic students, students from small racial and ethnic groups, veterans, and students from households with incomes above the federal poverty level. The gap between certificate and associate degree completion rates was particularly large among older students, Hispanic students, and Pell recipients.

Among associate degree students, differences in completion rates by sector (i.e., public versus private for-profit versus private nonprofit institutions) were small, but the 61 percent completion rates for certificate students beginning in for-profit institutions was significantly higher than the 48 percent completion rate for students at public institutions.

But regression analysis exploring outcomes for students in certificate programs indicates that after controlling for student characteristics, there was no significant difference in completion rates across sectors. (See the appendix for regression results.) Students pursuing certificates in different fields also had similar probabilities of completing, except for those majoring in general studies, humanities, and social sciences, who were less likely than others to earn a credential within six years of enrolling. Independent students with dependents, Black students, and students from low-income households were less likely than others to complete, controlling for other characteristics.

TABLE 6

Completion Rates among First-Time Students, Certificate and Associate Degree Students First Enrolling in 2011–12

Completion rates are higher for certificates than for associate degrees

	Associate degree	Certificate
Total	39%	57%
Institution sector		
Public	39%	48%
Private nonprofit	42%	66%
Private for-profit	43%	61%
Age		
20 or younger	41%	56%
21 to 29	32%	58%
30 or older	36%	58%
Race or ethnicity		
White	42%	58%
Black	29%	45%
Hispanic	37%	61%
Asian	49%	40%
Other	42%	68%
Gender		
Man	37%	53%
Woman	42%	59%
Household income		
Up to 100% of FPL	33%	52%
101% to 150% of FPL	35%	62%
151% to 200% of FPL	35%	69%
At least 201% of FPL	47%	60%
No dependents	41%	59%
Has dependents	31%	54%
Dependency status		
Dependent student	42%	59%
Independent student	32%	55%
Dependent students' family income		
Less than $30,000	36%	56%
$30,000 to $63,499	41%	66%
$63,500 to $106,999	49%	56%
$107,000 or more	49%	67%
Federal financial aid received		
No Pell	43%	57%
Received Pell	36%	57%
No direct subsidized or unsubsidized loan	39%	50%
Direct subsidized loan only	36%	61%
Both direct subsidized and unsubsidized loan	39%	62%
Direct unsubsidized loan only	45%	45%

Source: Authors' calculations based on data from the 2016 National Postsecondary Student Aid Study, PowerStats.

How Do Certificate Students Pay for Their Education, and Do They Repay Their Loans?

Because of their socioeconomic circumstances, many certificate students depend on financial aid to pay for their education and support themselves while they are in school. Even though they enroll in short-term programs, many of these students accumulate debt.

In 2015–16, 54 percent of certificate students received federal student aid (table 7). Forty-five percent received Pell grants, and 34 percent borrowed. Students at for-profit institutions were more likely than those at public institutions to apply for (87 percent versus 52 percent) and receive (80 percent versus 33 percent) federal aid. Sixty-eight percent of for-profit certificate students received Pell grants, compared with 26 percent of public college certificate students.

The share receiving federal aid ranged from 69 percent of Black students to 34 percent of Asian students. The share receiving Pell grants ranged from 63 percent of Black students to 27 percent of Asian students. Female certificate students were more likely than male certificate students (59 percent versus 45 percent) to receive federal aid.

TABLE 7

Student Aid among 2015–16 Certificate Students

Less than half of all certificate students receive federal student aid

	Applied for federal aid	All			Dependent			Independent		
		No federal aid	Pell	No loans	No federal aid	Pell	No loans	No federal aid	Pell	No loans
Total	67%	46%	45%	66%	42%	44%	61%	48%	45%	68%
Sector										
Public	52%	67%	26%	87%	62%	27%	82%	69%	25%	89%
Private nonprofit	69%	42%	49%	53%	24%	60%	35%	47%	46%	59%
Private for-profit	87%	20%	68%	41%	20%	63%	38%	21%	70%	42%
Race or ethnicity										
White	60%	54%	34%	70%	51%	30%	61%	56%	36%	73%
Black	82%	31%	63%	53%	26%	67%	57%	33%	62%	53%
Hispanic	74%	40%	53%	66%	36%	56%	62%	42%	51%	69%
Asian	47%	66%	27%	80%	59%	34%	74%	67%	26%	81%
AIAN	65%	41%	48%	80%	N/A	N/A	N/A	42%	46%	81%
NHPI	43%	58%	38%	72%	N/A	N/A	N/A	58%	39%	74%
More than one race	67%	42%	47%	59%	44%	40%	56%	41%	51%	60%
Gender										
Man	59%	55%	35%	75%	49%	38%	68%	57%	33%	78%
Woman	73%	41%	51%	60%	37%	49%	55%	42%	52%	62%

Sources: National Center for Education Statistics and 2016 National Postsecondary Student Aid Study.
Note: AIAN = American Indian/Alaska Native; N/A = not available; NHPI = Native Hawaiian/Pacific Islander.

How Much Debt Do Certificate Recipients Accumulate?

Students from for-profit schools leave with more debt than those who enroll in certificate programs at public colleges.

Among students who began college in 2011–12 and earned certificates, 30 percent graduated without debt (table 8). Only 13 percent borrowed more than $20,000, but this was the case for 17 percent of those who earned their certificates at for-profit institutions (compared with 7 percent who graduated from public institutions).

Among students who left without a credential, 40 percent had no debt, and 5 percent borrowed more than $20,000. Almost 30 percent of noncompleters who began in for-profit institutions left with more than $10,000 in debt, compared with 12 percent of those from public institutions. In other words, high debt levels are concentrated among students who completed certificates at for-profit institutions, who compose more than half of students earning these credentials.

TABLE 8

Cumulative Debt Levels of Students Who First Enrolled in Certificate Programs in 2011–12

Debt levels are higher for students who earn their certificates at for-profit institutions

	No debt	$1–5,000	$5,001–10,000	$10,001–15,000	$15,001–20,000	More than $20,000
Completed certificate	**30%**	**8%**	**27%**	**14%**	**8%**	**13%**
Public (32%)	57%	11%	13%	5%	7%	7%
Private nonprofit (7%)	43%	6%	14%	18%	8%	12%
Private for-profit (60%)	14%	7%	36%	18%	9%	17%
No degree or certificate	**40%**	**19%**	**21%**	**11%**	**4%**	**5%**
Public (43%)	66%	14%	9%	6%	2%	4%
Private nonprofit (5%)	34%	21%	25%	9%	4%	7%
Private for-profit (52%)	19%	23%	30%	16%	6%	6%

Source: Authors' calculations based on data from the National Center for Education Statistics Beginning Postsecondary Students Longitudinal Study 2011/17.

Who Defaults on Their Student Loans?

Certificate recipients default on their student loans at higher rates than other graduates. Among students who first enrolled in postsecondary education in 2011–12 and took student loans, 17 percent had defaulted on at least one loan by 2017 (table 9). This includes 21 percent of borrowers who earned certificates, a larger share than among associate and bachelor's degree recipients. Because certificates require less time to complete than degrees, these borrowers have, on average, been in repayment longer and have had more opportunity to default. Tracking an earlier cohort (students who began

college in 2003–04) for 12 years reveals even more serious default issues. Almost half of those who earned certificates—including 53 percent of those who graduated from for-profit institutions—eventually defaulted on federal loans.

TABLE 9

Share of 2011–12 Beginning Student Borrowers Who Defaulted by 2017

More than half of borrowers who earn certificates at for-profit institutions default on their federal student loans

	Default Share	
	2011–12 cohort, 6 years	2003–04 cohort, 12 years
All	**17%**	**28%**
Bachelor's degree	1%	8%
Associate degree	9%	21%
Certificate	21%	46%
No degree	41%	40%
Borrowers who completed certificates		
Public sector	29%	35%
Private nonprofit sector	42%	31%
For-profit sector	35%	53%

Source: Authors' calculations based on data from the National Center for Education Statistics Beginning Postsecondary Students Longitudinal Study 2004/09 and 2012/17.

Despite the high default rates for borrowers who earned certificates, regression analysis (see the appendix) indicates that factors other than this credential category explain much of the difference in loan repayment success among students who began subbaccalaureate programs in 2003–04. Students who left college without a credential were most likely to default; the higher default rates for certificate completers relative to associate degree completers was not statistically significant.

Students who began in for-profit colleges and Black students were more likely than otherwise similar students to default on a federal student loan within 12 years, as were independent students with dependents. Among borrowers, higher debt levels were associated with lower default rates.

Certificate recipients are more likely than associate and bachelor's degree recipients to default on their federal student loans, but this analysis suggests that student demographics, rather than just credential programs, make borrowers vulnerable.

How Much Value Do Certificates Have in the Labor Market?

Informed policy decisions about supporting programs offering short-term certificates and funding students to enroll in these programs require reliable evidence about which programs measurably improve labor market outcomes for students. A sizeable research literature addresses this question. The results are not entirely consistent nor definitive but do provide important insights that can ground the debate.

Literature Review: The Earnings Associated with Short-Term Certificates

The Current Population Survey includes certificates in the "some college, no degree" category, making it challenging to assess the earnings of adults with certificates. Much of the available data on the earnings of certificate holders do not distinguish between short- and long-term certificates or between noncredit and for-credit certificates. Much of the literature we summarize in this section does not make these distinctions, but the findings we report in the following section from the Adult Training and Education Survey shed some light on these categories.

Analyses of the payoff to certificate programs focus on the earnings of adults with different levels of education, estimating the earnings premium for certificates relative either to a high school diploma or to enrolling in college—particularly a community college—and leaving without a credential. But the relevant policy question is whether to encourage and support people to enroll in certificate programs, particularly the short-term programs that are not now Pell eligible. A true test of the value of this effort would compare the expected value of earnings from the different pathways. How do the earnings of high school graduates compare with the earnings of those who enroll in certificate programs, regardless of whether they complete those programs? How much do the higher completion rates of certificate programs relative to associate degree programs narrow the earnings gap between these alternative paths? About 60 percent of students who first enroll in certificate programs complete credentials, compared with less than 40 percent of those who begin in associate degree programs (BPS 2012/17).

Historically, most empirical studies of the labor market return on higher education have focused on degrees from community colleges and four-year institutions. Indeed, it has been well established that associate degrees provide significant returns, relative to a high school diploma.

For the high school class of 1972, Kane and Rouse (1995) found that each year of college study—whether toward an associate degree or a bachelor's degree—had a similar positive impact on earnings.

In the early 21st century, the returns on bachelor's degrees and particularly advanced degrees have increased the most (Autor 2014), reflecting higher relative labor demand for workers with advanced postsecondary skills. Yet the returns on associate degrees remain positive, especially relative to their fairly low cost. Academic credits earned at both two-year and four-year colleges also generate some labor market value even for students who do not complete degrees, though these returns are limited because they do not include the "sheepskin" effects that come with attaining college diplomas.

In the past decade or so, interest in the labor market value of certificates has grown. The number of workers with these credentials has risen, certificates are now a primary workforce credential for adults who will not obtain degrees, and policy proposals to make Title IV funding available to a wider range of short-term certificates have gained support.

Accordingly, studies in the past decade have estimated labor market returns on both short- and long-term certificates. Estimates of the labor market value of short-term certificates have been mixed, for several reasons.

First, the data used to estimate these returns are varied. They include both cross-sectional and longitudinal survey data, as well as administrative data linking individual higher education outcomes to earnings records from government agencies.

Survey data and administrative data each have strengths and weaknesses. Most survey data are self-reported, which may generate recall error or other sources of bias, while administrative data are based on official reporting. The survey data vary in sample sizes and the periods over which they measure earnings, while the administrative data are often based on entire populations for which data are available. But the administrative data exclude self-employment and informal earnings, which could be important for disadvantaged workers, and most studies using administrative data are from individual states, generating cross-state variation in outcomes.[10]

Most state-specific studies exclude data on private institutions, whether they are for-profit or nonprofit, and in many studies, students or workers who leave their states are omitted from the sample.[11] Studies also use different definitions to define short term—frequently less than a year but sometimes less than six months or requiring few credits.

Second, studies use different statistical methods. Some compare only summary earnings outcomes of certificate holders with those who have high school diplomas or associate degrees. Other studies are based on regressions that control for differing characteristics of individual students, with controls for

earlier academic achievement (test scores or grades) or family resources frequently among the best such controls that are available.

Researchers who have access to longitudinal survey or administrative data usually estimate "difference in differences" models, comparing the difference in earnings before and after college for those attaining or not attaining credentials, with the number of quarters included varying across studies. Researchers often present estimates from "fixed effects" models to control for fixed personal characteristics, such as motivation or basic cognitive abilities, that are not observable in the data. But there is some question as to whether fixed effects estimates are appropriate for these studies because they imply that a person's earnings trajectories would have been the same over time had it not been for that credential. In reality, many college students—especially students who enroll immediately after high school—are employed only in low-wage and part-time or part-year service jobs before college. Earnings in these jobs tell us little about their permanent earnings capacities without college credentials.

Most studies using survey or administrative data are not experimental or even quasi-experimental. They are not based on randomized controlled trials, nor do they use a "natural experiment" in the data that eliminates differences in student quality and in other forms of self-selection into groups with more or less educational attainment.[12] But experimental studies are becoming more prevalent in the higher education research literature, and we cite one well-known study below (Deming et al. 2016) that sheds light on the returns on postsecondary certificates.

Third, the reference group with which certificate holders are compared varies across studies. Some use high school graduates or even students with GEDs, while others use community college students who do not complete any credential. Studies using GED earners as the reference group generate the largest returns because GEDs have less labor market value than regular high school diplomas (Heckman and Rubinstein 2001). Studies that use high school graduates as the reference group generate larger estimates of labor market value than those using community college noncompleters, who may be systematically different from those who never even attempt college. In studies that do not control for achievement or other personal characteristics that may differ significantly between people who enroll in community college and people who do not, the estimated returns on certificates relative to high school graduates will be biased upward.

Community college enrollees who completed no credential often pursued associate degrees rather than certificates and might be a stronger group in terms of achievement and other personal attributes than certificate enrollees, creating a downward bias in estimates of the labor market value of certificates if the comparison is between all noncompleters and certificate completers. In addition, the

value of any credits earned by the noncompleters would be deducted from the value of those earned by completers, also generating some downward bias.[13] And from a policy point of view, high school graduates and adults with GEDs who are not yet enrolled in postsecondary education—not those already enrolled in community colleges and at risk of dropping out—constitute the relevant margin for new policies designed to attract more certificate students.[14]

Despite these differences among studies, we can summarize what we learn from the empirical research on community college certificates, and the differences in values between short- and long-term certificates, as follows:

- On average, certificates have less labor market value than associate degrees, and short-term certificates generally have less value than long-term ones.
- Completion rates are considerably higher in certificate programs than in associate degree programs (and probably in short-term programs than in long-term programs), implying that their expected values (especially for low-achieving students) are more similar than earnings differences would suggest.
- The variation in returns on both short- and long-term certificates is very high across fields of study (or labor market industry), and men consistently earn more from certificates than women (partly because of the fields they choose).
- Many certificate holders earn them at for-profit colleges. Recent evidence suggests these credentials have lower labor market value than those from community colleges.
- Estimates of short-term certificate value from studies using community college noncompleters as the reference group imply low value that may fade over time, while estimates using high school graduates show larger and more persistent returns. The true value is likely somewhere in between.

Below, we summarize what the literature tells us about short-term certificates. We focus first on the literature using survey data and then on studies using (mostly state-level) administrative data. We also review a few papers using new national data or experimental methods to estimate the returns on certificates and other credentials, particularly from for-profit institutions.

REVIEW OF STUDIES: SURVEY AND ADMINISTRATIVE DATA

Table 10 lists studies of earnings of certificate holders relative to adults with other levels of education. The top panel lists studies using survey data, and the bottom panel includes studies using administrative

data. For each study, column 2 specifies whether the study separated short-term certificates from other certificates and summarizes the available findings about the positive earnings effects of students earning short-term certificates relative to high school graduates or to enrolled college students who did not complete a credential. Column 3 lists the relevant survey for studies based on survey data and lists the states from which the data come for studies based on administrative data. The survey data include certificates from for-profit and private nonprofit institutions, as well as public institutions, while the state administrative data include only the latter.

TABLE 10

Summary of Findings on Earnings Impacts of Short-Term Certificates from Recent Research

Survey data literature (comparison group is high school graduates)

Study	Effects of short-term certificates	Relevant survey
Bailey, Kienzl, and Marcotte (2004)	N/A	Several longitudinal surveys of youth
Burns and Bentz (2020)	N/A	Beginning Postsecondary Students Longitudinal Study
Carnevale, Rose, and Hanson (2012)	Positive effects	Survey of Income and Program Participation (SIPP)
Kim and Tamborini (2019)	N/A	SIPP (linked to Social Security earnings data)

Administrative data literature (comparison group is students who left community college without completing a program)

Study	Effects	Relevant administrative data
Backer, Holzer, and Velez (2015)	N/A	Florida
Bahr et al. (2015)	Mixed effects	Michigan
Belfield and Bailey (2017)	Mixed effects	Summary of results from Arkansas, California, Kentucky, Michigan, North Carolina, Ohio, Virginia, Washington
Bettinger and Soliz (2016)	N/A	Ohio
Cellini and Turner (2018)	N/A	US Department of Education and Internal Revenue Service data
Dadgar and Weiss (2015)	No significant effects	Washington
Holzer and Xu (2019)	Positive effects	Kentucky
Itzkowitz (2020)[a]	N/A	US Department of Education College Scorecard
Jepsen, Troske, and Coomes (2014)	Small positive effects	Kentucky
Liu, Belfield, and Trimble (2015)	Mixed effects	North Carolina
Minaya and Scott-Clayton (2016)	Mixed effects	Texas
Stevens, Kurlaender, and Grosz (2015)	Positive effects	California
Xu and Trimble (2016)	Small positive effects	North Carolina and Virginia

Notes: The full citations are available in the reference list. N/A indicates that the study does not distinguish between short-term and long-term certificates. "Mixed effects" indicates that results varied considerably, with some significant positive effects and others not significant (or occasionally negative). "Small positive effects" denotes results that were generally positive and significant but with magnitudes of just a few hundred dollars per quarter (or a few percentage points), while "positive effects" indicates larger significant effects.

[a] Michael Itzkowitz, "As Students Return to the Classroom, Will Career Education Programs Help the Most Vulnerable Students Succeed Economically?" Third Way, July 7, 2020, https://medium.com/third-way/as-students-return-to-the-classroom-will-career-education-programs-help-the-most-vulnerable-dd86314d67ae.

Survey data. Most studies using national survey data on adults show that those who have completed certificates (of any length) earn 10 to 20 percent more in the labor market than high school graduates.[15] The exact magnitudes of the certificate premium over high school varies with the ages of the respondents, with studies focusing on very young workers showing more mixed effects of certificates.[16] The results also depend on whether researchers adjusted for other personal characteristics using

regression analysis and the extent of the characteristics for which they controlled. In other words, the populations and types of certificates the researchers studied, as well as the methodologies they used, can lead to inconsistent results.

In contrast to the generally positive outcomes relative to high school diplomas, certificates are rarely associated with higher earnings than having attended but not completed any credential at a college or university for a year or longer. And every study confirms that students who complete either associate degrees or bachelor's degrees earn substantially more than those who complete certificates only.

Perhaps the best of the studies using survey data is that of Kim and Tamborini (2019), who merge SIPP data with earnings data from Social Security files. This allows them to follow students for 20 years, measuring the long-term impacts of earning any postsecondary credential (and of having attended college without earning a credential). Although they cannot differentiate certificates by program length, their results show (in both summary and regression-adjusted data) that certificate attainers earn more than high school graduates. Among men, the earnings premium is about 20 percent, and among women, the earnings premium is about 10 percent.

At least part of the higher impact for men reflects the fields they choose. Men are more likely than women to pick technical fields or those in construction, manufacturing, transportation, and logistics. Certificates in these fields tend to pay well. Interestingly, certificates in health care can be of either low value or high value. Workers earning certificates for such careers as nurses or medical assistants earn little, while those choosing technical work, such as being an X-ray technician, earn more.[17]

Of the survey studies, only the one by Carnevale, Rose, and Hanson (2012) provides separate earnings for short-term certificates, which they define as those taking a year or less to complete. Their data indicate that the median man who earned a short-term certificate made about $44,000 in 2009 (versus the $35,000 the median man who earned only a high school diploma made) and that the median woman who earned a short-term certificate made $27,000 in 2009 (versus the $24,000 the median woman who earned only a high school diploma made).[18] Carnevale, Rose, and Hanson (2012) also report earnings data for short-term certificates in many fields that exceed median earnings of high school graduates, sometimes by substantial amounts (and especially for men). Field of study is more closely associated with earnings levels than length of study. None of the survey-based studies separate the earnings effects of certificates earned at private for-profit institutions from those earned at public institutions.

A few caveats are important. Most studies of annual earnings omit respondents with no earnings in the previous year because it is likely that many have left the labor force. Labor force participation has dropped dramatically in recent decades for male high school graduates, whose inflation-adjusted earnings have stagnated relative to those of other demographic groups.[19] Had these studies included some of the nonworkers still marginally attached to the workforce, or if effects on employment and earnings were calculated, average earnings of high school graduates would likely fall the most, increasing the estimated gaps between adults with certificates and adults with high school diplomas.

We can also question the appropriateness of having high school graduates as the reference group. One might argue that this is not a comparable group because adults not enrolling in postsecondary programs likely lag in both cognitive and noncognitive skills, including aspirations and expectations. On this issue, Carnevale, Rose, and Hanson (2012) show that literacy test scores of certificate earners are nearly identical to those of high school graduates, while scores among adults with some college are significantly higher. But questions remain about the comparability of high school graduates and certificate earners on other dimensions and whether these omitted characteristics generate some upward bias in estimates of the value of certificates, with the unobserved characteristics of certificate attainers contributing to their higher observed earnings.

Burns and Bentz (2020) address both these issues. They present summary data (with no regression adjustment for other individual characteristics) on the employment and earnings of students in the 2011–12 cohort of the Beginning Postsecondary Students Longitudinal Survey. Because the BPS includes only students who have enrolled in college, it is not possible to use these data to compare certificate earners with high school graduates who have not enrolled in college. Instead, Burns and Bentz compare them with other students enrolled in certificate programs who did not complete credentials. Despite the evidence on the similarities between high school graduates and certificate students, Carnevale, Rose, and Hanson (2012) found noncompleters might be more like the certificate earners in terms of the key omitted personal characteristics described above and therefore might constitute a more appropriate reference group. On the other hand, any credit attainment and other skill development that both enrolled noncompleters and completers bring to the labor market will be canceled out in such an analysis, perhaps causing downward bias in measures of certificate impacts on earnings.

Burns and Bentz (2020) report data on employment and earnings of these students in 2014, just three years after initial enrollment. They omit the large numbers of students still enrolled at that time, which could cause additional biases in the results. Still, this study yields interesting findings.

On one hand, certificate earners have significantly higher employment rates right after college (72 percent) than noncompleters who have left college (59 percent). This finding suggests that studies omitting $0 earners might understate the impacts of certificates on employment outcomes. On the other hand, Burns and Bentz find no significant differences in annual earnings between those who complete certificates and those who do not, with each group reporting median earnings of about $20,000. To the extent that some of those now reporting earnings were enrolled in college the previous year, their annual earnings may be biased downward, especially among certificate completers.

When Burns and Bentz cut their sample in various ways, earnings differentials between certificate completers and noncompleters appear. For instance, *within* samples of both men and women, those who earned certificates made more money than those who did not.[20] Also, within occupational categories for certificate students—in this case, health care and manufacturing—completers outperform noncompleters in the labor market. Burns and Bentz do not present earnings data separately for those who have earned certificates at public institutions versus private for-profit institutions (though these data are available in the BPS) or distinguish between short- and long-term certificates.

In sum, most studies based on survey data do not differentiate certificate programs by length. The one study that does make this distinction includes some programs that are already Pell eligible in the short-term category. Overall, certificates appear to increase earnings by 10 to 20 percent relative to high school graduates, to increase earnings by less relative to adults who enrolled in college but left without a credential after less than a year, and not to increase earnings at all relative to those with a year or more of college, even if they did not graduate. The earnings associated with certificates vary considerably, with older adults, men, and those in technical fields earning the most, with these factors dominating length of time required in determining typical earnings.

Administrative data. Turning to the studies based on administrative data, we find just one study based on national data—by Michael Itzkowitz[21]—that compares earnings at the program level among certificate holders (all program lengths) with those of typical high school graduates. His findings are based on aggregate Integrated Postsecondary Education Data System data from institutions, rather than individual-level student or worker data. He finds that, six years after enrollment, most certificate completers at most institutions did not earn more than the national median high school graduate. This outcome was more prevalent among students from for-profit institutions than from public institutions. But this is a questionable comparison to draw because it ignores significant differences among institutions, as well as the magnitude of earnings differentials.[22]

Of the studies using individual-level state administrative data, only Backes, Holzer, and Velez (2015) and Holzer and Xu (2019) compare earnings of certificate holders with those of high school graduates. Both studies find substantial earnings gains associated with certificates. Backes, Holzer, and Velez control for a wide range of personal and academic characteristics, including test scores, and find average earnings premiums in the range of 20 to 30 percent for certificates overall in Florida. In contrast, Holzer and Xu could provide only summary data on earnings for workers with different education levels in Kentucky, but they separate certificates requiring a year or less to complete from diplomas, which take longer. Relative to high school graduates, the average earnings premium for short-term certificate holders was about 24 percent—47 percent among men and 23 percent among women. The average earnings premium for long-term diploma holders was about 59 percent overall and was slightly higher for women than for men.

Another group of studies using state-level administrative data on education and earnings includes those associated with the Center for Analysis of Postsecondary Education and Earnings (CAPSEE), among others.[23] These studies, all of which are summarized in the bottom panel of table 10, use a common format to estimate the impacts of certificates (and other postsecondary credentials) on earnings. Like Burns and Bentz, they compare the earnings of those who have completed certificates with community college enrollees who have not completed any credential.

Unlike Burns and Bentz, the comparison group does not distinguish between noncompleters who were enrolled in certificate programs and those in associate degree programs. As a result, the comparison is between certificate attainers and all students who enroll in community colleges and leave without a credential, which might be a group with more positive unmeasured characteristics than only those enrolled in certificate programs. These studies are based only on those who attend public community colleges, omitting students who earn for-profit certificates, which might affect earnings differently.

A review of the results of eight CAPSEE studies appears in Belfield and Bailey (2017).[24] They summarize the estimated effects of certificates and associate degrees earned at community colleges on the earnings of students five to nine quarters (roughly one to two years) after finishing school. They note that all the authors estimate difference-in-differences models, comparing the difference in earnings before and after college for different groups. Some studies also estimate individual fixed effects models by including dummy variables for each person's unobserved permanent characteristics. The studies often present results for all students and broken down by gender.

This review does not differentiate between short-term and long-term certificates. It shows that associate degrees continue to generate significantly higher earnings in the labor market than certificates, but certificates also generate positive impacts. On average, the estimated certificate impacts were $530 per quarter for men and $740 per quarter for women, or $2,000 to $3,000 per year, raising earnings by at least 7 to 10 percent.[25] Separate results by gender vary a great deal across states, with the earnings premium over noncompleters larger for men in some states and women in others. In a few studies, the certificate impacts tend to fade with time.

As in earlier studies, estimated impacts vary significantly across fields of study. Technical certificates tend to generate stronger earnings premiums, as do certificates in business, law enforcement, manufacturing, construction, and transportation. Certificates in health care again show high variation (with those in more technical fields generating higher pay and those in nursing assistance generating lower pay).[26]

Some studies using administrative data generate separate impacts for short-term certificates. These include Bahr et al. (2015) for Michigan; Xu and Trimble (2016) for North Carolina and Virginia; Stevens, Kurlaender, and Grosz (2015) for California; and Jepsen, Troske, and Coomes (2014) for Kentucky (where certificates denote short-term credentials and diplomas denote long-term credentials). In most cases, short term is defined as a year or less—slightly longer than the period most relevant to current policy debates, which is less than 600 hours (two-thirds of a year). But Bahr and coauthors (2015) define short term as credentials requiring 15 or fewer credits (or roughly one semester of full-time attendance), while Stevens, Kurlaender, and Grosz (2015) estimate separate effects for 18 to 29 credits (under two semesters) and 6 to 17 credits (about one semester or less).

The results of these studies vary. Some, including Dadger and Weiss (2015), find no significant impacts of short-term certificates. In other studies, such as Jepsen, Troske, and Coomes (2014) and Xu and Trimble (2016), estimated effects are modest, in the range of 2 to 7 percent increases in quarterly or annual earnings. Some studies find positive effects for men but not for women. For example, Bahr and coauthors (2015) find estimates of about 8 percent for men with short-term certificates. Bettinger and Soliz (2016) estimate no consistent impacts for women in Ohio but large impacts for men (40 percent or more). On the other hand, Minaya and Scott-Clayton (2016) find modest impacts of short-term certificates but only for women. Stevens, Kurlaender, and Grosz (2015) find average estimates of 17 and 13 percent earnings premiums for certificates in California requiring 18 to 29 credits and 6 to 17 credits, respectively.

The extent to which these different estimated outcomes reflect real differences in earnings outcomes across states, as opposed to differences in data or estimation techniques by authors, is hard to say. Virtually all authors find strong variation in certificate impacts across fields, with men more frequently choosing high-impact fields.

It is important to remember that these results might understate the true impacts of short-term certificates for two reasons: (1) the results usually include in the reference group all non–credential completers at community colleges, many of whom might have enrolled in associate degree programs rather than certificate programs;[27] and (2) any credits and skills attained by these noncompleters are deducted from the estimated impacts of completers. It is likely that the true impacts of certificates fall somewhere in between the estimated premiums relative to high school graduates (which may be biased upward) and those relative to college noncompleters.

Another reason these estimates might be understated is that they include only adults showing earnings in the relevant postcollege period. Quarters with no earnings tend to be omitted from the analysis. But Xu and Trimble (2016); Jepsen, Troske, and Coomes (2014); and Minaya and Scott-Clayton (2016) estimate impacts on the probabilities of quarterly employment and earnings. All studies find positive impacts of short-term certificates on probabilities of employment. These estimates would thus need to be added to impacts on nonzero quarterly earnings for more accurate estimates of impacts.

On the other hand, there are other ways these estimates might overstate the overall impacts of certificates, especially short-term ones. The omission of credentials from private for-profit institutions might raise the average, as recent evidence suggests they have lower (if any) labor market value than credentials from public institutions. Two studies—one using administrative data linked to Internal Revenue Service earnings data (Cellini and Turner 2018) and the other using experimental data (Deming et al. 2016)—have found these differential estimated impacts. These issues are relevant for evaluating public policy options.[28]

In addition, these estimates include only for-credit programs and credentials. Noncredit courses and programs have proliferated in recent years, though institutions generally keep little or no publicly available data on them. These programs often teach specific workplace tasks that regional employers demand but have little academic content and little portability across sectors.[29] How to treat noncredit credentials is another important dimension of the policy debate.

These estimates suggest that many certificates, especially short-term ones, generally have modest impacts on earnings and that the average earnings associated with associate degrees and probably long-

term certificates are greater. But certificates in the highest-earning fields generate more earnings than the lowest-paying associate degrees, such as those in the liberal arts (Holzer and Baum 2017).

We note one more caveat: for less-prepared students, *the probability that they will complete the credential is higher in certificate programs than in associate degree programs*. Therefore, the *expected values* of certificates—where the earnings gains of various credentials are weighted by their probabilities of attainment—compare more favorably with those of associate degrees than the earnings premiums among those who complete them imply.

In the BPS data, six-year completion rates are nearly 60 percent for certificates, compared with under 40 percent for students in associate degree programs. After three years, 52 percent of certificate students and 18 percent of associate degree students have completed credentials (Burns and Bentz 2020).

Because the costs of attaining certificates—both in terms of completion requirements and forgone earnings and direct expenditures—are lower than for associate degrees at similar institutions, it makes sense that many students with weak academic preparation might choose certificate programs over associate degree programs, despite the larger earnings premiums associated with associate degree programs.[30] And even short-term certificates—despite their fairly low and uneven earnings impacts—might sometimes be a sensible choice for some disadvantaged workers and perhaps should be more supported by public policy.

In sum, a wide range of studies attempt to measure the earnings impact of certificates. Some of those studies distinguish between short-term and long-term certificates, and the definition of short term generally includes some programs that are already eligible for Title IV student aid. The results vary depending on the comparison group (e.g., high school graduates or community college noncompleters) and on the data and methodology. Generally, on average, completing a postsecondary certificate increases labor market earnings, particularly when considering the positive impacts on the probability of employment. For some certificates, earnings match or exceed those associated with some associate degrees. Also, because completion rates in certificate programs are substantially higher than in associate degree programs, the expected values of certificates (especially net of costs) are closer to those of associate degrees than the earnings differences alone suggest.

Most studies that focus on short-term certificates (requiring up to one year of full-time study) find smaller but still positive average impacts on earnings. But the variation in estimated impacts is high. Gender and other personal characteristics, field of study (or industry), and sector of the educational institution (public, private nonprofit, or private for-profit) all have some effect on estimated earnings

impacts. And for a significant share of students, the earnings premium does not materialize. Existing studies thus do not fully settle the question of how much the returns vary between programs of different lengths, and the studies have little or nothing to say about noncredit programs. Moreover, these studies focus on certificates awarded by accredited nonprofit postsecondary institutions, not alternative providers or even for-profit institutions.

Employment and Earnings of Certificate Holders: New Evidence

The Adult Training and Education Survey provides information about adults with postsecondary certificates and other types of workforce training. It provides a snapshot of earnings and employment in 2016 by educational experience. For evaluating public policies that would fund a broader range of certificate programs than those currently eligible for Pell grants, ATES differentiates certificates by program length and by whether they are for credit.

Before detailing findings from ATES, we provide some background from the BPS data. The BPS includes only recent certificate attainers and provides information only on early-career outcomes. The BPS also does not enable us to distinguish short-term certificates from long-term certificates or for-credit certificates from noncredit certificates. It also only allows us to compare certificate completers with noncompleters (instead of with adults who never enroll), generating a likely downwardly biased estimate of the return on certificates.[31]

But the BPS allows us to distinguish between adults who earned certificates at public colleges and those who attended for-profit institutions. It also provides information about students who began certificate programs but did not complete them and allows comparisons between different educational paths within the same cohort of students.

BPS: EARLY-CAREER EMPLOYMENT AND EARNINGS OF CERTIFICATE HOLDERS

The 2017 employment rate of adults who began a certificate program in 2011–12 and graduated (71 percent) was lower than the employment rates of those who completed associate degree programs (76 percent) and bachelor's degree programs (77 percent). Noncompleters had lower employment rates than completers. The lower employment rate for those who left certificate programs than for those who left other programs may indicate differences in the characteristics of the enrolling students. Just over half of those who completed certificates had jobs that were related to their college studies (table 11).

TABLE 11

2017 Employment Status of Students Beginning College in 2011–12

Adults who completed bachelor's degrees are more likely than those who completed certificates or associate degrees to be in jobs related to their majors

Program of study and completion	Employed	Of those employed, share in job related to major
Certificate		
Completers	71%	54%
Noncompleters	59%	32%
Associate degree		
Completers	76%	50%
Noncompleters	70%	22%
Bachelor's degree		
Completers	77%	65%
Noncompleters	73%	27%

Source: Authors' calculations based on data from the Beginning Postsecondary Students Longitudinal Study 2012/17.

The 2017 earnings distribution among students who enrolled in college in 2011–12 and earned certificates was only slightly different from the earnings distribution of those who left certificate programs without a credential (table 12). A third of both groups earned less than $20,000, but 18 percent of completers earned $40,000 or more, compared with 14 percent of noncompleters. The difference between the two groups from associate degree programs was larger. But dividing by gender reveals that men who completed certificate programs earned significantly more than noncompleters. Among women, completers were more likely than noncompleters to earn $30,000 or more six years after beginning certificate programs (24 percent versus 19 percent). As in other studies, failing to differentiate by gender can conceal positive returns on certificate completion.

TABLE 12

2017 Earnings by Degree Attainment for Students Beginning College in 2011–12

Men who dropped out of certificate and associate degree programs earn more than women who completed their programs

	Less than $20,000	$20,000–29,999	$30,000–39,999	$40,000 or more
Certificate (all)				
Completers	34%	29%	20%	18%
Noncompleters	34%	32%	20%	14%
Associate degree (all)				
Completers	27%	29%	19%	24%
Noncompleters	32%	32%	20%	16%
Certificate (men)				
Completers	14%	24%	25%	37%
Noncompleters	25%	21%	30%	24%
Associate degree (men)				
Completers	23%	21%	21%	35%
Noncompleters	23%	27%	24%	26%
Certificate (women)				
Completers	41%	36%	16%	8%
Noncompleters	41%	41%	13%	6%
Associate degree (women)				
Completers	44%	32%	17%	7%
Noncompleters	42%	36%	15%	7%

Source: Authors' calculations based on data from the Beginning Postsecondary Students Longitudinal Study 2012/17.

Both overall and in most fields, adults holding certificates from public institutions earn more than those from for-profit institutions (table 13). Among graduates in science, technology, engineering, and mathematics fields, 28 percent of those from public colleges earned $40,000 or more in 2017, compared with 14 percent of those from for-profit colleges. Among those with certificates in other applied fields, these shares were 47 percent for public colleges and 40 percent for for-profit colleges. Overall, 38 percent of adults with certificates from for-profit institutions and 29 percent of those with certificates from public institutions earned less than $20,000.

TABLE 13

Annual Earnings by Field and Institutional Sector for Students Beginning College in 2011–12 Who Earned Certificates

In most fields, students with certificates from public institutions earn more than students with certificates from for-profit institutions

	Less than $20,000	$20,000–39,999	$40,000 or more
All certificates			
Public	29%	51%	20%
For-profit	38%	48%	14%
Health care			
Public	29%	60%	12%
For-profit	45%	46%	9%
STEM field			
Public	19%	53%	28%
For-profit	14%	71%	14%
Personal and consumer services			
Public	52%	41%	8%
For-profit	42%	51%	8%
Other applied			
Public	15%	39%	47%
For-profit	19%	41%	40%

Source: Authors' calculations based on data from the Beginning Postsecondary Students Longitudinal Study 2012/17.
Note: STEM = science, technology, engineering, and mathematics.

ATES: EARNINGS OF CERTIFICATE HOLDERS OVER AN ENTIRE CAREER

The ATES data provide a different look at the impacts on earnings of certificates than does the BPS, which reports on early-career earnings for adults who began college in 2011–12. ATES allows us to separate short-term certificates from long-term certificates and certificates for credit from certificates not for credit. ATES also enables us to compare certificate holders with those who have only high school diplomas or GEDs. These estimates of the impact of certificates on earnings are likely biased upward because of differences in the personal characteristics of certificate earners and adults with high school diplomas only.

TABLE 14

Employment and Median Annual Earnings, by Education Level

Certificate holders and adults with GEDs are more likely than those with high school diplomas to be employed

	Median earnings	Employed	Unemployed	Out of labor force
Total respondents	$30,500	67%	6%	27%
Educational attainment				
No high school diploma	$21,800	42%	10%	47%
GED	$24,400	59%	8%	32%
High school diploma	$29,300	51%	10%	38%
Less than one year of college	$30,800	65%	7%	28%
One or more years of college credit	$34,400	69%	6%	25%
Certificate	$32,800	60%	9%	30%
Associate degree	$38,700	72%	6%	21%
Bachelor's degree or more	$57,400	79%	3%	18%

Source: 2016 Adult Training and Education Survey.

Notes: The survey reports income in brackets. To obtain an income point estimate for each education level, we assume an equal distribution of respondents within each income bracket and determine the median. This estimate is rounded to the nearest hundred dollars. Rows may not add up to 100 percent because of question nonresponse.

TABLE 15

Median Annual Earnings of Certificate Holders, by Field of Study

Median earnings are higher for for-credit certificates than for noncredit certificates, higher for men than for women, and vary considerably across fields

	Median earnings
All certificate holders	$32,800
Credit status	
For credit	$29,900
Not for credit	$34,700
Gender	
Man	$44,300
Woman	$25,500
Field of study	
Health care	$24,100
Mechanical	$44,000
Technical	$42,000
Business or administrative	$31,700
Culinary, cosmetology, and funeral services	$20,400
Law enforcement	$43,900
Liberal arts, fine arts, and education	$21,000
Other	$33,600

Source: 2016 Adult Training and Education Survey.

Notes: Technical certificates include engineering and computer science certificates. The survey reports income in brackets. To obtain an income point estimate for each group, we assume an equal distribution of respondents within each income bracket and determine the median. This estimate is rounded to the nearest hundred dollars.

The median certificate holder in 2016 earned $32,800, $3,500 more than the average for high school graduates and $2,000 more than the average for adults with less than a year of college but

$1,600 less than the average of those with one year or more of college and no degree (table 14).[32] Certificate holders are more likely to be unemployed or out of the labor force than those with some college but no credential but are less likely than workers with only a high school education to be in these circumstances.

Table 15 reports that median earnings are higher for workers with noncredit certificates ($34,700) than for those with for-credit certificates ($29,900). This counterintuitive result is reversed in the regression analysis below. For-credit certificates have more labor market value than not-for-credit certificates. Apparently, the higher median earnings among noncredit certificate holders are driven by the fact that these are older workers who are more frequently in well-compensated fields (tables 2 and 3). When we control for these factors, the higher return on for-credit certificates becomes clear.

Consistent with most of the earlier literature, as well as the BPS findings, men with certificates earn more than women. Adults with certificates in mechanical and technical fields and in law enforcement, have the highest earnings, while those in liberal arts, fine arts, and education and culinary and cosmetology services have the lowest earnings. Notably, average earnings for those with health care certificates are below even the overall average for women (table 15).

In some of these fields (health care, in particular), earnings variation is high, according to data from the Bureau of Labor Statistics. Among health care occupations typically requiring nondegree postsecondary credentials, median 2018 earnings ranged from $28,000 for nursing assistants and $31,000 for massage therapists to $46,000 for surgical technologists and $54,000 for paramedics.[33]

EXAMINING EARNINGS, CONTROLLING FOR STUDENT CHARACTERISTICS

Regression analysis shows the relationship between certificates and earnings, allowing us to estimate the percentage difference between the earnings of certificate holders and those with high school diplomas (or GEDs) only, controlling for other important characteristics of workers and their jobs.[34] The analysis controls for education, race or ethnicity, gender, age, hours worked per week and weeks worked per year, and other kinds of certificates earned from employers or high school vocational programs.

To estimate the different effects of certificates on earnings by several important certificate characteristics (e.g., whether they are for academic credit, whether they are short-term or long-term credentials, and by field), we report the results of five regressions in the following tables. The first regression uses a variable for whether the respondent has any postsecondary certificate; the second regression separates certificates into those for academic credit and those not for credit; the third

regression breaks certificates into categories based on required hours: less than 160, 160 to 479, 480 to 959; and 960 or higher (where the third and fourth categories correspond to a half year or a full year or more, respectively); the fourth regression breaks down for-credit and not-for-credit certificates into categories based on hours required; and the fifth regression breaks down certificates by field of study.

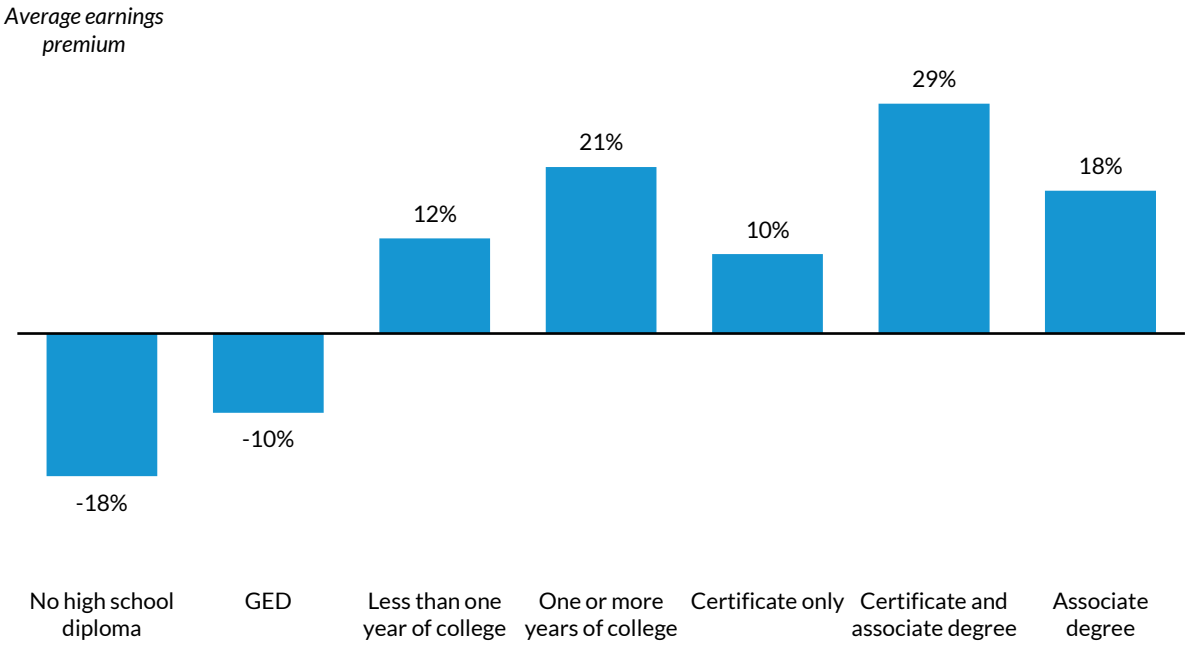
The results in table 16 are for all workers, table 17 separates workers by gender, and appendix table A.3 separates workers by age group (ages 25 to 44 or ages 45 and older).

Comparing the earnings of all certificate holders with those who have high school diplomas or other levels of education (while controlling for personal characteristics, hours per week and weeks per year worked), we find that, on average, certificate holders (without an associate degree) earn 10 percent more than high school graduates and earn roughly the same amount as adults with less than a year of college and no degree. They also earn about 20 percent more than those with GEDs, who earn significantly less than those with high school diplomas. Adults with a year or more of college earn more, as do those with associate degrees (figure 1).[35]

FIGURE 1

Earnings Differentials, Relative to High School Graduates, by Educational Attainment

Average annual earnings of certificate holders are 10 percent higher than the average earnings of otherwise similar high school graduates



Source: Authors' calculations based on data from the 2016 Adult Training and Education Survey.

Our regression analysis for the entire sample of workers (table 16) indicates that the estimated effects of certificates on earnings vary with their characteristics. Although the average effect is 10 percent relative to high school graduates (and considerably more relative to adults with GEDs), for-credit certificates are associated with higher earnings than noncredit certificates (with earnings premiums of 12 percent and 6 percent, respectively) relative to high school graduates. Certificates requiring more hours are associated with higher earnings than short-term certificates. Adults with certificates that take less than 480 hours to complete (about half a year) earn about 7 percent more than high school graduates, and adults with longer-term certificates earn about 10 percent more than high school graduates. But the differences between short-term certificates and long-term certificates appears to be limited to noncredit programs.

Certificates in different fields are associated with widely divergent labor market outcomes. On average, adults with certificates in culinary and cosmetology services,[36] as well as liberal arts and education, earn less than high school graduates. On the other hand, adults with technical certificates earn about 20 percent more, and those in law enforcement and business earn about 13 percent more, after adjusting for other characteristics (table 16).

TABLE 16

Relationship between Certificates and Their Characteristics and Earnings

Average earnings of certificate holders are 10 percent higher than average earnings of otherwise similar high school graduates

	Coefficient				
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
Certificate	.101 *				
For credit		.124 *			
Not for credit		.063 *			
159 hours or less			.065 *		
160 to 479 hours			.069 *		
480 to 959 hours			.096 *		
960 hours or more			.107 *		
For credit, short				.132 *	
For credit, long				.135 *	
Not for credit, short				.042	
Not for credit, long				.074 *	
Health care					.017
Mechanical					.111 *
Technical					.199 *
Business					.133 *
Culinary, cosmetology, and funeral services					-.064
Law enforcement					.132
Liberal arts and education					-.018
Other					.031 *

Source: 2016 Adult Training and Education Survey.

Notes: Technical certificates include engineering and computer science certificates. Regressions include respondents ages 25 to 64. The certificate group includes only adults whose highest level of education is the certificate. All regressions control for age, race or ethnicity, sex, number of weeks worked each year, number of hours worked the previous week, employer training certificates, high school vocational certificates, and certifications and licenses. Asterisks indicate significant coefficients at the 0.10 level or above.

The average returns on certificates also conceal significant differences by gender (table 17). On average, men with certificates earn 13 percent ($3,800) more per year than high school graduates, compared with a 7 percent ($2,170) earnings premium for women. For-credit certificates are associated with higher earnings for both men and women, as are certificates requiring 480 hours or more. But the differences by program length are significant only for men with noncredit certificates. Fields of study appear to pay off differently for men and women. Most notably, men with health care certificates earn less, on average, than high school graduates. The average earnings premium for women in health care fields is small but positive. Women do poorly in mechanical fields, where they are a small minority. The largest earnings premiums over high school graduates are 27 percent for men with technical certificates and 36 percent for women in law enforcement.

TABLE 17

Impacts of Certificates and Their Characteristics, by Gender

The earnings premium for men with certificates is larger than the earnings premium for women

	1		2		3		4		5	
Variable	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Certificate	.128 *	.074 *								
For credit			.143 *	.105*						
Not for credit			.091*	.034						
159 hours or less					.092*	.040				
160 to 479 hours					.071	.061				
480 to 959 hours					.118*	.078*				
960 hours or more					.141*	.071*				
For credit, short							.151	.106		
For credit, long							.141 *	.124*		
Not for credit, short							.038	.042		
Not for credit, long							.126*	.024		
Health care									-.068	.026
Mechanical									.135*	-.157*
Technical									.268*	.121*
Business									.117*	.134*
Culinary and cosmetology									-.140	-.034
Law enforcement									.040	.357*
Arts and education									-.057	-.017
Other									.031	.038

Source: 2016 Adult Training and Education Survey.

Notes: Technical certificates include engineering and computer science certificates. Regressions include respondents ages 25 to 64. The certificate group includes only adults whose highest level of education is the certificate. All regressions control for age, race or ethnicity, sex, number of weeks worked each year, number of hours worked the previous week, employer training certificates, high school vocational certificates, and certifications and licenses. Asterisks indicate significant coefficients at the 0.10 level or above.

Earnings premiums for certificates also differ by age group (appendix table A.3). The data do not allow us to distinguish between how the payoff changes over workers' lives and how it differs across cohorts. But the appendix table where the sample is broken down by age indicates that adults ages 25 to 44 with certificates earn 14 percent more than high school graduates after adjusting for other characteristics, but adults ages 45 to 64 earn only 9 percent more. The difference between for-credit and noncredit certificates is large for older workers. When workers are divided into age groups, there is no clear pattern in earnings associated with program length. Adults of all ages with certificates in culinary services and cosmetology have average earnings below those of high school graduates, but certificates in technical fields pay off best for both age groups.

Overall, our regression analyses using the ATES data confirm that postsecondary certificates, on average, are associated with earnings gains relative to high school diplomas (and more relative to GEDs). Noncredit certificates provide earnings gains, especially for some groups, including men and younger workers, but the impacts of certificates for academic credit generally are larger. On average,

certificates requiring more hours tend to have larger effects than shorter ones, but these differences are small, appear only for some groups, and are generally significant only for noncredit certificates.[37] In contrast, gender matters a great deal—men are better rewarded in the labor market for the certificates they earn. Field of study explains some of this difference, and certificate value depends on field of study for both men and women, but there are also gender gaps within fields.

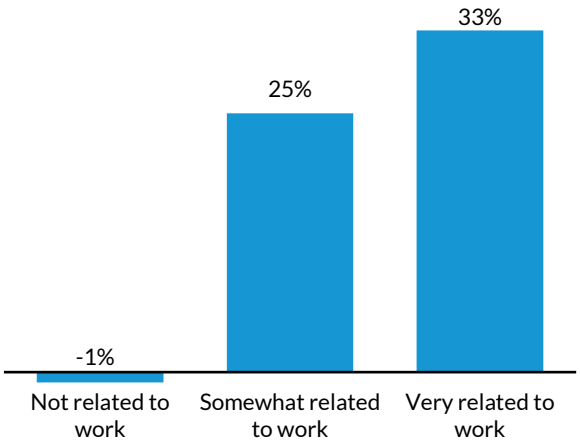
We also performed regression analysis focusing only on certificate holders, which confirms that average earnings for adults with for-credit certificates are higher than earnings for noncredit certificates. The most notable finding from this analysis is that adults whose jobs are related to their certificates get much higher earnings premiums than others—25 to 33 percent versus −1 percent (figure 2).

The importance of work related to the training students get is critical to considering appropriate public policy. This finding, consistent with other work (Carnevale et al. 2012), indicates that guidance about choosing programs and job placement assistance is critical. It is not just about the program but about job opportunities and the ability of graduates to connect with those opportunities.

FIGURE 2

Average Earnings of Certificate Holders Relative to High School Graduates by Relationship between Field of Study and Job

Certificate holders with jobs related to their field of study earn significantly more than those working in unrelated fields



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Source: 2016 Adult Training and Education Survey.
Notes: The data are based on a regression including only adults who reported earning a college certificate, with controls for race or ethnicity, sex, age, weeks worked per year, hours worked the previous week, employer training certificates, high school vocational certificates, and certifications and licenses.

Policy Implications

The evidence is clear that many postsecondary certificate programs increase participants' incomes significantly beyond what they would earn with only a high school diploma or a GED. Reducing the financial barriers to accessing these programs is critical to improving financial security for vulnerable segments of the population. That said, there is wide variation in program outcomes. Whether they are currently eligible for federal student aid or not, programs claiming to prepare students for specific occupations require effective accountability measures.

The population for whom certificate programs may be a reasonable choice consists mainly of people with a high school diploma or a GED. With median earnings of about $35,000 in 2018 ($30,800 for adults ages 25 to 34), most of these adults cannot pay for their education without assistance. Despite the earnings bump many will get from their certificates, most will not have incomes high enough to reasonably repay significant debts incurred for their studies. Supporting secure careers and earnings that can generate an adequate standard of living for adults who do not have college degrees requires helping them finance short-term postsecondary programs.

Designing policies that will serve both students and taxpayers well requires judging the pros and cons of expanding eligibility for federal student aid programs. It requires examining evidence that can inform decisions about where to draw lines about eligibility: Is there a minimum number of hours below which programs do not yield a reasonable earnings return? Do noncredit programs provide enough of a return to justify taxpayer funding? Should the covered fields of study be limited to those with the highest expected returns? Should some programs face different accountability measures than others, even within the same financial assistance program?

Proposals now in Congress from both sides of the aisle would reduce the minimum time for programs receiving Pell grants from 600 hours and 15 weeks to 150 hours and 8 weeks, providing funding for a larger share of students in short-term occupational programs. Supporters cite the value of these programs, despite limited data allowing reliable analysis. Opponents raise concerns about straining the capacity of the Pell program, leading to less generous aid for other students, and about potential abuse, with expansion of low-quality, low-return programs, particularly in the for-profit sector.

The evidence collected in this report leads us to conclude that *the best strategy is to expand Pell eligibility to for-credit certificate programs of at least 150 hours*. In light of our findings, including an average earnings premium over a high school diploma of about 13 percent from both for-credit certificates

requiring 160 to 479 hours and those requiring more than 480 hours, the current threshold for Pell eligibility is difficult to defend.

We reach this conclusion with some reservations because a significant number of newly eligible programs are unlikely to serve students well and because the Pell grant program is probably not the best possible design for supporting workforce preparation. But the current restrictions on program length are arbitrary, and no other approach to funding these programs is politically feasible, at least in the immediate future. The best approach might be to implement a pilot program along with rigorous analysis of the impact of the change. Absent that outcome, careful study of any policy changes will provide the basis for future improvements.

In this section, we discuss the evidence in this report about differences associated with program length, credit status, and field of study for evaluating the merits of different restrictions on eligibility for federal funding. We also review potential alternatives to Pell for funding occupational preparation programs, discussing their strengths and weaknesses.

We focus on the earnings premium associated with certificates. Other benefits to higher education are also significant. Students with college credentials have lower unemployment rates than others and are more likely to have access to satisfying careers. Higher levels of educational attainment are also associated with other employee benefits, better health outcomes, stronger political and civic engagement, and positive outcomes for the next generation. Moreover, there are social benefits associated with increased levels of education. Increasing the number of skilled workers in fields such as health care is particularly likely to generate benefits for all of society. Nonetheless, increased earnings are a primary motivation for students, and supporting students to choose postsecondary programs that are unlikely to pay off financially is unconstructive for both students and taxpayers.

The Logic behind Current Pell Grant Restrictions

Under current policy, certificate programs must be for credit and must be at least 600 hours or 16 semester credit hours over a minimum of 15 weeks to qualify for Pell grants. Students enrolled in programs between 300 and 600 hours may qualify for federal loans but not Pell grants. The evidence in this report does not provide much support for the current program-length distinctions. Most analyses that distinguish between short-term and long-term certificates use a dividing line of one year of required study. The current 600-hour breaking point corresponds to about two-thirds of a full year.

Some programs widely considered "short term" already qualify for Pell grants. As we detailed in the literature review above, the evidence about the labor market returns on these programs is mixed. On average, short-term certificate program graduates earn more than high school graduates or GED recipients (and sometimes higher wages than community college enrollees who do not complete a credential), but for many programs, this is not the case. Graduates in engineering or in technical jobs in construction, manufacturing, or transportation and logistics tend to have relatively large earnings premiums. Certificates in culinary arts and cosmetology do not pay off well for most recipients. And there is wide variation in health care fields, the most common area for certificate students.

Our analysis of Adult Training and Education Survey data suggests that for men, certificates requiring less than 480 hours (about half a year) have a lower payoff than those requiring more time, but this pattern does not appear in the lower returns on certificates for women. And for men, the earnings premiums for short-term certificates are as high as the average returns on certificates of any length for women. Overall, program length is far less of a predictor of earnings than gender or field of study.

In other words, some short-term certificates do not pay off well in the labor market, but others do. And many certificates or even associate degrees that now qualify for Pell also have limited value in the labor market.

In contrast, the earnings associated with noncredit certificates are consistently lower than the earnings associated with for-credit certificates, though the estimated magnitude of the difference in returns is not large. For younger workers, noncredit certificates generate average returns similar to those for for-credit certificates and for men, and the average returns relative to high school graduates are also positive. Still, the lower overall average return for noncredit certificates and the relatively small returns for women and older workers suggest that the case for expanding Title IV eligibility to enrollees in these programs is weaker than the case for covering short-term for-credit programs.

A Cautious Approach

Several proposals that seek to expand Title IV eligibility to short-term certificates would build in restrictions for quality control. For example, the bipartisan Senate JOBS Act of 2019[38] proposes ensuring that students who receive Pell grants earn high-quality postsecondary credentials by requiring that the credentials meet standards under the Workforce Innovation and Opportunity Act (WIOA), aligning with the skill needs of industries in the state or local economy, and approval by the state workforce board and the US Department of Education. The House of Representatives College

Affordability Act stipulates that the newly eligible programs would have to be included on WIOA-eligible training provider lists and have annual earnings greater than the median earnings of people with only a high school diploma.[39] And the president's 2020–21 budget request, which included Pell expansion, described high-quality short-term programs that lead to a credential, certification, or license in a high-demand field.

Applying any new standards for quality control in certificate programs requires caution. For instance, federal proposals that mandate the use of national wage data to determine which certificates would qualify for federal funding are problematic because wages and earnings levels for a given occupation vary across states and are driven by differences in regional costs of living and local labor market conditions. Applying a uniform federal standard (e.g., that wages must exceed a national median for programs to be funded) that ignores these variations would not be appropriate. Using state-level wage standards, while appealing in the abstract, raises some red flags. The quality and form of the data collected on wages and earnings across states is not uniform, so it would be hard to set a single standard for wages that all states must follow.

Moreover, what should matter for funding is not the average wage *level* earned by adults with a particular credential but how much that credential *raises* earnings, preferably net of costs (known among economists as the "value added" of a credential). Requiring a particular wage level in a program as a condition of funding will reward programs that attract students with strong earnings capacities even without the credential, rather than programs that help students with lower skills get the help they need to boost their earning power. There is no simple and universally accepted way to assess a credential's value added (as was apparent in our discussion of the labor market value of certificates above).

Concerns about program quality are widely shared, and designing effective guardrails is challenging. The evidence in this report confirms that there is considerable variation in the value of occupational preparation programs of all lengths. Existing controls are not adequate, as evidenced by low completion rates, high loan default rates, and poor earnings outcomes in many programs. Just as the line between Pell-eligible programs and shorter programs is arbitrary, applying more stringent requirements only to newly eligible programs would be arbitrary and inadequate. Instead, expanding the reach of Pell should be taken as an opportunity to ensure the integrity of the whole program, particularly as it applies to students in nondegree programs seeking specific workforce preparation.

The modification of program-length rules does not imply the lifting of other restrictions on programs' Pell eligibility. As noted, the evidence in support of expanding the Pell program or federal

loans to cover noncredit certificates is weaker than it is regarding for-credit programs. Although the substantive differences between for-credit and noncredit programs are often minimal and about 40 percent of community college students now are in noncredit programs (American Association of Community Colleges 2019), noncredit programs, on average, yield lower earnings than for-credit programs. Limiting Title IV to for-credit programs also maintains the historical focus on programs with at least some academic content that have been through institutional and state vetting processes and generally limits funding to certificates that more easily stack to degrees with even higher labor market value.[40]

We recognize that the dividing line between programs that are for credit and not for credit is not carved in stone and, at the institutional level, can be arbitrary. Indeed, funding only for-credit programs with Title IV may generate incentives and pressures on colleges to make some programs credit bearing that should be noncredit, even when noncredit programs could be set up more quickly and more flexibly, with fewer bureaucratic barriers and regulations, to meet current labor market needs.

The existence of some noncredit programs with significant labor market rewards (especially for men and younger workers) generates a reasonable argument for providing some financial support to these programs or directly to their students. Below, we discuss other options outside of Title IV programs.

It would also be imprudent to expand the availability of federal student aid beyond students enrolled in accredited postsecondary institutions. Other entities can provide valuable occupational preparation, but the Pell grant program is designed for college students.

Student Loans

A growing empirical literature suggests that, all else equal, access to student loans has positive effects on the likelihood that students complete college credentials and on earnings (Marx and Turner 2019). Our own analysis, detailed in this report, also indicates a positive association between loans and completion, as well as lower default rates for students who borrow more, controlling for other student characteristics.

Still, high default rates among students who borrow for certificate programs—including those who complete credentials—raises serious questions about the practice of offering loans but not grants to students in some short-term programs and about policies that would increase borrowing among short-term certificate students.

Students who earn certificates have significantly higher student loan default rates than associate and bachelor's degree recipients. In the years immediately following their studies, students who complete certificates default at much lower rates than noncompleters. But 12 years after students enroll, more than half of borrowers who earned certificates at for-profit institutions and almost 40 percent of those from community colleges have defaulted on federal loans.

Most students at community colleges do not accumulate education debt, but this is not the case at for-profit institutions. Default rates are also significantly higher among borrowers at for-profit colleges than among those in public colleges. In other words, the student loan issues related to certificate students overlap considerably with the question of how to handle programs offered by the for-profit sector.

Accordingly, encouraging students in these programs to rely on borrowing instead of providing them with adequate grant aid—as the current policy of granting access to federal loans but not Pell grants for students enrolled in programs of 300 to 600 hours does—is not reasonable. According to the ATES data, median earnings for adults with postsecondary certificates were about $34,000 in 2016. Despite the earnings premium relative to high school graduates, many of these workers would be unable to repay student loans. This income level was about $4,000 less than 150 percent of the federal poverty level for a family of four in 2016, the income at which any loan payments would be required under income-driven repayment plans. The threshold is lower for smaller household sizes, but a significant share of certificate holders, particularly women, earn too little to make loan payments even as a single-person household.

Making federal loans unavailable to students in short-term programs would be counterproductive, given the positive impact of loans on student success. But stricter limits on loans for part-time students, in addition to enforcement of the current limit of 150 percent of the published length of a program as the time over which students can borrow, should limit the accumulation of debt for these students.

For-Profit Colleges and the Need for Regulation

Though completion rates in certificate programs at for-profit institutions are higher than those in public two-year colleges, our regression analysis suggests that student demographics and fields of study explain this difference. Moreover, a growing body of research confirms lower returns for students from for-profit institutions than for those earning short-term credentials at public institutions (Armona, Chakrabarti, and Lovenheim 2017).[41] These institutions also charge much higher tuition than

community colleges. It is not surprising, then, that, as is the case for students in all programs in these sectors, certificate students in for-profit institutions borrow significantly more than those at public colleges. Despite similar overall default rates in the two sectors,[42] default rates for certificate students are considerably higher for students who attend for-profit institutions.

This evidence suggests the need for the reinstatement of "gainful employment" regulations to provide institutional accountability. Even outside the for-profit sector, such accountability should limit institutions' ability to offer programs with low completion rates and low earnings.[43] Applying such regulations at the *program* level, as the Obama administration did, rather than at the *institutional* level would more effectively account for the variation in outcomes across programs and fields but would be cumbersome to enforce and might generate data problems, in part because of the prevalence of programs with small numbers of students. These complications aside, it is difficult to overstate the need for effective regulation and accountability measures to protect students and taxpayers while diminishing financial barriers to programs that improve labor market opportunities.

Fields of Study and the Need for Guidance

Our analysis provides strong evidence that field of study has large effects on the earnings premiums associated with certificate programs, especially short ones. Indeed, technical programs and programs in other fields, including business and law enforcement, consistently generate high returns in the ATES data, while those in cosmetology or culinary services (and even many in health care) do not. And evidence suggests that although students may choose fields of study for reasons other than expected earnings, they often do not have good information about these relative labor market rewards (Holzer and Xu 2019).

But providing Pell (or broader Title IV aid) eligibility in some fields and not in others would not be advisable or feasible. There is considerable variation in earnings within fields, and some of the fields with low average earnings have other advantages for workers, in addition to being socially valuable. Moreover, making these fields of study more expensive for the students who are committed to them would generate more problems for them, perhaps including lower completion rates or more loans with higher default rates.

Students need better information and advice about labor market prospects for particular programs before they enroll. Providing information only on relative expected returns will likely not have a large impact on students' choices (Baker, Andrews, and McDaniel 2017). This is particularly true for

disadvantaged students looking at certificate programs for the low-wage market. Instead, students of all ages need in-person guidance from trained and knowledgeable staff, either at community colleges or American Job Centers. In addition to providing information about employment prospects, this guidance could improve the fit between students and programs by providing advice about costs of attendance and class schedules, in addition to academic requirements and the challenges students might face meeting those requirements.

As many analysts have noted (Bailey, Jaggars, and Jenkins 2015; Holzer and Xu 2019; Scott-Clayton 2015), lack of academic guidance at community colleges (in associate degree programs as well as certificate programs) likely reduces completion rates. Without that support, students can meander across programs or waste time in programs for which they are not academically prepared. Appropriate guidance can increase completion rates, which would lower default rates in certificate programs for which students have borrowed. If such services can be provided cost-effectively, they can both promote student success and increase the effectiveness of taxpayer dollars.[44] Indeed, requiring such guidance for students to gain access to Pell grants for occupational preparation programs could be a significant enhancement to the current system (Baum and Scott-Clayton 2013).

Other Policy Options for Making Short-Term Programs for Occupational Preparation Financially Accessible

Expanding eligibility for Pell grants is a pragmatic solution to increasing access to occupational training in for-credit programs. The evidence also supports additional funding for noncredit programs, especially if combined with effective regulations to prevent weak-performing institutions or programs from qualifying for federal aid, as well as the guidance needed to steer students toward programs with better labor market returns. And even in the case of Pell-eligible for-credit programs, more institutional funding would enable providers to expand their offerings and bring high-quality programs in high-demand fields to scale at the local or regional level. Technical education programs cost far more, on average, than those in general studies.

Below, we consider additional options for increasing federal funding for short-term job training. Our intention is not to argue that these approaches diminish the logic for expanding Pell. Rather, it is to flag a wider array of potential policy proposals that, under the appropriate circumstances, could provide alternative ways to better finance workforce development at postsecondary institutions. Regardless of which approaches are ultimately implemented, it is critical that low-income students have more access

to a range of programs that improve worker outcomes and that the public institutions that provide this training, principally community colleges, be better funded to generate more such opportunities.

We consider the following three options:

- providing alternative funding streams for students outside Title IV, either as part of the Higher Education Act, through the US Department of Labor, or through other avenues
- funding institutions to offer more high-quality, short-term job training to students at low (or no) tuition
- expanding aid to employers to provide work-based learning, when combined with the attainment of postsecondary credentials

PROVIDING ALTERNATIVE FUNDING STREAMS FOR STUDENTS

Providing funding for workforce education programs is a long-standing political challenge. Because the average returns on college credentials in the job market are high, and probably because of the broader socioeconomic range of voters to whom college programs are relevant, college students have attracted more political support than adults or youth in noncollege programs. Accordingly, taking advantage of the political support for college students appears to be the most feasible way to extend workforce education opportunities to vulnerable adults.

The evidence discussed above, which suggests that the current program-length distinction between for-credit courses eligible for Pell and programs that are ineligible is arbitrary, provides an argument for expanding Pell eligibility, rather than fighting for alternative funding for these students.

But it would be problematic to expand Pell to cover noncredit programs because of the lower earnings associated with these credentials and the potential for opening federal aid programs to a broader array of programs of questionable quality frequently not subject to state and institutional accountability standards. Moreover, adding to the programs Pell covers will increase its costs and could diminish the funds available for students in for-credit programs.

But noncredit programs open doors to many students who need financial assistance. Perhaps the most obvious alternative funding source for noncredit training programs would be the Workforce Innovation and Opportunity Act, which delivers US Department of Labor funds to state and local workforce boards. WIOA provides funding streams for adult disadvantaged workers, dislocated workers, and out-of-school youth. It also funds American Job Centers, the Job Corps for disadvantaged youth, and other specific groups and labor market needs.

But funding for WIOA and other workforce programs is inadequate. After peaking in 1980 (under WIOA's predecessor, the Comprehensive Employment and Training Act), funding has declined consistently. Current funding for the entire stream of disadvantaged-adult programs is less than $1 billion annually, while funding for dislocated workers is just over $1 billion. The training vouchers provided to some workers, known as Individual Training Accounts, average only a few thousand dollars. Funding for the more than 3,000 job centers now open amounts to $700 million for the entire country—about $200,000 per center—to cover personnel, building maintenance, computers, and other data and labor market information.

It is unlikely that this funding situation will change in the foreseeable future. One problem is that evaluations of the earnings impacts of WIOA programs have generated mixed results. Training programs for disadvantaged adults outperform those for dislocated workers and youth, but even the adult programs show uneven effects.[45] Part of the problem is that the Individual Training Accounts are likely too small to generate much impact on earnings; yet support for expanding WIOA funding is limited in part because the impacts are too small.

Support for students in noncredit programs could be included in the Higher Education Act but kept separate from Title IV. There would have to be decisions about the exact structure and funding levels for such programs, whether the funds should be formula based or competitive, and whether and how much student eligibility should be based on household income or other criteria, as in WIOA. But given the preference for funding programs offered at colleges relative to noncollege options, funding noncredit programs elsewhere in the Higher Education Act might be the most promising route for expanding financial support for students in these programs.

FUNDING INSTITUTIONS TO OFFER MORE HIGH-QUALITY, SHORT-TERM OCCUPATIONAL TRAINING TO STUDENTS AT LITTLE (OR NO) COST

Before the Pell grant program was implemented, there was intense debate about whether funding should go to institutions or directly to students in the form of vouchers. The voucher approach won out, but questions about the optimal strategy remain. Because students do not have perfect information about their postsecondary options, the analogy to perfect markets ruled by consumer choice is inappropriate. This problem is likely more severe for short-term occupational programs than for higher education in general. This is the area where, particularly within the for-profit sector, problems with fraud, misleading advertising, loan default, and school closures have been most severe.

Funding providers directly is not a viable substitute for Pell grants for short-term programs, at least in the near future. Still, given the poor information available to these students and the relatively low

costs of such short-term programs, it is worth exploring funding programs at the regional level (based on regional labor demand) to offer students high-quality, low- or no-tuition certificates that would improve their earnings.

Large local employers often prod local colleges to develop noncredit certificate programs that serve their particular skill needs (i.e., "customized training"). Most economists believe that, all else equal, employers should pay for programs customized to meet the needs of that single employer because the skills generated by the program would not be portable if a trained worker moved to another employer. Public assistance in paying for a training program should rise with the extent to which the training could be more broadly useful for workers. If the firms that would benefit from the training have particularly limited resources or face other constraints in evaluating and paying for such training, the case for public funding grows stronger.[46]

Ensuring that programs where employers partner with community colleges charge little or no tuition is less problematic than making college in general, or even all community college enrollment, tuition-free. In the former case, clear, measurable outcomes can be monitored. And few students with ample financial resources are likely to enroll in these programs.

Moreover, 60 percent of certificate students are older than 23 and are automatically considered independent of their parents for federal financial aid purposes. In contrast, 30 percent of bachelor's degree students are older than 23 (NCES 2018). It is difficult to distinguish among older students' financial circumstances because, in contrast to parents of dependent students, their earnings in the years before college are not representative of how much they can earn while they are in school.[47]

As a result, the federal need analysis system, which determines how much federal aid students qualify for, differentiates less effectively among certificate students—whatever the length or credit status of the programs—than among degree-seeking students. More than half of certificate students are deemed unable to contribute financially to their education costs. About three-quarters qualify for Pell grants. For bachelor's degree students, these figures are 31 percent and 43 percent (NCES 2018).[48]

The difficult financial circumstances facing most students seeking short-term occupational preparation to improve their labor market opportunities, along with the difficulty of differentiating need among this group, makes it more reasonable to fund institutions for serving these students and making the programs cost little or nothing for those who enroll. Funding for these programs—regardless of whether the more problematic noncredit programs are eligible—would have to be limited to those for which regional demand is strong and where credentials have proven records of improving employment outcomes.

The idea of funding approved programs directly, rather than relying on need-based vouchers such as Pell grants, is distinct from the broader need in community colleges for more funding. The need for more institutional assistance in job training programs is exacerbated by the fact that the costs of providing up-to-date occupational training are especially high in technical fields because of high equipment and instructor costs (Holzer and Baum 2017). Because institutions can afford to provide only limited teaching capacity in some of the fields with the best labor market returns, they enroll more students in less promising fields. Providing more funds for high-value programs is critical. And more funding for guidance and other relevant services in community colleges is a cost-effective way to raise completion rates at these institutions (Avery et al. 2019).

Increasing funding for community colleges and providing strong incentives for them to develop constructive partnerships with local employers in high-demand industries (also a goal of WIOA) would enable them to expand sector-based training programs. Some of the strongest estimated impacts of training have been generated in sector-based programs, where an intermediary organization works with training providers (often community colleges) and industry to develop curricula and train students in high-demand sectors.[49] Between 2011 and 2018, the Trade Adjustment Assistance Community College and Career Training grant program awarded $1.9 billion to community colleges to build their capacity to provide workforce education and training to adults in need of new skills for in-demand jobs. Similar programs in the future could strengthen opportunities for short-term training, leading to valuable labor market credentials, particularly if there is a well-formed career pathway that helps students advance in their education and careers.

Several proposals suggest strategies for developing and strengthening these partnerships.[50] These efforts could improve the quality of the programs in which Pell grant recipients enroll. These ideas should be an integral part of the discussion of expanding access to Pell grants and other financial supports for job training (Century Working Group 2019; Spiker 2019).

The argument for providing more aid directly to higher education institutions, particularly for their workforce programs, is especially compelling during the COVID-19 pandemic because higher education institutions are so starved for resources. This is, of course, part of a broader conversation about the financial future of higher education in America. We are simply noting that a strong case can be made for more institutional assistance for short-term certificate programs with labor market value. Indeed, an argument can be made for more public support to institutions providing this workforce training in the case of both for-credit and noncredit programs.

EXPANDING AID TO EMPLOYERS TO PROVIDE WORK-BASED LEARNING, WHEN COMBINED WITH THE ATTAINMENT OF POSTSECONDARY CREDENTIALS

ATES data reveal that adults with employer training certificates earn more than those with postsecondary certificates. It is difficult to control for all relevant personal characteristics, but this finding suggests that there should be additional focus on developing opportunities for workers to gain credentials through their employers, possibly without enrolling in postsecondary institutions. This path is not an alternative to increasing access to postsecondary certificates, but it is an important complementary strategy. And at least some evidence (Goger et al. 2018; Hollenbeck 2008; Holzer et al. 1993) suggests that state programs that fund on-the-job training have raised the amount of such training employers provide.

In recent years, attention has shifted toward apprenticeship as an effective way to increase the earnings of workers without higher education credentials (Reed et al. 2012). Some apprenticeships combine on-the-job training with part-time attendance at community colleges for workers (Lerman 2009), giving them both job-specific and broader higher education credentials (either certificates or associate degrees) when they finish.

On the other hand, apprenticeships require significant time and resources from employers, and employer participation has been limited. Because limited information and high start-up costs for small employers likely restrict their provision of apprenticeships or work-based learning, a strong case can be made for greater public support of apprenticeships at the state or federal level. Including targeted assistance in the Higher Education Act to employers and community colleges who partner to generate apprenticeships or other work-based learning makes sense as well (Holzer 2019).

Conclusion

We have reviewed the evidence on labor market returns on short-term certificates and have provided some new descriptive evidence both on these returns and on how students finance certificate attainment. We also reviewed evidence on student loan defaults for certificate students.

The evidence, though mixed, suggests that short-term certificates often provide labor market returns for workers relative to high school diplomas or GEDs, even when they require less than the current minimum number of hours for Title IV eligibility (600 hours for Pell grants and 300 hours for federal loans). On the other hand, returns for these programs vary widely, and default rates for adults who have enrolled in certificate programs are high—especially in the for-profit sector and for noncompleters but also for those who borrow to complete community college certificates.

Based on this evidence, there is a strong case for extending Pell grant eligibility to students in short-term for-credit certificate programs that require at least 150 hours, along with meaningful strengthening of the regulation and accountability requirements for occupational preparation programs eligible for federal student aid. But the evidence is not definitive, and efforts to improve the available data and carefully analyze program outcomes must continue if we are to ensure effective public policy.

More federal assistance for noncredit higher education programs outside Title IV might also be constructive. Such assistance could go to students, institutions, or both. Particular support could also be provided to employers that provide work-based learning along with higher education credentials. Extending support to nonaccredited institutions would, however, introduce new risks.

Students in all programs offering preparation for specific occupations need more guidance on choosing programs that will increase their earnings. One risk of expanding the reach of Pell grants is that some students might be redirected into short-term programs with less positive outcomes than those they might otherwise have pursued.

The best solution is to ensure there is strong regulation of all occupational preparation programs funded through Title IV student aid. Focusing only on newly eligible programs is not sufficient. Too many students already take their federal student aid to institutions and programs that leave a large share of their students worse off than they would have been without any college at all. Providing guidance tailored to personal circumstances and excluding programs whose students have low completion rates, low loan repayments rates, and poor employment outcomes from the aid programs is vital, regardless of any changes made to the rules for Pell participation. In other words, increased

accountability is imperative, both for workforce programs currently eligible for federal student aid and for new programs covered by expanding federal funding.

Adults holding a range of certificates have higher earnings than similar adults with only a high school education, but there are other certificates that do not appear to increase earnings. Even many certificates in health care fields are not likely to improve life prospects for adults pursuing these paths. A strategy that provides constructive guidance in choosing programs or funds only programs clearly associated with positive labor market outcomes would be preferable to just making Pell grants more widely available.

The Pell grant program was designed for students pursuing college degrees. But as the definition of "college" has expanded to include narrowly focused nondegree programs, and as funding for workforce preparation has failed to garner adequate support even as college financial aid has increased dramatically, Pell and other Title IV financial aid programs have become the primary source of support for students pursuing any form of postsecondary education. The apparently arbitrary exclusion of programs serving students who are disproportionately members of underrepresented racial and ethnic groups and from low-income backgrounds is inequitable and counter to the program's purpose.

The financial strains on both students and institutions from the coronavirus pandemic may be long-lasting, and postpandemic labor market opportunities may not mirror those shaping the results we discuss in this report. We should continue to monitor these developments and their possible impact on the returns on certificates reported here.

Appendix

TABLE A.1

Completion: First-Time Students Beginning Certificate Programs in 2011–12 (BPS Data)

Dependent variable: Completed a credential by 2017

	Certificate Students	
	Std. B	***p*-value**
Degree program 2011–12 (Reference: Associate degree)		
Certificate	N/A	N/A
Control of institution 2011–12 (Reference: Public)		
Private nonprofit	0.01	0.70
Private for-profit	0.04	0.38
Gender		
Man (Reference: Woman)	0.02	0.65
Race or ethnicity (References: White)		
Black or African American	-0.08	0.06
Hispanic	0.04	0.29
Asian	-0.03	0.36
Other	0.04	0.4
Dependency status (Reference: Dependent)		
Independent, no dependents, unmarried	-0.06	0.13
Independent, no dependents, married/separated	-0.06	0.13
Independent, with dependents, unmarried	-0.15	0.00
Independent, with dependents, married/separated	-0.15	0.00
Income percentile rank for all students 2012	0.16	0.00
Attendance intensity (Reference: Always full time)		
Always part time	-0.13	0.00
Mixed	-0.10	0.01
Borrowed	0.08	0.10
High school GPA (Reference: Below 3.0)		
3.0 or above	-0.01	0.85
Age as of 12/31/2011	0.07	0.16
Field of study 2011–12 (Reference: Health care)		
STEM	-0.05	0.25
Personal and consumer services	-0.02	0.62
Other applied	-0.06	0.27
Business	-0.04	0.31
General, humanities, social sciences	-0.07	0.08

Source: Authors' calculations based on data from the National Center for Education Statistics Beginning Postsecondary Students Longitudinal Study 2012/17.

Note: N/A = not available; STEM = science, technology, engineering, and mathematics.

TABLE A.2

Defaulting on Federal Student Loans

Dependent variable: Defaulted on a federal loan within 12 years of beginning college

	Std. B	*p*-value
Income percentile rank 2003–04	-0.04	0.22
Race or ethnicity (Reference group: White)		
Black	0.20	0.00
Hispanic	0.02	0.56
Asian	0.04	0.15
Other	0.04	0.18
Gender (Reference group: Female)		
Male	0.02	0.58
Dependency status 2003–04 (Reference group: Dependent)		
Independent no dependents	-0.02	0.54
Independent with dependents	0.07	0.08
High school grade point average (Reference group: Below 3.0)		
3.0 or higher	-0.04	0.16
First institution sector (Reference Group: Public)		
Private nonprofit	0.02	0.59
For-profit	0.15	0.00
Cumulative amount of federal loans borrowed—12 years	-0.12	0.00
Highest degree by 2008–09 (Reference group: Associate degree)		
Bachelor's degree	-0.04	0.28
Certificate	0.05	0.14
No degree, not enrolled	0.13	0.00

Source: Authors' calculations based on data from the National Center for Education Statistics Beginning Postsecondary Students Longitudinal Study 2012/17.

TABLE A.3

Impacts of Certificates and Their Characteristics, by Age Group

	1		2		3		4		5	
Variable	**25–44**	**45–64**	**25–44**	**45–64**	**25–44**	**45–64**	**25–44**	**45–64**	**25–44**	**45–64**
Certificate	.138*	.089*								
For credit			.120*	.119*						
Not for credit			.122*	.050*						
159 hours or less					.183*	.041				
160 to 479 hours					.015	.087*				
480 to 959 hours					.167*	.057				
960 hours or more					.076	.112*				
For credit, short							.057	.161*		
For credit, long							.137*	.127*		
Not for credit, short							-.011	.059		
Not for credit, long							.081	.066*		
Health care									.047	-.007
Mechanical									.199*	.085*
Technical									.284*	.184*
Business									.260*	.115 *
Culinary and cosmetology									-.004	-.093
Law enforcement									.163	.136*
Arts and education									-.092	.012
Other									.011	.039

Source: 2016 Adult Training and Education Survey.

Notes: Technical certificates include engineering and computer science certificates. The certificate group includes only those whose highest level of education is the certificate. All regressions control for age, race or ethnicity, sex, number of weeks worked each year, number of hours worked the previous week, employer training certificates, high school vocational certificates, and certifications and licenses.

Notes

[1] Some evidence shows that rewarding community colleges for the number of credentials completed may increase the number of short-term certificates, at the expense of longer-term certificates or associate degrees. See Hillman, Tandberg, and Fryar (2015).

[2] NPSAS is a nationally representative cross-sectional survey of postsecondary students administered every four years. It connects multiple data sources, including student interviews, institution records, government databases, and other administrative sources. The most recent wave reports on students enrolled in 2015–16 in institutions participating in federal financial aid (Title IV) programs. The sample includes about 122,000 students. See NCES (2018).

[3] The BPS is a large longitudinal survey based on the first-time students included in NPSAS. The most recent cohort, BPS 2012/17, followed students from the 2011–12 NPSAS for six years. Participants were reinterviewed twice—once in the third year and once in the sixth year, regardless of whether they were still enrolled. Our analyses rely primarily on the final year of the second cohort, 2016–17. We also use data on student debt repayment and default from the BPS 2003/09 because it includes data on these outcomes 12 years after enrollment. The sample size of the 2011–12 survey was about 35,000, of whom more than 22,000 were reinterviewed by 2016–17.

[4] The ATES data are drawn from a one-time cross-sectional survey of US adults ages 16 to 65, administered in 2016 to more than 45,000 people. The survey focuses on any education or job training people have received, especially after high school. This includes certificates and degrees from postsecondary institutions, as well as training from employers or other industry-recognized certifications. The ATES data also include labor market earnings and employment and labor force status.

[5] Each dataset has strengths and weaknesses. The BPS data are longitudinal, which enables us to have a six-year window on experiences and outcomes of a cohort of students. The study provides detailed data on enrollments and completions, as well as early postcollege employment and financial outcomes, including loan default (for which we also have data 12 years out for an earlier cohort). But the attrition rate in the sample between the first and final years is high—more than a third of initial respondents drop out of the sample by the sixth year, which perhaps generates some positive bias in employment and financial outcomes (if weaker students are more likely to drop out of the sample). An additional 12 percent of the sample remains enrolled in the sixth year, weakening measured employment and annual earnings a bit.

[6] Because we do not know exactly the age at which respondents have finished their final credentials, we do not have exact estimates of long-term impacts. But because most credential attainers have finished their higher education by age 40, and the median age in our sample is 44, we believe we observe long-term outcomes for most certificate attainers.

[7] "Mechanical" fields include construction, manufacturing, transportation, and logistics.

[8] Digest of Education Statistics 2019, table 318.40.

[9] "*Stay Informed* with the Latest Enrollment Information," National Student Clearinghouse Research Center, last updated October 15, 2020, https://nscresearchcenter.org/stay-informed/.

[10] The cross-sectional survey data from which estimates are generated include the Adult Training and Education Survey of 2016. Longitudinal survey data include the Survey of Income and Program Participation (SIPP), the National Longitudinal Survey of Youth (NLSY, 1979 or 1997 cohorts), and various cohorts of the Educational Longitudinal Surveys (ELS).

[11] When using state-specific longitudinal data, researchers can often follow students who leave the state for college using National Student Clearinghouse data, which tracks each student nationally through college. But it

is more difficult to follow those who leave the state for work. Only the microdata of the Longitudinal Employer-Household Dynamics at the Census Bureau follow workers across states, and access to these data is restricted.

[12] The most credible quasi-experimental empirical techniques are regression discontinuity designs (RDD) or instrumental variables (IV) with a compelling instrument. In both cases, researchers compare populations who trend similarly on some key outcome, but one gets access to a treatment almost randomly, and the other does not. The difference-in-differences method used in the nonexperimental papers described in this review does not approximate randomly generated treatment probabilities to nearly the same extent as does RDD or IV. The fixed effects method is also not experimental.

[13] The more credits that noncompleters accumulate, the more the estimates based on this comparison represent a "sheepskin effect," comparing the effects only of completing the credential, rather than including the effects of credit accumulation before that point.

[14] Scott-Clayton and Wen (2019) consider the directions and biases generated in these studies. They note the full range of upward and downward biases noted here and argue that they are fairly comparable in magnitude.

[15] Several papers use the 2008 panel of the SIPP because it contains unusually detailed information on certificate attainment, including the amount of time students need to complete these credentials. A SIPP panel consists of a large and representative population of individuals (ages 15 and older) who are asked extensive questions about their use of public programs, along with other demographic and labor market information. Each SIPP panel is interviewed every four months for roughly four years.

[16] Results in Bailey, Kienzl, and Marcotte (2004) using the ELS or NLSY data for earnings after certificate completion bounce around. Apparently, analyses of young students who have recently left college for the labor market are sensitive to who remains enrolled and who does not, generating samples whose results are not especially credible.

[17] Even with their choices of higher-paying fields within health care, overall returns for men with certificates may be low or even negative, as the ATES regressions we discuss below indicate.

[18] Median earnings for the entire population that year are approximately $27,000, though median earnings are significantly higher than $27,000 for men and lower than $27,000 for women.

[19] Recent studies of the rising trends in labor force nonparticipation include Krueger (2017) and Abraham and Kearney (2020).

[20] This finding suggests that the share of women is higher among certificate completers than among noncompleters and that the lower earnings of women bring down the average earnings effects of holding certificates. Within each gender, this factor is not relevant.

[21] Michael Itzkowitz, "As Students Return to the Classroom, Will Career Education Programs Help the Most Vulnerable Succeed Economically?" Third Way, July 7, 2020, https://medium.com/third-way/as-students-return-to-the-classroom-will-career-education-programs-help-the-most-vulnerable-dd86314d67ae.

[22] In particular, Itzkowitz's finding cannot differentiate between large and small institutions (so students who attended small institutions might have too much weight in the analysis) or whether institutions are located in high-wage or low-wage states or regions. And his analysis does not account for the relative magnitudes of the positive and negative gaps in earnings between certificate holders and high school graduates.

[23] Among the state-specific econometric studies we discuss, only Stevens, Kurlaender, and Grosz (2015) was not part of the CAPSEE group. Below, we also report results from Xu and Trimble (2016), summarizing results in separate studies of North Carolina and Virginia by Liu, Belfield, and Trimble (2015) and Xu and Trimbel (2016).

[24] The paper discussed below by Minaya and Scott-Clayton (2016) using Ohio data is part of CAPSEE but was not summarized in Belfield and Bailey (2017).

[25] These estimates of earnings impacts are based on all credential noncompleters in community colleges, rather than only those in certificate programs (the comparison used by Bentz and Burns). Comparisons with the latter would likely generate larger certificate impacts.

[26] Data on detailed occupations within health care are available annually from the Occupational Employment Statistics program of the Bureau of Labor Statistics.

[27] Holzer and Xu (2019) note that students in community colleges frequently enroll in associate degree programs but shift to certificates later.

[28] Cellini and Turner (2018), using microdata from the US Department of Education on type of institution attended linked to Internal Revenue Service earnings data, show both lower employment rates and lower earnings for adults who attended for-profit institutions than for those who attended public colleges. Deming and coauthors (2016) sent fictitious résumés with credentials attained at either online for-profit or nonselective public institutions to real online job postings in business and health care. The résumés showing for-profit credentials earned fewer callbacks in both sectors.

[29] See, for instance, Van Noy (2008). Noncredit programs often reflect local industry needs. For example, Macomb Community College in the Detroit suburbs has many programs generating technicians for the auto industry.

[30] In Ohio, associate degree completers took an average of 3.9 years to graduate. Students who spent up to one year completing short-term certificate programs took an average of 3.0 years from initial entry to completion, and students earning long-term certificates took an average of 3.8 years (Minaya and Scott-Clayton 2016).

[31] Sample attrition and the omission of many students who remain enrolled at the time of the survey make sample selection bias a concern.

[32] The ATES asked respondents into which of nine categories of annual earnings they fall. To estimate median earnings for a group, we identify the earnings category of the median person and assume that respondents are equally distributed across that category.

[33] "Employment and Earnings by Occupation," US Department of Labor, accessed November 11, 2020, https://www.dol.gov/agencies/wb/data/occupations.

[34] We used interval regression analysis because ATES reports respondent earnings as one of the nine categories. We transformed the earnings categories into logs before estimating the regressions and converted the coefficients into marginal effects, so we can interpret them as the percentage effect of certificates on earnings, relative to high school graduates.

[35] We included separate dummies for adults with certificates only and those who have both certificates and associate degrees. The latter group earns considerably less than those with only associate degrees, suggesting that the unobserved traits of those who have both credentials but perhaps started with certificates are weaker than those who pursued associate degrees only. Adults with bachelor's degrees or more were omitted from the sample. These estimated impacts might be biased upward if the unobserved characteristics of workers with certificates are more positive than those who have only a high school diploma. On the other hand, the estimated impacts of certificates relative to GEDs are larger than those reported in these tables, and perhaps some of this reflects real certificate impacts (as opposed to even weaker unobserved characteristics of GED holders).

[36] Culinary services, cosmetology, and funeral services are combined into one category because the sample size is small. Funeral services account for only 1 percent of the group, with 59 percent in cosmetology and 40 percent in funeral services. So in our discussion, we mention only culinary services and cosmetology.

[37] Again, differences in earnings effects between the hours categories might be biased downward because of errors in recall of exactly how many hours were required.

[38] JOBS Act of 2019, S.839 116th Cong. (2019).

[39] College Affordability Act, H.R.4674, 116th Cong. (2019).

[40] Bailey and Belfield (2017) show that few students stack certificates to obtain associate degrees and that their labor market value is not very high when they do so. There is clearly a need to generate more success in this area, rather than abandoning the practice of stacking.

[41] Stephanie Riegg Cellini, "The Alarming Rise in For-Profit College Enrollment," *Brown Center Chalkboard* (blog), Brookings Institution, November 2, 2020, https://www.brookings.edu/blog/brown-center-chalkboard/2020/11/02/the-alarming-rise-in-for-profit-college-enrollment/.

[42] "Official Cohort Default Rates for Schools," US Department of Education, Office of Federal Student Aid, last updated October 8, 2020, https://www2.ed.gov/offices/OSFAP/defaultmanagement/cdr.html.

[43] Several researchers, including Baum and Schwartz (2018), Matsudaira and Turner (2020), and Chou, Looney, and Watson (2017), have made proposals about designing institutional accountability programs. See also Ben Miller, "Improving Gainful Employment: Suggestions for Better Accountability," New America, November 5, 2013, https://www.newamerica.org/education-policy/policy-papers/improving-gainful-employment/.

[44] Programs such as Accelerated Study in Associate Programs, Stay the Course, and Inside Track have raised student completion rates cost-effectively in community colleges, though the evidence is mostly for associate degree programs.

[45] For credible nonexperimental evidence on the impacts of these programs on earnings, see Heinrich et al. (2013) and Andersson et al. (2013). For the most recent experimental evidence on these programs, see Fortson et al. (2017). Interestingly, the services provided at the job centers are clearly cost-effective, yet funding levels for them continue to be low.

[46] Economists often invoke "market failures" to justify public funding for programs that generate private benefits, even to firms. In the example given here, firms that face liquidity constraints and that have limited access to private capital markets for funding training (and whose workers also have limited access to borrowing) would be stronger candidates for public funding.

[47] Currently, section 127 of the Internal Revenue Code allows workers to deduct employer-provided tuition assistance from their earnings, but no other federal mechanism helps students pay for such training.

[48] Some proposals for strengthening the Pell grant program have included strategies for eliminating the current complex need analysis system from the determination of funding for older students (Baum and Scott-Clayton 2013; Baum et al. 2013).

[49] Studies using experimental methods that show strong impacts of sector-based training for disadvantaged workers include Maguire et al. (2010), Hendra et al. (2016), and Roder and Elliott (2019).

[50] One such proposal is the Community College to Career Fund in Higher Education Act, sponsored in the current congressional session by Senator Tammy Duckworth of Illinois. See Community College to Career Fund in Higher Education Act, S.1612, 116th Cong. (2019).

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